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Mobile Banking Capabilities Required to Serve the Unbanked Market in South Africa

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Abstract

In developed countries, the business environment is highly saturated, with large numbers of banks, and mobile network operators. As a result, customers have a range of options in choosing preferential services providers. In Africa, most countries have dissimilar business environments; however, some countries have paved new frontiers in enabling access to financial services mainly through mobile banking services.

In South Africa, a different situation prevails even though in certain instances the business environment is more advanced than other African countries. Over the past five years, South Africa reported upward trends in real income for LSM1-5 (living standard measure), and the number of mobile subscribers per household. Conversely, it also reported 60:40 ratios between the number of mobile subscribers and bank account holders with an expectation that the gap will grow further if key fundamentals are not revised in the banking sector.

This research explored mobile banking capabilities required to serve the unbanked market of South Africa; and in doing so highlight the prospects of financial inclusion towards social and economic development, particularly when the firm seeks to offer products and services, which are reflective of the demographics of this country.

Thus, as an exploratory study, it was necessary to gain insights from experts involved in designing, co-ordinating, and delivering mobile banking products and services. As a result, the research noted gaps in the products and services being offered across the different market segments. It also noted that in addressing these gaps; the banking sector requires participation from other key role players, such as the mobile network operators, regulator, and government.

Key Words

Mobile Banking

Mobile Application

Mobile Transmitters

Unbanked Market

Declaration

I declare that this research report is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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Chapter 1: Introduction to Research Problem

In Africa an estimated one billion of the population are without bank accounts but have access to or are in possession of mobile phones. This number is expected to reach 1.7 billion by 2012 across Africa, Asia, and Latin America. For South Africa, this denotes more than half of the adult population in possession of mobile phones, yet no bank accounts (Ondiege, 2010).

In the past five years, the mobile telecommunication sector has reported the largest market capitalisation, both in revenue and in the number of customers compared to the banking sector that has been operating for more than five decades. In addition, the latter is not only evident in the South African economy; but throughout the continent (Consultative Group in Assisting the Poor, 2011). In Africa, mobile phones usage has facilitated access to financial services for those who were previously denied access. Hence, mobile phones are noted as the vehicle for financial inclusion and contributing towards changing lives of people in developing economies (Porteous, 2006).

With the growing penetration of mobile phones and increasing trends in mobile technologies, the market has also seen an increasing demand for financial services. The demand has created opportunities and challenges for the banks (Porteous, 2006). In South Africa, these challenges are characterised by lack of efficiencies in technology infrastructures (legacy systems), high operating cost, and the historical banking system that was not designed to serve the majority of the population. Furthermore, the sector operates in a highly regulated environment, coupled with technology not only being a support function but one of the core components of corporate strategy (Coetzee, 2011).

However, most banks are keen on improving business service(s) and at the same time performance, while coming up with innovative products and services that are mobile-centric, reaching people far afield, as well as in urban areas, irrespective of their income and the level of formal education (CGAP, 2011).

1.1 Motivation for Research

Historically, commercial banks in South Africa did not adequately serve lower-income earners, small-enterprises, and micro-entrepreneurs (collectively referred to as the unbanked market) for the reason that the unbanked were considered an unattractive market. It was only in the early 1990s (especially since the inception of a democratically elected government in 1994) that some banks started implementing alternative strategies. By 2003, legislation compelled the banks to provide financial services to the unbanked market (Financial Services Charter, 2003: 6). However, CGAP (2011) still reported progress in extending banking services to South Africans as being slow, especially where brick-and-mortar establishments (banking branches) did not exist.

In addition, it was reported that 42% of the accounts that were opened through initiatives such as Yellow Money and Mzanzi accounts had become dormant. The holders of these accounts stated that bank charges for the services were costly, for example increasing cost for making deposits, and withdrawals; and they could not meet the requirements of the banks. At the same time, transportation cost in accessing brick-and-mortar branches resulted in lost financial gains and other inconveniences (CGAP, 2011). This situation still left more than half of the adults' population without access to saving, borrowing, and investing portfolios. In support of the latter, table 1 indicates the number of people that could reach banking branches or ATMs in South Africa.

Table 1: Number of Banking Branches and ATMs per 100 000 People

Country	Branches per 100 000 People	ATMs per 100 000 People
South Africa	6	17.5

Source: Ondiege, (2010).

On the other hand, technology has advanced; the Information Communication Technology (ICT) sector has seen the evolution of innovative technologies such as mobile phones has the capacity to expand beyond voice calls. In South Africa, the

numbers of mobile phones users far exceed the number of individuals that have bank accounts and the gap is expected to widen even further (Ondiege, 2010). Table 2 below indicated the growing number of mobile subscribers in South Africa reported from 2003 to 2009.

Table 2: Mobile Cellular Telephone Subscriptions (Post-paid + Prepaid)

Country	2003	2009	Annual Growth Rates % (2003-2009)
South Africa	16 860	46 436	18.39%

Source: Ondiege, (2010).

Although some of the banking sector reported loss in profits in the efforts to bank the unbanked market, Absa bank on the other hand, reported a return on equity of 200%, in the first year of launching the Flexi-banking line in 2008. In the mobile telecommunication sector, the mobile network operators reported profitability in serving the unbanked market, with more growth expected in the future. This was further supported by the retail sector, with both Shoprite and Ellerines reporting year-on-year growth; with the majority of the customer base from the lower market segment (Alliance for Financial Inclusion, 2010). Figure 1 below shows market capitalisation and the number of customers reported for banks and mobile network operators for the year 2010.

Figure 1: Industry Analysis – Banking versus Mobile Operators

Bank	Market Cap.	Customers
ABSA	R101 bn	12.1 m
First Rand	R150 bn	7.1 m
Nedbank	R68 bn	4.6 m
Standard	R184 bn	10.0 m

Versus.

Operator	Market Cap.	Customers
Cell C	Private	8.2 m
MTN	R267 bn	19.2 m
Vodacom	R140 bn	31.7 m

Source: Ondiege, (2010).

Therefore, it shall suffice to state that, in a surge to enable growth, raise productivity; and make society less dependent on the state. Using mobile phones can be a catalyst towards the following:

- Financial Inclusion;
- Financial Participation; and
- Social and economic development.

As a result, mobile banking has the possibility to deliver affordable, secure and quality financial services to every door step, especially in the informal sector of the economy, where it is needed the most.

1.2 Research Aim

The research aimed to explore some of the literature that deals with aspects that enable mobile banking services; and the importance of aligning and coordinating capabilities needed in delivering mobile banking products and services to the market. It also notes the implications of accessing financial services with the prospects of improving social and economic development, particularly for the unbanked market.

1.3 Research Objectives

In using, the Resource Based Theory (RBT) as well as supporting literature, the objective is to; investigate and present an exploratory research into mobile banking capabilities in the context of serving the unbanked market of South Africa.

Thus, the research objectives emanating from the research questions were:

- Explore the context of mobile banking
- Outline capabilities required in enabling mobile banking
- Determine the effect of mobile banking in serving the unbanked market

1.4 Research Scope

The scope of the research looked at the mobile banking business unit within the front office function of the retail banking sector, as depicted in figure 2. Although the research made specific reference to the unbanked market, the scope entailed an understanding of the mobile banking business unit in its full context.

Figure 2: Research Scope
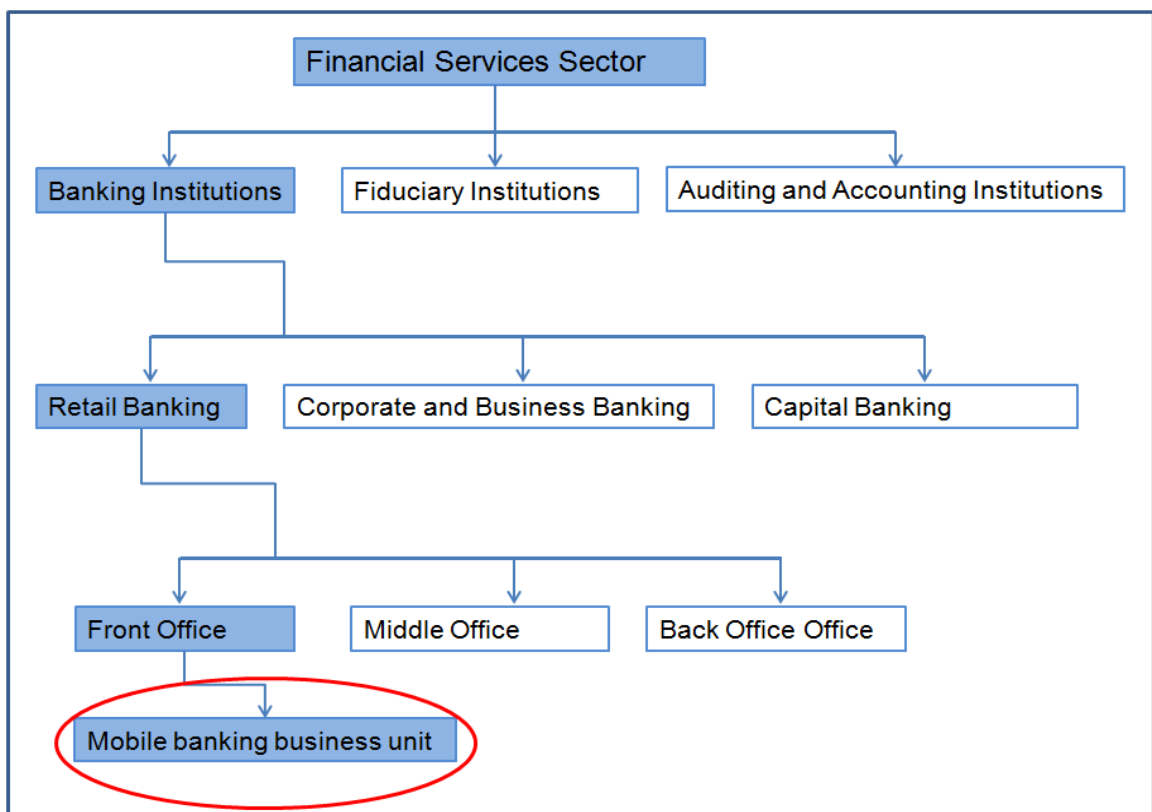
1.5 Structure of Research Report

The research reported is divided into chapters, which collective form the logical sequence of the report. The following section, Chapter two reviews the literature, which sets out the theoretical base, guiding principles, and the constructs of the research. Chapter three proposes the research questions that this study attempts to answer. Chapter four discusses the research methodology adopted in gathering the data for this study. Chapter five presents the data gathered, and Chapter six analyses, discusses

and presents the results of chapter five, with aspects of additional supporting information. Chapter seven presents the implication and conclusion of this research study.

Chapter 2: Literature Review

This section reviews some of the research literature that deals with aspects of this study, for example, exploring the importance of resources and capabilities in a changing business environment. According to Liu, Chen, and Chou, (2011), the co-ordination of resources and capabilities highlights the need for changing contemporary products and services in order to survive; and achieve competitive advantage in a digital economy. It also highlights the management process of resources and capabilities, which enable efficiency, and the ability to develop innovative products and services (Barney, Ketchen, & Wright, 2011). Thus, in providing insight into the firm's resources and capabilities for a given industry, the Resource Based Theory (RBT) is relevant.

In addition, the RBT is adequate to provide a holistic view on the subject of positioning resources and capabilities in creating products and services for the market. It also explains resources and capabilities from the primary level, such as raw materials, through to the various roll-up structures, resulting in the firm's departments, business units, and functions.

Figure 3 below indicate the literature matrices that will be discussed in Chapter 2.

Figure 3: Literature Matrices
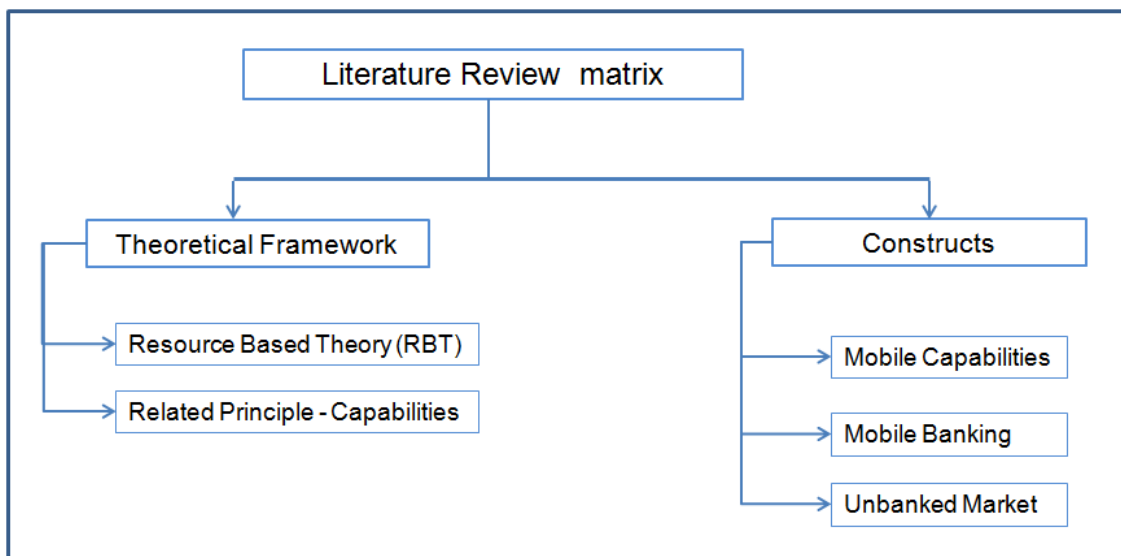
2.1 Theoretical Framework

2.1.1 Resource Based Theory

During the 1980s, Michael Porter's analysis of industry structure and competitive position highlighted the prominent focus in the area of strategy, (Grant, 1991). It was during this era that Porter's (1980) five forces model received attention as being one of the most dominant frameworks in the field of strategic management. From this period, other theories were postulated by scholars in this field. By the 1990s, RBT had emerged as one of the most important and dominant theories in understanding the firm's entity relationships and, as such, marked an evolution into strategic management (Barney *et al.*, 2011). Today, the application of the theory has gained momentum and is being used in other fields such as economics, entrepreneurship, marketing, and human resource management.

The fundamental principles of RBT are rooted at the core of, aligning organisational resources and capabilities internal to the firm, differentiating the firm's resources and capabilities from externalities in the environment, and explaining performance of the firm in a particular industry. RBT considers the process by which the firm acquires and develops resources and capabilities by exploring various heterogeneous portfolios that can best serve the market, and enable it to gain competitive advantage (Grant, 1991).

Capital, labour, land, and technology (collectively denoted as assets) constitute resources that the firm sources out from the market. These are bundled together and are collectively termed capabilities. Capabilities is defined as a collection of assets which organises the firms' policies, processes, procedures, information, management skills and knowledge that guide the firm in choosing and implementing strategies to produce outputs (Barney *et al.,* 2011).

When capabilities are embedded in processes and systems, the firm is viewed as having established structures. Capabilities assist firms in formulating complex processes, which may lead to improved productivity and performance. Furthermore, when these processes are properly aligned to the environment, then the firm is recognised as gaining competitive advantage, (Hitt, Hoskisson, & Michael, 2009).

Competitive advantage is achieved when resources and capabilities are effectively integrated and efficiently coordinated whilst earning above industry economic profits from producing products and services, for a given strategy, as shown in Figure 4.

Figure 4: RBT Framework
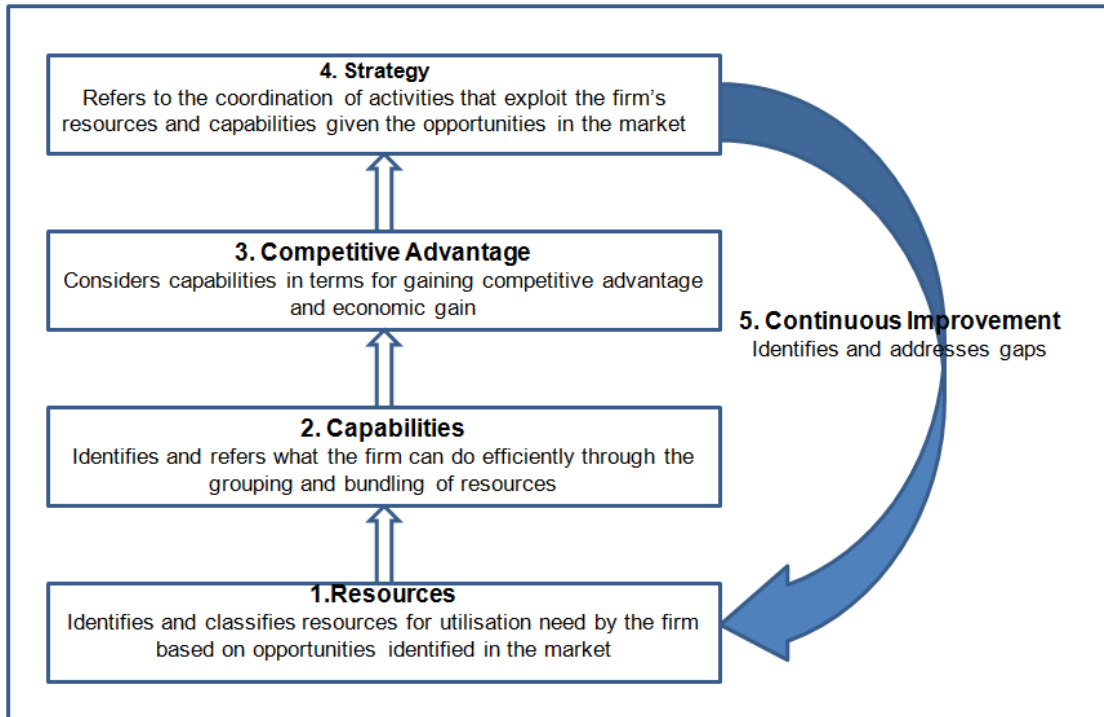
Source: Hitt *et al.*, (2009).

Although, resources can be sourced out freely from the market, the co-ordination and collaboration cannot be sourced freely from the market. It is for this reason that Barney *et al.*, (2011), supports Hitt *et al.,* (2009) with the view that capabilities are vital to the firm.

According to Ahenkora and Adjei, (2012) the firm must possess diverse capabilities, which can be replicated in other areas, such as marketing, and research and development (R&D). In addition, it must possess the required flexibility in adapting to dynamic environments. This merely constitutes part of reorganising existing capabilities. However, to competitors, these capabilities must be considered rare, difficult to imitate, and non-substitutable. They are also not easily understood by competitors; consequently making it difficult to source out freely from the market. Thus, advancing capabilities is based on experience and efforts, over time.

Although the traditional view of RBT advocates the exploitation of resources and capabilities of the firm, Newbert (2008) recognise a fit between the internal and external environments being driven externally. He also emphasises the importance of exerting a level influence to the external environment. This illustrates a set of processes and activities linked to the value of creating products and services that meet market demand. Therefore, it is important to have capabilities that complement each other, without compromising the managerial implication of the theory, which professes capabilities as being immobility, and heterogeneous if one wants to sustain competitive advantage and market leadership (Newbert, 2008).

While RBT has generated remarkable insight, it suffices to state that it poses difficulty in translating resources and capabilities into practise within a value network; as a result creates challenges, such as:

- The ability to examine paths and sequences in a changing environment;
- Optimal position of the firm in a particular industry;
- The order in which to construct, differentiate and assess capabilities;
- The ability to take into account the functional integration and the degree of innovation that can aid the firm in achieving competitive advantage;
- How to create and measure value derived from gaining competitive advantage;
- Articulating the unit of measures for resources, capabilities and competitive advantage;
- Inability to specify operational requirements – outline design specification for processes, systems and structures in a given industry; and
- Specify capabilities required to produce products and services demanded by the market (Lucas & Kirillova, 2011).

In addition, the theory might inhibits objectivity; the firm can fall victim to past success, and in hope for future success continuously looks for change even when it is not necessary to do so. On the other hand, the firm might choose not to recognise changing markets and not act. Consequently, from a value network perspective; the theory should be challenged on its methodological themes (Kraaijenbrink, Spender, & Groen, 2010).

In managing such challenges Lucas & Kirillova (2011), and Newbert, (2008) propose that the firm constantly:

- Revises the value proposition of products and services produced;
- Monitors customers preferences as and when they change;
- Manages and maintains customer relationships, whilst seeking potential customers;
- Exerts influence over the distribution channel;
- Manages cost structure and revenue models; and
- Revises its strategy.

All the above mentioned aspects should take into account the right configuration of the firm's capabilities, without necessarily compromising performance and profits. The firm needs to function in such a way that capabilities can be fully exploited. The ability to reconfigure, deploy and co-ordinate capabilities is crucial in achieving superior performance.

According to Armstrong and Shimizu (2007), the theory also lacks the ability to articulate the degree of flexibility required within the firm's structures when adapting to the environment. Furthermore, the way in which the firm chooses to innovate and -cordinate its capabilities is largely dependent on the degree of flexibility. Degree of flexibility refers to the ability to react to uncertainty caused by the internal and/or the external environment. Environmental uncertainly may include:

- Changes in consumer preferences;
- Pressure from competitors;
- Amendment to legislation and regulation; and
- Advancement of technology (Armstrong & Shimizu, 2007).

In responding to the above mentioned, other widely accepted management literatures proposes reactive mechanism in adjusting to change. Reactive mechanism states that at any given time, the firm will select a competitive strategy that is appropriately aligned to environmental changes, particularly if the firm wants to sustain competitive advantage. This refers to a set of processes, systems, and structures designed to support the firm. There must also be consideration of the firm's culture and more importantly managerial ability in enabling change (Soto-Acosta & Merono-Cerdan,

2008). Thus in citing Soto-Acosta and Merono-Cerdan, (2008), and Armstrong & Shimizu, (2007); Saxena and Jaiswal (2012) corroborates that the traditional view of RBT does not take into account the relationship between the environments, degree of flexibility, and capabilities when the firm seeks to achieve sustained competitive advantage.

Figure 5 below shows the framework regarding the relationship between the environment, degree of flexibility, and capabilities of the firm seeking to achieve sustained competitive advantage.

Figure 5: Capability-based Theoretical Framewkork
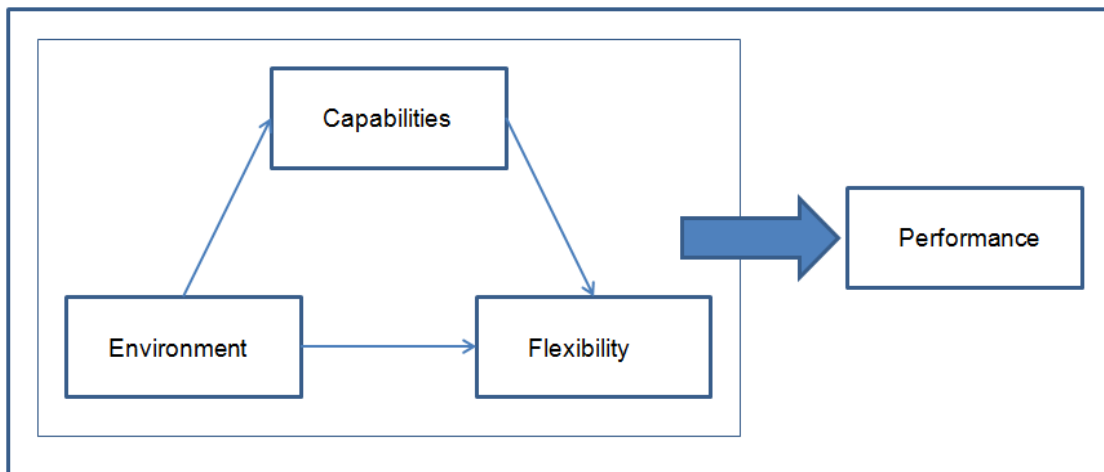
Source: Soto-Acosta & Merono-Cerdan, (2008).

According to this framework, flexibility is regarded as priority, especially in highly technological firms, since the business environment is characterised by dynamic forces. This refers to a range of processes and procedures that can be easily altered or completely changed; as well as be implemented seamlessly. The higher the degree of flexibility, the more closely aligned is the firm to market changes (Soto-Acosta & Merono-Cerdan, 2008).

Conversely, Sciarelli (2008) proposes that flexibility should be proactive because reactive mechanism may miss other important opportunities in the market, and tends to be narrow and static in nature. Adopting a proactive approach positions the firm in

learning how to adapt, design, and implement strategies over time. Furthermore, this may result in the firm being able to influence or transform a particular industry.

Thus, capabilities are not productive by themselves, and it is not the mere possession; but the positioning and exploitation, composition of the industry, and consumer market which creates superior economic value (Lucas & Kirillova, 2011) and (Ahenkora & Adjei, 2012).

2.1.2 Related Principle - Capabilities

The co-ordination, integration, and alignment of capabilities with the environment have become increasingly imperative for firms seeking to survive (Hatzakis, Nair & Pinedo, 2010). In support, Ballon (2007) cites capabilities as the degree in which the firm's mission and objectives are co-ordinated, executed and supported by information technology (IT), such that the principles of IT are managed in a way that inherently add value.

The method of selecting capabilities is one that recognises internal and external change, so that the firm can respond appropriately and is adaptive to situations that are country-specific and unique to societal needs (Ahenkora & Adjei, 2012).

Through enabling processes and systems, capabilities are co-ordinated and integrated to create the necessary structures required in producing products and services. These are delivered to the market using various distribution channels. Figure 6 below indicates that in serving the market well, the firm requires adaptability and alignment of the two environments (Liu *et al.*, 2011).

Figure 6: Adaptability Framework for Capabilities
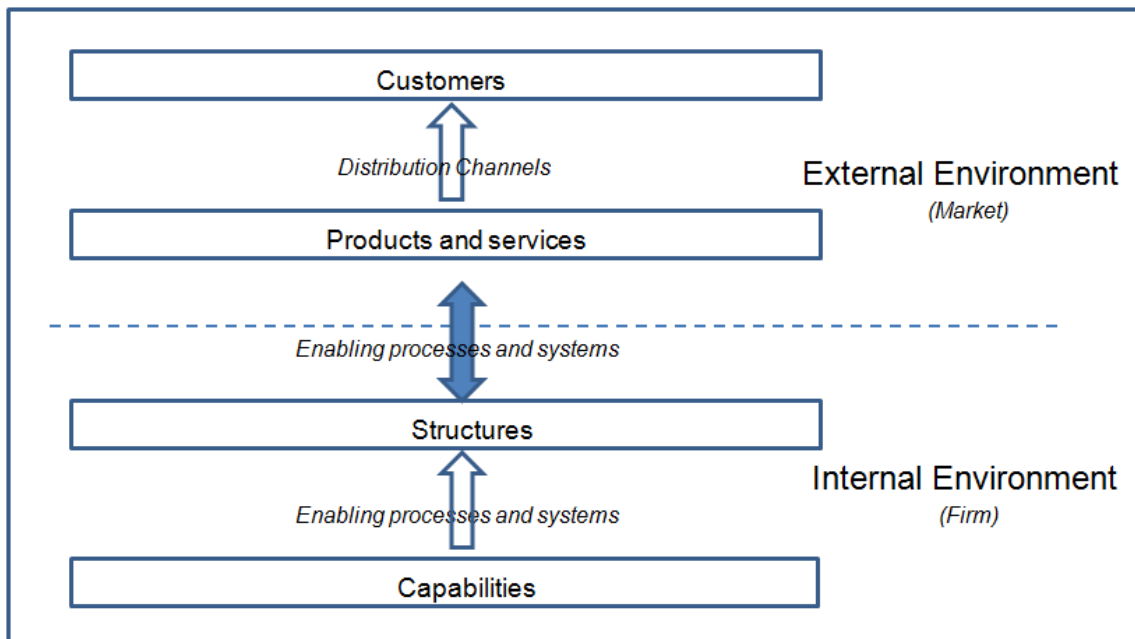
Source: Liu *et al.*, (2011).

Figure 6 indicates that in delivering products and services to customers, the firm needs to align its capabilities so that the necessary structures can support the its processes, systems and structures.

2.2 Mobile Capabilities

In mobile banking, capabilities are characterised by anytime and anywhere instant connectivity, irrespective of geographic location. Consequently, mobile applications and transmitters are fundamental capabilities required in delivering mobile banking (Wooder & Baker, 2011).

2.2.1 Mobile Applications

Mobile applications refer to communication methods that a service provider uses in delivering a service to customers. Applications (also referred to as user interfaces) denote the level of interaction between the customer and the service provider using a mobile phone. Currently there are three types of applications for mobile banking activities in the market; namely text-based, web-based (also referred to as browser-based) and client-based applications. At the least, one of the applications is available with the current mobile phones in the market; which ranges from basic analogue to advanced smart phone (Burgelman, Christensen & Wheelwright, 2009).

2.2.1.1 Text-based Application

A text-based application transmits short messages between 140 and 160 characters. The messaging format can either be a short message service (SMS) or an unstructured supplementary services delivery (USSD) (Burgelman *et al.,* 2009). USSD is used merely for transacting banking activities, and has a shorter response turnaround time than SMS. USSD communication is session based and as such, the navigation process is predetermined by the bank. The customer can only perform transacting activities listed on the menu items, while SMS can be used for the purpose of transacting banking activities or acquiring information relating to banking activities. However, in using SMS there might be delayed turnaround time. The bank needs to decode the SMS, and then generate a response, which also must be coded prior to sending the SMS to the customer. Both SMS and USSD transmit across all wireless mobile communication networks, for example second generation (2G) to fourth generation (4G), making the service available with any entry level mobile phone (Burgelman *et al.,* 2009).

To make use of the text-based application, the customer must set up a mobile banking personal identification number (MPIN) and authenticate the banking transactions. In the event of keying in the wrong MPIN, the customer needs to visit a banking branch and present proof of identification to reset the MPIN. Although, there might be a level of inconvenience, the application does offer a level of security (Burgelman *et al.,* 2009).

2.2.1.2 Web-based Application

To use a web-based application, the mobile phone must be connected to the worldwide web (www). The application generates a user interface from the bank's server and transports it to the mobile phone. The customer can then navigate various screens and activities, which are predesigned by the bank for the purpose of being user friendly. The user interface displays the same if not similar format and content to online (internet) banking (Kamogawa and Okada, 2008). The application is less dependent on the phone, since it connects directly to the bank's server, and the majority of phones manufactured today are internet enabled. The lack of dependency also gives the bank full control in making changes to the website or updating the software. However, the application is highly depended on the wireless network coverage and processing power of the mobile phone. The level of security also works similarly to online banking, for example, a user profile needs to be set up, with a username and password similar to MPIN, in order to authenticate banking transactions (Kamogawa & Okada, 2008).

2.2.1.3 Client-based Application

To use a client-based application, the customer needs to download the banking application into the memory of the mobile phone or SIM card (also referred to as SIM tool kit –STK).Where the application resides depends on the size of the memory of the phone or SIM card, and the content of the downloaded applications. The phone requires adequate processing power; and must be able to run JAVA script (Gill, Bunker & Seltsikas, 2011). The application is readily accessible and easier to use, with greater speed and lower cost. It also requires a MPIN in order to authenticate banking transactions. Furthermore, it has flexibility in allowing customers to re-arrange the look-and-feel of the user interface, in which one can customise features that are regularly used. This eliminates the process of having to navigating numerous menu items, and web pages addresses. According to Gill *et al.,* (2011), this is the most convenient and secure application to use for mobile banking.

Alternative to downloading the banking application, other service providers encrypt the banking application onto the SIM card that the customer can readily purchase. The embedded SIM card allows customers to input and validate information offline before

connecting to the internet and transacting. Once connected to the bank's server, the bank will validate the username and password; which will then prompt the authentication process for banking transactions. These features make this application the cheapest in the market (Wooder & Baker, 2011).

However, regardless of the design and functionality, mobile banking application must meet certain conditions:

- Usability and simplicity - it must be intuitive, interactive, and customers must be able to navigate with ease. In addition it must minimise exponential learning curves;
- Security, privacy and trust - it cannot allow for loss or misuse of customer information and should offer strengthened protection against hackers, with key infrastructural security;
- Open source technologies - it should enable add-on features, software upgrades and be able to integrate with other technologies;
- Cost - the cost structure should not be more than other banking channels, such as online banking; and
- Globalisation and mobility - coverage and accessibility should include both domestic and global settings (Wooder & Baker, 2011).

Thus, in selecting the type of application and designing the user interface, the service provider should consider wireless network connectivity and coverage, also known as mobile transmitters (Minnis, Moore, Whatmough, Blanken & Van der Heijden, 2009).

2.2.2 Mobile Transmitters

Mobile transmitter refers to mobile wireless technology categorised into four broadband generations of technologies as shown below in figure 7. The generations describe the evolution of wireless technology regarding speed, coverage, and availability. It also describes the transmissions in terms of voice or data (Minnis *et al.,* 2009). According to international mobile telecommunications (IMT), the tracked generations of mobile wireless technologies provided by mobile network operators are the following:

- 1st Generation - first generation (1G) designed for voice calls such as cordless telephones;

- 2nd Generation – second generation (2G) supports the transmission of voice calls and data, such as fax and SMS. It is also equipped with enhanced performances and security, for example, the network requires an authenticated fax number before transmitting the data from a fax;

- 3rd Generation – third generation (3G) provides a range of services such as interactive multimedia services (MMS), video conferencing, high speed internet connectivity; in addition to the features cited for 1G and 2G; and

- 4th Generation – fourth generation (4G) has the capacity to transmit larger volumes of data than 3G. It automatically detects the highest bandwidth, and is able to switches to it for faster internet connectivity, thus delivering wireless broadband in real-time. It also offers rich data features such as video streaming, in addition to delivering the other generations' features, (Eastwood, Midgaldi & Gupta, 2008).

Figure 7: Evolution of Mobile Wireless Technologies
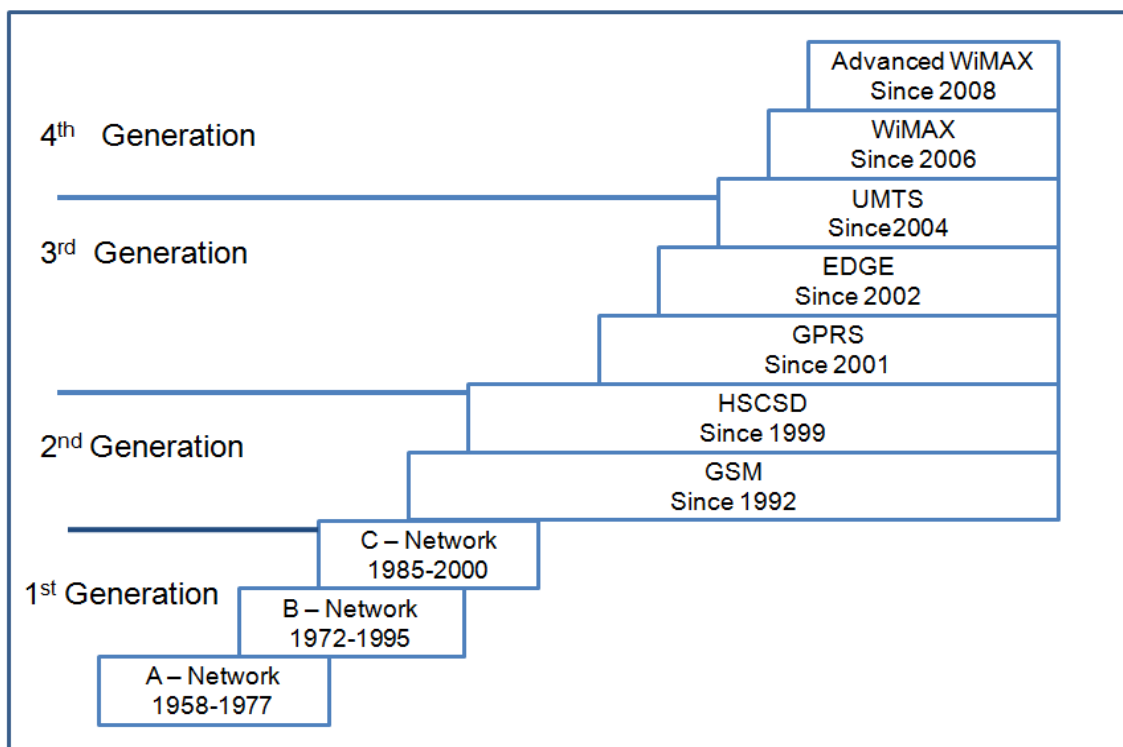
Source: Eastwood *et al.*, (2008).

Conversly, (Choi, Kang, Kim, Park, Jin & Kim, 2009), cited that the broadband generations of technologies will to some extend disrupt other functionalities; especially if more than one programme is running in the background. The mobile network operator should have processes in place to minimise disruptions, primarily for ensuring safety and standard measures. Hence, the mobile network operators play an essential role in enabling banks to deliver convenient and easy to use mobile banking services.

2.3 Mobile Banking

Over the years, financial services have undergone dramatic changes, from deregulation as well as consolidation, and recently the global economic crisis, in which information technology (IT) played a key functional role. Through IT, world economies were able to consolidate, accelerate processes and trends particularly those harnessing economic growth. Although IT continues to add dimensions of complexity, it is necessary in shaping and reinforcing some of the trends in financial services (Liu *et al.,* 2011).

At the cornerstone of financial structures, financial services have continued to develop and include mobile banking services. Today mobile banking has gained increasing acceptance not only in banking but also amongst various sectors influencing many aspects of society, which can be traced to social and economic developments (Tiwari & Buse, 2007).

In explaining mobile banking services, it is worth mentioning the concept of banking according to the Banks Act of South Africa, (Act No.94 of 1990). In this Act (No 94 of 1990), banking is defined as the acceptance of deposits with the purpose of lending or investing. Deposits refer to money that the public invest with the bank, while lending refers to the granting of loans or credit from the bank to the public. Both deposits and loans are repayable on demand and can be withdrawn by means of cash, cheque, overdraft, or other means of transfer as defined by the Act (No 94 of 1990).

In addition to deposit taking and the granting of loans, banks have advanced to include a wider range of products and services such as, foreign currency dealing and portfolio

management. The banks also make use of various distribution channels, such as automated teller machines (ATM), the Internet and mobile phones.

Consequently, mobile banking entails performing banking activities using a mobile phone. The products and services specifications are designed by the banks, while the mobile network operators facilitating the delivery of the bank's offerings, (Dermish, Kneiding, Leishman, & Mas, 2012).

Mobile banking service is enabled by allowing customers to register with their bank using a 32K or 64K SIM card and a mobile phone. Once registered, a password MPIN (as referred to in section 2.2.1.1) is created and the customer can access the banking application remotely using a mobile phone. Standard rates apply and the cost charge of the data bundle usage is prescribed by the mobile network operators.

Mobile banking includes a range of services such as; general and balance enquiry, account payment, money transfer, and the purchases of any other goods. Apart from the latter, other services being offered, include:

- SMS notification - notify the customer of any transactions carried out with regards to his or her account.
- Inter-account transacting – transfer of funds from multiple accounts;
- Insurance purchase – payment towards travel insurance in the event of a travel emergency; and
- Card request –a new card is requested in the event of expiry or theft, (Dermish *et al.*, 2012).

In South Africa, the big four banks namely, Standard Bank, Nedbank, Absa Bank and First National Bank (FNB) dominate the mobile banking business environment. The dominating wireless communication network operators (also referred to as the mobile network operators) are, Vodafone (previously referred to as Vodacom) and MTN, provides the wireless, network coverage (Ondiege, 2010).

However, through collaborative efforts, the mobile network operators, and retail stores such as Shoprite Checkers, Spar, and Pick 'n Pay have replicated some aspects of the mobile banking business model by providing services such as money transfer. By accessing any of the retail stores with proof of identification and a mobile phone,

individuals can transfer money to each other, irrespective of geographic location. Once the money is transferred, the recipient receives a SMS notification of the deposit and the money can be withdrawn from any retail store when presenting proof of identification and the SMS. This method is cheaper than the traditional banking way of sending money, as it involves minimal or no transactional costs, and as such, it is widely used. Other similar transfer services in the market, is FNB's Pay Wallet which works in the same manner as money transfer, however it is primarily used by corporations for paying wages, and by some governmental offices in paying out social grants (Ondiege, 2010).

While there might be no universal conventional model for mobile banking, its rationale, structures, and business model should be country specific. Despite the advances made, much work is still needed; such as, revising the conventional banking business model, and perhaps looking into new ways that can aid financial inclusion and participation at lower cost (Luiz, 2011).

Thus, mobile phones echoes anytime and anywhere access to banking services, irrespective of geographic location, furthermore, this offering presents opportunities for financial institutions to attract new diverse customers from various sectors of the economy, whilst retaining the existing customer base (Donner, 2008).

2.4 Unbanked Market

According to Mookerjee and Kalipioni (2010), the informal sector consists of small-scale enterprises, micro-entrepreneurs, and self-employed individuals classified on the basis of surplus unskilled labour force. This sector existed on the periphery of the economy, and integrating it into mainstream was viewed temporal, as this sector was intended to shrink when economic activity advanced. Until recently, economic activities have been reported in this sector and as a result, expansionary mechanisms project long-term economic activity particularly in Africa and Latin America.

Even though the informal sector is characterised by low earnings and irregular earning intervals, this sector accumulates economic gains through the production of goods and services; and at times, these economic gains are not reported for tax purposes. Consequently, Mookerjee & Kalipioni (2010) reported the activities in being legal in all other aspects. Thus the economic activities of this sector correlate with the estimates projected by the forerunners of economic theories in Friedman (2000), which stated that all things being equal, the informal sector can produce 14% to 62% of output (Badaoui, Strobl, & Walsh, 2008).

In South Africa, similar type of activities in the informal sector (also referred to as the unbanked market) have also been reported. These activities have contributed towards social and economic development in the unbanked market (Luiz, 2011).

The South African Financial Services Charter (FSC, 2003: 6) was signed in October 2003, to be implemented from 1 January 2004 with complete rollout by 31 December 2014. The FSC (2003: 6) focuses on six pillars namely; human resources development, procurement and enterprise development, ownership and control, empowerment financing and corporate social investment, and access to financial services (Coetzee, 2011). In view of access to finance, the primary objective is to ensure that the South African financial services sector promotes financial inclusion to the previously disadvantaged unbanked market, particularly those with the Living Standard Measure of one to five (LSM 1-5). The charter also advocates the transformation of a more competitive financial sector that is reflective of the South African demographics. For the big, four banks it meant providing access to retail banking products and services; such as transactional savings, borrowing, and insurance.

In catering to the needs of the unbanked market, it is important to highlight how they save, send, spend, borrow, and accumulate money. The unbanked market uses both formal and informal sources of financial services. The formal source is typically used for sending or receiving money (also referred to as money transfer). Informal sources are used for savings such as, home-savings or community saving clubs; while borrowing is through personal networks such as family, friends, and the informal money lenders (Honohan, 2008).

According to Rogerson (2008), the inability to obtain financing is mostly exacerbated by low usage of the formal banking system. This system is associated with, high banking costs, complex application processes, inability to present appropriate or complete credit history records and collateral to the bank and as such, these have contributed towards stifling economic activities for the unbanked market, particularly for small enterprise and micro-entrepreneurs.

Conversely, (Bhatti, 2007) states that the banking sector noted high costs in screening for creditworthiness, low returns, and the possibility of defaulting when financing the unbanked market.

For these reasons, stated by Rogerson (2008), small enterprises, and micro-entrepreneurs are predominately financed through the informal money lenders. Although the previous micro lending resulted in unregulated practices, for example unscrupulous business practice, it played an important role in financing small enterprises and micro-entrepreneurs. This financing enabled businesses to:

- Absorb some of the unskilled labour force;
- Promote employment opportunities within communities;
- Strengthen social systems and cultural traditions;
- Provide the platform for entrepreneurial determination and innovation within communities; and
- Lessening the concentration on state grants (Luiz, 2011).

Since, the inception of the FSC (2003:6); efforts to include the unbanked market into the mainstream economy have been made. By 2008, banks had increased brick-and-mortar banking branches, and other technology infrastructures such as ATMs. Furthermore, an additional 0.2% in capital expenditure was spent on educating consumers. Despite these contributions, the banks cited unsuccessful attempts; largely attributed to gaps in the distribution infrastructures and competition from non-banking institutions. In other instances, the banks were unable to recoup their capital expenditure and, as a result, the unbanked market was deemed unprofitable (Coetzee, 2011).

According to, Bhatti (2007) financial inclusion and development might be a natural progression. For the past decade, there has been discussion about social and economic development, promoting entrepreneurship, strengthening an enabling environment, and enhancing global competitiveness. Indisputably, the challenges are immense; even for banks that are established throughout Africa for example, Barclays, HSBC, and Standard Charter have also noted challenges associated with banking the unbanked.

In contrast, several developed countries such as the United States of America (USA) noted similarities to developing countries in banking the unbanked market, mostly with the African-Americans and Hispanics population (Badaoui *et al.,* 2008). Hence, the USA has undertaken strategies to cater for the unbanked market. Thus challenges facing South Africa are not only consistent with the rest of the continent, but also with other developed countries.

Unquestionably, designing solutions for financial inclusion remain high on the African agenda, and is not entirely different to other global agendas. Thus, policy debates and research should continue with discussions concerning financial prospects, systems and standards in order to shift the paradigm, and derive ways that can bank the unbanked market profitably, Mookerjee and Kalipioni, (2010); in addition, to guiding this market to make meaningful contributions, that integrated into the mainstream economy (Rogerson, 2008).

2.5 Conclusion - Literature Review

The business environment is transforming; and businesses are moving away from launching products and services in the hope that they will be taken up by the market. On the other hand, customers are showing individual preference towards specific products and services; as a result, firms are innovating and improving operational efficiency. This is evident in the way the firm automates processes, share and transmits information with customers and suppliers, reduces costs, supports transparency, ensures alignment, and integration.

Furthermore in the era of digital economy, firms are managing change, and aiming for strategies that enable and support faster decision making, as well as serve customers effectively while maximising profits. Through operational efficiency, firms are able to present the correct design structures such as allocating resources and capabilities, and ensuring a fit between supply and market demand for products and services.

The RBT provided the theoretical framework in fusing resources and capabilities for the firm; and showed the interactions between various players in creating sustainable competitive advantage. The theory also recognised the importance of aligning the internal and external environments, although it failed to quantify and label capabilities required for sustained competitive advantage. Nonetheless, RBT is still recognised as one of the few integrative strategic theories, which provides the model for conceptualising the concept of exploitation and aligning to the environments.

Conversely, capabilities are critical for the survival of the firm and its ability to compete in a competitive environment. Thus, in order to attain long term benefits and sustained competitive advantage, the firm must draw the best fit for its structures, be positioned to integrate processes and activities more favourably, and adapt quickly to environmental changes. The ability to combine, co-ordinate and exploit capabilities can sustain the firm against competitors, and position it to come up with innovative solution.

In addition, the growing need for mobility is creating an environment in which business is conducted anywhere and anytime. Through the advance of wireless network technology, the penetration of mobile phones is becoming the recognised mode of potentially lessening physical interactions. As the natural successor to electronic commerce, innovation such as mobile banking has created the possibility for new and unexpected convenience, especially in banking.

Although mobile technologies have been incorporated as part of banking outreach strategies; the big four banks in South Africa have had little success in incorporating this innovation, to bank the unbanked market. Undoubtedly servicing a market that transacts and saves incrementally, and maintains minimal banking balances in a profitable manner will certainly create complexities. However, the limited services being offered echoes lack of; well-structured plans in addressing current and future needs. Thus, through enabling innovations, such as mobile technologies, advanced architectural design of the banking model, the banking sector can be better positioned to address some of the unique characteristics of the unbanked market

Chapter 3: Research Questions

For the firm wanting to gain market leadership and above average returns, it must look for opportunities in the market and exploit them (Kim, 2007). Capabilities are critical to the firm wanting to compete and earn profits.

The mobile banking business environment in South Africa indicates that the market has not been fully exploited. To support the latter, table 3 indicates the percentage number of mobile penetration relative to the number of adults with banking accounts, and indicates the mobile population coverage percentage given the number of mobile subscribers. This indicates a 30% gap, in the market, which has not been exploited.

Table 3: Mobile Phone and Bank Account Penetration in South Africa

Number of Mobile Subscribers	Mobile Penetration	Adults with Bank Accounts	Mobile Population Coverage
19 500 000	65.%	35%	96%

Source: AFI, (2010)

Through the problem definition and the literature review, the research will investigate if and how banks in South Africa are embracing or intending to use mobile technologies to bank the unbanked market. Particularly, taking into account, the objective of FSC, (2003), the growing rate of mobile phone usage and coverage; and that the banking is the only sector permitted to provide banking services (Coetzee, 2011). Thus, the research will attempt to answer the following research questions –

3.1 Main Research Question:

Is mobile banking capable and adequate to serve the unbanked market?

The objective of the main research question is to outline the extent in which financial institutions can plan, design, develop, and deliver financial services to the unbanked market. In order to answer this main research question, the research will first attempt to answer two sub questions below.

3.1.1 Sub-research Question 1:

What guiding principles are required in planning and designing mobile banking services?

3.1.2 Sub-research Question 2:

What is required in developing and delivering mobile banking services?

Chapter 4: Research Methodology

The research methodology created the process that guided the research method and design, the population and sample size, the instrument needed to collect the data, the type of data and the manner in which the data was collected, the unit of analysis, and the analysis required to support this study.

4.1 Research Method

The initial stage of the research entailed identifying the industry pertinent to the study. This was further narrowed to the selected firms within the industry. The selected and contacted firms served as the focus area that was investigated.

The research study adopted an approach that was considered appropriate and relevant in answering the research question. The approach used was deductive research, in which the literature that dealt with aspects of this study was reviewed. Using guidance of the literature, the research attempted to uncover critical themes, and as such, it was structured to the level that supports an exploratory research using qualitative analysis This was in line to an exploratory research, which seeks to uncover information about a topic in order to provide a comprehensive perspective about the variables in question (Saunders & Lewis, 2012).

4.1.1 Rationale for Research Method and Design

The approach and design explored aspects, which played an important role in investigating this study. The methodology supported the research in seeking to identify and explore mobile banking capabilities required to serve the unbanked market in South Africa. This technique constructed arguments and noted the reasons for

observed outcomes; as well as minimised potential problems (Marshall & Rossman, 2010).

4.2 Population

According to Struwig and Stead (2001), a population refers to a complete set of organisations. Although the research is rooted to the South African context, it did not ignore the international arena. This view ensured that the research study is contextually appropriate to the South African environment. In South Africa, population pertaining to financial services refers to but not limited to the following; Banking Institutions, Fiduciary Institutions; and Accounting and Auditing Institutions. For this study, the population was the banking institutions, which was narrowed further to the big four retail banks in South Africa.

4.3 Sample Size and Method

Owing to the inability and impracticality of collecting data from the entire population, a non-probability sampling technique; namely, purposive sampling was used in selecting the members of the sample. Purposive sampling is one of the non-probability sampling techniques, in which the researcher exercises judgement, in order to gain the necessary and relevant insights from the sample. The sample consists of a few members that can provide the depth of knowledge required for a research study instead of broader generalisation from the population (Saunders & Lewis, 2012). Therefore, the sample considered experts representatives from the big four retail banks from the mobile banking business unit.

This sampling technique was considered the most appropriate method for the study, particularly in search for experts that are involved in the process of initiating, planning, and designing the business unit strategy pertinent to mobile banking. As a result, each

bank noted few individuals fulfilling managerial within the mobile banking business unit. Even though the size of the operational and/or project team members are sufficient, for example business analysts and system analysts, the research refrained from interviewing individuals that were merely involved with the operational and/or project function, since these resources are shared amongst different business units and projects. Hence, caution was used to select the member sample.

Ultimately, one bank opted not to take part in the research study; and this resulted in a final of six experts from the remaining three banks. In noting the latter, the research also used aspects of secondary data such as industry reports to support the primary data collected during the six expert interviews. However the extent in which the secondary data is used depends on the primary data collected, (Saunders & Lewis, 2012)

4.3 Unit of Analysis

The study focused on depth and insight, and was concerned with participants who operated specifically in the mobile banking business unit. Furthermore, the study used tier one and tier two interviews for each bank; as a result, the unit of analysis fitted with the variables of this research study (Marshall & Rossman, 2010).

4.4 Interview Schedule Design

The interview schedule design was formulated using literature that dealt with aspects pertinent to the study. This was designed for conducting semi-structured interviews, in which questions were grouped into specific themes. The first theme explored the macro environment of mobile banking. This was used in gathering information about the broader context of the mobile banking business environment. The second theme focused on the micro environment. This constituted a narrow view into mobile banking for a particular bank. In addition, this theme was further expanded to encompass two sub-themes, namely:

- The bank's position in delivering mobile banking services - the questions focusing on the drivers and enablers of the service.
- Mobile capabilities - the questions explored technological and non-technological capabilities required in enabling mobile banking services.

The questions to the third theme had specific focus on the unbanked market. The fourth theme included questions pertaining to the competitive landscape of mobile banking services, in which competitors were discussed. The last theme was an open theme. This gave the opportunities to the participants to position the future prospects of mobile banking services, in addition to catering to the unbanked market.

4.4.1 Pre-test of Interview Schedule

The interview schedule was piloted amongst colleagues working in similar domains as the participants, in which the following was accomplished:

- Finalised the structure, themes and the question of the interview schedule;
- Ensured the participant fully understand the wording of the questions;
- Encouraged complete information when responding to the questions;
- Note taking, interpretation and analysis can be conducted, while the interview is in session;
- Interviewing techniques were practised, specifically asking one question at a time; in addition to ensuring that leading questions and responses are avoided;
- The recording devised worked accurately; and
- The interview session is within the prescribed time of 45 to 60 minutes (Marshall & Rossman, 2010).

Pre-testing the interview scheduled formed the basis in ensuring that there is no ambiguity and that the questions are easily understood (Saunders & Lewis, 2012).

4.5 Data Collection

Prior to conducting the interviews, participants were emailed the consent letter, which stated the purpose of the study. The data was collected using semi-structured interviews in which two experts represented one of the three banks. The second expert interview enabled the researcher to add and verify information gathered from the first expert interview. Both interviews were conducted using the same interview schedule. This ensured that there was no variation between tier one and two interviews. Furthermore, the tone of the interviews was informal; however, objectivity was maintained throughout the interviews. This process aided the researcher to collect and manage the data in such way that the quality was not compromised; for example, the data was not tampered or augmented after the sessions (Saunders & Lewis, 2012).

4.5.1 Structure of Interview Process

Face-to-face, semi-structured interviews were used for collecting the data. The interviews were set up to meet the general guidelines of the interview process, in addition to being conducted at the place of preference for the participants. The general interview guidelines included the following:

- Participants were informed with regards to voluntary participation, and the option of opting out at any time throughout the research process;
- Consent to record the interviews was obtained, in addition to treating the information with confidentiality;
- Anonymity was preserved, such that the names of the participants and the banks are not disclosed in the final report. Thus aliases were used in denoting the names of the banks and the participants;
- The time allocated for the interview was specified; and
- Availability of the transcripts and report could be made available to the participants on request (Struwig & Stead, 2001).

Once the general guidelines were communicated, the interview took on a more structured approach with specific focus on the questions outlined in the interview

schedule. The interview probed until all relevant information was obtained in detail, and as a result, there was minimal deviation from the interview schedule. This process is supported by Marshall and Rossman (2010) in gaining insights about a specific topic.

4.6 Data Analysis

The most appropriate method of analysing qualitative research is content analysis and narrative analysis. Furthermore, when using secondary such as aspects of a report or white papers, caution must be exercised, as the extent to which these are used depends on the primarily data collected (Saunders & Lewis, 2012).

Content analysis was used in analysing the data. This process ensured that the data was interpreted in order to draw meaning across common themes; and in doing so attempts were made to answer the research questions, as posed in Chapter 3.

4.6.1 Data Analysis Process

The interview recordings were transcribed into text format prior to being analysed. The text was read twice in order to ensure a level of knowledge and familiarity with the data. This was followed by the general sequencing and grouping of the data into various themes. This process was carried out using one interview, until all six interviews were analysed collectively. As a result data elements with similar themes were drawn categorically which aided the presentation of the data using frequency tables. The themes were counted and ranked accordingly. Other elements were further reorganised and consolidated to create additional meaningful themes; and in other instances data pertaining to a particular bank was consolidated to provide a complete view, and to develop commonality or variation across the three banks. Furthermore, aspects of some industry reports were used in order to support the findings of the results. This process supported the analysis, interpretation, and presentation needed for the study; and as such aided the validity and reliability of this study (Saunders & Lewis, 2012).

4.6.2 Data Validity and Reliability

Reliability and validity refers to the trustworthiness or credibility of the research. Validity is concerned with the degree in which the research is deemed logically sound and if it was conducted in an appropriate manner. Reliability and validity denotes the approach taken to collect the data and the extent to which the data is accurate and consistent; which renders credibility to the research study. The study exercised caution throughout the research process in attempting to minimise potential pitfalls, which could discredit the study and render it irrelevant. Pitfalls include but are not limited to:

- Error due to data collection and analysis;
- Error in selectively omitting relevant data;
- Error in providing reasons for the findings in which personal views influence interpretation; and
- Error in generalising the findings (Marshall & Rossman, 2010).

4.7 Assumptions

The research assumptions are such that the research methodology used for this study is the most appropriate and relevant in answering the research questions. It also assumes that the participants provided accurate responses in answering the questions. Furthermore, the interview schedule used was designed in such a way that it explored the fundamental aspects pertinent to this study. Thus, it shall suffice to state that this study used the correct guiding principles necessary in conducting an exploratory research for mobile banking capabilities required in serving the unbanked market.

4.8 Limitations

The following aspects were noted as potential limitations to this study:

- Only three retails banks were interviewed and no other cluster of the banks, such as business or corporate banking was included;

- Only front office functions within the banks were considered. The study did not include middle or back office functions;

- Other services institutions did not form part of the study, although these might offer financial services to the unbanked market, in addition to using the mobile channel;

- The research focused on mobile capabilities pertinent to the banking environment;

- The findings expressed were the views of individuals working at a particular bank. Thus the views expressed could have been influenced by the employer;

- The research only interviewed two experts per bank; therefore when considering the size of each bank, the views presented may to some extent not represent the full views of the bank;

- Both the interviewer and the interviewee were involved in the interpretation process while collecting the data, as a result some objectively might have been misplaced.

4.9 Conclusion – Research Methodology

The chosen methodology aided the most appropriate manner in which the study was planned and conducted. It supported the manner in which the data was collected and analysed. Consequently, the analysis accommodated and considered the views expressed by the experts with regards to gaining insights about mobile banking capabilities required to serve the unbanked market of South Africa. The views were categorised and organised into themes for easier interpretation and presentation, with each theme denoting an equal level of importance. It suffices to state that the research methodology used aided the research in meeting its objectives.

Chapter 5: Results

5.1 Introduction

In attempting to answer the research questions, qualitative in-depth interviews were conducted face-to-face with all the participants. An interview schedule (refer to Appendix 2) included questions that were developed based on the reviewed literature of Chapter 2; and all questions discussed in the interviews were linked to the research questions as outlined in Chapter 3. This was designed to serve as a guideline in structuring the interviews without necessarily following a rigid course. However, the schedule was detailed enough in meeting the objectives of this study, and as a result aided the researcher in attempting to answer the research questions posed in Chapter 3.

5.2 Sample

The initial sample of the study constituted two expert participants from each of the big four retail banks in South Africa. After numerous attempts, one bank opted not to take part in the study. This resulted in a final sample size of six experts across the remaining three banks. All six participants fulfil front office functions within the mobile banking business unit. The sample was selected purposively; hence, all six experts were referred to by their peers as being the most appropriate candidate for the interview or the relevant representatives of the bank.

Table 4 below indicate the roles and functions of the participants within their respective banks. As mentioned in section 4.4.1 aliases was used in denoting the banks and the participants.

Table 4: Functional Roles of the Sample

	Interview Participant		
	Bank A	Bank B	Bank C
Role (s)			
Departmental Head (s) within Digital Channel (Senior Management)	1	1	0
Product House Leads	1	1	1
Functional Project Leads	0	0	1
Count	2	2	2
Sample size			**6**

5.3 Data Gathering

The interviews were conducted between the 7th July and 31st August 2012. Four of the interviews were conducted at the bank's premises, while the remaining interviews took place at GIBS (Gordon Institute of Business Science). The interviews were scheduled for 45 minutes to 60 minutes; however, each interview averaged 90 minutes. The participants showed a supportive attitude and the willingness to provide the information needed for this study. All interviews were recorded with permission granted from the participants. In addition the consent letters were signed by the participants, (refer to Appendix 1).

5.4 Data Analysis

The interview recordings were transcribed into text format. Once completed, a thorough understanding of each transcript was developed, followed by the general sequencing and grouping of the data into various themes and patterns. This process was carried out with all six interviews using frequency tables, and with some of the quotations being provided.

5.5 Presentation of Results

5.5.1 Question 1: What insight can you share about the macro environment of mobile banking?

All participants were asked to share knowledge about the broader context of the mobile banking business environment. Key themes, which emerged during the session, are listed in table 5 below.

Table 5: Macro Environment for Mobile Banking

Themes	Participants						Count
	Bank A		Bank B		Bank C		
	1	2	3	4	5	6	
Ability to Transact	√	√	√	√	√	√	6
Role of Banks	√	√	√	√	√	√	6
Convenience	√		√	√		√	4
Accessibility	√		√	√		√	4
Education				√		√	2
Safety				√		√	2
Mass Reach	√		√				2
Capital investment					√	√	2
Role of Network Operator	√					√	2
Strategic Channel	√			√			2
Competition			√	√			2
Number of Phones vs. Bank Accounts	√		√				2
Affordability	√					√	2
Technology Advancement		√					1
Other Channels					√		1
Value Chain			√				1

All six participants affirmed that the banks offer mobile banking services with assistance and support from the mobile network operators. The two operators (Vodafone and MTN) jointly enable accessibility across various geographic regions.

In addition, all six participants reported regular usage of the offering by customers, and as such have invested capital in designing, developing and continuously upgrading the services.

5.5.2 Question 2: What does mobile banking mean for the bank?

Participants were asked what the service offerings meant from the perspective of the bank. In addition, they were asked to identify the drivers and motivates in offering mobile banking services.

Across all six participants, 16 themes were noted. Commonalities were identified across the themes, which were consolidated, and this resulted in a final list of nine themes, as shown in table 6.

Table 6: Enablers for Mobile Banking

	Participants						
	Bank A		Bank B		Bank C		
Themes	1	2	3	4	5	6	Count
Executive Level	√	√	√	√		√	5
Operational Efficiency	√	√		√	√	√	5
Innovation	√	√		√	√	√	5
Cost Reduction	√	√		√	√		4
Profits	√	√			√	√	4
Management/Working Committee			√	√		√	3
Market Competeveness		√		√			2
Less Risky					√		1
Sustainability			√				1

The common theme that emerged is that it is the accessing of financial services using a mobile phone. Most of the participants noted the service being offered for longer than three years. The emergence of the service was due to innovation, and the changing

business environment. In citing operational efficiency, five participants stated the relevance of the channel relative to other channels (ATM, Internet banking, and Branch banking) of the bank. Only one participant noted the mobile channel as another distribution channel. All six participants also reported the cost reduction due to less capital requirement in setting up the service. In support of cost reduction, participant 5 noted that the customer as the one bearing the largest portion of the cost required for the service.

"…*the customer buys the phone, buys the airtime, and charges the device in order to access your service".*

As mentioned above, the themes were further categorised as either drivers or motives, as shown in table 7.

Table 7: Drivers and Motives for Mobile Banking

	Themes
	Executive Level
	Management/Working Committee
Driver	Market Competiveness
	Innovation
	Operational Efficiency
	Cost Reduction
	Profits
	Less Risky
Motives	Sustainability

Drivers indicated leadership, management, or structural support towards mobile banking initiatives, while motives denoted the justification in offering the service.

In noting executive level as key driver, one participant stated:

"Our visionary leader said that mobile banking is a prominent player, and it will become the standard channel for the banks going forward. So it is being driven from the top, and customers are saying they want certain services on their mobile phone; so make it happen."

One participant cited that, although they might not have a charismatic leader, the channel is driven from all levels within the bank; for example, there is management and working committees assigned to mobile banking initiatives. There is also internal communication ranging from newsletters, emails, and road trips across the country currently done by the CEO (Chief Executive Officer).

All the participants noted pertinent structures such as management and working committees being put in place, in addition to the allocation of project resources such as business analysts, project managers, and functional leads.

Another interesting notion cited by one participant regarding sustainability as a motive:

"The *bank has a very green culture … and mobile banking creates the environment where sustainability is actually more entrenched because you have limited impact on the environment".*

5.5.3 Question 3: What type of services or products are you offering through the mobile banking services?

Participants were further asked to name the types of services or products being offered. The responses were clustered into the following categories as shown below in Table 8.

Table 8: Mobile Banking Services Offering

Banking	Non-banking	Other Value-added
Balance Enquiry	Airtime Purchases	Online Share Trading
Money Transfer	Prepaid Electricity	Data Bundle
Account Payment	National Lottery Tickets	
Savings		
SMS Notification		
General Banking Enquiry		
Application for Other Products and Service (for example car and household insurance)		

One participant mentioned online share trading, and another data bundle as the value added services offered. For online share trading, the participant stated:

"…many of the wealthier customers prefer dealing directly with their bankers"

Due to the service not having mass appeal, the utilisation of the service is only by a small customer segment.

Two participants concluded this section by noting changes in the banking environment as result of customers taking a proactive role in letting the banks know of the types of services and products they require.

5.5.3.1 Question 3.1: How does the pricing and revenue structure operate?

In view of the services being offered, participants were asked to share insight into the pricing and revenue structure of mobile banking services.

Two participants noted the importance in determining the appropriate pricing model relative to the services being offered. They also mentioned the importance of affordability as a criterion in offering the service; however, the price that customer pays cannot be such that the bank is unable to cover operating costs. In addition, one participant indicated relevancy of the pricing model, in that one should remain competitive with the rest of the industry, while making profits for the bank and its shareholders. The revenue model was cited as high volume low cost model, thus a bank does not necessarily incur additional costs when the number of users for the service increases.

According to one participant:

"It doesn't matter whether I do 100 thousand or 1 million transactions, the incremental cost is much less and therefore I can provide much cheaper and much more accessible financial services, and still make profits. At a fee of R8.50, you can also withdraw the

money using with one of our channels; and you do not pay a cent more. For this service the cost profit model says I have to charge this amount to make revenue."

According to participants, various pricing options are also available for customers to choose from, for example, fees can be incorporated as a monthly charge, or customers can pay a fee based on the usage of a particular service (especially for customers wanting to get as many services as possible for their rand value).

All participants noted a sense of fairness in charging customers for the services irrespective of the pricing model used, and that customers are willing to pay for the service.

5.5.4 Question 4: What mobile capabilities does the bank require in delivering the service?

For this question, participants were asked to give insight about technological capabilities required in delivering the service. Table 9 lists the themes that were noted during the interviews.

Table 9: Mobile Capabilities - Technology

	Participants						
	Bank A		Bank B		Bank C		
Themes	1	2	3	4	5	6	**Count**
Web-based Application	√	√	√	√	√	√	6
Client-based Application	√	√	√	√	√	√	6
First Generation (1G)	√	√	√	√	√	√	6
Text-based Application	√	√	√	√	√		5
Second Generation (2G)	√		√	√		√	4
Third Generation (3G)	√		√	√		√	4
Username and Password	√		√	√			3
Application Design	√	√					2
Type of Content	√					√	2
Price of Devise	√						1
Universal Design of the Devise						√	1
Screen Size	√						1

Mobile Capabilities

According to the six participants, the rationale to offer the various applications, namely, text, web, and client based applications is to ensure that the mobile banking services are accessible irrespective of the type of mobile phone being used. As a result, the mobile banking service can be accessed using a market entry phone through to using an advanced phone such as smart phones.

One participant cited:

"Not everyone has and can afford a smart phone, so we need to cater for all types of phone in the market; and you want to make sure that your customers can access banking irrespective of geographical location".

Another participant supported the latter, noting that the universal design of the device compels the banks to have consideration for all types of phones in the market.

According to all six participants, the following applications are catered for:

Text-based Application – text based application is available through SMS or USSD. This is the most commonly used application in the market. The application was the first launched when mobile banking services was introduced; hence, it has been available for the longest period. However, one participant noted the lack in securing customer information as the application is easily hacked.

Web-based Application (web browser) – all participants reported offering the service or have enabled the service. Two participants cited the application as being similar to internet or online banking. Only one participant noted the challenges with regards to the amount of rich data or java scripted information that can be displayed. The application requires lengthy time, large amount of data usage and faster internet connectivity in order to download; hence one participant recommend online banking as a better alternative to web-based application.

Client-based Application – two participants reported the service being available, while the other four reported the application in test or pilot phase with an expected release by the end of 2012. The application is available on smart phones and tablets. Some of the features reported were the flexibility of downloading remotely onto the memory of the phone, redesign of the navigation screen and the ability to move some of the icons for ease of use.

Participants were further asked if they knew of any other type (s) of applications, which are currently on offer in the market for example, a client-based application in which the banking platform is embedded onto the memory of the SIM card.

Only two participants reported to know about this type of application. Three reported that the banks have not explored the possibility of using the application. One participant reported that one bank trialled the application a couple of years back, and it never took off. However, the participant reported optimism in trialling it again, if the application can be improved.

Mobile Transmitters

When asked about transmitters, five participants reported current transmitter in the market, namely 1G, 2G, and 3G. All six participants noted the slow connectivity with the transmitters, and that the environment is largely controlled by the mobile network operators with banks having minimal influence.

At the moment, all participants reported designing and building applications based purely on the type of transmitters the mobile operators have on offer.
One participant reported the following:

"…at the moment we are limited on how big we can play in this space. This depends on what the network puts out there. You cannot purely build on the basis of the device, because there is consideration about the limitation of the wireless communication".

Another participant cited the following:

"You cannot do all these advanced features which cannot be used because the mobile operator cannot support them. In designing the application we use what we know is stable and available 80% of the time, like 2G, even 3G has issues"

5.5.5 Question 5: What other capabilities (other than technological) does the bank require in delivering the service?

Participants were further asked to note any other capabilities, which are crucial in delivering the services. Participants noted the following as shown in table 10.

Table 10: Other Capabilities

Themes	Participants						Count
	Bank A		Bank B		Bank C		
	1	2	3	4	5	6	
IT Department	√	√	√	√	√	√	6
Mobile Network Operator	√	√	√	√	√	√	6
Functional Areas	√	√	√			√	4
Retail Stores	√		√		√		3
Government	√				√		2
Regulator		√				√	2
Product Houses	√						1

These were further classified into intra and inter collaboration, as shown in figure 8. Inter collaboration refers to internal department or function, while intra collaboration refers to external industry or sector.

Figure 8: Intra and Inter Collaboration Efforts
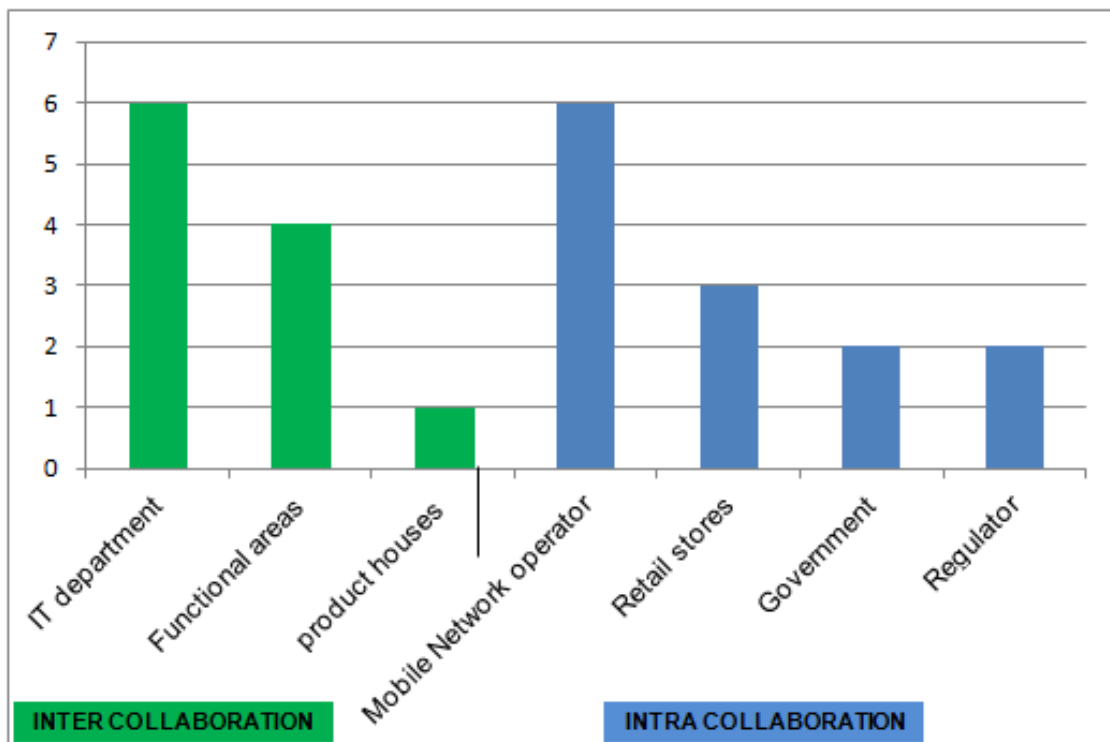
5.5.6 Question 6: What can you share about the competitive landscape?

In view of the intra collaboration noted above, particularly other sectors playing in the remittance space, participants were asked to highlight their perspective about the market competitiveness environments. Table 11 below list the common themes that were mentioned by the participants

Table 11: Competitive Landscape

| | Participants | | | | | | |
| | Bank A | | Bank B | | Bank C | | |
Themes	1	2	3	4	5	6	Count
Competitors: Big 5 banks	√	√	√	√	√	√	6
Competitors: Network Operators and Retail Stores	√	√	√	√	√	√	6
Market Leadership	√	√	√	√	√	√	6
Marketing and Branding	√		√	√	√	√	5
Value Proposition	√	√	√		√	√	5
Core Banking Capabilities		√			√	√	3
Competitive Rates	√				√		2
Relationship Management		√			√		2
Innovative Culture			√	√			2
Market Perception			√			√	2
Market Entrance	√					√	1
Global First Status	√						1
Headline Earning			√				1

All participants noted the importance of having market leadership, and four of the participants reporting one bank as the market leader. One participant noted the global status achievements of the market leader. However two participants noted that market leadership is often based on the perception of customers, reason being the market leader in headlines earning for the previous financial year-end (2011) is a different bank. One participant reported deploying a second to market strategy and that such a strategy is not always detrimental.

The participant stated:

"*There are higher risks in being first to market and then failing, sometimes is better to wait and see… So we constantly wait and see what the market leader is going to do and then we follow*".

The participant also noted positioning the service for a long term, and as such the bank is making sure that the right foundation and structures are in place before rushing in and launching services.

Three participants noted the delivery of the value proposition as a function of having core capabilities; in addition, two of the participants also noted having an innovative culture, similar to the market leader.

Five participants reported one of the banks as proactively adverting and marketing its campaigns. Two participants noted one bank in being extremely poor in promoting its services and announcing its achievements to the media. All participants note the fundamental role of marketing and branding in communicating the value proposition.

Each of the six participants noted the other big four banks as the biggest competitor, and only one participant included the up and coming bank (Capitec) as an additional competitor. Second to banks, the six participants noted the mobile network operators, followed by the retail stores.

Conversely, one participant further stated the following:

"The network operator does not have any competencies and capabilities required in running banking. The banking industry is a mature sector and it needs skills backed up by years of experience. The lack of success with Vodacom credit card is a classical example in learning about the things that companies are good at doing and things they are not good at…"

On the contrary, two participants noted the government and the regulator in delaying entrance of other competitors. To compete one requires a banking licence, secondly one requires minimum capital reserves, thirdly one needs to guarantee depositors of their principal amount; lastly the banks are highly regulated and monitored. As a result, these contributing factors might also slow entrance into the market. Hence, one participant cited the banks are still being protected by the regulator against potential threats.

5.5.7 Question 7: How does the mobile banking service translate in relation to the unbanked market or in serving the unbanked market?

Having discussed the macro and micro environments of mobile banking, participants were asked to mirror mobile banking services to the customer base of the unbanked market. The themes that were noted during the discussion are listed in table12 below.

Table 12: Mobile Banking Components for the Unbanked Market

	Participants						
	Bank A		**Bank B**		**Bank C**		
Themes	1	2	3	4	5	6	**Count**
Informal Sector	√	√	√	√	√	√	6
Right Products and Services	√	√	√		√	√	5
Legacy of the South African History	√		√	√	√	√	5
Common Definitions and Categories	√	√		√	√	√	5
Political, Social and Economic Aspect	√	√	√		√	√	5
Strategic Partnership in Driving Mass Reach	√		√	√	√		4
Staff Training	√	√		√	√		4
Negative Perception about Banks	√		√		√	√	4
Lack of Proactive Stance from Banks	√			√	√	√	4
Legacy Banking Systems	√		√		√	√	4
Budget Constraint	√		√		√	√	4
Prospects of the Market	√	√		√	√		4
Role of Government and Regulator	√			√	√	√	4
LSM 1-5 (Rural Communities)	√			√	√		3
Financial Inclusion	√			√	√		3
Education	√			√	√		3
Economy Activities	√					√	2

5.5.7.1 Question 7.1: How would you classify or define the unbanked market?

When asked to classify the unbanked market, four participants noted the importance in using common definitions and categories to classify the market. All six participants further diverted this to specifically citing the informal sector, even though during the

discussion four participants defined the unbanked market as anyone with the prospects of being banked.

5.5.7.2 Question 7.2: For the segment of the unbanked market which might have banking accounts, what aspects of the KYC concept apply?

All six participants noted the segment in constituting of the majority South African population; particularly the lower LSMs. Reference was also made regarding this market to not having access to financial services or inclusion, contrary to owning or having access to a mobile phone. Two participants cited the prevalence of economic activities happening within the informal sector.

5.5.7.3 Question 7.3: Why do you think there seems to be lack of inclusion for this market?

In providing response to the above mentioned question, three participants cited the legacy systems of the South African banking institutions. Previously the banking environment was not designed to cater for anyone outside the formal sector, and as a result, the majority of banking customers largely constitute individuals in the formal sector.

Four participants noted that even post 1994; the majority of the South African population still believe that banks are out there to exploit people. One participant noted the following:

"…*people still think banks are here to rob them of their money, and sometimes that is how the media plays it…*"

Furthermore, four participants noted the strong link between banking operations and IT legacy systems, which have been running for more than three decades and are virtually impossible to eradicate as one of the factors, which might have contributed the lack of inclusion.

One participant mentioned that:

"…*these systems lack the flexibility, in that you cannot switch them off, so as technology advances we merely just plug them onto of this spaghetti. This also impacts the innovation process*"

5.5.7.4 Question 7.4: What types or services are available for this market?

When asked about the types of service available for this market, all participants cited money transfer, especially if one does not have a bank account. In using this service, one typically pays a once off all inclusive fee, which also makes it the most utilised service. Other services include the purchase of airtime followed by prepaid electricity, lottery tickets, and the basic account payment. However, in most instances these customers have an entry level transactional account with the bank. Of the services mentioned by the participants, only 25% relates to banking services while the remaining 75% are non-banking services. One participant noted financial services being offered by non-financial entities, for example, loan acquisition through the PEP retail store. All six participants reported that banks have not taken a proactive stance in creating products and services for this market, even although four participants cited the prospects of the market in being profitable.

One participant stated the following:

"…*guess if they were not profitable, then the mobile networks would have run out of business. If you not catering to that market, you potentially loosing on a large portion of market. We tend to forget that those people will at some point move into the formal sector of the economy…*"

Three participants cited educating customers and forming strategic partnerships with other service providers in order to have mass reach.
In closing this section, all six participants noted that perhaps in driving the political agenda, the government should also drive the social and economical aspects, particularly where the banks are involved. Mere policy documentation is not enough and the banks cannot do it alone.

5.5.8 Question 8: In light of what was shared, what would you say are the key challenges being faced in delivering mobile banking?

In drawing near the end of the interview, participants were asked about the challenges currently being faced. Table 13 below list the themes shared by the participants.

Table 13: Mobile Banking Challenges

| | Participants | | | | | | |
| | Bank A | | Bank B | | Bank C | | |
Themes	1	2	3	4	5	6	**Count**
Security	√	√	√	√	√	√	6
Branches versus Mobile phones	√		√	√	√	√	5
Innovation versus Regulation	√	√	√	√	√		5
Size of Device	√		√		√	√	4
Technological Constraint	√	√				√	3
Charge Fee		√	√				2
Investment		√					1

Four participants reported the size of the mobile phones due to the limitations it imposes in design of some of the rich text features. In contrasting regulation and the size of the device, five participants noted that often at times the banks have to abandon some elements of innovation at the cost of being compliant with the regulator. For example, clauses or terms and conditions cannot all be displayed using a mobile device; so in such instances other services cannot be fully carried using the mobile channel. As a result, maintaining a balance between what services can be assessed using a branch and using a mobile phone becomes imperative. Therefore, five participants reported that banks could never completely do away with brick-and-mortar branches.

In closing this section, one participant noted the lack of capital injection in driving some of the mobile banking initiatives.

5.5.9 Question 9: In concluding the interview, what is the outlook for mobile banking in the future?

In concluding the interview session, participants were asked to provide an outlook on the future prospects of mobile banking for the next five years. The themes mentioned are listed in table 14 below.

Table 14: Future Prospects of Mobile Banking

| Themes | Participants | | | | | | Count |
| | Bank A | | Bank B | | Bank C | | |
	1	2	3	4	5	6	
Cost Reduction	√	√	√	√	√	√	6
Cheaper Mobile Phones	√	√	√	√	√	√	6
Advanced Technology	√	√	√	√	√	√	6
Right Products and Services	√	√	√		√	√	5
Pay As you Bank Model (bank in a box)	√	√	√		√		4
Relaxed Regulations	√		√		√	√	4
Mergers of Industries	√	√	√	√		√	4
More choice		√	√	√	√		4
Greater Societal Impact	√			√	√		3
Role of Social Media						√	1

Favourably, all six participants noted the reduction in cost, both for the customers and the banks. They also noted the drop in mobile phone prices; the quicker the phones become advanced, the quicker the releases and the cheaper the phones.

Furthermore, other players are also starting to feature in the smart phones space; particularly both Google and Microsoft are expected to release smart phones into developing countries. In addition, data will become cheaper and perhaps free in certain areas - most first world countries offer free wireless in certain areas, such as shopping malls.

Five participants cited the right products and services being offered to the market. They also cited the prospect of potentially moving away from categorising customers based on income status or levels.

Interestingly one participant noted the prospective role of social media, and how it might potential influence the manner in which banking and other services are offered.

5.6 Conclusion – Results

The overall responses from the six participants were overwhelmingly positive. All participants noted the favourable use of mobile phones to conduct anytime, anywhere banking. In general, banks are willing and open to advancing mobile banking services. There is also a willingness to start considering services, which might be representative of all South African. However, there is a level of misalignment concerning what can expected from banks, and the impact towards social and economic development.

In closure, the participants noted the rapid development of the services since the inception; and as such, all six participants are optimistic about the future prospects and potentials.

"Although banking operations might change, the service is here to stay; mobile banking is an integral part of banking that is now embedded in the DNA of banking"

Chapter 6: Discussion of the Results

6.1 Introduction

Chapter 6 seeks to answer the two sub-research questions and the main research question as outlined in Chapter 3; by means of analysing and interpret the results presented in Chapter 5, incorporating key aspects of the literature discussed in Chapter 2; and including aspects from industry reports in order to support the discussion of the results.

6.2 Discussion of Results

6.2.1 Sub-research Question 1: What guiding principles are required in planning and designing mobile banking services?

Mobile Banking

Innovation in mobile banking technology is favoured by banks for the reason that the technology exploits economies of scale in driving operational efficiency. This is evident in the restructuring and realignment of business unit functions, which translate to cost reduction. When the firm reports reduced costs while making profits from specific activities, these activities receive priority and support from management. Every leadership promotes initiatives and activities, which are strategically aligned to where the business environment is going. Consequently, the leadership will ensure the correct structural designs at every level of the company in driving these initiatives and activities (Grant, 1991).

According to bank B and C, for customers, efficiency translates to shorter queues in accessing banking services; in addition, it allows multiple customers to be served simultaneously. Bank A noted that previously customers had to wait anything between one to three working days before receive a response from the bank. Now, in a matter of seconds, customers receive prompt feedback, and in the event of transacting, transactions are reflecting on the account immediately. Furthermore, all three banks reported the reduction of manual processes due to automated real-time processing. As a result, banks no longer lose customers due to delayed operations. Thus, the banks have reported increased uptake in customers using mobile banking services. The concept of anytime, anywhere banking is materialised (Ahenkora & Adjei, 2012).

Using key themes from table 5, 6 and 7, figure 9 shows the key themes that are imperative in planning and designing mobile banking services.

Figure 9: Principles of Planning and Designing Mobile Banking Services
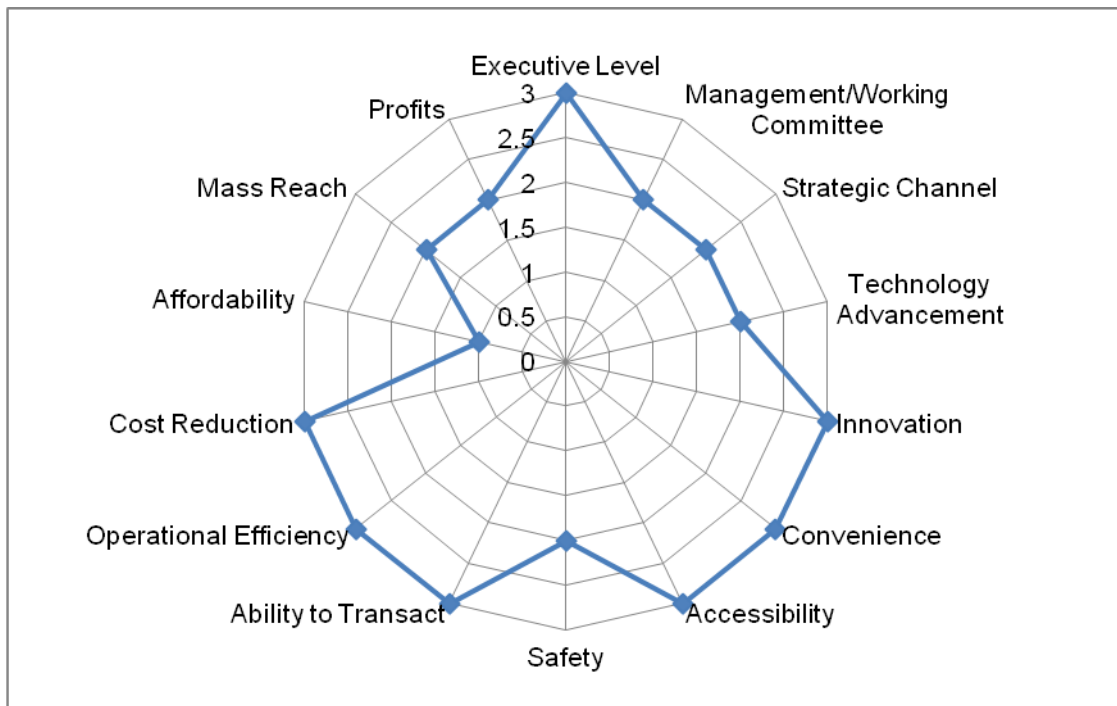
In line with figure 9, bank A notes that the strategic positioning of the channel has created the platform in which the advancement of technology delivers on the value proposition set out by the banks in offering the service to the market (Hitt *et al.*, 2009).

Products and Services

All the banks notably offer the full spectrum of banking services. Figure 10 shown the percentage breakdown of the services offering as listed in table 8. The various offering are also indicative that banks have the necessary resources and capabilities, and as such, these are co-ordinated in a manner that meets customer needs.

Figure 10: Mobile Banking Services and Percentage Measure
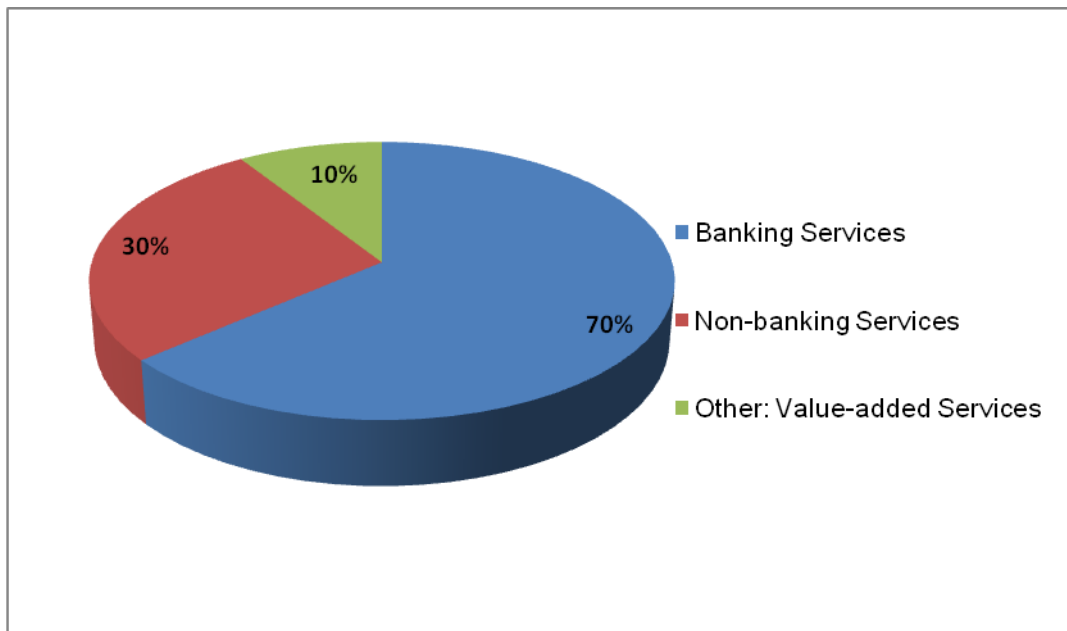
In accordance with figure 10, the service offerings for each category are as follows (Dermish *et al.,* 2012):

Banking Services -

- Money transfer, account payments, and savings. Money transfer is the most important service, especially for those sending money to rural communities, and

the service has a cost charge associated with each transfer. Account payment and savings are incorporated as part of the monthly service charge on the account.

Non-banking Services -

- General enquiry and information; there is also the card management process for reported stolen, missing or renewal of cards. The cost is also part of the monthly service charge on the account however; there is an added premium upon issuing of a new card.
- SMS notification also forms part of the monthly service charge on the account. Banks reasoned no additional cost irrespective of the number of SMS sent to customers. There is also an expectation from customers to receive the service as part of the monthly charge on the account.
- Purchasing of airtime, this is the most popular non-banking services. Bank B reported an average of two million in profit sharing between the mobile network operator and the bank. Other purchases include prepaid electricity and the national lottery tickets.

Value-added Services -

- Online share trading; and
- Data bundle purchases.

According to the banks, these are the services in which customers indicated preference towards, although it cannot be concluded with certainty that all the services on offer is what the market demands. Conversely, customers are willing to pay for the service given that the rates are competitive across all the banks. According to A, the banking sector does offer competitive rates for mobile banking, for the reason that the service operates on a low cost, high volume business model. Therefore, the pricing is reasonable enough for customers to pay, and for banks to cover operating costs and earn profits. Essentially, if a bank wants to earn above average industry returns, it would need to offer the market more innovative services and charge higher premiums for them (Tiwari & Buse, 2007).

6.2.2 Sub-research Question 2: What is required in developing and delivering the mobile banking platform?

Mobile capabilities

Unquestionably, technology is tearing barriers down and creating platforms for first mover advantage and market leadership, with first movers enjoying the benefits of setting market standards for those wishing to enter the market. All three banks noted the advancement of technology as a driver and an enabler, although not all the solutions available in the market are relevant to some of the businesses needs. In addition, other solutions do not necessarily take off as initially perceived by the market, primarily due to the cost associated with customisation and continuous upgrades in trying to keep with the evolution of these technologies. In order for firms to cover costs, it would mean transferring the costs directly to customers; thus, many IT initiatives in the banking industry are abandoned as a result of increasing capital expenditure (Burgelman *et al.,* 2009). Bank A noted that the influx of solutions also threatens and sometimes delays the uptake of other technologies and services that banks want to offer. Therefore, it is critical for the firm to find a balance in purchasing off-the-shelf solutions versus developing and building upon internal capabilities in attempts to deliver value while earning profits.

In support of being agile, flexible, and adapting to the business environments, the three banks reported competencies mirrored by Wooder and Baker (2011). The banks also noted the importance of a culture that supports innovation. According to bank C, culture drives structural change and behaviour, which is necessary in adapting to the changing business environment. It was also noted that the latter could firmly position the firm to achieve sustainable competitive advantage, such that competitors do not easily copy capabilities. Hence Bank B denoted the latter as strategic positioning, which was also echoed by banks A and C.

With reference to strategic position, both bank B and C reported Bank A, in having the ability to orchestrate resources and capabilities and align to changes in the environment. According to bank B, bank A is constantly coming up with different and new ways of operating, and is continuously redesigning and reconfiguring services that

best serve the market. Consequently, competitors are always playing catch up to bank A.

In line with Barney, *et al.,* (2011), bank A displays distinct features in ensuring alignment between the internal and external environment, and this can be supported by the recent achievement of bank A being awarded a commendation as the most innovative bank in the world. This is testimony that the bank has effective:

- Leadership and management;
- Innovative culture and structures in place; and
- The right resources and capabilities.

Furthermore, bank A noted that capabilities should be conceptualised as a function of the environment, in addition to using technology in driving innovation. Figure 11 shows key themes listed from table 10 and 11, which are necessary in developing and delivering mobile banking services.

Figure 11: Elements for Developing and Delivering Mobile Banking Services
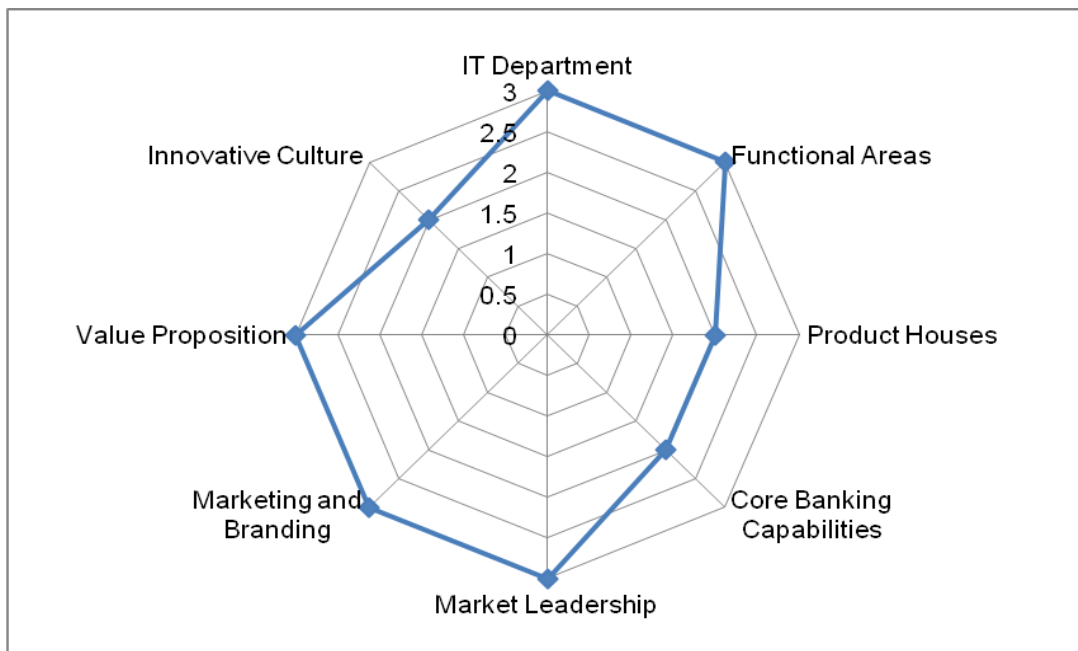
Bank B posed contrasting views regarding technology being the one of the key driver for innovation; for the reason that a purely technological motivation does not guarantee sustainability thus, the firm should avoid making mistakes in designing products and services that are purely driven by technological solutions. Thus, what bank B denotes can be demonstrated using the previous traditional banking systems; which placed numerous services in the market with the expectation that market will absorb and use them.

Today banks use a consultative approach in engaging customers about the type of services that are most likely to be used. To the extent that certain services are personalised for individual use. According to bank B, having a holistic approach is necessary in considering the needs and wants of customers. Furthermore, a holistic approach encompasses knowing what competitors are doing and where the industry is going, while attempting to find the right technologies, which best fits the business (Newbert, 2008).

Figure 11 also supports inter collaboration efforts mentioned by the banks. IT departments play a fundamental role in ensuring that the banking application or platform is up and running 24/7, and that software developments, and server are continuously upgraded. This also entails providing technical support to both staff and customers. In addition, other areas with the bank also play a role in delivering mobile banking services, namely:

- Functional areas - project resources responsible in driving and delivering objectives of the initiatives; and
- Product houses - in deciding which type of bank products or services to offer, for example savings and application for a loan.

Consequently, all banks cited the significance in aligning all the areas, especially if a bank intends using mobile banking as a strategic channel.

Mobile Applications

Different application technologies are currently available for enabling mobile banking services in the market. These are classified as text-based, web-based (also known as browser) and client-based applications (Burgelman *et al.,* 2009). All three banks use one or a combination of these applications, since there is no universal standard regarding the type of application that a bank must use. Text-based and web-based applications are the most popular applications with the reported customer usage of 60% and 30% respectively. The high percentage use is attributed to the large number of basic entry phones available in the market.

The client-based application is currently reported at 10% customer usage in the market. According to bank A, B and C the client-based application is less complicated and less risky than the web-based application. It is also the most user-friendly relative to the web-based and text-based applications. Furthermore, customers have the flexibility to customise certain features such as, designing the home page navigation screen and reshuffling of icons based on preference (Gill *et al.,* 2011).

Conversely, bank C noted large capital expenditure required in setting up the client-based application, even though the application does not have the largest customer usage reported. Thus, bank A reported taking a proactive approach to increase the number of users for this application. The bank launched the campaign by offering the IPad2 using high purchase (a form of financing by granting credit). Since then, both bank A and C have followed; in addition to offering smart phones using this method of financing.

Across all the three banks, only bank B reported having trialled the SIM card in which the client-based application is embedded. According to bank B, this was a huge failure and a loss in investment. The failure resulted from a partnership between bank B and MTN. To use the application customers were compelled to change their mobile operators if they were not MTN subscribers. Furthermore, the processes in authenticating transactions were largely driven by MTN. This derailed and delayed the response from the bank's server. For every processing instruction between the bank and the customer, MTN intercepted the process with more than five authenticating instructions, prior to routing the request or response to either the bank or customer. As

a result, processing time elapsed and the customer would then be required to restart the process. Eventually the embedded client-based application on the SIM card was abandoned, and the partnership with MTN ceased.

In noting the latter, bank C also reported challenges in design the client-based application suited to the blackberry smart phones. The phones require different software configuration and design for every model of the phone in the market. Other challenges cited by the three banks entail ensuring real-time updates, slow uptake and usage of the service; and the capital expenditure required in designing and advancing the client-based application. Thus, the banks cited the importance in selecting and using the right technology, as this might be the one factor that determines whether customers adopt and use of the service.

According to the three banks, the choice of an application directly influences:

- Usability and familiarity of the user interface;
- Performance and the speed of the service in terms of the time it takes for data to be downloaded and for menus to be refreshed although this is largely impacted by the transmitters over the network; and
- Security, privacy and protection of customer data; given the regulations set in place to guard against the misuse of customer information (Wooder & Baker, 2011).

These various applications might appear as merely technological choices; however, they are essential for customers in trusting the applications, and potentially limiting the liability to banks.

Mobile Transmitters

Apart from the availability of 1G through to 3G, all three banks reported transmitters as being problematic. This is largely attributed to slow network coverage, delayed response time, high traffic in the network (large amount of people accessing the application all at same time), and the cost of the data charge. Furthermore, bank B and C cited these in contributing towards the slow development and advancement of mobile banking applications. According to the two banks, the current 3G transmitter limits the

amount of rich data and java scripts that the banks can design. Consequently, customers are losing on the full functionalities, which these mobile phones are designed to do. Regardless of how user friendly or technologically advanced the mobile phone is, a gap with the transmitters' service impacts performance, which can result in services not being able to meet the necessary industry standards (Eastwood *et al*., 2008).

In minimising impact, bank A and B proposed government intervention to drive the mobile network operators in speeding the release of 4G. According to the banks, intervention will enable rapid development in advancing both the applications, particularly for web-based and client-based applications, which will also benefit future application designs. Furthermore, this will also drive the mobile network operators to offer data rates that are more competitive, ultimately lowering the costs for customers.

Bank C noted the lack of competition in the mobile communication sector, based on the limited number of mobile network operators than one could choose from in the market. There is no incentive in choosing one mobile network operator over another, since they offer and charge similar tariffs. Therefore, the role of government involvement can drive for the advancement of these technologies, while opening up the market for new entrants.

Although, the general response to this category was met with minimal input since the banks reported the inability to influence the mobile operators, Bank A reported a level of optimism towards the release 4G by the mobile operators in the near future, for the reason that other African countries like Nigeria have rolled out 4G.

Market Competitiveness

External Competition-

With the evolution of wireless communication, globalisation, and innovation, the business environment has made it possible for banks and other service providers to invest in less capital outlay in infrastructures.

Other competitors namely retails stores and the mobile network operators are seeing opportunities in serving customers that were not traditionally served by the banks, particularly in markets that could only be serviced through the establishment of brick-and-mortar branches. The competitive market has noted retail stores such as the PEP loan, MTN yellow money and Mzanzi account (Coetzee, 2011).

Currently, the big four are the biggest competitors and threat amongst each other. The retail stores were reported second to the mobile network operators; since both these sectors offer some form of remittance. Only bank C noted the up and coming Capitec bank as a potential competitor. Furthermore, bank C noted the prospects of the mobile operators in disrupting the current banking business model and changing the rules of the game. This was supported by the fact that the number of mobile phone users far exceeds the number of banking customers in the market. They also have more capital to invest in comparison to the banks, and most importantly, they have advanced the prepaid business model, which caters predominantly the lower market.

Using data from figure 1 to construct figure 12, it is evident that the mobile network operators have more capital and customer base than the banks. Conversely, they are the biggest competitors. Thus, it is evident that the mobile operator far surpasses the banks in both market capitalisation and customer base.

Figure 12 displays data for the banks that took part in the research study, in addition to the data of the two network operators that was available, as per figure 1.

Figure 12 Summary Industry Analysis – Banking versus Mobile Operators

Bank	Market Cap.	Customers		Operator	Market Cap.	Customers
Bank A	R150 bn	7.1 m		MTN	R267 bn	19.2 m
Bank B	R68 bn	4.6 m	Versus.	Vodacom	R140 bn	31.7 m
Bank C	R184 bn	10.0 m				
Total	R402 bn	21.7m		Total	407bn	50.9m

Source: Ondiege, (2010).

Figure 12 also indicates that the mobile network operators have grown substantially, although the banks have been operating for the longest period. Furthermore, this is indicative that the mobile network has the capital to tap into the mobile banking, especially for the lower LSM market seeing that the majority of the customer base operate on prepaid.

Conversely, the mobile network operators were also noted as the biggest collaborating partners. Maintaining relationship with competitors is sometimes imperative, in that way there is always the option to form strategic partnerships instead of running the risk of being wiped out completely from the market. Furthermore, banks are highly dependent on the mobile network operators in delivering mobile banking services to customers. Therefore, there is greater interconnection with customers and consolidation with the mobile network operators.

Even though competitors might enter the competitive landscape, bank C further stated that the economy cannot do away with banks completely, especially in creating the very same money that is required in circulation. This statement was said in response to the network operators' proposal, which stated that the currency or money should be converted into airtime, so that customers can use with their mobile phones as a means of payment when purchasing products and services.

According to the banks, an economy cannot eradicate physical money, as the banking system plays a fundamental role in the functioning of the economy through monetary and fiscal policies (Luiz, 2011).

However, all the banks noted it would be reckless for any bank to ignore the development of other up and coming service providers, for example, Google and Microsoft are expected to release smart phones designed for developing countries at a price less than 50% of the average retail price for a smart phone. Thus, according to bank B, a potential threat is anyone that owns a piece of the mobile banking value chain.

Internal Competition-

Noting mobile banking in combination with other channels such as branch banking and online banking, bank B reported mobile banking in cannibalising other banking channels. Conversely, bank A and C linked cannibalisation in creating opportunities for the bank to innovative. The banks support the notion of cannibalising their own channels, instead of having competitors taking away a portion of customers due to improved channels or new and better services. In that way, one can retains customers by using different channel to serve them. According to bank C, cannibalisation also pushes the bank to pay more attention to value added activities rather than doing the minimum to stay afloat, since every bank is striving to deliver services faster and cheaper relative to the competitor.

Interestingly, none of the three banks discounted the prospects of mobile banking operating as an exclusive business as many industries have created their operations in virtual environments over the years due to the advancement in technology.

Figure 13 indicates key with key themes listed in table 10 and11, which are necessary in the competitive business environment for mobile banking.

Figure 13: Market Competiveness in Mobile Banking
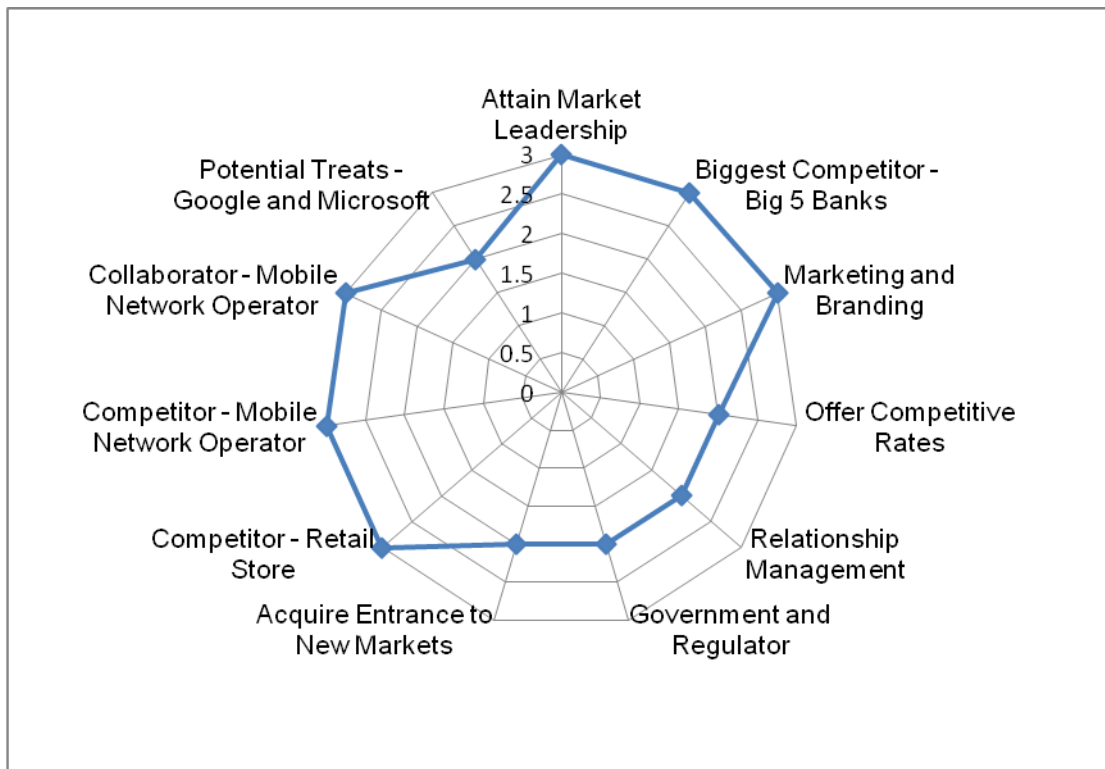
Unquestionably, the manner in which banks operate is bound to change, and the market will see new entrants. Mobile services development has certainly created an environment where traditional banks are not necessarily the only institutions positioned to serve the market, especially the unbanked market. It is becoming increasingly important for banks to manage the challenges and opportunities that the mobile development presents, while attempting to retain existing customers and acquiring new customers; and to do it in the most cost efficient and economical manner.

6.2.3 Main Research Question: Is mobile banking capable and adequate to serve the unbanked market. To what extent can financial institutions plan, design, develop and deliver financial services to the unbanked market?

According to the three banks, financial institutions have been relatively slow in providing financial services to the informal sector (also referred to as the unbanked market). For the portion of the unbanked market that might have a transactional

banking account, the services provided are as shown in figure 14. The banking services geared towards those that do not necessary have a transactional banking account, are mostly remittance (also referred to as money transfer). In either instance, the full spectrum of mobile banking services, as listed in table 8 are not available to this market.

Figure 14: Mobile Banking Services Offering for the Unbanked Market
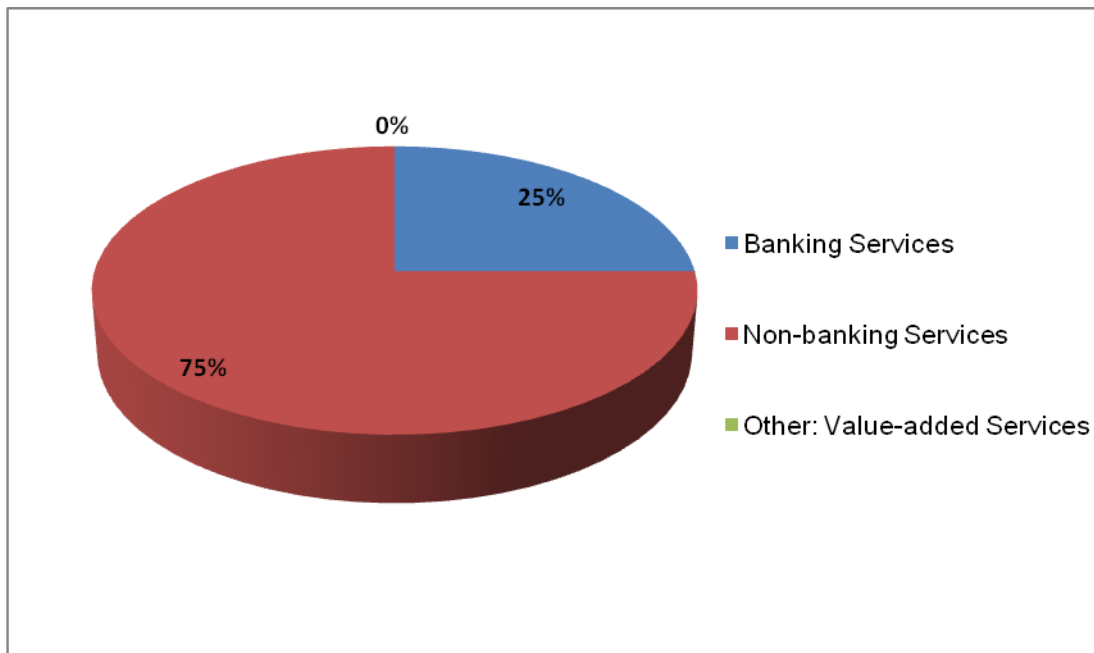
Banking services -

- Mostly money transfer and account payments

Non-banking services -

- General enquiry and account balance; and
- Purchasing of airtime, prepaid electricity and lottery tickets

Value added services -

- None offered

Although one could argue that progress has been made, contrasting figure14 against figure 10 indicates that progress has been slow (Tiwari & Buse, 2007). According to bank B, gaps with the services being offered still exist between the formal and the informal sector. In providing rationale, bank B reported that banks have not really taken a proactive approach in designing services suited to the unbanked market; mainly due to the previous banking environment, which was not designed to cater to anyone outside the formal sector.

The rationale for the lag is that; firstly the previously banking system required certain conditions to be met prior to considering an individual from the unbanked market to be consider for a banking account. The banks required some form of a financial history, even if it was a referral letter from an employer; proof of income in a form of a salary or wage slip or wage note; permanent residential address; surety in a form of an asset (land or cattle); and a non criminal record. However, in meeting these requirements, there was still no guarantee that an individual from the unbanked market will be granted a banking account. Hence, all three banks cited the legacy of the South African history as a contributing factor in the slow inclusion of the unbanked market into mainstream banking.

Secondly, although for the past several years, the business environment has been growing and changing exponentially, IT upgrades and developments have not changed at the same speed, for example the legacy IT systems, were designed and developed for the traditional banking systems. Today these legacy systems are the engines and backbones of the banking environment and according to bank C, these systems cannot be easily replaced as none of the banks can afford to have them shut down. As a result, the banks are largely dependent on the capabilities of the legacy IT systems, particularly in maintaining, supporting and running the banking operations.

Lastly, the dominating strategy in traditional banking was not geared at acquiring new markets or new types of customers. The business motivation was to maintain relationships with existing customers rather than to seek new markets, such as LSM 1-5 level, of which this segment was deemed unprofitable.

Contrary to the belief that the unbanked market is not profitable, the mobile network (refer to figure 1 and 12) declared profitability in serving this market, with the majority of the customer base from is the unbanked market. Vodafone (previously referred to as

Vodacom) and MTN reported year-on-year returns with the majority of customers operating on prepaid, (Ondiege, 2010).

In serving the unbanked market profitably, banks need to revise strategies and be more in tune with industries such as retail stores and mobile network operators who have gained competitive advantage in both market share and profits, while being responsive to the needs of their customers. According to bank B, if you not going to cater the unbanked market; then you might loose on acquiring a market that has the potential to grow. Often at times, the banking system tends to forget that the man in the township with the small business also has prospects to grow his business and/or move into the formal sector of the economy.

In reviewing the Development Indicator Report (2010), over the past 5 years as reported by the planning commission, South Africa reported an average increase of 50% in real income for LSM 1-5, as shown in figure 15.

Figure 15: Real Income Reported for LMS 1-5

	2005/06		2006/07		2007/08		2008/09	
	no (000)	imputed avg monthly	no (000)	imputed avg monthly	no (000)	imputed avg monthly	no (000)	imputed avg monthly
LSM 1	1 895	R 999	1 493	R 1 058	1 062	R 1 080	1 031	1 386
LSM 2	3 784	R 1 214	3 407	R 1 261	2 732	R 1 401	2 436	1 564
LSM 3	3 878	R 1 521	3 693	R 1 613	2 953	R 1 795	2 610	2 116
LSM 4	4 603	R 1 940	4 488	R 2 022	4 557	R 2 536	4 641	2 580
LSM 5	4 176	R 2 681	4 320	R 2 903	4 843	R 3 122	5 153	3 627

Source: Planning Commission, (2010)

Figure 15 indicates upward trends over the past five years in real income, which seems to be in line with one of the objectives of the FSC (2003), regarding improving financial inclusion for LSM 1-5.

Even in noting the above mentioned, CGAP (2011) and Coetzee, (2011) still reported the unbanked market being rejected when applying for bank related products and services. The banking environment still echoes missing information, incomplete financial history records, and the market in being non-profitable Hence, Ondiege,

(2010), reported 6 banking branches, and 17.5 ATMs per 100 000 people respectively (refer to table 1).

Although (Ondiege, 2010) reported annual growth rate in the number of mobile phones subscriptions; (AFI, 2010) and (CGAP, 2011) on average reported a relatively high ratio of 60:40 between the number of mobile users versus the number of bank accounts holders (refer to table 3). Thus, banks need to embark a comprehensive approach in design banking products and services. All three banks echoed the prospects in using mobile technologies to drive and deliver financial services, since minimal strides have been made in ensuring financial inclusion for the majority of the South African population.

Unquestionably, mobile banking presents the prospect of reaching the masses, particularly in a country where the majority of the population comprises of the unbanked market. It has the ability to stretch and reach far beyond the boundaries of brick-and-mortar branches. Furthermore, according to bank B and Coetzee, (2011), it requires less capital in setting up compared to brick-and-mortar.

Thus, the combination of advanced technologies, wireless communication, and mobile phones is indicative of the distinct business opportunities that the unbanked market presents. If financial inclusion is to be achieved, then mobile banking should be the primary vehicle in delivering access to financial services, particularly for the unbanked market.

Perhaps the latter will compel banks to revise existing business models, especially in noting the impact of financial inclusion in the broader context of social and economic development (Luiz, 2011). According to the three banks, this calls for engagement amongst the role players to:

- Relax the requirements for entering business environment, either as bank or network operator. Both the regulator and government should encourage more players into the market.

- Form strategic partnerships and alliances in driving social and economic objectives, especially if different industries can collaborate in delivering similar services.
- Clearly articulated objective and timelines; especially in noting what still needs to be achieved based on the FSC (2003).

However, in delivering mobile banking services, the three banks also reported challenges, which call for genuine concern, namely:

- Pricing and costing model - more than before banks are investing in advanced technology infrastructure, however the pricing model needs to ensure mass affordability while making profits for the banks and shareholders.
- The exact portfolio of banking services must take into consideration, the usability, and the need for the service.
- There will always be a portion of the population that cannot read, write, and communicate only in vernacular, needing customer facing interactions. Therefore, banks cannot completely do away with brick-and-mortar branches.
- The mobile channel cannot be the only priority channel that the bank allocates resources and capital towards its development. Banks need to maintain a balance in creating and managing new business functions without necessarily killing other business functions.
- Banks require well-designed structures in recording and reporting behavioural and financial patterns for the unbanked market, as well as designing the appropriate credit scoring instruments.
- Financial education is required, particularly in eradicating some of the negative perceptions towards banks, such as banks exploiting the poor by charging high banking fees (Luiz, 2011).

The banks also cited the importance of a framework in guiding the above mentioned. All three banks support a relationship with the mobile network operators, and most importantly the regulator and government.

Figure 16 shows key themes from table 12, 13, and 14, necessary in driving financial inclusion using mobile banking, in support of addressing the challenges, and harnessing the opportunities mentioned.

Figure 16: Prospects for Mobile Banking in Banking the Unbanked Market
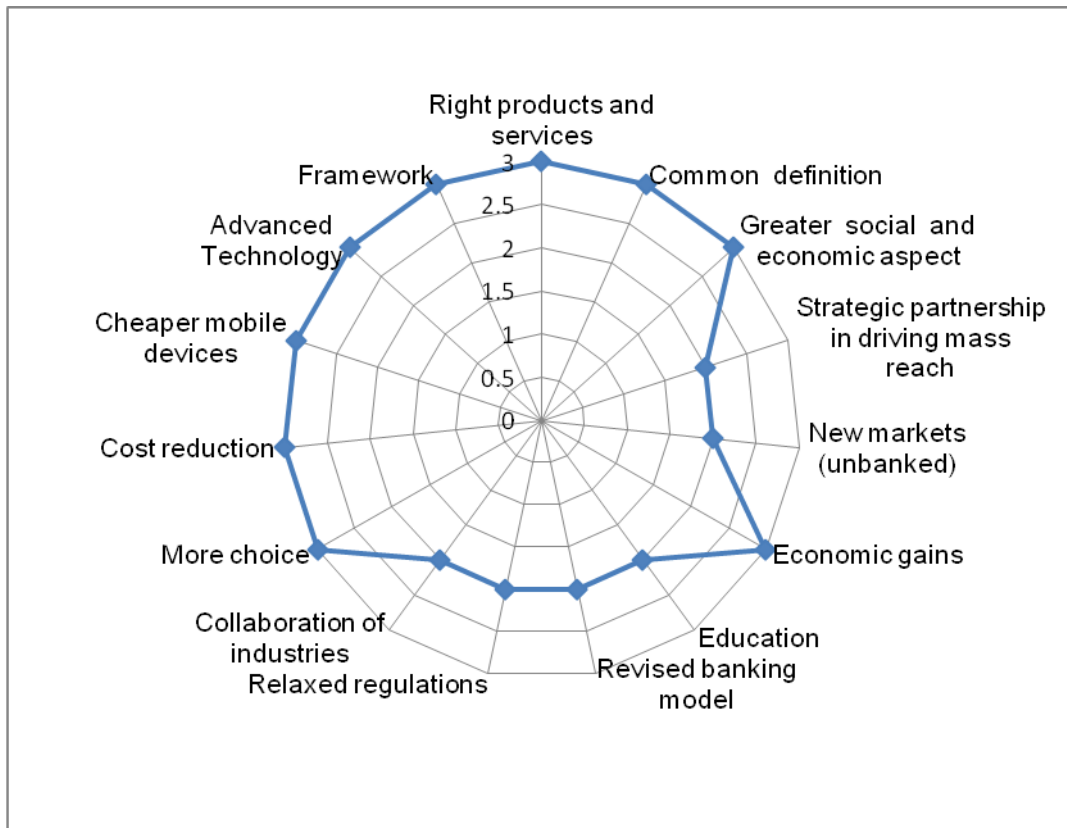
6.3 Conclusion – Discussion of Results

Undoubtedly the way the environment operates, both internally and externally is largely driven by historical structures. While the traditional banking customer is from the formal sector, this only constitutes a fraction of the South Africa population. However, in serving one market segment, the banks cannot ignore other market segments. Thus, all the banks cited the advancement of new technologies with the prospects of creating new markets and opportunities, and potentially changing the way in which the businesses environment operates.

Chapter 7 Conclusion

The South African banking sector is dominated by the big four banks, and two mobile network operators. Although mobile broadband has made strides in reaching mass population, especially the unbanked market, this market still lacks access to financial services. In noting the latter, this study indicated that the South African banking sector has taken a less proactive approach in driving financial inclusion, particularly in meeting the needs of the unbanked market.

Conversely, catering to the needs of the unbanked market has presented unique challenges. Although, the banking sector has reported challenges, it has advanced capabilities. The sector has invested resources and capital in advancing technologies, and as a result, offer improved products and services; and in certain aspects, this has resulted in cheaper products and services. The latter is testimony that with correct orchestration of capabilities such as, leadership, culture, team, and technological solutions, the firm is able to innovate and improve operational efficiency; and. this also ensures that customers' needs are met, while earning economic profit.

Similarly, the mobile network operators also display the correct orchestration of capabilities. These sectors have substantial customer base, need to be regulated in the interest of the public, and are crucial in driving social and economic initiatives. Hence, this research puts forward that, jointly the sectors have the necessary structures in place to deliver mobile banking to the market, irrespective of the customer base.

Unquestionably, the convergence of two heavily regulated industries would require proactive involvement from both the government and the regulator, especially in laying new foundations for banking the unbanked market. Thus, the underlying objective should be that of a system which promotes social and economic development as well as safeguards customers, while creating an environment that encourages development, and improves industry standards. Perhaps the greatest challenge is in speeding the convergence between the banking sector and the mobile telecommunication sector.

7.1 Research Limitation

The research limitation is that the study only collected data from participants within front office, retail banking in the Gauteng region. This was also limited to the mobile banking business unit. Other business unit functions or channels such as online banking and ATMs were not considered for this research study.

The research design did not indicate prerequisites regarding the number of years that the participants should have fulfilled a role within the business unit, cluster, bank, or sector. Furthermore, there was no prerequisite regarding the level of managerial influence that the participants needed in steering strategies within the banks.

The sample size only consisted of participants in a management role; thus, the research could have included diverse functional or operational roles instead of focusing primarily on the views of few experts. The views expressed might have also been influenced by the banks that the participants work for, in addition to being limited to the knowledge of individuals chosen to take part in the research study. Although the research methodology undertaken for this study explored themes pertinent to mobile banking capabilities, perhaps the research method could have taken a less structured approach, and explore other possible themes.

Furthermore, the study might have included a level of bias, given the level of familiarity and knowledge of the researcher about retail banking, which to a certain degree might have guided the research and the process in which the study was undertaken.

Despite the above mentioned limitations, the research approach and design was successful in uncovering mobile banking capabilities required in serving the unbanked market; and the insights indicated that the South African banking systems is equip in planning, designing, developing and delivering mobile banking services.

7.2 Future Area of Research

This section suggests areas of future research that can be used to explore or expand aspects of this research study; and these are as follows:

- To what degree has the technology advancements impacted society
- What is the impact of the regulator or government in influencing change within the mobile telecommunication sector or banking sector, particularly in serving the unbanked market
- What are the factors, exacerbating the gap between the number of bank account holders and mobile subscribers, since there is reported financial improvement for LSM 1-5, and increased mobile technology uptake
- What alternative technologies/solutions can be used in driving some of the objectives pertinent for social and economic development, that are in line with some of the objective of FSC (2003).

7.3 Managerial Implications

In mentioning the managerial implications, this study suggest that banks should be cognisant of the country's demographics, especially in understanding the market, and designing offerings that meet the needs of the market. Furthermore, the sector should have consideration towards social and economic implications, and as such, rationalise its product and service offerings. Should that happen it is almost certain that the resulting business model will design and deliver products and services that are better aligned in meeting the needs of this country.

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Appendices

Appendix 1 – Blank Consent Letter

Research Interview Consent Letter

Dear Sir/Madam

I am conducting research on the capabilities required to serve the unbanked market in South Africa, as part of the fulfilment of a requirement to complete my MBA programme with the Gordon Institute of Business Science (GIBS).

The research is based on the premise that more than 40% of the South African population have no access to financial services, specifically banking, however 96% of them have a mobile phone.The aim of the research report is to explore mobile banking technologies; namely capabilities which can enable the full banking spectrum to be offered to the unbanked market, without necessarily converting this market into conventional banking clients. For example, explore opportunities that can enable ad hoc banking (as and when required and not only limited to money transfer).

Your participation is voluntarily and you can withdraw at any time without penalty. The interview is expected to last for an hour. Please be ensured that confidentiality and anonymity will be maintained throughout and after the course of the research in that no names will be recorded and that data will be stored without identifiers. The organisation's identity will also be protected by using aliases.

If you have any concerns, please contact me or my supervisor. Our details are provided below:

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Phone: 072 064 5252

Research Supervisor name: Dr Dinesh Kumar

Email: kumardin@yahoo.com

Phone: 082 717 8725

Participant Signature_____   Date_____

Researcher Signature_____   Date_____

Appendix 2 – Interview Schedule

Interview Schedule

Introduction

Section 1 will focus on the macro environment-the broader expert views on the subject matter.

Section 2 will dive into detail on the micro environment – how the content of the subject translate your specific organisation.

Theme 1

In order to examine the utility of mobile banking it is imperative to first understand the business environment in which banks operate and to identify customer groups that the bank targets.

1. Can you share your understanding/view on the topic
2. What elements/factors to consider about the macro environment
3. The fundamental principle/patterns that apply across the industry
4. What might be the guiding reason(s) behind the efforts of many banks to include mobile banking in their product portfolios in some form or another

Theme 2

This section will focus on each bank

2.1: The Organisation's mobile banking environment

1. What does mobile banking mean for the bank?
2. What are the objectives, which motivates the bank to offer mobile banking (Why do you offer mobile banking)?
3. Who/what, are the drivers for mobile banking?
4. Is mobile banking strategically positioned in the bank?
5. How does mobile banking relate to other aspects/channels that the bank currently offers
   5.1 Co-ordination and co-operation of other developments and activities
6. What services/products do you offer via mobile banking?
7. Which services/products are customers interested in?
8. Which services/products are customers willing to pay for?
9. How do you examine every individual service/product for its value-add?
10. Do you actively promote or market your services/products?
11. Is mobile banking a source of revenue for the bank?

Theme 2.2: mobile capabilities

2.2.1 Technological capabilities

1. What application, platform, or infrastructure enables this functionality?
2. Which applications are available in the market and which one (s) do you use
   2.1
3. Which transmitters are currently available or support your specific application?
4. How does your environment work in relation the choice of application(s) and transmitter(s)?
5. How does the technology vary in relation to the services offered?

2.2.2 Other capabilities

1. Any other capabilities other which are paramount in enabling mobile banking

1.1 Inter collaboration – Internal department/functions and the role they play?

1.2 Intra collaboration- Industry/sector (name of the company) and the role they play?

2. How important are the collaborations and how are they managed?

Theme 3: the Unbanked Market

1. How would you categorise as the "unbanked market" in the South African Landscape?
2. Do you offer the full mobile banking to the unbanked market (in relation to Them1)?
3. If you consider the KYC concept, what is considered key for this particular segment?
4. Can this segment be catered for in the non-traditional banking way?
5. Does the market indicate prospects for the bank?
6. What factors will be worth considering in acquiring these new customers?

Theme 4: Competitive Landscape

1. Do you consider yourself a market leader, and if so what are you doing differently?
2. Who are your competitors?
3. How would you classify and categorise them?
4. What do you think your competitors are doing differently?
5. How do you think you rate relative to your competitors?

Theme 5: The Future for mobile banking

Mobile banking

1. Where is mobile banking going?
2. How is this value add expected to change vs. the current value add? (How will it change)
3. Inter-collaboration activities/functions look like

Mobile capabilities

1.1 What do you think the future looks like – expectations regarding future developments, preferred mediums, and applications?

Competition

1. What do think the competitive landscape will look like?
2. Change in Regulations?

Unbanked Market

1. What changes should occur in guiding financial inclusion for this market,
2. How do we do it? (Planning)
3. What will be required? (Execution)