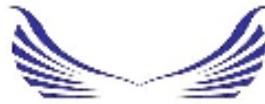




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GORDON INSTITUTE
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University of Pretoria

***Building an experimentation process model
for financial institutions developing personal
finance products for the bottom of the
pyramid***

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A research project submitted to the Gordon Institute of Business
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ABSTRACT

Traditional financial institutions in South Africa have experienced difficulty in trying to bring the benefits of the formal, first world economy to the unbanked and underbanked markets that constitute the bottom of the pyramid for the country. South African formal financial institutions - as a result of governmental pressure and recognising business opportunities at the bottom of the pyramid – have through innovation been exploring and expanding their personal finance product and service ranges to meet the requirements of the unbanked and underbanked markets. Innovative products and services developed through a process of experimentation can help financial institutions meet the needs of this lower end of the pyramid.

Research conducted through ethnographic interviews was directed towards furthering understanding of the process, forms and strategic context of experimentation that South African financial institutions (both large and niche) undertake and operate within, when developing and implementing products for the bottom of the pyramid and the impact it has on the organisation. A model was developed, which is an enhancement of Stefan Thomke's four step experimentation process, outlining an experimentation process that can be used by institutions innovating and experimenting within a developing economy and market such as South Africa's.



DECLARATION

I declare that this research project 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.

Janine Geldenhuys

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1 CHAPTER 1: INTRODUCTION TO RESEARCH PROBLEM

1.1 Providing Products and Services to the Bottom of the Pyramid

One of the key challenges for South Africa is bringing the benefits of the country's formal, first world economy to the second economy and the low income unbanked and underbanked citizens who constitute a sizable portion of the population. One of these benefits includes access to personal finance products and services. Traditional financial institutions within South Africa have experienced difficulty in trying to determine how to serve unbanked and underbanked consumers in this regard. Instead, complex products and distribution methods designed for more affluent consumers have been pushed into the market characterised by different forms of behaviour and a much less sophisticated understanding of financial products (Moore, 2000).

Innovative products and services developed through a process of experimentation can help financial institutions meet the needs of this lower end of the pyramid. Experimentation allows financial institutions to explore different ways of doing business, so they are able to evaluate and better understand the commercial viability of delivering innovative personal finance products and services to unbanked and underbanked markets. Experimentation lies at the heart of every company's ability to innovate. In other words, the systematic testing of ideas is what enables companies to create and refine their products and services. In fact,

no product can be a product without having first been an idea that was shaped, to one degree or another, through the process of experimentation (Thomke, 2001).

The objective of the research described in this report was to investigate the experimentation process that is undertaken by financial institutions in designing, developing and implementing innovative personal finance products and services directed specifically at the bottom of the pyramid. As part of the research investigation, a model was developed outlining the experimentation process to be used by institutions innovating and experimenting within a developing economy and market such as South Africa's.

1.2 The Viability of the Bottom of the Pyramid

Writers in the area of strategic management have begun to consider the financial benefits of broader market inclusion. Of note are the contributions of Prahalad and Hart (2002) who make the point that meaningful profits can be obtained by providing personal finance products and services to markets at the bottom of the economic pyramid. As per Figure 1 below, Prahalad and Hart state that while most organisations target the upper tiers of the economic pyramid, they completely overlook the potential business at its base. The bottom of the economic pyramid refers to individuals earning the equivalent of less than \$2 000 a year, which constituted approximately 4 billion people worldwide in 2002 (Prahalad and Hart, 2002).

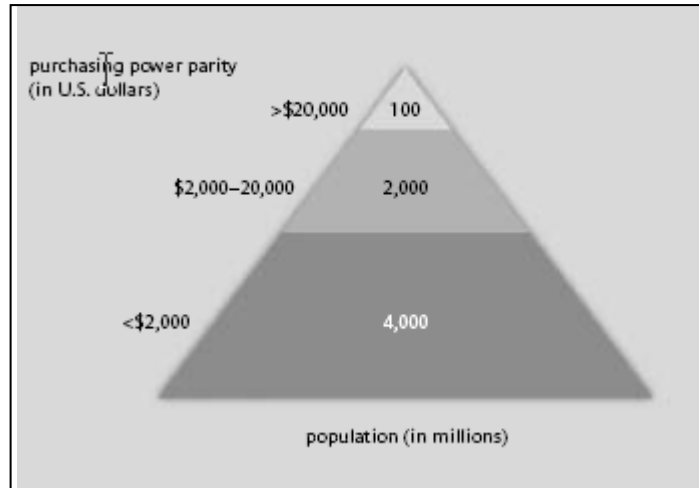


Figure 1: The world economic pyramid (Prahalad and Hart, 2002)

They further elaborate to indicate that markets at the bottom of the pyramid are fundamentally new sources of growth and due to these markets being at the early stages of development, growth can be extremely rapid. The business opportunities at the bottom of the pyramid have however not gone unnoticed. Over the years non-governmental organisations, entrepreneurial start-ups and a handful of forward thinking multinationals have conducted vigorous commercial experiments in the poorer communities of the world. Their experience has provided a proof of concept and revealed that businesses can gain three important advantages by serving the poor: a new source of revenue growth, greater efficiency and access to innovation (Prahalad and Hart, 2002).

1.3 The Bottom of the Pyramid in South Africa

The unbanked and underbanked markets within South Africa signify the bottom of the pyramid for the country and represent a vast, untapped source of new customers and revenues for traditional financial institutions.

Additionally, increasing pressure has assisted the development of the disadvantaged majority of South Africa living in poverty (Schoombee, 2000). In 2004, the “Mzansi” account (a government-sponsored initiative) was initiated by the South African Banking Association and the release of the Financial Sector Charter. The Mzansi account which emanates from the desire by the South African government to promote equitable access to banking services, is a card-based account designed for low income individuals and those living beyond the reach of the banking services who have a valid identification document. Transactions are limited to deposits, withdrawals, transfers and debit card payments. No management fees are charged, and one free cash deposit per month is allowed (Maumbe, 2006).

The FinScope™ survey for 2007 indicates that the proportion of the South African population (16 years and older) with a bank account reached 60% in 2007, implying that the unbanked market thus still constitutes 40% of the adult population. Additionally, the proportion of banked adults in Living Standard Measure (LSM) 1–5 has seen a growth rate of 26% in 2007, bigger than any of the higher LSM segments. Entry level banking products remain at the top of the list of products used, with 55% of adults having an ATM card and 43% using a savings/transaction account. FinScope™ 2007 data also reveals that use of an Mzansi account has increased from 2% in 2005 to 6% in 2006 and 10% in 2007 and for the third year in a row there has been a marked increase in the take-up and use of financial products in South Africa (FinScope™ South Africa, 2008).

Formal financial institutions are thus afforded the opportunity to provide personal finance products and services to markets at the bottom of the economic pyramid for a number of reasons. Tapping into the bottom of the pyramid offers a revenue growth opportunity and can serve as a good testing ground for the development of products and technologies. Additionally 40% of the South African market is still unbanked and trends indicate that growth in access to banking products at the lower end of the pyramid, and use of entry level banking products, is increasing.

The challenge for financial institutions is how to address the concerns of unbanked and underbanked customers and provide them with products that meet their needs within the context of the financial institution and regulatory environment (Jacob and Tescher, 2005). New approaches are needed to capture the market including new ways of thinking and innovation in product and service offerings. Formal financial institutions, through innovation, can turn this market into a profitable venture for the long term (Prahalad and Hart, 2002). More specifically, South African formal financial institutions can, through experimentation, expand their product and service offerings to target the lower end of the pyramid and address the personal financial needs of the unbanked and underbanked. A well defined experimentation process provides a way to increase the pace of organisational learning thereby accelerating the development of new or extended products, services and processes (Cash and Pearlson, 2005).

1.4 Scope of Research

The scope of the research was to investigate South Africa's current financial infrastructure and determine how this infrastructure is trying to meet the needs of the unbanked and underbanked markets within the country. The experimentation process undertaken by formal financial institutions in designing, developing and implementing innovative personal finance products and services directed specifically for these markets was researched and investigated. For the purposes of this report, personal finance refers to transactional or saving accounts and personal loans (in the form of disbursements or credit cards).

Focus was directed towards furthering the understanding around the process, form and strategic context of experimentation that South African financial institutions undertake when developing and implementing products for the bottom of the pyramid and the impact it has on the institution. A model was then developed to indicate the process financial institutions undertake to devise, build and commercialise products specifically aimed at these underserved markets of South Africa.

2 CHAPTER 2: LITERATURE REVIEW

2.1 South Africa: Moving Towards Financial Inclusion of the Unbanked and Underbanked Markets

2.1.1 South Africa's Formal Financial Infrastructure

South Africa has a dual economy with a sophisticated first world sector overlaid on what can be characterised as a third world, developing economy (known as the second economy). The first world economy has managed to grow sufficiently and the financial sector along with it (Arora and Leach, 2005).

South Africa has, for a developing country, a well developed and sophisticated formal financial sector (Okeahalam, 2008; Schoombee, 2000), and has one of the leading banking infrastructures compared to the rest of Africa (Maumbe, 2006). Due to the dual economy, two social contexts have to be navigated by financial institutions at the same time, namely the first and second economies. Large financial institutions have emerged from and have met the financial requirements of the first world economy, whilst a number of smaller, niche financial institutions have emerged out of the second economy's financial requirements.

Despite this sophistication and developed infrastructure, a challenge still exists for all South African financial institutions to navigate this dual economy. When assessed on the basis of variables such as distance to a bank branch, proportion of the population with a bank account and access to banking services, South Africa lags behind many developing countries (Okeahalam, 2008). The unemployed and those active in the informal sector of the economy (or second economy), who are in dire need to escape poverty, have in the past not directly benefited from the formal financial sector (Schoombee, 2000). These individuals are viewed as the unbanked and underbanked market of South Africa. Seen from this perspective in meeting the needs of the unbanked and underbanked market within the country, South Africa's financial system is not highly developed (Okeahalam, 2008).

2.1.2 South Africa's Unbanked and Underbanked Markets

The unbanked market refers to individuals without any form of transactional bank account, who make no use of bank products or services or perhaps may never have used a bank at all (Remyeni and Cinnamond, 1996; Sarma, 2007). The underbanked on the other hand, refers to those individuals who have a bank account but do not use it regularly or adequately to manage their money and thus can be considered the "underserved" by the formal financial sector (Sarma, 2007).

As indicated previously, according to the FinScope™ survey for 2007, the proportion of the South African population (16 years and older) with a bank account

reached 60% in 2007, implying that the unbanked market thus still constitutes 40% of the adult population (FinScope™ South Africa, 2008).

2.1.3 Innovation to Meet the Needs of the Unbanked and Underbanked

Markets

As indicated by Nevin and Schoombee, formal banking institutions do not like to lend to the vast unbanked population for a number of reasons, including high risks due to scarcity of information and lack of collateral, as well as a high cost to income ratio due to the high operating costs relative to the size of the transactions (Nevin, 2003; Schoombee, 2000). Additionally, financial institutions hold a number of misconceptions regarding poor people as a potential market which includes a perceived culture of non-payment, assumptions that people with such low incomes have little to spend on goods and services outside of basics like food and shelter, and various barriers to commerce exist (that include corruption, illiteracy, inadequate infrastructure and bureaucratic red tape) (Prahalad and Hammond, 2002).

However, despite the above risks and misconceptions, South African formal financial institutions - as a result of government pressure and recognising business opportunities at the bottom of the pyramid – have through innovation been exploring and expanding their personal finance product and service ranges to meet the requirements of the unbanked and underbanked markets.

A number of innovative personal finance products have been launched in recent years by financial institutions which include:

- supermarket point of sale banking (Pick ‘n Pay Supermarkets’ strategic partnership with Nedbank to provide digital retail banking services through the “Go Account”, thereby enabling clients to bank in the supermarket);
- Standard Bank’s Pure Save Account (a card-based savings account facility with no monthly management fees);
- the Mzansi Account (South Africa’s government-encouraged card-based account product to promote equitable access to banking services especially among the low income market);
- telephone and cellphone banking; and
- portable branches in underserved regions (Maumbe, 2006).

Formal financial institutions are continuing to expand their product and service offerings to meet the needs of the unbanked and underbanked markets. This can be achieved through innovation and more specifically experimentation.

2.2 Innovation

2.2.1 Defining Innovation

Although there are many definitions of innovation, it is defined in this report as the “the process of envisioning and successfully implementing new ways of doing anything that adds value to an enterprise and its customers” (Sebell, 2004, p. 17).

An innovation can be considered to be a new idea, which may be a recombination of old ideas, a scheme that challenges the present order, a formula, or a unique approach which is perceived as new by the individuals involved (Van de Ven, 1986). Innovation can take two forms – in the things (products / services) which an organisation can offer (known as product innovation) or a change in the way in which they are created or delivered (known as process innovation) (Tidd, Bessant and Pavitt, 2001).

Innovation enables organisations to improve the quality of their output, revitalise mature businesses, enter new markets, react to competitive encroachment, try out new technologies, and develop alternative applications for existing product categories (Vermeulen, 2004).

2.2.2 Components of Innovation

In today's growing and dynamic business environment, companies are usually actively engaged in the development of a new product or service portfolio which includes highly innovative projects. These projects are undertaken in order to benefit from radical, evolving changes in technology and changing customer needs thereby providing new competitive offerings to achieve a substantial advantage in the marketplace (De Brentani, 2001; Dougherty, 1992; McKinsey Global Institute, 2002). Additionally, legislation may open up new innovative pathways or close down others, or competitors may introduce new products which represent a major threat to a company's existing competitive positions (Tidd *et al*, 2001). As a result

of government pressure and recognising business opportunities at the bottom of the pyramid, financial institutions are innovating to design, develop and implement products intended for the bottom of the pyramid.

The commercial success of a new product or service innovation depends on how well the product's design meets the customers' needs, requiring an intimate knowledge of customer needs, problems and operating systems. Two additional key ingredients to success in innovation are technical resources and the capabilities within the organisation to manage the design, development and implementation of innovations (De Brentani, 2001; Dougherty, 1992; Mckinsey Global Institute, 2002; Tidd *et al*, 2001).

Information technology (IT) is one of a range of tools that can be used to redesign core business processes or innovate around products and services in response to changing business conditions. Additionally, trained and motivated employees who interact with clients during service introduction and delivery, and who are actively involved in the new product or service development process better enable the innovation process (De Brentani, 2001; Dougherty, 1992; Mckinsey Global Institute, 2002).

Employees and organisational capabilities are a source of sustainable competitive advantage and a component of innovation. Organisational capabilities can be classified into three categories. The first category of capabilities is those that reflect an ability to perform the basic functional activities (such as marketing and logistics)

of the firm more efficiently than competitors. The second category of capabilities involves the dynamic improvement to the activities of the firm and are referred to as dynamic capabilities. These capabilities enable an organisation to engage in product and service innovations, respond to market trends and learn, adapt, change and renew over time. According to Winter and Zollo (2002, p. 340), dynamic capability refers to “a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness”. Collis (1994, p. 145) indicates that the third category of capabilities “comprises the more metaphysical strategic insights that enable firms to recognise the intrinsic value of other resources or to develop novel strategies before competitors” (Collis, 1994).

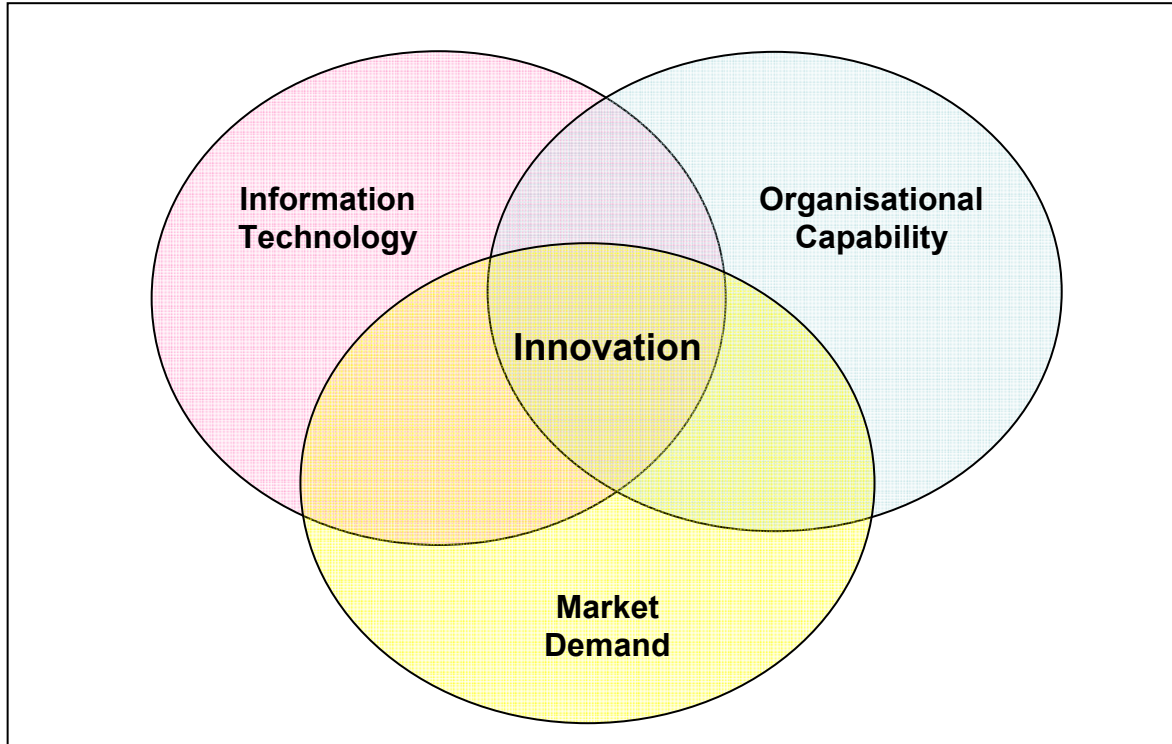


Figure 2: Components of Innovation

Based on the above, innovation incorporates the integration of information technology, market demand and organisational capability (Tidd *et al*, 2001). Innovation should thus be conducted within the context of a strategic direction while being cognisant of market demand and effectively utilising an organisation's capabilities and information technology.

2.2.3 The Innovation Process

Although it is in principle possible to have a simple serendipitous idea for sustained innovation, a process is essentially needed that draws on new or unfamiliar knowledge. (Dougherty, Borrell, Munir, and O'Sullivan, 2000). The process of innovation progresses through number of phases, namely idea generation, screening and evaluation, development, experimentation, and commercialisation (Mariello, 2007; Lynn, Marone and Paulson, 1996; Tidd *et al*, 2001).

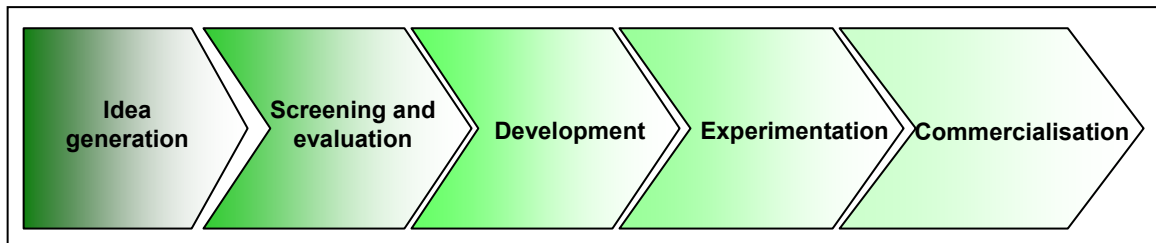


Figure 3: The Innovation Process (Mariello, 2007; Lynn, Marone and Paulson, 1996; Tidd *et al*, 2001).

The innovation process commences with the generation of an idea that can be fuelled by both the pressure to compete and the freedom to explore. Environments (both internal and external) can be scanned and searched for signals regarding

potential innovation. In idea generation, organisations try to formulate numerous possible concepts that offer potential. An identified idea must then be screened and evaluated against development costs, market potential and organisational strengths and strategies, to determine if it should be pursued. In the event that an idea is considered viable, the idea moves to the development phase where the organisation tries to deliver the idea by allocating the relevant resources (Mariello, 2007; Lynn, Marone and Paulson, 1996; Tidd *et al*, 2001).

Development is followed by an experimentation phase where the sustainability of the idea for a particular organisation at a particular time in a particular environment is tested. It is possible at this stage that an organisation will discover that an idea might be ahead of its time or not right for a particular market. However, these kinds of discoveries should not be interpreted as failures, but rather as being catalysts for new and better ideas. Lastly, during the commercialisation phase, the necessary structures, maintenance and resources are set up to implement full scale introduction to the market (Mariello, 2007; Lynn *et al*, 1996).

It can be seen from the above process that experimentation thus plays a critical role in organisational innovation. It can also be said that an organisation's ability to innovate relies on the process of experimentation whereby new products and services are created and existing ones are improved (Thomke, 2003).

2.3 Experimentation

2.3.1 Defining Experimentation

Experimentation, a form of problem solving, is a fundamental innovation process activity and accounts for a significant part of total innovation cost and time (Thomke, 1998). At the heart of every organisation's ability to innovate lies a process of experimentation, which involves a series of experiments, and failures, that help create new products or services and improve old ones (Thomke, 2003; Thilmany, 2005). Any product or service development exercise goes through a series of processes starting with idea generation, concept testing, experimentation and then the market testing of the product. Before reaching the final consumer, a business opportunity goes through a number of experiments with each experiment making the product or service more productive and effective with the implementation of the lessons learnt from the last experiment (Thomke, 2003).

Experimentation can thus be viewed as both a process and a discipline which can be used to create systematic innovation and improvement, which in turn supports organic growth. Experimentation is a controlled, cost effective, iterative approach to learning about the potential success or failure of a new product, service or process (Cash and Pearlson, 2005).

According to Thomke (2003, p. 19), experimentation revolves around one objective: "to learn, through rounds of organised testing whether the product concept or proposed technological solution holds promise for addressing a need or

problem. The information derived from each round is then incorporated into the next set of experiments, and so on until the final product ultimately results”. The period between the earliest point on the design cycle and final product or service release should be filled with experimentation, failure, analysis and yet another round of experimentation (Thilmany, 2005).

Experimentation consists of trial and error, directed by insight as to the direction in which a solution might lie. Researchers rely on systematic experimentation, guided by their insight and intuition, as an instrumental source of new information and the advancement of knowledge. The pursuit of knowledge is thus the rationale behind experimentation and all experiments yield information that comes from the understanding of what works and what does not work (Thomke, 1998; Thomke, 2003). Experimentation can be described as a trial and error process or a probe and learn process.

2.3.1.1 Trial and Error

Experimentation can be defined as a trial and error process in which each trial generates new insights on a problem (Allen, 1977; Thomke, 1998). Each trial in experimentation generates information about a possible solution that the experimenter could not know in advance. Information thus learned in each previous trial can be used to modify subsequent experimental designs, conditions or even the nature of the desired solution (Thomke, 1998). Lee, Edmondson, Thomke and Worline (2004) indicate that tasks that are conducive to effective experimentation allow multiple problem-solving trials and present opportunities to use knowledge

gained from earlier trials to enhance learning in subsequent trials. Learning by experimentation is fundamental to solving problems for which the outcomes are uncertain and where critical sources of information are non-existent or unavailable (Lee *et al*, 2004).

2.3.1.2 Probe and Learn

In uncertain environments where an industry is evolving, the market is ill-defined, the infrastructure for delivering a still-developing technology is non-existent or a market is undetermined, a probe and learn process is valuable (Cole, 2002). The probe and learn process is in effect an experiment to introduce an early version of a product or service to a plausible initial market (Lynn *et al*, 1996). Organisations can develop their products by probing potential markets with early versions of the products, learn from their mistakes, modify their products and probe the market again. This implies that the product or service development process must be seen as a non-linear process with both backward and forward movement occurring as past product or service decisions are revisited. When using this approach, the initial business offering is not the culmination of the development process but rather the first step in the improvement process (Cole, 2002).

Probe and learn is an experimental, iterative process in which an organisation enters an initial market with an early version of a business offering, learns from the experience, and modifies the business offering and marketing approach based on the learnings. The organisation then tries and tries again, as necessary (Cole, 2002).

2.3.2 The Experimentation Process

As evident in Figure 4 below, the execution of an experiment involves a four-step iterative cycle in which an experiment is conceived of or designed, apparatus needed to build the experiment is built, the experiment is run and the result is analysed (Thomke, 1998).

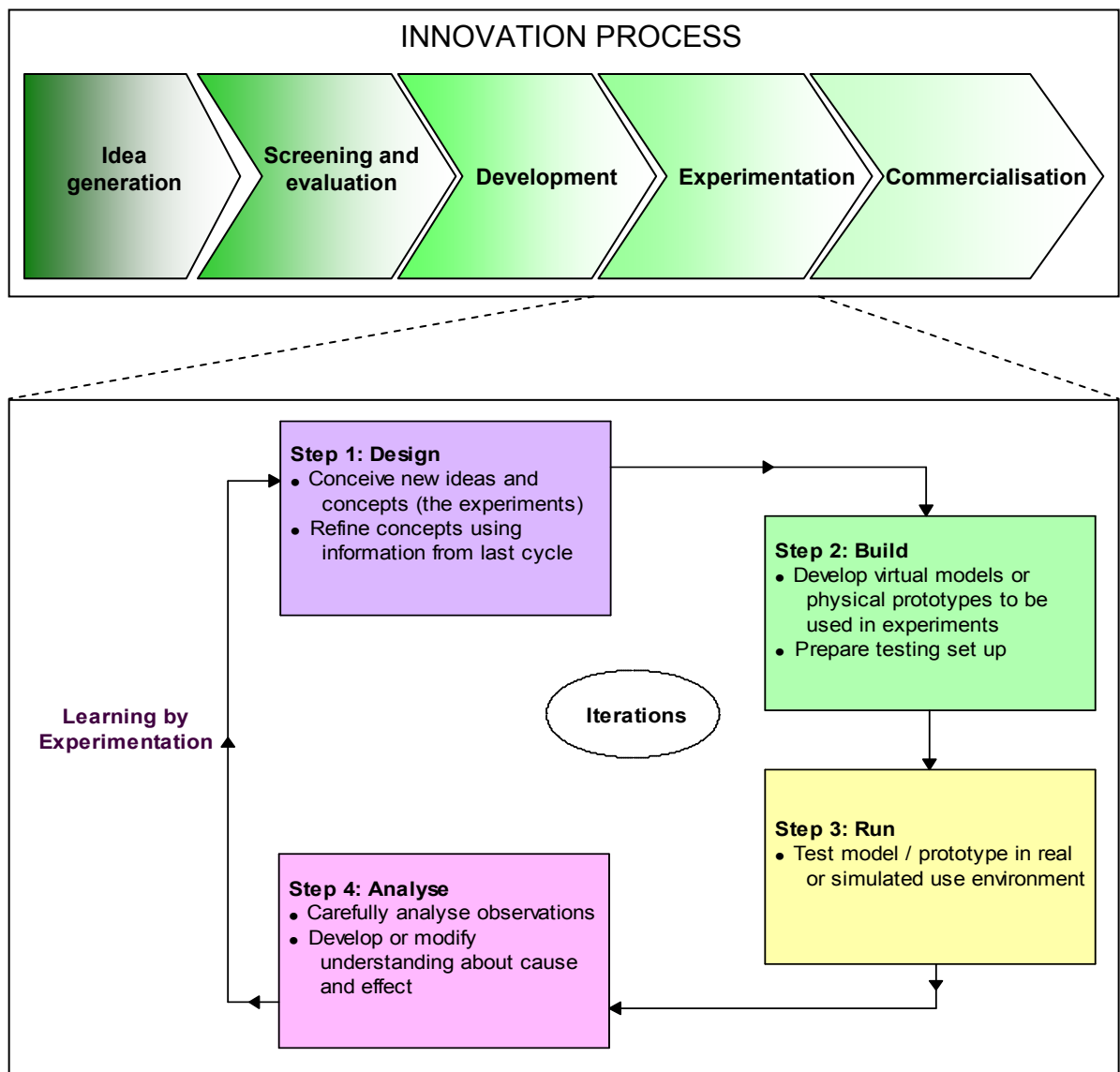


Figure 4: Four step experimentation process (Thomke, 2003)

During the first design step, the learnings expected from the experiment are defined. Existing data, observations and prior experiments are reviewed, new ideas are generated through brainstorming and hypotheses are formulated based on prior knowledge. A set of experiments to be carried out are then selected. During the build step, the prototypes (virtual or physical) and testing apparatus or models are developed that are required to conduct the selected experiment(s). The experiment is then conducted in either laboratory conditions or a real setting during step 3. Finally, during the analyse step, the experimenter analyses the result, compares it against the expected outcomes and adjusts the understanding of what is under investigation. During this step, most of the learning can happen allowing a deeper understanding and less uncertainty about cause and effect and forms the basis for experiments in the next cycle (Thomke, 2003).

Projects are portrayed in the literature as a fast, flat, flexible approach to managing change (and innovation) in organisations (Keegan and Turner, 2002). Projects thus present powerful mechanisms to manage change, learning and the introduction of new products. Thomke thus suggests that the experimentation process and the subsequent iterations, as defined above, be managed through projects and project structures (Thomke, 2003).

The work of Stefan Thomke provides the most prominent research on experimentation, and is the focus of this report.

2.3.3 Modes of Experimentation

Experimentation can be conducted through a number of forms including modelling and computer simulation, prototyping, beta testing and piloting.

2.3.3.1 Models and Computer Simulation

Experimentation is often carried out using simplified versions or models of the eventually-intended test object and/or test environment. The value of using models includes reducing the investment in aspects of reality that are irrelevant to the experiment and enabling the experimenter to ‘control out’ some aspects of reality that would affect the experiment in order to simplify analysis of the results (Thomke, von Hippel and Franke, 1998).

Models used in experimentation can be physical in nature or they can be represented in other forms, such as in computer simulation. Computer simulation involves representing experimental objects and experimental environments in digital form and then simulating their interaction with a computer in a type of virtual experiment. Models do not represent reality completely as one does not know and cannot economically capture all the attributes of a real situation. The incompleteness of a model is thus a source of errors when a given model is replaced by the real context or object for the first time (Thomke *et al*, 1998).

2.3.3.2 Prototypes

Cole (2002, p. 1054) describes prototypes as “analytical or physical models” that are used to verify or test aspects of a product design at various stages of the development process. Jones and Samalionis indicate that prototypes are quick, low cost mock-ups that allow emerging ideas to be “expressed, explored, modified and shared with customers, experts and shareholders in a very real and emotive way” (2008, p. 20). Prototypes have been found to be useful in the early stages of the product design process to assess the size and feel of a product, and at later stages, comprehensive physical prototypes can reveal inferences among components and whether everything works when connected. Prototypes enable organisations to get feedback from potential users to refine and improve a new concept. Prototyping directly improves the quality of a product through early error identification, while multiple iterations continually test the designer’s assumptions about the product, leading to improved redesigns (Cole, 2002; Jones and Samalionis, 2008).

2.3.3.3 Beta Testing

Beta testing originally referred to the exercise and evaluation of a complete product working in the operating system environment which would typically precede announcement and release to the market place. More recently, the concept has expanded to include customer evaluation and input prior to the formal release of a product. Knowledge gained from customer input and performance can be gathered and incorporated into subsequent reiterations of the product (Cole, 2002).

2.3.3.4 Pilot or Proof of Concept Testing

Piloting can be described as an experimental or a preliminary trial or test used to lead, steer, or guide a product or service offering through unknown territory to a solution prior to full implementation. Reasons for piloting include wanting to confirm expected results and relationships, improve a solution and its implementation, lower the risk of failure, increase opportunities for feedback, increase buy in and quickly deliver a version of a solution to a particular market segment (Stroud, 2008).

Primary advantages of piloting a product or service prior to full commercialisation is the opportunity to limit capital and other resource expenditures, thereby managing risk, assess the true performance of a design or solution in a controlled but “live” environment, identify additional improvements, and identify implementation enhancements (Stroud, 2008).

2.3.4 The Role of Failure in Experimentation

Failures are unavoidable outcomes of experimentation due to the results of any single experiment or trial being uncertain at the outset. Failures are however beneficial as they provide the experimenter with new knowledge about the solution and thereby facilitate innovation and performance in the long run (Sitkin, 1992). Thomke (2003, p. 27) reveals that an innovation process “is at least partially based on ‘accumulated failure’ that has been carefully understood”. Intelligent failures, which are those that happen early, inexpensively and contribute new insights about

an organisation's customers or innovative product, should be encouraged (McGregor, Symonds, Foust and Brady, 2006).

Failures should however not be confused with mistakes. Mistakes produce little new or useful information and are therefore without value. Poorly planned or badly conducted experiments might result in ambiguous data, forcing researchers to repeat the experiment. Another common mistake is repeating a prior failure or being unable to learn from that experience (Thomke, 2001).

2.3.5 Experimentation Costs

Experimentation and failure has costs and is often avoided by organisations and their members (Lee *et al*, 2004). Failures can alienate customers, affect organisation reputation, reduce business and lead to dissatisfaction among employees. Lee *et al* (2004, p. 311) reveal that "at the extreme, failures can harm employees or customers, financially undermine the organization, and lead to the organization's demise". Even when these costs of failure can be greatly reduced, people are still reluctant to experiment. New technologies can dramatically reduce the economic costs, time and effort associated with experimentation to such an extent that incurring failures will not harm the organisation's budget, deadlines, cost structure, employees or customers.

Thomke (1998) found that despite this, individuals still want to avoid experiments in which failure is likely. This avoidance can be explained by the interpersonal or

social costs of failure. More specifically, failures are perceived to make one's gaps in expertise and knowledge salient to others, and avoiding failure can help maintain one's image and professional standing among colleagues (Lee *et al*, 2004). For companies, this represents a challenge as employees might avoid any behaviour that may lead to failure and may thus not engage in experimentation.

2.3.6 The Strategic Context for Experimentation

The experimentation process suggests that the way to determine if and how to pursue a new product or service offering is to pursue it by taking a step into the market with an early version of the product or service, gain experience about both the technology and the market and then modify the offering and approach to the market based on the experience and learnings. New business development becomes a serial, iterative process with each successive step building on the experiences, both positive and negative, gained from the previous step. However, this is a time and resource consuming way to reduce uncertainty and thus not a viable way for organisations to pursue new business opportunities (Lynn *et al*, 1996, p. 32).

Organisations somehow have to distinguish between opportunities that are worth pursuing and persisting and those that are not. The strategic context for the experimentation process shapes this decision. Experimentation usually takes place within organisations that have a well articulated strategic context and explore new product opportunities that are strategically central to their businesses.

Experimentation takes place within a framework of experiences, capabilities and competitive pressures that have a critical impact on the shape and outcome of the process. Product or service opportunities that are persistently pursued in the face of overwhelming difficulties, within daunting markets and technical uncertainties and against an ever increasing tide of internal resistance, are pursued because they fit the strategic focus of an organisation. Unless a business opportunity is strategically central and within the context of the right resources and capabilities, “the inevitable set backs will be interpreted as justification for disengagement rather than as springboards for new efforts” (Lynn *et al*, 1996, p. 32).

It is evident from the above that experimentation takes place within the strategic context of an organisation but has to be rooted in the capabilities of that organisation.

2.3.7 Capabilities and Routines of Organisations

2.3.7.1 Defining Capabilities

Successful product innovation demands that an organisation exploit its existing competencies (Leonard-Barton, 1992). A competence or capability refers to the knowledge, skills, and related routines that constitute a firm’s ability to create and deliver superior customer value. An organisation will usually engage in either competence exploitation or competence exploration (Atuahene-Gima, 2005).

Competence exploitation refers to the tendency of an organisation to invest resources to refine and extend its existing product innovation knowledge, skills, and processes. Its aims are greater efficiency and reliability of existing innovation activities. In contrast, competence exploration refers to the tendency of an organisation to invest resources to acquire entirely new knowledge, skills and processes. Its objective is to attain flexibility and novelty in product innovation through increased variation and experimentation. It involves experimentation with new alternatives that have uncertain and distant returns (Atuahene-Gima, 2005).

2.3.7.2 Defining Routines

Organisational routines - a component of organisational capabilities - can be defined as a recurring pattern of behaviour in the form of fixed sequences of individual actions conducted by multiple actors, where the specific sequence and contents thereof are organisation-specific (Adell, Felin and Foss, 2008; Becker, 2004; Cohen and Bacdayan, 1994). These recurring patterns of behaviour represent a major source of organisational competence, reliability and speed of organisational performance, without which organisations would lose efficiency.

Additionally, due to the recurring nature of routines, they eventually become embedded in an organisation and its structures but remain specific to the context (Becker, 2004). These embedded, advantageous routines however can also occasionally give rise to suboptimal performance when they are transferred to

inappropriate situations such as innovative new product development (Cohen and Bacdayan, 1994).

2.3.7.3 The Effect of Organisation Size on Capabilities and Routines

Financial institutions, both large and small, possess a number of capabilities and routines that affect the institution's ability to generate innovative product offerings. Chandy and Tellis (2000) indicate that while large firms can be highly routinised they tend not to be innovative primarily due to the theory of inertia. According to Sapprasert (2008, p4) "inertia theory indicates *inter alia* that organization age and size are associated with strong structural inertia, the force that hinders organizational change". It is indicated that inertia increases with age and size as the institution's working relationships become more formalised, and thus routines become more standardised and structure becomes more stabilised. Age and size thus increases inertia resulting in larger institutions being more rigid and inflexible. This potentially leads to large institutions being more resistant to change (Sapprasert, 2008). Within larger organisations, innovative ideas must thus move through layers of bureaucratic resistance to be approved (Chandy and Tellis, 2000).

Despite the above, larger organisations have enormous financial and technological capabilities which they can harness for the purposes of innovation and have the economies of scope to spread the risks of new product offerings. Larger

organisations are thus less vulnerable to the failure of a particular product development (Chandy and Tellis, 2000).

Smaller organisations on the other hand are less likely to have established routines thereby making them less resistant to change. Small organisations also react more quickly to changing market requirements than large organisations. Their size makes them more internally flexible because they are free of the bureaucratic inertial forces that plague larger organisations (De Jong and Vermeulen, 2004); however they lack the resources base of large organisations.

It has been shown that experimentation is a fundamental innovation process activity which involves a series of experiments, and failures, that help create new product and service offerings and improve old ones. South African financial institutions utilise experimentation to provide innovative product offerings to the bottom of the pyramid. This experimentation all takes place with the strategic context of an organisation which has certain capabilities and routines which can enhance or hinder the organisation's innovative ability.

3 CHAPTER 3: RESEARCH QUESTIONS

This research report was directed towards furthering understanding of the process, forms and strategic context of experimentation that South African financial institutions undertake and operate within when developing and implementing products for the bottom of the pyramid and the impact it has on the organisation.

The following research questions are investigated:

Research Question 1:

What is the process of experimentation undertaken by South African financial institutions when developing and implementing products or services for the bottom of the pyramid?

Research Question 2:

What mode of experimentation do financial institutions follow when implementing innovative products for bottom of the pyramid?

Research Question 3:

What is the impact of experimentation on the financial institution in terms of costs and the effects of experimentation failure?

Research Question 4:

What is strategic context framing the bottom of the pyramid experimentation process within the financial institution?

4 CHAPTER 4: RESEARCH METHODOLOGY

4.1 Research Methodology

This research study was theory building in nature and the research questions were explored through a qualitative research methodology. The initial research topic exploration was conducted through secondary data analysis making use of academic published articles, books and periodicals. Thereafter, the questions were explored through the use of ethnographic interviews. Ethnographic interviews provide a rich device for entering into deep, detailed and meaningful conversations and allow for thorough answers (Patterson and Williams, 2007). Ethnographic interviews allow for the use of a list of guiding questions for the interview, but the conversations are characterised by minimum control over responses and an emphasis on having interviewees express themselves in their own words (Dick, 2006). The role of the researcher in an ethnographic interview was thus to probe and clear up ambiguity and avoided the imposing of the researchers' categories on the subject under investigation (Patterson and Williams, 2007).

Guiding ethnographic interview questions were designed and conducted through a personal interview and can be referred to in Appendix 1. A personal interview required the gathering of information through direct contact with the research respondents and facilitated the collection of complete and precise information

(Zikmund, 2003). Information gathered through the secondary data analysis was utilised to formulate the ethnographic interview questions and facilitate the direction of data analysis.

4.1.1 Rationale for Research Methodology

Qualitative research is considered pragmatic, interpretative (with a view to hopefully getting a better understanding of the subject at hand) and grounded in the lived experiences of people (Marshall and Rossman, 2006).

Research conducted in the area of investigating the unbanked and underbanked markets of financial institutions appear to have made use of qualitative research techniques as theory regarding this market space is, as yet, not well enough developed to support data testing. Indications by Thomke, Thomke *et al*, Mariello and Vermeulen were that researchers exploring experimentation should conduct personal interviews with organisation experts to gain an in-depth understanding of the experimentation process and the industry. Literature also indicated that the data collection around this topic focused on qualitative work and adopted the fastest reliable method available, in the form of key informant interviews (Thomke, 1998; Thomke *et al*, 1998; Mariello, 2007; Vermeulen, 2004).

4.1.2 Unit of Analysis

The unit of analysis for the purposes of this research report is the experimentation process undertaken by financial institutions when implementing products or services for the unbanked or underbanked markets of South Africa.

4.1.3 Population of Relevance

The population of relevance was formal financial institutions within South Africa who offer personal finance products to the unbanked and underbanked markets (where personal finance products or services refer only to transactional or saving accounts and personal loans – in the form of disbursements or credit cards). For the purposes of this research report, financial institutions referred to any formal institutions providing personal finance products or services to the South African public.

4.1.4 Sampling Method and Sample Size

4.1.4.1 Sample

The sample for this research report comprised both large, established and small, niche financial institutions. The motive behind including organisational size as a variable within the sample was to contrast large and small institutions' ability to innovate and experiment, and the potential effects of capabilities and routines.

The formal South African banking sector is highly concentrated with four dominant, large local banks, namely Standard Bank, Amalgamated Banks of South Africa (ABSA), First National Bank (FNB) and Nedbank (Davel, Falkena, Hawkins, Llewellyn, Luus, Masilela, Parr, Pienaar and Shaw, 2004; Maumbe, 2006; Remyeni and Cinnamond, 1997; Schoombee, 2000). According to Schoombee (2000), these established banks of South Africa, or “Big Four” as they are known, hold 72% of the total bank assets of the country and operate more than 3 000 branches nationwide. Schoombee also maintains that all of the big four banking groups have created divisions to serve the unbanked or underserved in the economy. Interviews with three of the “Big Four” banks were secured.

To contrast against the larger financial institutions a number of smaller, niche financial institutions were engaged in view of the fact that organisational capability and routine may influence an organisation’s innovative and experimentation capability. The number of smaller, niche financial institutions within South Africa however is more difficult to quantify due to the fluid nature of this industry. Niche players in this market include amongst others African Bank, Capitec Bank, Teba Bank, WIZZIT Bank, Real People, Maravedi Financial Solutions, Meeg Bank, Peoples Bank, Go Banking, MTN Banking and Postbank (SA Financial Sector Forum, 2008). Five smaller, niche banks were interviewed. The motivation behind the choice of the interviewed niche institutions was that they all, to some extent, cater to the needs of the unbanked, underbanked or underserved markets.

4.1.4.2 Sample Method

A judgemental sampling technique was applied to determining interview respondents, in which the researcher selected interview members based on some appropriate characteristic (Zikmund, 2003). In the case of this research study, the particular feature of interest for the research interviewees within the population of relevance was individuals working in financial institutions who have been directly involved in the experimentation and implementation of products or services for the unbanked and underbanked markets of South Africa.

4.1.4.3 Sample Size

An adequate sample depends on the type of questions posed, the complexity of the study, the availability of informants or of texts, and the purposes of the study. Resources, time, depth, and purpose of the research also place practical limitations on sample size requirements (Ambert, Adler, A, Adler, P and Detzner, 1995).

Between one to four individuals from each of the financial institutions, who were directly involved in the experimentation and implementation of products and services for the unbanked and underbanked markets, were interviewed. The individuals were chosen for their representation of the market demand, organisational capability or information technology components of innovation within their respective organisations. The interviews conducted resulted in a sample size of 19 respondents from the various financial institutions.

Due to sensitive and competitive nature of products or services being provided by the financial institutions, specific details of these as well as the individuals interviewed, remained confidential. The financial institutions and respondents interviewed have thus been renamed as follows:

Large Financial Institutions	
Institution Name	Respondent Name
Institution A	Alice Armstrong
	Bruce Bradley
	Carl Canter
	Donovan Dlamini
Institution B	Eugene Ericson
	Firoz Frank
	Grace Govender
	Howard Hefner
Institution C	Ian Ismail
	Jessica Jardin
	Kristien Khumalo
Niche Financial Institutions	
Institution Name	Respondent Name
Institution D	Lindiwe Landa
	Martin Mokoto
	Neil Naidoo
Institution E	Ollie Odendaal
Institution F	Patricia Pillay
Institution G	Quinton Quinlan
	Ryan Rakoma
Institution H	Sarah Sithole

Table 1: Financial institutions and respondents interviewed

4.1.5 Data Gathering Process

Raw data collection occurred through personal interviews as they can provide an efficient and accurate means of assessing information about the defined population (Zikmund, 2003).

4.1.6 Analysis Approach

The analysis approach of the raw data comprised a grounded theory building approach, and enumeration depending on the outcomes sought for each research question.

Data from the research interviews was analysed using a grounded theory building approach. Grounded theory building is a methodology for inductively generating theory rather than testing or verifying theory. Grounded theory building can be described as “a general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area” (Glaser, 1992: p. 16). The goal of grounded theory is to tease out, identify, name, and explain a few core themes that capture some of the underlying dynamics and patterns inherent in organisational life. Grounded theory building is a way to understand why and how structures, conditions, or actions might arise, to explore conditions under which their effects might change or stay the same, and to qualify their temporary and emergent aspects (Dougherty, 2002; Douglas, 2003).

Grounded theory building is a way to systematically capture richer, more realistic understandings in our theories, thereby contributing significantly to both the quality and the reach of organisation studies (Dougherty, 2002; Douglas, 2003). Data collection, analysis and the resultant theory generation has a reciprocal relationship, in that the researcher, rather than commencing with a theory that is to be verified, commences with an area of study and allows relevant theoretical conceptual constructs to emerge from the process (Douglas, 2003).

Grounded theory building was utilised to determine the patterns surrounding the process, modes and impact of experimentation and the strategic context that framed the experimentation process within the identified financial institutions. Where applicable, enumeration was applied to determine the frequency of themes or patterns present within the financial services industry.

4.1.7 Research Limitations

A number of limitations were inherent in the research undertaken. Theoretical saturation is required in qualitative research to ensure that no new or relevant data seem to emerge regarding a category or theme, the category is well developed in terms of its properties and dimensions demonstrating variation, and the relationships among categories are well established and validated (Corbin and Strauss, 1998). Due to time constraints, it was not possible to iterate through the data as many times as would have been preferred and thus theoretical saturation was not guaranteed.

Rigour in qualitative research is required to create an account of method and data which can stand independently so that another trained researcher could analyse the same data in the same way and come to essentially the same conclusions (Mays and Pope, 1995). One way that qualitative research can ensure rigour of analysis is to have a number of researchers conduct analysis of the data in order to eliminate individual researcher biases and preconceptions from penetrating the results. As a result of limited time and resource constraints, an additional limitation is that the sample and findings are based on the judgement of one researcher impacting the rigor required from research studies (Zikmund, 2003).

Furthermore, only three of the “Big Four” banks were interviewed. Had all four of the large banks been interviewed; the entire population of relevance essentially would have been covered.

5 CHAPTER 5: RESULTS

Various interviews were conducted with large and smaller, niche financial services companies. Interviewees were informed to express themselves in their own words and minimum control was maintained over their responses. A list of guiding questions was used with follow up questions (which were utilised to prompt interviewees for additional information). This better enabled conceptual constructs to emerge from the process. The interview responses were analysed and a few core themes that capture some of the underlying dynamics and patterns inherent in experimentation were identified (Dougherty, 2002; Douglas, 2003).








Interviewees were initially asked to convey the story of a recent product that they had developed and launched for the unbanked or underbanked market and describe their journey to getting to a successful product launch and implementation. This provided insight into the process of experimentation undertaken by South African financial institutions when developing and implementing products or services for the bottom of the pyramid.

5.1 The Process of Developing and Launching a Product through Experimentation

The process that South African financial institutions take to experiment with products for the unbanked and underbanked markets was investigated. More than one approach was indicated by the various respondents regarding the process they followed to experiment with. The various process steps taken by the financial institutions were enumerated to identify commonalities across all the institutions (refer to Appendix 2 for a detailed table that was created indicating each of the various steps revealed by the financial institutions and the enumeration of these various steps).

These process steps were then colour coded to indicate the commonalities between the different high level processes described by interview respondents.

Common themes and concepts are represented by the following colours:

-  An idea is generated
-  Present idea to board or executive management and receive approval in principle
-  Research is conducted to explore and expand on an idea and market
-  A business case or product proposal is developed defining the product idea
-  The business case or product proposal is reviewed by the relevant executive or committee members and signed off (A go/no go decision is provided)
-  A project to design, develop and implement the product offering is initiated
-  The product offering is designed and developed



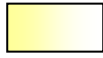
The product offering is tested internally by the company and user
acceptance testing is conducted



The product offering is piloted



The product offering is amended based on pilot learnings and feedback

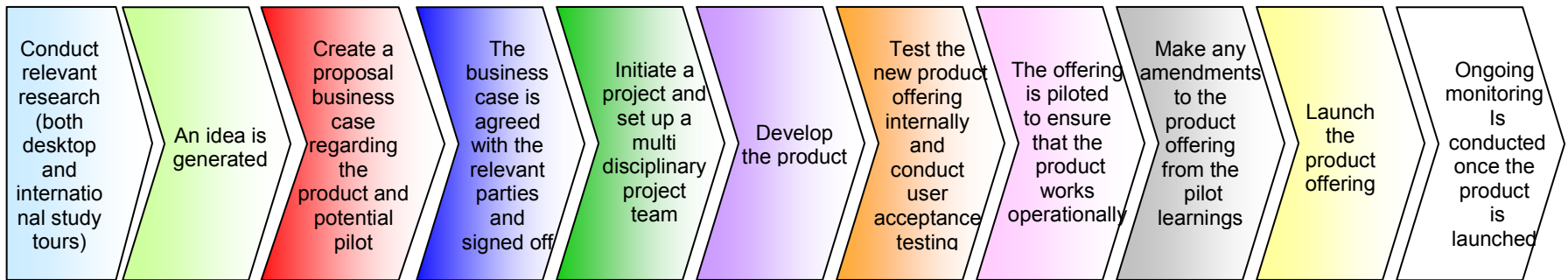


The product offering is launched and commercialised

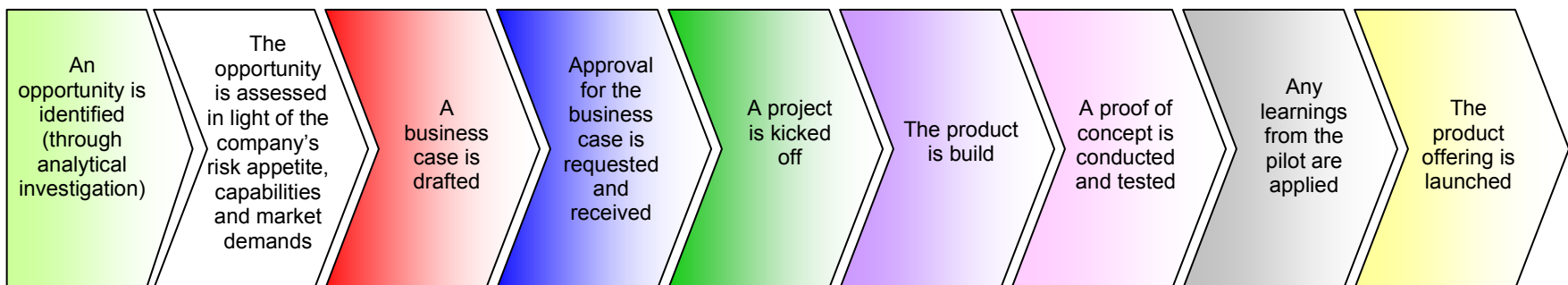
The various high level processes followed by each financial institution can be viewed diagrammatically below indicating the eleven various commonalties across all financial institutions.

The high level processes for the three large companies as described by the interviewees are indicated as follows:

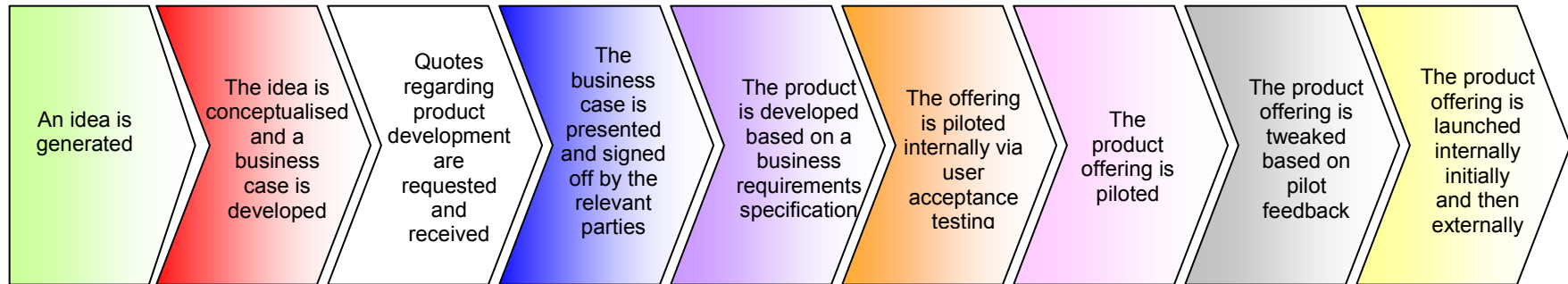
A.



B.

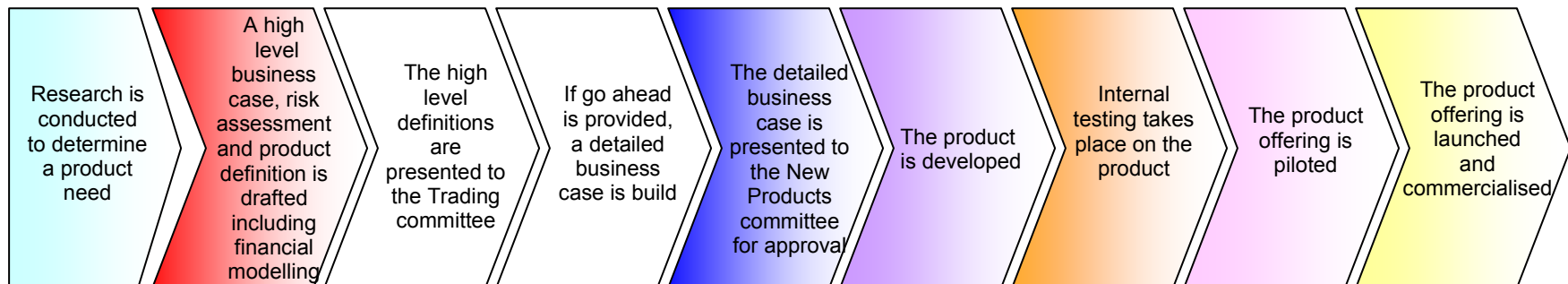


C.

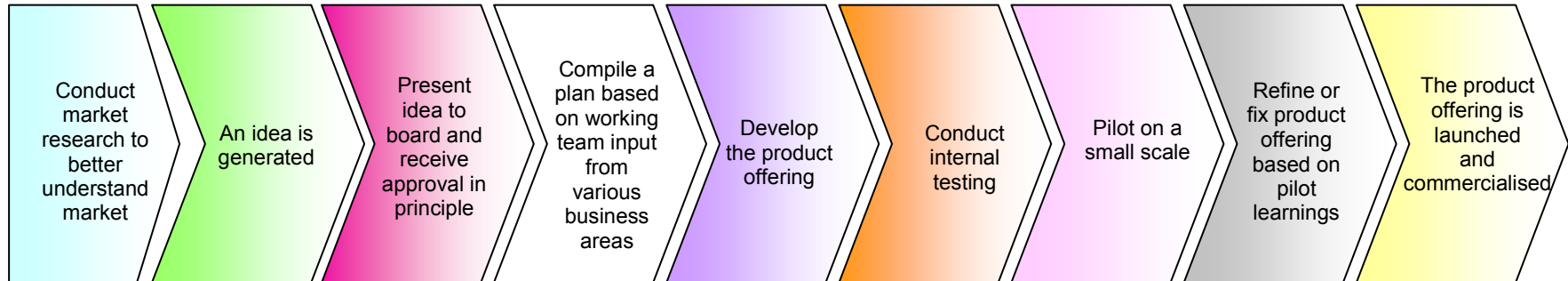


The high level processes for the five niche companies and different interviewees are described by the interviewees as follows:

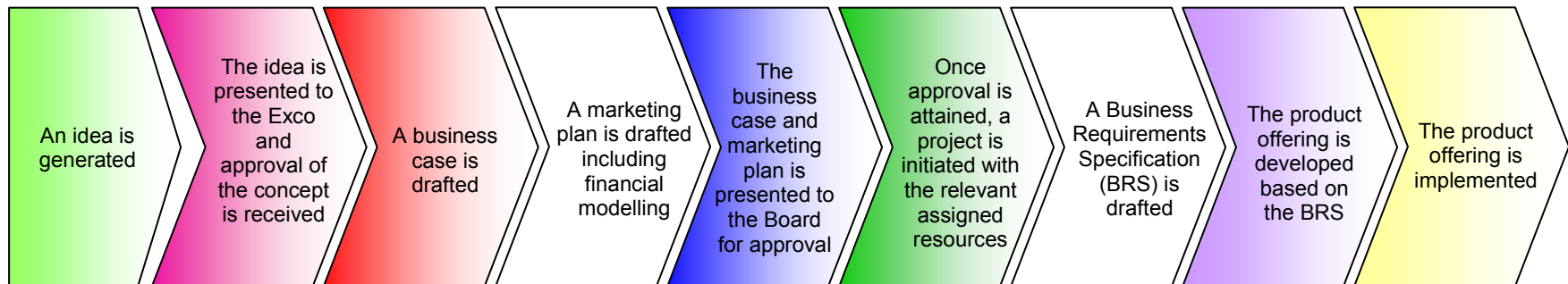
D.



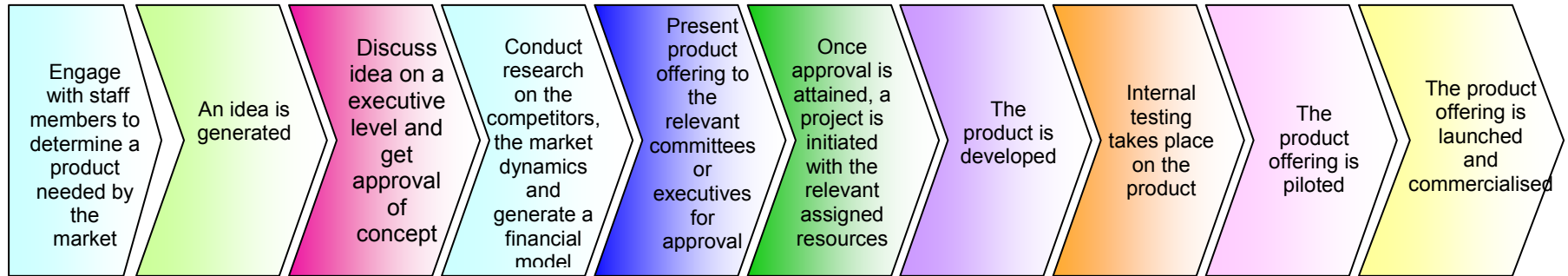
E.



F.



G.



H.



5.1.1 Enhancements to Thomke's Experimentation Process

The above processes undertaken by the various financial institutions and the interviews conducted highlighted a number of enhancements or nuances to Thomke's four step experimentation process. These enhancements or nuances include some additional process steps and phases or categories, and the awareness that the experimentation process within the South African financial institutions is contextualised within both a developing economy and the strategic framework of each institution.

5.1.1.1 Additional Process Steps

Stefan Thomke (2003) indicated a four-step iterative cycle in which an experiment is conceived of or designed, apparatus needed to build the experiment is built, the experiment is run and the result is analysed (Thomke, 1998). As is evident from the number of commonalities across the financial institutions, it was revealed that the experimentation process undertaken by financial institutions in South Africa's developing market comprises more than four steps. Based on the enumeration exercise undertaken (refer to Appendix 2) of the process steps indicated by the interview respondents, eleven common themes or process steps have been identified across large and small financial institutions. These eleven process steps were categorised according to the definitions of the process steps as provided by Thomke in his four step experimentation process. This categorisation however

provided a greater division of themes or phases when compared to Thomke's four, as per the below figure.

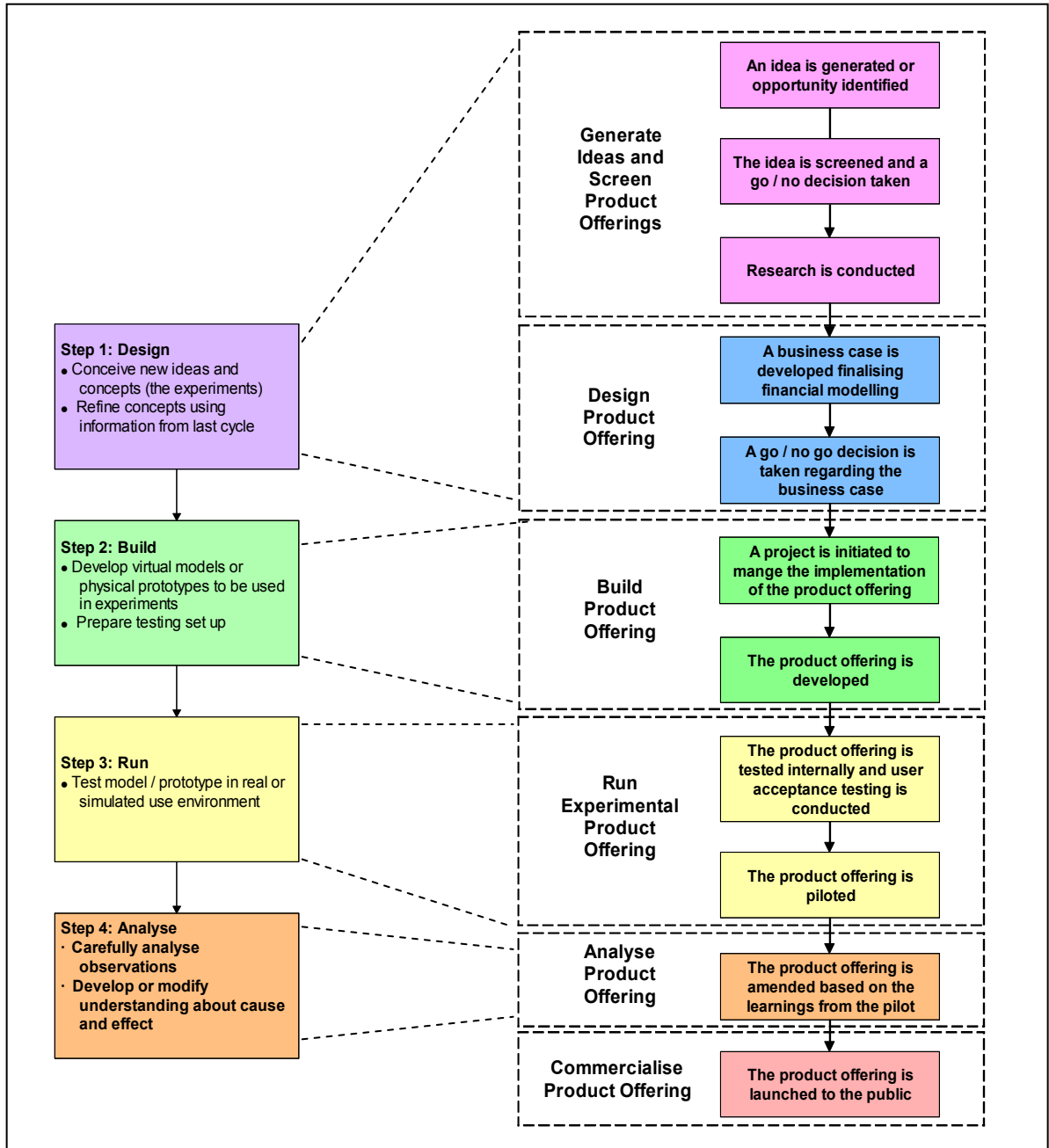


Figure 5: A comparison of Thomke's experimentation model against interviewee responses

As presented in the above figure, the eleven themes or process steps identified during respondent interviews have been grouped into six categories, four of which are in line with Thomke's four step experimentation process. Important differences or enhancements to Thomke's model are the emphasis placed by the financial institutions on idea generation and the approval or screening of ideas, and the commercialisation of a product offering.

Thomke's first step of experimentation indicates that this design step involves conceiving of new ideas and concepts (the experiments) and refining concepts using information from the last cycle. Financial institutions placed a great deal of emphasis on the generation and screening of ideas and thus Thomke's "design" step was split into two categories. During a new created category, titled "Generate ideas and screen product offerings", financial institutions indicated that ideas are generated and then have to be screened and narrowed down which involves weighing up an idea's pros and cons to weed out those that lack potential (Awaza, Baloh, Desouza, Dombrowski, Jha, Kim and Papagari, 2007) or that are not aligned to the institution's strategy or resource capability. The screening of ideas helps to reduce risk before moving on to the next stage (Verloop, 2004) in the experimentation cycle.

Research can then be conducted to further define the market demands, competitor products, and product parameters during the newly created "design the product offering" phase. A business case is then developed to detail the design of the product offering taking into account refinements from previous experimentation

cycles. Once again a decision is taken at this point to determine if the product as designed and described in the business case is in line with the institution's strategy or resource capability. This stage gate approach to idea and product offering screening is an important enhancement to Thomke's four step experimentation process.

Additionally, another enhancement to Thomke's four step experimentation process is the additional step to "commercialise the product offering. The financial institutions interviewed revealed that once an experimentation product offering was run, and analysed to develop or modify understanding about cause and effect, if the market demand was considered attractive enough and the internal resources of the institution have been mobilised, the commercialisation step commences (Brand, 1998). This step involves the full scale launch of the product offering to the entire targeted market.

The financial institutions interviewed provided evidence that their experimentation processes involved a stage gate approach to assessing and screening generated ideas and business cases defining the product design, and the commercialisation of the product offering to the entire targeted market. Analysis of the interview responses indicated that idea generation and screening, and product commercialisation cannot be decoupled from the innovation and experimentation process undertaken by financial institutions and are incorporated with the business of experimentation. An enhancement to Thomke's four step experimentation

process would thus be to expand his four steps to six phases comprising eleven process steps as indicated in Figure 5 above.

5.1.1.2 Operating in a Developing Economy

In various writings, Thomke makes use of a number of examples of companies to describe assorted aspects of experimentation. Companies used as examples in Thomke's writings include amongst others Millennium Pharmaceuticals, Bank of America, Eli Lilly, BMW, Microsoft and Toyota (Thomke, 2003). These companies represent companies operating largely in economies such as the United States of America, Japan, Canada and Germany. The company examples used in his writings operate largely in developed economies and his four step experimentation process can be assumed to have been designed for developed markets not a developing market such as South Africa's.

These developed economies described by Thomke are also not exposed to the dual economy that characterises South Africa's competitive landscape and markets. The context in which South African financial institutions operate is thus different to the examples used by Thomke, which could partly explain why Thomke's model although adequate, does not fully indicate the nuances of the experimentation undertaken by these institutions.

5.1.1.3 Operating within a Strategic Context

Strategy is an expression of the intent of an organisation and defines the range of business that the organisation will pursue. Strategy is aimed at developing and nurturing the competencies of an organisation and provides a means for investing selectively in tangible and intangible resources to develop these competencies that assure a sustainable competitive advantage (Haugstad, 1999). Thomke has created a very standalone, mechanistic view of experimentation that fails to take into adequate consideration the strategic context of an organisation or an organisation's capabilities. An additional insight into Thomke's model would thus be the inclusion of the strategic context in which an organisation operates.

These identified nuances of enhancements to Thomke's experimentation process will be discussed in greater detail in the next chapter.

5.1.2 Differences and similarities between large and niche financial institutions

As is evident from the above process flows, there are some similarities and differences in the experimentation process followed by large and niche financial institutions. A number of steps that both the large and niche financial institutions follow are common and include an idea being generated or opportunity being identified; a business case or detailed product offering having to be presented to the relevant executives, management or committees for approval; a project being initiated to manage the product implementation; the product being developed,

tested internally and piloted, adjustments being made to the product offering based on learning from the pilot; and the launch or commercialisation of a product offering.

It appears that both the large and niche institutions tend to follow the same steps towards the latter part of the experimentation process, with the main differences being in how they commence the experimentation process. Two main process steps were mentioned more prominently by the niche institutions, which include engaging with the market or shop floor employees to determine customers' needs in order to identify opportunities or ideas for the bottom of the market. Additionally, the niche institutions stated that they would present an idea or opportunity to the relevant board, executives or management to receive approval in principle before continuing with the conceptualisation, design and financial modelling of the product offering.

This indicates that niche financial institutions engage more with the necessary parties to determine this markets requirements and needs and they place more emphasis on the screening of ideas upfront than the larger financial institutions do. This concept has been included in an expansion of Thomke's "design" step referred to as "Generate ideas and screen product offerings". Reasons for this emphasis on the screening of ideas upfront could be that the niche institutions have a more intimate relationship with their customers and perhaps don't have as many resources to pursue ideas as a large institution and thus need to eliminate those ideas early on that aren't aligned to the institutions strategy, capabilities or

risk appetite. Thomke indicates that the earlier some concepts and ideas are tested, the better. This early concept screening is necessary since unfavourable options can be eliminated quickly allowing people to refocus their efforts on more promising alternatives (Thomke, 2003). The below section will explore these assumptions further.

5.1.3 The Evolution of a Product

As the interviewees were encouraged to tell their own story, various additional insights were gained whilst the evolution of their products were disclosed. Some significant themes were disclosed during the interviews that included determining customers' wants and needs and the iterative process that is required for experimentation, which will be discussed in turn.

5.1.3.1 Customer Needs and Wants

A common theme that arose during the interviews is what unbanked and underbanked customers want and need from financial service products and how financial institutions determine these customer needs and wants. When creating and marketing new products, it is the development of in-depth insights about customer needs, preferences and values that forms the basis for successful product design and an effective competitive positioning strategy (De Brentani, 2001). However, despite the importance of understanding the market and

customers' needs, research has indicated that new product developers often fail to do so (Dougherty, 1990).

Both the large and niche organisations indicated that customers of this market require “simple, uncomplicated products” (Ollie Odendaal, Institution E) and that for the bottom of the pyramid, companies “need to provide very basic things” as customers want to be able to “loan money, save money, transact, pay someone etc” (Donovan Dlamini, Institution A). This could include savings and insurance products which potentially improve customers' quality and sustainability of life. One large institution identified customers' needs to be products that are “affordable, accessible and offer dignity” (Bruce Bradley, Institution A).

What customers want and need	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • “Savings and insurance is a critical financial need” of this market and any of these “needs are useless without meeting the needs of financial knowledge” (Alice Amber, Institution A). • Customers want to improve their “quality of life”: “From a financial services point of view, the company thinks that life looks a little better if customers have somewhere safe to put their money and the bank is not just eating it away” (Alice Amber, Institution A). • Customers need products that are “affordable, accessible and offer dignity” (Bruce Bradley, Institution A). • In terms of banking, we “need to provide very basic things”: customers want to be able to “loan money, save money, transact, 	<ul style="list-style-type: none"> • “A lot of customers still want savings books as the reason behind the savings book is discipline” (Lindiwe Landa, Institution D). • Customers need “simple, uncomplicated products” (Ollie Odendaal, Institution E). • We have to “keep products straightforward and simple in this market” (Quinton Quinlan, Institution G).

What customers want and need	
Large Financial Institutions	Niche Financial Institutions
<p>pay someone, etc” (Donovan Dlamini, Institution A).</p> <ul style="list-style-type: none"> • This market segment “requires access to finance to have sustainable livelihoods” (Ian Ismail, Institution C). 	

Table 2: Customer wants and needs

The large institutions revealed that in this market “customers don’t always know what they want and the company designs what they think customers want” (Ian Ismail, Institution C). In order to determine customers’ needs, the large institutions “did a lot of desktop research to gain a better understanding of this market” (Alice Amber, Institution A), reviewed the current product habits of customers, and looked at international models in order to understand the needs of this market. Essentially, the larger institutions “studied and assessed what other emerging and developing markets are doing in this space” (Firoz Frank, Institution B). The niche institutions did not provide evidence of conducting desktop research or reviewing financial models for the bottom of the pyramid in developing markets that could be applied to a South African setting

Conducting desktop research to determine customer needs and wants	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • “Customers don’t always know what they want and the company designs what they think customers want” (Ian Ismail, Institution C). • The company “did a lot of desktop research to gain a better understanding of this 	

Conducting desktop research to determine customer needs and wants	
Large Financial Institutions	Niche Financial Institutions
<p>market” and their needs (Alice Amber, Institution A).</p> <ul style="list-style-type: none"> • The company was “trying to gain come customer insights by reviewing what products customers are using, what they are not using and how customers structured their financial lives” (Donovan Dlamini, Institution A). 	
Reviewing international models to determine customer needs and wants	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • “We conducted desktop research on international markets and environments and conducted study tours to India, Indonesia and Africa” (Alice Amber, Institution A). • The company “looked at what international environments are similar to South Africa in the problems that we face” in order to determine operating models (Bruce Bradley, Institution A). • We “do look at other financial institutions in other countries” (Donovan Dlamini, Institution A). • We “studied and assessed what other emerging and developing markets are doing in this space” (Firoz Frank, Institution B). • We will “look at other countries like Brazil, India and Spain” (Ian Ismail, Institution C). • We “researched what other countries are doing in this space” (Kristien Khumalo, Institution C). 	

Table 3: Conducting desktop research and reviewing international models to determine customer needs

Interestingly, only one large institution indicated that they conducted focus groups with customers to determine the market’s concerns, stating that “we made use of

focus groups where we entered underprivileged areas and talked to the wider unbanked and underbanked market” and then “tried to figure out a solution by addressing this markets’ concerns” (Eugene Ericson, Institution B). In contrast, all but one of the niche institutions interviewed stated that they conducted focus groups or surveys with customers or spoke to frontline employees to determine this markets product requirements. Quinton Quinlan (Institution G) said, “we spend a lot of time with customers in the branches and speak to staff who deal with customers to give input into ideas”, whilst Lindiwe Landa, (Institution D) affirmed that “our principles behind product design are that we consult with customers”.

Asking the customer what their needs are	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • The company “made use of focus groups where we entered underprivileged areas and talked to the wider unbanked and underbanked market” and then “tried to figure out a solution by addressing this markets concerns” (Eugene Ericson, Institution B). 	<ul style="list-style-type: none"> • “Our principles behind product design are that we consult with customers and unions”. The product development “process starts off with research in the form of talking to customers” (Lindiwe Landa, Institution D). • “Focus groups or surveys are conducted at various stages” of the product development process (Ollie Odendaal, Institution E). • “Some research was conducted around the target audience and what their needs are” by conducting “lots of focus groups” (Patricia Pillay, Institution F). • “We spend a lot of time with customers in the branches and speak to staff who deal with customers to give input into ideas” (Quinton Quinlan, Institution G).

Table 4: Asking the customer what their needs are

Customers potentially are willing to be so open with the niche institutions and reveal their needs and wants through focus groups and surveys due to the close, trusting relationship customers have with the niche institutions. “We have a strong relationship with our customer base – customers trust us” said Ryan Rakoma, of Institution G. Ollie Odendaal (Institution E) said “we give customers what they want, add value and build relationships with them”. Because of this customer intimacy that niche institutions have managed to generate and maintain, one institution indicated that “the company doesn’t have to go to customers, customers come to the company” (Martin Mokoto, Institution D).

Customer intimacy	
Large Financial Institutions	Niche Financial Institutions
	<ul style="list-style-type: none"> • The company doesn’t have to go to customers, customers come to the company” (Martin Mokoto, Institution D) • “Due to the large amount of interaction, customers are forgiving and allow for some mistakes” (Lindiwe Landa, Institution D). • We “have a trust relationship with our customers” (Neil Naidoo, Institution D). • “We give customers what they want, add value and build relationships with them” (Ollie Odendaal, Institution E). • “We have a strong relationship with our customer base – customers trust us” (Ryan Rakoma, Institution G).

Table 5: Determining customer needs through customer intimacy

Large institutions tended to rely on desktop research and international financial models to determine the requirements of the market whilst the niche institutions

tended to rely on building close relationships and intimacy with customers. This would imply that niche institutions are more in tune with customers needs and are thus more responsive to customer requirements than larger institutions.

5.1.3.2 The Iterative New Product Experimentation Process

Both the large and the niche organisations are similar in that they echo the sentiments of Thomke who indicated that experimentation in the specific arena of product and process development show iterative trial and error (or, more precisely, trial, failure, learning, correction and retrial) as a significant feature of design (Thomke, 1998). Business experimentation can be viewed as a controlled, cost-effective and iterative approach to learning about the potential success or failure of a new product, service or process (Cash and Pearlson, 2005).

All the financial institutions revealed that the product development and experimentation process is an “iterative and collaborative process” (Kristien Khumalo, Institution C) that enables the companies to gain a “better understanding of what we currently don’t know about a product” (Eugene Ericson, Institution B). The evolution of a product offering was also uncovered as a key theme with the companies stating that “our product offerings evolve all the time” (Quinton Quinlan, Institution G) and a “product evolves from idea generation to implementation” (Donovan Dlamini, Institution A).

The iterative new product experimentation process	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • The “implementation process is an iterative process” and we “understand that it’s a test and learn environment” (Alice Amber, Institution A). • A “product evolves from idea generation to implementation” (Donovan Dlamini, Institution A). • “By experimenting...the company gains a better understanding of what we currently don’t know about a product” (Eugene Ericson, Institution B). • The product implementation process is an “iterative and collaborative process” that is adjusted and modified (Kristien Khumalo, Institution C). 	<ul style="list-style-type: none"> • We “conduct customer focus groups and union consultations throughout the product design, development and implementation cycle using this input to continually rework our new products” (Martin Mokoto, Institution D). • “The offering may during the committee meeting be asked to be adjusted and then has to be reworked and re-presented” (Neil Naidoo, Institution D). • “The product evolves during roll out” (Ollie Odendaal, Institution E). • “Lots of things pop up as you work on a project and so we have to refine the product, processes and strategic thinking along the way” (Patricia Pillay, Institution F). • “Our product offerings evolve all the time” (Quinton Quinlan, Institution G).

Table 6: The iterative new product experimentation process

Thomke indicates that his four step experimentation process comprises iterative experimentation cycles that are repeated many times and indicates that all experimentation involves iteration sooner or later. The above comments by the financial institutions endorse Thomke’s writings regarding iterative cycles. Thomke’s model states that an organisation should go through each step of the experimentation process from step one to four, and then iterate or move to step one and complete the experimentation cycle again.

An enhancement to Thomke’s experimentation process based on the feedback from the financial institutions is that although experimentation is an iterative process, it is also an *evolving* process. Both the large and niche financial

institutions to some degree divulged that a product offering is constantly being refined and amended, and evolves throughout the lifecycle of the product from idea generation to full commercialisation. This means that although the financial institutions may progress through the experimentation process steps one to four and iterate or move to step one again once the experimentation cycle is complete, they potentially also move back and forth between the phases during the experimentation cycle. This back and forth movement between the phases in the experimentation cycle allows the product offering to evolve and change during the experimentation process. For example, it is possible that a drafted business case that is submitted to the relevant parties for sign off, is not declined but it is required that the document is reworked. This might require that a previous step is returned to and additional research is conducted before the business case is updated and resubmitted for approval. This implies that a backward step is taken before moving forth with the experimentation process again, changing and evolving the product offering throughout the process.

5.2 Modes of Experimentation Followed by Financial Institutions

As indicated earlier in this report, experimentation can be conducted through a number of forms including modelling and computer simulation, prototyping, beta testing and piloting. During interviews with the financial institutions, various questions were asked to try and assess the modes of experimentation followed by the organisations when implementing innovative products for the underbanked and

unbanked markets. The modes of experimentation identified were enumerated and are represented in the below table:

Variable	Large Financial Institutions	Niche Financial Institutions
Models (financial modelling) and Computer Simulation	1 • “We conduct financial models which include all costs and informs our pricing” (Kristien Khumalo, Institution C).	8 • A business case is built based on our financial modelling and pricing” (Lindiwe Landa, Institution D). • “Financial modelling informs our pricing” (Ollie Odendaal, Institution E).
Prototypes	1	0
Beta Testing	0	0
Pilot or Proof of Concept Testing	11 • The manner in which we introduced this product was “by piloting in one site in the Eastern Cape” (Eugene Ericson, Institution B). • We “piloted in 3 branches” (Kristien Khumalo, Institution C).	8 • We “piloted on a small scale in a few branches” (Ollie Odendaal, Institution E). • “We select 10 to 15 branches in which to pilot and test the product in a live environment” (Quinton Quinlan, Institution D)

Table 7: Modes of experimentation undertaken by financial institutions

As indicated above, the large financial institutions mentioned financial modelling and prototypes and every interviewee indicated that a pilot was undertaken during their experimentation process. “Pilots are used as a proof of concept that can then say with certainty if we have enough ability to move forward” and if the product

offering works operationally (Bruce Bradley and Donovan Dlamini, Institution A). Institution B stated that “experimentation is done on a small scale to get learnings from the pilot” (Eugene Ericson, Institution B). Alice Amber (Institution A) stated that “a pilot is set out to achieve the testing of market behaviour”. An indication of where modes of experimentation may be going in the future (over and above the current modes of financial modelling and computer simulation, prototyping, beta testing and piloting) is a statement made by one large organisation:

“Experiential learning or testing is becoming more of the norm (with no previous base and no prior understanding of the challenge)” (Howard Hefner, Institution B).

All the niche financial organisations indicated that financial modelling and pilots were undertaken as their modes of experimentation. Lindiwe Landa of Institution D revealed that they “might pilot the product offering to staff members first” and in some instances “may go into a second pilot if not sure that customers in a different geographic area will act the same”. “We issue our product offering to a small isolated market” is how Ryan Rakoma of Institution G described pilots in his company. He further elaborated and stated that they pilot to a small isolated market so that “if something goes wrong, it’s not a high profile error”. Another niche institution indicated that to minimise experimentation time and get a product out to the market sooner the company conducted “a lot of testing in the live production environment” (Sarah Sithole, Institution H).

Financial modelling was indicated, mostly by the niche institutions, as a means to simulate the potential costs, capital expenditure and pricing for new products or services. This would enable financial institutions to amend and manipulate various financial variables in order to determine the optimum pricing for a product offering.

Both the large and small financial institutions tend to place a great deal of value on testing a product offering in a small contained version of the market prior to launching and commercialising to the entire market. This indicates that a pilot represents a test environment in which the institutions are still learning about a product offering and can provide input and learning into refinements to be made to the product.

5.3 The Impact of Experimentation on Financial Institutions

The impact of experimentation on financial institutions in terms of costs and the effects of experimentation failure was assessed during interviews. Experimenting with many diverse ideas is crucial to innovation. When a novel concept fails in an experiment, the failure can expose important gaps in knowledge (Thomke, 2001). However, it is not an easy feat to create an environment that walks the line between so-called failed experiments, where the discipline of data collection, analysis and iteration results in learning even if the experiment itself doesn't produce a desired result; and the frivolous waste of resources, where ideas are tested in an undisciplined manner (Cash and Pearlson, 2005).

The impact of experimentation on financial institutions can result in a number of costs or effects, each of which will be discussed.

5.3.1 Costs of and Barriers to Experimentation in Financial Institutions

Developing new products is considered to be of high importance for a number of organisations. The financial sector has also recognised the increasing importance of new products aimed specifically at the unbanked and underbanked markets. (Vermeulen, 2004). However, functioning within financial institutions may result in some costs or provide some barriers to product innovation and experimentation. These costs and barriers include having to function within the governance structures of the company, a conservative organisational culture in which innovative new products have to continually be justified, the capabilities or routines of an organisation, prioritising within financial institutions, and constraining information technology.

5.3.1.1 Functioning within the Governance Structures of the Company

Governance structures require financial institutions to conduct their new product development and experimentation processes within the scope, structures and capacity of the company at the risk of the new product development process. Both the large and niche financial institutions revealed that they had to operate within the governance structures of their respective organisations which provide the framework of rules, relationships, systems, and processes by which authority, risk

and strategic alignment is exercised and controlled. The large financial institutions mentioned that a cost of experimenting within a financial institution was having to operate within the governance structures of the organisation which are lengthy and time consuming and can “take long because you are continually relooking the offering and changing it” (Ian Ismail, Institution). This can result in decisions being taken too slowly.

One smaller, niche financial institution mentioned governance structures but indicated that a cost of experimentation within their environment was not having enough governance structures in place – “Governance structures have evolved due to trial and error” (Martin Mokoto, Institution D). Another niche institution said that “governance structures mean that we can’t move quickly (Quinton Quinlan, Institution G).

Functioning within the governance structures of the company	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • Institution A indicated that they would have appreciated “more leeway regarding governance structures or complete independence of governance and operational structures”. They also wished “decisions were taken more quickly” (Carl Canter, Institution A). • “Governance process could take long because you are continually relooking the offering and changing it” (Ian Ismail, Institution B). 	<ul style="list-style-type: none"> • We could “have implemented better risk governance structures to manage fraud at the peril of being earlier to market” (Lindiwe Landa, Institution D). • “Governance structures mean that we can’t move quickly (Quinton Quinlan, Institution G).

Table 8: Cost of experimentation - Governance structures

Governance structures are required to manage the process of new product innovation and experimentation within an organisation to manage risk and ensure new products are aligned to the strategy of the organisation. They however are a hindrance to experimentation within both the large and niche financial institutions. For the large organisations governance structures add additional 'red tape' and bureaucracy to the process of experimentation, whilst for the smaller, niche organisations, increased governance structures slow down the experimentation process. Governance structures are however a necessary evil to ensure that products introduced to the unbanked and underbanked markets are in line with the institutions' risk, strategy and expectations.

5.3.1.2 A Conservative Culture

Organisational culture can be a huge barrier for product innovation and experimentation. Financial Institution cultures are considered very conservative, with many managers in financial companies displaying risk-avoiding behaviour (Vermeulen, 2004). The large organisations prominently indicated that their companies were more risk averse than the smaller institutions, making statements such as "the company tends to be very risk averse" (Eugene Ericson, Institution B), or "there is a resistance to change within banks" (Carl Canter, Institution A). Only one smaller financial institution provided evidence of a risk averse or conservative culture revealing that they are "too slow and conservative" (Ollie Odendaal, Institution E).

A conservative culture	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • Institution A was viewed by Bruce Bradley as “more risk averse and goes through a lot more process” and “the company is good at blaming and not good at taking responsibility”. • “There is a resistance to change within banks” (Carl Canter, Institution A). • “The company tends to be very risk averse and thus demands senior high level sign off on explorations into this market” (Eugene Ericson, Institution B). 	<ul style="list-style-type: none"> • We are “too slow and conservative, and talk a lot about something before we do it” (Ollie Odendaal, Institution E).

Table 9: Cost of experimentation - A conservative culture

It was assumed that culture could also affect the extent to which financial institutions are willing to accept new product ideas, innovation and experimentation. It appears however that despite only the large institutions having a conservative, risk adverse culture, both the large and smaller organisations indicated that they had to “continually try to convince people” (Carl Canter, Institution A) and “sell the vision of the product offering” (Ryan Rakoma, Institution G) to the rest of the organisation to justify their existence.

Justifying innovation and new products in financial institutions	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • We “have to continually try to convince people and justify our existence” (Carl Canter, Institution A). • We “have to sell the ideas, both internally and externally” (Ian Ismail, Institution C). 	<ul style="list-style-type: none"> • We “have to sell ideas for a new product. Even when you have people convinced, they still ask questions which feeds into the product development and evolution” (Lindiwe Landa, Institution D).

Justifying innovation and new products in financial institutions	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • There is “a lot of scepticism arising internally from support services not used to doing things differently” (Kristien Khumalo, Institution C). 	<ul style="list-style-type: none"> • We “had to sell the concept and get buy in” as it “took five years to get the concept approved” (Patricia Pillay, Institution F). • We had to “sell the vision of the product offering” (Ryan Rakoma, Institution G).

Table 10: Justifying innovation and new products in financial institutions

An additional result of a risk averse and conservative culture could be the tendency to plan too much which is another cost of experimentation. Given another chance, some of the larger financial institutions believed that they had planned too much and wished they had implemented and introduced something less than perfect into the market and perfected it whilst it was out there. The large institutions indicated that they shouldn't “wait for a product to be 100% before pilot as you learn more from product testing in the market (Kristien Khumalo, Institution C) and they “could have gone into market with a ‘quick and dirty’ offering” (Bruce Bradley, Institution A) which would have been more conducive to learning and experimentation. Additionally, the large institutions suggested that they would have done more upfront research and market testing with regards to what products customers want and “should have tested the concept in focus groups and conducted market research” (Kristien Khumalo, Institution C).

Similar to the large organisations, the niche organisations also indicated that a cost of experimentation within their structures was planning too much and not taking or implementing decisions more quickly. One would expect the smaller institutions to

be more entrepreneurial and more willing to take risks however it appears that this is not the case in all instances.

Too much planning	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> The company tends to “dot too many I’s and cross too many T’s and if you wait too long the market changes” (Ian Ismail, Institution C). 	<ul style="list-style-type: none"> We “need to be more decisive and do things quicker” (Ollie Odendaal, Institution E).

Table 11: Cost of experimentation - Too much planning

5.3.1.3 Capabilities and Routines

Although it was signalled that innovation is possible within large financial institutions, it was stated that a large amount of difficulties were experienced due to the deep assumptions embedded in the culture, capabilities and routines of large organisations. This, on the other hand, was not an issue for the smaller institutions.

The large institutions believed that their assumptions regarding providing products to the unbanked and underbanked market would have to be challenged as they would “need to think differently and examine retail banking assumptions in the underbanked market” (Carl Canter, Institution A). Due to inculcated routines and capabilities, it was revealed that large financial institutions “can’t use the standard process for innovation – processes within banking are far too rigid to promote innovation” (Firoz Frank, Institution B) and would need to “develop new capabilities as you can’t use what is currently there” (Carl Canter, Institution A). The routines of

the large organisation, which hinders organisational change, probably exacerbates its unwillingness to navigate an uncertain market.

Capabilities and Routines	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • We are “trying to innovate within a large organisation” (Alice Amber, Institution A). • “Innovation within large corporations is possible but have to develop new capabilities as you can’t use what is currently there” (Carl Canter, Institution A). • You “can’t use the standard process for innovation – processes within banking are far too rigid to promote innovation” (Firoz Frank, Institution B). • “All deep assumptions have to be challenged. We need to think differently and examine retail banking assumptions in the underbanked market” (Carl Canter, Institution A). • A risk exists if working in a traditional, conventional bank that a “different product (for this market) gets watered down” (Kristien Khumalo, Institution C). 	

Table 12: Cost of experimentation - Capabilities and routines

5.3.1.4 Prioritisation within Financial Institutions

In a research study on “Managing Product Innovation in Financial Services Firms”, it was reported that product innovation was not at the top of the priority list of management and employees (Vermeulen, 2004). In keeping with this statement, an additional cost of experimenting within large organisations is having to prioritise key resources – specifically in the departments of information technology and

human resources. The large institutions disclosed that they are “always competing with other critical issues from a prioritisation point of view” (Ian Ismail, Institution C) and that “a constraint within the bank is resource allocation and prioritisation” (Carl Canter, Institution A).

The niche institutions didn’t indicate resource constraints and tended to indicate what prioritisation of the new product offering was based on. They disclosed that priority depends on the “business and strategic value of the product and urgency of the product” (Martin Mokoto, Institution D) or that new product development projects “are prioritised based on what is going to be important” (Ollie Odendaal, Institution E). This would imply that prioritisation of new product developments projects is easier and perhaps of more strategic value for the smaller, niche financial institutions than in the larger financial institutions.

Prioritisation within financial institutions	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • We are “always competing with other critical issues from a prioritisation point of view” (Ian Ismail, Institution C). • “A constraint within the bank is resource allocation and prioritisation” (Carl Canter, Institution A). • The “company tends to be quite slow with product development and implementation especially where IT development is required as development requires prioritisation” (Eugene Ericson, Institution B). • A “product launch or release gets moved out because of other business priorities” (Jessica Jardin, Institution B). • Once an idea is signed off by the relevant 	<ul style="list-style-type: none"> • Once a new product development project is initiated, “the prioritisation of the project is reviewed”. Priority depends on the “business and strategic value of the product and urgency of the product” (Martin Mokoto, Institution D). • New product development projects “are prioritised based on what is going to be important” (Ollie Odendaal, Institution E).

Prioritisation within financial institutions	
Large Financial Institutions	Niche Financial Institutions
executives, “it might be necessary to reprioritise with IT depending on capacity” (Jessica Jardin, Institution C).	

Table 13: Cost of experimentation: Prioritisation within financial institutions

5.3.1.5 Constraining Information Technology

A further barrier to innovation and experimentation within financial institutions is information technology which can be considered a major bottleneck with respect to the innovative performance of financial institutions (Vermeulen, 2004). This is surprising as information technology is considered a component of innovation and a key enabler of strategy (Benjamin and Morton, 1986). The larger organisations tended to indicate a greater problem with information technology than the smaller organisations. This is evident from such statements as “a decision is made quite quickly but in details of trying to implement a new product; the IT capacity required slows down the process” (Alice Amber, Institution A); or “the company tends to be quite slow with product development and implementation especially where IT development is required” (Eugene Ericson, Institution B).

Constraining Information Technology	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • “We usually struggle for prioritisation with IT and HR processes” (Alice Amber, Institution A). • “A decision is made quite quickly but in details of trying to implement a new product; the IT capacity required slows down the process” (Alice Amber, Institution 	<ul style="list-style-type: none"> • There are some “system challenges due to a small legacy system (when trying to increase the number of customers dramatically)” (Martin Mokoto, Institution D).

Constraining Information Technology	
Large Financial Institutions	Niche Financial Institutions
<p>A).</p> <ul style="list-style-type: none"> • The “company tends to be quite slow with product development and implementation especially where IT development is required” (Eugene Ericson, Institution B). • “There are some challenges of the system” which has resulted in the business taking longer to get started and thus the product offering is “not on the Institution C platform because it would have taken too long” (Kristien Khumalo, Institution C). 	

Table 14: Cost of experimentation: Constraining Information Technology

It is evident from the above section related to the costs of experimentation that the large institutions tend to experience a great deal more costs of and barriers to experimentation than the smaller, niche financial institutions do. This is potentially due the large financial institutions’ conservative culture, governance structures and routines resulting in the experimentation process being prolonged.

5.3.2 Effects of Experimentation Failure in Financial Institutions

A significant proportion of the interviewees indicated that they have “had plenty of failures and would be worried if we had not” (Alice Amber, Institution A) and that they “have to have failures in order to learn from them” (Sarah Sithole, Institution H). It was also indicated that clearly products for the bottom of the pyramid have worked elsewhere in international markets and thus the expectation was that they could work in South Africa. Both the large and niche institutions revealed that

“failure is a good thing” (Lindiwe Landa, Institution D), but a niche institution added that “failure is based on not meeting customers’ needs” (Ollie Odendaal, Institution E). Once again, by mentioning that failures could be a result of not meeting customers’ needs, it indicated that the niche institutions value a close relationship with their customers.

Effects of experimentation failure in financial institutions	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • We have “had plenty of failures and would be worried if we hadn’t” (Alice Amber, Institution A). • “It is evident that products that have failed in this market have worked elsewhere” (Firoz Frank, Institution B). • “As a result of not having launched a great many products in this market, the company doesn’t have a lot of experience of product failures within the market” (Eugene Ericson, Institution B). • The company “learns through failures” (Kristien Khumalo, Institution C). • Failure is a good thing: we “introduced something, saw that it wasn’t working and stopped it” (Kristien Khumalo, Institution C). 	<ul style="list-style-type: none"> • “Failure is a good thing” (Lindiwe Landa, Institution D). • “Failure is based on not meeting customers’ needs” (Ollie Odendaal, Institution E). • We “have to have failures in order to learn from them” (Sarah Sithole, Institution H). • “Failure is a part of daily life! If it doesn’t work out, we change it and carry on” (Quinton Quinlan, Institution G).

Table 15: Effects of experimentation failure

A number of positive and negative learnings arose as a result of failures in the financial institutions. For the larger institutions, positive learnings as a result of failures included them recognising that they need to do more research on the customer base to get “an upfront view of what the market wants” (Donovan Dlamini, Institution A) prior to product design and development. An additional

positive learning was that going forward, they should try to get a product offering into the market and “not over plan it but rather fix it while its out there” (Alice Amber, Institution A).

A negative learning that resulted from a failure in a large organisation is the identification that the “processes are so complex and expensive that the product becomes marginal” (Howard Hefner, Institution B). This would imply that the company would have to achieve scale and volumes to maintain profitability within this market. The complexity of the processes within the larger institutions is likely to be due to the structure or degree of order imposed on the organisation. Structure can be described as the system of rules, levels of hierarchy, fixed roles, and separate compartments within an organisation (Jones, 2000). Large organisations have higher levels of structure and hierarchy (which increase the levels of bureaucracy) than small organisations. This identification of the complexity of processes and bureaucracy represents a negative learning as large organisations are not necessarily able to easily change this set of circumstances to improve future experimentation.

For the niche institutions, positive learnings that were incurred as a result of failures include that “risk governance is critical” (Lindiwe Landa, Institution D); that they “should get rid of bad ideas early on” and not pursue something that is not going to work (Sarah Sithole, Institution H); and they have the ability to keep changing a product offering “until it is successful and amend it based on customer feedback” (Ryan Rakoma, Institution G). Companies often underestimate the cost

savings of early experimentation that could result in information and team interactions that in turn could lower downstream expenses. Studies of product development have shown that late stage problems can be as high as 100 times as costly as early stage problems. The reasons for this are that as development time passes and project commitment increases, the average cost and time of making changes rises exponentially (Thomke, 2003).

A negative learning emanating from failures in the niche institution is failure could be the result of “commitment to the product” not being “wholehearted and buy-in is not there” (Ollie Odendaal, Institution E).

Learnings from failures	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • We “need to have more of an upfront view of what the market wants” (Donovan Dlamini, Institution A). • We “designed a product and it looked good but didn’t do enough research on the customer base” (Ian Ismail, Institution C). • We “should have just tried to get it out there and not over plan it but rather fix it while its out there” (Alice Amber, Institution A), • The “processes are so complex and expensive that the product becomes marginal” (Howard Hefner, Institution B). 	<ul style="list-style-type: none"> • “Risk governance is critical” (Lindiwe Landa, Institution D). • “Commitment to the product wasn’t wholehearted and buy-in is not there” (Ollie Odendaal, Institution E). • “We will keep changing it until it is successful and amend it based on customer feedback” (Ryan Rakoma, Institution G). • “We should’ve launched a scaled down version of the product and added features to it” (Ryan Rakoma, Institution G). • You “should get rid of bad ideas early on – don’t pursue something that is not going to work” (Sarah Sithole, Institution H).

Table 16: Learnings from failure in financial institutions

The remarks provided by both the large and smaller, niche institutions reveal that the institutions have identified that they should release a scaled down, beta version of a product offering into the market and gain insights and learning about the product and market needs whilst the product is in pilot. These learnings can then be utilised to improve the product offering and add additional functionality based on market demand. The institutions also revealed that they have the capability to identify when something isn't working, and amend it illustrating that they would be able to handle and manage the above situation.

The above remarks are in keeping with Thomke's thoughts that failure is an important component of experimentation, is as important as success and provides an opportunity for learning. Experiments that result in failure are not failed experiments, but rather provide new information that an institution was unable to foresee or predict and thus results in learning (Thomke, 2003).

When experiments reveal what does and does not work, the inevitable happens: novel ideas and concepts fail. Early failures are not only desirable but also needed to eliminate unfavourable options quickly and build on the learning they generate. Thomke advocates that firms should fail early and often and that the faster the experimentation–failure cycle, the more feedback can be gathered and incorporated into new rounds of testing (Thomke, 2003). This same principle is identified in the above remarks by interview respondents in which it is stated that “should get rid of bad ideas early on” (Sarah Sithole, Institution H).

Failure and experimentation however needs to take place within the strategic context of the financial institution and will be discussed in the following section.

5.4 The Strategic Context Framing the Experimentation Process

Interviewees were asked various questions during the ethnographic interview that would provide some insight into the strategic context framing the experimentation process within their respective organisations. Due to the fact that experimentation is expensive and risky, organisations need some form of insurance against failure. This insurance is provided by the strategic context of an organisation. For larger institutions that have core banking products that cater to the first world economy, it is likely that catering to the needs of the unbanked and underbanked is a peripheral activity and merely an additional revenue stream. For these large financial institutions, providing products to the bottom of the pyramid is less strategic. This results in the larger institution being less experimental and adventurous and rather engaging in more desktop research and having limited engagement with customers. On the other hand, for the niche institutions that developed out of the financial needs and opportunities in the second economy, the lower end of market is critical to the survival of the institution. One assumes then that the smaller financial institutions are more willing and able to experiment with products for the unbanked and underbanked.

The strategic context framing the experimentation process was initially explored by assessing what financial institutions are trying to achieve in the underbanked and

unbanked market; before focussing on how new product ideas for the market are generated, and whether institutions take a departmental or project approach to implementing products.

5.4.1 What Financial Institutions are Trying to Achieve

The large financial institutions revealed that they are “trying to formalise the informal economy” (Alice Amber, Institution A) and move the underbanked and unbanked market to the formal banking system. The large organisations want “to build sustainable economies” (Alice Amber, Institution A). The niche institutions on the other hand want to “help the unbanked” (Lindiwe Landa, Institution D) and “make it better for the customer” (Martin Mokoto, Institution D). Large institutions mainly see the impact of experimentation in the lower end of the market as impacting the larger society and economy whereas niche players see experimentation within this market as part of who they are and an opportunity to help customers:

What financial institutions are trying to achieve in this market	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • We are “trying to formalise the informal economy” (Alice Amber, Institution A). • It was stated that the vision of the company is “to build sustainable economies by playing a role as a financial institution but also being able to service the market as cheaply as possible” (Alice Amber, Institution A). • “By providing these individuals with funds, you hopefully move them to the formal banked system” (Eugene Ericson, Institution 	<ul style="list-style-type: none"> • “The purpose of the company is to help the unbanked when no one less wanted to” (Lindiwe Landa, Institution D). • “The company has a different mentality”, the company wants to “make it better for the customer” and is “not necessarily profit driven” (Martin Mokoto, Institution D). • The company is “trying to reach the unbanked market who don’t have bank accounts and carry cash” (Patricia Pillay,

What financial institutions are trying to achieve in this market	
Large Financial Institutions	Niche Financial Institutions
<p>B).</p> <ul style="list-style-type: none"> We are “offering customers the opportunity for a relationship with a formal bank and contribute to the growth of their house and community” (Kristien Khumalo, Institution C). 	<p>Institution F).</p> <ul style="list-style-type: none"> “We don’t want to make money at the expense of the customer” (Sarah Sithole, Institution H). “If we can successfully be a financial friend to people who are suffering, they will keep coming back to us” (Quinton Quinlan, Institution G).

Table 17: What financial institutions are trying to achieve in this market

Coupled with the earlier findings that niche institutions conduct focus groups to determine customer needs and build close, trusting relationships with their customers, the above comments once again provide evidence that the smaller, niche financial institutions emphasis customer intimacy as helping the bottom of the pyramid and encompasses the core of the institutions’ strategy and business. This strengthens the argument that niche institutions are more in tune with customers needs and are thus more responsive to customer requirements than larger institutions.

5.4.2 The Formation of an Idea

An innovation is a new idea which may be a recombination of old ideas, a scheme that challenges the present order or a unique approach which is perceived as new by the individuals involved. As long as the idea is perceived as new to the people involved, it is an “innovation” (Van de Ven, 1986). The financial organisations were probed about where their companies got the initial idea for new products catering

to the unbanked or underbanked market. New ideas are the most important source of innovations and it is necessary to help secure a company's market success (Vermeulen, 2004).

The large financial institutions maintain that completely new business ideas are not possible, that there is very little room for innovation and there are only so many things you can do in banking. Both the large and small organisations disclosed that the product offerings that they were providing weren't necessarily unique. Product offerings are thus usually a reconfiguration of a number of ideas from a number of places in a unique way. Opportunities for innovation are seen to be the technology that is executed, process, delivery, distribution and the way in which customers are engaged. A niche financial institution however affirmed that for their company, innovation is about meeting customers' needs and is about what customers want.

In general, the large financial institutions revealed that they researched what business models and ideas were working in international settings and assessed product usage of their customers to get ideas for products for the unbanked and underbanked market. "Desktop research on international markets was conducted on environments that are similar to South Africa" (Alice Amber, Institution A) and the institutions tried to "gain come customer insights by reviewing what products customers are using, what they are not using and how customers structured their financial lives" (Donovan Dlamini, Institution A). They also indicated "a lot of industry innovation comes from outside the industry" (Eugene Ericson, Institution B).

The niche financial institutions on the other hand disclosed that “most ideas come from within” the company (Patricia Pillay, Institution F). Additionally, they “commence research for a new product with talking to customers and trying to determine customer usage and attitudes, what customers like and what they feel they are missing” (Lindiwe Landa, Institution D). Idea generation within niche institutions can thus be said to be driven and supported by the institutions’ customer intimacy strategy which is maintained through continuous focus groups and surveys and development of long term, trusting relationships with customers.

Formation of new product ideas	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • The company “did a lot of desktop research to gain a better understanding of this market” (Alice Amber, Institution A). • The company is “trying to gain come customer insights by reviewing what products customers are using, what they are not using and how customers structured their financial lives” (Donovan Dlamini, Institution A). • “Desktop research on international markets was conducted on environments that are similar to South Africa” (Alice Amber, Institution A). • We “studied and assessed what other emerging and developing markets were doing in this space and focussed on models of countries that have a similar demographic profile to South Africa” (Eugene Ericson, Institution B). • “Ideas arise from a variety of places that incorporate things happening in the market, customer complaints, research, competitors 	<ul style="list-style-type: none"> • We “commence research for a new product with talking to customers and trying to determine customer usage and attitudes, what customers like and what they feel they are missing” (Lindiwe Landa, Institution D). • We “conduct focus groups and surveys” (Ollie Odendaal, Institution E). • The idea was generated by “one specific person” and “most ideas come from within” the company (Patricia Pillay, Institution F). • We usually get ideas from “people within the company” (Sarah Sithole, Institution H). • “Ideas arise from the management team or the branch managers” (Quinton Quinlan, Institution G).

Formation of new product ideas	
Large Financial Institutions	Niche Financial Institutions
<p>and newspapers. Research is then conducted on various ideas, internal and external databases are searched for additional information and other countries are reviewed to define a possible product offering” (Ian Ismail, Institution C).</p> <ul style="list-style-type: none"> • “A lot of industry innovation comes from outside the industry” (external companies that approach the company regarding new ideas or innovations) (Eugene Ericson, Institution B). 	

Table 18: The formation of a new product idea

The larger players in this market tend to look for ideas in a variety of places whereas the niche players tend to focus their efforts of idea creation on asking customers what they want. This could be due to the fact that larger institutions tend to have more resources and so are thus able to investigate a larger number of areas in order to generate ideas or that customers in this market are aware of their needs and can articulate them to such an extent that they provide niche institutions with profitable products. Once again, it would appear that some of the large institutions are hesitant to engage with the customer directly, which could be as a result of catering to the bottom of the market not being a part of the core strategy or capability of the institution.

5.4.3 Taking a Departmental or Project Approach to New Product Development

5.4.3.1 Experimenting Departments within Financial Institutions

All organisations interviewed (except for two of the niche financial institutions) had a department dedicated to new product development. In the case of the larger institutions, the department or division was either involved in new product development with a special interest in products for the bottom of the pyramid or a specialist department focusing on, and dedicated to, products for this market. The smaller, niche players had pure innovation driven, customer solution or new product development departments.

By having departments dedicated to new product development or the unbanked and underbanked further strengthens the argument that both the large and small financial players see catering to the needs of the lower end of the market as a strategic imperative. However the degree to which this strategic imperative is part of the core of peripheral strategy of an organisation will influence the level of and capability of the resources dedicated to new product developments and experimentations, and the prioritisation of the new product developments within the organisation.

5.4.3.2 Product Development Projects within Financial Institutions

All organisations pointed out that they managed the process of designing, developing and implementing new products through projects and the respective project management principles and governance structures.

Project teams for the large institutions were described as multidisciplinary and assembled from a number of available resources within different disciplines and departments (in other words marketing, human resources, information technology) to bring specific products to fulfilment. In contrast, the niche institutions indicated that a “project team is assigned based on capability not availability” (Patricia Pillay, Institution F). Resources within the niche institutions were from either a dedicated product project team or were assembled from the various relevant disciplines and departments based on the skills or capabilities required.

Product development project teams	
Large Financial Institutions	Niche Financial Institutions
<ul style="list-style-type: none"> • We “use other departments to supplement our project teams, and have to use people that are provided” (Bruce Bradley, Institution A). • The project team comprises “resources from all over the bank and those areas will allocate people based on who is available” (Donovan Dlamini, Institution A). • For projects we “get the available support services person but it depends on the business unit and their capacity” (Kristien Khumalo, Institution C). 	<ul style="list-style-type: none"> • “We use the best people for the job based on their capabilities” (Quinton Quinlan, Institution G) • “We have dedicated product project teams with specialities” (Quinton Quinlan, Institution G). • A “project team is assigned based on capability not availability” (Patricia Pillay, Institution F).

Table 19: Product development project teams

The large institutions are forced to make use of available resources from a number of different departments in order to bring a product project to fruition. These resources are not necessarily always the most capable for the project. This would imply that as a result of having to use different resources all the time, these resources might not be that open to experimentation and the possibility of failure. On the other hand, niche institutions have limited resources and potentially use the same resource repeatedly so it is easier to build a culture of experimentation and openness to failure.

The above statements reveal that innovating within a large financial institution may be more difficult than innovating within a smaller institution. Large organisations are characterised by entrenched routines and risk averse cultures making entrepreneurship within the institution more difficult.

The results expressed thus far in this report have indicated that financial institutions both large and niche, tend to follow a similar process for innovating and experimenting to provide products to the lower end of the pyramid. This process is more elaborate than the four step experimentation process suggested by Stefan Thomke potentially due to the fact that South Africa is a developing market and is characterised by a dual economy, with both a first and third world markets. Thomke's process also fails to consider the impact of an institutions' strategic context or capabilities on the experimentation cycles.

It was also indicated that financial institutions tend to make use of financial modelling and pilots as their modes of experimentation. Moreover these institutions are subject to the effects and costs of experimentation.

6 CHAPTER 6: DISCUSSION OF RESULTS

Experimentation matters because it fuels discovery and the creation of knowledge thereby leading to the development and improvement of products, processes, systems and organisations. Experimentation can shape new ideas by reinforcing, modifying or complementing existing knowledge. Experimentation, although essential to innovation, is often expensive in terms of time involved and labour expended (Thomke, 2003; Thomke, 2001). Despite this however, financial institutions, both large and small, engage in experimentation when innovating and providing new product offerings to the unbanked and underbanked markets by engaging in a number of activities or process steps.

6.1 Towards an Experimentation Model for Financial Institutions in Developing Economies

It was previously indicated that Thomke's four step experimentation process presented a number of opportunities for enhancements that included it having been largely created with developed markets in mind, it being mechanistic in nature and not considering the potential impact of a company's capabilities, routines and strategic context on the experimentation process. Additionally, South African financial institutions operate in an environment characterised by a dual economy consisting of both first and third world markets. These areas of enhancement

regarding Thomke's experimentation process could explain why South African financial institutions follow an eleven step process as opposed to a four step process.

6.2 The Process of Developing and Launching a Product through Experimentation

Thomke, a well known author on the topic of experimentation, developed a four step experimentation process. An objective of this research was to develop an experimentation process model in contrast to the Thomke's process model, which is more appropriate to financial institutions operating with the South African developing, dual economy.

As previously presented, the eleven themes or process steps identified during respondent interviews were grouped into six phases, four of which are in line with Thomke's four step experimentation process (as per the figure below). Important differences or enhancements to Thomke's model was the emphasis placed by the financial institutions on idea generation and the approval or screening of ideas, and the commercialisation of a product offering.

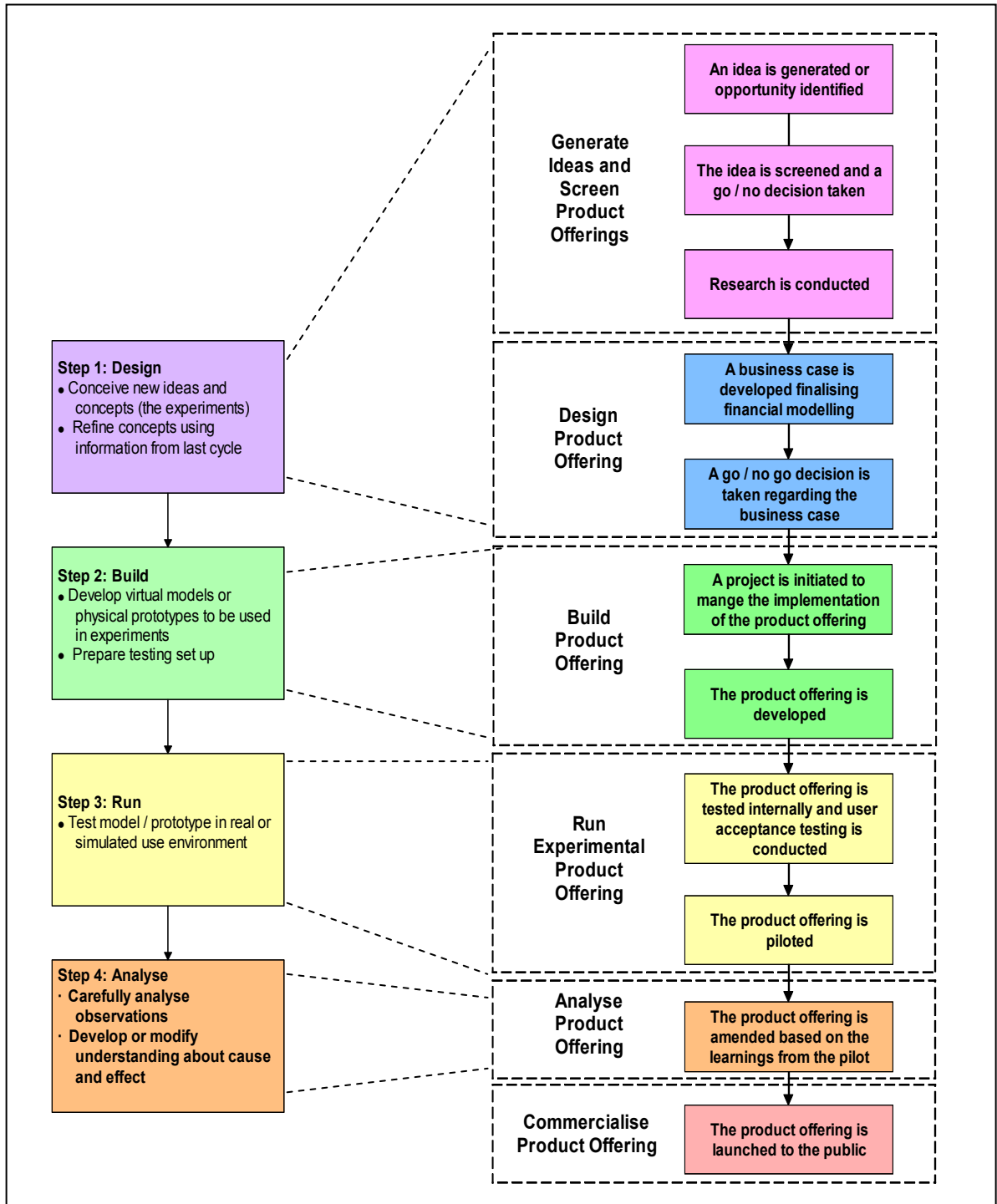


Figure 6: Towards an enhanced experimentation process model

A number of different approaches exist with regard to the processes followed to design, develop, implement and experiment with products for the unbanked and underbanked markets as indicated by the various financial institutions interviewed. Based on the responses from the financial institutions, and the enumeration exercise conducted for the processes followed by these institutions, eleven common process steps were identified. These common process steps and the potential enhancement opportunities to Thomke's experimentation process were utilised to develop an experimentation process approach for financial services in a developing market which is recommended and discussed below:

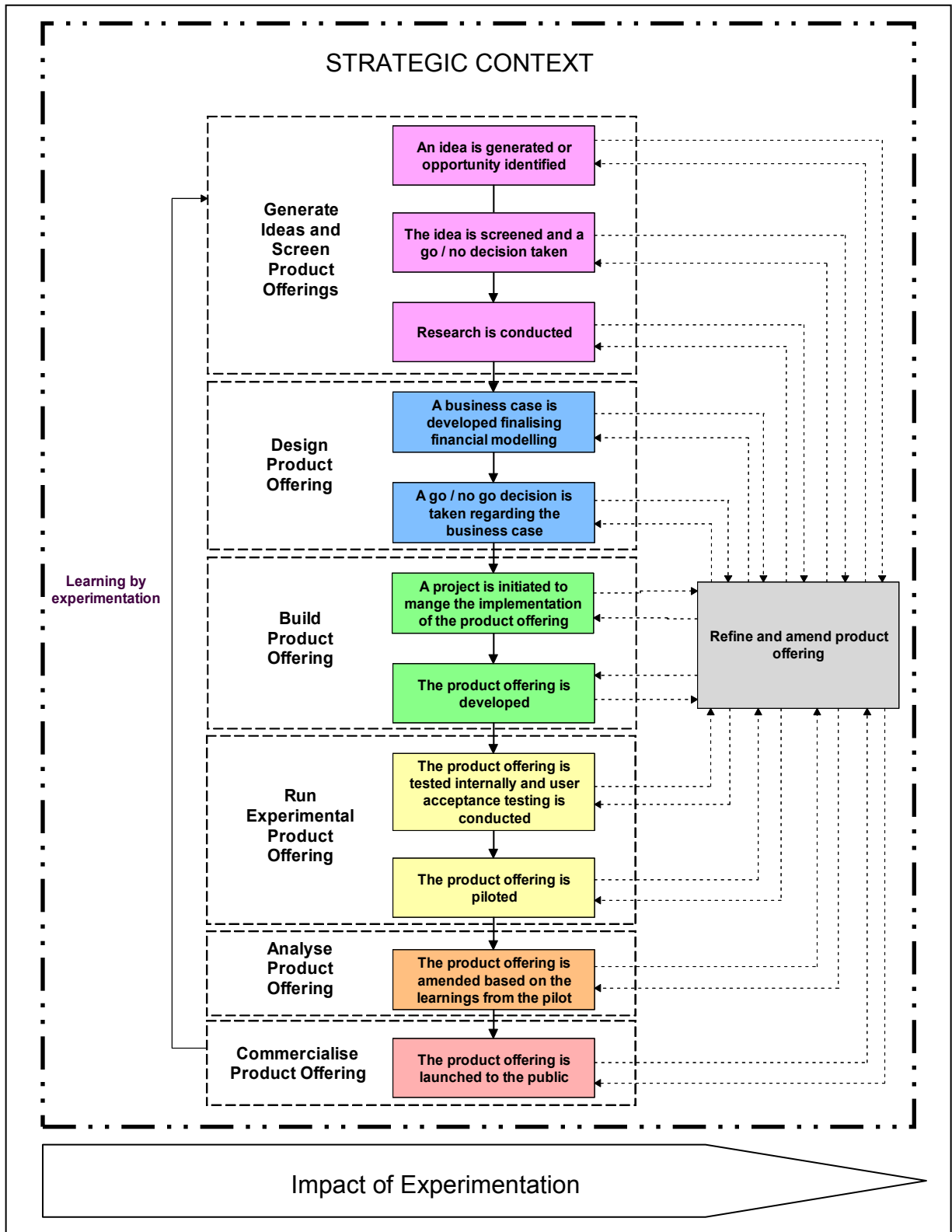


Figure 7: An experimentation process model for developing markets

Both large and niche financial institutions operating within a developing economy can utilise the above developed model to manage their experimentation processes. Institutions can progress through the six outlined categories or phases which include the generating and screening of ideas for potential product offerings, designing the product offering, building the product offering, running the experimental product offering, analysing the results of the experiment and commercialising the product offering to the targeted market. Each of these phases will be discussed in turn.

6.2.1 Generate Ideas and Screen Product Offerings

Experimentation is required to eliminate unfavourable options quickly and build on the learning they generate. As such, part of the experimentation process involves idea generation and the narrowing down of ideas via a filtering and screening process. Institutions can generate ideas from a number of places such as - amongst other things - customer focus groups and surveys; desktop research on international organisations and their product offerings; conversing with employees; reviews of local and international market research; and legislation.

These ideas have to be screened and narrowed down which involves weighing up ideas' pros and cons to weed out ideas that lack potential or that are not aligned to the institution's strategy or capabilities. Any ideas that do not make it past this first

stage gate, are removed early from the experimentation process and won't result in unnecessary resource and time wastage.

Research may need to be conducted once an idea has been approved in principle to further elaborate on the market size, market expectations, pricing requirements, and competitor product offerings. This research can be utilised for the design phase of the experimentation process and provide input into financial modelling and the product business case.

This category is aligned to Thomke's step one of his experimentation process in which he indicates that new ideas and concepts are conceived during this design phase. This category within the suggested, improved experimentation model however additionally indicates the importance of the screening of the ideas once they have been conceived. Ideas that make it through screening should be followed by research, both internal and external, to the firm to validate the idea and confirm various elements relating to the idea's viability.

6.2.2 Design Product Offering

During the design phase of the suggested experimentation process model, extensive financial modelling can be conducted to determine the pricing and costs related to the proposed product offering. An extensive business case can be drafted that should justify the resources and capital investment necessary to bring the proposed product offering to fruition. Additionally, the business case should

also indicate why the product offering is needed; the scope of the product offering; the timelines required to fully implement the product; how the proposed product is aligned to the strategy and capabilities of the company; and the anticipated benefits and risks associated with the product. Based on the business case, a decision will be taken by the necessary parties, as governed by the governance structures, as to whether or not to pursue the proposed product offering.

Once again, this phase of the suggested experimentation model is an extension of step one of Thomke's process, however it highlights that a business case is developed to outline the design of the proposed product offering and that once again, a decision has to be taken regarding the implementation of the product offering. This 'go / no go' decision can be based on the product offering's alignment to the strategy of the firm, alignment to the needs of the targeted market and the firm's resource and organisational capabilities.

6.2.3 Build Product Offering

Should the business case detailing the proposed product offering be approved, the institution can move to the build phase of the experimentation process. During this phase, a project will be initiated to manage the design, development and implementation of the product offering. Major resources are committed via the project to fully develop or refine the new product.

This phase of the suggested experimentation model is similar to Thomke's step two of his experimentation process. Thomke indicates that during this step, the physical or virtual prototypes and testing apparatus that are needed to conduct an experiment (namely the product offering) are built (Thomke, 2003). Similarly to Thomke, the product offering that will be tested is built and developed whilst being executed through a project, which is viewed as a fast and flexible means to manage innovation and the experimentation process.

6.2.4 Run Experimental Product Offering

Once development on the product offering is complete, the product is tested internally and user acceptance testing is conducted to ensure that the product offering works operationally. A trial product is usually released to a limited set of customers through a pilot to test the operational functioning of the product offering in the targeted market.

Thomke, in his step three states that during this phase, the experimental product offering is run in a laboratory or real setting (Thomke, 2003). Product offerings in this context are piloted and run through a real setting to gain insights about the product and the market which is aligned to Thomke's writings regarding step three.

6.2.5 Analyse Product Offering

Financial institutions will analyse the results of the experimental pilot and compare it to the expected outcome during this phase. An adjustment of understanding of what is under investigation may take place. If analysis shows that the results of the initial experiment are not satisfactory, institutions may at this stage elect to modify the experiment and iterate or try again. In other words, the product offering is amended based on the learnings from the pilot.

This phase of the proposed, improved experimentation model is aligned to and no different to Thomke's fourth and final step in his experimentation process.

6.2.6 Commercialise Product Offering

The research findings have revealed that if the market demand was considered attractive enough and the internal resources of the institution have been mobilised, the learnings from the pilot can be applied to the product offering. At this stage, the product offering is considered ready for commercialisation and is fully launched to the targeted market.

Thomke's four step experimentation process does not make provision for an additional step of commercialisation and launch of a product offering to the wider market. Analysis of the interview responses has highlighted that product commercialisation cannot be decoupled from the innovation and experimentation process undertaken by financial institutions and should be included in an

experimentation process. The suggested six phase experimentation model takes cognisance of these identified nuances and differences to Thomke's experimentation process and incorporates these findings.

6.2.7 Refine and Amend Product Offering

What Thomke's model additionally does not cater for is that the product offering is being refined and adjusted throughout the innovative experimentation lifecycle. As previously emphasised, Thomke indicates that his four step experimentation process comprises iterative experimentation cycles that are repeated many times. Thomke's process states that an organisation should go through each step of the experimentation process from step one to four, and then iterate or move to step one and complete the experimentation cycle again.

Findings from this research identified that product offerings developed for the bottom of the pyramid, within the context of a developing economy, tend to *evolve* throughout the lifecycle of the product from idea generation to full commercialisation. This means that although the financial institutions may progress through the experimentation process steps and iterate or move to step one again once the experimentation cycle is complete, they potentially also move back and forth between the steps during the experimentation cycle. This back and forth movement *between* the steps in the experimentation cycle allows the product offering to evolve and change during the experimentation process. This implies that the product ultimately launched could be different to the idea that was initially

generated regarding the product offering and there is both backward and forward movement occurring as past product or service decisions are revisited throughout the experimentation cycle.

6.2.8 Strategic Context and Impact of Experimentation

The model proposed above provides additional insights and nuances to Thomke's four step experimentation process by indicating that the experimentation process takes place within the strategic context of the financial institutions and results in certain impacts – such as context specific costs and barriers to experimentation which will be discussed in more detail further in this report.

A new experimentation process has been proposed as an improvement to Thomke's four step experimentation process which has made provision for a number of nuances and highlighted differences that companies within developing markets experience when experimenting with products for the bottom of the pyramid. The improved experimentation process model categorises eleven process steps into six phases that companies can progress through in order to amend and refine their product offerings as they evolve. Additionally, organisations engaging in experimentation should be cognisant of the strategic context in which the process takes place, the effects of experimentation on the organisation and the evolving nature of the product offering.

6.3 The Evolution of a Product

Additional significant themes were disclosed during the interviews that included determining customers' wants and needs, developing and implementing products to meet these customer needs and the iterative process that is required for experimentation. The improved experimentation process model differs from Thomke's four step experimentation process in that it identified the evolution of the product offering as an important component of the experimentation process.

Product offerings are continually being refined and amended throughout the experimentation process with iterations occurring to improve learning. The experimentation process model can be iterated numerous times to ensure that a product, if commercialised, is based on and meets the customer needs of the unbanked and underbanked markets.

6.3.1.1 *Customer Needs and Wants*

Innovation is opportunity driven with an opportunity being a value creating link between potential customer needs and emerging business and technological capabilities (Verloop, 2004). Both the large and small financial institutions are trying to build this value creating link by providing basic, uncomplicated products catering to the bottom of the pyramid's need for simplicity. Additionally, it was revealed during interviews with financial institutions that a further way to create this value creating link was to provide products that offer accessibility and affordability.

Developing a thorough understanding of the market and customers needs is critical to the success of new product offering. The key themes that pervade various literature regarding the needs of the unbanked and underbanked include such items as ease of access, affordability, personalised service in the clients' home language whenever possible, simplicity, products that provide liquidity, and fee transparency (Jacob and Tescher, 2006; Herrmann, Schütte and Schneider, 2008; Arora and Leach, 2005). The findings from the research revealed that financial institutions operating in South Africa are trying to meet similar, if not identical, needs to the ones identified above, that include affordability, accessibility, dignity, simplicity and improved quality of life.

The conducted research provided some valuable insights into the potential customer needs for the bottom of the pyramid and how large and niche financial organisations obtain information on customers' needs. The research has shown that large firms do not undertake thorough market assessments as they believe that "customers don't always know what they want and the company designs what they think customers want" (Ian Ismail, Institution C). Coupled to this, is that the large institutions do not systematically infuse these customer inputs throughout their product development processes. It is possible then, that new products introduced in a large financial institution may fail because they don't focus enough on the customer. Numerous reasons can be offered to explain this lack of concern for customers needs which include lack of discipline, time and resource pressures, an unsupportive culture and disappointing previous experiences. A frequent excuse is that customers are difficult to predict as they are sometimes unable to

express what they want and their needs change as they learn to use a new product (Adams, Day and Dougherty, 1998; Mckeon, and Kandybin, 2006).

Small, niche institutions value customer relationships and conduct customer focus groups and surveys to gain a better understanding of the needs of the lower end of the pyramid. Niche institutions thus believe that customers are aware of what their wants are. The large institutions may believe that customer are not aware of what their wants are and so focus their efforts of determining the needs of the lower end of the pyramid on desktop research and international models. This may be the result of the large institutions culture and inculcated routines making the employee base resistant to providing products to a new customer base of which they are uncertain.

6.3.2 The Iterative New Product Experimentation Process

Both the large and the niche financial organisations confirmed that the “implementation process is an iterative process” and “it’s a test and learn environment” (Alice Amber, Institution A). “By experimenting....the company gains a better understanding of what we currently don’t know about a product” (Eugene Ericson, Institution B).The iterative nature of experimentation allows organisations to “refine the product, processes and strategic thinking along the way” (Patricia Pillay, Institution F).

According to Thomke (2003, p92), “the process of experimentation typically begins by selecting or creating one or more possible solution concepts, which may or may not include the best possible solutions” as no one knows what the best solutions are in advance. Solution concepts are then tested against an array of requirements and constraints. These efforts or trials yield new information and learning, in particular about the aspects of the outcome that organisations did not know or foresee in advance. Experimentation test outcomes are used to revise and refine the solutions under development towards an acceptable resultant product offering (Thomke, 2003).

The financial organisations confirmed Thomke’s thoughts surrounding the iterative nature of the experimentation process. Most of the financial firms provided feedback indicating that iteration was a component of their new product development process. They further indicated that “our product offerings evolve all the time” (Quinton Quinlan, Institution G) and a “product evolves from idea generation to implementation” (Donovan Dlamini, Institution A). This would imply that experimentation outcomes and learnings are used to refine and amend products and the offerings change during design, development and implementation.

6.4 Modes of Experimentation Followed by Financial Institutions

Central to experimentation is the use of models, prototypes, proof of concepts, controlled environments, pilots, and computer simulations that allow individuals to

reflect, improvise and evaluate the innovative ideas that are generated in organisations. These modes of experimentation allow organisation to learn by trying things out. Thomke (2003) has indicated that financial institutions now use computer simulation and financial modelling to test new financial instruments and products. This was clearly indicated by the financial institutions in which at least nine of the interviewees indicated that they make use of financial modelling to determine the capital expenditure, costs and pricing of new product offerings.

Piloting was indicated by every interviewee as a mode of experimentation used and presents an experimental or a preliminary trial or test used to lead, steer, or guide a product or service offering through unknown territory to a solution, prior to full implementation. Both the large and small financial institutions tend to conduct pilots with a limited, controlled exposure to the targeted market to test the market and operational functionality of the product and its processes. Pilots are viewed by the institutions as a test environment in which they are still learning about a product offering and in which refinements can be made to the product.

Innovation is inherently risky and piloting offers a way to manage this risk (Jones and Samalionis, 2008). The reasons that the financial institutions would engage in piloting include wanting to confirm expected results and relationships, improve product offerings and their implementation, lower the risk of failure, increase opportunities for feedback, increase buy in and quickly deliver a version of a product to a particular market segment (Stroud, 2008).

6.5 The Impact of Experimentation on Financial Institutions

The impact of experimentation on financial institutions in terms of costs and the effects of experimentation failure was assessed during interviews. It was indicated during the interviews that as a result of not having launched that many products into this market, the industry is still learning and doesn't necessarily have a lot of experience in failures and experimentation in this market. A number of costs and effects of experimentation were however identified which occur as a result of operating within the routines and capabilities of an organisation. The various costs and effects of experimentation will now be discussed.

6.5.1 Costs of and Barriers to Experimentation in Financial Institutions

The costs of, and barriers to, experimentation can often limit innovation as revealed in the previous section. Previously it was also indicated that potential costs of experimentation could be the alienation of customers, an affected organisation reputation, reduced business, and dissatisfaction among employees (Lee *et al*, 2004). In the case of the various respondents interviewed, a number of costs and barriers were identified that limit innovation in financial institutions that are different to the ones identified by literature. These include having to function within the governance structures of the company, having a conservative culture and justifying innovation and new products in financial institutions, prioritising within financial institutions, and constraining information technology. Each of these will be analysed in more detail.

6.5.1.1 *Functioning within the Governance Structures of the Company*

Innovation is inherently risky and even large organisations cannot take unlimited risks. It is thus essential that some selection is made of the various market and technological innovation opportunities, and that the choices made fit with the overall business strategy of the organisation, and build upon established areas of technical and marketing competence. The research revealed that organisations that innovate in the market under investigation have an integrated process in place to manage experimentation that involves generating new ideas, evaluating them, taking the best ones forward and managing new product launches to achieve profitability. This integrated process was defined by the interviewees as the organisation's governance structures. Despite the fact that the various financial institutions indicated that governance structures was viewed as a cost of and potential barrier to innovation and experimentation, it is evident that some governance structures are required to ensure that innovative ideas are accurately filtered and aligned to the organisation's strategy. This applies to both large and smaller, niche organisations.

6.5.1.2 *A Conservative Culture*

It was uncovered during the research that large institutions tend to be characterised by a "resistance to change" (Carl Canter, Institution A) and are inclined towards being "very risk averse" (Eugene Ericson, Institution B). Additionally, the large financial institutions plan too much and "dot too many I's and cross too many T's" (Ian Ismail, Institution C). Experimentation requires a corporate

culture and attitudes that appreciate the role of failure in learning and innovation and do not necessarily plan too much (Thomke, 2003). It is evident from the results that the large institutions have a conservative culture that does not necessarily lend itself to pure innovation and isn't potentially open to failure.

The larger financial organisations provided evidence of a conservative culture and thus are more likely to have a fear of failure. A less conservative culture will have to be created which can be done by having a new product development team situated off-site from the rest of the organisation and be able to function under more streamlined governance structures, which are different to the rest of the organisation. The off-site department can also have rewards and incentives which operate outside those of the wider organisation and are linked to successes and failures. Failure linked rewards would encourage failures and could further the development of a less conservative culture in large organisations.

The smaller, niche financial institutions however appear to have created a culture that is open to learning and failure. This is potentially due to the fact that the niche institutions have less established routines making them less resistant to change and due to their size, more flexible and responsive to market changes.

6.5.1.3 Justifying Innovation

The research undertaken provided evidence that both the large and niche financial institutions struggle with having to justify innovation within their organisations. This

may be as a result of existing and entrenched routines. Routines enhance the orientation towards efficiency and thus it is understandable that financial institutions are cautious at accepting or coping with innovation and change, never mind capitalising on it. Reducing the fear of failure is an important challenge for institutions trying to create a culture conducive to innovation and experimentation. Institutions must become adept to identifying risk, finding ways to share risk and recognising that for innovation and experimentation to become a routine practise there will be projects and products that fail (Myers, 1984).

As indicated previously, whilst routines can help an organisation obtain efficiency, they can also occasionally give rise to suboptimal performance when they are transferred to inappropriate situations such as innovative new product development (Cohen and Bacdayan, 1994). In times of uncertainty, routines make an important contribution to an individual's ability to pick a course of action (Becker, 2004). This means that routines can make both a positive and negative contribution to innovation and new product development.

Developing products for the unbanked and underbanked market presents an uncertain undertaking in an uncertain environment. Both large and smaller organisations indicated above that they continually had to justify their existence or sell their new product development ideas to the rest of their companies. This could be as a result of the fact that employees of institutions revert back to known routines rather than accepting changes and developing new routines and thus continually have to be convinced of new product ideas. Employees reverting back

to known routines is probably more likely in the larger institutions, as routines within these contexts are usually more inculcated in the culture and structure of the organisation and employees are more likely to be risk averse.

6.5.1.4 *Prioritisation within Financial Institutions*

Prioritising projects and products for the bottom of the pyramid appeared to be an issue within both the large and niche financial institutions. The large and niche financial organisations provided confirmation that they “have to sell the ideas, both internally and externally” (Ian Ismail, Institution C) and that “even when you have people convinced, they still ask questions” (Lindiwe Landa, Institution D). This reveals that the large and small organisations are both continually having to justify innovation and new product development within their organisation irrespective of culture or strategic imperative.

As indicated earlier, product innovation is not at the top of the priority list of management and employees (Vermeulen, 2004). Priorities can be set based on assumed impact on the customer or level of alignment to strategic direction of the company (Thomke, 2003).

Providing products to the bottom of the pyramid is likely to form a peripheral strategic drive for the large institutions and given the conservative nature of the institutions, it is understandable that these products would not necessarily be considered a top priority. Alternatively, providing products to this market is usually

a core strategic driver of the niche financial institutions and thus prioritising products for the unbanked and underbanked is likely to be a lot easier than in the larger institutions. There potentially could be some hesitancy in the niche institutions regarding products for the unbanked and underbanked, despite a less conservative culture and openness to failure, as a result of bottom of the pyramid still presenting an uncertain market and little research regarding market demand being conducted in this space.

6.5.1.5 Constraining Information Technology (IT)

When organisations organise project teams for experimentation, misaligned objectives and resource constraints can become a major obstacle (Thomke, 2003). Information technology was uncovered as a constraint to innovation and experimentation with the larger financial institutions, indicating a greater problem with IT than the niche financial institutions. One niche institution stated that the “company believes that innovation is not necessarily high tech. Innovation is more about what is needed rather than what is high tech. Innovation comes from what customers want” (Lindiwe Landa, Institution D). This comment, as well as the larger institutions finding information technology to be a constraint, hints at the fact that the larger institutions are potentially relying too heavily on information technology to provide products to this end of the market and should rather be trying to provide simple, uncomplicated product offerings. Alternatively, it is possible that the IT resources are shared across all the product ranges of the large institution,

which in all likelihood have wider product ranges than the niche institutions and thus have more product and IT development release dates to be prioritised among.

6.5.2 Effects of Experimentation Failure in Financial Institutions

“Failure is a part of daily life! If it doesn’t work out, we change it and carry on” (Quinton Quinlan, Institution G). This is a response by one of the interviewees that encapsulates the effect of failure on all financial institutions. It was recognised by both the large and niche institutions that failure is a necessary part of the experimentation and innovation process. It was also identified by the institutions that should a product offering fail, they could amend and refine it until it met the requirements of the customers and market. This, in effect, shows that financial institutions are continually learning and are willing to experiment with products even when they have been commercialised.

According to Thomke (2003, p 2), “experimentation encompasses success and failure: it is an iterative process of understanding what doesn’t work and what does” with both results being equally important for learning. All experiments generate information which becomes input into additional experiments or is applied to the result – the intent of the experiment itself - or both (Thomke, 2003). The objective of any experiment is to learn from the experiment. Information assembled ultimately should lead to the development of new or improved products, services and processes that in turn will benefit the organisation.

In other words, both forms of institution provided evidence that should they be conducting an experiment in the form of a proof of concept pilot for a new product offering, any learnings gained from the pilot would be used as input into adjustments to be made to the project offering or adjustments to be made to other parts of the institution, be it processes, products, systems or strategy. Failure thus helps improve not only the product offering being piloted but also future potential product offerings or other areas of the organisation.

The impact of experimentation and effect of experimentation failure are applicable to financial institutions, in varying degrees, but irrespective of organisation size, market demand, information technology or organisational capability.

6.6 Organisation Size, Components of Innovation and Experimentation

Ability

Organisations need to develop new products, at least on occasion, to gain competitive advantage. The rate at which they are capable to develop these new products has been linked to performance and long-term survival. This is as true for small organisations as it is for large ones (De Jong and Vermeulen, 2004). Organisations are able to develop these new products required for longevity through innovation.

It was previously indicated that innovation should be conducted within the context of a strategic direction while being cognisant of certain components of innovation,

being market demand, organisational capabilities and information technology. Based on the findings from the interviews with various financial institutions there doesn't seem to be any noticeable differences between large and niche financial institutions regarding market demand (as all the financial institutions interviewed are trying to meet the needs of the lower end of the pyramid) and innovative capability. There were however some noticeable differences between large and niche financial institutions regarding information technology and organisational competencies or capabilities.

6.6.1 Organisation Size and Innovative Capability

It is usually accepted that small organisations are able to be more innovative, however some studies have disputed this and state that innovative capability is not necessarily linked to organisation size. (Acs and Audretsch, 1987; Soete, 1979; Sapprasert, 2008). Thus both large and small institutions have the capability to be innovative and evidence of this is that both large and niche financial institutions are innovating and experimenting in providing products for the unbanked and underbanked. There however exists certain inherent strengths in the structure and routines of the large and niche institutions which can be advantageous to experimentation. Large organisations have a bigger resource pool and greater efficiency which can be utilised for innovation whilst the smaller, niche institutions are more flexible and nimble in meeting the requirements of the market.

6.6.2 Organisation Size and Information Technology

A barrier to innovation and experimentation within financial institutions was indicated as information technology which can be considered a major bottleneck with respect to the innovative performance of these institutions (Vermeulen, 2004). The larger institutions tended to indicate a greater problem with information technology than the smaller institutions. Interestingly, information technology (IT) according to literature continues to be integral to creating products and delivering services, as well as being a critical enabler of business strategy execution (Jarvenpaa and Knoll, 1994). Information technology creates advantage by leveraging or exploiting pre-existing complementary human and business resources. Although this may be true for the smaller, niche financial institutions, it does not appear to be correct for the large financial institutions as indicated by one of the interviewees: “we usually struggle for prioritisation with IT” and “the IT capacity required slows down the process” (Alice Amber, Institution A).

Potential reasons for why information technology is considered a constraint in the large financial institutions could be that these organisations are making use of legacy systems or as a result of a number of acquisitions, are having to deal with integration issues between a number of smaller systems. It should also be kept in mind that an information technology department within a large organisation is shared across the entire organisation and thus new experimental products have to compete for development requests and prioritisation with other departments with more reliable outcomes. New product developments in the smaller institutions are

most likely at the top of the hierarchy for IT requests as developing new products is viewed as a core strategy and thus seen as a valid investment.

6.6.3 Organisation Size and Competencies

Successful product innovation demands that an organisation exploit its existing competencies. A competence or capability was described as the knowledge, skills, and related routines that constitute a firm's ability to create and deliver superior customer value. Large and niche financial institutions are operating in the uncertain environment of the bottom of the pyramid and trying to provide products to this market that meet customers' needs. This can be achieved through competence exploration which refers to the tendency of an organisation to invest resources to acquire entirely new knowledge, skills, and processes. Its objective is to attain flexibility and novelty in product innovation through increased variation and experimentation and it involves experimentation with new alternatives that have uncertain and distant returns (Atuahene-Gima, 2005).

Organisation size thus doesn't appear to affect organisation capabilities, as both large and niche institutions are trying to develop the necessary knowledge, skill, processes and capabilities to meet the needs of the bottom of the pyramid. However, they would tend to acquire these capabilities differently. Niche organisations tend to build capability in customer intimacy whilst large organisations tend to build capability in efficiency through established routines.

Regarding the components of innovation, organisation size only impacts information technology and organisation capability whilst market demand appears to be unaffected. In addition to the similarities in market demand, the large and niche financial institutions also follow a similar process of experimentation for designing, developing and implementing products for the unbanked and underbanked.

6.7 Defining the Differences between Large and Small Financial Institutions

A number of commonalities have been identified between the large and smaller, niche financial institutions that are catering to the needs of the bottom of the pyramid. These commonalities include both types of organisation trying to meet the same market demand and following the same process of experimentation for designing, developing and implementing products for the unbanked and underbanked.

The differences between the large and niche financial institutions are more pronounced. Large financial institutions are characterised by structure and hierarchical bureaucracy which help to manage the size and number of resources within the organisation, however potentially add to the inflexibility and rigidity of the firm. The large institutions are likely to pursue the bottom of the pyramid as a peripheral activity as a result of the core of their business profitability being generated by the middle and upper classes of the country. Little focus is thus

provided to the bottom of the pyramid, which represents an uncertain market. Over and above this, the central resources have to be shared across the entire organisation and new product development projects are probably continually competing against other business priorities for resources. Additionally, the large institutions tend to have conservative, risk averse cultures that inhibit innovation. Routines, or patterns of behaviour, provide large institutions with the advantage of efficiency; however also provide an additional hindrance to innovation and experimentation due to structural inertia.

Innovation within large institutions is thus not easy due to culture, hierarchical bureaucracy and routine-induced structural inertia, however larger institutions have the benefit of enormous financial and technological capabilities which they can harness for the purposes of innovation. Another benefit which the large financial institutions have over small institutions is that they have economies of scope to spread the risks of new product offerings making them less vulnerable to the failure of a particular product development.

In comparison, the smaller, niche financial institutions emerged out of a need that existed at the bottom of the pyramid that the formal, large financial institutions traditionally ignored. Providing products that meet the needs of the bottom of the pyramid thus forms the core of the strategic intent of niche institutions. Being core to strategy, products for the bottom of the pyramid would receive top priority and be allocated the most competent and capable resources to ensure success.

Due to their size, the niche financial institutions are able to be a lot more nimble and flexible and are more likely to respond quicker to changing customer needs. Smaller organisations are less likely to have established routines making them less resistant to change and more open to innovation and the possibility of failure. The niche institutions pursue customer intimacy as a competency in which they engage with customers throughout the experimentation lifecycle in various formats. This competency builds a trust relationship with customers and generates ideas as to new customer product requirements. This customer intimacy competence additionally gets inculcated in the culture and routines and becomes part of the DNA of the small institution, providing the organisation with a sustainable competitive advantage that cannot be copied.

A disadvantage of experimenting within a small, niche financial institution is however that it does not have the large number of resources available to it that a large institution would have.

Despite the size of the financial institution, it is still necessary for the organisation to be aware of the potential impact of the strategic context framing the experimentation process.

6.8 The Strategic Context Framing the Experimentation Process

The strategic context of an organisation helps the company to distinguish between opportunities that are worth pursuing and persisting and those that are not. These

decisions and the related experimentation are usually undertaken within the framework of an organisation's size, innovative capability, information technology capability and organisational competencies.

By entering this market of the unbanked and underbanked, large financial institutions have changed the playing field and made it a lot more competitive for the smaller financial institutions. However for the larger financial institutions it is no longer a case of waiting for the customer to come to them (as was the case with the middle and upper income market), they now have to go out and find the customers at the bottom of the pyramid. Large financial institutions have to try to find new ways of engaging with an unfamiliar market. This may require an adjustment of their routines.

An advantage of routines within organisations is that they lead to efficiency. Efficiency however becomes a liability should an organisation want to pursue change. For large organisations wanting to navigate the challenging environment of the unbanked and underbanked, change to existing routines is required. This implies that the same routines that make a large organisation efficient, are the same routines that make it difficult to change. Entering this new market in which large organisations have to do things differently thus fundamentally challenges what large organisations are good at. This may explain the reason why large organisations are resistant to change and why they are continually required to justify new product offerings for this market.

Smaller, niche organisations that have developed and emerged to take advantage of the opportunity found in the unbanked and underbanked markets are able to engage in true experimentation as they are not contaminated by pre-existing routines.

The findings of the research furthermore revealed that the focus for the large financial organisations is the wider economy and the pursuit of increased profitability by expanding into other markets, namely the bottom of the pyramid. They are basically trying to figure out how to make money out of this emerging market of the unbanked and underbanked. By focussing their idea generation on such things as international financial models, the products that they thus develop and implemented are presumed to be easy to copy.

Contrary to this outlook, the niche financial institutions are very sensitive to not taking advantage of the customer but rather meeting the needs of the bottom of the pyramid. They achieve this through a strategy of customer intimacy and conducting numerous customer focus groups and surveys to determine customer needs. A strong customer relationship is thus built which can be viewed as a competency and is embedded in the DNA and routines of the organisation. This customer intimacy competence can not be easily copied and provides niche institutions with a sustainable advantage over large financial institutions when addressing the needs of the bottom of the pyramid.

6.8.1 What Financial Institutions are Trying to Achieve and their Strategy for the Bottom of the Pyramid

The following statement made by a large institution, “by providing these individuals with funds, you hopefully move them to the formal banked system” (Eugene Ericson, Institution B) exemplifies what the large financial institutions are trying to achieve with the bottom of the pyramid. They are trying to include the previously excluded individual and informal economy into the formal financial services environment. Moving customers from the informal economy to the formal economy is possible as many unbanked and underbanked consumers have a strong interest in developing or expanding relationships with mainstream financial institutions (Tescher, Sawady and Kutner, 2007).

The reasons provided for wanting to move customers from the second economy to the first economy include “the traditional market of the banks, namely the affluent, middle class representing only a small percentage of the population and there is a need to expand this market (by bringing more people into the middle class)” (Donovan Dlamini, Institution A). In other words, the large financial institutions are entering the bottom of the pyramid because they believe that it “represents a very real market that banks have traditionally not recognised” (Bruce Bradley, Institution A), but also because their current markets of the upper and middle income individuals is saturated and they need to expand their customer base. The bottom of the pyramid represents a large untapped potential market for these large organisations; however they may not be able to successfully achieve their

objectives for this market if they do not build a close relationship with customers in order to accurately identify needs and if the bottom of the pyramid remains a peripheral strategic goal.

Additionally, “if you don’t serve this market, you are leaving out an important segment of the population that requires access to finance to have sustainable livelihoods” (Kristien Khumalo, Institution C). The large financial institutions are trying to improve the sustainability of customers’ lives and potentially the sustainability of the larger economy. The direct impact of this cannot be witnessed and thus the priority of products for the bottom of the pyramid within large organisations may be low when compared to other profitable products where the benefits are tangible to the organisation, in terms of return on investment.

The niche financial institutions provided evidence that “a need existed in the market that the organisation focussed on” (Lindiwe Landa, Institution D) and “volumes sit in the underbanked, lower end of the market (Martin Mokoto, Institution D). Once again, it can be stated that the niche players in the financial services space see experimentation within this market as part of who they are and an opportunity to help customers. The niche financial institutions, which emerged out of the need to help the customers situated in the second economy, have as their core the strategy to help the informal economy. The niche organisations achieve this through a customer intimacy approach in which they build long term sustainable relationships with customers ensuring that they are more aware of customer needs. This means that the small financial institutions are more suited to

provide customers at the bottom of the pyramid with the products that they require and need.

Product development is often difficult because the “need” information (i.e. what the customer wants) resides with the customer and the “solution” information (i.e. how to satisfy these needs) lies with organisations. Tapping into the innovativeness and creativity of customers can generate tremendous value. However it is possible that customers don’t always fully understand their needs until they try a product offering out and determine what does and what does not work for them. So a large institution’s response regarding customers not knowing what they want is potentially accurate. This would imply that customers learn about their needs through informal experimentation while using financial products and services (Thomke, 2003). Large and small institutions have demonstrated the ability to amend product offerings once they have been piloted or commercialised. This implies that should customers not know their needs and learn about their needs through informal experimentation, that the institutions are able to learn through product failures and apply these learnings to new experimental iterations until they do meet customer requirements.

6.8.2 The Formation of an Idea

The institutions interviewed didn’t necessarily believe that what they are developing and implementing to address the needs of the bottom of the pyramid was unique or necessarily truly innovative. Their offering(s) tended to be a unique combination of

a number of ideas to create a product to meet the needs of this market and that innovation in this space tended to be more around process and distribution rather than product. At the heart of every company's ability to innovate lies a process of experimentation that enables an organisation to create and evaluate new ideas and concepts for products, services, business models or strategies (Thomke, 2003). New product ideas for the bottom of the pyramid don't necessarily have to be unique but should meet the needs of the market.

Successful innovation in the financial services arena begins first by learning to look for ideas from the customer and then trying to solve a problem. The niche financial organisations are successful at this by developing ideas for new products for the bottom of the pyramid by engaging with the customers through focus groups or surveys, or alternatively asking front line employees what customers want.

The large financial organisations were probed about where their companies got the initial idea for new products catering to the unbanked and underbanked markets. In response, all the large organisations specified that they conducted research around new products specifically looking at products that have worked for this market in an international setting. Countries or international areas looked at included the Far East such as Indonesia or India; Latin America such as Brazil, Argentina or Mexico; Europe such as Spain and even Africa.

The larger financial organisations source their ideas from researching international models while the niche players tended to do more customer focussed and

customer driven research around what the customer wants. Successful innovation and experimentation should be considered to be meeting the requirements of the market. If that is the case, the best people to ask what their needs are, is the unbanked and underbanked markets themselves. Seeing as the niche financial organisations engage with customers more often, they are more likely to be successful in innovating and experimenting at the bottom of the pyramid.

Innovation isn't just about ideas though; it's about being able to get an idea to commercialisation. This is achieved by the financial institutions through departments dedicated to innovation for bottom of the pyramid, new product development departments or product implementation projects.

6.8.3 Taking a Departmental or Project Approach to New Product Development

6.8.3.1 Dedicated Innovation Departments

All organisations interviewed (except for two of the niche financial institutions) had a department dedicated to new product development. Despite the fact that the Financial Sector Charter has provided some regulatory requirements regarding this market (the Mzansi account), none of the companies interviewed indicated this as a reason for the initiation of their departments. All reasons provided appear to be proactive in nature and profit driven or socialistic.

This indicates that both the large and small financial institutions view catering to the needs of the lower end of the market as a strategic imperative. As previously indicated, the degree to which this strategic imperative is part of the core or peripheral activity of an organisation will influence the level of and capability of the resources dedicated to new product developments and experimentations, and the prioritisation of the new product developments within the organisation.

The niche institutions emerged from the requirements to meet the needs of the second economy when the large financial institutions did not. The niche institutions thus have at the core of their organisation, the strategy to engage with and provide products to the bottom of the pyramid. From a resources perspective, new innovative products for the unbanked and underbanked will be considered a top priority within the smaller financial institutions.

The large financial institutions in contrast are interested in the bottom of the pyramid as the middle and upper class markets are becoming saturated. However, these saturated markets form the profitable customers of their organisations and thus the bottom of the pyramid is merely a peripheral component of their overall strategy. From a resource perspective, it is assumed that new innovative products for the bottom of the pyramid will be considered a low priority within the larger financial institutions.

6.8.3.2 *Managing Product Development through Projects*

All organisations pointed out that they managed the process of designing, developing and implementing new products through projects and the respective project management principles and governance structures.

When compiling project teams to facilitate the design, development and implementation of these new products for the bottom of the pyramid, all the large organisations indicated that they had to engage with the relevant department stakeholders to allocate resources depending on the skills and capabilities required for the project. In most cases, the resources supplied were the individuals who were available and not necessarily the individuals with the best skills or capabilities. Whilst having a department dedicated to the implementation of new, innovative products for the unbanked and underbanked market indicates strategic intent, the intent is not fully realised if the department is continually fighting for prioritisation amongst all the other organisational initiatives.

The small, niche organisations tended to have project teams that were organised by expertise or speciality rather than availability. This indicates that the project is resourced with the right people and capabilities to better ensure the successful development and implementation of a product for the bottom of the pyramid. This signifies that the strategic intent of the niche financial institutions regarding the bottom of the pyramid can be more fully realised than at the larger financial

organisations, and that projects for this market are usually considered a top priority.

This research report has provided evidence that both large and niche financial institutions engage in experimentation when providing innovative personal finance products to the bottom of the pyramid and revealed that smaller, niche financial institutions are better suited to meet the needs of bottom of the pyramid. This is largely due to the nimbleness and flexibility of a smaller institution, dedicating resources to new product development projects, and having as the core of their strategy the desire to help unbanked and underbanked customers.

This research has also indicated that although Stefan Thomke's four step experimentation process provides a useful framework within which to manage experimentation, there are a number of nuances that are applicable to South African financial institutions operating in a developing, dual economy that his process does not make provision for. These nuances include additional process steps and phases, a product evolving throughout its life cycle, and being aware of the strategic context and effect of experimentation on an organisation. An enhanced, experimentation process model was created based on interviews with a number of large and niche financial institutions that made provision for these nuances.

7 CHAPTER 7: CONCLUSION

In the past, access to financial services was dominated by a few affluent members of society in South Africa. However the lower end of the pyramid requires dependable financial services to boost their economic potential, escape the poverty trap and sustain decent livelihoods (Maumbe, 2006). In recent years, formal South African financial institutions have as a result of government pressure and market trends begun exploring the unbanked and underbanked markets by designing, developing and implementing products and services specific to the bottom of the economic pyramid. This rise in personal financial products provided by formal financial institutions occurred through innovation, and more specifically, experimentation.

The environment surrounding this innovative behaviour consists of a dual economy with a sophisticated first world sector overlaid on what can be characterised as a third world, developing economy (known as the second economy). Large financial institutions have traditionally catered to the requirements of the first world sector, whilst smaller, niche financial institutions have emerged to cater to the financial requirements of the third world, developing economy.

Although research has been conducted in the areas of the unbanked and underbanked markets in South Africa, the process and outcomes of offerings to

these markets is uncertain and thus learning by experimentation can be fundamental to providing these markets with products and services. A number of large and smaller, niche financial institutions were interviewed and research conducted to gain valuable insight into the experimentation process, its costs and impact on an organisation and the organisational strategic context in which experimentation has to take place. These findings were related to the differences found amongst large and niche financial institutions.

Experimentation can be defined as a process that consists of a series of experiments, and failures, that help create new products or services and improve old ones. Stefan Thomke, a prominent author in the field of experimentation created a four step, iterative experimentation process in which an experiment is conceived of, or designed; apparatus needed to build the experiment is built; the experiment is run and the result is analysed.

7.1 An Enhanced Experimentation Process Model

During the course of the research, a number of additional insights and nuances to Thomke's four step experimentation process were identified and highlighted that could enhance the process. South Africa's competitive landscape that is characterised by a dual economy provides unique nuances to the functioning and experimentation of financial institutions.

Additionally, Thomke has created a very standalone, mechanistic view of experimentation that fails to take into adequate consideration the strategic context of an organisation; an organisations' capabilities; or the possible effect of experimentation. An additional insight into Thomke's model would thus be the inclusion of the context in which an organisation operates.

An improved experimentation process model was developed and suggested to manage experimentation within developing markets. Eleven process steps were categorised into six phases in which ideas are generated and screened for potential product offerings; the approved product offering is designed; the product is built; the experimental product offering is run and piloted; the results of the experiment are analysed and the product is commercialised. This improved experimentation process takes place within a context that is influenced by an organisations' size and strategy and influenced by the costs of experimentation and effects of failure.

7.2 Experimentation and Organisation Size

The research suggested that small financial institutions are better suited to innovation and experimentation than large financial institutions. This is largely due to the small, niche financial institutions being flexible, nimble, being able to respond more quickly to changing customer needs and having dedicated resources for innovating and developing new product offerings. In addition, interviewees provided evidence that they responded to customers needs by engaging with

customers on a regular basis through customer surveys or focus groups. This interaction with customers leads to a customer intimacy competence within the niche institutions providing a sustainable competitive advantage that can't be copied by the larger institutions

“You have to spend time on the dance floor to be a good dancer” (Quinton Quinlan, Institution G).

The niche institutions may be more willing to experiment but should be aware that it is highly likely that the larger they become the more conservative they will become and constrained by routines and governance structures. This could potentially slow down the experimentation process or make it more difficult.

The research undertaken revealed that the large financial institutions are characterised by a vast structure and hierarchical bureaucracy that leads to inflexibility and rigidity in terms of responding to customer needs. Additionally, the large institutions tend to have conservative, risk averse cultures that inhibit innovation. Routines, or patterns of behaviour, provide large institutions with the advantage of efficiency; however also provide an additional hindrance to innovation and experimentation due to structural inertia. Despite these disadvantages, the large financial institutions interviewed provided evidence that they are in fact innovating and experimenting albeit a lot more slowly and with greater difficulty than if they were experimenting in a smaller, niche institution.

Enough evidence was provided to indicate that financial institutions should focus on the customer and engage with them to determine their needs. Niche institutions

are already doing this, but large institutions should expend more energy trying to get to know their customers better and providing simple offerings that meet customers' fundamental needs. Furthermore, larger institutions could investigate the possibility of having different, more lenient governance structures for their innovating departments which should be situated off site from the normal organisation premises. Learnings from the niche institutions that can be applied to the large institutions include investigating as many ideas as possible but filtering out the not so good ones early, and being willing to implement a basic but competitive product into the market that may not be 100% ready and add features to it as based on market demand through iterative experimental cycles.

7.3 Experimentation and Organisational Strategic Context

The strategic context of an organisation helps the company to distinguish between opportunities that are worth pursuing and persisting and those that are not. Financial institutions usually experiment within the framework of their existing experiences, capabilities, routines and competitive pressures.

Large financial institutions have to try to find new ways of engaging with an unfamiliar market which may require an adjustment of their routines. Organisations routines within a large organisation are largely responsible for the efficiency of the institution. Trying to amend the routines of the institution fundamentally challenges what large organisations are good at. This may explain the reason why the

research provided evidence that large organisations are resistant to change and they are continually required to justify new product offerings for this market.

Smaller, niche organisations that have developed and emerged to take advantage of the opportunity found in the unbanked and underbanked markets are able to engage in true experimentation as they are not contaminated by pre-existing routines.

The research additionally unveiled that large financial institutions are trying to include the previously excluded and informal economy into the formal financial services environment. The large financial institutions are entering the bottom of the pyramid because they believe that it represents a very real market that banks have traditionally not recognised and because their current markets are limited and they need to expand their customer base. The large financial institutions view experimentation within the bottom of the pyramid as an opportunity to improve the sustainability of the wider economy. As they are unable to see the direct benefits of this, large institutions are likely to remain sceptical of the bottom of the pyramid and focus on this market will remain as a peripheral strategic activity.

In contrast, the niche players in the financial services space view experimentation within this market as part of who they are and thus the heart of their strategy is to help the informal economy. By being core to their strategy, products for the bottom of the pyramid will receive the necessary resources and prioritisation that is required to help ensure that a product offering implementation is successful.

7.4 The Costs of Experimentation and the Effects of Failure

In the case of the various respondents interviewed, a number of costs and barriers were identified that limit innovation in financial institutions. Although these costs of and barriers to experimentation can often limit innovation within both large and small financial institutions, these affects tend to be greater for the larger financial institutions. These costs of and barriers to experimentation include having to function within the governance structures of the company, having a conservative culture and justifying innovation and new products in financial institutions, prioritising within financial institutions, and constraining information technology.

Additionally, the effects of failure of experimentation are experiences by both large and smaller, niche institutions. Experimentation is an iterative process of trying to understand what works and what doesn't and thus encompasses both success and failure which are both required for learning. This failure and subsequent learning as described by the financial institutions is a necessary part of the experimentation and innovation process and allows the institutions the opportunity to amend and refine a product offering until it met the requirements of the customers and market.

One of the key challenges for South Africa is bringing the benefits of the country's formal, first world economy to the second economy and the low income unbanked and underbanked citizens who make up a sizable portion of the population.

Innovative products and services developed through a process of experimentation can help financial institutions meet the needs of the bottom of the pyramid. An experimentation process model was developed to enhance Thomke's four step experimentation process and was based on research conducted with both large and smaller, niche South African financial institutions operating in a developing, dual economy. Evidence was provided that this improved experimentation process takes place within a context that is influenced by an organisations' size and strategy and influenced by the costs of experimentation and effects of experimentation failure.

7.5 Additional Areas of Research

A number of additional areas of research were identified during the data analysis applied for this report. During interviews it was revealed that research or empirical data is scarce for the bottom of the pyramid. Information specifically regarding the market demand, what people want or what people would take up would provide valuable information especially to the larger financial institutions who have not established a close customer relationship or customer intimacy competence.

Additionally, one of the organisations indicated that experiential learning or testing is becoming more of the norm where there is no previous base and no prior understanding of the challenge. How experiential learning can be utilised to effectively advance the experimentation and learning process regarding products for the bottom of the pyramid could provide an area of additional insight.

An enhanced version of Thomke's experimentation process was developed that took cognisance of South Africa's developing, dual economy, the strategic context in which institutions have to operate, and the impact that experimentation could have on an institution. This model however was developed with input from financial institutions and research could be conducted to explore whether the proposed experimentation process model is applicable to other industries in developing markets.

Lastly, some of the interviewees indicated that corporate social responsibility could be utilised in this space to gain learning from the market that could be applied to products. Additional investigation can be undertaken to better understand the role that corporate social responsibility can play in gaining insight into the market dynamic that could be used to develop future products for the bottom of the pyramid.

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9 APPENDICES

9.1 Appendix 1: Ethnographic Interview Questions

The below questions were used to elicit relevant information from interviewees. The additional bullet points were used as a checklist to make sure that people cover the elements required and if they weren't covered, acted as additional questions used to prompt interviewees.

Question	Research question
<p>Think about a recent product/service that you developed and launched for the unbanked or underbanked market. Can you tell me about it?</p> <ul style="list-style-type: none"> • Where did you or the company get the initial idea for the product/service? • Who is usually kept informed of the product/service's progress during development and implementation? • Why do you think that this product/service has been/will be successful? • What changes would you make to this product/service offering if you were given the mandate to make any changes that you wanted? 	<p>Strategic intent (research question 4)</p> <p>Strategic intent (research question 4)</p> <p>Impact (research question 3)</p> <p>Potentially research questions 3 and 4</p>
<p>Companies often have to adjust a new product/service idea, or their implementation plans, a number of times to gain valuable learnings and insights before getting it right. What was your journey into getting this idea to successful product/service launch and implementation?</p> <ul style="list-style-type: none"> • (Describe a timeline of the story they discussed and present it to them). This is how I understand the timeline of the product/service. What am I leaving out? • If you were given the opportunity to develop and launch this product/service again, <ul style="list-style-type: none"> ○ What would you do more of? (Why?) ○ What wouldn't you do? (Why?) 	<p>Experimentation process (research question 1) and Mode of experimentation (research question 2)</p> <p>Impact (research question 4)</p> <p>Impact (research question 4)</p>
<p>It is evident that your company makes a conscious effort to design and implement products/services that are aimed at the</p>	



<p>unbanked and underbanked markets. A lot of companies believe that it's important to employ the right type of person to develop and implement new products/services for the unbanked and underbanked markets. If you had to describe the type of person who is involved in these products/services in your company, how would you describe them?</p> <ul style="list-style-type: none">• Why do you think it's important to ensure that your company employs the right type of person?	Strategic intent (research question 4)
<p>Some companies have dedicated departments for developing and implementing new products/services for the unbanked and underbanked markets, whilst others prefer to initiate a specific project and allocate a project team for the same purpose. It is evident that your company takes the dedicated department/project approach. Can you perhaps describe the background to the initiation and development of your department/project?</p> <ul style="list-style-type: none">• Why do you think the department/project was initiated in your company?	Strategic intent (research question 4)
<p>Do you mind telling me about an idea for the unbanked or underbanked market that seemed good at the time but that didn't work out?</p> <ul style="list-style-type: none">• Why do you think that this idea wasn't successful?• What would you have done differently given another chance?	Impact-failure (research question 3)

9.2 Appendix 2: Enumerating the experimentation process steps

Process Step	Large Institutions			Niche Institutions					Enumeration
	A	B	C	D	E	F	G	H	
Conduct relevant research on the market	X			X	X	X	X	X	6
Engage with staff members to determine a product need							X		1
An idea is generated or opportunity identified	X	X	X		X	X	X	X	7
The opportunity is assessed in light of the company's risk appetite, capabilities and market demands		X							1
Present idea to board or management and receive approval in principle					X	X	X		3
Compile a plan based on working team input from various business areas					X				1
The high level definitions are presented to the Trading committee				X					1
A business case is drafted	X	X	X	X		X		X	6
A marketing plan is drafted including financial modelling						X			1
The business case or detailed product offering is agreed to and signed off by the relevant parties	X	X	X			X	X	X	6
Prepare the necessary process, business and technical specifications and / or get supplier quotes			X					X	2
Initiate a project and set up a multi disciplinary	X	X				X	X	X	5



project team									
A Business Requirements Specification (BRS) is drafted						X			1
Develop the product	X	X	X	X	X	X	X	X	8
Test the new product offering internally, conduct user acceptance testing and refine product	X	X		X	X		X	X	6
Pilot the product offering	X	X	X	X	X		X	X	7
Make any amendments to the product offering from the pilot learnings	X	X	X		X		X	X	6
Launch and commercialise the product offering externally	X	X	X	X	X	X	X	X	8
Ongoing monitoring is conducted once the product is implemented	X								1