READINESS FOR BANKING TECHNOLOGIES BY SENIOR CITIZEN BANKING CLIENTS

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DECLARATION

I, Bongani Diako declare that this mini-thesis hereby submitted is my own, unaided work. I therefore certify that unless stated, all work contained herein is my own to the best of my knowledge.

The thesis is being submitted in partial fulfilment of the requirements for the Degree of Masters in Business Administration (MBA), at the Graduate School of Business & Government Leadership, North-West University, Mafikeng Campus. It has not been previously submitted for any degree or examination at any other University.

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BONGANI DIAKO

DEDICATION

This work is dedicated to the memory of my great-grandmother, Tsabeng Elsie Diako (1901 – 1996). Thank you, Hunadi, for planting the seed of education in me. You will be forever missed.

I would also like to thank my mother, Maheri Rekgopetse Diako, for all the sacrifices she has made in my name. Mama, I also thank you immensely for allowing me to learn from my own mistakes as that has really shaped me into the person I am today.

To my wife, Matete Diako, I could never thank you enough for the sacrifices you have made through this journey. My daughters, Makgosi, Amai and Kea, thank you girls for being the wind beneath my wings. Daddy is finally home.

I also dedicate this work to my late sister, Nonhlanhla Elsie Diako (1973 – 2008).

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ABSTRACT

The objective of this study was to determine the technological readiness of senior citizen bank customers and their banking technology adoption behaviours. In particular, the purpose of the study was to determine the relationship between technology readiness and age seniority as a moderator. A quantitative research methodology was adopted for this exploratory research study, where a survey was administered with a population of 70 senior citizen bank customers residing in old age centres in Gauteng and North-West provinces. A small proportion of the study's respondents comprised of senior citizen bank customers resident in private homes in Mafikeng, North West. The findings of the study revealed that senior citizen bank customers of the South African banks who have access to technology based banking services and products are ready for banking technologies. The study also revealed that senior citizen bank customers currently only have access to, and use of, basic banking technology services and products that include a bank account, landline telephone banking and ATMs. In addition, the study found that senior citizen bank customers of the South African Banks that have access to technology based banking services and products have higher desirability to learn more about technology banking products and services, are concerned about the safety of banking technologies which affect their level of trust on them. Further, the study found that this segment of bank customers does not have adequate access to information on new banking technology innovations that is tailored to their unique traits prompting a need for the marketing efforts of the banks to target segment of bank clients with customised marketing strategies.

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CHAPTER 1: OVERVIEW

1.1 INTRODUCTION

Business industries across the world are increasingly implementing new technologies in their quest to better the way in which they service their customers. The banking industry is amongst some of the many early adapters to these technological innovations. As a result, the banks are able to provide their customers services and products such as Automatic Teller Machine (ATM) banking, real-time transactions with bank cards, Internet banking, landline telephone banking and more recently, cellphone banking services. Technological services are increasingly being relied upon by business industries, such as the banking industry, in an attempt to gain first mover competitive advantage and capture larger market shares (Termsnguanwong, 2010). These technologies also contribute to the improvement of the businesses' operations while also improving customer's experience.

In South Africa, all the major retail banks provide technological banking services that include ATM, Internet banking, landline and cell phone banking to their customers. Amongst some of the benefits of these technological services and products for the banks is improved efficiency resulting from reduced operational costs associated with the traditional branch networks (Bateng and Kamil, 2010; Padachi, Rojid and Seetanah, 2008). In addition, the wide application of technological products and services such as cellphones and the Internet have the potential to increase market shares of the banks (Termsnguanwong, 2010). For customers, the benefits of the technological services provided by the banks include improved banking experiences, increased convenience, and these services also save time irrespective of the customer's traits such as age (Padachi, Rojid and Seetanah, 2008).

The utilisation of these technological banking products and services by customers is based on factors such as their readiness for technology, making it important for the banks to understand the relationship between technology readiness and technology adoption, including the behaviour of existing and prospective customers around these products and services (Berndt, Saunders and Petzer, 2010). This study measures the technology readiness and adoption of senior citizen bank customers, and determines the relationship between technology readiness and access, usage and desirability of this segment of bank clients.

This chapter (Chapter 1) of the study discusses the problem statement, the study's objectives, and a description of the research design immediately after this introduction. The discussion then proceeds to explain the plan of the study, the study's data collection and analysis

methodology, followed by the research design and a discussion of the scope for the study. Thereafter, an outline of the study is provided immediately before the conclusion.

1.2 BACKGROUND TO PROBLEM STATEMENT

South Africa has the most advanced banking system in the African continent (Banking Association of South Africa 2010). As a developing economy, South Africa exhibits opportunities for growth in financial services (Berndt, Saunders and Petzer, 2010). This is partly due to the manner in which the banking industry in this country is regulated, a factor resulting in the local banking industry to compare favourably with those of industrialised countries (Banking Association of South Africa, 2010).

The South African banking industry is currently made up of 19 registered banks, 2 mutual banks, 13 local branches of foreign banks, and 43 foreign banks with approved local representative offices (Banking Association of South Africa, 2010). The local retail banking market is dominated by four major banks, ABSA, FNB, Nedbank and Standard Bank with these banks jointly controlling over 90 percent of the market (Redlinghuis and Rensleigh, 2010). All these retail banks in South Africa offer technological banking services that include ATM, Internet and cellphone banking.

The usage of technology to provide banking services is a common phenomenon throughout the world. As captured by Singh, Sandhu and Kundu (2010), the emergence of technological banking services and products is the result of the evolution of the concept of money. In the days of barter trade, physical goods were used as a form of payment, and these were later replaced by coins made out of precious metals. The evolution of the concept of money proceeded to modern coins and paper notes, until today's practice where payments for goods and services are simply reflected in an individual's bank accounting records (Singh, Sandhu and Kundu, 2010).

ATM banking is the first of the modern day technological banking services that were introduced in the South African retail banking market. The first ATM in this country was introduced in 1987 and, at the time, ATM banking was thought to be the answer to the reliance on bank branches which are expensive to maintain. Through the ATM, the banks are able to offer customers a 24-hours convenience to make cash withdrawals, transfer funds, and in some cases, even make cash deposits.

Many more technological banking services soon followed such as telephone banking, Point-of-Sale payments with debit, credit and hybrid cards used for fuel and other services. In recent times, the banks have introduced Internet and cellphone banking. Internet banking, for its case, is credited to having significantly improved the banking experiences of many customers across the globe that use it (Beiginia *et al.,* 2011; Padachi, Roji and Seetanah, 2008). The benefits associated with Internet banking include the ability of bank customers to have a 24-hours all-day access to banking services from any part of the world where there is Internet connectivity. Customers are able to use this banking service to access their bank statements, apply for loans and advances, or even make electronic funds transfers and payments. Internet banking therefore, serves as an electronic consumer interface and an alternative channel of distributions (Safeena, Abdullah and Date, 2010).

Cellphone banking is the latest of the technological banking services provided by the South African major retail banks to their customers. Bank customers are able to access various bank services, such as statement enquiries, funds transfers, purchasing of pre-paid services and also make payments through this medium (Raleting and Nel, 2010). The primary business case for cellphone banking in South Africa to the banks is its potential to assist the banks in extending banking services to people that previously had no access to banking, the so-called "unbanked" (Porteous, 2007; Ivatury and Pickens, 2006). Extending banking services to the "unbanked" is one of the most challenging areas of the Financial Services Charter that the banking industry has agreed with the South African government (Banking Association of South Africa ,2010).

Technological banking services are generally accepted to be convenient and also to provide customers with better control of their financial affairs (Raleting and Nel, 2010; Padachi, Roji and Seetanah, 2008). In addition, these services can assist the banks to save costs associated with traditional forms of banking (for example, Porteous 2007 in the case of cellphone banking). However, there are low levels of acceptance of technology based banking services in the country (Raleting and Nel, 2010). For example, domestic bank executives participating in a survey conducted by Price Water Coopers indicated that they anticipated an increase in the number of bank branches in South Africa to increase by 5% by 2012 (Metcalf, 2009). The findings of this research may be testimony of bank executives' dissatisfaction with the adoption rates of the technological baking services by local bank customers.

The objective of all business is to maximise profits and increase value for shareholders through the sale of products or the provision of services at a price that causes total revenues to exceed total costs. Having an understanding of what customers need, usually made possible

by the marketing management function, is central to this objective. Therefore, it is important for the banks in South Africa to become familiar with the technology readiness of the local consumers, their willingness to adopt technologies, and their actual consumer behaviour with regard to banking technology usage (Berndt, Saunders and Petzer, 2010).

1.3 PROBLEM STATEMENT

Technological banking services offer benefits and positive prospects for both the banks and their customers. Despite the benefits of the technological banking services and products, the South African banks do not seem to be successful in getting customers to use these services in huge numbers. The banks continue to invest resources into the implementation of technological banking services and products with the objective of increasing the banking experiences of their customers as well as for competitive reasons. But customer adoption is a recognised dilemma for the strategic plans of the banks throughout the world (Safeena, Abdullah and Date, 2007).

Technology has also impacted on marketing activities of businesses generally (Opara, Olotu and Mclayton, 2010). The relatively easy manner in which technology has enabled access to information in the modern age has bred a new consumer with unique traits, thus making it necessary for businesses to tailor-make befitting products. Customisation favours modern technologies, and it is critical for firms to identify customer needs on an individual basis (Masocha, Chiliya and Zindiye, 2011). Customers differ in many ways in terms of their preferences as a result of many factors such as their socio-graphics and psycho-graphics (Boshoff and du Plessis, 2009). The managerial function of marketing plays a key role in ensuring that customers look at a firm's offerings favourably, and the marketing function is also important in the identification of the needs of the various different types of customers of a firm. Senior citizen customers are such type of distinct customer segment deserving individualised focus when businesses design products and services such as technology based banking services. This is necessitated by the progressive deterioration in both physiological and psychological abilities of senior citizen customers due to their age. In addition, age is an important moderator in many behavioural intentions, especially when concerning new technologies (Hanson, 2010).

Therefore, it is befitting to conduct this study that measures the technology readiness of senior citizen bank customers of the South African banks, and to determine the relationship between technological readiness and technology-related adoption and behaviour of existing and

prospective senior citizen bank customers. The relationship between age and the adoption of technology has been a widely researched area for some time (Rose and Fogarty, 2010; Chung et al., 2009; Xiong and Mathews 2005). However, research exploring the propensity of senior citizens to adopt technology based banking services is scarce.

1.4 OBJECTIVES

The central objective of the study is to determine the technological readiness of senior citizen bank customers and their banking technology adoption behaviours. In particular, the objective of the study is to determine the relationship between technology readiness and age seniority as a moderator. Additionally, the study seeks to determine the relationship between technology readiness and access, usage and desirability of senior citizen bank customers for banking technologies with the objective of developing an understanding of how the marketing management function can increase usage.

1.5 RESEARCH DESIGN

Research design refers to the action steps or a plan specifying the manner in which the research will be implemented. As such, research design "serves as a bridge between the research question and the execution of the research" (Terre Blanche *et al.*, 2008:34). The research approach adopted for the study is exploratory in nature. Terre Blanche et al. (2008) define exploratory research as inquiry that is concerned with phenomenon where not much prior knowledge has been formed. Factors influencing the usage of banking technologies by senior citizen customers of the South African banks, and their readiness for banking technologies, are new areas deserving research focus.

A quantitative research methodology was adopted in this exploratory study. Exploratory research can be achieved through either quantitative or qualitative research methods (Terre Blanche *et al.*, 2008), although the orientation of the research methodology in social science research should not necessarily be emphasised because the objective of all social science research is to attempt to understand humans and the world around them (Onwuegbuzie and Leech, 2005).

1.6 PLAN OF THE STUDY

This Chapter (Chapter 1) introduced the study, the problem statements and the study's objectives. The next Chapter (Chapter 2) provides a context for the study by providing an

overview of organisations from where data was collected. That chapter also briefly discusses literature on technological banking services in the context of these data collection subjects.

Chapter 3 of the study reviews literature on information technology innovations' acceptance. This discussion explores literature on the Technology Acceptance Model (TAM), the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB). Literature on the Technology Readiness Model also forms party to discussions of the chapter. Then, the insight of marketing management literature, in particular literature on Relationship Marketing, is considered at this stage. Thereafter, the discussion turns to literature on the usage of technologies for the provision of services to customers in the banking sector, and that is followed by a discussion of literature on the acceptance of technology by senior persons. The chapter (Chapter 3) concludes by posing research questions of the study.

The methodology of the research is a focus of Chapter 4. It is also in this chapter where the data collection instrument is discussed, along with the data collection methods. Then a discussion on the research population concludes that chapter. The study's data are discussed in Chapter 5, while Chapter 6 answers the study's research questions and provides guidelines to the management of the banks on measures that can be put in place to effectively manage the provision of electronic banking services to the elderly.

1.7 CONCLUSION

Modern day technological innovations are increasingly changing the face of businesses across many industries worldwide. These changes are making it necessary for all industries to reinvent themselves and constantly seek new and better ways of satisfying the needs of their customers which are also changing in parallel to the business landscape. In doing so, industries such as banking constantly develop new technological services and products for the benefit of their customers while also pursuing their own commercial interests.

It is envisaged that the findings of this study will assist bank managers to understand the readiness and adoption behaviours of senior citizen bank customers of the technology based banking services and products developed by the banks. It is also anticipated that the study will add value to the marketing efforts of the banks to increase the usage of technology based banking products and services by their customers. Senior citizens are increasingly becoming an important segment of the client bases of many businesses such as banks because of the increasing population sizes of this sector globally, and its increasing economic activities.

This chapter (Chapter 1) provided a synopsis of the dissertation and put into context the theoretical framework of the study. The chapter also briefly explained how the study will contribute to the understanding of readiness of senior citizen bank customers for technological services and products provided by the banks. The background to the problem statement, plan of the study and the design of the research were also briefly outlined in the chapter. The next chapter (Chapter 2) provides an orientation of the study. In this regard, the characteristics of senior citizens as a distinct market segment requiring individualised attention are discussed. In addition, Chapter 2 provides an overview of the organisations forming data collection bases for the study.

CHAPTER 2: ORIENTATION

2.1 INTRODUCTION

The provision of banking services by the South African banks is still modelled around traditional lines where products and services are designed for the general market with minimal customer differentiation. Where the differentiation of the products and services of the banks exists, customer incomes, levels of education and living standards measures are often the primary demographic variables guiding decision making. As a result, factors such as age and the gender of customers are relegated despite all the banks in this country providing services to a myriad of customer bases (Masocha, Chiliya and Zindiye, 2011).

The age of customers as a moderator in business decision making is increasingly dominating modern marketing decision making discussions as a result of the overall increases in the global senior populations (Tanderayen-Ragoobur and Aygra, 2011; Chung *et al.*, 2009; Berger and Genzler, 2007). South Africa, like most countries throughout the world, is steadily growing into an ageing society with older persons constituting approximately 7,7% (3,9 million) of the total population (Statistics South Africa, 2011). The Older Persons Act (2006) defines a senior citizen as a person who, in the case of a male, is 65 years of age or older and in the case of a female is 60 years or older. It is projected that by 2025, more than one person in ten will be 60 years or older in this country (Joubert and Bradshaw, 2006). The rapid introduction of technology-based banking services and products by the banks, and the increasingly ageing society, serves a collision of trends (Xiong and Mathews, 2005). This is as a result of the generally high levels of resistance to rapid change by elderly persons (Tanderayen-Ragoobur and Aygra, 2011).

Technological banking services, on their score, offer huge positive prospects for senior bank customers and the banks. Banking services such as ATMs, Internet banking, landline telephone banking and cellphone banking accord the banks an opportunity to provide their senior citizen customers access to banking in a less costly manner. The convenience underpinning remote access to banking through technology also offers tremendous benefits for senior citizen bank customers who often experience physiological deteriorations accompanying age which often presents them with challenges in accessing bank physical branches with ease. The low usage rates of these technological banking services by senior citizens therefore, requires the banks to fully understand the technological readiness of this customer segment and their technology acceptance behaviours with a view encouraging usage.

Many senior citizens have savings facilities with the banks and also make use of the investments products offered by the banks (Pieterse, 2008). These bank customers generally have had bank accounts with their banks for long periods, and have become accustomed to face-to-face interactions with bank staff. Senior citizen bank customers are also accustomed to traditional banking products such as bank books which were preferred banking channels prior to the introduction of technology-based channels. As a result, this affects the manner in which they embrace the new changes in banking services provision methods and products, which include the usage of plastic cards, land telephones, cellphones and the Internet, thus making it necessary for the banks to understand these customers.

In addition, most of the marketing information available is concerned with young consumers resulting in challenges for marketers to successfully target and retain senior citizens by designing products and services that cater for the needs of this mature market (Pieterse, 2008). Senior citizen customers, unlike younger customers, have more special needs because aging involves progressive deterioration in both physiological and psychological abilities.

This chapter (Chapter 2) creates a context for the study. The chapter discusses the characteristics of senior citizens as a distinct customer segment of the banks immediately after this introduction. Thereafter, the old age centres which form the data collection bases of the study are introduced to lay a foundation for an understanding of the sources of data for the study. The chapter concludes with a brief discussion of the economic activity of senior citizens in the country to demonstrate their financial significance to the banks. This discussion is held to amplify the suggestion that the banks need to pay specialized attention to this segment of their client bases when developing new banking products and services. Senior citizens have unique traits and needs, and services organisations such as the banks need to cater for their specific needs if they are to retain their loyalty.

2.1 SENIOR CITIZENS AS A GROWING CUSTOMER SEGMENT

The world population trends demonstrate an effective growth in the number of elderly people globally, which is not met by a corresponding increase in population rates of younger generations (United Nations, 2002). According to a recent report by Deloitte (Consumer 2020), a variety of factors drive people to have fewer children (Hutter, 2011). As countries progresses through their development phases, many of their citizens undergo various lifestyle changes such as more females putting focus on their careers and thus having children very late

in life (Hutter, 2011). This report (Hutter 2011) also argues that a country's development impacts on the required skills levels of the labour forces and this results in more people planting their resources in costly education, therefore sacrificing the average sizes of households in these countries. On the opposite side of the shrinking average sizes of households are the increasing life expectancy rates of many countries as a result of improving living conditions and medical advances. The unfortunate outcome of these developments is the shrinkage in labour forces, consumption and output which may have overall dire effects (Hutter 2011; United Nations, 2002).

South Africa has the fastest ageing society in Africa and the improving quality of life amongst citizens is one of the major contributing factors (Ferreira and Kowal, 2006). According to a report commissioned by the Medical Research Council of South Africa (Joubert and Bradshaw, 2006), it is projected that one in ten people will be 65 years and older in this country by 2050. However, this growing trend in the number of senior citizens in the country is met with changes in intergenerational relationships in the society (Pieterse, 2008).

Pieterse (2008) argues that in the past, senior citizens received care from their children when they reached the age of seniority and this is no longer the case. Care for senior citizens is increasingly becoming their own responsibility, and this is often met through long-term savings and state pensions (Pieterse, 2008). As a result of these changes in societal structures, many senior citizens in the country either live on their own or belong to special care facilities or old age centres. The old age centres are designed to be able to provide attention to senior citizen's unique needs such as continued medical and other care. In addition, the old age centres serve to create cohesive social existences for the aged.

Despite their age seniority, the majority of senior citizens in the country remain economically active in many ways such as managing their banking affairs. As a result, senior citizen customers have become a target population for many businesses these days (Mattila, Karjaluoto and Pento ,2003).While not deriving regular income from salaries, as is the case with society members of working age, senior citizens in this country receive regular income from state pensions and in some cases, from their own retirement investments of different forms. For instance, the South African Social Services Department is currently disbursing over R7bn in state funds to senior citizens in the form of social pensions (Case and Deaton, 1996). Case and Deaton (1996) state that South Africa's social pensions system is unique throughout the world since beneficiaries of this system effectively qualify for it on the basis of age irrespective of prior contribution, making this country a global model for achieving

redistributive aims. Therefore, the national take-up of old age pensions in the country will inevitably increase simultaneously with the rising numbers of the elderly, making this demographic group a growing market segment for the banks and many other businesses.

The South African government has also introduced measures to ensure that citizens provide adequately for their retirement in order to relief the ever increasing government social expenditure budget (Nhabinde and Schoeman, 2008). The Pension Funds Act of 1997 (as amended) now requires mandatory contributions of all employees to provident and pension funds. This legislation, therefore, eliminates discretionary savings for retirement by citizens during their working life to ensure that they have sources of income in their retirement. The outcome of such policy decisions will naturally result in the increase of the economic activity of the country's senior citizens, thus making them an economically sustainable customer base of the banks and other businesses in the long-run.

The majority of the elderly in South Africa are generally poor and experience inadequate access to many services such as banking. As a result, this sector of the population constitutes a significant category of the 'unbanked'. The 'unbanked' are described as those people that are excluded from formal banking services and generally operate in cash (Porteous, 2007; 2006). These people are now currently amongst the many recipients of regular steady income flowing from state pension on which they qualify as a result of age. This arguably means that there are many more senior citizens that are in need of formal banking services. Alternatively, this segment of the population may arguably be in a position to use banking services provided the banks make the services accessible to them in a convenient and affordable manner. Access to financial services has an empowering effect and technology based banking services such as cellphone banking, in particular, are touted as an ideal tool in the achievement of this objective (Porteous, 2007). The attractiveness of the economic transformational potential of technology based banking services, such as cellphone banking, is argued from the perspective of the rapid diffusion of cellphones amongst marginalised communities (Donner and Camilo, 2008). According to Donner and Camilo (2008:6), "even the simplest [cellphone] handsets have features buried deep in menu structures" which can be manipulated for the purposes of banking, thus using the handset to transform the lives of marginalised communities by improving their economic activities.

At present, the usage patterns of banking services amongst senior citizens that have access to banking services differ from that of younger working members of the society. Ordinarily, senior citizens mostly use their banking facilities for savings which in most cases constitute

their main sources of income (Pieterse, 2008), thus contributing significantly to bank deposits. The levels of bank deposits are regulated by the South African Reserve Bank as a sustainability measure of the local banking industry (South African Reserve Bank, 2007/08). While bank deposits in South Africa are expected to grow at a compounded annual growth rate of 9% between 2008-2012 (South African Reserve Bank, 2007/08), the banks are continuously put under pressure to comply with minimum deposits levels to ensure the continued health of the country's banking industry. Therefore, senior citizens as a customer segment have the potential of playing a major role in assisting the banks to meet their sustainability compliance requirements with the industry's regulators.

Senior citizens in South Africa can be found in various societal locations, such as in their co-existence in an extended household where they live with their family members. In other cases, senior citizens live on their own or as part of a family unit with their spouses. In many cases however, especially in urban areas, senior citizens live in communal settings such as retirement centres which are specifically designed for them.

2.2 OVERVIEW OF THE ORGANISATIONS

This study that assessed the readiness and adoption behaviours of senior citizen customers of the South African banks of technology based banking services focused primarily on senior citizens living in retirement centres. The research sites for the study were three retirement centres based in two provinces in South Africa. The first two research sites were selected in the Gauteng province, and these were Abbey Cross Frail and Old Age Care Centre, and Summerfield Park Retirement Village. The third research site of the study was Lapa La Botlhe Old Age Home in the North-West province.

2.2.1 Abbey Cross Old Age Retirement and Frail Care Village

Abbey Cross Old Age Retirement and Frail Care Village is a small Gauteng based retirement home situated in North Riding. This retirement home was established in 2007, and caters for a population of 15 male and female senior citizens. The living arrangements for residents in this retirement facility are a combination of family units, where both partners share wooden cottage facilities, and also single occupants. The age of senior citizens residing in this retirement home begins at 50 years, and some residents are under 24-hour frail care arrangements as a result of their deteriorated physiological states. The ethnicity of the residents of Abbey Cross Old Age Retirement and Frail Care Village is predominantly white.

2.2.2 Summerfield Park Retirement Village

Summerfield Park Retirement Village is a special care facility for senior citizens based in Juskei Park, Gauteng Province. The facilities at Summerfield Park are designed to cater for the varying needs of senior citizens who either live in the retirement village as family units with their spouses or individually. In addition, some residents at the village live in a special care 24-hour facility that caters for their medical and other needs. The retirement village has a total population of 70 residents, the majority of whom are white.

2.2.3 Lapa La Bothle Old Age Home

Lapa La Bothle Old Age home is a retirement centre for senior citizens based in Mafikeng, North-West Province. This retirement centre houses a total of 70 predominantly African residents of both genders who are in different physiological and psychological states. As a result, the centre provides a 24-hour frail care service for residents that are in need.

2.3 CONCLUSION

There are numerous positive outcomes that can be derived by the banks by focusing their attention to facilitating access to banking to senior citizens through the products and services that they develop. Technology based channels such as Cellphone and Internet banking are relatively less costly and, if their adoption by senior citizens is facilitated, can assist the banks to increase their market shares. In addition, ensuring access to banking to senior citizens can have other indirect benefits for the banks. For instance, a recent study commissioned by the Department of Social Development (Samson et al., 2008) investigating the social and economic impacts of the country's social security system found that social grants, such as old age pensions, generally improved household incomes. Accordingly, these grants have virtual effects on households such as improved educational attainment by children living in these households. It could be argued that nurturing the recipients of these old age pensions through the provision of ease access to banking by the banks can have a ripple benefit in the long-run as the children in these household that attain education are their *de facto* future customers.

This chapter (Chapter 2) discussed distinctive nature of senior citizens as a customer segment of the banks. The potential benefits of this growing customer segment to the banks were also briefly reflected upon. The Chapter also provided an overview of the organisations forming data collection bases of the study, including a demonstration of the economic activities of senior citizens.

The next chapter (Chapter 3) considers literature on technology acceptance models, including a discussion of the model for assessing customers' technology readiness. This literature review chapter also considers literature on the impact of technology innovation on the marketing managerial function. In addition, literature on the usage of technologies in the provision of banking services including that on senior citizens' technology adoption behaviours is discussed in that chapter.

CHAPTER 3: LITERATURE REVIEW

3.1 INTRODUCTION

The banks in South Africa continue to introduce technology based services to improve their own operations and the banking experiences of their customers. Technology based banking services via the Internet, landline telephone, cellphones and ATMs have the effect of providing access to banking to many people in a convenient and less costly manner. These services also accord the banks the ability to reach many customers in an affordable manner because of their ability to pierce through geographic boundaries. While technology based banking services offer these benefits to the banks and their customers, there is still relatively low levels of their adoption and usage by many sectors of the society (Safeena, Abdullah and Date, 2010). Senior citizens in particular, are amongst the many intended beneficiaries of technology innovations such as banking services and products that generally show low adoption and usage rates (Hanson, 2010). As a result, there is a need to understand factors impacting the adoption and usage of these technology based services.

This chapter of the study (Chapter 3) reviews literature relating to the adoption of technology as a foundation for the development of conceptual understanding of the attitudes of senior bank customers towards technology based banking services. According to Levy and Ellis (2006), the characteristics of an effective literature review include the methodical analysis and synthesis of quality literature. In addition, an effective literature review provides affirm foundation of the research topic, the research methodology and demonstrates that the proposed research contributes something new to the overall body of knowledge or advances the research field's knowledge (Levy and Ellis 2006).

To this end, the literature that is considered in the chapter focuses on knowledge generated in information systems science and marketing. In particular, literature on information systems models providing an understanding of the acceptance of technological innovations forms an integral part of the chapter. Open source literature depositories were used for the literature search. Google Scholar, in particular, and academic journals' depositories such as Elsevier were relied upon for literature on the study's subject. "Technology Readiness", "Banking Technology Adoption", "Theory of Reasoned Action", "Theory of Planned Behaviour", "Technology Acceptance Model", "Senior Citizens and Technology Acceptance", "Relationship Marketing", "Banking Services Technologies", and "Banking Technologies" were the primary literature search words that were used.

The first section of this Chapter considers literature readings on models on customers' adoption of technology based services and products. The construct of Technology Acceptance Model (TAM) is the first model of technology acceptance that is discussed. Given that the TAM is an extension of the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB), a brief discussion on these two models immediately follows. This discussion is followed by a focus on literature on the Technology Readiness (TR) Model, which is the third and final technological innovations acceptance model considered in the chapter.

The second section of Chapter 3 discusses literature on the effects of technology on the construct of Relationship Marketing in the services industry. A discussion of literature focusing on the usage of technology in the provision of banking services then follows, and the chapter (Chapter 3) concludes with a discussion of literature readings on technology acceptance by senior citizens as a distinct demographic segment.

3.2 TECHNOLOGY ADOPTION MODELS

This section of Chapter 3 discusses literature on four related technology adoption models, the Technology Acceptance Model (TAM), the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB) and the Technology Readiness Model (TR). The TAM and TR are closely related models of technology adoption (Lin and Hsieh, 2007), while the TAM is also an extension of the TRA and the TBP.

3.2.1 Technology Acceptance Model (TAM)

The implementation of Information Communication Technologies (ICTs) always arise questions of whether a new technology will adapt to the demands of its intended audiences (Park *et al.*, 2009). Identifying factors that cause people to accept technology and make use of technological innovations is one of the major challenges of Information Technology (King and He, 2006). The Technology Acceptance Model (TAM) is a model developed to explain and predict user's acceptance of Information Systems.

Davis (1986) is credited for developing the TAM (Webber and Kaufman, 2011; Im, Hong and Kang, 2011; Lee and Chung, 2009; King and He, 2006; Wu and Wang, 2005; Shih, 2004). According to the TAM (Figure 1), a person's acceptance of IS is greatly determined by their perceived usefulness and perceived ease of use of the technology (Davis, 1986), and these predictors determine actual use of the system (Davis, Bagozzi and Warshaw, 1989). The TAM predictors are essentially centred on the belief system of users about the usefulness of a

system in the achievement of an end objective, and on whether the usage of such Information Systems requires relatively less effort from them.

Perceived usefulness refers to the degree to which persons believes that the use of a particular system will increase their job performance (Im, Hong and Kang, 2011). Thus, perceived usefulness is a user's "subjective probability that using a particular system will increase his or her job performance within an organizational context" (Davis, Bagozzi and Warshaw, 1989:985). When a user's are of the view that a particular system is useful, then they will use more of it as opposed to those who do not find it useful. Perceived ease of use refers to the degree to which a person believes that using a particular system will require effort from them (Davis, Bagozzi and Warshaw, 1989).

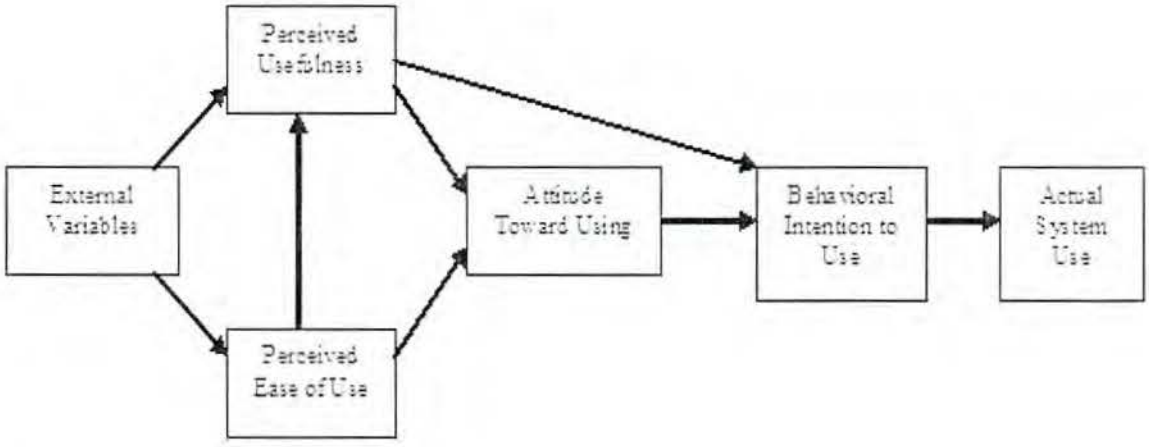


Figure 1: Technology Acceptance Model (TAM) based on Davis *et al.*, (1989). (Source: Google TAM Diagram)

A number of models of measuring individual's acceptance of Information Systems have been developed over the years. However, many empirical research studies have validated the applicability of the TAM in predicting and explaining the use of Information Technology at both the individual and organisational levels, making the TAM one of the most widely used models in Information Systems (Barati and Mohamadi, 2009; Park *et al.*, 2008; King and He, 2006; Wu and Wang, 2004). King and He (2006), when considering 88 empirical research studies on the TAM, found the number of Information Technology published literature using this model to have risen from a rate of 4 per year in 1998 – 2001, to a rate of 10 per year in 2002 – 2003. Their research (King and He, 2006) also established other literature incorporated variables that can act as antecedents of the TAM constructs of perceived

usefulness and perceived ease of use to increase its predictive power. These include subjective norm, expectation, task-technology fit, risk, and trust.

Ayo *et al.*, (2010) explains though that the TAM predictors of perceived ease of use and perceived usefulness are not just antecedent to technology adoption and use, but also serve as a critical element of customer retention in self-service environments such as banking. In their study examining factors leading bank customers in Nigeria to patronise banks and continue using the banks e-channels' services, these researchers found that perceived ease of use and perceived usefulness were as important to customer retention as an organisational reputation, perceived risk and trust.

Shih (2004) explained the usage behaviour of the IS by enterprise users using the TAM in combination with the Information Behaviour Model. This study (Shih, 2004) found that office workers adopted the Internet successfully if they could use it to obtain relevant and useful information. In a research study by Shen et al. (2006), the social nature of online learning and how social pressure influences students' perceptions of the TAM's predictors of ease-of-use and usefulness of the technology were considered. This study's finding was that social pressure had an influence on perceived usefulness as a subjective norm, and not eases of use.

Other variables introduced to act as antecedents of the TAM constructs of perceived usefulness and perceived ease of use to increase its predictive power include trust, risk and perceived credibility (King and He, 2006). The adoption of technology and its usage is influenced by many agents, which include trust as it has the fundamental source of positive action. Technology-driven commercially activities should be characterised by reliability to be trusted by their intended users (Al-Gahtani, 2008). Trust provides certainty to all potential and current users of technology-dependent commercial activities (Hernandez-Ortega, 2011).

Risk as a factor in technology based transactions is worsened by the user's perceived lack of control which increases their apprehension about acceptance of these technologies (Al-Gahtani, 2008). Risk and trust are closely related in a person's comprehension of a situation. While risk is a function of the probability of hazardous outcomes, the level of trust mitigates the perception of risk because if the level of trust is higher than the threshold of the perceived risk, then the trustor will engage in a risk taking relationship (Ayo *et al.*, 2010:39). According to Al-Gahtani (2008), on-line transactions have inherent unique dimensions not available in traditional platforms that include their distant and impersonal nature, and the uncertainty of using open technological infrastructures for transactions.

Wang *et al.*, (2008) introduced perceived credibility to the TAM's constructs of perceived usefulness and perceived ease of use in order to understand user's behaviour towards internet banking. Wu and Wang (2004) examined determinants of mobile commerce acceptance using an extended model of the TAM that included costs of Information Systems and the diffusion theory, and their findings established strong relevance of all determinants of acceptance of Information Systems except for ease of use.

An empirical study by Wu, Chen and Lin (2007) integrated the TAM with the task-technology fit theory, network externality, subjective norm, computer self-efficacy and computer enjoyment variables to investigate the determinants of end-user computing acceptance. The results showed that perceived usefulness, perceived ease of use and computer enjoyment all indirectly influences actual end-user computing usage.

The applicability of the TAM as a predictive technology adoption model has also been validated in a variety of environments, systems and tasks despite that this model was originally intended to predict technology use in the workplace (Davis, Bagozzi and Warshaw, 1989).

The TAM constructs of perceived usefulness and perceived ease of use to predict technology acceptance and use have also been validated in different organistional contexts, including in government agencies (Hamner and Qazi, 2009), in the health-care sector (Holden and Karsh, 2010; Bertand and Bouchard (2008) to explain clinicians' and patients acceptance and use of information technology for treatment, and also to explain the motivations of corporates to accept and use technology (Hernandez, Jaminez and Martin 2009).

The predictive abilities of TAM constructs have also been found to be similar irrespective of geography. Park *et al.*, (2008) examined the acceptance of digital library systems in 16 institutions based in developing countries across three continents and found the TAM predictors were applicable in these contexts irrespective of their geographic locations.

The characteristics of the technology under consideration are also a factor influencing its adoption and subsequent use. In examining the impact of a website features on on-line purchaser's purchasing intentions to return to a virtual store, Koufaris (2002) established that if the characteristics of the system does not match the expectations of the users in the performance of their tasks, then disconfirmation is likely to occur.

In banking, technology is extensively used in the provision of electronic services such as Internet banking. Al-Somali, Gholami and Clegg (2009) conducted research on the

determinants of Internet banking adoption in Saudi Arabia. The study found that the quality of the Internet connection, amongst some of the constructs of TAM such as perceived usefulness, was an important predictor of the adoption of Internet banking in that country.

Some literature using the TAM include moderating factors such as gender, culture, and technology characteristics as having an effect on user's acceptance of technology. For example, Porter and Dhantu (2006) explored demographic based barriers in the adoption of Internet banking in the United States and found age, education, income and race to be associated differentially with beliefs about the Internet, and that these beliefs influence a consumer's attitudes toward the Internet and its use. Lai and Li (2005), on the other hand, found the TAM construct invariant for their sample across different gender, age, and information technology competence sub-groups. According to these authors (Lai and Li, 2005), the conceptualisation of the TAM is the same between men and women, and younger technology users and old ones, irrespective of the levels of their information technology competencies. The TAM is an extension of the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB).

3.2.2 The Theory of Reasoned Action

The Theory of Reasoned Action (TRA) explains a person's behaviour through their intention, which is a linear function of a person's attitude toward performing the behaviour and the person's subjective norm regarding the behaviour (Ajzen, 2002, 1991). According to the TRA (Figure 2), people consider the implications of their actions before they engage in a particular behaviour (Shen, Laffey and Huang, 2006). The TRA is a social psychological model developed to explain behaviour (Yousafzai, Foxall and Pallister, 2010).

The TRA provides a framework to study attitudes toward behaviours, and states that the intention of a person to perform, or not to perform, behaviour is what determines that behaviour (Ajzen, 2002). Behavioural intent is a subject of attitude towards the behaviour and subjective norm (Yousafzai, Foxall and Pallister, 2010; Shen, Laffey and Huang, 2006).

Intention, as a central factor of the TRA, is assumed to capture the motivational factors that influence behaviour (Ajzen, 1991). High levels of intention to engage in certain behaviour generally result in a person actually engaging in it. Intention is said to be dependent on attitude and subjective norm (Shen, Laffey and Huang, 2006). According to the TRA, attitude refers to the person's own performance of behaviour, while subjective norm is concerned with beliefs around the approval stemming from referent groups.

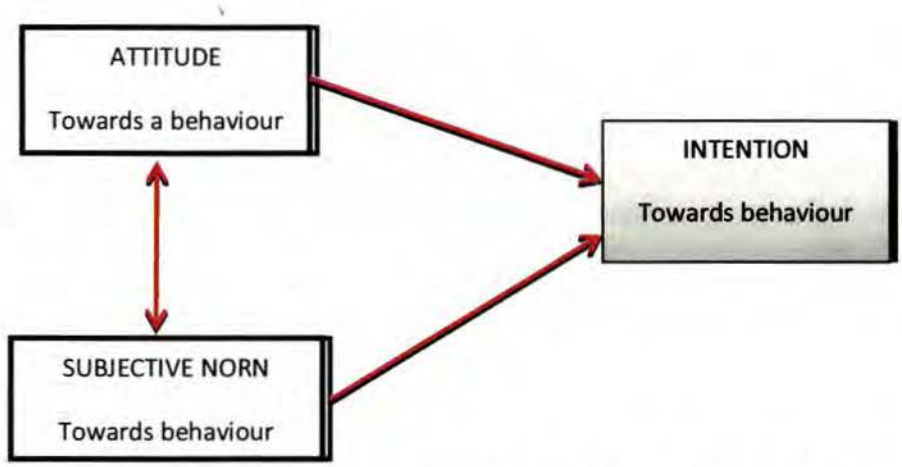


Figure 2: Theory of Reasoned Action (TRA) (Ajzen and Fishbeing 1980)

Özer and Yilmaz (2010) compared the TRA and the TPB through their research that investigated reasons for usage of Information Technology by consultants. The intention of the study was to assess the predictive superiority between the TRA and the TBP in predicting Information Technology usage amongst participant in the study's sample. The results of the research showed that the predictive ability of the TPB on accountants' intention to use Information Technology was superior to that of TRA.

In many applications of the TRA, a person's behaviour has been explained and predicted using a limited number of constructs that include attitude toward the behaviour, subjective norm, perceived behavioural control, and behavioural intention (Sutton et al., 1993). A person's beliefs about the consequences of their actions also play an important role in the TRA as this theory holds that these salient beliefs determine attitude towards the behaviour (Sutton *et al.*, 2003).

A major weakness of the TRA has been found to be its "limitations in dealing with behaviours over which people have incomplete volitional control" (Ajzen, 1991:181). As a result, this led to the Theory of Planned Behaviour (Ajzen, 1985), which is essentially an extension of the TRA.

3.2.3 The Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB) is a model of explaining human behaviour which is attributed to Ajzen (Lee *et al.*, 2010; Kobbeltvedt and Wolff, 2009; Armitage, 2005). The TPB (Figure 2) is premised on the construct that the most important determinant of a person's behaviour is behavioural intent. As such, the TPB is meant for predicting the "doing or not

doing" of a human behaviour (Beiginia *et al.*, 2011:27) According to the TPB, intent is a central determinant of a person's behaviour and is affected by the individual's attitude toward the behaviour, subjective norm, and perceived behavioural control. In essence, the formation of behavioural intent results from a combination of these three factors (Armitage, 2005).

The belief of a person about a particular behaviour, effectively their own biased probability of the outcomes of a particular behaviour impacts on their attitude, the consequence of which is the shaping of their behavioural intent (Chen and Li, 2010). Attitude towards the behaviour is defined as an internal engagement by the individual where an attempt is made to establish what the outcome of their behaviour would be. Effectively, an evaluation of whether performing the behaviour is either positive or negative, thus "a valence-based subjective evaluation" (Kobbeltvedt and Wolff, 2009:568). People generally rely on their beliefs when they have to evaluate new circumstances, and this automatically leads them to form attitudes (Fayolle and Gailly, 2004).

Subjective norm is defined as referring to the belief about expectations from other people and one's reasons for wanting to behave in adherence to them (Beiginia et al., 2011). It reflects an individual's perceptions of the pressure in their performance or non-performance in relation to their referents, be they people or organisations that they have high regard for.

The TPB extends the TRA by incorporating the notion of perceived behavioural control as a variable that affects the intention towards behaviour (Özer and Yilmaz, 2010). Literature defines perceived behavioural control as referring to the belief of a presence of factors that may facilitate or interfere with the performance of the behaviour, including the perceived power of these factors (Beiginia *et al.*, 2011; Fayolle and Gailly, 2004; Aizjen, 1985; 1991). The so-called salient control beliefs regarding positive agents, or obstacles to performing the behaviour, are considered in accordance with their control power (Lee et al., 2010). Perceived behavioural control is critical to the TPB (Fayolle and Gailly 2004), since where a person's perceived control is strong, their intention to perform the behaviour in question will be much more enhanced (Ajzen, 1985: 1991).

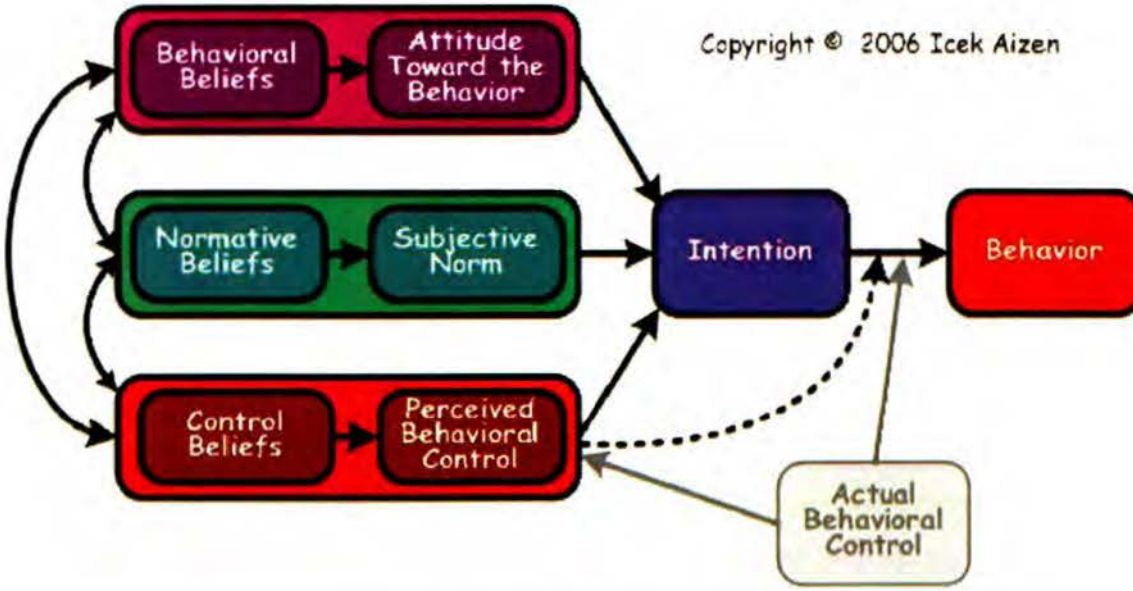


Figure 3: TPB (Source: Ajzen, 2006)

The TPB is widely regarded as a model of explaining human behaviour universally (Chen and Li, 2010; Fayolle and Gailly, 2004). For instance, Armitage (2005), when explaining the theoretical foundation of his research into predictors of the maintenance of physical activity, explains that the TPB has been widely applied in the exercise domain. This study tested the applicability of TPB in predicting the behaviour of a sample of male and female members of a gymnasium in the South of England. One of the findings of the study (Armitage, 2005) was that perceived behavioural control was an effective measure of predicting behavioural intent and actual behaviour.

The TPB predicts behaviour through a combination of direct and salient measures. However, these predictors of behaviour are not always found relevant in equal measures. Lee *et al.*, (2010) applied the TPB to investigate teachers' intentions to utilise computers to compile and deliver lessons to their learners through presentation software, such as PowerPoint. The research, conducted in Korea, used a purposeful sample of middle and high school teachers. In particular, the study tested the relevance of the TPB's direct and indirect measures in explaining behaviour. The study's finding was that the direct measures of the TPB were more relevant than the indirect or salient measures in explaining their sample's behavioural control.

Other reviewed literature offers an extended model of the TPB in explaining behaviour by incorporating antecedent variables. For instance, Beiginia *et al.*, (2011) included information quality, transaction speed, ease of use, the bank's reputation and security of the mobile network as additional antecedents in explaining behavioural intent when examining customers' attitudes towards mobile banking services in Tehran. A random sample was drawn

amongst banking customers that were using mobile banking services in this country. The study's findings (Beiginia *et al.*, 2011) were that behavioural intentions of customers were impacted upon directly and in total terms by quality of information, the bank's reputation, speed of transactions, security, behavioural beliefs and control beliefs.

The TRA, TPB and TAM are based on the attitude behaviour paradigm that suggests that actual behaviour is declared through intention toward the behaviour (Sadeghi and Farokhian, 2011: 735).

3.2.4 Technology Readiness Model

The Technology Readiness model (TR) is a model developed to measure people's propensity to embrace and use new technologies for the accomplishment of goals in home life and at work (Parasuraman, 2000). Thus TR is an attitudinal construct (Westjohn and Arnold, 2009). As a result, in terms of the TR model, people's personalities play a significant role when they adopt new technologies either in the context of work or home (Chen and Li, 2010). Therefore, the TR model essentially explores the psychological aspects of a person's reactions to technologies (Brush, Edelman and Monolova, 2011).

The TR model measures the readiness of an individual to use technology by four personality traits that include optimism, innovativeness, discomfort and insecurity (Chen and Li, 2010). Accordingly, these four dimensions demonstrate a person's overall state of mind to embrace and use technology (Lee *et al.*, 2009; Walczuch, Lemmink and Streukens, 2007).

Optimism and innovativeness are said to be related to positive feelings, and thus have a driving effect on technology readiness while discomfort and insecurity inhibit technology readiness (Rose and Fogarty, 2010; Westjohn and Arnold, 2009). Literature defines optimism as referring to the belief by a person that technology empowers them to have better control, flexibility and efficiency in their lives (Brush, Edelman and Monolova, 2011; Parasuraman 2000). Innovativeness is said to be referring to thought leadership and pioneering tendencies (Rose and Fogarty, 2010). As a result, innovators are first movers in the adoption of new technologies (Walczuch, Lemmink and Streukens, 2007).

Insecurity demonstrates the negative emotions of distrusting of technology and scepticism about its ability to work properly (Westjohn and Arnold, 2009). When people do not exhibit trust of technology and are generally doubtful about its ability to work properly, they are generally less inclined to use it. Discomfort, for its case, has tendencies of partial inverse relations with optimism as it is said to reflect a person's feelings of intimidation or lack of

control over technology, a negative feeling that also inhibits readiness (Westjohn and Arnold, 2009). Therefore, in terms of the TR, technology is more likely to be accepted by an optimistic and innovative person who has little discomfort and insecurity (Parasuraman, 2000).

The four dimensions of technology readiness are independent of each other and they individually assess a person's propensity to embrace and use technology (Parasuraman, 2000). The TR is founded on the understanding that technology always has the impact of eliciting two simultaneous feelings in a person, positive or negative.

Ling and Moi (2007) hold that positive feelings have a propelling effect towards a person's acceptance of technology, while the negative feelings generally discourage technology usage. The strength of either feelings impacts on a person's acceptance, or not, of technology. Thus in terms of the TR, a person's acceptance of technology is centred on their personality (Chen and Li, 2010; Walczuch, Lemmink and Streukens, 2007).

Parasuraman and Colby (2001) developed the Technology Readiness Index (TRI) which is a 36-item scale of measurement of the acceptance of new technologies by people and their general beliefs about it (Rose and Fogarty, 2010). Many research studies have been conducted to measure people's embracement of technology using the TRI (Chen and Li, 2010) and the findings have validated the TRI as an effective means of assessing people's readiness to interact with technology (for example, Lee *et al.*, 2009). However, literature also points out that the TRI does not recommend ways for improving technology usage (Aziz and Salleh, 2011), and does not explain behaviour (Lin and Hsieh, 2007).

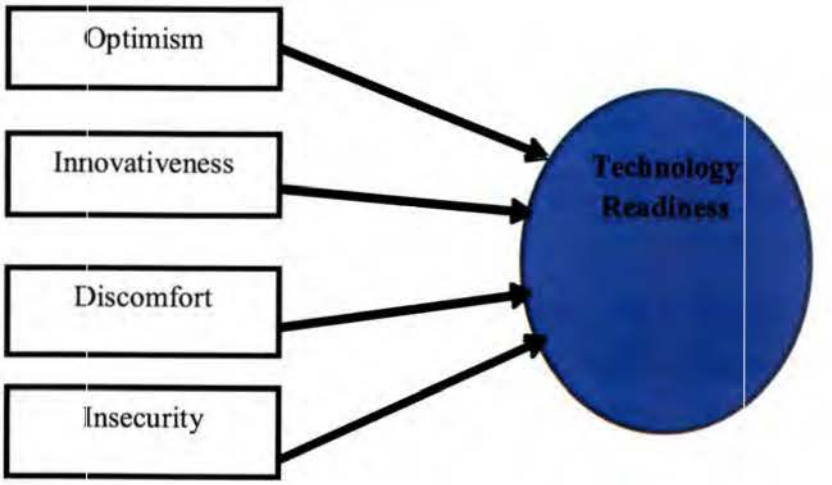


Figure 4: Technology Readiness (Parasuraman 2000)

The Technology Readiness Index score classifies five categories of adopters of technology: innovators, early adopters, early majority, late majority, and laggards. The first category describes people that are generally first movers in the adoption of innovations and these people are generally characterised by high risk appetites (Lin and Hsieh, 2007). The last people to adopt innovations are the laggards, and they are generally not keen on technology and usually late in age (Lin and Hsieh, 2007). The TRI does not indicate the competence of a person in using technology, but shows their readiness to interact with it and their attitudes (Walczuch, Lemmink and Streukens, 2007).

The TRI has been applied successfully to assess people's acceptance and beliefs about technology under different circumstances. The investigation of the generalisability of the TR has also been called for by Parasuraman himself (Parasuraman, 2000:319).

The TRI has also been applied successfully to explain factors influencing the acceptance of technology in the education sector. For instance, Koo (2008) applied the TRI to assess the technology readiness of teachers in Malaysia and their perceptions of the readiness of learners and their parents. The study found (Koo, 2008) the technology readiness of teachers in Malaysian schools, and their perceptions about the readiness of learners and their parents, to be highly influenced by access. These finding are in sync with the conclusion by Lee *et al.*, (2009) that ownership of technology based products correlates well with TRI scores. However, some research contends that access to technology is highly dependent on the ability to use it (for example: Hanson, 2010).

The TRI has also been found to be generalisable in the insurance industry. Taylor and Celuch (2002) applied the TRI to assess the technology readiness of insurance agents of a single

medium-sized firm in the United States which offers auto, home, life and annuity, health and disability, farm, and business insurance products. A survey was conducted with all the agents of the insurance firm and two additional questions were added to the TR measures as dependent variables for purposes of ascertaining the amount of explained variance associated with the TR measures. The study found the applicability of the TR generalisable to the insurance industry and that the positive dimensions of optimism and innovativeness are the most influential in attaining technology readiness.

An analysis of e-readiness models by Aziz and Salleh (2011) established that the TRI was suitable to be applied in the construction industry. This research (Aziz and Salleh, 2011) considered the strengths and weaknesses of ten e-readiness models, including factors such as whether they were predicting technology adoption intensions or merely explaining behaviour. The unique characteristics of the construction industry were used as the main determinants of the applicability of the various models. The research found that the TRI (Parasuraman, 2000) was one of the two models that were suitable to be applied in this industry.

Other researchers have looked at the technology readiness of people with different traits, also taking into account their knowledge of technologies. For instance, Lee *et al.*, (2009) proposes that education and gender are significantly related to technology readiness which, in turn, impacts service quality and value perceptions as well as customer loyalty. Accordingly, knowledge of technology on its own was found in this study to be insufficient in determining readiness as it should be supported by conscientious usage.

Lin and Hsieh (2007) investigated the readiness of self-service technologies of adult consumers in Taiwan, including their satisfaction with these technologies. The research covered self-service technologies that are used in banks, railways, airlines, rapid transit systems, and the stock exchanges. The technology readiness of the study's population was measured via the 36-items scale of the TRI (Parasuraman, 2000). The study's findings are that technology readiness is a driver of the satisfaction with self-service technologies. As a result, it was found that the higher the technology readiness of customers is, the more likely they will be satisfied with self-service technologies (Lin and Hsieh, 2007). High levels of technology readiness were also found to have a positive effect on the behavioural intentions of customers towards self-service technologies, and also on their repeat usage of the services.

Berendt, Saunder and Petzer (2010) explored technology readiness in a developing country's context, focusing specifically on the technology readiness of customers of the banks in South Africa. In particular, the study sought to determine the relationship between technology

readiness and key demographics, access, usage and desirability profiles of banking customers in this country. The findings of this quantitative study, which drew its sample from urban residents of Gauteng, were that people who have access (or ownership) of more than 60% of technology-based banking products and services have a higher TRI score and thus more technology ready than those that do not have them. It was also established in this study (Berendt, Saunder and Petzer, 2010) that participants prefer not to use telephone banking. Most significantly the study (Berendt, Saunder and Petzer, 2010) established that bank clients in South Africa generally had a lower technology readiness score, compared to their United States counterparts signalling that the local market was less ready for technology based banking services.

Opara, Oulutu and Maclayton (2010) researched the relationship between technology and the relationship marketing efforts of the banks to increase market share using the TRI. The study, conducted in Nigeria, found a strong correlation between increased market share, technology and customer traits that exhibit loyalty. As a result, the research recommends that services firms such as the banks should not consider technology readiness only from a dimension of their employees but also take into account the technology readiness of their customers since this is important for their business success.

Lee *et al.*, (2009) note that customer's technology readiness influences the firm's performance, customer perceived value and customer loyalty. While the findings of Boakye and Banini (2008), indicated the need for the participation of intended users of technologies when they are implemented.

The reviewed literature on the three models on the adoption and use of technology guides different ways in which the behaviour of people towards technology can be evaluated with a view of increasing it. Literature also points to the significance of technology adoption and use to both customers and businesses in the modern economy. Most importantly for businesses, technology adoption and use has the effect of increasing their internal processes and customer relationship marketing.

Personality traits, and in particular a person's psychological inclinations that influence behaviour cuts across the literature in different ways as a factor playing a major role in people's acceptance of technology. The functional benefits and the nature of form of the technology itself as regards its usage are also identified in the literature as antecedents of its acceptance. The literature considered in this section also suggests the sanctioning of the usage of quantitative research methods when exploring factors affecting people's acceptance of

technologies. The importance of people's technology acceptance in the context of marketing is also emphasised in the literature. For instance, Parasuraman (2000:319) calls for research models positing various antecedents (e.g., demographics, psychographics) in order to fully understand the various elements of technology acceptance so as to increase it. This study considers the readiness and acceptance of technology by banking clients using demographics (age seniority) as an antecedent.

3.3 SERVICES RELATIONSHIP MARKETING AND TECHNOLOGY

Relationship marketing is a marketing construct concerned with the creation of long-lasting relationships between a business and its customers (Boshoff and du Plessis, 2009). In contrast to traditional marketing which is characterised by push activities that are geared at influencing customers, relationship marketing acknowledges that consumers are no longer merely passive recipients, but key stakeholders in a two-way relationship with the companies that they support (Liu, 2007).

Customer satisfaction and trust are some of the main antecedents of relationship marketing (Wahab, Noor and Ali, 2009). Trust is a central aspect to the building of long-lasting relationship as it is the fundamental source of positive action. The outlook of technology driven commercially activities should not only be based on the individual acceptance of these technologies as viable transaction means, but also on the recognition of these technologies as reliable milieu (Al-Gahtani, 2008).

Gefen and Straub (2000) define trust as the belief that the other party to the transaction will behave in a socially responsible manner, and thus fulfil the expectations of the trusting party. Technology trust reduces uncertainty in technology-mediated environments and is an essential requisite for all potential and current users (Hernandez-Ortega, 2011:1). Customer relationship marketing has the effect of influencing the behaviour of the customer on their intentions to use or re-use technology based services, proving the significant of trust in this regard (Wahab, Noor and Ali, 2009).

A major benefit of relationship management for the firm is customer retention and loyalty. The life time value of loyal customers offer huge economic incentives for services organizations such as the banks, thus making the demands of effective relationship management a strategic imperative. Profitability, reduced costs and increased brand equity are amongst the many benefits of retained and loyal customers (Boshoff and du Plessis, 2009).

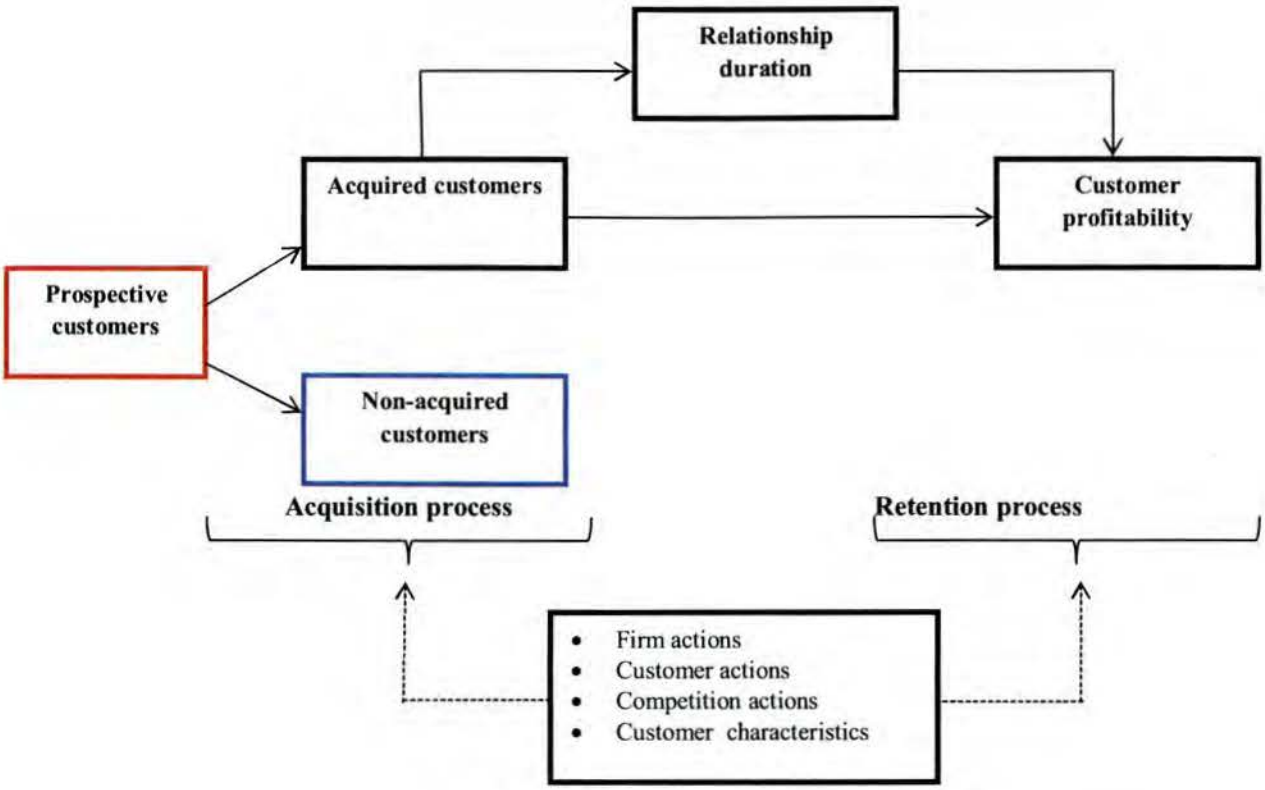


Figure 5: Customer Acquisition, Retention & Profitability (Source: Reinartz, Thomas and Kumar (2005))

Technology has had an impact on marketing activities and has also changed the direction of relationship marketing (Opara, Olutu and Maclayton, 2010). Equally, the relationship between people and technology remains an enduring theme in marketing-based research (Xiong and Mathews, 2005). Technological innovative systems are continually forcing businesses such as banks to revisit the way they relate with trading partners and their customer (Hernandez, Jaminez and Martin, 2009). According to Colby and Parasuraman (2003:30), technology is specifically transforming and enriching traditional marketing in the following ways:

- The most visible role of technology is in the company-customer link. Companies can now communicate directly with their customers via the Internet, reaching them at home, work, or in transit. A marketer can use interactive media to build brands, provide customer service, and even deliver digitized products directly to customers.
- Technology that links company and customer also augments the employee-customer link. Employees are better equipped to help customers, taking advantage of internal e-services that enable them to access relevant information and deliver service on the customer's behalf.

- And technology is revolutionizing the company-employee link. Interactive technologies such as the Internet and intranets are increasing communication efficiency and interconnecting geographically dispersed resources. They also facilitate two-way flows of information—sending intelligence from the field to headquarters and communicating information about corporate objectives, products, and customer satisfaction to frontline personnel.

3.3.1 Technology and Relationship Marketing in Banking

The banking industry has become a leading sector in the utilisation of technology on consumer markets (Barati and Mohammadi, 2009). The relationship marketing efforts of the banks, in particular, are highly affected by technology as the banks continue striving for long lasting relationships that are based on trust with their customers.

The banks primarily use technology to enhance the service experiences of their customers in order to gain their loyalty and lifetime value. However, these efforts are impacted upon by numerous antecedents of technology acceptance. For instance, Termsnguanwong (2010) examined the level of trust and security concerns of bank customers in the Northern Region of Thailand in their use of electronic banking services. Empirical data was collected and the study found that most customers preferred in-branch banking over mobile banking as a result of the safety and security concerns that they attach to mobile banking. In addition, the study (Termsnguanwong, 2010) found that mobile banking services were not achieving their intended purpose of providing users with convenience, a customer loyalty driver from the perspective of the banks, since many users used the service for menial purposes such as checking account status.

In their study examining factors influencing the adoption of Internet baking in Taiwan, Wong, Rexha and Phau (2008) introduced the notion of perceived credibility as a new factor that reflects the user's security and privacy concerns in the acceptance of Internet banking. Credibility of a banking institution is one of the primary contributors to customer loyalty in banking given the high trust relationship that accompanies the customer-provider relationship in banking. A telephonic survey was conducted with a cross section of Taiwanese adult banking population in this study (Wong, Rexha and Phau, 2008). The study's findings were that perceived credibility had a significant effect on behavioural intentions of the participant, where credibility relates to user's security and privacy concerns.

In addition, technological advances have given birth to a new breed of customers on the marketing platform that are difficult for businesses across all spectrums to service satisfactorily (Masocha, Chiliya and Zindiye, 2011). Technology has given these customers access to more information which has widened their tastes and choices. As a result, customers have ready access to information on countless services options to choose from. This therefore, further makes it more challenging for services organizations such as banking institutions to find a better fit between technologies that they use for service provision and their various customer segments.

Implicit in this literature is that trust plays an important role in the relationship management activities of the banks, and also in the adoption of technology based services that the banks introduce with the objective of improving their relationships with their customers. According to Lee *et al.*, (2009), trust is an important parameter to attracting customers to purchase a firm's offerings and securing their loyalty. The customer's purchasing decision is accompanied by the expectation that the firm will fulfil its promise and when that is confirmed, they become loyal. In addition, the perceived credibility of the bank and the technologies that are being used are important determinants of their acceptance by customers.

In terms of services marketing literature, also, there is a strong relationship between service quality and relationship marketing (for example, Haque *et al.*, 2009; Parasuraman and Grewel, 2000). Thus, when the service is of the desired level of quality or surpasses it then its perceived value will be enhanced and this contributes to customer loyalty (Parasuraman and Grewel, 2000). Haque *et al.*, (2009) also found that service quality was amongst the factors that elicited positive perceptions about internet banking services amongst Malaysian on-line customers in their customer perceptions study. Other factors that were found to impact customer perceptions in this study (Haque *et al.*, 2009) were the level of protection of Internet banking transactions and the prevailing regulatory framework.

3.3.2 Service Quality and Relationship Marketing in Technology-Based Services

The advancements in technology have a high impact in the manner that services firms interact with their customers. More and more services firms are motivated to invest in technology in order to exceed the expectations of their customers because firms that perform better are those that overcome the cynicism of customers and go beyond the point of encounter (Ombati *et al.*,

2010). Ombati *et al.*, (2010) refer to technology-based services as performances whose delivery is mediated by information technology and service quality is said to refer to the extent to which a service meets, or even exceeds, a customer's expectations.

Service quality has the effect of improving customer repeat purchase behaviour, perceptions of value and positive word of mouth (Boshoff and du Plessis, 2009). As a result, quality and value perceptions are the basis on which customers become loyal (Lee *et al.*, 2009). The strategic benefits for a services firm under these circumstances are increased profitability. Parasuraman and Grewel (2000) argue that service quality offers a greater competitive advantage for services firms because the price of a service, and the service itself, can be copied but competitors are not able to copy the quality of service. When the service offered by a firm is of quality, this will increase its perceived value and, in turn, increase customer loyalty. Both these factors have the effect of increasing a services firm's performance.

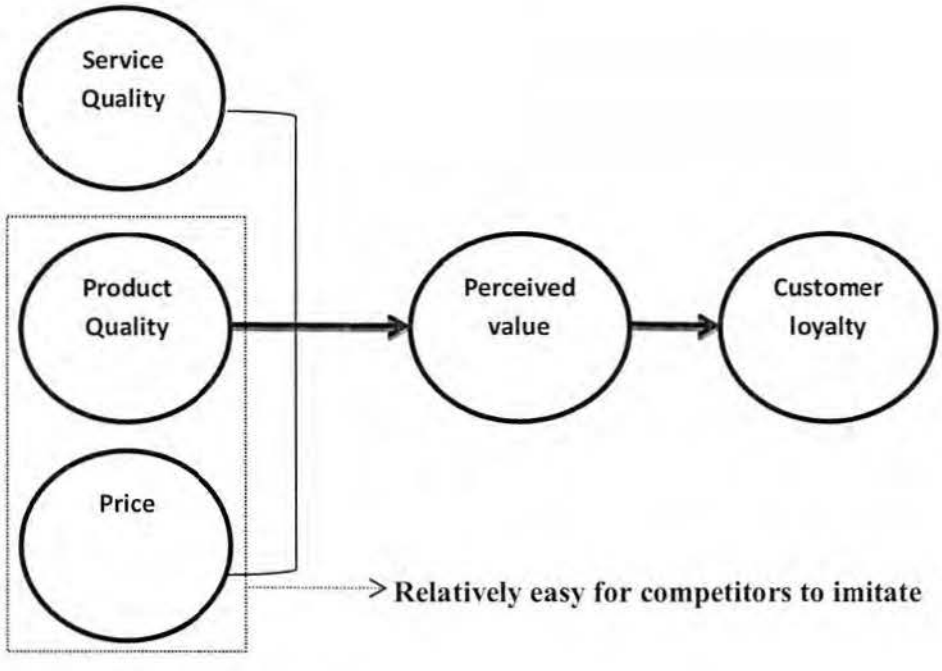


Figure 6: Key Drivers of Customer Loyalty (Parasuraman and Grewal, 2000)

The quality of technology based services such as Internet banking is also determined by the quality of the technology that is being used. The quality of technology as a determinant of the adoption of technology based banking services is important for the business of the banks, as technology impacts on clients' decisions to align with a particular bank. For instance, a study conducted by Masocha, Chiliya and Ziyinde (2010) which investigated the e-banking

behaviours rural clients of the various banks in South Africa found that the majority of the study's participants indicated that they were influenced to bank with a bank which uses advanced modern banking technologies. Service quality has the effect of influencing customers to freely choose the technology service. When a technology based service channel is freely chosen by a customer in the receipt of a service, then that implies that it has high quality attributes (Ombati *et al.*, 2010).

Wahab, Monami and Noor (2009) investigated the role of electronic service quality on customer relationship management in the cellphone industry. This study (Wahab, Monami and Noor, 2009) was conducted with a sample of University students in Jordan and its findings were that e-service quality had a significant relationship with customer relationship management.

Literature also highlights awareness of technology users of the technology itself and its benefits as a factor contributing to its perceived quality (Al-Majali, Mat and Kedah, 2011; Safeena, Abdullah and Date, 2010). Awareness is also a stimulant of interest in that technology. According to Safeena, Abdullah and Date (2010), knowledge about a particular information system is important in individual's interest in testing it. In this study, conducted with students of an academic institute in India focusing on Internet banking adoption, Safeena, Abdullah and Date (2010) found that without a proper knowledge of the system, individuals are not interested to test the system. This confirmed the findings of an earlier study (Al-Majali, Mat and Kedah, 2011) which considered factors influencing Internet banking adoption in Jordan through an extended model of the Information Diffusion Theory (Roger, 1983) where trust and awareness were incorporated as antecedents to adoption. In this study (Al-Majali, Mat and Kedah, 2011), a sample of 700 was randomly drawn from staff of four state Universities that have bank accounts to evaluate the important factors influencing the respondent's adoption of Internet banking. The findings of the study (Al-Majali, Mat and Kedah, 2011) were that awareness was the most important factor that has a positive and significant effect on Internet banking adoption, suggesting that banks need to conduct more promotion and awareness campaigns. An earlier research by Hiltunen *et al.*, (2005) that examined factors causing the resistance of bank customers in Finland to switch from more traditional forms of banking to Internet banking had the same findings.

The levels of confidence that people have on their ability to use technology impacts on their adoption, technology use, and perceptions of quality of technology-based services (Raleting and Nel, 2010). Technology self-efficacy refers to the self-confidence of the technology user

in their ability to perform several tasks on the given technology. Self-efficacy has generally been found to be closely linked to ease of use (Wong *et al.*, 2003; Raleting and Nel, 2010) because if a technology user finds the technology application easy to use, this has the effect of confidence building. Raleting and Nel (2010), for instance, examined factors impacting the low rate of adoption of wireless Internet gateway cellphone banking amongst low-income earners in South Africa. The study's findings were that ease of use facilitated usefulness amongst their sample, and that self-efficacy is a strong predictor of the perceived ease of use of wireless Internet gateway mobile phone banking. Moreover, the study found that facilitating conditions also have a significant influence on self-efficacy. As a result, the more a person has confidence in his or her ability to use technology, (they have perceived trust towards it and its quality) and also finds using technology easy, then they will more likely want to use it.

3.4 TECHNOLOGY BASED BANKING SERVICES

The banking industry across the globe is continually undergoing a paradigm shift in the way it conducts its business as a result of advances in information technology. The usage of a single channel, in the form of bank branches, to provide service to customers is a thing of the past as technology is increasingly being used. The continued search for improved profitability, increasing market shares, and enhancing the experience of customers thus gaining their loyalty and lifetime value are some of the drivers of the increased usage of information technologies in the business of banking (Masocha, Chiliya and Zindiye 2011).

The strategic importance of technology to the banks is even more pronounced when taking into account the competition that banking industries throughout the world are facing from non-bank financial services providers, such as retailers (Porteous, 2007). South Africa, like many economies, is gradually experiencing the proliferation of non-bank service providers that are providing traditional banking services to customers, particularly retailers. For example, Shoprite Checkers provides an advanced suite of traditional banking financial services through its Money Market counters that include non-bank account based cash transfers between individuals. The potential effects of these developments to the banks are adverse, as they include reduced market shares and lower profits. The non-bank service providers generally have better advantages such as large geographic footprints. Also, by their nature, retailers enjoy better relationships with their customers and have the benefit of customer loyalty as a result of the closeness in relations between services providers and

customers associated with this industry. As Adams (2010:6) puts it, "a customer is more likely to meet a retail manager than a bank manager".

The banks use information technology for communication and connectivity, and also for their business processes (Donner and Camilo, 2008). It is acknowledged that technology has aided businesses across all industries to successfully reduce costs through substantially improving efficiency (for example, Musiime and Biyake, 2010; Masocha, Chiliya and Zindiye, 2011). The banks also use technology as a service provision tool and also to build long-term relationships with their customers.

3.4.1 Self-service Banking Technologies

Technology based self-service channels are changing the way in which service firms and their customers interact (Ombati *et al.*, 2010). Self-service technologies are technologies that allow a customer to produce a service through an interaction with the technology and without the direct involvement of the service provider. Technology innovations have extensively aided the usage of self-service channels in banking. The centrality of processing information to the business of the banks and other financial intermediaries has made self-service technologies viable for them (Sannes, 2001). Self-service banking channels include channels such as ATM's, telephone banking, Internet banking, EFTPOS (Electronic Funds Transfer at Point Of Sale) terminals and other interactive kiosks.

The banking industry in South Africa relies extensively on self-service technologies to deliver services to its customers and enhance customer experiences. There are five key self-service technology based channels used by the South African banks and these are ATM's, Internet, Cellphone, landline telephone and EFTPOS. In addition to the self-service technology based channels and electronic payments systems provided by the banks, South Africa also has non-bank institutions that provide payments systems to their customers such as American Express and Dinner's Club which issue travel cards and a number of retailers that issue private label payment cards (BankServeAfrica, 2010).

Customer usage levels of the individual self-service channels provided by the banks in South Africa vary, but these services collectively accounted for some 2.58 billion transactions averaging 80 transactions per second between July 2009 and June 2010 (BankServeAfrica, 2010). EFTPOS and ATM's are the most widely used self-service channels accounting for 1 billion transactions in 2010 (BankServeAfrica, 2010). The banks in South Africa also continue to increase the provision of banking services to their customers through self-service

channels. For instance, as of December 2008, ABSA, FNB, Nedbank and Standard Bank had a total of 22 920 ATM's and these institutions' number of Point of Sale (POS) terminals amounted to 236 626 in 2009 (Banking Association of South Africa, 2010).

The usage trends of technology based banking channels in South Africa does not differ significantly with that of many countries that have compatible banking systems. According to Xiong and Mathews (2005), for example, New Zealand's respondents in their study investigating attitudes of senior bank customers to Internet banking reported that they used ATMs and EFTPOS well, while Internet banking and land-line telephone banking were less used.

In a survey profiling banking behaviours of Internet banking customers in Germany (Berger and Gensler, 2007), it was established that customers were using payment products to a higher extent (EFTPOS), with 68% of them owning a credit card in contrast to only 29% of the off-line customers.

Banking technological innovations are also widely held as a possible solution to a need to extend the provision of banking services to the unbanked, the majority of whom are often rural and poor people in the developing world.

Literature (Bandyopadhyay, 2010; Raleting and Nel, 2010; Bångens and Söderberg, 2008; Porteous, 2007; 2006) identifies the benefits of banking technologies to the unbanked, amongst others, to include:

- The enabling of ready access to banking at these remote locations;
- The reduction of transaction cost to make the services affordable;
- The reduction in delays; and
- The improvement of the quality of services available.

3.4.1.1 Cellphone Banking (M-Banking)

Cellphone or mobile phone banking (M-banking) refers to financial services delivered via cellphone networks using a cellphone phone, which typically include services such as depositing, withdrawing, sending and saving money, as well as making payments (Porteous, 2006). Most banking technology literature earmarks cellphone banking for possessing the ability to significantly allow the provision of banking services to the unbanked given the

exponential growth in the access to cellphones globally (Bandyopadhyay, 2010; Raleting and Nel, 2010; Bångens and Söderberg, 2008).

The unbanked are people that are excluded from formal banking services and generally operate in cash (Porteous, 2006; 2007). The inaccessibility of formal banking services inhibits these peoples' economic opportunities as they are limited in their ability to take out loans, maintain savings or even make remote payments (Medhi *et al.*, 2009). According to Infogile Technologies (2007), M-banking banking underscores Internet banking simply because a person simply needs access to a cellphone, while Internet connectivity and commonly a personal computer are necessary for Internet banking.

In South Africa, most physical bank branches are not within the reach of many poor and rural members of the community. It is for this reason that cellphone banking is often seen as a potential transformational tool to the unbanked livelihoods (Bangens and Söderberg, 2008). Porteous (2007) explains the transformational potential of cellphone banking in two ways. First, cellphone banking is said to have the potential of facilitating the economic activities of the poor and people living without access to formal banking services. Secondly, the experiences of banking through cellphone banking for the unbanked present opportunities to eventually draw them to the mainstream financial services. According to Porteous (2006), the following factors support the transformational potential of mobile banking if it is provided in a competitive and enabling environment:

- Cellphone banking uses existing mobile communications infrastructure which already reaches unbanked people;
- There is significant room for cellphone banking to be driven by 'new players' as opposed to traditional banking institutions, such as telecommunications service providers whom have different target markets from traditional banks; and
- Cellphone banking may harness the power of new distribution networks for cash transactions, such as airtime merchants, beyond the conventional merchant EFTPOS or ATM networks of banks.

Cellphone banking also has the effect of being a value-adding service for bank customers as it enables more opportunities to conduct different banking transactions, thus offering the banks competitive benefits (Barati and Mohammadi, 2009).

However, for cellphone banking services to be readily adopted by customers they should be perceived to be useful and also be compatible with the customers' traits (Rao and Troshani, 2007). Wessels and Drannan (2009) conducted research using a web-based survey with a sample of Australian bank customers to assess cellphone adoption attitudes. Their findings showed that perceived usefulness, compatibility, perceived risk, perceived cost and attitude are primary determinants of consumer acceptance of cellphone banking.

Compatibility of cellphone banking services with targeted audiences is of importance, especially as regards the user interaction platforms. Two studies conducted by Medhi *et al.*, (2009) comparing user interfaces of cellphone banking services experiences of illiterate and semi-literate services users in Kenya, India, Philippines and South Africa found that illiterate cellphone banking users in these countries were generally unable to make sense of the text-based cellphone banking user interfaces. As a result, the user interfaces of the cellphone banking services in these countries were generally not compatible with the services users, thus presenting a barrier for adoption and use.

Customer usage of cellphone banking services in South Africa, however, are showing positive signs of growth according to a recent study published by WorldWideWorx (Mobility, 2011). The findings of this study (Mobility, 2011) demonstrate that 44% of urban cellphone subscribers use cellphone banking services in 2011, compared to only 27% in 2010. However, the same research revealed that rural cellphone subscribers' usage of cellphone banking still lags behind that of urban subscribers (Mobility, 2011).

3.4.1.2 Internet Banking

Internet banking is another one of the latest in a sequence of technology-based banking services that the banks are providing to their customers (Safeena, Abdullah and Date, 2010). This self-service channel allows bank customers access to their bank accounts from any location where there is Internet connection, thus providing all hour convenience to customers and better control over the management of their banking affairs. Typically, an internet banking customer performs any one of the transactions (Sadeghi and Farokhiani, 2011):

- Check account balance and transaction history;
- Make payments;
- Transfer funds;
- Requests credit advances, such as overdrafts or the increasing of credit limits;

- Manage investments; and
- International payments.

The need for customers to have connection to the Internet to use this self-service channel remains a challenge for its widespread diffusion, especially in developing countries where Internet coverage is still limited.

3.4.1.3 ATM Banking

Automated Teller Machine (ATM) banking is one of the first technology based self-service banking channels introduced by the banks. The ATM allows the banks to offer customers a 24-hours convenience to make cash withdrawals, transfer funds, and even make cash deposits. While the ATM arguable remains one of the most prominent technology based self-service channels provided by the banks, especially in environments that are predominantly cash driven such as in developing countries, their infrastructural and maintenance costs are astronomic to the banks when compared to the costs of other self-service channels such as cellphone banking (Porteous, 2006; 2007). In South Africa, a crime trend where ATMs are targeted with commercial explosives has been on the rise in recent times and this has made the maintenance of ATMs even more costly.

The reliance on technology by the South African banks to provide services to their customers, and the banks' objectives in technology usage, is in line with similar trends throughout the world. Indeed, new information technologies have giving rise to significant transformations to the way business has traditionally organised itself (Hernandez et al., 2008), and are particularly improving access to services in developing countries.

In Nigeria for example, self-service channels provided by the banks include Internet banking, ATM banking and EFTPOS, however, ATM and EFTPOS are the most widely used services (Ayo *et al.*, 2010). Uppal (2009) investigated the use of technology by the banks in India and found that the banks in that country were not only implementing technology-based banking services to improve their processes and to reach wider markets, but were aiming to use these services to achieve a large-scale inclusion of the previously unbanked through the offering of simple, safe and cheap products.

There are significant positive motivations for the banks to continue providing customers services through technology-based channels. For one, the usage of technology in the provision of services greatly enhances the profitability positions of the banks (Berendt, Saunder and

Petzer, 2010; Xiang and Mathews, 2005). Technology-based banking service channels reduce the services provision costs of the banks and accords them the opportunity to reach wider markets bases. In addition, technology provides the banks an opportunity to enhance the experiences of their customers thus improving their customer retention prospects. According to Al-Somali, Gholami and Clegg (2008), customers are attracted to technology based banking services such as Internet banking because of their round-the-clock availability and the avoidance of long queues and restrictive branch banking hours. These convenience benefits offered customers, has the effect of making them loyal to the banks.

3.5 TECHNOLOGY ACCEPTANCE BY OLDER PERSONS

The world population is reported to be ageing at an increasing rate (Hutter, 2011; United Nations, 2002). As a result, seniors are increasingly becoming a potentially important consumer market segment by volumes. South Africa is amongst a growing number of countries in the world that are faced with increasing volumes of an ageing society. According Joubert and Brandshaw (2006), more than one person in ten will be 60 years or older in this country in 2025.

The rise in the volumes of average population ages exposes many businesses to two colliding trends. Many businesses, such as the banks, are increasingly reliant on technology to meet customer's needs on the one hand, meanwhile the proportion of their customers that is elderly is growing on the other and this customer segment generally does not readily embrace change (Xiong and Mathews, 2005).

Literature findings on the subject of age as a moderator of technology adoption indicates high adoption and usage rates of technology to be concentrated amongst younger generations, while there is a general rejection of technology by seniors (Tanderayen-Ragoobur *et al.*, 2011; Berger and Genzler, 2007). Young people are found to espouse characteristics that are in sync with attitudes of high adoption and usage of technology (Karahasanovic′*et al.*, 2009; Berger and Genzler, 2007).

Berger and Genzler (2007) conducted a nationwide survey with 20 000 retail banking customers in Germany to analyse the profiles of Internet banking customers and their banking behaviours. Their findings were that Internet banking customers tended to be younger in age, better educated and have higher net-worth compared to their off-line banking counterparts. This finding was confirmed by a Chinese study by Yuan, Lee and Kim (2010) who found that

Internet banking adoption amongst bank customers in that country was predominantly concentrated amongst young, wealthy and highly educated bank customers.

Xiong and Mathews (2005) investigated the attitudes of New Zealand's senior bank customers towards common electronic banking services distribution channels, i.e. ATMs, EFTPOS, telephone banking and Internet banking. A nationwide survey was conducted with random samples of senior bank customers and a group of non-senior bank customers. The findings of the study indicated that there was reluctance amongst senior customers towards e-banking channels, while these customers demonstrated a high preference of dealing directly with in-branch bank staff. This finding was confirmed by Karahasanovic´*et al.*, (2009) when they examined the co-creation of user generated content on social networks by seniors in Belgium. This study (Karahasanovic´*et al.*, 2009) compared Internet habits of seniors in creating user content on social networks with younger users. The study's findings were that seniors publish user-generated content on social networks less often than younger persons, and that they also use the Internet less often. The use of the Internet to read newspapers amongst seniors was also found to be low by these researchers. However, seniors were found by Karahasanovic´*et al.*, (2011) to use Internet banking more often and that they express themselves politically over the Internet more often than their younger counterparts.

Tanderayen-Ragoobur *et al.*, (2011) argue that the reluctance to change is one of the factors causing senior customers to be less inclined to adopt technology. Their study (Tanderayen-Ragoobur *et al.*, 2011) was conducted with a sample of 400 bank clients of different age groups and educational levels in both urban and rural areas in Mauritius. The study's findings were that in addition to the lack of eagerness of senior customers to adopt new technologies, these customers also lacked the incentive to gain knowledge about Internet banking, thus resisting the changes that Internet banking was bringing to what they were familiar with.

Technology has to be seen to be useful for senior citizens to adopt it, and it also has to be easy to apply (Xiong and Mathews, 2005). Senior users generally have inertia to new technologies and when these technologies have a beneficial effect and easy to use, they become incentivised (Tanderayen-Ragoobur *et al.*, 2011).

Perceived benefit and ease of use was found by Pan and Jordan-Marsh (2010) to result in positive attitudes towards technology by seniors in their earlier research looking at Internet usage amongst Chinese. The study (Pan and Jordan-Marsh, 2010) extended the four predictors of the TAM by incorporating gender and age as moderators of perceived usefulness and perceived ease of use. The study's findings (Pan and Jordan-Marsh, 2010) were that senior

citizen's intention to use the Internet was strongly influenced by their perceived ease of use of the Internet, and its perceived usefulness as many seniors otherwise consider it irrelevant to their lives.

However, Chung *et al.*, (2010) claim that the usage of technology-based services is growing amongst elder users and this trend is expected to increase as 'baby-boomers' enter this age category. Some research also found Technology Readiness to vary by country despite the effects of globalisation (Kovačić, 2005), and also irrespective of common traits such as age. In their United States research, Wagner, Hassanein, and Head (2010) found the majority of senior customers in their study that perceive themselves as cognitively younger to portray traits of explorers possessing a high propensity to adopt technology. Rose and Fogarty (2010) found mature customers in Australia to be less likely to exhibit traits of explorers and pioneers, meaning that they were generally less likely to readily adopt new technologies.

Various explanations have been forwarded for the varying levels in which technology is embraced by senior consumers, such as costs associated with technology, perceived ease of use and security are among many reasons (for example, Porter and Donthu, 2006; Canton, de Groot and Nahuis, 1999). Porter and Donthu (2006) found older American consumers in their sample to perceive the Internet as costly and difficult to use, despite their understanding of its relevance in their lives.

Cost as a factor having a bearing on technology resistance amongst older people does not necessarily have to be viewed from a monetary perspective. For example, Canton, de Groot and Nahuis (1999) argue that older people could be more reluctant to adopt new technologies since their long-term benefits from the costly learning exercise of using new technologies are lower as opposed to younger people who can recover their learning costs more easily because the duration of their lifetime is longer. As a result, the net present value of adopting new technologies is negative for older persons.

Al-Alawi and Ismail (2005) conducted research on the acceptance of Internet baking amongst senior bank customers in Bahrain, and this study's finding was that the resistance of senior bank customers in this country to Internet banking was caused by their believe that the Internet is not safe for conducting on-line transactions. Disengagement has also been found to be one of the factors causing poor technology adoption and usage amongst seniors (Hanson, 2010).

Where technology usage is positive amongst seniors, literature finds that the usage rates tend to be generally higher amongst those that have lower levels of computer anxiety as a result of factors such as their cognitive abilities (Wagner, Hassanein, and Head, 2010). Wagner, Hassanein, and Head (2010) conducted a multi-disciplinary review of the overall literature findings regarding technological changes and their impact on the usage patterns of computers by seniors. The study found that older adults who use computers tend to have higher levels of cognitive abilities, computer self-efficacy, and computer interest. In addition, seniors that use computers tend to be more educated, in better health, and have higher incomes.

Some researchers' findings indicate that while young users of technology predominantly use it for entertainment, elder users of technology services use it for reasons such as finding information on health services, making purchases, finding religious information (for example, Chung *et al.*, 2010). However, the findings of Karahasanovic'*et al.*, (2009), while confirming that the elderly use the Internet to buy clothes and tickets for the cinema, were that they did not read much health-related information on the internet. Maiyaki and Mokhtar (2010) claim that not only is age a major influence in the adoption of banking technologies, but it also plays a significant role in the customer's decision in the selection of the banking institution itself.

There is a plethora of literature researching the effects of demographics, in particular age, on a person's decision to adopt and use technology (for example, Rose and Fogarty, 2010; Hanson, 2010, Sayago and Blat, 2009; Porter and Donthu, 2006; Lai and Li, 2005). While some studies find age seniority to be irrelevant in technology adoption, and even claiming noticeable increase in technology adoption and usage by seniors, most literature on the topic finds that seniors generally reject new technologies. Researchers in the literature in this chapter found a number of factors leading to seniors' low inclinations to adopt and use technology such as resistance to change, lack of awareness of technologies and their associated benefits, and general lack of trust of new technologies, difficulty of using new technologies and security. In some studies, the costs associated with these technologies were found to be the reason that makes seniors to resist them.

3.6 CENTRAL QUESTIONS OF THE STUDY

Literature reviewed in this research study indicates that the banks are continually implementing technologies to improve their internal systems, increase market shares and also enhance the experiences of their customers in the services that they provide. It is also found in most of the literature that senior citizens generally have low acceptance of technology innovations. Since the prospects of the new technologies that are introduced by the banks to

provide banking services are dependent on the customers accepting them, this research seeks to understand the technology readiness of senior citizen bank customers for banking services technologies. The research study poses the following key questions:

i. Are senior citizen bank customers who currently have access to technology based banking products and services more accepting of, and technologically ready for, technology based banking services?

ii. Do senior citizen bank customers who have access to technology based banking services and products have a higher perceived desirability of using technology based banking services?

iii. Are senior citizen bank customers who are currently using technological banking services more technologically ready?

3.7 CONCLUSION

This Chapter reviewed literature on three related technology acceptance models, the Technology Acceptance Model (TAM), the Theory of Reasoned Action (TRA), its extension the Theory of Planned Behaviour (TPB) and the Technology Readiness Model. The literature reviewed on these technology acceptance models demonstrated numerous factors that affect a person's acceptance of technology, which includes its perceived usefulness, ease of use, trust, security and technology self-efficacy. In addition, literature reviewed in this chapter demonstrates that the acceptance of new technologies is likely when a person is optimistic and innovative, while also having little discomfort and insecurity towards it. Thus, such person would be showing high degrees of technology readiness.

Literature reviewed in the Chapter further demonstrates the effect of technology on the relationship marketing activities of services organizations such as the banks, including the extent of technology based services that the banks are continually introducing to improve customers' experiences, amidst low levels of acceptance especially amongst their senior citizen customers. The value derived from the literature reviewed in the Chapter demonstrates the need for the banks to understand the poor adoption of banking technologies by senior citizen customers despite these services' positive value propositions for these customers. To this end, the Chapter concludes by posing the study's research questions.

The next Chapter (Chapter 4) discusses the methodology deployed in the study. This discussion is followed by a discussion of the instrument used for the collection of data for the

study. The data collection methodology is also discussed in the chapter, including the study's population. In addition, the Chapter discusses the data analysis and the interpretation of results in the study.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 INTRODUCTION

Technology innovations have impacted on how modern businesses conduct their affairs and the manner in which they interact with their customers. In the banking industry, technology has had a tremendous effect on the way in which the banks throughout the world are providing services to their customers. One of the primary drivers of banking technology services is the improved operations efficiency technology offered by the banks. In addition, when effectively used in the provision of banking services, technology has the effect of allowing the banks the ability to reach wider market segments. Technology based banking services also provide bank customers the convenience of all-hour access to services in a less costly manner.

In South Africa, all the major retail banks provide technology based banking services via the Internet, landline telephone, cellphone and ATMs. However, the universal usage of banking services technologies by bank customers has still not been achieved by the banks. Senior bank customers in particular, are a customer segment of banks that show low levels of acceptance and use of banking services technologies. While in some cases senior customers have shown disinterest in technology based services and products, in many cases technology based services and products have failed to take into consideration the strengths and weaknesses of senior customers that would encourage their usage (Hanson, 2010). It is for this reason that factors influencing the acceptance of banking technologies by senior citizen bank customers need to be understood.

This chapter (Chapter 4) describes the methodology that was deployed in the research. The discussion in the chapter then proceeds to a description of the study population, and this is followed by a discussion of the sampling methodology deployed in the study. The instrument that was constructed for the collection of data in the study, and data collection process are discussed thereafter. Chapter 4 concludes with a discussion of the study's limitations.

4.2 RESEARCH METHODOLOGY

A quantitative research methodology was adopted for this exploratory research study. Quantitative research refers to a research method wherein the view of the phenomenon researched is numerically represented and analysed (Yoshikawa *et al.*, 2008). The focus of quantitative research, and its primary benefit, is the numerical description of things and their

relationships in a systematic manner (Tewkbury, 2009). As such, quantitative research is aimed at employing mathematical models and theories to the issue being researched (Onwuegbuzie and Leech, 2005), thus making this research method a more scientific approach to social research (Tewkbury, 2009). This contrasts with qualitative research methods as qualitative researchers are concerned with language data (Polkinghorne, 2005) that include "words, texts, narratives, pictures, and/or observations" (Yoshikawa *et al.*, 2008:344). The other key benefit of quantitative research methods is their ability to collect standardized data (Losch, 2006).

Exploratory research describes a type of research conducted when there is lack of sufficient knowledge on the research subject, and this type of research often does not follow predetermined scientific approaches (Amstrong, 1970). Amstrong (1970) points out that the focus of exploratory research is the provision of information about a phenomenon, much less the testing of concepts. There is limited research information available to describe the adoption of banking services technologies by customers of the South African banks in general, and particularly senior citizen customers.

4.3 RESEARCH POPULATION

Senior citizen bank customers were the study's research population. The researcher conveniently chose three old age centres in Gauteng (2) and the North West (1) provinces as the study's population sites given that it is not possible to obtain a list of senior bank customers from which to draw a random sample. Old age centres are designed specifically to cater for the special needs of senior citizens. In addition, the high probability of independence from the regular assistance of family members by senior citizens living in old age centres in activities such as banking informed the selection of these population sites. A small portion of the study's population was drawn from senior citizens living in their private homes in Mafikeng in order to enable the collection of a sufficient number of interviews for the study.

4.4 SAMPLING

A convenience sampling method was used for the study, and given that study population was senior bank customers, three old age centres and several senior citizens living in their private homes were conveniently selected as the study population bases. The sampling scheme was convenient because it was a non-probability sampling method. The questionnaire was administered with a total of 70 respondents, and the table below presents the participants' spread in the various study's sites.

Research Site	Number of Participants
1. Abbey Cross Frail And Old Age Care Centre	6
2. Summerfield Park	32
3. Lapa La Bothle	27
4. Private Homes	5
TOTAL	**70**

Table 4.1: Spread of the Study Population

4.5 DATA COLLECTION INSTRUMENT

It is an inherent requirement of the quantitative research method that the construction of an instrument to be administered in a standardised manner to check a list factors that are researched using a predetermined schedule or scales be undertaken (Onwuegbuzie and Leech, 2005). Such data collection instrument accords the research the benefit of structure and also provides the researcher clear information for collation (Wilson, 2004). A further benefit of using a data collection instrument in quantitative research methods is the instrument's ability to eliminate the researcher's bias (Onwuegbuzie and Leech, 2005).

The questionnaire that was developed for this study adopted the Technology Readiness Index (TRI) (Parasuraman, 2000) with minor adaptations to suite the objectives of the study, similar to other prior research exploring the readiness of people for technology (for example, Opara, Olutu and Mclayton, 2010; Berndt, Saunders and Petzer, 2010; Lin and Hsieh, 2007). A benefit of this measure to the study is that the scales in the TRI have been validated as a means of assessing people's propensity to use technology.

The data collection instrument used in this study was divided into five main parts:

- The first part of the data collection instrument focused on the respondents' main demographics that included their gender, levels of education and their race.
- The focus of the second part of the instrument had questions on the respondents' access to various types of technologies. In this regard, the questions were narrowly limited to the respondent's access to technologies that were used as a platform for the

provision of banking services by the South African banks such the Internet, cellphones credit cards and landline telephones.

- The third part of the research instrument contained questions about the respondents' usage of certain banking technology products. Again, this section of the data collection instrument was adapted to suite the objectives of this study as it focused only on the respondents' usage of technology products that were used by the South African banks to provide banking services to their customers.

- The fourth part of the questionnaire contained statements in the TRI scale that measures technology acceptance and readiness, which were also slightly adapted to meet the study's ends.

- The fifth and final section of the data collection instrument contained a 12-statement scale which was used to measure the respondents' future desirability to use banking services technologies.

Given that the measurement items in the TRI (Parasuraman, 2000) have been validated as appropriate measures of people's propensity to use banking services technologies (for example, Berndt, Saunders and Petzer, 2010), the research instrument designed for data collection in this study was, therefore, not validated as it adopted these items.

4.6 DATA COLLECTION

The population for the research study was senior citizens resident old age centres in Gauteng and North West. In addition, several respondents for the study were sourced from private homes in the Mafikeng area of the North West. The data for this study was collected through a questionnaire that was physically administered with senior citizen bank customers resident at these centres. In this regard, the old age centres were relied upon in the identification of residents that were in ideal physiological and psychological states to participate in the study.

A two-pronged data collection method was conveniently deployed after the objectives of the study and the questionnaire were explained to the individual participants at the old age centres. First, the participants were offered an opportunity to self-complete the questionnaire in the presence of the researcher where they were able to do so, and they were also allowed the opportunity to clarify any questions in the questionnaire that they found ambiguous. The second approach involved face-to-face interviews with participants who were unable to self-complete the questionnaire for various reasons, where the researcher completed the

questionnaire on the respondent's behalf in accordance to the responses that they provided on the individual questions that were posed in it. In some many cases, care givers at the centres were allowed to sit-in during the face-to-face interviews as this was requested by the participants.

This approach that was adopted for the administration of the questionnaires presented the best data collection method given the ages of the study's population which often presented barriers for the self-administration of the questionnaires by many of the study's respondents. Many senior citizens have special needs as a result of their often deteriorating physiological and psychological abilities due to their age (Pieterse, 2008). It is probably on this basis that the face-to-face interview method seemed the most preferred method by the study's participants and the availability of the centre's care givers during the interviews seemed to boost the confidence of many of the study's respondents.

4.7 LIMITATIONS OF THE STUDY

The non-scientific sampling methods used in this research study which were guided by convenience are its major limitation. For example, the old age centres that formed data collection bases for the study were chosen as a result of their convenient location which facilitated their accessibility to the researcher. The selection of the study's participants in the centres itself also demanded the intervention of the centres' staff who assisted in the identification of residents that were in ideal physiological and psychological states to be able to participate in the research, thus resulting in a non-probability sampling technique. As such, the study's findings cannot be extrapolated to the whole population of senior citizen bank customers.

4.8 CONCLUSION

This chapter (Chapter 4) described the methodology deployed in the research exploring the readiness of senior citizen bank customers for banking services technologies. The research instrument that was used for the collection of data for the study was also discussed in this chapter, as well as the deployed sampling method. The final section of the chapter provided the study's limitations and this was preceded by a brief outline of the study's population.

The next chapter (Chapter 5) discusses the study's data. This discussion describes the methods deployed for the analysis of data collected, including a presentation of the research findings.

CHAPTER 5: DATA DISCUSSION

5.1 INTRODUCTION

The previous chapter (Chapter 4) described the research and data collection methods that were deployed in conducting this study assessing the technology readiness of senior citizen customers of South African banks. This chapter of the study (Chapter 5) presents the study's data. Chapter 5 is divided into two main sections, data analysis and findings.

5.2 DATA ANALYSIS

The information collected during the study was analysed through quantitative data analysis means. A total of 70 questionnaires were issued to the study's population and there was a 100 percent response rate. The data collected from the questionnaires was coded and analysed using descriptive statistics via the Statistical Package for Social Sciences (SPSS) to determine the percentage of respondents towards the various sections of the questionnaire and presented in frequency distributive tables.

The questionnaire contained a list of statements focusing on technology acceptance and statements adapted from the Items in the TRI after the section on the demographic profiles of the respondents on which the respondents were requested to provide answers. A four item Linkert scale was used in which 1 represented "Strongly Agree"; 2 represented "Agree"; 3 represented "Don't Understand"; while 4 represented "Strongly Disagree".

5.3 STUDY'S DATA

The data for this study was collected through a questionnaire that was physically administered with senior citizen bank customers resident at three old age care centres, Abbey Cross Frail and Old Age Care Centre, Summerfield Park and Lapa La Bothle. In addition, the questionnaire was administered with several senior citizens residing in private homes in Mafikeng. A total of 70 questionnaires were prepared for the stud,y and all questionnaires were completed.

5.4 FINDINGS

The presentation of the findings of the study begins first with a description of the demographic profiles of the respondents. Thereafter, the specific findings regarding the various statements relating to technology adoption and technology readiness as regards senior citizen customers of the South African banks are presented. This presentation is divided into

sections dealing with findings on the respondents' access to technology based banking services, technology acceptance and technology readiness and measures of correlation.

5.4.1 DEMOGRAPHIC PROFILES OF RESPONDENTS

Table 5.4.1 below presents the demographic profiles of the respondents.

Table 5.4.1: Demographic Profiles of Respondents

Characteristic	Distribution	Fr	%
Age	60 - 70 years	12	17
	71- 80 years	0	0
	81-90 years	14	20
	Over 90 years	0	0
	No Answer	44	63
Gender	Male	25	36
	Female	45	64
Education	Diploma	50	71
	Degree	8	12
	Postgraduate Degree	12	17
Race	African	12	18
	Coloured	4	5
	White	54	77
Career	Academic and Pensioner	12	17
	Pensioner	58	83
Grew up	Countryside	9	13
	City	61	87

A total 70 questionnaires were administered with senior citizen bank customers who were study's population. Table 5.4.1 shows that female respondents represented the largest percentage (64%) of the study's respondents, while 34% were males. In addition, 87% of the study's population grew up in the city and 13% stake their origins in the country side. The importance of the respondent's origins relates to the disparity in access to numerous services between rural and urban areas in South Africa, and the impact that these differences have on a person's exposure.

5.4.1.1 Age of the Respondents

While senior citizen bank customers (60 years and older) were the study's population, a component of the demographic section of the questionnaire sought to segment this population into various age categories as it focused on their ages. However, a significant portion of the respondents (63%) did not reveal their age (Table 5.4.1). Only 26 respondents indicated their

age, and of this 20% were between the ages of 81 and 90 while 12% fell in the 60 to 70 years age category.

5.4.1.2 Race of the Respondents

A component of the demographic section of the questionnaire focused on the respondents' race. Table 5.4.1 (above) shows that White participants constituted 77% of the study's population, while 18% of the respondents were of African descent and coloured participants represented 5% of the population. There were no Asian participants in the study.

5.4.1.3 Education Levels of the Respondents

The education level of the respondents was another component of the demographic section of the study's questionnaire. As shown above (Table 5.4.1), a significant portion (71%) of the respondents have a college diploma, while 17% have a post-graduate University qualification and 12% is in possession of a University degree. Education levels are significant in understanding people's behaviour in adopting new technologies.

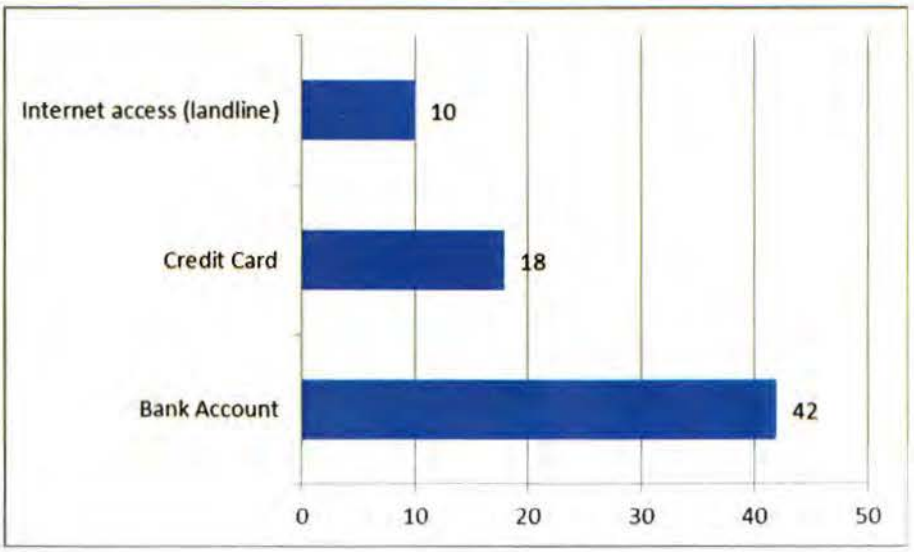
5.4.2 FINDINGS RELATING TO ACCESS TO TECHNOLOGIES AND TECHNOLOGY BASED-BANKING SERVICES AND PRODUCTS

The access and ownership of technologies has been found to correlate well with people acceptance of technology based products and services and their overall technology readiness (for example, Lee *et al.*, 2009). As a result, this section of the questionnaire focused on the respondent's access to various banking technologies and technology based products and services such as ATM banking, Internet banking and bank cards.

The aim of the section was to establish whether access to these technologies and technology based banking products and services impacted senior citizen bank customer's acceptance of banking services technologies and their readiness for technology based banking services.

A significant portion of the respondents (60%) indicated that they had a bank account and 26% of respondents had a credit card, while 14% of respondents had access to landline Internet. Figure 5.4.2 below demonstrates these findings..

Figure 5.4.2: Banking Technology Services and Products that Respondents had Access to (N=70).



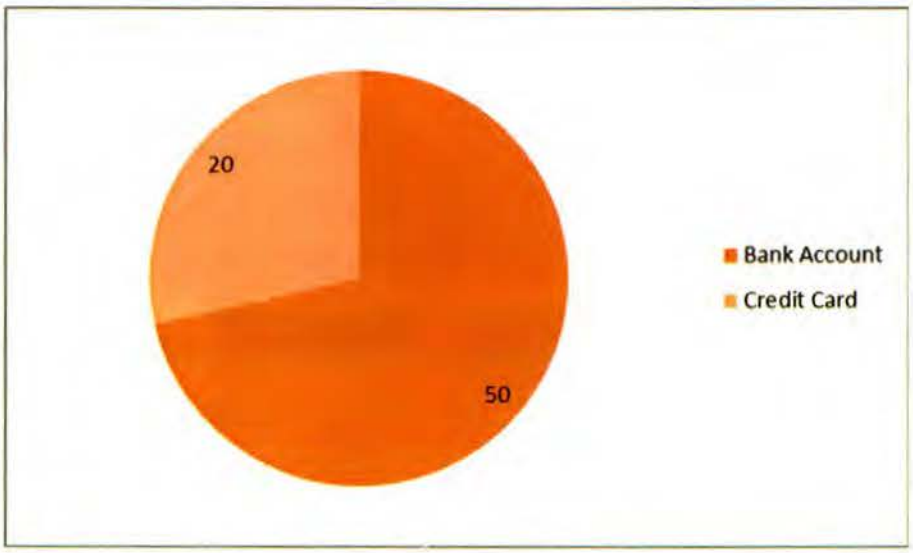
Whilst the high levels of the respondents' access to a bank account compare favourably with the findings of a study by Berendt, Saunder and Petzer (2010) which explored technology readiness of customers of the South African banks, the findings of this study demonstrates that senior citizens' access to bank accounts is generally low.

Further, the lower levels of access to land line Internet by the respondents is consistent with literature indications of low rates of diffusion of the Internet services in many developing countries such as South Africa, a factor often attributable to the low levels of Internet banking adoption.

5.4.3 FINDINGS RELATING TO BANKING PRODUCTS AND SERVICES RESPONDENTS INTENDED TO ACQUIRE

A focus of this section of the questionnaire was also the technology based banking products and services that the respondents intended to acquire in the next twelve months. The aim of this section was to attempt to determine the types of technology based products and services that the respondents found as desirable for them in the near future given that there are various types of adopters of technologies, which include users that demonstrate late adoption tendencies. The largest proportion of the respondents (71%) was planning to acquire a bank account and 29% planned to get a credit card (Figure 5.4.3 below). Figure 5.4.3 also demonstrates that the respondents had no immediate desires to acquire other technology based banking services such as cellphone, landline telephone and Internet banking.

Figure 5.4.3: Banking technology services and products that respondents intended to acquire in the next 12 months (N=70).



5.4.4 FINDINGS RELATING TO BANKING TECHNOLOGY PRODUCTS AND SERVICES RESPONDENTS HAVE USED

With regard to the technology based banking products and services that the respondents have used in the last 12 months, as can be seen (Figure 5.4.4) ATM banking was indicated as the most predominantly used technology based banking services by a significant portion of the respondents (66%) followed by land line telephone banking (34%). The predominance of ATM banking as the most widely used technology based banking platform correlates literature regarding this service method in South Africa (for example, Metcalf, 2009; BankServeAfrica, 2010). ATM use was also found to be extremely prevalent amongst respondents that participated in a similar study by Berendt, Saunder and Petzer (2010), although the latter's findings demonstrated a significantly higher respondent's usage of ATM's (87.4%) when compared to the findings of this study. A major challenge for the banks in this regard is that ATM banking is relatively more expensive a platform when compared to other technology based banking services such as Internet and cellphone banking.

Landline telephone banking usage by the respondents in this study (34%) was however higher than that of the respondents by the respondents that participated in the study by Berendt, Saunder and Petzer (2010) which demonstrated a landline telephone banking usage of only 14.4%.

Figure 5.4.4: Banking technology based services and products that respondents have used in the last 12 months (N=70).

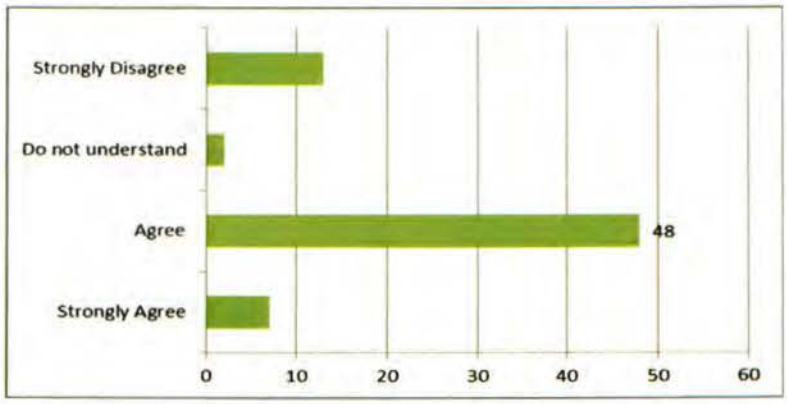
5.4.5 FINDINGS RELATING TO TECHNOLOGY ACCEPTANCE AND READINESS

This section of the study presents findings on the technology acceptance and readiness of the study's respondents for banking technology products and services. The segment of the questionnaire dealing with this section had a list of statements focusing on antecedents of technology acceptance and readiness identified in the literature that the respondents had to rate their responses on.

The following four statements in this section related to the respondent's perceptions of the technology acceptance antecedents of benefit in so far as the use of banking technologies is concerned (perceived usefulness), and the respondents' perceived comfort around these technologies (perceived ease of use). When people find technology useful and easy to use, this has the effect of influencing their positive behaviour towards it (Im, Hong and Kang, 2011; Ayo *et al.*, 2010).

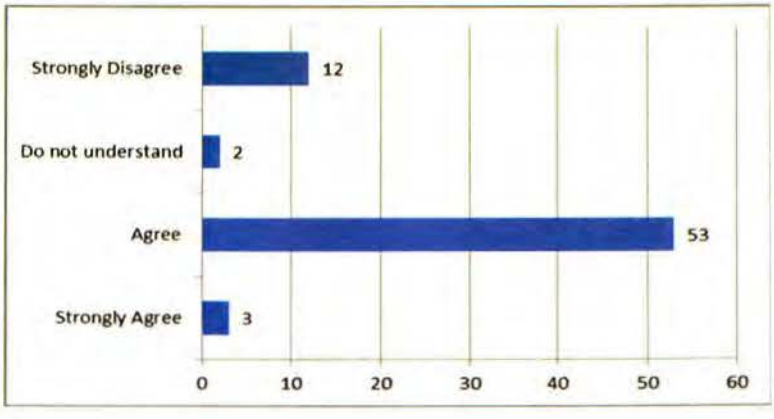
The first statement related to the perceptions of the respondents on whether technology gave them better control and power over their lives or made them powerless. A significant number of the respondents (69%) indicated that they feel that technology gives them more control of their lives. This finding demonstrates that senior bank customers participating in the study perceived technology as useful in their lives. Figure 5.4.5 (below) demonstrates this finding.

Figure 5.4.5: Technology gives me more control of my life (N=70).



The second statement also related to whether the respondents saw any usefulness of technology in their lives. In this regard, the respondents were asked to indicate whether they viewed technology as offering them convenience when used to provide banking services and products. Nearly two thirds (76%) of the respondents indicated that banking services and products that use new technology offered them convenience, and therefore perceived as useful, while 17% of respondents indicated that these services and products were not useful to them.

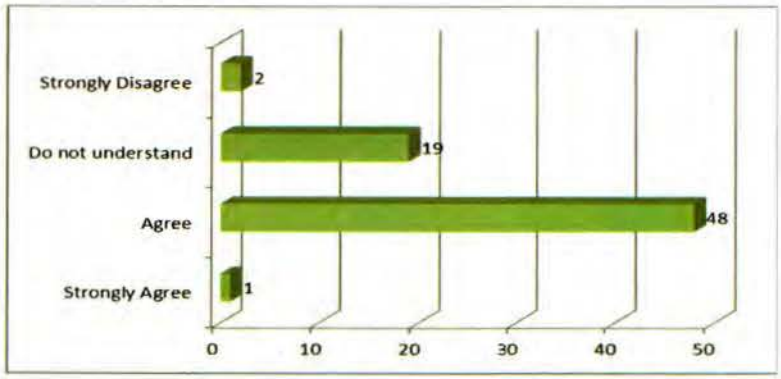
Figure 5.4.6: Banking services and products that use new technology are much more convenient to use (N=70).



The third statement in this section also focused on the respondents' perceptions of the benefits of technology banking services and whether this was something that they valued. Figure 5.4.7 (below) presents the findings, and as can be seen, a significant percentage of respondents (69%) indicated that the convenience associated with Internet banking that allowed all-hour access to banking was something that they liked, while 27% of the respondents indicated that

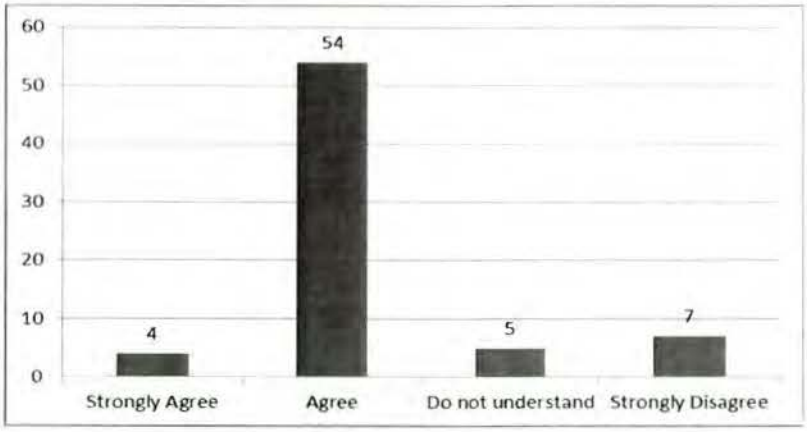
they did not understand the statement. This finding demonstrates that the respondents see value and benefit of technology based banking services and products in their lives.

Figure 5.4.7: I like the idea of banking with computers because I am not limited to business hours (N=70).



The respondent's perceived ease of use of technology and comfort in applying technologies was another factor that was assessed in this component of the questionnaire, where ease of use relates to the respondents comfort in using technology. In this regard, the respondents were asked to indicate whether they were positive that they were able to manipulate technologies to do what they tell them to do. As demonstrated in figure 5.4.8 (below), a high proportion of respondents in the study were positive that they were able to make technology applications to do what they tell them to do.

Figure 5.4.8: I can make technologies do what I tell them to do.



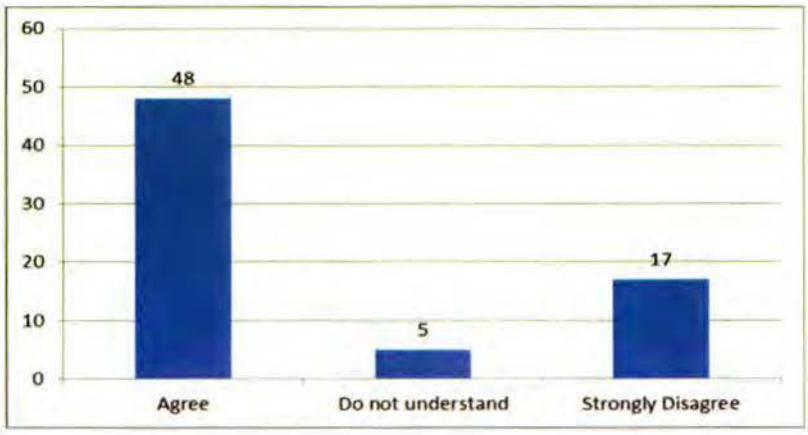
The other statements in the questionnaire related to the positioning of the respondents on the technology adoption continuum, which categorises the propensity of people to use

technologies as innovators, early adopters, early majority, late majority or laggards. In terms of the adoption continuum, innovators and early adopters have a higher propensity to use new technologies when compared with the early majority, late majority and laggards (Mattila, Karjaluoto and Pento 2003). As a result, these first mover characteristics make them more technologically ready (Rose and Fogarty 2010; Walczuch, Lemmink and Streukens 2007).

The first statement in this section required the respondents to indicate whether they agreed or disagreed with the statement that they were other people's referents when it comes to new technologies. Innovators tend to take the lead in technology adoption and it is from these people that, usually, others tend to seek advice on new technologies.

Figure 5.4.9 presents the findings, and as can be seen a significant proportion of the respondents (69%) indicated that they were referents to others when it comes to technology, thus demonstrating tendencies of innovators, while 24% of the respondents disagreed with the statement.

Figure 5.4.9: Other people come to me for advice on new technologies

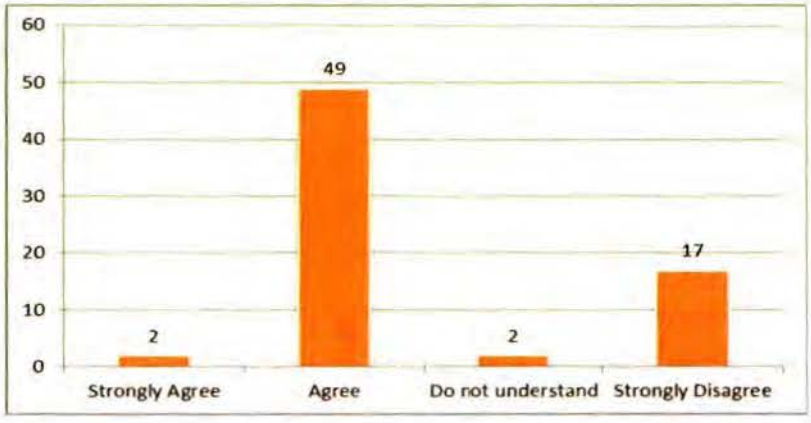


Other supporting statements relating to the respondents' tendencies to be innovators and early adopters of new technologies corroborated the findings presented in Figure 5.4.9. A total of 65% of respondents indicated that they were first amongst their friends to learn about new technologies, while 25% did not perceive themselves as first to learn about technology. The finding regarding the attitudes of the respondents regarding learning about new technologies was also similar as 69% of the respondents indicated that they found learning about new technologies to be a rewarding experience, with only 17% disagreeing. In addition, a significant proportion of the respondents (71%) indicated that they found it easy to configure

new technologies on their own, while 70% of the respondents also indicated that they keep up with new technologies in their areas of interest with only 23% demonstrating tendencies associated with late adoption.

An observable finding regarding the technology readiness questions in this section of the questionnaire was that while a significant portion of the respondents (65%) indicated that they were the source of advice for others on new technologies (Figure 5.4.9), an equally higher proportion (70%) also felt that they were left behind by their fiends as regards learning about new technologies (Figure 5.4.10 below). These findings may be a demonstration of the study's senior citizens' eagerness to know more about technologies and their desires stay up to date with latest technological developments. Literature indicates that most of the marketing information available is concerned with young consumers, resulting in challenges for marketers to successfully target and retain senior citizens by designing products and services that cater for the needs of this mature market (Pieterse, 2008). Figure 5.4.10 (below) presents these findings.

Figure 5.4.10: It seems like my friends are learning more about newest technologies than I am (N=70).

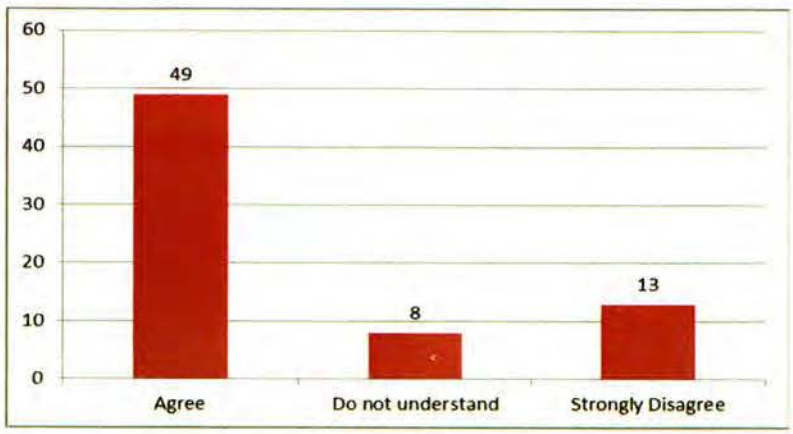


On the opposite side of innovators and early adopters of new technologies are people who generally have lower propensities to use new technologies, and these people commonly have little trust of technology. The questionnaire contained 12 statements in this regard. Results of the three key statements are presented below.

People that generally have lower propensity to adopt technologies usually have concerns about its reliability, security, safety and show general mistrust towards technology innovations. The respondents were asked to indicate whether they agreed with the statement that technology always seem to fail at the worst possible times, as one of the measures of

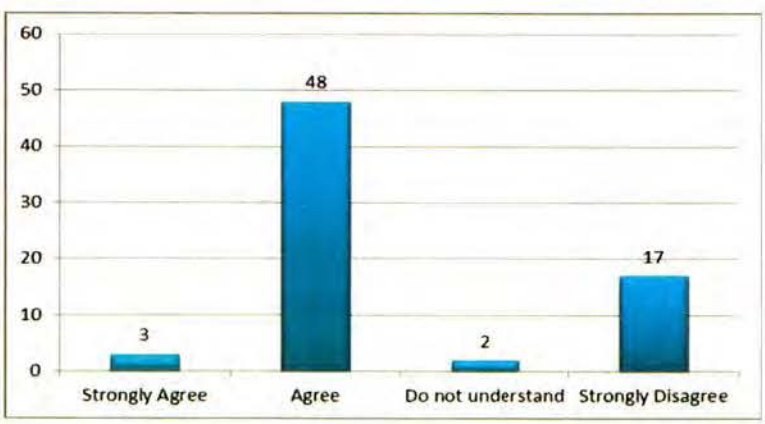
assessing their level of trust of the reliability of new technologies. The questionnaire results (Figure 5.4.11) demonstrate that a significant proportion of the respondents (70%) viewed technology as unreliable, while only 19% of the respondents were positive about the reliability of technology.

Figure 5.4.11: Technology always seems to fail at worst possible times (N=70).



The safety of technology, as an antecedent of its adoption, is also closely linked to trust especially in trust driven industries such as banking. In this regard, this component of the questionnaire required the respondents to indicate whether they considered it safe to perform financial transactions via computers. As demonstrated by Figure 5.4.12 (below), only 24% of respondents felt that is was safe to perform financial transactions via computers while the majority of respondents (69%) indicated that computers were not safe as medium for performing financial transactions.

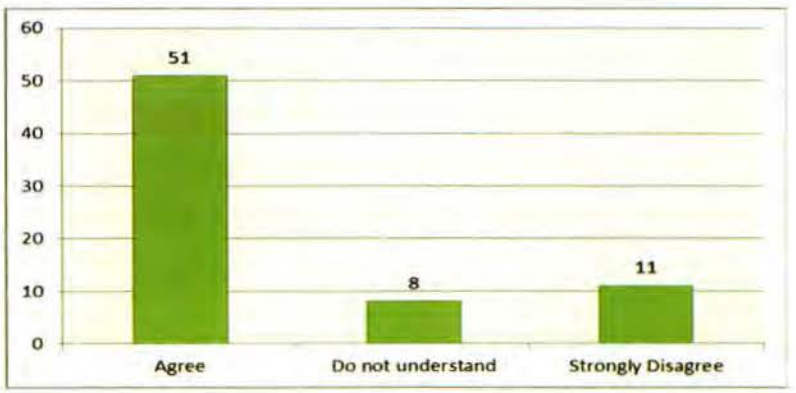
Figure 5.4.12: It is not safe to do any kind of financial transaction over the computer (N=70).



Safety as an antecedent of technology adoption is also considered by users from the point of view of the safety of the technology application itself (for example, Termsnguanwong, 2010).

In this regard, the respondents were asked to indicate whether they agreed with the statement that whenever someone gets automated, you need to check carefully that the machine is not making mistakes. A significant proportion of respondents (73%) demonstrated high degrees of concern about the safety of technology applications, while 16% of respondents were content that technology applications were safe.

Figure 5.4.13: Whenever someone gets automated, you need to check carefully that the machine is not making mistakes (N=70).



The results in this section demonstrate that the respondents have interest in technologies, and also that they show interest in learning about it as they often demonstrate tendencies of innovators. Also, the results demonstrate that trust of new technologies play a very important part in the adoption of technology by the respondents, as is the safety of using technologies and the safety of the applications themselves. Most significantly, the findings in this section demonstrate that senior citizens bank customers do not view it safe to perform financial transactions via computers. In addition, findings in this section demonstrate that most respondents feel left out from technology information on technology innovations, thus pointing the need for marketing efforts of businesses such as the to ensure the dissemination of adequate information to this market segment.

5.4.5.1 MEASURES OF ASSOCIATION (REGRESSION AND CORRELATION)

This section of the report presents findings on the association between the various antecedents of technology acceptance and readiness on the study's respondents. In this regard, correlation analysis was conducted on factors such as the access to certain banking technologies, level of education, gender of the respondents and the respondent's responses to the statements in the questionnaire measuring their technology acceptance and readiness. Correlation analysis refers to various techniques that are used for measuring the extent of the relationship between different variables. The objective of this analysis was to measure the extent to which, for

example, access to banking technologies impacted the technology acceptance and readiness tendencies of the respondents. Pearson correlation coefficient was used.

The first correlation analysis that was conducted was concerned with establishing whether there was a relationship between the education levels of the respondents, as an independent variable, and the three statements measuring their perceived ease of use of banking technologies.

A perfect negative correlation was found as regards the access to technology based banking services and products and the level of education of the respondents as they have a value of r = -0.542. Respondent's perceptions of technology as a source for control over their daily lives was also found to be negatively correlated to their education levels with a coefficient value of r = -0.466. As regards the convenience derived from using banking services and products and the respondent's levels of education, a positive correlation was found with a coefficient value of r = 0.211.

In addition, the benefit of all-hours access to banking that comes with technology was found to be positively correlated with the respondent's level of education (r =0.603). Further, there was also a positive correlation between the respondent's gender and their perceptions around the benefit of all-hours access to banking that is derived from technology services and products with a coefficient value of r = 0.941.

.941**

With regard to the relationship between ease of use and comfort of the respondents in using new technologies, and their levels of education, the statement relating to the respondents' confidence that machines easily respond to their instruction was used. A positive correlation was found between this statement and the respondent levels of education with a coefficient value of r =0.747. However, this statement was negatively correlated with the respondents' gender (-0.481).

Regarding the statements measuring the innovator tendencies of the respondents, one statement was elevated for measuring of association and it related whether the respondents felt that they were first amongst my circle of friends to acquire new technologies. A correlation analysis was conducted on whether there was any association between this and the level of education of the respondents. It was found that the levels of education and the respondents' innovator tendencies were positively correlated with a coefficient value of r =

.689. However, the statement measuring the innovator tendencies of the respondents was found to be negatively correlated to gender with a value of r = -0.270.

The correlation analysis of relationship between the respondent's trust of technologies and their levels of education was also conducted. In this regard, the statement that when performing transactions via technology one has to make sure that the computer does not make a mistake was used. It was found that trust of technology is positively correlated with the respondents' level of education with a coefficient value of r = .482. Trust of technology was, however, negatively correlated with the respondent's gender (r = -.333).

5.5 CONCLUSION

Chapter 5 presented the study's research findings. The next Chapter (Chapter 6) provides main conclusions of the study. It is also in this chapter that the study's research questions are answered. Chapter 6 further provides a set of recommendations for bank managers on measures that can be put in place to ensure improved diffusion of technology based banking services amongst their senior citizen customers.

CHAPTER 6: MAIN FINDINGS AND RECOMMENDATIONS

6.1 INTRODUCTION

The South African banks are continuously investing significant resources in banking technologies with a view of maximising their operations and also increase their market shares. The usage banking technologies to provide services to customers is a common phenomenon throughout the world (Safeena, Abdullah and Date, 2010). The benefit of electronic banking in South Africa to the banks is its potential to reduce the operational costs of banking associated with branch networks (Raleting and Nel, 2010). In addition, technology based banking services such as cellphone banking possesses the potential of assisting the banks to speedily extend banking services to people that previously had no access to banking – the previously unbanked (Porteous, 2007; Ivatury and Pickens, 2006). Further, technological banking has the effect of increasing customers' experience and also provide them better control of their financial affairs (Raleting and Nel, 2010). It is for these reasons that the banks should understand the readiness of customers for banking technologies.

The previous chapter (Chapter 5) discussed data that were collected during the study. This chapter (Chapter 6) discusses the main findings of the study. It is in this chapter that the study's research questions are answered, and the also provides recommendations to the management of the banks on measures that can be put in place to improve the usage and adoption of technology based banking services by senior customers of the banks.

6.2 MAIN FINDINGS

The objective of this study was to determine the technological readiness of senior citizen bank customers and their banking technology adoption behaviours. In particular, the purpose of the study was to determine the relationship between technology readiness and age seniority as a moderator. Further, the study's aim was to determine whether senior citizen customers currently having access to technology based banking services and products were more technologically ready banking technologies, with a view of devising insights into the role that the managerial function of marketing could play to increase usage.

A quantitative research methodology was adopted for this exploratory research study. In this regard, a survey was administered with a population of 70 senior citizen bank customers residing in three old age centres in Gauteng and North-West. Senior citizens resident in private homes in Mafiken, North West province, also formed a smaller portion of the study's

population. Data collected through the survey was captured and analysed through the Statistical Package for Social Sciences and presented in frequency distributive tables.

Based on the research objectives of the study in Chapter 1 and the study's central questions in Chapter 3, the following are the main findings of the study:

i. **Are senior citizen bank customers who currently have access to technology based banking products and services more accepting of, and technologically ready for, technology based banking services?**

The data collected during the study demonstrates that senior citizen bank customers that have access to banking products and services are more accepting and technologically ready for technology based banking services. This is supported by data in Figure 5.4.7 which demonstrates that 69% of the respondents indicated that they like the idea of technology based banking because of the all-hour convenience that they provide. In addition, Figure 5.4.6 demonstrates that senior citizens perceive banking technologies as easy to use (76% of respondents), while Figure 5.4.5 demonstrates the respondent's positive perceptions of the usefulness of banking technologies in their lives which are requirements for technology acceptance. The study also revealed that the education levels of the respondents did not influence their acceptance and readiness of technology based banking products and services. Further, the technology readiness of senior citizens is demonstrated by the innovator characteristics that they demonstrate in Figure 5.4.9 and Figure 5.4.10. However, it is clear from the data collected in the study that senior citizen customers of the banks only have access to, and use, basic technology based banking services and products such as a bank accounts, landline telephone banking and ATM's. It is therefore important that the marketing efforts of the banks ensure the promotion of other technology based banking services such as Internet and Cellphone banking to senior citizen customers.

ii. **Do senior citizen bank customers who have access to technology based banking services and products have a higher perceived desirability of using technology based banking services?**

The study revealed that senior citizen bank customers who have access to technology based banking services and products have a higher desirability to use technology based banking services. This is supported by Figure 5.4.10 which demonstrated that 70% of respondents were concerned that they were left behind by their fiends as regards learning about new

technologies, thus demonstrating desirability to use banking technologies. This finding therefore demonstrates inadequate dissemination of information on new banking technologies to senior citizen customers, a factor that results in the anxiety illustrated in Figure 5.4.10.

iii. Are senior citizen bank customers who are currently using technological banking services more technologically ready?

The study revealed that senior citizen banking customers who have access to technology based banking services and products, while technologically ready, also espouse insecurity about technology based banking services. Senior bank customers are concerned about the safety of technology based banking services and products. This is supported by Figure 5.4.12 which demonstrates that a significant proportion of senior citizens (73%) felt that it is not safe to conduct financial transactions over the Internet. In addition to safety, 70% of senior citizen customers of who have access to technology based banking products and services demonstrate low trust levels towards technology based banking services and products. The research study findings also revealed that senior citizen customers of the banks were also concerned about the safety of the technology applications that were used in banking, as demonstrated by Figure 5.4.13. Further, the study revealed that senior citizens customers of the banks have low levels of trust towards technology based banking services and the technology applications used for banking. This is demonstrated by Figure 5.4.11 which reveals that senior citizens believe that technology always seem to fail at the worst possible times. Technology users' trust of technology applications is closely linked to the quality of the applications in the delivery of services demonstrating that the need for improved service delivery of technology based banking services.

6.3 SUMMARY OF THE MAIN FINDINGS

This study's central objective was to determine the technological readiness and acceptance of banking technologies of senior citizen bank customers of the South African banks. In particular, the objective of the study was to determine the relationship between technology acceptance behaviours and readiness, and age seniority as a moderator with the objective of developing an understanding of how the marketing management function can increase usage.

Therefore, the following main findings were derived from the study:

6.3.1 Senior citizen bank customers of the South African banks who have access to technology based banking services and products are ready for banking technologies, but currently only have access to, and use of, basic banking technology services and

products that include a bank account, landline telephone banking and ATMs. In addition, there is no correlation between gender and with the education levels of senior citizen bank customers of the South African banks and their technology readiness and adoption behaviours.

6.3.2 Senior citizen bank customers of the South African Banks that have access to technology based banking services and products have higher desirability to learn more about technology banking products and services. However, this segment of bank customers does not have adequate access to information on new banking technology innovations that is tailored to their unique traits.

6.3.3 Safety of technology based banking services and products, including the safety of the technology applications are major concerns impacting the technology readiness and adoption of technology based banking services of senior citizen customers of the South African banks. These factors turns to make senior citizen customers of the South African banks that have access to technology based banking products and services less technologically ready, thus negatively impacting their adoption.

6.4 RECOMMENDATIONS

The findings of the study explained in this chapter guides the following recommendations for the benefit of the management of the banks:

- The marketing efforts of the banks should emphasise the promotion of other technology based banking services and products, such as cellphone and Internet banking, amongst their senior citizen customers who have access to technology based banking services and products. This is based on the study's finding that senior citizen bank customers of the South African banks who have access to technology based banking services and products are ready for banking technologies, but currently only have access to, and use of, basic banking technology services and products that include a bank account, landline telephone banking and ATMs.
- The marketing and promotion information of technology based banking services and products of the banks targeting senior customers should be tailored to the unique traits of the bank's customer segment. This recommendation is based on the study's finding that senior citizen bank customers of the South African Banks that have access to technology based banking services and products have higher desirability to learn more about technology banking products and services, but do not have adequate access to information on new banking technology innovations that is tailored to their unique traits.

- The banks promotions of technology based products and services should emphasise the safety of technology based banking services and products in order to increase their appeal to senior citizen customers. The study found that the safety of technology based banking services and products, including the safety of the technology applications are major concerns impacting the technology readiness and adoption of technology based banking services of senior citizen customers of the South African banks.

- The technology divisions of the banks should continue to improve the quality of the technology based platforms that the banks use for services provision to prevent service failures, a factor that will result in improved trust of the platforms by senior customers thus winning their loyalty towards the services platforms and the banks themselves. The study found that The study's finding is that the trust of banking technology platforms is a major factor impacting the technology readiness of senior citizen bank customers of the South African banks.

6.5 CONCLUSION

Banking technologies are important for the growth of the market shares of the South African banks, positive customers' experience and also for the attainment of other social goals such as the speedy delivery of banking services to the previously unbanked. This study investigated the readiness of senior bank customers of the South African banks for banking technologies. In view of the study's findings that senior citizen customers of the South African banks possess positive characteristics towards banking technologies but do not receive adequate information about these technologies, it can be concluded that the banks' marketing efforts need to be improved in order to focus information about banking technologies on this customer segment. In addition, the study's findings indicate a high desirability for the banks to focus their efforts on establishing customer confidence and trust on banking technologies in order to make these technologies attractive to their senior citizen customers.

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APPENDIX A: MATRIX

	Online Transactions	Acceptance	Internet and TAM	Mobile and TAM	Always on Internet
Modeling the electronic transactions acceptance 1	•	•	•	•	•
Future use intentions versus intensity use 2		•	•	•	
IT acceptance 3		•		•	•
Assessing the self-service technology encounters 4	•				•
Choosing self-service technologies or interpersonal services 5	•	•	•	•	•
The impact of information and communication technology 6	•	•	•	•	
A meta-analysis of the technology acceptance model 7		•	•	•	
Affect and acceptance : Examining the effects 8		•	•		
Older adults talk technology 9		•	•	•	•
Internet use intention and adoption 10		•	•	•	•
Understanding continued IT usage behavior 11		•	•	•	
The Technology acceptance model: It's past and its future in health care 12		•	•		
Extended technology acceptance model 13		•	•	•	•
The role of post-use trust 14	•	•	•		
Towards and understanding of consumer acceptance of mobile wallet 15		•		•	
Acceptance of emerging technologies 16		•			
Technology acceptance model for internet banking 17	•	•	•		
Moderating effects of technology acceptance perspectives on e-service quality formation 18	•	•	•	•	•
Adoption of internet banking 19	•	•	•	•	
Extending the technology acceptance model 20		•	•	•	
Factors influencing the adoption of internet banking 21	•	•		•	•
Expanding the Technology Acceptance Model 22		•	•	•	
An investigation into the acceptance of online banking in Saudi Arabia 23	•	•	•	•	
An international comparison of technology adoption 24	•	•		•	
Telling the story of older people e-making 25		•	•		
Co-operation and user-generated content-elderly people's user requirements 26	•		•	•	
Software engineering education 27					
Computer use by older people: A multi-disciplinary review 28			•		
Everyday use of computer-mediated communication tools 29	•		•		
Influencing technology adoption by older adults 30	•		•		
IST: Senior executive use31		•		•	
Senior executive's use of IT 32		•		•	
Using the technology acceptance model to explain how attitudes determine internet usage 33	•	•	•	•	
What drives mobile commerce? 34	•	•	•	•	
Empirical evaluation of the revised end user computing acceptance model 35		•		•	
What drives global ICT adoption? 36	•		•	•	
"Informing" technologies and the World Bank 37		•			
Perspectives on use of mobility aids in a diverse population of seniors 38		•	•	•	
Age differences in perceptions of online community participation among non-users 39	•		•	•	
An international comparison technology adoption 40		•	•	•	
Technology Readiness	•				

	Online Transactions	Acceptance	Internet and TAM	Mobile and TAM	Always on Internet
tions acceptance 2	•	•	•	•	•
use intentions versus intensity use 3		•	•	•	
IT acceptance 4		•		•	•
ology encounters 5	•				•
ersonal services 6	•	•	•	•	•
tion and communication technology 7	•	•	•	•	
of the technology acceptance model 8		•	•	•	
Affect and acceptance : Examining the effects 9		•	•		
talk technology 10		•	•	•	•
on and adoption 11		•	•	•	•
nding continued IT usage behavior 12		•	•	•	
eptance model: It's past and its future in health care 13		•	•		
ceptance model 14		•	•	•	•
The role of post-use trust 15	•	•	•		
umer acceptance of mobile wallet 16		•		•	
Acceptance of emerging technologies 17		•			
Technology acceptance model for internet banking 18	•	•	•		
quality formation 19	•	•	•	•	•
Adoption of internet banking 20	•	•	•	•	
the technology acceptance model 21		•	•	•	
internet banking 22	•	•		•	•
he Technology Acceptance Model 23		•	•	•	
e of online banking in Saudi Arabia 24	•	•	•	•	
comparison of technology adoption 25	•	•		•	
Telling the story of older people e-making 26		•	•		
elderly people's user requirements 27	•		•	•	
Software engineering education 28					
puter use by older people: A multi-disciplinary review 29			•		
day use of computer-mediated communication tools 30	•		•		
Influencing technology adoption by older adults 31	•		•		
IST: Senior executive use32		•		•	
Senior executive's use of IT 33		•		•	
attitudes determine internet usage 34	•	•	•	•	
What drives mobile commerce? 35	•	•	•	•	
user computing acceptance model 36		•		•	
What drives global ICT adoption? 37	•		•	•	
"Informing" technologies and the World Bank 38		•			
in a diverse population of seniors 39		•	•	•	
nity participation among non-users 40	•		•	•	
al comparison technology adoption 41		•	•	•	

APPENDIX B: QUESTIONNAIRE

QUESTIONNAIRE

FOR OFFICE USE ONLY: Respondent Code: _____

VOLUNTARY QUESTIONNAIRE FOR TENDERERS

"Technology acceptance for seniors"

Graduate School NWU, University of South Africa

Researcher B Diako

Supervisor: Prof S Lubbe

Note to the respondent

- We need your help to understand how people view the banking process
- Although we would like you to help us, you do not have to take part in this survey.
- If you do not want to take part, just hand in the blank questionnaire at the end of the survey session.
- What you say in this questionnaire will remain private and confidential. No one will be able to trace your opinions back to you as a person.

The questionnaire has four parts:

Part 1 asks permission to use your responses for academic research.

Part 2 asks general personal particulars like your age, gender and home language.

Part 3 asks about banking for seniors

How to complete the questionnaire

1. Please answer the questions as truthfully as you can. Also, please be sure to read and follow the directions for each part. If you do not follow the directions, it will make it harder for us to do our project.

2. We are only asking you about things that you and your fellow researchers should feel comfortable telling us about. If you don't feel comfortable answering a question, you can indicate that you do not want to answer it. For those questions that you do answer, your responses will be kept confidential.

3. You can mark each response by making a tick or a cross, or encircling each appropriate response with a PEN (not a pencil), or by filling in the required words or numbers.

Thank you very much for filling in this questionnaire.

Part 1: Permission to use my responses for academic research

I hereby give permission that my responses may be used for research purposes provided that my identity is not revealed in the published records of the research.

Initials and surname _____ Postal address: _____

_____ Postal code: _____

Contact numbers: Home: _____ Cell: _____

SECTION B: ACCESS TO TECHNOLOGIES AND TECHNOLOGY BASED-BANKING SERVICES AND PRODUCTS		
Are senior citizen bank customers who currently have access to technology based banking products and services more technologically ready for technology based banking services?	**Do you currently have access to any of the following technologies and technology based banking products and services?**	**Answer yes or no in sections**
		Bank Account
		Credit card
		Cellphone
		Landline telephone
		Internet access (landline)
		Internet access (broadband)
		Wireless handheld devices (e.g. Blackberry)
SECTION C : USAGE OF CERTAIN TECHNOLOGY-BASED BANKING PRODUCTS AND SERVICES		
	Are you planning to have any of the following technology based banking products and services in the next 12 months?	
		Bank Account
		Credit card

		Cellphone
		Landline telephone
		Internet access (landline)
		Internet access (broadband)
	Have you used any of the following technology based banking products and services in the last 12 months?	
		ATM Banking
		Landline telephone banking
		Cellphone banking
		Internet banking
		SMS or email banking notification
		On-line shopping via banking reward scheme
TECHNOLOGY READINESS		
Are senior citizen bank customers who are currently using technological banking services more technology ready?	**Do you agree or disagree with any of the following statements?**	**Scale** **1=Strongly agree; 2 agree; 3 do not understand and 4=Strongly disagree**
1.	Technology gives me more control of my daily life	
2.	Banking services and products that use new technology are much more convenient to use	
3.	I like the idea of banking with computers because I am not limited to business hours	
4.	I prefer the use of most technologies available	
5.	I like computer programmes that allow me to tailor things	

	to my needs	
6.	I find new technologies to be mentally stimulating	
7.	Technology gives me freedom to move	
8.	Learning about technology can be as rewarding as technology itself	
9.	I feel confident that machines will do what you tell them to do	
10.	Other people come to me for advice on new technologies	
11.	It seems like my friends are learning more about newest technologies than I am	
12.	In general, I am the first amongst my circle of friends to acquire new technologies	
13.	I can usually figure out new technology products and services without help from others	
14.	I keep up with the latest technologies in my area of interest	
15.	I enjoy the challenge of figuring out how high technology gadgets work	
16.	I find I have fewer problems than other in making technology work for me	
17.	Sometimes I think technology systems are not designed for use by ordinary people	
18.	There is no such thing as a manual for new technology products that is written in plain language	

19.	When I get technical support from a provider of new technologies I feel as if I am taken for granted by someone who knows more than me	
20.	If I buy a high technology product or service, I prefer having a basic model rather than one with a lot of features	
21.	It is embarrassing when I have trouble with a high technology gadget when people are watching	
22.	When replacing important people-tasks organizations must be careful because new technologies can breakdown or get disconnected	
23.	New technologies have a health or safety that is not discovered until people have used them	
24.	New technologies makes it too easy for governments and companies to spy on other people	
25.	Technology always seems to fail at the worst possible times	
26.	I don't think its safe to give out a credit card number over the computer	
27.	I don't think its safe to do any kind of financial transaction over the computer	
28.	I don't feel confident transacting with an organization that can only be reached online	
29.	Any banking transaction you do electronically should be confirmed later with	

	someone in writing	
30.	Whenever someone gets automated, you need to check carefully that the machine is not making mistakes	
31.	The human touch is very important when banking	
32.	When I call a bank, I prefer to talk to someone rather than a machine	
33.	If I provide information over a machine, I'm never sure if it gets to the right place	
PERCEPTIONS OF THE FUTIRE DESIRABILITY OF TECHNOLOGY BASED SERVICES		
Are senior citizen bank customers who have a higher perceived desirability of using technology based banking services more technologically ready?		**On a scale of 1 – 6** **1=Very undesirable; 2 undesirable; 3 = neutral; 4 somewhat desirable; 5 desirable and** **6=Very desirable how would you rate the following activities.** **Write a number in the column below**
	Make online transfers and payments	
	View accounts and balances online	
	View and download banking account statements online	
	Purchase small items like tickets via banking online services	
	Purchase large items like furniture via banking online services	
	Apply for banking services and products online	

	Buy prepaid phone airtime via cellphone banking	
	Make cellphone banking payments and transfers	
	View accounts and balances via cellphone banking	
	Let someone know via email or SMS that you have paid them	
	View and download banking account balances via cellphone	
	Apply for banking products and services via cellphone	

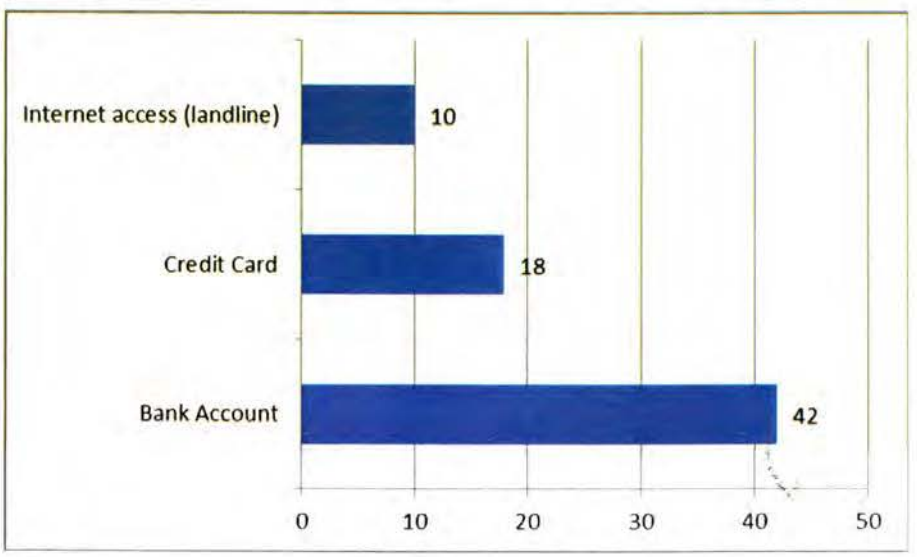
1.	I am _____years old.
2.	I am a: □ female □ male.
3.	I grew up in: □ a rural area □ an urban area
4.	I have: □ a diploma/school Grade 12 □ a degree □ a post-graduate degree
5.	I am: □ African □ Coloured □ Indian □ Oriental □ White □ a member of another ethnic group: _____
6.	I am:

	□ Academic □ Student

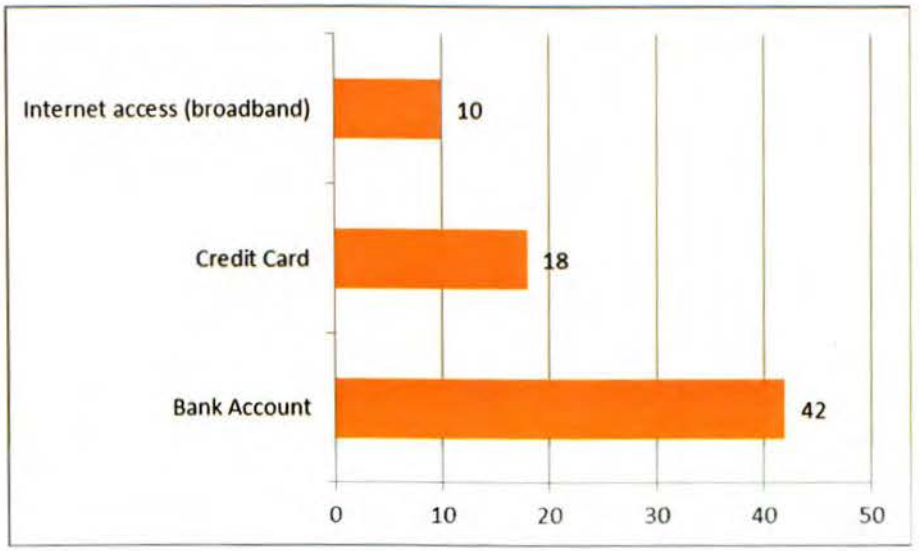
APPENDIX C: STATICAL TABLES

Characteristic	Distribution	Fr	%
Age	60 - 70 years	12	17
	71- 80 years	0	0
	81-90 years	14	20
	Over 90 years	0	0
	No Answer	44	63
Gender	Male	25	36
	Female	45	64
Education	Diploma	50	71
	Degree	8	12
	Postgraduate Degree	12	17
Race	African	12	18
	Coloured	4	5
	White	54	77
Career	Academic and Pensioner	12	17
	Pensioner	58	83
Grew up	Countryside	9	13
	City	61	87

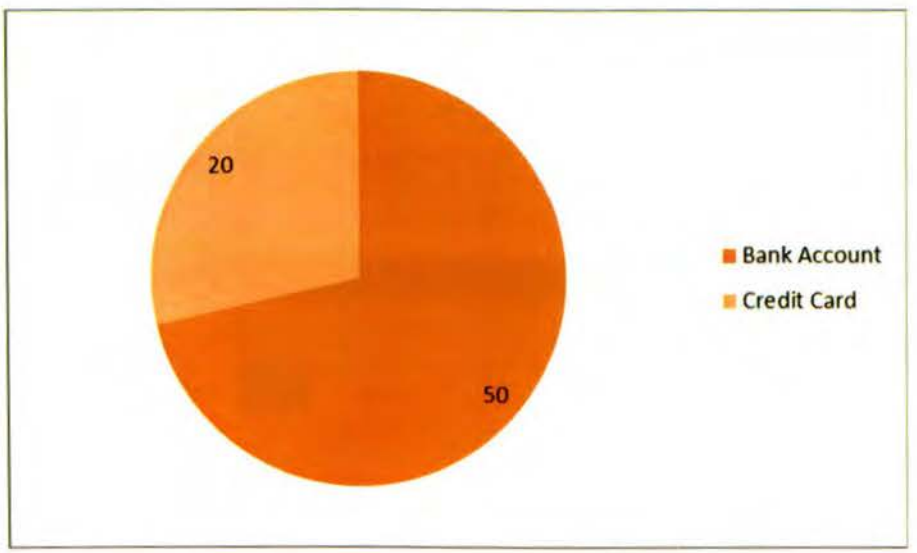
Are you a senior citizen bank customers who currently have access to technology based products and services more technologically ready for technology based banking services?



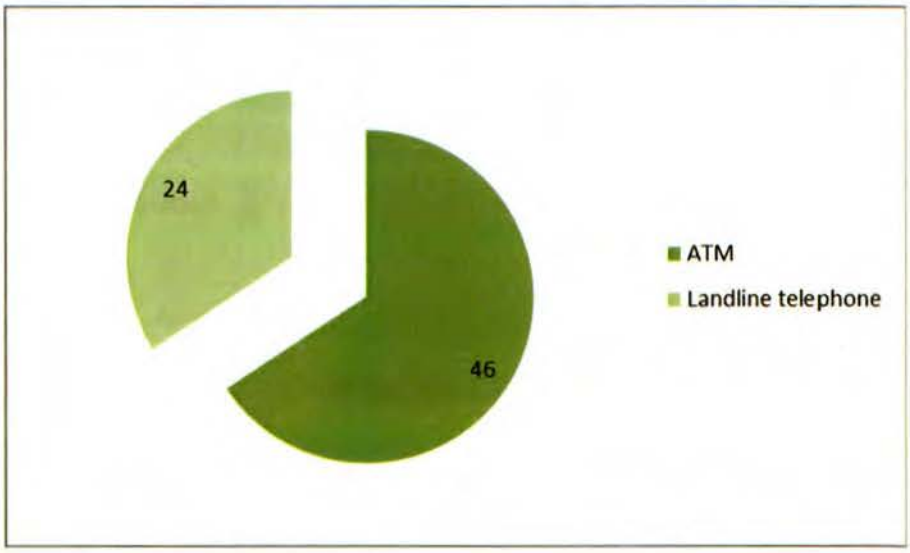
Do you currently have access to any of the following technologies and technology based products and services?



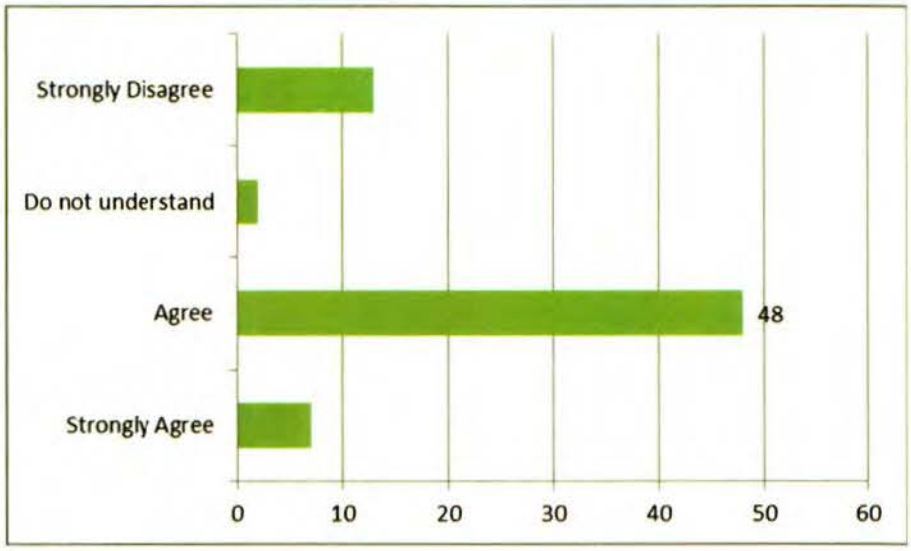
Are you planning of the following technology based banking products and services in the next 12 months?



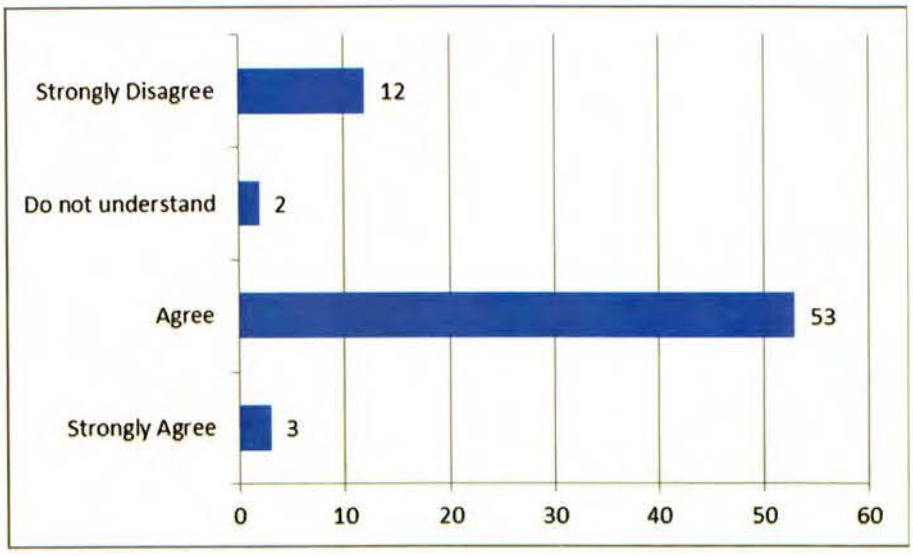
Have you used any of the following technology based banking services in the last 12 months?



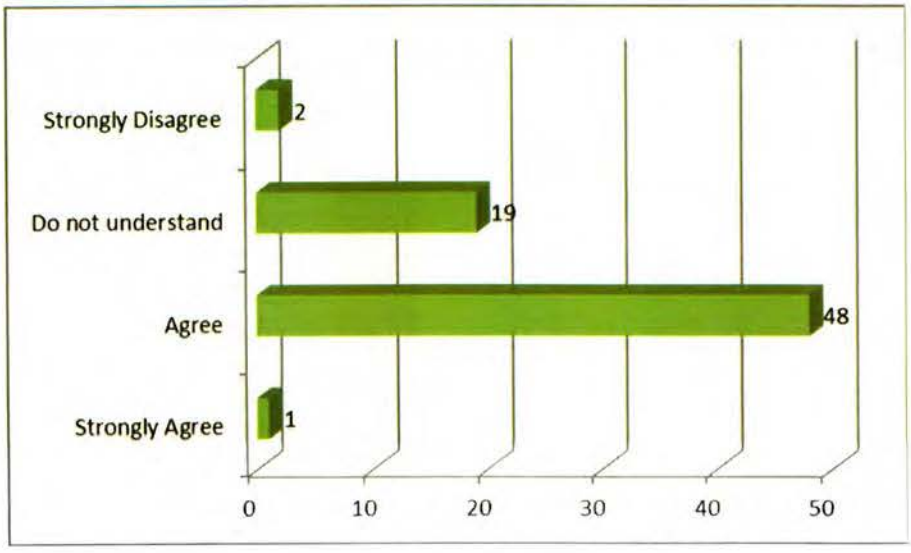
Technology gives me more control of my life



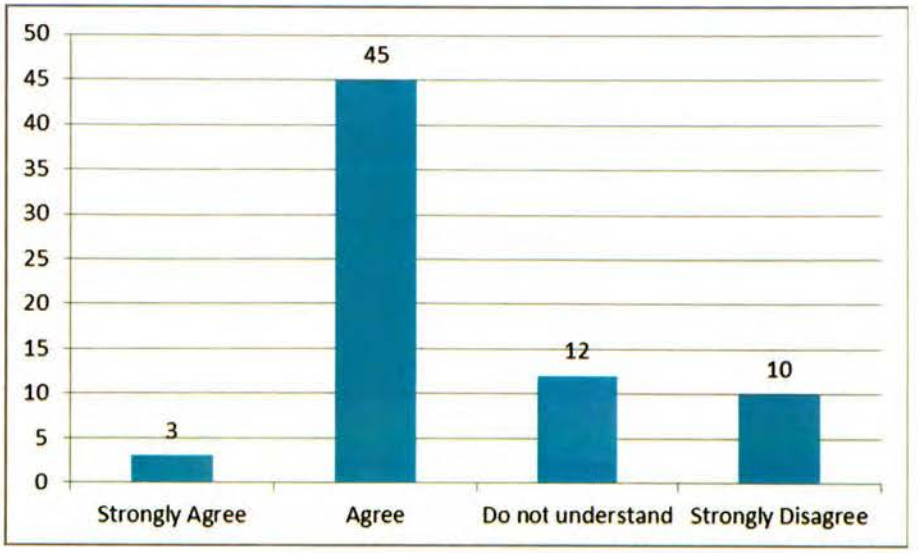
Banking services and products that use new technology are much more convenient to use



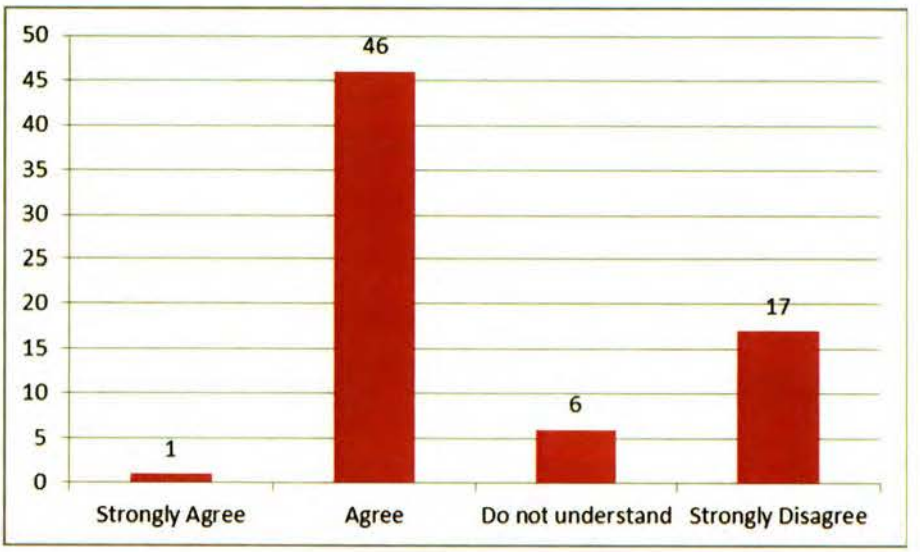
I like the idea of banking with computers because I am not limited to business hours



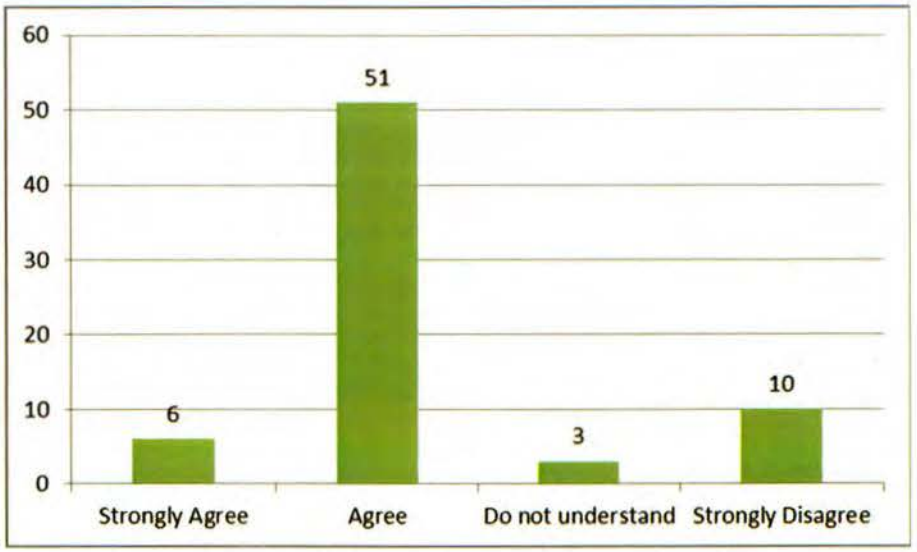
I prefer the use of most technologies available



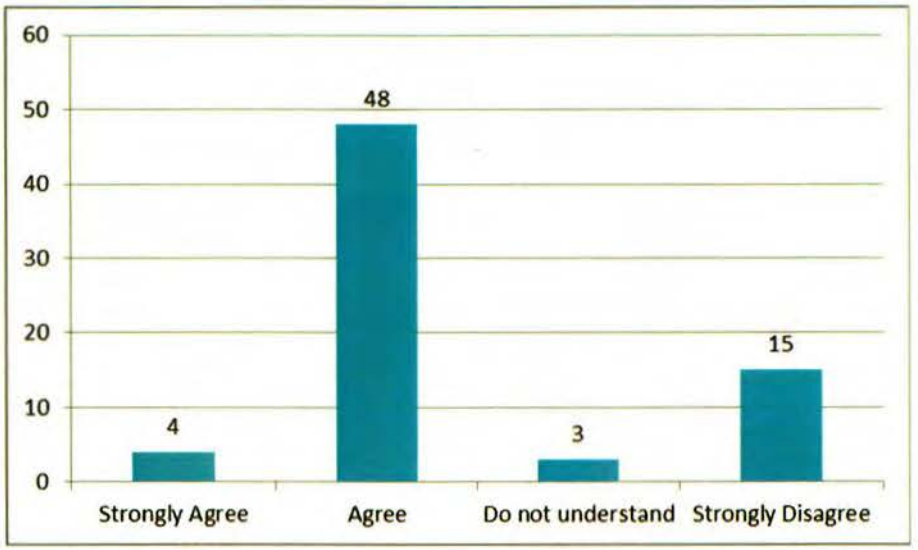
I like computer programmes that allow me to tailor things to my needs



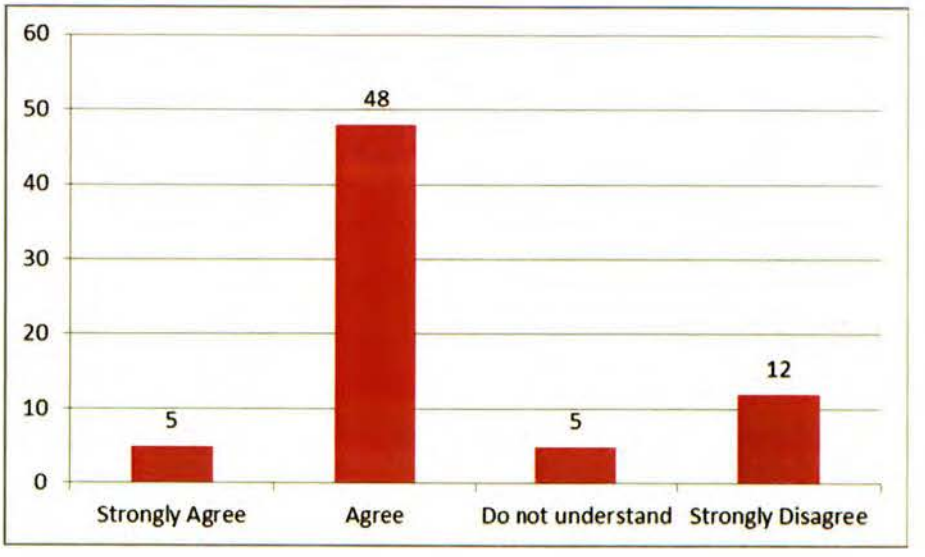
I find technologies to be mentally stimulating



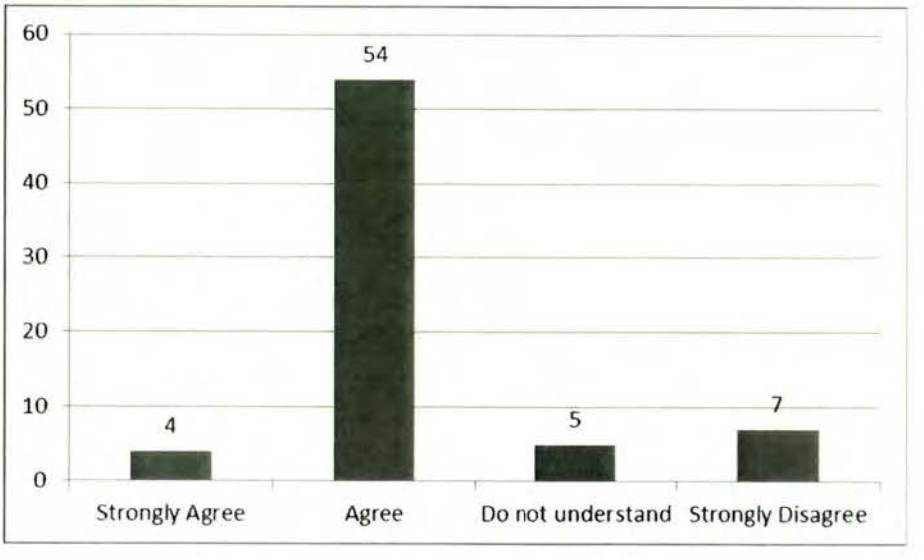
Technology gives me freedom to move



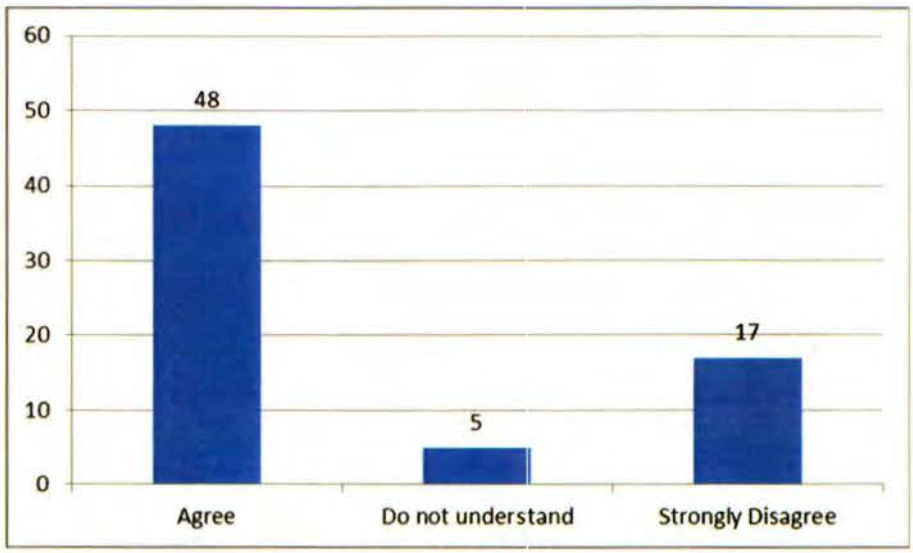
Learning about technology can be as rewarding as technology itself



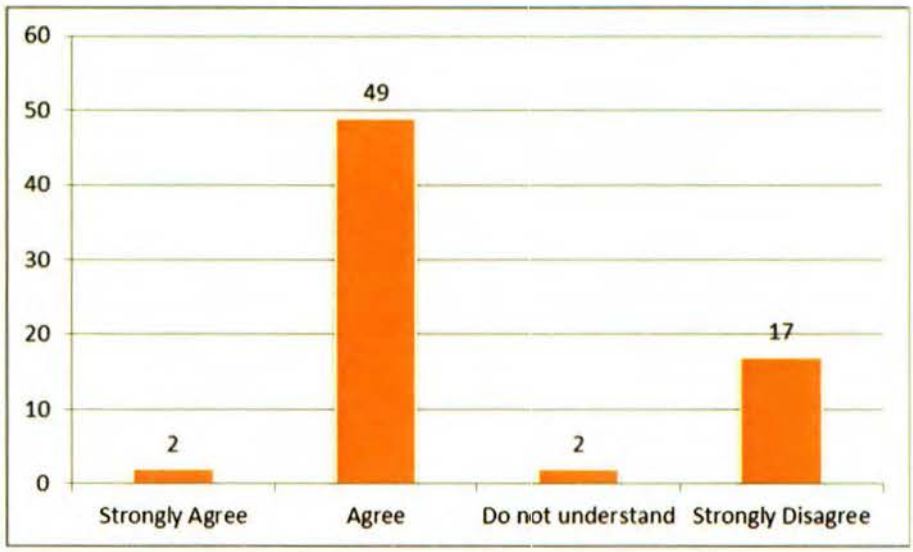
I feel confident that machines will do what you tell them to do



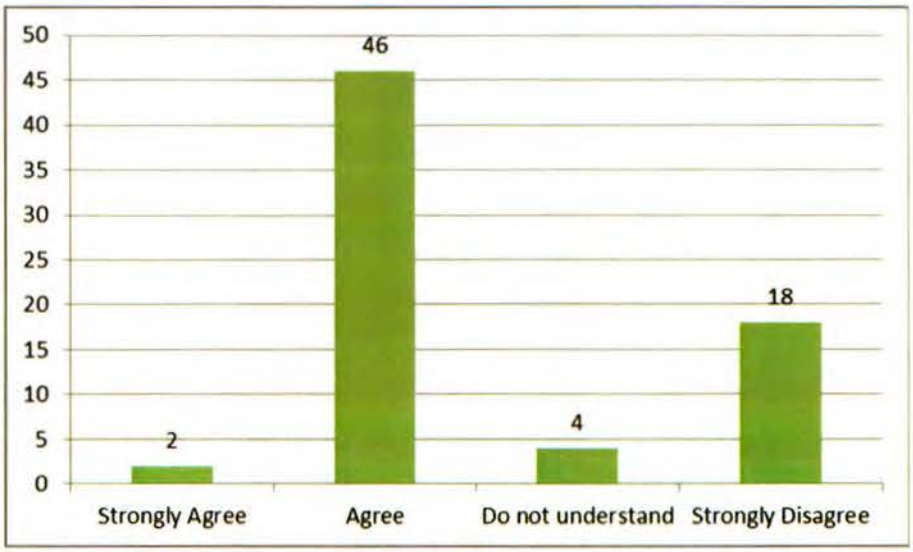
Other people come to me for advice on new technologies



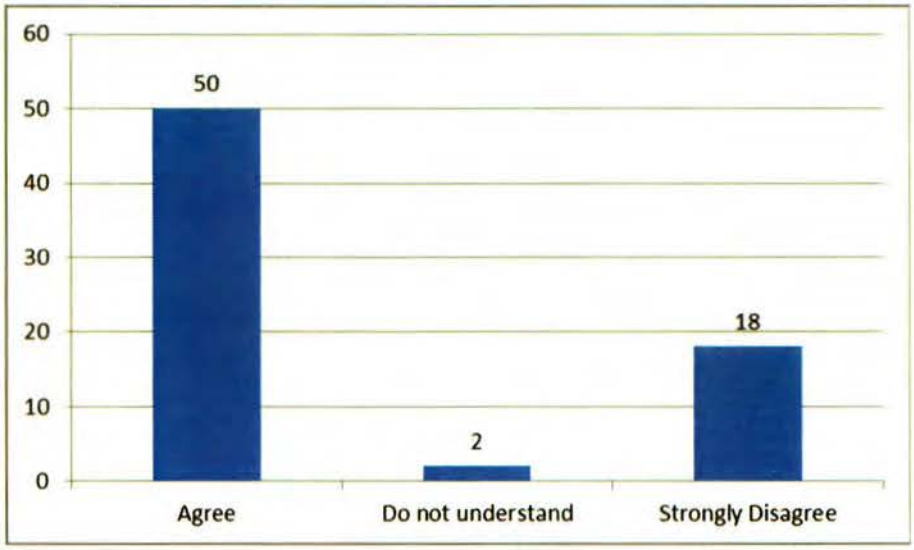
It seems like my friends are learning more about newest technologies than I am



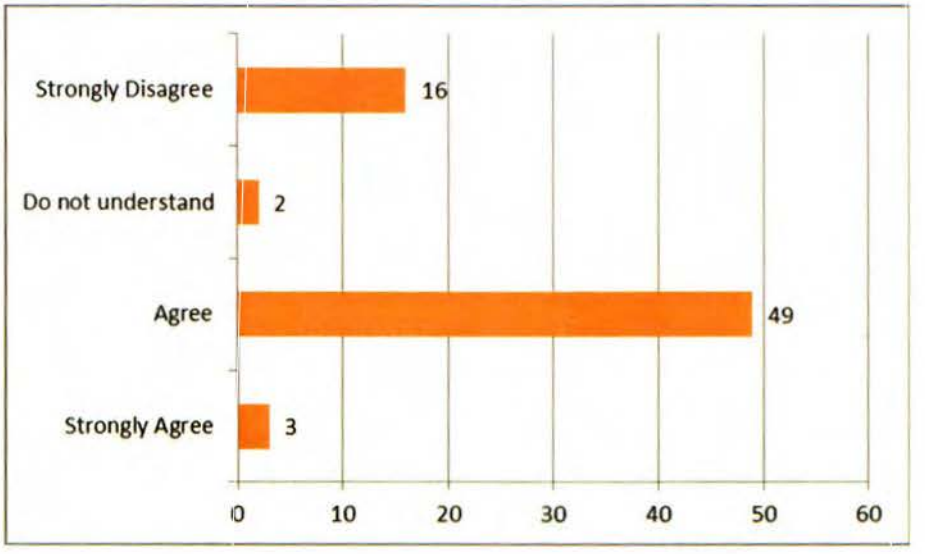
I am the first among circle of friends to acquire new technologies



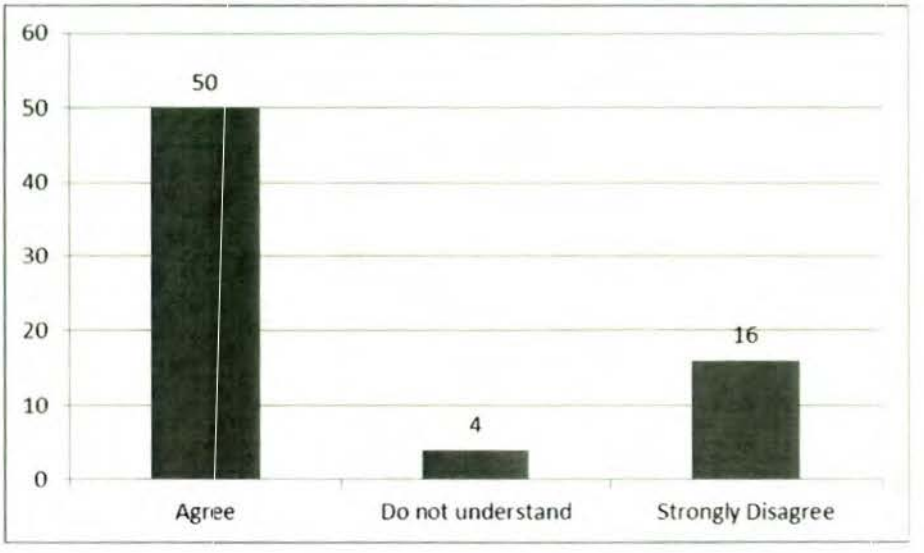
I can usually figure out new technology products and services without help from others



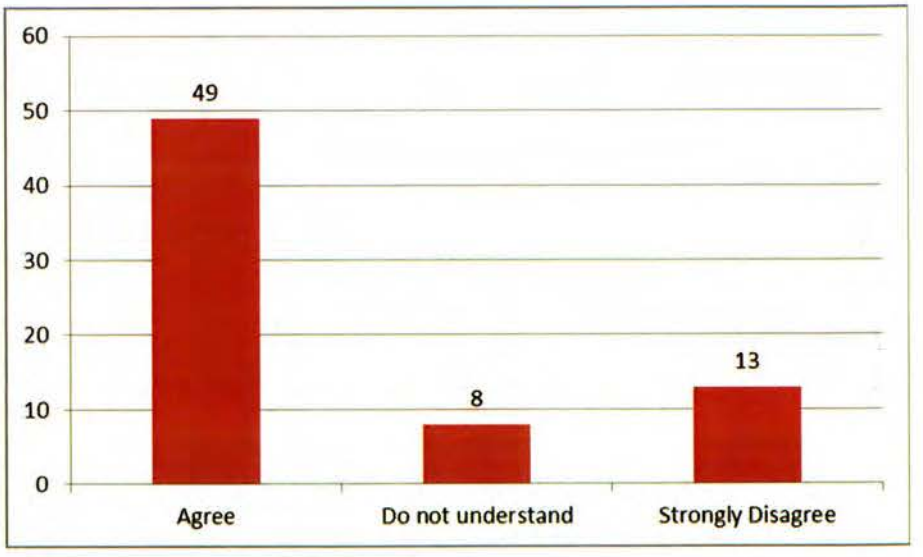
I keep up with the latest technologies in my area of Interest



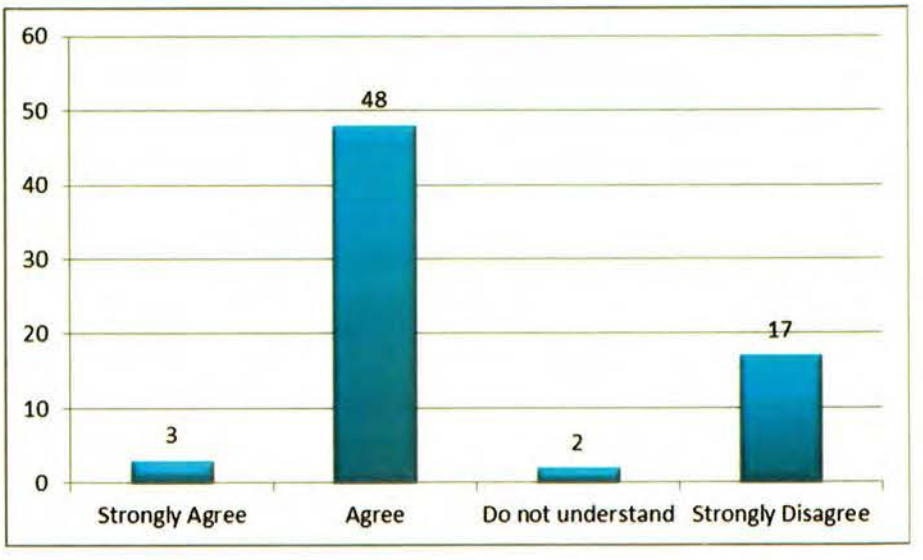
I enjoy the challenge of figuring out how high technology gadgets work



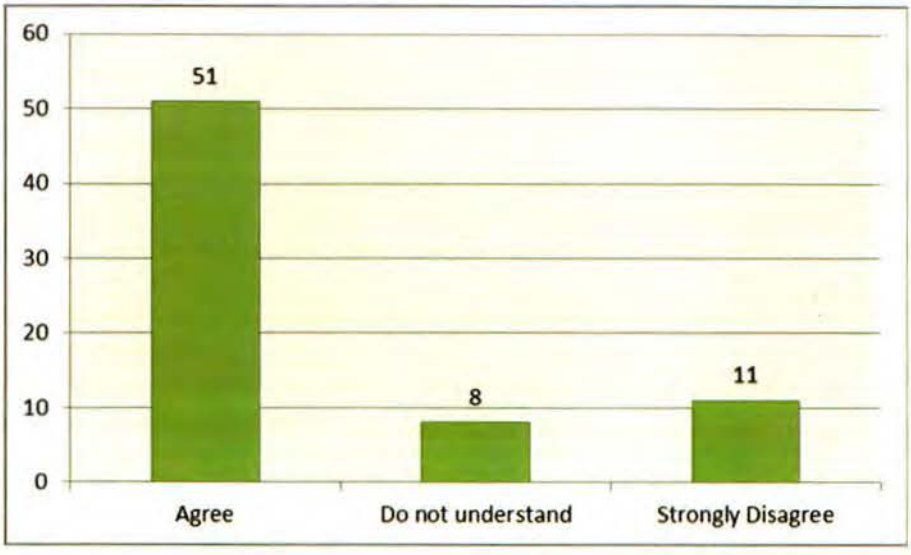
Technology always seems to fail at worst possible times



It is not safe to do any kind of financial transaction over the computer



Whenever someone gets automated, you need to check carefully that the machine is not making mistakes



Ownership of Technology based banking products and services

Technology based banking products and services	Currently have (%)	Plans to have in the next 12 months (%)	Have no plans to get (%)
Bank account	**60**	**29**	**11**
Credit card	**29**	**29**	**42**
Internet access (broadband)	**14**	**14**	**42**

Usage of Technology based banking products and services

Technology based banking products and services	Have used in the past 12 months (%)	Plans to use in the next 12 months (%)	Have no plans to use (%)
Bank account	**65**	**0**	**40**
Credit card	**34**	**0**	**66**
Internet access (broadband)	**0**	**0**	**100**

Statement	Mean	Std Deviation
Technology gives me more control of my life	2.3	0.9
Banking services and products that use new technology are much more convenient to use	2.4	0.9
I like the idea of banking with computers because I am not limited to business hours	2.2	0.5
I prefer the use of most technologies available	2.4	0.9
I like computer programmes that allow me to tailor things to my needs	2.6	0.9
I find new technologies to be mentally stimulating	2.27	0.83
Technology gives me freedom to move	2.41	0.89
Learning about technology can be as rewarding as technology itself	2.34	0.85
I feel confident that machines will do what you tell them to do	2.33	0.83
Other people come to me for advice on new technologies	2.56	0.86

It seems like my friends are learning more about newest technologies than I am	2.49	0.9
I am the first among circle of friends to acquire new technologies	2.54	0.91
I can usually figure out new technology products and services without help from others	2.54	0.88
I keep up with the latest technologies in my area of interest	2.44	0.9
I enjoy the challenge of figuring out how high technology gadgets work	2.5	0.85
I find I have fewer problems than other in making technology work for me	2.37	0.89
Sometimes I think technology systems are not designed for use by ordinary people	2.46	0.9
There is no such thing as a manual for new technology products that is written in plain language	2.46	0.88
When I get technical support from a provider of new technologies I feel as if I am taken for granted by someone who knows more than me	2.38	0.87
If I buy a high technology product or service, I prefer having a basic model rather than a new one with lots of features	2.43	0.89
It is embarrassing when I have trouble with technology gadget when people are watching	2.27	0.83
When replacing important people-tasks organisations must be careful because new technologies can breakdown or get disconnected	2.47	0.85
New technologies have a health or safety that is not discovered until people have used them	2.5	0.9
New technologies makes it too easy for government and companies to spy on other people	2.43	0.89
Technology always seems to fail at worst possible times	2.54	0.89
I don't think it's safe to give out a credit card number over the computer	2.41	0.88
It is not safe to do any kind of financial transaction over the computer	2.5	0.93
I don't feel confident transacting with an organisation that can only be reached online	2.47	0.91
Any banking transaction you do electronically should be confirmed later with someone in writing	2.17	0.82
Whenever someone gets automated, you need to check carefully that the machine is not making mistakes	2.43	0.75
The human touch is very important when banking	2.37	0.78
When I call a bank, I prefer to talk to someone rather than a machine	2.17	0.85
If I provide information over a machine, I'm never sure if it gets to the right place	2.37	0.82

Table 6

Statement	Mean	Std Deviation
Make online transfers and payments	3.67	1.53
View accounts and balances online	3.91	1.39
View and download banking account statements	3.89	1.34
Purchase small items like tickets via banking online services	3.47	1.66
Purchase large items like tickets via banking online services	3.49	1.67
Apply for banking services and products online	3.74	1.38
Buy prepaid airtime via cell phone banking	3.99	1.23
Make cell phone banking payments and transfers	3.83	1.99
View accounts and balances via cell phone banking	3.83	1.89
Let someone know via email or sms that you have paid them	3.83	1.33
View and download banking account balances via cell phone	3.77	1.4
Apply for banking products and services via cell phone	3.74	1.45