UNIVERSITY OF KWAZULU-NATAL

The effect of risk management on New Product Development - a case study of the Retail Banking environment.

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ABSTRACT

The financial services industry in South Africa is considered to be mature, and the relative monopoly that the big five local banks have makes it difficult for new entrants to gain access to Retail Banking operations. Despite this, the existing banks have adopted aggressive customer acquisition drives which are supported by competitive pricing strategies and innovative product offerings to influence and steer customer choice in selecting their primary bank.

Introducing new products to the market provides Retail Banks with a sustainable competitive advantage and solid growths, but when these new products fail to launch successfully or provide the required return-on-investment, financial losses and revenue leakage occur and this exposes the organisation to reputational risk.

International competition, macro-factors, rapidly changing technology as well as macro factors and increased customer expectations have further added to the complexity of New Product Development (NPD). This Retail Banking environment is also subject to strict governance and regulatory requirements that drive the need for effective risk management practices across all activities.

For purposes of this study, 101 participants from FNB Consumer (which is the Retail Banking arm of First National Bank, a division of the FirstRand Group Limited) were selected in order to understand the effect risk management has on New Product Development in a Retail Banking environment.

The study concludes that a relationship does exist between NPD and risk management, and that risk management ultimately supports the achievement of NPD objectives. The study raises concerns around the time and effort spent on NPD, the flexibility of risk management practices, as well as the differences in perceptions the respondents have on NPD - based on their roles as part of the NPD process. These concerns have a direct impact on the effect risk management has on NPD and, as such, recommendations have been made.

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CHAPTER ONE

Introduction

1.1 Introduction

New Product Development (NPD) has a direct impact on the overall performance of organisations and - if not well managed - may lead to financial losses, reputational damage and loss of customers. In the Retail Banking environment, this may even result in the loss of a banking licence which will have an impact on the institution's ability to operate as a going concern. The loss of a bank's licence will have a significant impact on the banking eco system in its entirety and impact consumer confidence.

In the Retail Banking environment, risk management is deemed to be a statutory and regulatory requirement and, therefore, an integral part of NPD. An evaluation of risk management frameworks and processes as well as NPD best practice has been conducted as part of the study to establish whether a relationship exists between NPD and Risk Management and also to determine whether management frameworks and processes support NPD and increase the likelihood of new product success.

This chapter will present the motivation, focus of the study and the problem statement. Further to this the research, objectives will be presented as well as the limitations encountered, followed by a brief overview of the chapters to follow.

1. 2 Problem Statement of the Study

NPD has historically been marred by high failure rates which stem from difficult and often complex NPD processes, risk exposure and various other micro- and macro factors. From a Retail Banking point-of-view, the involvement of risk management as part of the NPD process is a regulatory and statutory requirement. However, new products may still fail when risk management is not implemented as part of the NPD lifecycle or when Risk Management or NPD practices are considered to be too complex, rigid, inefficient or ineffective.

In order to understand the effect that risk management has on NPD, the relationship between these two variables must be determined as well as whether or not NPD and risk management processes are integrated and thus support NPD activities within a Retail Banking environment.

1.3 Objectives

The objectives of this study are to:

i. Determine whether a relationship exists between risk management and formal NPD processes;
ii. Determine whether risk management frameworks support the achievement of NPD objectives;
iii. Determine whether NPD processes support the achievement of NPD objectives;
iv. Recommend opportunities for further improvements to the NPD processes within a Retail Banking environment.

1.4 Research Questions

Based on the objectives, the research has focused on answering the following questions:

i. Does a relationship between Risk Management and formal NPD Processes exist?
ii. Do risk management frameworks support the achievement of NPD objectives within a Retail Banking environment?
iii. Do NPD processes support the achievement of NPD objectives within a Retail Banking environment?
iv. Are there opportunities for further improvement to the NPD processes within a Retail Banking environment?

1.5 Focus of the Study

The study focuses on risk management and the effect thereof on NPD. It also looks at the ability of organisations to integrate risk management as part of their NPD activities. It furthermore focuses on the time and effort spent on NPD processes as well as the challenges experienced which ultimately answer the question as to whether NPD failure may still occur in absence of risk management being embedded in the new product value chain or in instances where risk management processes are either inadequate, inflexible or ineffective.

1.6 Motivation for the Study

The study will aid Business Executives, Project Managers, Product Managers, Risk Managers as well Board members in effectively discharging their governance and regulatory obligations in respect of NPD whilst implementing integrated NPD processes and risk management frameworks more effectively and efficiently in order to drive new product success.

The study will add significant value to NPD efforts within the South African Retail Banking context with the recommendations contained within this document addressing some of the specific challenges that hinder risk management efforts as part of NPD.

1.7 Limitations of the Study

The study is limited to six business areas within the Retail Banking (Consumer Segment) of First National Bank (FNB) a division of the FirstRand Group Limited who are primarily responsible for NPD. Further to this, the following limitations applied:

i. Geographical limitation to respondents in the Gauteng region only;
ii. The closed-ended questions included in the questionnaire did not allow respondents to discuss any of their views or opinions for further analysis;
iii. Although confidentiality was assured, eight respondents in total were not willing to complete the questionnaires as they felt that their feedback could be traced back to them by means of the demographic details provided;

iv. During April 2016 The bank implemented a strict policy on links being sent out to customers as well as internal staff and suppliers via email due to an increase in phishing scams and the negative media exposure these scam have generated (a phishing scam is an attempt to acquire sensitive information such as usernames, passwords and online-banking details often by means of an URL or link embedded in an email). This had a direct impact on the response rates of the electronic questionnaires;

v. The target organisation had commenced with the Annual Salary Review process which impacted the response rate from the Executive Management members.

1.8 Structure of this Study

The research study is organised as follows:

Chapter One: Introduction

This chapter provides the background to the research study that has been conducted. It states the significance and the aim of the study, as well as the research questions.

Chapter Two: Literature Review

This chapter provides a review of the relevant extant literature and applicable frameworks. It is further divided into ten sub-sections, and starts off by providing an overview of NPD and the risks associated with this development process. Thereafter, it explores NPD best-practice. The chapter then looks at the banking industry in South Africa, focusing on NPD in the South African banking context. New product governance, risk management principles as well as the application thereof in respect of NPD is explored, after which the integration of risk management and NPD is explored.

Chapter Three: Research Methodology

The research methodology and design that have been adopted for the purposes of this study are discussed in this chapter. An overview of the participants as well as the sampling methods and data collection strategies employed will be reviewed.

This section also focuses on the analysis of the data and ethical considerations applied for purposes of this study.

Chapter Four: Presentation and Discussion of Results

This chapter reports on the results of the study and incorporates the tables and graphs depicting the results of the statistical analysis conducted. The results are discussed in relation to the research objectives and literature reviewed.

Chapter Five: Recommendations and Conclusion

Based on the preceding chapters' literature, discussions and results, the findings - together with recommendations - are presented. This chapter will also provide recommendations in respect of future studies and conclude the study.

1.9 Summary

A brief overview of the various areas of the study has been provided together with the problem statement and research objectives. It is expected that the recommendations provided in this study will allow for increased efficiencies as well as the effective application of risk management as part of the New Product Development practices within the Retail Banking environment with a view to increasing NPD success. Chapter Two presents the literature review which has been conducted in line with the research objectives.

CHAPTER TWO

Literature Review

2.1 Introduction

NPD failures within organisations have a direct impact on the overall performance of these organisations and may lead to financial losses, reputational damage and loss of customers. In the Retail Banking environment, this may even result in the loss of a banking license which will impact the institution's ability to operate as a going concern. The loss of a bank's license will have a significant impact on the banking eco system in its entirety, impact consumer confidence and result in the loss of employment for thousands of employees.

This chapter provides an overview of New Product Development (NPD), the importance thereof and also the relevance of industry-best-practice. The governance over NPD and the risk management principles that support NPD practices within a Retail Banking environment is also explored as well as the relationships between NPD and risk management.

2.2 NPD Overview

2.2.1 Blue Ocean Strategy

It is no longer sufficient for organisations to focus only on satisfying customer needs. In order for organisations to be successful, they have to create value for their customers and in doing so will in return obtain value from their customers (Yang and Sung, 2011).

NPD efforts have seen unacceptably high failure rates, resulting in much focus being placed on NPD processes in and attempt to increase success rates. Improved processes and development techniques have lead to more refined product benefits being realised, resulting in organisations in most instances extending the product line so as to take advantage of the reduced costs and benefits associated with the new product. This, however, has in most cases resulted in overcrowded markets where destructive and extreme competition ultimately ends up destroying profits (Pitta, Wood and Pitta, 2012).

The best way for organisations to achieve profitable growth, is to actively decide not to compete in overcrowded markets and industries. These overcrowded industries are known as red oceans where profits and growth reduce as competition increases. Blue oceans on the other hand, are considered to be uncontested markets where competition is irrelevant. The Blue Ocean Strategy - which was developed by W. Chan Kim and Renee Mauborgne - requires the simultaneous pursuit of low cost and differentiation in order for a new market to be created. It requires organisations to find a new way to operate in a market that is free of competition. Contrary to this, a red ocean, lends itself to a market wherein organisations compete against each other for a share of the same market. Blue Ocean Strategy rejects this idea and requires that organisations pursue a new market based on a low cost and differentiation strategy simultaneously (Kim and Mauborgne, 2011).

NPD is key in a Blue Ocean Strategy and is said to strangle the destructive cycle of market crowding. The NPD process must, therefore, incorporate the blue ocean viewpoint well before the idea-generation stage of the NPD life cycle and thus may reduce the failure rate and create products that are not easily copied (Kim and Mauborgne, 2011).

2.2.2 New Products Defined

Crawford and Di Benedetto (2015) provide the view that new products can be placed in different categories depending on the level of innovation applicable to the product. These categories include new-to-the-world products, new-to-the-firm products, additions to existing product lines, improvements / revision to existing products and repositioning.

New-to-the-world products are brand new products that are inventions which create a whole new market for the organisation, whilst new-to-the-firm products are products that may be new to the organisation but not the industry or market. Additions to existing product lines, on the other hand, are products that extend the current offering and increase the number of products offered in a specific range.

Improvements, repositionings and cost reductions are - in essence - amendments to an existing, well established product (Crawford and Di Benedetto, 2015).

Price Waterhouse Coopers (2004) provides a similar view by defining new products as traditional and non-traditional products as well as existing products where there is a significant change in the underlying risk characteristics of the product.

From a banking perspective, Financial Regulation International (2014) classifies new products as those products that have not previously been introduced by a bank, bundled offerings (two different products or more being offered together for the first time) or enhancements to existing, previously-approved products.

Taking the level of inventiveness applied to new products a step further is the "Five degrees of Inventiveness" which according to Altshuller, 1994 cited in Deniaud, Marmier and Gourc (2015:942), shows the correlation between the innovation level and the extent of the necessary knowledge. These are:

i. Level 1 – Routine design and usually with no invention needed.
ii. Level 2 – Minor improvements to an existing product known within the industry.
iii. Level 3 – Fundamental improvements to an existing product using known methods from outside the industry.
iv. Level 4 – A new generation product that involves a new principle.
v. Level 5 – A pioneering invention or rare scientific discovery.

Narvekar and Jain (2006) build on this by concluding that innovation can be categorised by the type, degree, impact, ownership and competence and that it is not just about entering new markets, but also about presenting new ways of offering older and more established products to markets.

2.2.3 Importance of New Product Development

NPD has become an essential requirement in organisations when planning for the future, especially on the back of organisations facing intensive global competition,

shifting global markets, and rapid technological changes. The effective and efficient management of NPD projects in order to gain a competitive advantage and higher profits goes hand in hand with the requirement to drive NPD in an organisation (Yeh Liu and Lee, 2011). Innovation and therefore NPD in an increasingly competitive market, contributes towards an organisation's and even a country's competitiveness and ability to survive (Jin, Guangyong and Yu, 2016).

Griffin and Page (1997) issued a best practice report which suggested that organisations realise approximately forty-nine percent of their sales from new products and that NPD performance contribute approximately twenty-five percent of variability in organisational performance. Prior research has also reflected that NPD performance is associated with organisational performance (Griffin and Page, 1996)

Whilst there are significant benefits associated with NPD, the high risks associated with it often lead to high failure rates. New products either fail to launch to market or, where launched, see a fifty to seventy percent are removal rate from the market when they fail to meet their projected financial targets (Dijksterhuis, 2016).

Processes that drive the improvement of NPD have therefore been the key focus of many research topics amongst organisations and academia (Mastroianni, 2011) with Barczak and Kahn (2012) re-affirming the fact that NPD is crucial in driving healthy market share, market leadership and enabling sustained growth. According to McCarthy, Tsinopoulos, Allen and Rose-Anderson (2006), NPD is said to play an essential role in the success of many organisations, with processes being subject to substantial research among organisations and academia for many decades (Mastroianni, 2011).

Being first-to-market with a new product does not provide a sustainable competitive advantage if risks are not identified, managed and resolved and the likelihood of product-level risk management strategies succeeding is also low, unless risk management is embraced at an enterprise-wide level (Pikholz, Champagne, Mugwangam Moulick, Wright and Crachnell, 2005). NPD is also considered to be a key driver for organisations wanting to achieve growth and maintain a sustainable, competitive advantage (Mu, Peng, Douglas and MacLachlan, 2009) with Marmier, Deniaud and Gourc (2014) stating that it is even

more important with rapidly changing technologies and markets demanding increasingly more complex, innovative products.

Further supporting this notion, is Rossi, Kerga, Taisch and Terzi (2014) who state that NPD plays a crucial role in determining the success of an organisation, and they further highlight the importance of new products being developed, not only to compete with other organisations, but also to satisfy the needs of the identified target market. Ross et al., (2014) furthermore state that the introduction of new products in the marketplace is critical for prosperity, competitiveness and survival with the choice of design and engineering practices implemented in respect of NPD drastically affecting the success of the process. Rossi et al., (2014) consider NPD key for organisations wanting to become market leaders.

Ultimately, an organisations' success is influenced by its market share, with the market share in return having a direct impact on product life cycle. The product life cycle is, however, also influenced by an organisation's product development processes. In essence, the NPD process determines whether an organisation survives or fails in a highly competitive market (Mastroianni, 2011). This view is echoed by Choi and Ahn (2010), who state that an organisation's ability to survive or fail in its respective markets is in fact determined by its market share. Figure 1 (below) depicts the relationship between the product life cycle, innovation level and market share.

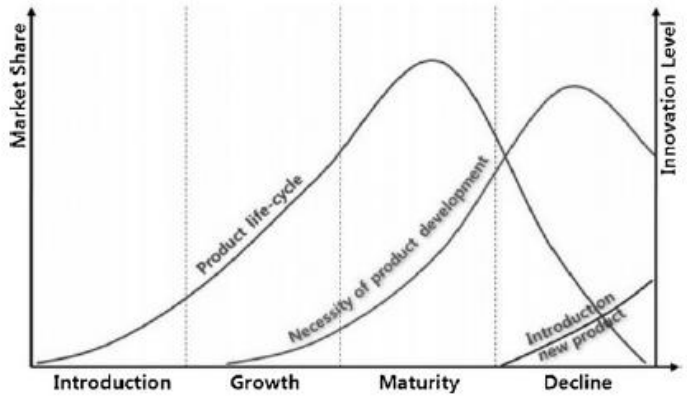

Figure 1 Product life-cycle and innovation cycle
Choi, H. and Ahn, J. (2010:111)

According to Price Waterhouse Coopers, internal and external drivers influence the development of new products (2004) as NPD is considered to be a function of both internal and external drivers. External drivers are considered to include changes in economic conditions, the identification of a market need for a specific product or even technology and competition. Internal drivers are listed as the needs of an organisation to improve on its profits and increase of market share, whilst ensuring that customer loyalty is maintained.

As a management strategy, NPD is critical for the growth and survival of organisations in a rapidly changing market and can lead to increased profits, sales and a competitive advantage (Jeongsu, Jeongsam and Lee, 2012), with Ceccagnoli (2009) also considering NPD to not only be a critical source of an organisations competitive advantage, but also having the ability to create competitive differentiation, open new markets, create entry barriers and increase profit and revenue.

In order for an organisation to sustain its competitiveness, it needs to create a flow of products that will generate new product streams and products that meet the evolving needs of customers. Organisations, therefore, need to adopt multi-product strategies and also define their roadmap in terms of new products (Tabrizi and Walleigh, 1997), be committed to NPD, and ensure that resources and capabilities are effectively used in order to achieve superior market performance in an increasingly competitive environment (Reid and Brady, 2012). A market-orientated culture, resource commitment, planning processes, a formal NPD process, and management commitment have therefore all been linked to NPD success (Cooper and Kleinschmidt, 1995).

NPD is seen as an essential process for organisational survival, success, and renewal in some instances, particularly for organisations in competitive or fast-paced markets (Brown and Eisenhardt, 1995). Organisations have no choice but to embrace NPD, either through innovation or through the enhancement of product value adds. Rapid NPD is important and must receive top priority in organisations as competitors rush to introduce new products to market **(**Roberto, Luigi, and Paolo, 2004).

2.2.4 The New Product Development Process

The new-product-process is the process that takes new product ideas through the various stages from the concept evaluation phase all the way to the launch and post-launch phases. Crawford, and Di Benedetto (2015) highlight five key phases of the product development process, as well as the activities involved in the new-product-process. These are listed as follows:

i. Phase One: opportunity identification and selection. This phase is strategic in nature and provides strategic guidance to those responsible for NPD and those departments that form part of the NPD life cycle. Strategic planning in respect of NPD is fed through three main streams of activities which are: ongoing marketing, ongoing corporate planning and special opportunity analysis. Opportunities are carefully and thoroughly described, analysed and then approved.
ii. Phase Two: concept generation. Once an opportunity has been identified, the process moves into this phase where concepts are thought through and ideas created. Customer needs as well as target market are identified with specifications being topmost in mind.
iii. Phase Three: concept / project evaluation. Prior to development on new ideas can commence, these ideas need to be evaluated, screened and categorised. Once this has been completed, the project will be evaluated where focus is placed on capitalising the idea. The various departments involved in the NPD will have to reach consensus prior to any technical work commencing.
iv. Phase Four: development. This involves the actual development of the product, where the resources and activities of the organisation are merged in order to bring the product to its actual form.
v. Phase Five: launch. The product is ultimately launched to the target market.

Ernst (2002), states that different labels and categories are used in reference to the different phases of the NPD process. Despite this, a consistent theme can be seen to emerge that groups the processes into three phases known as pre-, technical development and launch preparation. Further to this, the alignment, standardisation and improvement of NPD processes against these phases

increases the reliability of the execution of the development process and ultimately contributes towards the success of the new product (Oehmen, Olechowski, Kenley and Ben-Daya, 2010).

It is also important to note that the role of top management should not be underestimated during NPD. This cohort plays a critical role during the early stages of NPD due to the fact that it does not only define the project, but is also instrumental in selecting the project team. This group also has the capacity and ability to allocate appropriate resources and funds to the project and, therefore, provide the conditions that are needed for NPD success (Hermano and Martin, 2016).

Overall, program level NPD performance is influenced by a number of organisational factors such as: NPD process design, which incorporates formal NPD processes that have been developed and used over time (Cooper, Scott and Kleinschmidt, 2003, cited in Reid and Brady, 2003:237); NPD organisation which involves the deployment of cross functional teams who support the NPD process (Barczak, 1995); NPD strategy, which includes aspects such as market focus, formalised implementation structures and also defines the NPD programme goals according to Barczak et al., (2009) and Cooper and Kleinschmidt (1995); and management commitment which refers to the board and senior management's commitment, attitude and involvement in NPD efforts (Ruekert, Walker and Bonner, 2002). These four key items represent an organisation's support and investment in NPD.

2.3 NPD Risk

2.3.1 Risk defined

Oehmen, et al., (2010) and Shimpi (2002) take the view that several definitions of risk exist, depending on the context to which it is applied.

PMI (2009), cited in Oehmen, et al., (2010:2), defines risk as "an event, which has occurrence characteristics and consequence characteristics on project objectives". "The risk level is labelled critically by multiplying the probability of the event and its

impact" (Marmier et al., 2014:1109). Furthermore, Oehmen et al., (2010) define risk as the effect of uncertainty on specific objectives.

From a decision-theory point of view, risk relates to decision making under known probabilities of the state of nature (Luce and Raiffa, 1957 cited in Oehmen et.al., 2010:2) and from an economic theory point of view, risk materialises when a decision maker assigns probabilities to a possible outcome (Knight, 1921 cited in Oehmen et.al, 2010:2). From a project management point of view, risk is considered to be "an uncertain event or condition that, if it occurs, has a positive (opportunity) or a negative (threat) impact on project objectives" (Oehmen et al., 2010:2).

Specifically relating to NPD, the ISO 31000 definition is used (ISO, 2016) which defines risk as "the effect of uncertainty on achieving the NPD objectives".

Geldenhuys (2006) states that despite the various definitions of risk, two components of risk remain consistent. These components are: uncertainty and consequences, which together form the foundation of risk.

2.3.2 Risk and NPD

The product development process is a difficult and complex business decision-making process due to the increased capital investment requirements and exposure to low success rates. The critical explanations for the complex and difficult NPD processes are the unexpected risks and the impact thereof, as well as the inability of organisations to fully mitigate these risks effectively and efficiently (Choi and Ahn, 2010).

The consequences of risk not being managed effectively through NPD have gained significant recognition through many studies focusing on NPD failures and success. Research has revealed that organisational mechanisms and individual characteristics affect risk propensities and perceptions to either accept or avoid risk (Keizer et al., 2005).

A study conducted by Seonmuk, Jongseong and Choi (2011) conclude that the success rate of new products and services is extremely low. The study states that, worldwide, approximately eighty percent of NPDs fail before they reach the consumer. Of the twenty percent that do come to fruition, more than half fail to provide the required return on investment or become profitable. Increased costs, longer than anticipated development time and unforeseen or unmanaged risks all contribute towards this failure rate. Yeh et al., (2011) also emphasise the fact that there is a relatively high failure rate applicable to new products. These risks can however, according to Smith (2002), be identified in advance with the appropriate planning taking place in order to reduce disruption to the NPD project objectives.

Providing further context to understanding the failure rates and complexity surround NPD and risk, is Thamhain (2013) who observes that approximately half of all risks that materialise during NPD processes are not detected until they impact on the overall performance of the NPD project. The need for and importance of identifying, reporting and managing risks throughout the NPD life cycle is highlighted by Thamhain. Deniaud, Marmier and Gourc (2015) also highlight the importance of risk identification and management by stating that well managed risks lead to better NPD performance.

Perficient (2013) reports that organisations do not immediately put the necessary actions in place to mitigate risks that are identified during NPD, even though they are aware of of the inherent risks, and it is for this reason that controls relating to people, technology and processes have to be assessed on a continuous basis in order to minimise the potential impact, should the identified risks materialise.

Organisations have to have the ability to identify and terminate NPD projects that may not deliver on their objectives. The quality of the NPD termination decision is critical to organisational success and these organisations' ability to achieve their strategic goals. This creates challenges, as the executive and senior management team have to not only manage the initiation of complex and high risk projects but also put the required action plans in place to identify NPD projects that need to be terminated in a timely manner should the risk exposure be outside of the organisational threshold (Lechler and Thomas, 2015).

It is important for project managers and team members to manage uncertainty early in the NPD process, due to the exposure to a significant number of uncertainties inherent to the NPD process. Risk management needs to be an integral part of the NPD process in order to better manage uncertainty and risk. This will allow for a systematic process to identify, analyse, respond to and report on risks within the NPD process (Yeh, et al., 2011).

The involvement of top management in NPD shapes the institutional environment so as to enhance and increase project success. During turbulent economic and market conditions, NPD project success becomes even more important, yet also more difficult to manage (Hermano and Martin, 2016).

NPD best practice needs to benchmark and incorporate risk management principles, as making use of practices that are more effective and efficient could mean the difference between product failure or success (Barczak and Kahn, 2012).

2.4 NPD Best Practice

2.4.1 Best practice defined

The Oxford dictionary defines best practice as, “commercial or professional procedures that are accepted or prescribed as being correct or most effective”. Rossi et. al., (2014:455) provide the same view by defining best practice as “any practice whether a technique, method, process or activity that enables to deliver more efficiency and/or effectiveness than any other manner”.

Barczak and Kahn (2012) provide a view that NPD stakeholders are all committed to benchmarking NPD best practice as this allows an organisation to deliver a new product more effectively and efficiently – and this, ultimately, means the difference between product success and failure, not just for the product but for the organisation as well.

“Best practices can also serve as aspirations to which NPD best practice should ascribe” (Barczak and Kahn 2012:294).

2.4.2 The Seven Dimensions of NPD

Various studies relating to NPD best practice have been conducted by Rossi et al., (2014), as well as Adams-Bigelow (2005); Barczak, Griffin, and Kahn (2009); Cooper, Edgett, and Kleinschmidt (2002, 2004a, 2004b, 2004c) cited in Barczak and Kahn (2012).The studies conducted identify high-performing NPD organisations with Barczak and Kahn (2012) presenting a framework that defines best practice across seven dimensions. Rossi, et al., (2014) also make reference to these seven dimensions of NPD. The seven dimensions of NPD best practice provide a list of seven key dimensions of NPD as well as the importance thereof. The relative importance of these dimensions varies between 10 – 18% with the median being 14%. Figure 2 indicates the relative importance of NPD dimensions identified:

Figure 2: Relative importance of NPD dimensions
(Barczak and Kahn, 2012:95)

The seven dimensions highlighted cover the following areas and are summarised as follows:

i. Strategy: Includes the vision and mission for research and development, product development efforts, product lines as well as the identification, prioritisation, research and support relating to NPD Projects.

ii. Research: Focuses on the implementation of methodologies and methods that sense, analyse and understand customers and competitors as well as the organisations' capability to obtain and use information which will drive innovation across all NPD projects.
iii. Commercialisation: Includes the marketing, launch and post-launch management of all new products that require customer adoption.
iv. Project climate: Creation of an environment that integrates individual and team efforts with a view to managing the NPD projects end-to-end.
v. Company Culture: The leadership component that establishes and drives successful NPD thinking through internal and external collaboration.
vi. Metrics and Performance Measurement: Tracking and reporting of all NPD projects in line with NPD and organisational objectives.
vii. Process: Focuses on the implementation of NPD stages and gates in order for new products to move through the different phases of the NPD process (i.e. from the concept to the launch phase).

2.4.3 Best Practice Across the Seven NPD Dimensions

Each of the dimensions identified includes a variety of elements, and it is for this reason that a list of characteristics for each dimension are presented based on findings of the benchmarking studies conducted by Rossi, et al., (2014) and Adams-Bigelow (2005); Barczak, et al., (2009); Coop et al., (2002, 2004a, 2004b, 2004c) as cited in Barczak and Kahn (2012). These characteristics are outlined as:

i. For strategy, goals should be well-developed, clear and communicated to all stakeholders. Projects have to be aligned to the organisation's NPD strategy, and managed by means of a portfolio management system that rates and prioritises projects based on key strategic objectives identified.
ii. From a research point of view, adequate resources that support the research environment, as well as the collection of information to understand customers better need to be identified as best practice. Information relating to customers current - as well as future - needs, price sensitivity, the market potential, market size and competitor information are but a few of the important aspects to research.

iii. Commercialisation, on the other hand, includes marketing planning which forms a key part of the development process with the launch phase of the product being planned early in the development phase. As part of this process, the capability of a cross-function team is critical.

iv. With regards to the project climate dimension, entrepreneurialism is highly encouraged and so is the existence of an accountable, dedicated and empowered cross-functional team.

v. A company culture that encourages and recognises the need to obtain ideas from multiple sources (such as customers, competitors, suppliers, other industries etcetera), as well as senior management which supports and drive NPD within the organisation are listed as best practice for this dimension.

vi. The lowest weighting is allocated to metrics / performance management. No specific best practices are identified but reference is made to the launch and post-launch management of the new products.

vii. On the process dimension, best practice includes the use of a formal NPD framework and process that is documented and applied by all stakeholders with key focus on executing on NPD deliverables, yet being flexible enough to meet the individual needs of the various projects.

The process dimension incorporates all six of the other dimensions, pulls them together and is, therefore, critical to NPD success (Rossi et al., 2014). This dimension also carries a fifteen percent weighting, which is slightly higher than the median. The existence and effective application of this component is, thus, of utmost importance during the NPD process. The key component of the process dimension relates to the use of formal, documented NPD processes that should be in place to ensure that NPD objectives are met, and that the likelihood of product success increases (Barczak and Kahn 2012).

2.4.4 Six-Sigma and NPD

The development of the Six Sigma activities were cited in 2011 as being an emerging trend due to the requirement to optimise design time and material costs in order to make the NPD process more effective and to deliver on the end product in the shortest time with the best quality. In a competitive environment, the time it

takes to deliver a new product at the lowest costs and at the best quality is extremely important, with the identification and removal of the causes of defects and errors in the manufacturing , delivery and / or business process being extremely important (Subramaniyam, Srinivasan and Prabaharan, 2011).

Six Sigma is the means by which organisations employ strategies, tools and tactics to enhance existing design processes in order to achieve increased performance. Six Sigma integrates quantitative and qualitative tools and key performance measures which allow progressive organisations to manage the NPD process more effectively (Mader, 2002). Furthermore, Mader (2002) provides a view that typical NPD processes include high-level development phases and that, in most cases, this includes management reviews which are also known as tollgates or checkpoints. These checkpoints occur throughout the design phases and allow an organisation to assess, manage and monitor risk and also to ensure that the NPD project progress through the various phases in order to launch the new product.

2.4.5 Stage Gate and NPD

2.4.5.1 Formal and Informal NPD management practices

Bonner, Reukert, and Walker (2002) investigated the relationship between formal and informal NPD control mechanisms and found that too much management-control over NPD activities had a negative impact on the overall deliverables. Contrary to this, Carbonell and Rodriquez-Escudero (2011) found that management control had a positive effect on NPD. Richtner and Ahlstrom (2010) investigated the relationship between management and that of knowledge-creation in relation to NPD, with a distinction between formal and informal control mechanisms being made. Richtner and Ahlstrom (2010) also concluded that either too much control, or too little control could have a negative impact on NPD activities. In the same study, formal mechanisms - such as documented specifications, checking and phase-gates as well as approval committees - were identified, with informal mechanisms being considered as “personal involvement” (Richtner and Ahlstrom, 2010:1008). The result is that the level of control exerted over these informal and formal mechanisms will definitively impact the overall NPD process (positive or negative).

2.4.5.2 The Evolution of Stage Gates

NPD process methodology has an extensive evolutionary history. It began with stage-gate systems in the early 1960's with the introduction of the National Aeronautics and Space Administration's (NASA) Phased Project Planning (PPP). The second generation stage-gate process proved to be even more successful, with organisations such as IBM, Northern Telecom, 3M and others adopting this revised process. Cross-functional processes, which included activities from the core functional areas within the organisation, all formed integral parts of the NPD process. As issues relating to longer lead times were overcome, the third generation of stage-gate was proposed by Cooper in 1994, which allowed for the overlapping of activities from each stage (Porananond and Thawesaengskulthai, 2014).

The NPD process is considered to be that of a phase / gate process which integrates proven business practices such as customer-driven pricing and marketing, reverse auctions, preferred parts and suppliers as well as global engineering with industry best practice in NPD. All functional areas have to collaborate on a continuous basis to make full use of opportunities within the NPD process. The NPD process supports the firm by maximising on its expertise, by providing a framework for reliable and efficient products, and also ensures that all projects follow the same process (Rawat and Divekar, 2014).

Generic models relating to the NPD process - which claim to be considered as best practice and which increase competitiveness of organisations - have been the focus of academic research for over 25 years (Markham and Lee, 2013). These models typically include specific and sequential steps combined with checkpoints or gates. Typical stage-gate processes focus on the pre-development activities (Felekoglu, Maier and Moultrie, 2013).

2.4.5.3 Stage-Gate defined

A phase-review or stage-gate process emphasises a linear progression of activities, according to Barczak, Griffen and Khan (2009), which compels management to follow a formalised and structured processes. Eckert, Stacey and Earl (2013), however, provide a view that whilst formalised and structured

processes provide a simple, yet effective representation of the structural flow of the NPD process that it fails to be representative of the dynamic relationships and behaviours of the various stakeholders. Cooper (2008) supports this by stating that NPD processes need to be more flexible in conditions where there is more uncertainty, with Gilson, Mathieu, Shalley and Ruddy (2005) building onto this by stating that standardised procedures and creativity complement each other if managed effectively.

The stage-gate model is, in essence, a model or template that assists organisations in managing the NPD process. It sets forth specific tasks and steps for a new product idea to achieve prior to it going into production. In order to move from the one gate to the next, gates need to be passed which usually involves a team of cross-functional managers who need to sign-off. These phases include, a preliminary assessment, detailed investigation, development, validation and testing, and a full production and market launch. Each of the stages are separated from each other by a go / kill decision process, which essentially allows the product to continue to the next phase or to be sent back for further action so that it can be re-evaluated or terminated fully.

2.4.5.4 Stage-Gate in Business

The work of Mastroianni (2011), Smith (2002), as well as Rawat and Divekar (2014) make specific reference to the fact that organisations have moved towards formal product development processes. In all cases, reference is made to a Phase-Gate Development Process. Mastroianni (2011) further describes a phase-gate-process as a model that is both an operational and conceptual model applied to the NPD life cycle. It is viewed as a framework for managing all aspects of the NPD process with its sole intention is to improve efficiencies and effectiveness of this process, and to ultimately strengthen an organisation’s ability to conceptualise, develop and launch new products successfully. The phase-gate process splits NPD into a set of predetermined phases each which consist of specific, measurable activities. The seven dimensions referred to in section 2.4.3 were found to be embedded into the system. The phase-gate system customarily has between four and seven phases and gates, and - before proceeding to the next phase - the concept has to pass through the relevant gate.

2.4.5.5 Stage-Gate Framework

The gates in the Stage-Gate Framework act as a control checkpoint as part of the NPD process, with pre-determined criteria being set. Where the criteria are not met, a decision will be made as to how to proceed with the project - if at all. Figure 3 provides an example of the Stage-Gate Framework. There is a definite link between the New Product Development life cycle and that of the phase-gate process; the ultimate goal is to drive the new product to the market (Mastroianni, 2011).

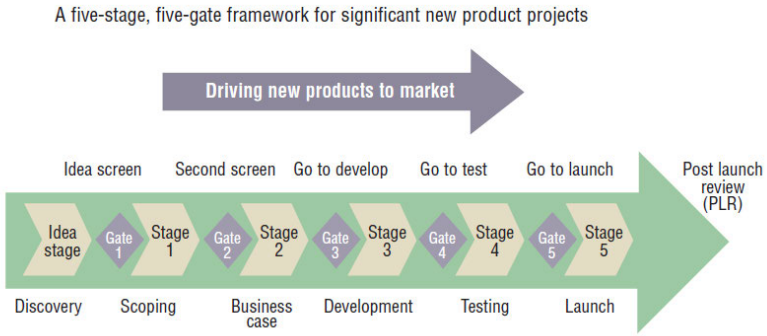

Figure 3 The Stage-Gate framework
(Cooper, 2006:5)

2.4.5.6 Benefits of Phase-Gate

The phase-gate system is said to improve the focus on quality throughout the NPD process. Phase-gate process emphasise strong market orientation with early phases promoting pre-development activities, which help to define the project development criteria. Phase-gates also promote parallel processing, whereby activities across various functional areas within an organisation occur at the same time, thereby reducing the overall development time in the NPD process. Phase-gates are said to eliminate products early in the NPD life cycle where the failure rates are considered to be high (Cooper, 1990).

The phases are also not dominated by a single function or department in the organisation, and are considered to be cross-functional. The phase-gate system is designed in such a way as to allow for the movement of parallel activities along the same lines. The successful implementation of the phase-gate system also

includes looping a reiteration of and activities from different phases, which could potentially overlap or occur simultaneously (Cooper, 2008).

The phase-gate is also not considered to be rigid; it is, in fact, a map that links an idea to a successful new product. Flexibility should - and can - be built into a process to meet the requirements of an organisation. Not all projects will pass through every phase of the phase-gate and it is not considered to be a bureaucratic system intended to create additional paperwork and excessive meetings. It is considered to be different from that of project management, which is more of a micro process, whilst the phase gate process is said to be more of an overarching macro process (Cooper, 2008).

Challenges in respect of the gates include projects not being terminated at gates when the requirements are not met due to an upfront approval being obtained, or in cases where a go decision is given at the gate, projects may not proceed as there are not appropriate resources committed to it; Cooper (2008:229) refers to this as “hollow-decision” at gates.

The roles and responsibilities as well as the identification of gatekeepers from cross-functional areas, are not always easy which results in inefficient decisions being made at the various stages. Gatekeepers from cross-functional areas allow for the appropriate allocation of resources, as well as for the alignment of business functions (Cooper, 2008).

2.5 The Banking Industry within South Africa

The South African banking industry is considered to be a developed and highly-regulated banking system that compares favourably with other countries in the world. It has been subject to volatility and change in recent years and has also attracted significant interest from abroad with many foreign banks having either an established footprint in the country or having acquired major shares in the bigger banks (Banking Association of South Africa, 2014). The South African banking industry consists of seventeen registered banks, fourteen local outlets of foreign banks, two cooperative banks, two mutual banks and forty-three foreign banks with approved local offices with the South African banking sector being ranked 3rd

out of 148 countries in the 2013 / 2014 “World Economic Forum Global Competitiveness Survey” conducted in 2014 (Banking Association of South Africa. 2014).

Internal and external economic challenges continue to impact the banking industry in South Africa. The banking sector is also subject to various regulatory and legal requirements and face pressure to reduce costs, whilst acquiring new customers. With various acts either being in the process of being promulgated or amended, regulatory pressures remain high and as such the need to adhere to these requirements (Price Waterhouse Coopers, 2004).

International competition, macro-factors, rapidly changing technology as well as macro factors and increased customer expectations have further added to the complexity of NPD, making the outcome even less certain. This Retail Banking environment, as mentioned above is also subject to strict governance and regulatory requirements that drive the need for effective risk management practices across all activities. Accordingly, research conducted by Schmidt (2002) confirms that the success rate of NPD is low.

Figure 4: Banking Customers per Bank Brand, which is the latest information provided by Business Tech (2015), provides a view of the customer base of each of the “Big 5” banks in South Africa as at mid 2015. Customer choice in a primary Retail Bank is based on various factors with the service and product offering being the key differentiators amongst the “Big 5”.

Bank	Customers 2013/14	Customers 2014/15	Change
Standard Bank	10.4 million	11.1 million	6.7%
Absa	8.6 million	9.2 million	7.0%
FNB	7.6 million	7.3 million	-3.9%
Nedbank	6.7 million	7.1 million	6.0%
Capitec	5.8 million	6.2 million	6.9%

Figure 4: Banking Customers per Bank Brand
(Business Tech, 2015)

According to the Nedbank (2015), Standard Bank (2015) and the FirstRand (2015), the following challenges were experienced:

i. The deceleration of growth in China continuous to place pressure on global commodity prices
ii. South African is impacted by the slow economic recovery taking place in the United States as well as the possibility of interest rates increasing
iii. The lacklustre economic recovery of the Euro Zone which impacts exports from South Africa
iv. The local electricity shortage, weaker foreign demand as well as low prices which has affected business confidence.
v. Debt-service costs that are higher together with unemployment rates that are increasing which has affected household income
vi. Public sector debt being stabilised through a reduction in government spending
vii. The interest rate increase cycle which is seen to be moderate and gradual.

The South African banking industry continuous to face wide-reaching deregulation, is exposed to technological advances, increased consumer spending as well as growing competition from new competitors wanting to enter the market (Price Waterhouse Coopers, 2004).

2.6 Banking and NPD

Continued pressure to increase revenue whilst maintaining or reducing cost has placed focus on NPD within the banking environment, which has resulting in new or modified products becoming critical drivers in achieving this. In addition to this, with the increased focus being placed on compliance with the regulatory and statutory requirements ombudsman and regulatory bodies which provide the required oversight have become less forgiving, with fines and penalties being imposed where risks were mitigated effectively. It is, therefore, important for banks to prove to regulators that they are aware of the new product risks affecting their organisations and that the appropriate risk management practices are in place (Thornton, 2014).

2.6.1 Internal and External pressures

Global regulators have placed increased focus on product suitability and customer protection. Banks are faced with a challenge in that they need to ensure that their products meet regulatory and legislative requirements, as the regulators will penalise banks retrospectively for products that do not meet the requirements - even though these regulatory bodies are not prepared to approve products upfront (Ernst and Young, 2015).

Further to this, NPD is said to be a function of internal and external drivers. Internal drivers refer to the need to increase profits as well as market share, whilst retaining and building customer loyalty, thus, ultimately growing and maintaining a sustainable, competitive advantage. External drivers on the other hand, refer to changes in the economic environment, competitors, technology or the identification of a defined customer need for a product (Mu et al., 2009 and Hough, Thompson, Strickland and Gamble, 2011).

Banks, like many other organisations, continue to operate in an extremely competitive environment, with the market conditions expecting to remain as is whilst competitors continue to focus on aggressive customer acquisition strategies (Seonmuk et al., 2011).

2.6.2 Bank products and customers

With a customer base ranging between 6.2- and 11.1-million customers per Retail Bank, the need for dedicated resources and funding allocated to NPD within the environment becomes a necessity, with some of the banks having dedicated departments focusing on NPD (Business Tech, 2015).

Ernest and Young, in their 2015 Global Banking Outlook Survey, reported that there is little correlation between the extent of a bank's product offering and its market share, and that customers have been left bewildered by the sheer range of products each with its own sets of terms and conditions. This, together with banks struggling with the costs associated with product distribution and increased conduct risk, has eroded trust in banks, ultimately affecting profits. A product-centric approach has lead to banks having to accept the costs associated with the

distribution and management of products, which has resulted in increased conduct risks. The diversity and complexity of bank products and services add additional difficulties which have resulted in mis-selling products and services to retail customers. This has negatively impacted on customer trust and thus affected bank profits due to a loss of customers and the imposition of fines by regulators (Ernst and Young, 2015).

A client-centric approach is recommended, in that customers ought to be provided with personalised products. This will, however, require rationalisation and simplification of the banks' products. Ernst and Young's Global Consumer Survey (2014) suggests that a bank can become client-centric, which will enable it to reduce costs, but attract customers from competitors and retain customers (Ernst and Young, 2015).

2.6.3 Bank Product Success

In banking specifically, it has been noted that the success rate of new products is increased significantly where documented, audited and repeatable NPD processes are used for the development of new products. This, in practice, means that the management board of the bank will approve the policies with the various functional areas in the organisation following these comprehensive NPD policies and processes (Thornton, 2014).

Seonmuk, Jongseong and Choi (2011) and Thornton (2014) indicate that innovative products that meet customer expectations are important from a strategic point of view as organisations cannot increase profits or survive in absence of this. This is therefore the primary reason why banks continue to focus on NPD in order to launch new products to the market.

In the last two years, all the major banks in South Africa have launched new or enhanced products, starting with their mobile banking applications. In addition to this, Standard Bank has launched SnapScan and MasterPass which are applications that support hassle-free shopping online and offline via mobile devices (Standard Bank Community, 2015). Nedbank launched their online budget and investment portal: MyFinancial Life and the PocketPos which allow for

entrepreneurs and small business owners to accept payments via their cellphones (Northwood 2014 and Mail & Guardian 2014). FNB launched FNB Connect, a cellular service provider to the market in June 2015, as well as the FNB Connect Value Proposition in which customers receive a cellphone with the opening of their account in order to drive customer retention and mobile banking use (Finance24, 2015).The focus on innovation and NPD is even more evident in the industry accolades that have been awarded to FNB over the last few years:

i. " SA's Coolest Bank – Sunday Times Generation Next Survey 2012, 2013 and 2014 ";
ii. "Largest financial institution on all major social media platforms in SA";
iii. "The Minister of Science and Technology Award for Overall Excellence (the highest accolade) and Excellence in the Management of Innovation at the Technology Top 100 Awards 2012";
iv. "Stuff Magazine's Gadget Award for the best Smartphone App – July 2013";
v. "Most Innovative Bank in South Africa 2013, 2012, 2011, 2010, 2009, 2008, 2007 by Systemic Logic";
vi. "One of the most innovative banks in the world – BAI-Finacle Global Banking Innovation Awards 2012, 2013"(FNB Blog, 2015).

As with any other industry, NPD in banking introduces new risks, and it is the responsibility of banking management and the respective boards to drive and implement the required risk-mitigation strategies (Thornton, 2014).

2.7 New Product Governance

From a governance point of view, Retail Banks are guided by Regulation 39 of the Banks Act, (Act No. 94 of 1990) and are subject to strict scrutiny by regulatory bodies due to the social cost associated with a financial system failure which - if would be deemed to be significant (South African Reserve Bank, n.d.). The Risk Management principles and frameworks that guide NPD efforts in the banking environment are clearly defined within Regulation 39(5)(d)(x) of the regulations relating to the Banks Act, as well as Basel III and King III – outlined in sections 2.72 and 2.7.3 respectively.

2.7.1 Corporate Governance

2.7.1.1 Traditional definition of Corporate Governance

The traditional definition of corporate governance refers to the relationship between an organisations' board of directs, senior management, its shareholders and any other stakeholders (employees, representatives etcetera). Corporate governance determines the process used to define an organisation's objectives and the means by which these objectives are monitored and achieved (European Commission, 2010).

The Basel Committee further underscore the definition offered by the European Commission (2010:12) by defining Corporate Governance as the "relationship between a company's board of directors, its senior management and other stakeholders which include employees and their representatives. It also determines the approaches or structures used to define the institutions' objectives as well as the way in which the company will achieve these, together with the monitoring of all results obtained" (Bank for International Settlements, 2010).

2.7.1.2 Impact on Retail Banks

Banks are required to prescribe to the principles of good corporate governance as this takes into account the stability of the financial services system and the interest of stakeholders into consideration. Good corporate governance is key to avoid any moral issues by holding the various stakeholders of the organisation accountable for their activities and underpins key risk management principles as it relates to NPD and the life cycle, with specific reference to approval of new products that are developed within the organisation. Retail banks are also guided by the risk management oversight requirements applicable to good corporate governance principles (European Commission, 2010).

2.7.1.3 Benefits of Corporate Governance

Corporate governance is an important aspect of an organisation wanting to be considered a competitive force in the market place, not only in the local, but also global business arenas. Governance refers to the process of managing an organisation and consists of various institutions and mechanisms through which

organisations exercise their legal rights, express their interests, mediate any differences and meet their obligations. In essence, it is a component of leadership with appropriate risk management practices and controls being applied over an organisation's core activities. It requires certain disclosures to be made in relation to its activities and is concerned with maintaining the balance between social- and economic goals, communal- and individual goals, and those goals of society (Hough et al., 2011).

Corporate governance is of utmost importance as it requires organisations to function with integrity, accountability, to independently review risks and opportunities, and to make decisions that aid the organisation in building sustainable value (Institute of Directors South Africa, 2009). From a banking point of view, corporate governance is enhanced by the sophistication of its internal control and risk management structures (Bank for International Settlements, 2010).

When it comes to Retail Banking, corporate governance most certainly applies as it takes into account the interests of all stakeholders, and – as previously stated - the stability of the financial services system into consideration. Again, through corporate governance, private stakeholders are held accountable through clearly acknowledged responsibility, thus avoiding any conflict from a moral issue standpoint. The organisations board of directors will set the tone of and define the strategy, risk profile and appetite for risk it is governing (European Commission, 2010).

2.7.2 Basel III

The Basel Committee on Banking Supervision is a committee which consists of banking supervisory authorities that was established by the Governors of the Central Bank in 1975, and consists of a group of ten countries. South Africa forms part of this group and, thus, the Basel III requirements apply to the South African banking sector as a member state (Bank for International Settlements, 2010).

The Basel Committee on Banking Supervision published Basel II in June 2004. Basel II is a set of banking regulations which regulate finance and banking internationally and is preceded by Basel I which was first published in 1988. Basel

II amends standards which guided how much capital banks had to hold in order to guard against the operational- and financial risks they face. The rules seek to drive the principle of the-greater-the-overall risk exposure, the greater the amount of capital required to safeguard an institution's economic stability and solvency (Bank for International Settlements, 2011).

Basel III was introduced by the South African Reserve Bank in January 2013, with the phasing in period being set for January 2019. The amendments speak to capital requirements being raised further to ensure banks are in a better position to absorb losses. Standards relating to supervision and risk management have also been improved, with a monitoring component being introduced over the minimum liquidity standards so as to improve the resilience of banks to short-term stress sensitivity and to improve long term funding. Finally, the introduction of additional capital buffers for the bigger banks have been introduced in an attempt to address the issue of banks being too big to collapse (Reserve Bank, 2016).

2.7.3 King III

In September 2009, King III, the third report on corporate governance, was introduced in South Africa. The preceding King requirements (King I and King II) focused on integrated business reporting, with key focus on how an organisation has, positively and negatively, impacted the economic life of the communities in which it operates, as well as how the organisation intended to enhance the positive aspects, and eliminate the negative aspects of its impact in the following financial year (Institute of Directors South Africa, 2009).

Whilst King III does not make specific reference to NPD, it makes reference to the governance over risk management practices and the responsibilities of an organisation's governing board and senior management in respect of this. In terms of principles 4.4 through to 4.9, reference is made to the responsibility of risk management , as well as the assessments, responses to, monitoring of, and assurance and disclosure of risk within an organisation (Institute of Directors South Africa, 2009). Key risk management principles in terms of risk assessment, risk response, reporting and assurance are included in the King III report and most certainly applies to NPD. These principles are depicted figure 5, below.

Governance element	Principles	Recommended Practice
The board's responsibility for risk governance	4.1. The board should be responsible for the governance of risk	4.1.1. A policy and plan for a system and process of risk management should be developed. 4.1.2. The board should comment in the integrated report on the effectiveness of the system and process of risk management. 4.1.3. The board's responsibility for risk governance should be expressed in the board charter. 4.1.4. The induction and ongoing training programmes of the board should incorporate risk governance. 4.1.5. The board's responsibility for risk governance should manifest in a documented risk management policy and plan. 4.1.6. The board should approve the risk management policy and plan. 4.1.7. The risk management policy should be widely distributed throughout the company. 4.1.8. The board should review the implementation of the risk management plan at least once a year. 4.1.9. The board should ensure that the implementation of the risk management plan is monitored continually.
	4.2. The board should determine the levels of risk tolerance	4.2.1. The board should set the levels of risk tolerance once a year. 4.2.2. The board may set limits for the risk appetite. 4.2.3. The board should monitor that risks taken are within the tolerance and appetite levels
	4.3 The risk committee or audit committee should assist the board in carrying out its risk responsibilities	4.3.1. The board should appoint a committee responsible for risk. 4.3.2. The risk committee should: 4.3.2.1. consider the risk management policy and plan and monitor the risk management process; 4.3.2.2. have as its members executive and non-executive directors, members of senior management and independent risk management experts to be invited, if necessary; 4.3.2.3. have a minimum of three members; and 4.3.2.4. convene at least twice per year. 4.3.3. The performance of the committee should be evaluated once a year by the board. 4.3.2.4. convene at least twice per year. 4.3.3. The performance of the committee should be evaluated once a year by the board.
Management's responsibility for risk management	4.4. The board should delegate to management the responsibility to design, implement and monitor the risk management plan	4.4.1. The board's risk strategy should be executed by management by means of risk management systems and processes. 4.4.2. Management is accountable for integrating risk in the day-to-day activities of the company. 4.4.3. The CRO should be a suitably experienced person who should have access and interact regularly on strategic matters with the board and/or appropriate board committee and executive management
Risk assessment	4.5. The board should ensure that risk assessments are performed on a continual basis	4.5.1. The board should ensure effective and ongoing risk assessments are performed. 4.5.2. A systematic, documented, formal risk assessment should be conducted at least once a year. 4.5.3. Risks should be prioritised and ranked to focus responses and interventions. 4.5.4. The risk assessment process should involve the risks affecting the various income streams of the company, the critical dependencies of the business, the sustainability and the legitimate interests and expectations of stakeholders. 4.5.5. Risk assessments should adopt a top-down approach. 4.5.6. The board should regularly receive and review a register of the company's key risks 4.5.7. The board should ensure that key risks are quantified where practicable
	4.6. The board should ensure that frameworks and methodologies are implemented to increase the probability of anticipating unpredictable risks	4.6.1. The board should ensure that a framework and processes are in place to anticipate unpredictable risks
Risk response	4.7. The board should ensure that management considers and implements appropriate risk responses	4.7.1. Management should identify and note in the risk register the risk responses decided upon. 4.7.2. Management should demonstrate to the board that the risk response provides for the identification and exploitation of opportunities to improve the performance of the company.
Risk monitoring	4.8. The board should ensure continual risk monitoring by management	4.8.1. The board should ensure that effective and continual monitoring of risk management takes place. 4.8.2. The responsibility for monitoring should be defined in the risk management plan
Risk assurance	4.9. The board should receive assurance regarding the effectiveness of the risk management process	4.9.1. Management should provide assurance to the board that the risk management plan is integrated in the daily activities of the company. 4.9.2. Internal audit should provide a written assessment of the effectiveness of the system of internal controls and risk management to the board.
Risk disclosure	4.10. The board should ensure that there are processes in place enabling complete, timely, relevant, accurate and accessible risk disclosure to stakeholders	5.1.1. The board should assume the responsibility for the governance of IT and place it on the board agenda. 5.1.2. The board should ensure that an IT charter and policies are established and implemented. 5.1.3. The board should ensure promotion of an ethical IT governance culture and awareness and of a common IT language. 5.1.4. The board should ensure that an IT internal cntrol framework is adopted and implemented. 5.1.5. The board should receive independent assurance on the effectiveness of the IT ternal controls.

Figure 5 King Code III of Governance Principles for South Africa (Institute of Directors South Africa, 2009:37)

2.7.4 The Banks Act

Regulation 39(5)(d)(x) of the Banks Act (Act No. 93 of 1990) requires that "risk management practices, processes , policies and procedures are robust enough to ensure that, prior to its initiation, all relevant risk management, control and business units or lines appropriately review and assess proposed new activities, investment in new instruments or the introduction of new products, to ensure that the bank will be able to continuously manage and control the relevant activity, investment or product" (South African Government, 2012).

The assessment of the risk associated with NPD is, therefore, a statutory requirement with compliance thereto being compulsory (South African Government, 2012).

2.7.5 Bringing it all together: Good Product Governance

The board of an organisation delegates the responsibility and performance of managerial activities to others, yet is ultimately responsible for ensuring that the bank in question is managed in a sound and safe manner. In fulfilling these responsibilities, the board will need to ensure that, in respect of NPD, all new, existing and amended products align to their strategic goals. In managing this alignment, the board is responsible for ensuring that adequate internal controls and risk management processes are in place to effectively control the risks associated with NPD. There has to be collaboration from a corporate governance and risk management point-of-view in order for an organisation to deliver on strategic objectives and increase shareholder value (Price Waterhouse Coopers, 2004).

Organisations have an obligation to subscribe to good corporate governance based on the principles contained within the King III report. Further to this, Retail Banks are subject to the guidelines and principles contained within Basel III and the Banks Act which places additional pressure on the manner in which banks manage themselves, particularly with regard to NPD. Compliance with applicable regulations, rules and listing requirements by means of prudent and robust risk management practices are, therefore, key and not negotiable (Paape and Speckle, 2011).

2.8 Risk management

Risk management is considered to be a key aspect of corporate governance, especially for financial institutions. Many large institutions no longer exist due to the basic rules of risk management not being adhered to or being complied with (European Commission, 2010).

According to Keizer, Vos and Halman (2005), literature reviews often fail to provide a full view of all the risks involved in the NPD process. They provide two reasons for this. The first reason is the fact that the majority of the studies use survey methods across organisations; however, only one person in each functional area tends to be selected. The second reason relates to the fact that these studies are retrospective in nature – they focus on risks that are identified late in the NPD process, and not early with the view to preventing failure.

Whilst the primary responsibility of risk management often lies with those assigned this responsibility by the board, Hermano and Martin (2013) provide a view that, in turbulent economic and market conditions, project managers need to develop activities and controls for identifying, assessing, management, and reporting on risks in conjunction with the risk management function. Top management should also be required to adopt roles that are more flexible and that of a learning culture so as to ensure all stakeholders drive accountability and risk management for NPD projects.

Risks are taken to launch new products successfully and with urgency; however, a strategy to manage risk is vital to successfully introducing new products. Adopting an approach of risk avoidance is not ideal and, without a proper risk management project relating to NPD, may fail. Thus, the ability to develop, assess and manage and report on risks is considered to be of utmost importance (Mu et al., 2009). Maytorena, Winch, Freeman and Kiely (2007), Chapman and Ward (2004), as well as Aloini, Dulmin and Mininno (2012) further support this view by concluding that there are many benefits to be realised by an organisation which implements robust risk management practices as part of the NPD process, as the nature and complexities of NPD require the implementation of these practices in order to increase the success rate of any NPD.

A strong executive and management team ought to take the lead in controversial situations, especially at the initiation and implementation phase of high-risk NPD projects or where projects need to be terminated. Conflict-of-interest may arise, especially in situations where the executive management officially oversees a project that it has suggested, especially where the initiative may not conform to the

organisation's strategy or contribute to the success thereof (Lechler and Thomas, 2015).

Risk Management is, according to Porananond and Thawesaengskulthai (2014), deemed to be a crucial element of NPD and should be applied to all aspects of a NPD product. Further to this, risk-management is considered to provide a guideline for the decision-making process applicable to NPD, reduce uncertainty and increase the success rate accordingly. Yet, despite this, the acceptance- and use of formal risk-management applications in NPD projects is still in question.

Regulators have recommended that Retail Banks adopt a pro-active approach towards NPD and recommend that organisations' risk management processes and frameworks are aligned to the size of any new product and also support the complexity of the products or services offered (Price Waterhouse Coopers**,** 2004).

Risk management is a regulatory and juristic requirement and is driven by key principles embedded within Basel III (Bank for International Settlements, 2011) and King III (Institute of Directors South Africa, 2009), where specific reference is made to Risk Management and the impact it has on NPD.

2.8.1 Risk Management Defined

Njogo (2012) defines risk management as the process of identifying, assessing, and prioritising risks, followed by the co-ordination and economic application of resources to monitor and controls risk to reduce the probability of unforeseen events occurring. Dey (2010) provides a more detailed view which includes six risk management steps which are considered to be: risk management planning, risk identification, qualitative- and quantitative risk analysis, risk response and risk monitoring and control.

Risk management, according to Wang, Ling and Huang (2011), is described as a structured approach that is applied in terms of identifying, assessing and prioritising risks which are then followed by the planning of resources to minimize, monitor and finally control the likelihood and impact of an undesired event. Dabari and Saidin (2014) reveal that the level at which risk management is implemented

within organisations may vary, depending on the risk appetite and risk culture of the organisation; this is especially applicable to the banking industry.

Several studies have also been conducted with the aim of identifying the determinants of risk management implementation levels (Pagach, 2011; Lai, 2014; Roslan and Dahan, Colquit, Hoyte and Lee, 1999; Kleffner, Lee and McGannon, 2003; Paape and Spekle, 2011; Beasley, Clune, and Hermanson, 2005). The majority of the studies have been conducted in both developed and emerging economies and provide a view that the risk culture, top management support, regulatory requirements, education and skills levels of staff all contribute towards the implementation of effective risk management practices and frameworks.

The ultimate goal of risk management is to minimise or reduce the likelihood and consequences of negative events occurring and, by doing so, maximising positive events (Dey, 2010). In an attempt to increase NPD success rates, risk management ought to be implemented (Wang et al., 2011).

2.8.2 Risk Management and Basel III

Basel III requires that a bank has an independent risk management function that has sufficient resources, authority, is independent and has and access to the board of directors. One of the principles contained within Basel III that refers to the enhancement of corporate governance relates to NPD. It requires banks to have formal approval processes in place for new products. The formal processes referred to include risk assessments to highlight the risks associated with new products, markets or new business lines, as well as major changes that are made to existing products (Bank for International Settlements, 2011).

Further to this, Basel also requires that risk-management functions provide input into risks as part of all new processes, systems or ventures. Detailed risk assessments are conducted for purposes of this and may include scenario analysis in order to identify any potential shortcomings in the internal controls designed to mitigate risks associated with NPD. The new product approval process must the extent to which the risk-management function adequately and

effectively identifies, manages and addresses risks into consideration (Bank for International Settlements, 2011).

2.8.3 Risk Management and ISO 31000

The International Organization for Standardisation (ISO) is the largest developer of International Standards worldwide. The body was founded in 1947 and since then, more than 21000 International Standards have been published across all aspects of business and technology. ISO standards 31000:2009 provide generic guidelines and principles on risk management and is applicable to any private- or public enterprise, as well as associations and individuals. This standard can be applied throughout the entire organisation and applied to a wide range of activities such as strategic decision making, operations, functional areas, processes, projects, services and products (ISO, 2016).

The ISO 31000:2009 standards provide generic guidelines with the intention of harmonising existing risk management standards and frameworks, rather than replace those standards that deal with specific risks and/or sectors. These are generic rules that guide existing risk management practices (ISO, 2016).

ISO 31000:2009 provides a framework for the implementation of risk management, information and guidance on creating a framework that supports the risk-management processes. It is up to the organisation to incorporate this framework into existing business processes. The framework includes the need to identify, analyse, evaluate and manage risks identified (AIRMIC, Alarm and IRM, 2010). Figure 6 provides the process flow of each component, with monitoring, review and communication being an ongoing process.

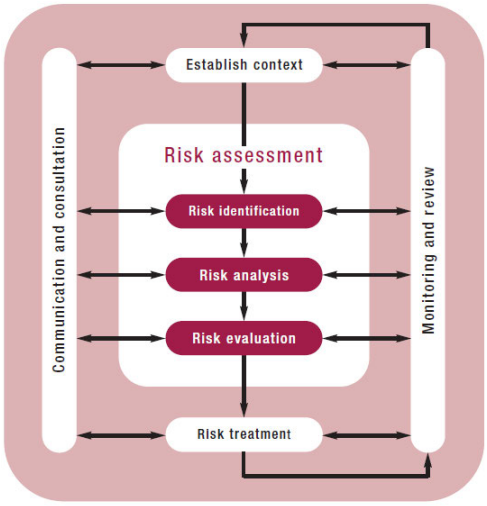

Figure 6 Risk management process (based on ISO 31000:2009)
(AIRMIC, Alarm and IRM, 2010:10)

Risk identification refers to the process of identifying, recognising and describing risk, whilst risk analysis relates to the understanding of the risk with the purpose of analysing and quantifying the risk exposure. The risk evaluation phase is next, whereby the information at hand is evaluated in order to decide on the best way forward in terms of treating the risk. In this final phase, risks may either be transferred to a third party or business partner, avoided by discontinuing the project, mitigated by taking corrective action, or accepted in that a decision made to continue with the project (AIRMIC, Alarm and IRM, 2010).

2.8.4 Risk Management and Banking

A bank's risk exposure increases when it engages in the development of new products or engages in new activities, enters new markets, implements new systems or new technology and processes (Bank for International Settlements, 2011).

The banking industry, according to Jaiye (2009), is said to be a highly regulated industry with regulators being considered to be detailed and focuses. Banks, in some instances, struggle to keep abreast with regulatory changes whilst regulators struggle to effectively manage their obligations, often resulting in a re-active rather than a pro-active approach. The result is that more problems are found to pass

undetected through various checkpoints, which highlights the importance of risk-management practices being effectively embedded (Njogo, 2012).

Price Waterhouse Coopers (2004) confirms that a number of interconnected risks are involved in the development and subsequent launch of new products. It is, therefore, important for Retail Banks to identify the risks and design products in such a manner as to mitigate the risks in the best possible way**.** The expansion and amendment of bank policies and procedures as and when required, is important from a NPD point-of-view, with focus being placed on adequate risk-management frameworks and processes to effectively control the risks associated with the NPD life cycle.

It is of vital importance for banks to manage the risks that they are exposed to. Ultimately, effective risk management leads to a competitive advantage (Dima and Orzea, 2012).

2.9 Risk-Management within NPD

2.9.1 Rationale for Risk-Management as part of NPD.

A significant amount of research relating to risk-management and NPD has been conducted by organisations over the years. Yet, despite this, success rates remain low. Various factors such as shortened product life cycles, increased cost and time spent on NPD projects, as well as the inability to identify risks throughout the development life cycle have all contributed towards this low success rate. The increased risks associated with NPD have called for robust risk-management practices to manage the NPD process better (Dewi, Syairudin and Nahdliyatun, 2015).

Susterova, Lavin and Riives (2009) further support this notion of robust risk-management practice by stating that inherent risks relating to NPD make it necessary to effectively manage the NPD life cycle in order to pro-actively identify, manage and report on the risks the new product may be exposed to. Failure to manage this process may yield devastating results, as often risks relating to NPD

failures are not only related to the product itself but also to the management, ownership, and resources allocated in respect of new product deliverance.

Further to this, the risk-uncertainty-reduction hypothesis (Bourgeois, 1984 cited in Mu, Peng and MacLachlan, 2009) proposes that reducing uncertainty and risk is a primary motivation that guides organisational behaviour. An effective risk-management strategy is, thus, required and leads to an increase in organisational NPD performance.

Oehmen, et al., (2010) suggest that effective risk-management practices lead to improved NPD programme success. In the absence of effective risk assessments and robust risk-management practices, NPD projects can easily spiral out of control, consume resources, inflate NPD costs and lead to NPD failure. Therefore, in NPD, an organisation's ability to identify, assess and manage risks is considered to be of vital importance (Keizer, Halman and Song, 2002).

2.9.2 Incorporating Risk-Management as part of NPD

Risk management needs to be initiated at the beginning of NPD in order to manage uncertainty, with risk-management being approached as a multiphase risk analysis process in which risk identification evaluation, control and management of risks occurs (Cooper and Champman, 1987 cited in Chung Yeh, 2011).

The inclusion and application of risk management practices within the NPD process is sometimes seen to be more complex when compared to that of generic projects, and this, together with the fact that risk management is considered to be ranked of low importance when it comes to NPD, usually results in the process not being included in NPD activities (Porananond and Thawesaengskulthai, 2014).

Child and Youth Finance International and MasterCard Incorporated (2014) provides a view that those responsible for NPD within an organisation must consider the impact of risk, with specific reference to the segment in which they are operating not just from a suitability point-of-view, but also relating to the features, benefits and channels through which the product can be accessed. Further to this, risks relating to the post-sales activity, and customer experience

are key as the reputational risk is extremely high and uncontrollable in a social media space.

Risk-management as part of NPD can thus be seen as a method to improve cost and technical performance, as well as to reduce the likelihood of an unfavourable event occurring (Oehmen, et al., 2010).

2.9.3 Risk Evaluation

The NPD risk evaluations process is said to consist of the process of risk identification, quantitative risk analysis, as well as qualitative risk analysis. It is important to measure, process and report on the risk management status, as well as the project deliverables. NPD project risks include budget, schedule, quality, cost, technological performance etcetera. Risk elements can be assessed during the NPD life cycle (Yeh et al., 2011).

2.9.4 Benefits of Risk-Management

Keizer et al., (2002) raise the importance of diagnosing and controlling risks in NPD projects and require that an organisation identifies both systematically and comprehensively the technological, business and organisational risks a project might be exposed to, as well as the implementation of appropriate risk management strategies. Nine steps are included in their approach, which include an initial briefing, a kick-off meeting, the interviewing of participants, the processing of the interviews, answering the risk questionnaire, the construction of a risk profile, the preparation of a risk-management session, a risk-management session, and - finally - the preparation and execution of the risk-management plan. This is said to be similar to, and hence should be incorporated within, the Stage Gate process.

NPD is exposed to uncertainty and risk-management has become a common approach in an attempt to manage the success of NPD. According to Wang et al., (2011), the success rate of NPD can be improved by implementing risk-management as part of the NPD process. Smith (1999) defines principles and guidelines for effective risk-management and also highlights the importance of risk-management and the positive impact this has on NPD projects in terms of

improving the overall success rates. Salomo, Weise and Gemunden (2007) state that risk-management combined with business activities relating to NPD have proven to improve the overall NPD performance, but that - more specifically – risk-management strategies focusing on organisational, technological and market risk factors have proven to influence risk-management strategies.

A number of studies have been conducted and these provide a view that risk-management is, in fact, an integral contributor to NPD success. For example, Jacob and Kwak (2003) highlight the positive contribution that risk management has on the project selection, resource allocation and review of NPD projects. The study by Mu, et al., (2009) reflects that risk-management strategies that target organisational, market- and technological risk factors improve the overall performance of NPD in an organisation, both individually and interactively. A further study conducted by Raz, Shenhar and Dvir (2002), demonstrates how the use of risk-management practices contributes towards NPD success.

In a more recent study, Zwikael and Ahn (2011) provide a view that moderate risk-management efforts increase overall NPD project performance and that the lack of effective risk-management is considered as one of the top ten challenges affecting large-scale NPD projects. Conversely, the introduction of effective and efficient risk-management practices contributes to the increased performance of NPD projects (Oehmen et al., 2010).

Njogo (2012) introduces the idea that risk-management can reduce the likelihood of an event happening and its consequences minimised. Risk-management involves a process of identifying risks, assessing their impact, prioritising the risks and then the application of resources to minimise, monitor and manage the impact and probability of adverse events occurring.

2.9.5 Risk-Management Elements and Cycle

Warendale (cited in Chung Yeh, 2002) notes that risk-management is a systematic process whereby risks are identified, analysed and responded to.

Risk-management maximises opportunities as well as value, whilst at the same time minimising threat, in an NPD project. This opportunity maximisation is said, according to Susterova et al., (2009), to be a prerequisite for an effective NPD project.

The cycle in Figure 7 represents the risk-management process to be followed when assessing risk exposures, both from a qualitative and quantitative point-of-view. According to KPMG (2012), this cycle is also applied when an event is detected that may have a potential material business impact or result in the change of the risk profile of an organisation or business area.

Figure 7 Operational Risk Management process.
(KPMG, 2012:22)

2.9.6 Risk Quantification

The need to quantify risk in NPD projects has become a growing area of interest. Risk-management frameworks have become popular in NPD as these provide organisations with a way to quantify risk in order to construct appropriate mitigation plans. A risk-management framework, therefore, determines the level of risk for defined risk factors and then provides an overview of total risks associated with an NPD project (Choi and Ahn, 2010).

2.9.7 Risk-Management Framework

Failing to identify, assess, manage and report on risks during the NPD process may result in financial and reputational risks, and even fines or penalties being

imposed by regulatory bodies (Pikholz, et al., 2005). Risk-management is an important aspect and forms an essential part of corporate governance, even more so in banking. Many financial institutions are no longer in operation longer exist because they failed to apply the basic rules applicable to risk management. The main reason for institutional failure has been a lack of officials who understand the risks the organisation is exposed to as well as insufficient training relating to risk management (European Commission, 2010).

Depicted in the Figure 8 (overleaf), is a typical risk-management framework; the objective of this framework is to reduce the likelihood of a risk occurring, to minimise the potential loss and to change the consequences of the risk. It, thus, becomes critical to identify risks early in order for management to respond before risks materialise. The benefits of a successful risk-management framework include: improved control over cost, more effective planning, the minimisation of losses, whilst maximising opportunities, systematic decision making, the efficient use of resources and the creation of best practices within an organisation (Abbasi, 2010).

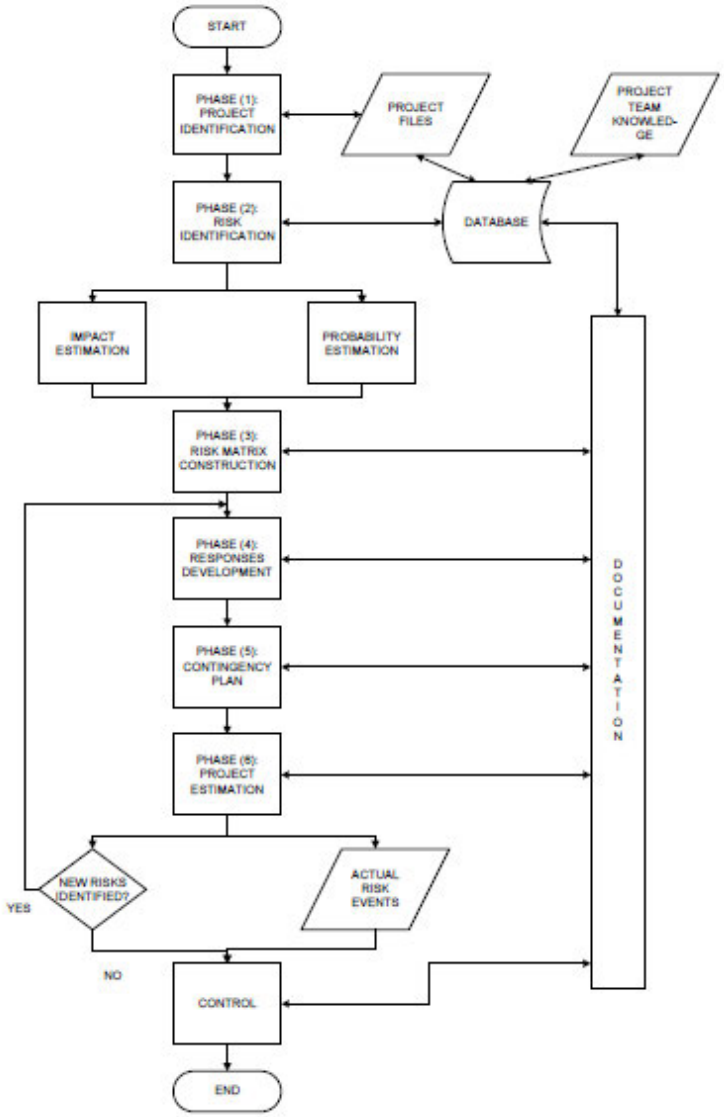

Figure 8 A typical risk-management flow chart
(Abbasi, 2010:62)

2.9.8 Management Responsibilities in respect of Risk-Management and NPD

Management and the board of an organisation need to ensure that due diligence is conducted in respect of new products in order to ensure that the risks and rewards linked to new product offerings are understood. This is highlighted by Price Waterhouse Coopers (2004) as being**:**

i. Assessment of the risks associated with new products and confirming that these new products align to the business strategy and risk profile of the organisation;

ii. Consultation with key functional areas such as compliance, risk-management, legal, operational business areas, internal auditing and Information Technology to understand the impact of the product on the business itself;
iii. Identification of any regulatory and legal issues relating to the new product.

From a risk-management point-of-view, Basel III also makes specific reference to the following subsection of principles that directly affect NPD:

i. The bank's risk management practice and internal control infrastructures should be of such a nature that it keeps track of the introduction of new business lines and products (Subsection 85).
ii. Formal approval processes should be in place for new products. This includes the requirement to identify and assess risks applicable to new products and significant amendments to existing products. The inclusion of the risk-management function as part of the NPD process is key in order to identify, assess, report on and manage risks. This risk assessment should include a detailed and complete assessment of risks as well as a gap analysis to identify shortcomings in respect of the banks internal controls in order to adequately, effectively and efficiently mitigate the applicable risks (Subsection 86).
iii. The board and senior management has a responsibility to ensure that all new products and their risks are identified, assessed and managed (Subsection 113).

The Basel committee also states that new-product-offerings should be delayed should risk-management and the bank's systems be unable to accommodate the associated activities (Bank for International Settlements, 2010).

The King III report further builds on the requirements of Corporate Governance in that it applies to "all entities regardless of the manner and form of incorporation or establishment and whether in the public, private or non-profit sectors" (Institute of Directors South Africa, 2009:16). The King III, compiled by the King Committee under the chairmanship of Professor M. E. King, promotes good corporate

governance in South Africa and speaks directly to the need for prudent risk-management practices in respect of NPD. It is also required by King III that banks have appropriate risk-management processes in place which require the assessments of all risks associated with NPD, as well as those associated with significant amendments to existing products. A risk-management function is therefore, required in order to comply with the requirements of King III (Institute of Directors South Africa, 2009).

In terms of products, processes and services, King III requires banks to be responsible for the impact of their activities and decisions on the environment and society through ethical and transparent behaviour that contributes towards the sustainable development, welfare and health of society (Institute of Directors South Africa, 2009).

2.10 NPD Best Practice and Risk-Management

The need to provide greater transparency and a breakdown of product features and benefits to consumers, as well as the need for greater discipline amongst banks with specific reference to NPD has necessitated the establishment of New Product Approval processes. New Product Approval processes are implemented to promote robust NPD disciplines and criteria by means of encouraging proper internal validation and evaluation processes per any new product (Financial Regulation International. 2014).

Many organisations have implemented formal and structured NPD processes, often with gates or phases to assess process against set criteria before the product can proceed through to the next phase (Smith, 2002). Smith (2002) further states that organisations are of the view that this approach allows for risk-management to be incorporated within a structured process and that this contributes towards the identification and management of risks within the NPD process. Challenges are still, however, experienced when risks are identified but not mitigated.

Price Waterhouse Coopers (2004) provides the view that processes are often seen to restrain innovation, but that this may be overcome if the NPD process is managed and aligned to the strategy of the organisation. The benefits associated with effective and robust risk-management processes outweigh the additional time taken to identify, report on and manage risks relating to the NPD, as these will prevent significant reputational and financial risks the organisation might be exposed to should a new product fail. In banking, reputation is key and so is compliance with regulatory and legal requirements. A Retail Bank may not recover from a transgression of either compliance or legal infringement.

According to Edwards and Bowen (2005 cited in Vargas-Hernandez and Garcia-Santillan, 2011), a good risk-management system for NPD should establish the appropriate context, has to recognise the risk of the NPD project, has to analyse the identified risk and develop responses to those risks. Further to this, the controlling and monitoring of the risks has to be performed during the NPD process and, finally, capture the risk knowledge post the NPD project roll-out (Chapman and Ward, 1997 cited in Vargas-Hernandez and Garcia-Santillan, 2011).

Vargas-Hernandez and Garcia-Santillan (2011) summarise the work of Edwards and Bowen (2005), Chapman and Ward (1997) and Smith and Merritt (2002) in Figure 9 (overleaf).

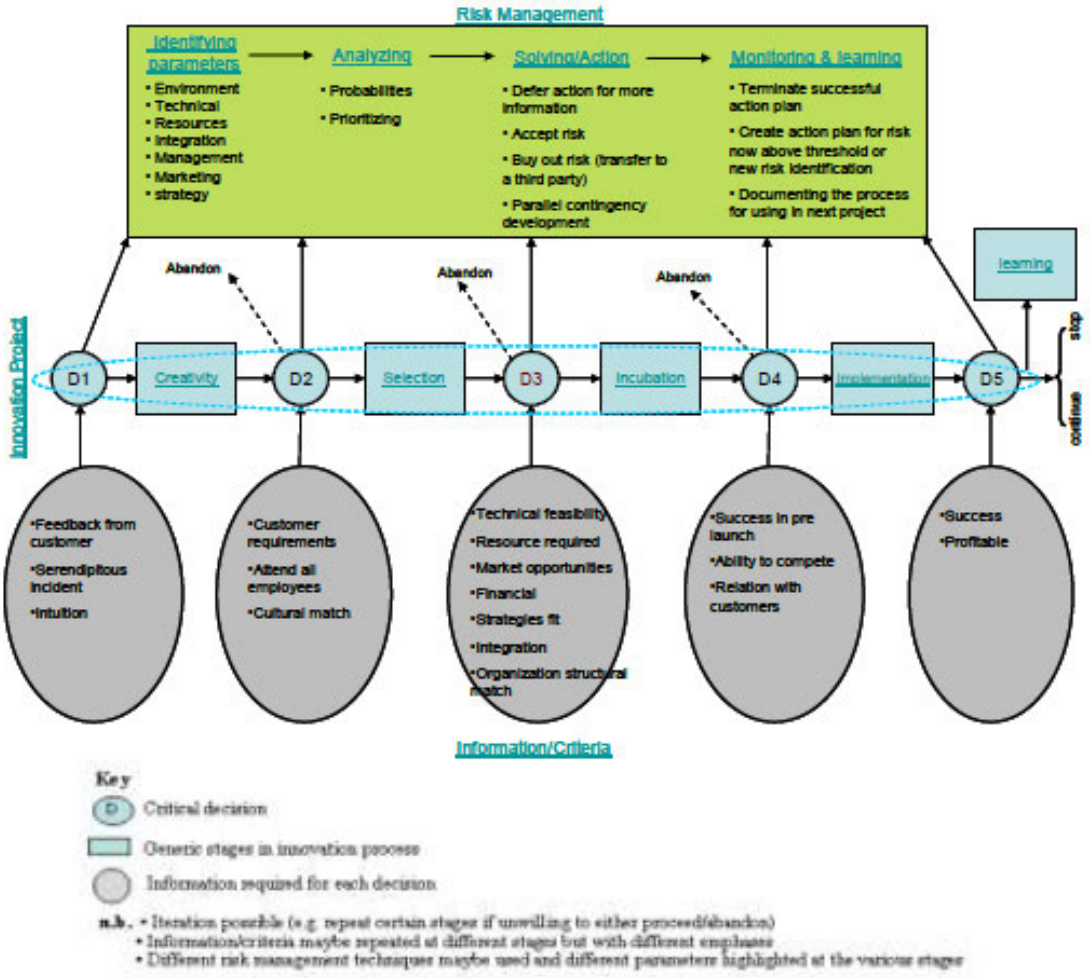

Figure 9 Snapshot of Innovation process and Risk Management (Vargas-Hernandez and Garcia-Santillan, 2011:12)

Figure 9 reflects five decision points which are aligned to the stage gate approach of Cooper (2008). Each of the decision points requires information / criteria in order for the specific phase to be approved, which - in doing - so will allow the project to either proceed to the next stage or to be abandoned. This is a dynamic process with different, interconnected and overlapping decision points. This structure provides a method for a closer meshing of the risk-management system and innovation processes together.

2.11 Summary

This chapter introduced the notion of Risk Management as part of NPD and the importance thereof in a Retail Banking environment. It presented a view and explanation of NPD and Risk Management best practices, models and frameworks and the integration thereof. A general conclusion from the relevant literature

reviewed indicate that risk management as part of the NPD process is key especially in a Retail Banking environment, yet despite this new product failure still occur.

Chapter Three will discuss the research methodology adopted for this study in detail focusing on the research design, metbods, data collection strategies as well as the recruitment of respondents, pretesting and the validation of data

CHAPTER THREE

Research Methodology

3.1 Introduction

This chapter will provide an overview of the research methods employed in attaining the results of the study. This will include discussions on the research design methodology applied, the research approach adopted, the participants and location of the study as well as the sampling techniques used. The design of and rationale for the research instrument will also be explored, followed by a discussion on the reliability and validity of the instrument used. Finally, the chapter will touch on the data collection and the statistical techniques used to analyse and interpret the results.

3.2 Aim and objectives of the study

This study aims to determine the effect of Risk Management on NPD within a Retail Banking environment. The objective of this study is to:

i. Determine whether a relationship exists between Risk Management and formal NPD processes.
ii. Determine whether risk management frameworks support the achievement of NPD objectives.
iii. Determine whether NPD processes support the achievement of NPD objectives within a Retail Banking environment.
iv. Recommend opportunities for further improvements to the NPD processes within a Retail Banking environment.

3.3 Research design

Research design is considered to be a blueprint for the collection, measurement and analysis of data obtained to answer the questions of the study. According to Sekaran and Bougie (2014) decisions regarding the purpose of the study, the research strategy, the physical location of the study, the timelines applicable to the study the extent of researcher interference as well as the level at which the data is analysed are integral to the research design.

3.3.1 Purpose and nature of the study

Studies may be descriptive, causal or exploratory in nature. The nature of the study depends on the advanced state of the knowledge about the research topic.

3.3.1.1 Exploratory study

This type of study is undertaken when not much information is available on the topic at hand or not much is known. Extensive preliminary work would need to be performed to understand and assess the magnitude of the problem and to gain familiarity with the topic. Exploratory research is required when some facts are known, but more information is needed to develop a viable theoretical framework. A qualitative approach is adopted for purposes of this research (Sekaran and Bougie, 2014).

3.3.1.2 Causal study

Causal studies are considered to adopt a scientific approach to research. The purpose of causal studies is to determine the effect one variable has on another. In this type of study the researcher aims to delineate one or more factors that cause a specific problem (Sekaran and Bougie, 2014).

3.3.1.3 Descriptive study

The main objective of descriptive studies is to describe. These studies are designed to describe the characteristics of the data collected in respect of the people, events or situations. Descriptive studies also assist the researcher to think systematically about certain aspects or understand the characteristics of a group given a particular situation. It also offer ideas for further research and may even support decisions that need to be taken.

From a descriptive study point of view two types of studies exist, namely quantitative and qualitative. There are clear distinctions between these two which are illustrated in Figure: 3.1 overleaf.

Figure 3.1 Differences between Qualitative and Quantitative Research Methods (Fawcett *et al.*, 2009:94)

Quantitative research adopts a particular approach to theory, as well as the research strategy adopted, the research questions answered and the conclusion of the results obtained. Quantitative research attempts to build on or test theories, answer quantitative research hypothesis or questions that are underpinned by post-positivist or positivist research paradigms. It consists of four quantitative research designs (experimental, quasi-experimental descriptive and relationship-based research designs. Probability techniques are also used in order to make generalisations from the sample selected from the study. The researcher will also use quantitative data and draw on statistical analysis techniques to examine, and analyse the data (Lund Research, 2016).

A qualitative research method on the other hand can be in the form of a case study research, auto ethnographies, grounded theory, phenomenological research, and narrative research, however irrespective of the form used to gather the information the characteristics are considered to be the same. Further to this, the collection of information is based on the research conducted in the dissertation and often develops further as the dissertation progresses. Information can be collected through different methods. Non-probability sampling techniques are used as specific people or organisations are selected to answer the research questions. The findings are then presented through case studies, personal accounts and other means that will identify abstract, themes, observations, and processes (Lund Research, 2016).

3.4 Method chosen for this study

This research study will follow a descriptive study and will be quantitative in nature. Sekaran and Bougie (2014) describe a descriptive study as research that "describes the characteristics of persons, events, or situations". The study requires the collection of measurable, quantifiable data and a descriptive study allow the researcher to understand the characteristic of the specific group in a given situation. It will also allow the researcher to think systematically about the various aspects in a given situation based on the responses received. A survey questionnaire which is used for purposes of this study provides respondents with an opportunity to answer the same questions which will allow the researcher to make meaningful comparisons.

3.5 Participants and Location of the study

The geographical location of the study and the participants that partake in the research study is a key factor to consider and understand well in order to obtain a sample that will be representative of the entire population.

3.5.1 Location of the study

The Retail Banking (Consumer Segment) head office of First National Bank (FNB) a division of the FirstRand Group Limited and its respective business units are located within the Gauteng Region, South Africa and as such the study was

conducted within this geographical region located at the Bank City Precinct in Simmonds Street, Johannesburg.

3.5.2 Target Population

According to Sekaran and Bougie (2014) a population refers to an entire group of people, things of interest or even events that a research would want to investigate. It is that group which the researcher would want to make inferences on based on sample statistics.

In the selected organisation, the Retail Banking environment (also known as Consumer) have segmented those individual customers who have an income from between R0 – R350 000 per annum.

The Retail Banking segment consists of ten business units. The business units are split between channels and product houses. Channels are those business areas that provide a service to customers and also the areas through which the products are offered to customers.

The product houses design, and own the products which are offered to customers across the various segments and channels. NPD therefore takes place within the product houses and all operational expenditure such as product design costs, marketing costs for the product itself as well as the revenue generated from the products accrues to the product houses.

Prior to selecting the sample it was imperative to identify the population. An analysis of the Retail Banking segment organisational structure and its activities was performed which provided a view that six business units were primarily responsible for NPD. These business units were identified as Value Banking Solutions, FNB Loans, FNB Credit Card, eWallet, FNB Connect and Service Provider, and FNB Home Loans and as such included as part of the study.

From an organisational structure point of view, each business unit was identified as having an executive management team (including Chief Executive Officer) which is responsible for the strategic intent of the area and as such NPD initiatives

are usually initiated here to align to the strategic objectives of the area. The required resources that support and manage the NPD initiatives are also located within each business unit, and have been identified as Product and Pricing Managers, Project Managers, Business Analysts and a risk management team that is from a NPD point of view responsible for the overall governance of the process.

At a Retail Banking group level a risk management team also exists and is responsible for ensuring that the business unit risk management requirements are effectively embedded within the segment. From a NPD point of view they act in an oversight role as it is the business unit risk management teams that are ultimately responsible for the governance thereof and reporting to the appropriate levels.

In order to confirm that all NPD stakeholders within the respective business units were identified, discussions were held with with the segment risk management team, the risk management team within Value Banking Solutions as well as the Executive management team.

The organogram below (Figure 3.2) provides a view of the abovementioned structure and roles within each of the six business units identified above and identifies the key stakeholders that are part of the NPD process. The number of resources within each business unit is dependent on the complexity of the specific business unit. The key roles that form part of the NPD life cycle have as such, been identified and used for purposes of identifying the population of respondents.

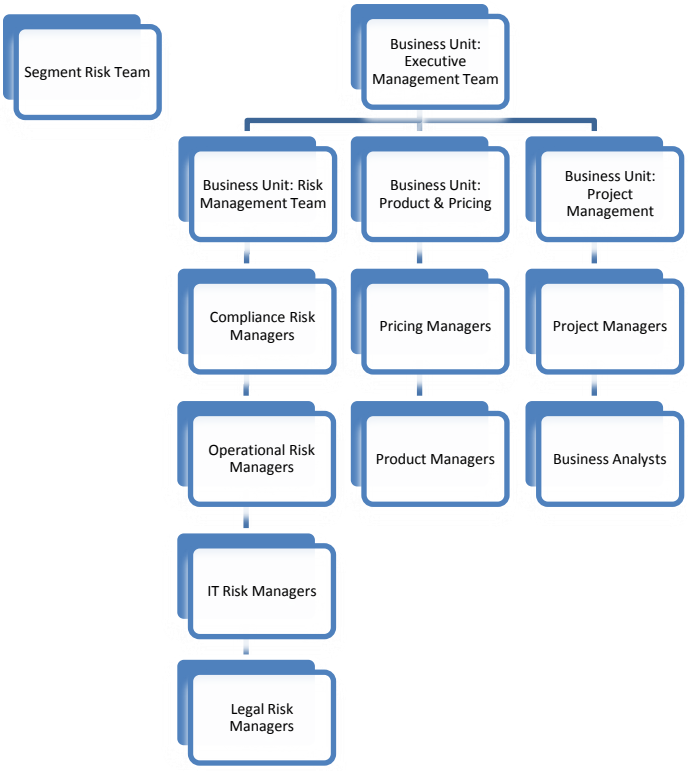

Figure 3.2 General structure of NPD stakeholders within a Retail Banking environment.

3.5.3 Population and sampling selection

A review of internal employee directory was conducted and matched back to the organogram of each business unit within Retail Banking responsible for NPD total population so that respondents may be selected.

The population consists of a total of 136 stakeholders which form part of the NPD process within the Retail Banking segment. At a 95% confidence level and 5% confidence interval, the required sample size selected is 101 which are in line with the minimum requirements provided by the University of KwaZulu Natal.

A summary of the population per business area and role that was identified is provided in Table 3.3 on the next page.

Table 3.3 Population of NPD stakeholders within the Retail Banking environment.

Business Unit	Executive Team	Risk Management	Project Management	Product Owners
	CEO and Executive team	Operational-, Legal-, Compliance & IT Risk	Project Managers & Business Analysts	Product Managers & Pricing Managers
Value Banking Solutions	10	15	28	6
FNB Credit Card	9	4	4	4
FNB Loans	6	3	6	6
E-Wallet	4	2	4	2
FNB Connect & Service Provider	3	1	1	1
FNB Home Loans	5	2	4	2
Segment	0	4	0	0
Total (136)	37	31	47	21

3.6 Recruitment of study participants

The contact details of all identified respondents were obtained from the internal employee database. QuestionPro, an online survey software solution which allows for the distribution, tracking and monitoring of response rates were used primarily to solicit responses. Prior to the survey being distributed, an introductory email was sent to all respondents identified during the review of the organogram advising them of the rationale and purpose of the survey and to advise them that participation was purely voluntary. During survey process the following additional interventions took place in an attempt to increase the response rate:

i. An email reminder was sent out on a weekly basis, providing the respondents with an opportunity to “opt out” if they did not wish to partake further.
ii. Meetings were scheduled with some of the areas where manual questionnaires were handed out or to encourage the completion of the online questionnaire. Once respondents completed the manual questionnaires their names were removed from the electronic listing so as to prevent duplication of responses.
iii. Face to face meetings on an individual basis were held with respondents such as product owners, executive team members and the risk management teams in an attempt encourage participation and to improve the overall response rate.

A combination of electronic surveys and personally administered questionnaires were therefore adopted in an attempt to increase the overall response rate. 57 responses were received electronically via QuestionPro which constitutes 64.77% of the overall responses received whilst 31 responses were solicited via a manual

survey questionnaire. This approach resulted in 88 out of 101 respondents completing the survey, with an overall response rate of 87.12% being obtained.

3.7 Sampling

A sample is considered to be a subset of a population. It includes a selection of members, items or activities from it. It includes some, but not all elements of a population. By studying the sample, a researcher should be in a position to draw conclusions which can be generalised to the population (Sekaran and Bougie, 2014).

According to Bryman and Bell (2007) and Sekaran and Bougie (2014) there are two types of sampling, non-probability sampling and probability sampling.

3.7.1 Non-probability sampling

Non-probability sampling is defined as "a sampling technique in which the individual members of the population do not have an equal chance of being selected to be a member of a sample", (Jackson 2008:99). In non-probability sampling there is no means to ensure or forecast that each element of the population will be represented in the sample. The target population therefore has no or little change of being incorporated into the sample. This may be used where researchers are less concerned about generalisability and more concerned about cost savings or convenience (Sekaran and Bougie 2014). The following are examples of non- probability sampling techniques:

i. Convenience sampling – refers to the selection of a sample based on members of the population who are conveniently available.
ii. Purposive/judgment sampling – involves the selection of respondents who are in the best position to provide the required information. This may have an impact on the generalizability of the population as the researcher refers to those respondents who may have the information on hand.
iii. Purposive/quota sampling – similar approach to judgement sampling but ensures that specific groups are represented in the study through the allocation of a quota. Quotas are generally fixed for each subgroup based on the numbers of each group within the population.

3.7.2 Probability sampling

Probability sampling is defined as “a sampling technique in which each member of the population has an equal likelihood of being selected to be part of the sample” (Jackson, 2008:97). Sekaran and Bougie, (2014) provides a view that when elements in a specific population have a known, non-zero opportunity of being selected as subjects in the sample that a probability sampling technique would apply. The following are examples of the most commonly used probability sampling techniques:

i. Systematic sampling – an element of the population is selected at the beginning where a random start is applied with the sampling fraction being applied consistently by selecting every *x*th element
ii. Stratified random sampling – involves a process of segregation or stratifying where the population is divided into strata or sub-populations with a simple random sample on each strata being selected.
iii. Cluster sampling – are samples that are gathered in chunks of elements or groups that are considered to be an aggregate of elements in the population. The target population is first divided into clusters then random samples selected from each cluster.

3.7.3 Sampling technique adopted

This study made use of stratified random sampling to give each element in the population an equal opportunity of being selected. The population was split into six business areas based on the organisational organogram and included a total of 136 stakeholders.

A sample size of 101 was required based on a 95% confidence level and 5% confidence interval. The sample size equated to 74.26% of the entire population. This percentage was applied as close as possible to each of the six business areas to ensure that the sample size selected was representative of the overall size and complexity of each business unit within Retail Banking. This would also prevent the skewing of information or data that would be the case if random sampling was applied. This resulted in a sample which is split per business area as highlighted in Table 3.4 being identified.

Table 3.4 Sample Size break-down per business unit

Business Unit	Total population per business area	Sample selected per business unit	Sample as percentage of population
Value Banking Solutions	59	44	74.58%
FNB Credit Card	21	16	74.58%
FNB Loans	21	16	76.19%
E-Wallet	9	7	76.19%
FNB Connect & Service Provider	6	5	77.78%
FNB Home Loans	13	10	83.33%
Segment	4	3	76.92%
Total sample (101)	136	101	74.26%

After the population was stratified as per Table 3.4 a random sample was selected within each sub-population across the various roles per business unit. This resulted in the sample highlighted in Table 3.5 being selected and provides a breakdown per role.

Table 3.5 Sample selection analysis per business unit and role

Business Unit	Executive Team	Risk Management	Project Management	Product Owners
	CEO and Executive team	Operational-, Legal-, Compliance & IT Risk	Project Managers & Business Analysts	Product Managers & Pricing Managers
Value Banking Solutions	10	15	28	6
FNB Credit Card	9	4	4	4
FNB Loans	6	3	6	6
E-Wallet	4	2	4	2
FNB Connect & Service Provider	3	1	1	1
FNB Home Loans	5	2	4	2
Segment	0	4	0	0
Total (136)	37	31	47	21

3.7.4 Overall sample response rate

One business unit, FNB Connect did not partake in the survey which resulted in a 0% response rate for that specific area. This business unit is small with a total of only six respondents being selected for purposes of the questionnaire. Due to the small size, the non-participation of the business unit is not considered to have had a material impact on the overall results of the survey.

Table 3.6 provides a detailed breakdown of the response rates per role, overall response rate per business unit and overall response rate for the Retail Banking segment.

Table 3.6 Response rates per business unit and stakeholder

Business Unit	Executive Team		Risk Management		Project Management		Product Owners		
	CEO and Executive team	Responses received	Operational-, Legal-, Compliance & IT Risk	Responses received	Project Managers & Business Analysts	Responses received	Product Managers & Pricing Managers	Responses received	Response rate %
Value Banking Solutions	10	3	15	12	28	25	6	3	97.72%
FNB Credit Card	9	5	4	2	4	2	4	2	68.75%
FNB Loans	6	3	3	1	6	5	6	6	93.75%
E-Wallet	4	2	2	1	4	4	2	0	100%
FNB Connect & Service Provider	3	0	1	0	1	0	1	0	0%
FNB Home Loans	5	3	2	1	4	4	2	1	90%
Segment	0	0	4	3	0	0	0	0	75%
Sample Size (101) Responses (88)	37	16	31	20	47	40	21	12	87.12%

3.8 Data Collection Strategies

A survey method (questionnaire) was used to conduct the research with the data being collected using a questionnaire. A questionnaire is considered to be a pre-formulated set of questions to which the selected respondents will record their responses. It follows a quantitative approach (as described in section 3.3.1.3).

3.8.1 Construction of the instrument (Questionnaire design)

The need to have a well planned and designed questionnaire is crucial for obtaining accurate and relevant information. The use of questionnaires is considered to be an efficient way to collect data. The design of the questionnaire must be linked back to the research objectives and administered to the sample population (Sekaran and Bougie, 2014).

Sekaran, (2003:236) defines a questionnaire as a “pre-formulated written set of questions to which respondents record their answers, usually within rather close defined alternatives”. According to Shajahan (2004) questionnaires hold the advantage of being relatively easy to administer, cost effective, flexible and allow for a certain level of anonymity. The questions included in the questionnaire were based on the literature reviewed and was guided by the objectives.

The questionnaire was split into two sections, the first being demographic information and the second including statements that respondents needed to provide their views on. These statements linked back to the research objectives. Due to the nature of the closed-ended statements the questionnaire did not allow respondents to discuss any other views or opinions. The reason for the selection of closed ended questions was due to the fact that it would simplify the administration and analysis of the feedback provided. The researcher bore in mind the assertion of Emory (1980) in that close questions do have their own limitations.

Emory, (1980) argued the fact that closed questions in some cases forced respondents to provide opinions that they would not normally give in the case of open-ended questions.

The respondents were provided with statements to which they needed to provide responses. These statements were formulated based on the questions that required to be answered in order to provide an opinion on the objectives of the study.

An interval rating scale was used in order to elicit responses with regards to the statements made. Sekeran and Bougie, (2014) states that an interval allows certain arithmetical operations to be performed on data collected based on the responses received. A Lickert scale was used and included Strongly Agree, Agree, Unsure, Disagree and Strongly Disagree as possible options.

The Lickert scale may be presented in different forms. The scale used for purposes of the questionnaire was a five-point scale which means that respondents had five possible responses to select from. The Licker scale, as stated by Welman and Kruger (2001) is one of the most popular and easiest scales to compile other than scales such as the Thurstone, Guttman and Semantic differential scale.

As the questionnaire was self-administered the researcher ensured that questions were clearly articulated and definitions provided where applicable in order for the respondents to understand the questionnaire.

In terms of Figure 3.7 overleaf the questions were aligned to the main objectives of the study. A total of 26 questions were posed to respondents, which included nine questions relating to demographics.

Questions	Objective
1-9	To determine the demographics of the respondents (such as business unit, age, qualifications, years of experience etc.) as well as to determine whether NPA occurred within their business area
10 - 13	To determine whether a relationship exists between Risk Management and formal New Product Development processes
14 - 17	To determine whether risk management frameworks support the achievement of NPD objectives
18 - 26	To determine whether NPD processes support the achievement of new product development .

Figure 3.7 Questionnaire design linked to objectives

3.8.2 Administration of questionnaire

The benefits associated with electronic surveys have been highlighted by Sekaran and Bougie (2014) as being inexpensive, easy to administer, quick delivery and that respondents may complete the questionnaires at their own convenience. Disadvantages listed were that computer literacy is a necessity, that respondents must be willing to complete the survey and must have access to the medium (computer, laptop, mobile device).

The benefits associated with personally administered questionnaires on the other hand included building rapport with respondents, motivating respondents to complete, and a higher response rate whilst disadvantages were considered to be the time and effort taken to administer the questionnaires.

A combination of electronic surveys and manual, personally administered questionnaires were adopted so as to increase the overall response rate. No challenges were experienced and with a response rate of 87.12% confirms that a mixed method approach was in fact beneficial to the overall survey.

3.9 Reliability, Validity and pre-testing.

3.9.1 Introduction

Reliability and validity is extremely important in research methodology as the methods used have to provide a representation of the theories or concepts being investigated (Bryman and Bell, 2007). Reliability deduces that the outcomes of the research conducted are convincing and adequate. In quantitative research this refers to the measurement repeatedly providing the same result so as to be consistent when the relevant reliability tests are performed. In order to achieve these responses there should be rigour in the collection of data.

3.9.2 Reliability

Cronbach's Alpha value was used to test the reliability of the data. Cronbach's Alpha is in fact a measure of internal consistency, in other words, it measures how closely related a set of data items in a group is. It is also said to be a measure of scale reliability and is not a statistical test, it is considered to be a coefficient of reliability.

Cronbach's Alpha is written as a function of the average inter-correlation amongst items and the number of test items. The formula is provided below with the C-bar being the average inter-item covariance among the items, N is the number of items with the v-bar equalling the average variance (Institute for Digital Research and Education, 2016).

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

3.9.3 Validity

Validity is defined as "the extent to which a test measures what we actually wish to measure", (Cooper and Schindler, 2006:348). This is similar to the definition provided by Jackson (2008:71) which states that "validity refers to whether a measuring instrument test measures what it claims to measure". Sekaran and Bougie (2014), group validity under three broad categories:

i. Content validity where the measures include responses that are acceptable and representative of the objectives of the research.
ii. Criterion related validity where variations in the responses by the respondents are established. With concurrent validity the scale will discriminate against individuals who are known to be different. In predictive validity the instrument will be able to distinguish between respondents based on future measures.
iii. Construct validity refers to whether the responses align with the theory around which the objectives were designed.

For purposes of the research project an established tool was used with the supervisor approving the questionnaire that was developed for purposes of the survey. In designing the questionnaire, the researcher ensured that the questions posed related to the effect that risk management has on NPD within a Retail Banking environment

3.9.3.1 External and internal validity

When the results of the study can be generalised to the entire population then it is considered that external validity has occurred. Internal validation occurs when the researcher can determine the causal effects of variables in the study (Cooper and Schindler, 2006).

In this study the sampling methodology used allowed the researcher to confirm that the sample was representative of the population. A pilot study or pre-test was also conducted to confirm the correctness of the study design with the outcomes of the questions being compared to each other to identify any possible concerns from a reasonability point of view. In line with what Cooper and Schindler, (2006) suggested, the researcher ensured that the questionnaire included the necessary investigative questions guiding the study in order to provide content validity.

3.9.4 Pre-testing

Cooper and Schindler, (2003) provide a view that it is necessary for pre-testing on research instruments to occur in order to identify weaknesses in the design and instrument of choice. Bryman and Bell, (2007) states that when possible that a pilot study needs to be conducted before the actual data collection process commences, with it being even more so important when questionnaires are self-administered. Pre-testing is defined as “the assessment of questions and instruments before the start of a study”, (Cooper and Schindler, 2006:417).The main reason for pre-testing is to improve the overall quality of the data collected via the selected survey. Questions that are presented in a concise, clear and unambiguous manner increase the likelihood of participants completing the survey.

The questionnaire was provided to a small sample of five respondents, three from within the identified population and two external candidates in order to obtain a view of whether the questionnaire was easy to complete, whether concepts were adequately defined and explained, to confirm that there were no ambiguous statements that could impact the results of the survey conducted and whether the choice in instrument was appropriate. The participants indicated that they had no concerns with the design or content of the instrument and as such no changes were made before it was distributed to the sample of respondents identified.

3.10 Analysis of data

The objectives of a research undertaking can only be met once the data has been analysed. In this study a quantitative approach was used which meant that the results obtained from the survey had to be coded, inputted and then edited. Once this had been performed statistical correlations were applied giving meaning to the data. According to Shajahan, (2004) the purpose of an analysis is to understand relationships and build empirical models through which meaningful inferences can be drawn.

For purposes of this study, the raw data from the survey was exported from QuestionPro to Excel in order for the results from the manual questionnaires to be added onto this. The data analysis was conducted by a qualified statistician from the University of KwaZulu Natal using the SPSS Statistical package version 23. The analysis and methods used will be presented in Chapter Four.

3.11 Ethical Considerations

The Chief Risk Officer (CRO) of First National Bank Consumer/Retail segment was identified as the gatekeeper for purposes of the study. The CRO was briefed on the purpose on the rationale and purpose of the study, and subsequently provided permission for the study to commence within the identified area within the organisation.

The required documentation, together with the ethical clearance application form was submitted to the Ethics Committee of the University of KwaZulu Natal. Permission was granted on the 8th of April 2016 after which the survey

commenced. The researcher ensured that the requirements of the University of KwaZulu Natal Ethics policy was adhered to at all times.

3.12 Summary

The research methodology provided within this chapter provides the rationale for and approach applied to this study. It also provided the approach adopted in selecting the sample and the ethical clearance process adhered to. The next chapter aims to present the data collected by the researcher for purposes of the study undertaken.

CHAPTER FOUR

Presentation of Results

4.1 Introduction

This chapter provides a summary of the results obtained from the survey which was conducted within the Retail Banking (Consumer) segment of First National Bank, located at Simmonds Street, Johannesburg and is presented in the form of descriptive and inferential statistics.

The results are presented and referenced together with published research material emanating from similar studies in order to make it more useful. The discussion in this chapter may also results in opportunities for future research being identified and provide the reader with a more comprehensive understanding of the effect that risk management has on New Product Development within a Retail Banking environment. The detailed findings and recommendations stemming from the discussion will thereafter be presented in Chapter Five.

4.2 Data analysis

The data collected from the questionnaires was captured and coded into SPSS (Statistical Package for Social Sciences version 23). Descriptive statistics in the form of percentages and frequency (count) were calculated based on the results acquired from the questionnaires and are presented in this chapter by means of bar graphs, pie-charts and tables.

Initially, most of the data was collected online after which it was exported to Microsoft Excel. The data that was collected manually was then captured in Microsoft Excel. Validation checks were conducted by the researcher to ensure accurate, valid and complete information transposed onto the excel spreadsheet. Finally, the data were imported to the SPSS program for analysis.

Descriptive analysis such as frequency distribution was performed and presented using tables or figures. The data was then combined for each of the dimensions and overall scores were calculated. These overall scores were tested for normality

using Kolmogorov-Smirnov test. Spearman rank correlation test was carried out to investigate the relationship between risk management and new product development. Overall median scores were also compared using median test. P-values less than 0.05 were considered statistically significant.

4.3 Response rate

Of the 101 surveys distributed, eighty eight responded which resulted in an 87.12% response rate being achieved.

4.4 Reliability analysis

A total of 88 participants completed the questionnaire. The reliability analysis showed that the data were reliable as the Cronbach's Alpha value was 0.780.

Table 4.1: Reliability analysis output

Reliability Statistics	
Cronbach's Alpha	N of Items
.780	9

4.5 Demographic analysis

An analysis of the demographic information provided by the respondents and its relevance to the study is provided below.

4.5.1 Distribution of race

It was found that 35% were white and another 35% were Indian, with African and Other making up the final 30% (Figure 4.1).

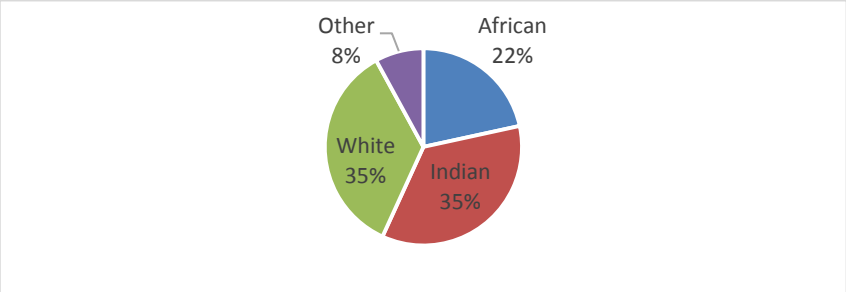

Figure 4.1 Race distribution of respondents

4.5.2 Frequency distribution of gender

There was no significant difference in the number of female and male respondents. Figure 4.2 illustrates that 55% of the respondents were female, whilst 45% were male.

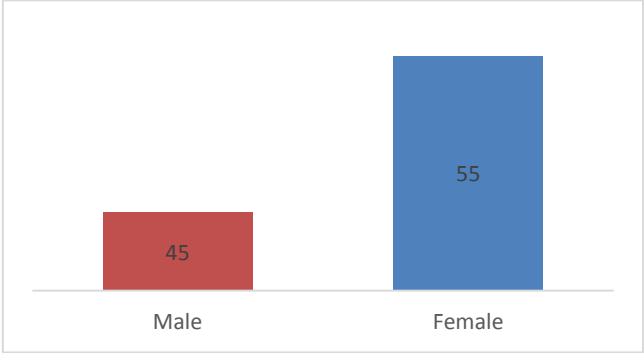

Figure 4.2 Frequency distribution of gender

4.5.3 Responses per age group

Approximately three-quarters (72%) of the participants were between the ages of 25 years and 44 years as per Figure 4.3. Only 1.1% of respondents were in the 18-24 and 55-64 age groups respectively. These will generally be graduates and those that are close to retirement.

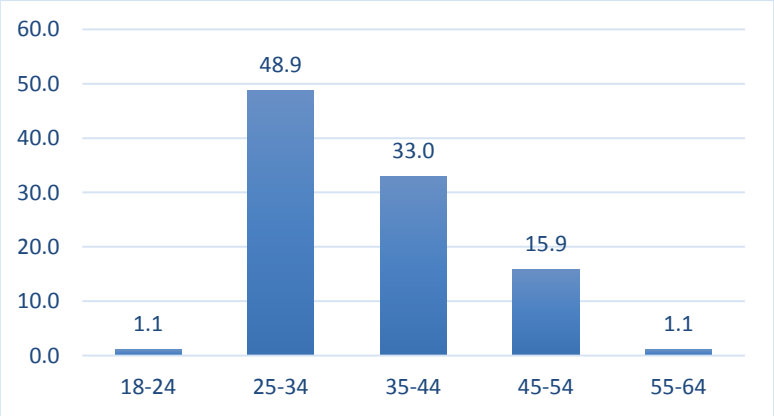

Figure 4.3 Distribution of age of the participants

4.5.4 Experience within a Retail Banking environment

It was found that 61% of the participants had less than 10 years of experience within a Retail Banking environment (Figure 4.4) Executive Management and Product Managers make up 64% of the overall number of participants that have less than 10 years experience within this environment. Almost half of these (30.7%) have between 0 and 5 years experience in a Retail banking environment.

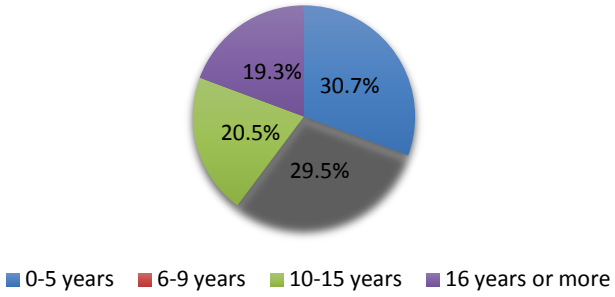

Figure 4.4 Years of experience within a Retail Banking environment

4.5.5 Business Unit within the Retail Banking environment

The Retail Banking environment consists of smaller business unit each with its own strategic objectives which link back to the overall strategy of the Retail Banking segment. The size, complexity and product offerings differ within each of the business unit. About half of the participants reported that their Business Unit within the Consumer (Retail) Banking segment is Value Banking Solutions (49%) followed by FNB loans (17%), depicted in Figure 4.5.

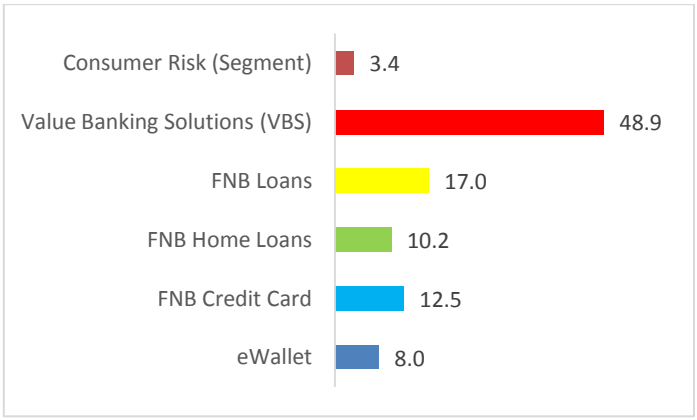

Figure 4.5 Participants Business Unit within the Retail Banking environment

Value Banking Solutions is the biggest business unit within the Retail Banking segment of FNB, and is the product owner of various transactional accounts and credit products offered through channels such as direct sales, call centre, online banking and FNB's branch network (Points of Presence). The number of resources therefore employed within the business unit, and those who participated in the survey are representative of the total population.

4.5.6 Participants role in respect of NPD

When asked about the participants' role as part of the New Product Development cycle, 45% stated that they were project managers or Project analysts, followed by 19% confirming that they were business unit risk partner (Figure 4.6).

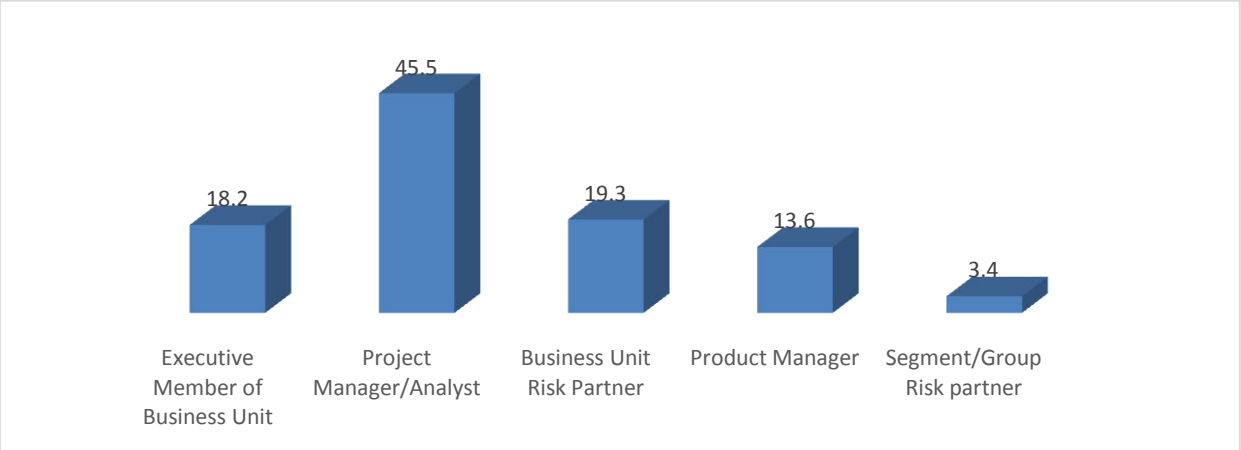

Figure 4.6 Respondents role in New Product Development cycle

In the Retail Banking environment Project Managers, Project Analysts as well as Risk Management form an important part of the NPD process and due to the time, effort and resources spent on this activity results in the resource allocation being significant as compared to Product Managers and Executive Members of Business Units.

The role of a project manager and analyst is to engage with the executive management team, product manager, key business stakeholders and risk management teams in order to successfully manage and ensure the NPD process is completed successfully so that the product can launch to market. Risk Management is responsible for ensuring they engage with the business and that all risks are identified, managed, reported on and mitigated as part of the NPD life cycle. This includes risk identified at the conceptualisation stage, development stages as well as the pre-launch and launch phases.

Risk Management is said to adopt a systematic approach to identifying, analysing and responding to risks (Warendale, 2002 cited in Chung Yeh, 2011). It also maximises opportunities and value whilst minimising threats within the NPD process according to Susterova, Laving and Riives, (2009). The importance of allocating appropriate resources as part of the NPD process can therefore should not be underestimated.

In context of the resources allocated to NPD, Crawford and Benedetto, (2015) refers to the management of a launch management plan. This process lasts until the new product has met or continues to deliver on its key objectives. The launch management plan identifies potential problems and selects those that the organisation is wanting to control. Risk management and NPD stakeholders aids and supports this process.

4.5.7 Combined number of years experience in current field

In the current field, more than half of the participants were working five years or less (Figure 4.7).

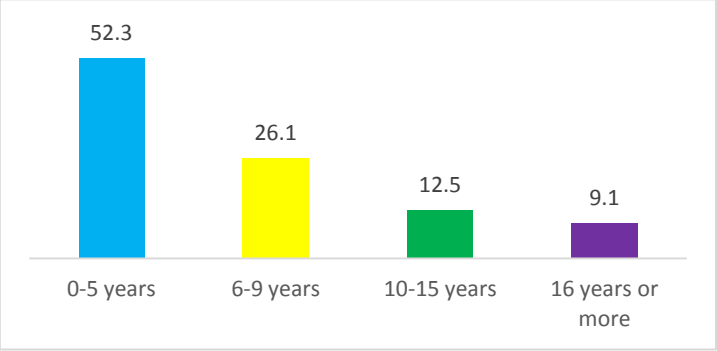

Figure 4.7 Respondents years of experience within the current field

This highlights a concern as NPD is a strategic objective and the lack of experience may impact the development and overall success of a new product. Pollack and Adler (2016), backs this notion up by stating that developing business skills and improving employee skills set is extremely important and that the link between developing the capability of employees and the benefit to the organisational performance is considered to be a given as productivity increases and employees effectively discharge their responsibilities in respect of their roles.

NPD is a crucial component of an organisations success and allows an organisation to realise significant benefits however due to the high failure rates associated with it (Dijksterhuis, 2016). It is therefore concerning to note that more than half of the respondents were in their roles for less than five years. This could potentially have a negative impact on the organisation achieving its strategic

objectives in respect of NPD. This can however, be mitigated by implementing a Risk and NPD curriculum as recommended in section 5.4.2 in Chapter Five.

4.5.8 Demographic Information: Highest level of education

With regards to participants' level of education, it was found that 92% of respondents had a formal qualification. A total of 65.9% of the respondents had an undergraduate degree or higher. (Figure 4.8).

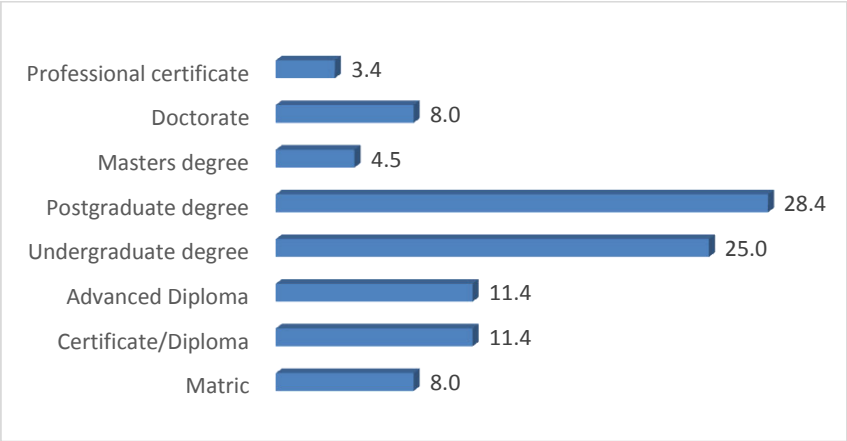

Figure 4.8 Educational level of respondents

4.6 Product development activities within the last 12 months

89% of respondents confirmed that NPD has taken place within their business unit over the last 12 months (Figure 4.9), whilst 2% stated that they were unsure.

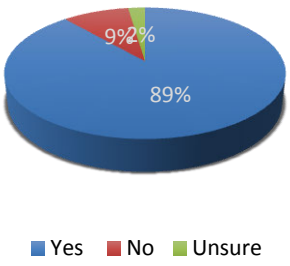

Figure 4.9 Respondents involvement in NPD within the last 12 months

Yeh, et al., (2011) provides a view that NPD has become an essential requirement in organisations in order to gain a competitive advantage and to increase profits. Further to this, Jin et al., (2016) states that NPD contributes towards an organisations competitiveness and its ability to survive. The South African Retail Banking sector is an extremely competitive sector where product- and service

offering often drives customer choice in selecting their bank. It is evident based on the high positive response rate that NPD is a key focus within FNBs Retail Banking segment.

4.7 Objective One: Relationship between Risk Management and NPD

Participants were presented with three statements to investigate whether a relationship exists between risk management and NPD. 95.5% of the participants agreed or strongly agreed that a relationship exists between risk management and NPD. Further to this, 98.9% confirmed that failing to identify, assess and manage risk during the various stages of NPD may result in the new product failing to deliver on its overall objectives (Figure 4.10).

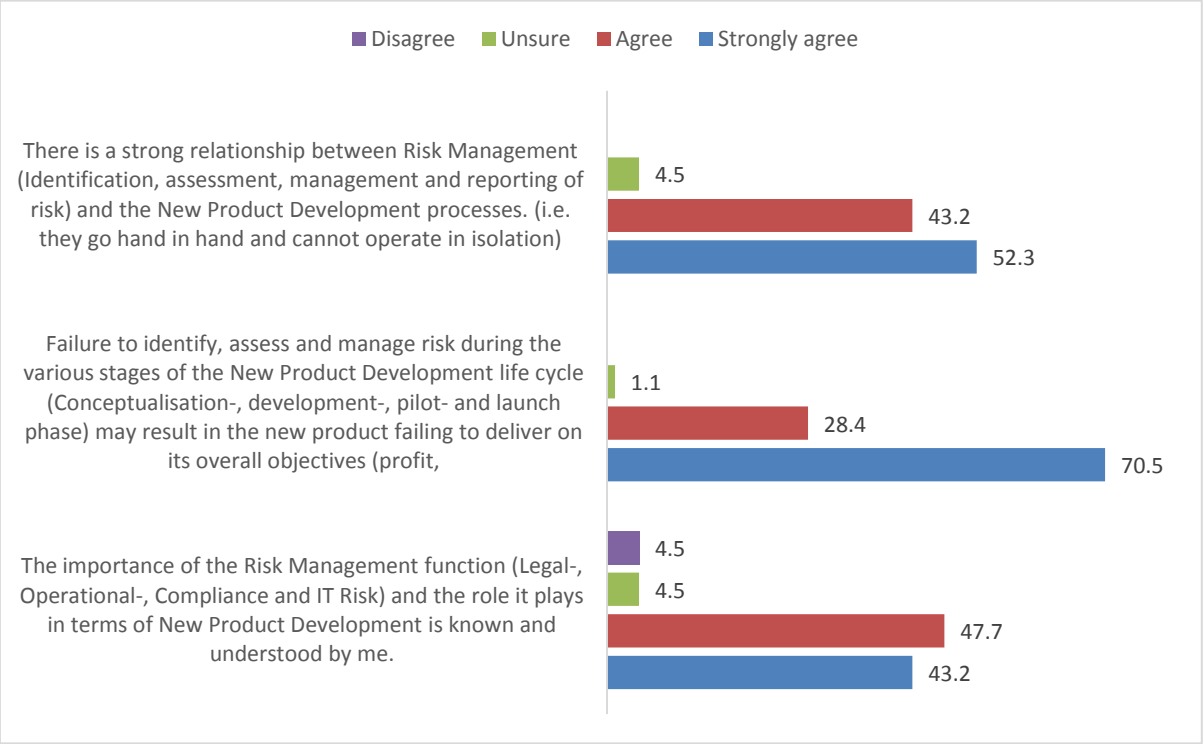

Figure 4.10 Relationship between Risk Management and NPD activities

Despite the high percentage of positive responses only 90.90% of respondents understood the importance of risk management as part of the NPD process.

Whilst this positive response percentage is considered high, it is between 5-9% lower than the positive responses received for confirming that a relationship exists between NPD and the effect of risk management practices on NPD.

According to Dabari and Saidin (2014) it is extremely important for organisations to understand the importance of risk management as part of their governance structures as it enhances the organisations performance through the management of risk, whilst at the same time creating value for both its internal and external stakeholders. It is therefore for this reason that there has been a significant shift and focus on risk management as part of the organisational governance structures. Figure 4.10 above provide a strong view that all stakeholders understand their role as part of NPD as well as the importance of risk management as part of the NPD process, with room for improvement being noted.

It is also necessary to identify, manage and report on risks as part of the NPD process because of the risks associated with it. This is especially important as failing to do so may result in NPD failure (Susterova, et al., 2009). Further to this Oehmen, et.al., (2010) states that risk management as part of NPD is seen as a means to improve cost and technical performance as well as reduce the likelihood of undesirable events occurring.

Studies that have focused on the success and failure of NPD have highlighted the importance of risk management as part of the entire process, (Keizer et al., 2005). It is therefore vital for a relationship between NPD and risk management to exist in order to increase the likelihood of NPD success.

Banks are also required to prescribe to the principles of good corporate governance as it takes into account the interests of all stakeholders as well as the stability of the financial services system into consideration. That said, a few local banks such as Saambou, FBC Fidelity Bank and African Bank have failed as a result of issues relating to corporate governance. Further to this other local, but less known banks such as banks such as Prima Bank, Sechold Bank, Community Bank, Islamic Bank, New Republic Bank, BoE and Regal Treasury have closed doors due to issues relating to market-, credit-, and liquidity risk, as well as capital requirement issues, failure to adhere to banking regulations and ineffective management.

Corporate governance has therefore become extremely important for banks wanting to remain competitive, locally and internationally (Hough et al., 2011). It is for this reason that the necessary governance structures supported by a leadership teams have been put in place by all the major banks. Risk management practices are communicated and enforced throughout the Retail Banking environment and therefore the reason why NPD stakeholders may be aware of, but not necessarily understand the impact of Risk Management on NPD.

Respondents therefore acknowledge and confirm that a strong relationship exists between NPD and Risk Management and that the identification, assessment, management and reporting of risks is important to ensure the success of NPD is important but they do not always understand the reasons why. Being aware of, but not understanding the rationale for risk management as part of NPD may result in risk management practices not being embedded effectively within the organisation, ultimately leading to new product failures which may impact the organisation. It is also important for all business stakeholders to have a fundamental understanding of risk and the impact of this to NPD objectives.

Whilst risk management teams are considered to be specialists, the value of business stakeholders (such as project managers, analysts and even pricing managers) having a fundamental understanding of risk cannot be underestimated as they are extremely close to the systems, processes and requirements of the new product and may be in a better position to identify possible risks for escalation to the risk management teams.

This will most certainly address the challenge that exists in respect of incorporating risk management within all business practices as this is considered by Power (2009) to be an unquestionable and extremely important driver for new product success, despite there being little elaboration on what it would actually entail.

It is for this reason and that recommendations on addressing the concerns highlighted in this chapter are identified and presented in section 5.4.1 in Chapter Five.

4.8 Objective Two: Risk management frameworks and NPD objectives.

There were four statements asked to the participants to investigate risk management as part of NPD and it was found that almost all the participants agreed or strongly agreed to all the statements. For example, 98% positively reported that Risk management processes ultimately increase the likelihood of new products achieving its objectives (managing risks within appetite, achieving revenue, client acquisition objectives etcetera).

The majority (83%) of the participants also agreed that Risk Management become less effective in cases where upfront decisions are made at an organisational or business unit level (Executive management) in respect of the development and subsequent launch of a new product, i.e. an upfront decision to launch a new product to consumers (Figure 4.11).

Senior management ultimately influences the way in which NPD project are selected and managed as well as how much formal control should be exercised over these projects, the amount of resources allocated as well as the extent to which they are involved in the activities itself. There are however, based on the study conducted by Lemmerer, Zapilko and Menrad, (2015) benefits associated with management involvement and the overall success of the NPD projects but there is a fine line between managements involvement in the NPD process in respect of personal objectives and that of the organisation and community as a whole.

Hermano and Martin-Cruz, (2016) makes refers to this as the agency dilemma which is found in the agency theory. It raises concerns around the difficulties associated with top management acting in the best interest of the organisation. Short term, personal goals may take preference as it may result in increased rewards and compensation for top management, but the sustainability of the product may be a concern. Further challenges experienced are NPD projects not terminated when the requirements are not met or where upfront approval for these new products were obtained (Cooper, 2008).

Whilst upfront decisions may be made my top management to develop a new product, corporate governance practices (King III), the requirements of Basel III, the Banks Act and relevant risk management principles should ensure that the required oversight is maintained throughout the NPD process. New product approval processes which include review and approval by appropriate committees will further drive corporate governance principles and instil robust NPD disciplines by means of encouraging proper internal validations, evaluatiosn and adherence to NPD processes (Financial Regulation International. 2014).

A detailed action plan is however required to address the concerns identified and needs to be communicated to all stakeholders. Reference can be made to section 5.4.2 in Chapter Five for recommendations.

It is also important to note that almost eighty three percent of the respondents felt that the time and effort spent on applying risk management practices over NPD may in fact not be justified in comparison with the risks the new product may face. This is lower than the number of respondents (98.90%) who stated that a new product may not deliver on its objectives if risks are not identified, assessed or management during the various parts of the NPD life cycle. The importance of risk management as part of the NPD process is therefore acknowledged, but the perception is that the costs associated with risk management may outweigh any risks the project may be exposed to. Reference can be made to section 5.4.2 in Chapter Five for recommendations on addressing the concern identified.

It has to be further noted that Compliance- and Risk management programs do require significant commitment, resources, staff and technology; however these costs contribute to the efficiency and effectiveness of the risk functions as part of the business culture. Once a risk culture is effectively implemented and managed, organisations can mitigate the risks costs associated with non-compliance and risk events (Compliance Institute, SA, 2016). Further supporting this notion is Smith (2002) who provides the view that there is a definite limit as to how much time and effort an organisation should invest in managing risks within projects and he recommends that as much as protection as possible needs to be obtained relative to the effort, resources and risk exposure of the project.

Figure 4.11 Frequency distribution of statements regarding risk management

Almost forty one percent of respondents also felt that risk management practices and processes were not flexible enough to adapt to the specific needs of a NPD project and that it may even impact the project deliverables. This creates a challenge in obtaining buy in from stakeholders within the organisation. Risk management practices are embedded within the stage gate process of NPD. This concern also aligns to the concern relating to the flexibility of NPD processes in that 42.1% of respondents strongly agreed or agreed that NPD practices are not flexible enough (refer section 4.9)

Many organisations have implemented formal and structured NPD processes, often within a series of gates or phases to assess process against set criteria before the product can proceed through the next phase which Smith, (2002) states allows for risk management to be incorporated within a structured process. Within the Retail Banking environment the NPD process a stage gate process is adopted, with risk management forming part of the process. Doubts have in fact been cast

over the stage-gate process in that it has been criticised for being bureaucratic and inflexible (Sethi and Iqbal, 2008).

It may in fact be the formal and structured NPD processes that create the perception that risk management may not be flexible enough to adapt to the specific and individual needs of a NPD project. The stage gate process does not always allow for the NPD project to proceed before the requirements of each of the check points have been met (Mastroianni, 2011).

The importance of understanding the impact that project flexibility and risk management practices have on NPD is important so as to drive effective and efficient projects as lack of flexibility may result in increased costs, risks and negatively impact the organisations objectives (Gill and Tether, 2011).

Section 5.4.2 in Chapter Five provide recommendations to address the concerns identified within this chapter.

4.9 Objective Three: NPD processes in relation to NPD objectives.

To determine whether NPD frameworks and processes support the achievement of NPD objectives, a total of five statements were asked. More than three quarters (81.9%) of the participants strongly agreed or agreed that all new products are subject to a final approval/review prior to being launched to consumers. On the other hand, almost half (42.1%) of participants agreed or strongly agreed that in some cases, the time, effort and cost spent in following formal New Product Development processes are unnecessary and outweighs the intended benefits. 95.4% of respondents however agreed or strongly agreed that NPD processes increase the likelihood of new products succeeding (Figure 4.12).

Financial Regulation International, (2014) stated that new product approval processes are implemented to promote robust NPD disciplines and to encourage proper internal validation and evaluation processes for all new products. In banking the need for formal new product approval processes are even more so required from a Basel III and Corporate Governance point of view. These

regulatory and statutory requirements therefore further support the need for formal new product approval processes.

Barczak and Kahn (2012) considers NPD frameworks and processes to be key to new product success and highlights common NPD processes which cut across organisational groups, NPD processes that are flexible and adaptable to meet the needs, risk, and size of NPD projects as well as the existence of clearly documented and communicated NPD processes as NPD best practice.

Whilst a formal NPD process such as the Phase gate system is said to improve the focus on quality it may seem that based on the study conducted that the application of the phase gate system (or similar system) may present a concern as it has lead to the view that the time and effort spent on this activity may not be efficient. Phase gates are said to promote parallel processing whereby activities across the various functional areas occur at the same time. Phases are also not dominated by a single function or a department and said to be cross-functional (Cooper, 2008).

The requirement and need for NPD processes were acknowledged by the respondents with almost ninety-six percent stating that NPD processes increase the likelihood of products succeeding, it may just be that the application thereof in the particular organisation that may be a concern. Price Waterhouse Coopers (2004) provided a view that NPD processes if seen to restrain innovation can be overcome if these processes are aligned to the strategy of the organisation together with taking best practice into consideration.

Stage gate frameworks act as control points in the NPD process and when the criteria set have not been met the governance within the stage gate process prevents the project from continuing. This may or may not create the perception that NPD processes are not flexible enough. Reference can be made to section 5.4.3 in Chapter Five for recommendations on addressing the concern identified.

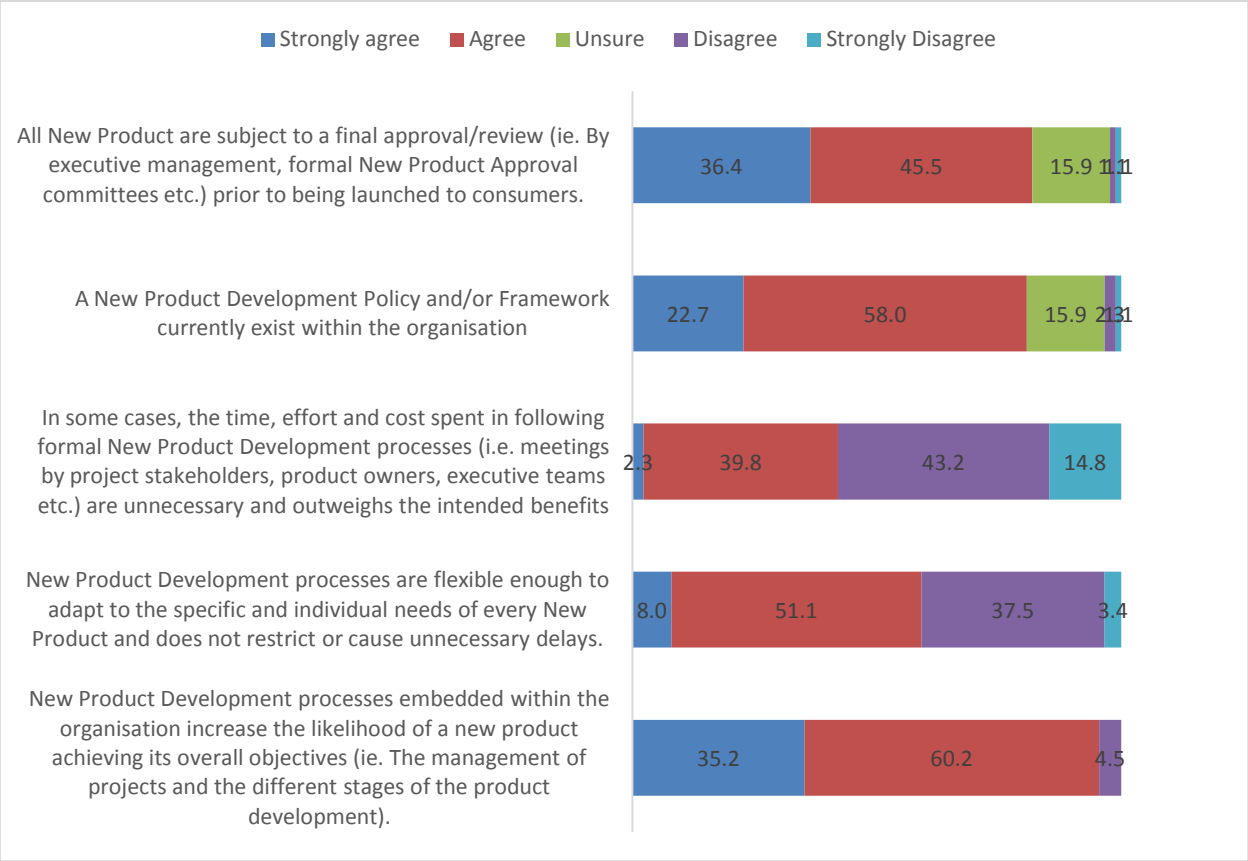

Figure 4.12 Frequency distribution of statements regarding NPD frameworks

4.10 Inferential statistics

For further analysis, all the statements scores were combined for risk management and new product development. The overall scores were tested for normality. It was found that the data were not normally distributed (Table 4.2). Therefore, an inferential test was performed using non-parametric testing.

Table 4.2 Normality test output

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Overall score for risk management	.140	88	.000	.954	88	.004
Overall score for new product development	.149	88	.000	.956	88	.004
a. Lilliefors Significance Correction						

To determine the relationship between risk management and new product development, Spearman rank correlation test showed that there was a significantly low positive correlation exist (r=0.339, p=0.01). This meant that if the overall scores for risk management increase that the overall scores for new product development would also increase.

Table 4.3 Spearman's rho correlation output

Correlations				
			Overall score for risk management	Overall score for new product development
Spearman's rho	Overall score for risk management	Correlation Coefficient	1.000	.339**
		Sig. (2-tailed)	.	.001
		N	88	88
	Overall score for new product development	Correlation Coefficient	.339**	1.000
		Sig. (2-tailed)	.001	.
		N	88	88
**. Correlation is significant at the 0.01 level (2-tailed).				

4.10.1 Risk management compared amongst race groups

The overall median scores for risk management and new product development were compared with all the socio-demographic variables. These comparisons were done using median test if there were more than two categories. No significant median score difference was found when compared among different race group (Table 4.4).

Table 4.4 Overall median score for risk management comparison among different race group

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The medians of Overall score for risk management are the same across categories of What is your race.	Independent-Samples Median Test	.588	Retain the null hypothesis.
2	The medians of Overall score for new product development are the same across categories of What is your race.	Independent-Samples Median Test	.473	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

4.10.2 Risk management and NPD compared amongst race groups

The overall median scores for risk management as well as new product development were similar among different age groups and are depicted in Table 4.5 below (P>0.05). No significant difference were found.

Table 4.5 Overall median score for risk management and NPD comparison among different age groups

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The medians of Overall score for risk management are the same across categories of What is your age?.	Independent-Samples Median Test	.769	Retain the null hypothesis.
2	The distribution of Overall score for risk management is the same across categories of What is your age?.	Independent-Samples Kruskal-Wallis Test	.615	Retain the null hypothesis.
3	The medians of Overall score for new product development are the same across categories of What is your age?.	Independent-Samples Median Test	.278	Retain the null hypothesis.
4	The distribution of Overall score for new product development is the same across categories of What is your age?.	Independent-Samples Kruskal-Wallis Test	.137	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

4.10.3 Risk management and NPD compared against years of Retail Banking experience

The overall median scores for risk management as well as new product development were similar among those with varying years of experience within a Retail Banking environment and are depicted in Table 4.6 below (P>0.05). Again, no significant difference was found.

Table 4.6 Overall median score for risk management and NPD comparison among years of experience in Retail Banking

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The medians of Overall score for risk management are the same across categories of My Combined number of years of experience within a Retail/Consumer Banking environment .	Independent-Samples Median Test	.704	Retain the null hypothesis.
2	The medians of Overall score for new product development are the same across categories of My Combined number of years of experience within a Retail/Consumer Banking environment .	Independent-Samples Median Test	.464	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

4.10.4 Risk management and NPD compared amongst business units

Table 4.7 shows the overall median scores for risk management as well as new product development were similar among those from different business units within the Retail Banking segment. The responses received per business unit are therefore similar if compared to that of other business units.

Table 4.7 Overall median score for risk management and NPD comparison amongst different business units

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The medians of Overall score for risk management are the same across categories of My Business Unit within the Consumer (Retail) Banking segment is .	Independent-Samples Median Test	.831	Retain the null hypothesis.
2	The distribution of Overall score for risk management is the same across categories of My Business Unit within the Consumer (Retail) Banking segment is .	Independent-Samples Kruskal-Wallis Test	.696	Retain the null hypothesis.
3	The medians of Overall score for new product development are the same across categories of My Business Unit within the Consumer (Retail) Banking segment is .	Independent-Samples Median Test	.387	Retain the null hypothesis.
4	The distribution of Overall score for new product development is the same across categories of My Business Unit within the Consumer (Retail) Banking segment is .	Independent-Samples Kruskal-Wallis Test	.249	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

4.10.5 Risk management and NPD compared amongst different roles

Table 4.8 shows that the overall median scores for risk management as well as new product development were similar among respondents based on their role in NPD. The scores for risk management based on the respondents' roles were found to be evenly distributed. There is however a difference in the distribution of overall scores for respondents based on their role as part of NPD. This highlights the fact that the respondent's perception of NPD differs depending on their role as part of NPD. Risk Managers may therefore view the components and dynamics of NPD in a different light to of an Executive Management team member or a Project Manager and vice versa.

This in itself may contribute to NPD failure and Dijksterhuis, (2016) highlights this as one of the underlying issues impacting an organisations NPD culture. It is said to disproportionately contribute towards the development of new products which may fail as a result of those stakeholders responsible for NPD working in pillars or silos. What this means is that specialist functions are often grouped together and work well within their own functional area of expertise but often do not understand the wider context of their work in terms of overall NPD deliverables.

Dijksterhuis, (2016) suggests that the various areas responsible for NPD need to collaborate with each other and obtain a fundamental understanding of each of the other in terms of the role and value they add in respect of NPD and the achievement of these objectives. Reference can be made to section 5.4.1 in Chapter Five for recommendations on addressing this concern.

Table 4.8 Overall median score for risk management and NPD comparison among different roles

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The medians of Overall score for risk management are the same across categories of In terms of my role (and as part of the New Product Development cycle) I am a: .	Independent-Samples Median Test	.463	Retain the null hypothesis.
2	The distribution of Overall score for risk management is the same across categories of In terms of my role (and as part of the New Product Development cycle) I am a: .	Independent-Samples Kruskal-Wallis Test	.521	Retain the null hypothesis.
3	The medians of Overall score for new product development are the same across categories of In terms of my role (and as part of the New Product Development cycle) I am a: .	Independent-Samples Median Test	.504	Retain the null hypothesis.
4	The distribution of Overall score for new product development is the same across categories of In terms of my role (and as part of the New Product Development cycle) I am a: .	Independent-Samples Kruskal-Wallis Test	.047	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

4.10.6 Risk management and NPD compared amongst years of experience in current field

Table 4.9 shows the overall median scores for risk management as well as new product development were similar among those with varying years of experience in their current fields (P>0.05).

Table 4.9 Overall median score for risk management and NPD comparison among years of experience within current field

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The medians of Overall score for risk management are the same across categories of The combined number of years of experience within my current field (i.e. project management, risk, executive management): .	Independent-Samples Median Test	.273	Retain the null hypothesis.
2	The distribution of Overall score for risk management is the same across categories of The combined number of years of experience within my current field (i.e. project management, risk, executive management): .	Independent-Samples Kruskal-Wallis Test	.391	Retain the null hypothesis.
3	The medians of Overall score for new product development are the same across categories of The combined number of years of experience within my current field (i.e. project management, risk, executive management): .	Independent-Samples Median Test	.203	Retain the null hypothesis.
4	The distribution of Overall score for new product development is the same across categories of The combined number of years of experience within my current field (i.e. project management, risk, executive management): .	Independent-Samples Kruskal-Wallis Test	.235	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

4.10.7 Risk management and NPD compared against the level of education

Table 4.10 shows the overall median scores for risk management as well as new product development were similar among those with varying levels of education (P>0.05).

Table 4.10 Overall Median Score for Risk Management and NPD Compared to the Level of Education

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The medians of Overall score for risk management are the same across categories of My highest level of education .	Independent-Samples Median Test	.870	Retain the null hypothesis.
2	The distribution of Overall score for risk management is the same across categories of My highest level of education .	Independent-Samples Kruskal-Wallis Test	.774	Retain the null hypothesis.
3	The medians of Overall score for new product development are the same across categories of My highest level of education .	Independent-Samples Median Test	.890	Retain the null hypothesis.
4	The distribution of Overall score for new product development is the same across categories of My highest level of education .	Independent-Samples Kruskal-Wallis Test	.605	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

4.11 Summary

This chapter presented the statistics and discussed the results of the data analysis performed in line with the objectives of the study. The results have been discussed based on the literature available. Key findings identified relate to the time and effort spent on formal NPD and risk management practices as well as the flexibility thereof. Also identified were concerns relating to executive management approving NPD projects prior to formal NPD processes commencing. Finally, the study identified a concern relating to the difference in perception based on the respondents role as part of NPD. All these concerns identified may have a significant impact on NPD within the organisation and the effectiveness of risk management as part of the process.

The next chapter will present the detailed findings as well recommendations, future research and also provide the conclusion for the study.

CHAPTER FIVE

Findings, Recommendations and Conclusion

5.1 Introduction

This chapter will present recommendations based on the discussions in the previous chapter. The chapter will also present a proposal for future research and conclude on the research study conducted.

5.2 Has the problem been solved?

The objective of this study was to investigate the relationship between Risk Management and NPD processes as well as NPD- and risk management processes in order to understand the effect these have on new product development. The literature reviewed provide detailed information regarding best practice from a NPD point of view as well as the regulatory and governance requirements applicable to Risk Management in respect of NPD. The required risk management practices, NPD processes and frameworks were found to be present; however concerns were identified with recommendations being provided within this chapter to address these.

The recommendations contained within this document do not propose changes to any of the best practices identified within this study, but are rather considered to be enhancements.

5.3 Implications of the research

This study contributes towards the enhancement of NPD practices whilst incorporating risk management within the NPD value chain. It was however found to be limited literature available on the effect that risk management has on NPD in a South African, and a South African Retail Banking context. Retail Banks may therefore refer to this study to enhance their NPD process and incorporate risk management requirements more effectively ultimately increasing new product success.

5.4 Findings and Recommendations

The findings and subsequent recommendations are provided below.

5.4.1 Objective One: Relationship between Risk Management and formal NPD processes

The following finding was identified in respect of Objective One:

Finding: Risk Management as part of NPD not being understood by all stakeholders and therefore not consistently applied which may impact the achievement of NPD objectives. Further adding to this issue is the overall difference in perception that the different stakeholders have of NPD.

Recommendation: Risk management is considered to be a specialist field and operate independently from the business units. It provides an oversight and governance role in respect of NPD and its main objective is to ensure that all risks relating to NPD are identified, assessed, managed and reported on. Business on the other hand would have a detailed understanding of their operational processes and systems but may not always understand risk. As business stakeholders are closer to the NPD process the benefits associated with them having a fundamental understanding of risk cannot be underestimated, and it is suggested that a structured training and awareness curriculum is designed and implemented to provide all stakeholders with an understanding of the business strategic objectives, NPD governance, project requirements as well as risk management practices. This intervention may involve class-room based sessions, self-study interventions as well as assessments and a final case study. Attendance and completion of the curriculum by all new and existing NPD stakeholders should be compulsory.

The outcome and of aim of the curriculum is to provide a structured learning path which will allow all stakeholders to understand the various components of NPD governance, to apply risk management principles and to pro-actively escalate matters to the risk management teams. The curriculum should also provide an overview of the Retail Banking segment and its objectives so as to allow NPD Stakeholders to understand the strategic intent and operational objectives of the

segment. NPD governance requirements and processes will also be included in the curriculum.

The benefits will be realised especially based on the fact that just over thirty percent of respondents had less than five years experience in a Retail Banking environment and around fifty percvent of respondents had five years or less experience in their current field.

The curriculum and its proposed content is provided below (Figure 5.1: Risk and NPD curriculum)

Structure of Learning Curriculum	Overview	Attendees	Duration of course		Assessment Criteria
			New Employees	Existing Employees	
Module 1: Retail Banking: Overview	Structure of the business, strategic objectives, customer segmentation. Detailed overview of each business unit and how they align to the strategic objectives of the Retail Banking segment and the organisation	Risk Management, Executive Management, Product Managers, Pricing Managers, Project Managers and Analysts	Three Weeks Fulltime and part of Organisational Induction process	Six Months	A combination of Individual assignments, tests as well as group assignments
Module 2: Organisational Values	Purpose of this module is to explore each of the organisational values and provide context as to how these align to the NPD process.				
Module 3: The NPD Process	The rationale for and importance of each of the five components of NPD will be explored. These are, opportunity identification and selection, concept generation, concept/project evaluation, development and product launch. The project management processes unique to the Retail Banking environment will be explored in detail				
Module 5: NPD Governance Requirements	The role of each stakeholder as part of the NPD process, the New Product Approval Committee as well as the role of risk management in NPD will be explored				
Module 6: Importance and requirement of key stakeholders	Overview of all stakeholders involved in the NPD process and how their roles integrate and contribute to the overall success of new products in the organisation				
Module 7: Stage Gate	Detailed overview of the NPD Stage Gate Process as well as the rationale thereof.				
Module 8: Risk Concepts	Introduction to the history of risk management as well as providing an overview of the evolution through the years. Risk will be defined and explained. The various elements and factors that contribute to risk will be investigated, together with events specific to Retail Banking				
Module 9: Risk management frameworks	General framework for the practice and practical application of risk management is provided. The requirements of King III, Basel III, ISO 31000 and the Banks Act is provided as well as the application thereof				
Module 10: Corporate Governance	Detailed understanding of the procedures that govern corporate governance, which include the responsibilities of the board, senior management and NPD stakeholders. The role of each stakeholder and obligations in terms of Corporate Governance practices are explored.				
Module 11: Decision & uncertainty - Quantitative	Quantitative measures that are developed to address risks are explored. The purpose of this module is to provide all stakeholders with an understanding of which quantitative methods to use in order to make better decisions relating to risk. Decision making theories such as Value at Risk, Discounted Cash Flow, Net Present Value, Probability Theory, Maximum, Minimax and Maximax decision criteria to be covered				
Module 12: Decisions & uncertainty - Qualitative	Follows up on module 4, however looks at the qualitative elements of decision making in uncertain situations. This module will focus on the people element and explores human behaviour in more detail. Strategic decision making and the impact of risk on this will also be explored. Implementation of qualitative and quantitative methods and integrating these two concepts will also form part of this module				
Module 13: Risk Identification	The identification of risks which may materialise as part of the NPD process as well as the sources of these will be included in this module. External and internal risks such as operational risk, legal risk, compliance risk and IT risk related issues will be explored. Scenario-based risk identification, risk charting and taxonomy-based risk identification will form part of this module. This module will provide all role players who are part of the NPD process with the required tools and skills to identify risks for escalation to the appropriate levels				
Module 14: Risk assessment	Once risks are identified, the assessment thereof must take place. This requires the assessment of the scope, impact and potential risk and includes a probability and likelihood analysis being performed. A few approaches such as selective and fill risk assessments as well as risk adjusted vs. probabilistic assessments will be explored				
Module 15: Risk response	The various responses which may be implemented to manage risks are explored here. This includes risk acceptance, risk transfer, risk management and risk avoidance concepts. An organisations risk appetite and what this means is also explored				
Module 16: Organisational culture and ethical concern	This module explains how risk management principles overlaps and aligns to concepts found in organisational culture, values as well as the strategic objectives				
Module 17: Risk Reporting	This module will assist stakeholders to report on the various risks identified, the utilisation of a risk register relating to NPD as well as provide guidance in terms of research risk related concepts, best practices and frameworks so as to ensure the business units remain ahead of their competitors.				
Module 18: Integration	This module will integrate all the above concepts into a Case Study to demonstrate the effect that Risk Management has on New Product Development within a Retail Banking Environment				

Figure 5.1 Risk and NPD curriculum

It is also suggested that quarterly awareness sessions are to be held in each of the business units where an overview of the risk management plans as well as work performed over the previous quarter is discussed so as to ensure all stakeholders are aware of the initiatives in the business and the risks exposed the organisation is exposed to. It is also recommended that industry experts report on new trends and best practice models during these sessions so as to ensure that a pro-active risk culture is nurtured and built upon.

An overview of the new products launched over the last twelve to eighteen months must also be provided and must include the performance thereof so as to identify any learning's that may support future NPD projects.

5.4.2 Objective Two: Risk Management frameworks and NPD objectives

The following findings were identified in respect of Objective Two:

Finding: Upfront decisions made by business executives to develop and launch new products (driven by personal or short term profits) which may result in NPD processes not being followed ultimately leading to financial losses and reputational risk.

Recommendation: It is recommended all stakeholders (in particular the executive management teams) sign declarations each year to confirm that they have no personal interest in any new products being developed or to be developed, and that where this situation changes that they will notify the board. The risk management teams will confirm on an annual basis that declarations are obtained and retained for all executives and other identified stakeholders. It is suggested that the declarations are signed for on the electronic system utilised by the bank as it will ensure completeness checks over the information is simple and efficient.

In addition to this a new product development checklist should be designed and will need to be signed off by all stakeholders (including risk management) and must be presented to the New Product Approval Committee who will review and confirm that all NPD, risk management and governance requirements are adhered to prior to the new product being launched to market. This checklist will include

fields such as declaration of outside interest/conflict of interest, attestation that all stakeholders signed off on the new product to confirm they have applied the necessary due diligence and governance over it, confirmation that the risk management teams have conducted a risk assessment of the new product and that risks identified have or are being managed. Also required would be an overall risk rating/exposure of the new product, the business case, value proposition and feasibility analysis. The New Product Approval Committee will then review and once comfortable that the required due diligence and controls have been applied over the new product, will provide approval to launch to market.

Finally, a requirement for each business unit to report on the number of new products launched within the Retail banking environment as well as the products performance as per set objectives should also be implemented at a Divisional Level. As the Retail Banking environment is but one segment within the Group, division should also be responsible for monitoring new product performance independently.

Finding: Risk Management costs may exceed risk exposure of NPD projects ultimately leading to inefficiencies and reduced revenue.

Recommendation: To ensure that the risk management costs are aligned to the project risk exposure and strategic objectives it is recommended that risk management resources are allocated to projects based on the complexity of the project and the risk profile thereof.

The first step would be to design and implement a matrix that will allow the NPD stakeholders to obtain an overall risk rating of the project, based on pre-determined criteria. The NPD Risk Rating matrix should be tailored to the organisations risk appetite (Figure 5.2).

It will require an assessment of possible exposure to regulatory, reputational, and operational risks. A detailed description of each of the five levels of severity is provided in the matrix so that an impact analysis can be performed (Y-axis). The next step then is to consider the likelihood of the overall risk for the new product

materialising and that is done by performing a likelihood assessment (X-axis). The project may overall be rated as Low, Medium, High or Very High, based on where the impact and likelihood assessment meets (Intercept at the X and Y-axis)

	Regulatory	Reputational	Customer	Operational	Damages, settlements and Fines				
Impact (Y-Axis)	Substantive material breach of regulatory obligations, bringing serious concerns on adequacy or operation controls with the threat of enforcement by regulatory action. Very close regulatory scrutiny.	Sustained national negative media coverage (front page of business section)	Extensive and systemic impact on the customer base in terms of the numbers involved and the impact on their accounts. The event results in mass outflow of customers and/accounts. The company faces problems to attract new customers.	Catastrophic impact on the business unit's or company's operational performance	Significant Greater than R100m	High	High	Very High	Very High
	Substantive material breach of regulatory obligations, bringing serious concerns on adequacy or operation controls in certain areas. Considerable amount of management time to rectify the problem and notify/liaise with regulator.	Negative national media coverage (not front page)	Significant impact on customers when considering both the total number involved and their inconvenience. The event results in an outflow of customers and/accounts. It may negatively affect the company's ability to attract new customers.	Severe impact on the business unit's or company's operational performance	Major Between R50m and R100m	High	High	Very High	Very High
	Reportable event raising concern on adequacy of controls; involvement of management is required to rectify the problem.	Negative localised media coverage	A concerning direct impact on customers when considering the number of customers involved and the degree of inconvenience suffered. The extent of the problem must be investigated as it compromises the company's ability to retain customers or maintain products.	Results in some damage at an individual customer or stakeholder level; requires careful management attention	Moderate Between R10m and R50m	Medium	High	High	High
	Regulatory/Compliance breach, which can be resolved within the business unit.	Negative impact on reputation but recoverable	Some direct impact on customers in relation to numbers involved and inconvenience caused, without adversely affecting the company's capacity to retain customers/maintain products.	Noticeable but easily manageable; limited impact on operations	Minor Between R1m and R10m	Low	Medium	Medium	Medium
	Minor regulatory/compliance breach, which may require monitoring and/or minor control improvements.	No reputational exposure or regulatory harm	Negligible impact on new and/or existing customers in terms of numbers and/or inconvenience	No operational impact or loss of business	Insignificant <R1m	Low	Low	Low	Low
						Unlikely	Possible	Likely	Materialised
						Likelihood (X-Axis)			

Figure 5.2 NPD Risk Rating Matrix

In terms of resolving for the finding identified, the risk management resources will also need to be re-assessed as the annual cost of risk management employees are linked to experience and qualifications and as such the more experienced and qualified the risk management specialists are, the more expensive they become and the higher the cost added to the project. This will be a once off exercise and applied to all new recruits.

Risk managers must based on their experience and qualifications be categorised as Junior-, Senior- or Lead Risk Management Officials. These categories must align to the organisations Human Resources recruitment policy.

Ultimately the objective of this exercise is to link risk management resources to the complexity of a project. As mentioned above, the risk profile of the project must be established by using the “NPD Risk Rating Matrix” (Figure 5.2 above). The project will be based on this step be considered to be Low, Medium, High or Very High Risk.

The next step will require the use of the “Risk resource linked to project complexity” matrix (Figure 5.3) below. The project risk rating obtained from the above step will be mapped on the X-axis whilst consensus by all stakeholders would need to be obtained in order to determine the complexity of the project (Y-axis). A level between one and four will be obtained where the X and Y axis meets which will indicate the risk resource requirement to be assigned to the project.

In terms of the various levels indicated on Figure Level 1 would require a junior risk management official, Level 2 a senior risk manager and a level 4 would require two resources (a lead risk resource and a senior risk resource).

Project Complexity					
	Extremely Complex	Level 3	Level 3	Level 4	Level 4
	Complex	Level 3	Level 3	Level 4	Level 4
	Medium	Level 2	Level 3	Level 3	Level 3
	Low	Level 1	Level 2	Level 2	Level 2
	Low	Level 1	Level 1	Level 1	Level 1
		Low	Medium	High	Very High
		Impact to Retail Banking Segment should project fail to deliver on its objectives. Impact is obtained by using the "NPD Risk Rating Matrix"			

Resource Allocation	
Matrix Level	Risk Resource Allocation
Level 1	Junior
Level 2	Senior
Level 3	Lead
Level 4	Lead + Senior

Figure 5.3 Risk resources linked to project complexity matrix

The project risk rating and the complexity thereof in essence drives the number of resources and experience required to ensure that resources are not only optimally allocated but also have the correct level of experience and qualifications.

Finding: The time and effort spent on Risk Management practices in terms of the NPD process may be excessive resulting in risk management resources not being used efficiently or impeding on NPD deliverables.

Recommendation: It is recommended that the risk management function develops an annual NPD Risk Management Planning Schedule (Figure 5.4) which will be used for the allocation of resources for purposes of NPD projects. The planning will be conducted by the risk management team annually in advance together with the budgeting process, with quarterly meetings taking place with the respective business units to confirm the accuracy, validity and completeness of the information. Critical NPD projects may emerge during the year which would necessitate the amendment of the actual planning document, further supporting a need for quarterly review of the NPD Planning Schedule.

The document will require the details of all business areas, the projects scheduled and consensus will be reached on the hours allocated per project so as to ensure that hours are appropriate. Hours will be allocated per project per month and a year to date analysis performed on a monthly basis to ensure the risk resources remain within the budgeted hours.

New Product Development Plan																			
Business Area	NPD Title	Planned Hours	Scope of Work	Objective/ Rationale of NPD initatiave	Planned/ Unplanned	Status (Not Started/In Progress/Completed/ Overdue)	Scheduled Hours Per Month												Explanation of overdue or delayed activity	Summary of results of completed work
							Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Business Area Name	Title of each project	Total Planned hours	What Risk resources will be required (ie. Compliance Risk, IT Risk, Operational Risk and/or Legal Risk	What is required from a NPD point of view (ie. System development, marketing etc.)	Was this NPD project Planned (Part of the annual projects plan, or unplanned)	Update status here													Provide rationale/reasons as to why project hours have been exceeded or why project is overdue	

Figure 5.4 NPD Risk Management Planning Schedule

As part of the NPD project management governance process a detailed cost analysis must be performed specifically relating to costs applicable to the NPD project. The inclusion of risk management hours and the actual achieved should

form part of this process as it will drive the efficient use of risk resources per project.

5.4.3. Objective Three: NPD processes in relation to NPD Objectives

The following findings were identified in respect of Objective Three:

Finding: The resources (time and effort) allocated to NPD may be not be justified

Recommendation: It is suggested that the same approach as detailed in section 5.4.2 of this document is implemented by the NPD project team, however that an Annual NPD Resource Planning Schedule (Figure: 5.5) is designed and managed per NPD project. Resource hours will be allocated and agreed upon per stakeholder and monitored on a monthly basis.

All stakeholders will agree on the allocation of resources as part of the project deliverables and efficiencies of stakeholder involvement measured. The NPD team must therefore develop an annual NPD Stakeholder Planning Schedule and update this on a quarterly basis. It will be the responsibility of the Head of Project Management to facilitate this process with the updates on the schedule being done by the Project Managers.

New Product Development Plan																					
Business Area	NPD Title	Overall Hours Per Project	Scope of Work	Objective/ Rationale of NPD initatiave	Planned/ Unplanned	Overall Project Status (Not Started/In Progress/Completed /Overdue)	Status (Not Started/In Progress/Completed/ Overdue)	Scheduled Hours Per Month: Project Manager												Actual YTD hours as measured against target (%)	Comments
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Business Name	NPD Title	Total Hours	What is required from a NPD point of view (ie. System development, marketing et	Rationale for the NPD as well as the Strategic Objectives it aligns to	Was this NPD project Planned (Part of the annual projects plan, or unplanned)	Update Status Here	Update Status Here														
								Scheduled Hours Per Month: Business Executive													
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
								Scheduled Hours Per Month: Risk Management													
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
								Scheduled Hours Per Month: Product & Pricing													
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
								Scheduled Hours Per Month: Development (IT/Process)													
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
								Scheduled Hours Per Month: All other stakeholders need their own category													
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		

Figure 5.5 NPD Stakeholder Planning Schedule

The NPD project, overall budgeted/allocated hours for the project and per stakeholder will be documented. The scope of the work required, as well as the status of the project will need to be documented. The budgeted hours per month

will be annotated with a year to date analysis being conducted to determine whether the respective stakeholders are allocating resources as per the agreement. Deviations from these hours need to be substantiated.

It will be required that the planning is conducted annually in advance together with the budgeting process as each business unit will need to commit resources to the NPD projects for the year. Quarterly meetings will also take place with the respective business units to confirm the accuracy, validity and completeness of the information. Critical NPD projects may emerge during the year which would necessitate the amendment of the actual planning document, further supporting a need for quarterly review of the NPD

As part of the NPD project management governance process a detailed cost analysis must be performed specifically relating to costs. The inclusion of total stakeholder hours and the actual achieved should form part of this process as it will drive the efficient use of resources.

Awareness and the required change management will need to occur upfront so as to obtain buy-in from all stakeholders and to create awareness on the approach adopted. Stakeholders will be able to commit resources, time and effort to each project and also gauge if their allocations are fair and reasonable.

Finding: NPD processes may not be flexible enough to meet the requirements and needs of various projects thereby impeding the NPD objectives and ability of the project to launch to market on time.

Recommendation: It is recommended that flexibility is applied to NPD projects based on the complexity and risk profile thereof. The process commences with determining the risk profile of the project by using the NPD Risk Rating Matrix (Figure: 5.2), the application which is explained in section 5.4.2. All NPD stakeholders will need to obtain consensus in terms of determining the complexity of the project.

Once the above has been determined, reference will need to be made to the Flexibility Matrix (Figure: 5.6), below.

Project Complexity					
	Extremely Complex	Level 3	Level 3	Level 4	Level 4
	Complex	Level 3	Level 3	Level 4	Level 4
	Medium	Level 2	Level 3	Level 3	Level 3
	Low	Level 1	Level 2	Level 2	Level 2
	Low	Level 1	Level 1	Level 1	Level 1
		Low	Medium	High	Very High
		Impact to Retail Banking Segment should project fail to deliver on its objectives. Impact is obtained by using the "NPD Risk Rating Matrix"			

Flexibility Indicator	
Matrix Level	Level of Flexibility
Level 1	Full Flexibility
Level 2	Medium Flexibility
Level 3	Minimal Flexibility
Level 4	No Flexibility

Figure 5.6 Project Flexibility Matrix

A flexibility level (Level 1 – 4) will be obtained where the project complexity (Y-axis) intercepts the project risk rating (X-Axis). Each level allows for different levels of flexibility in terms of the project. Level 1 as an example will allow for full flexibility in terms of the management of the NPD project whilst a Level 4 would allow for no flexibility.

Risk involvement is however non-negotiable and any deviation from the NPD project management objectives must be provided to the risk management resources allocated. Risk management still has an obligation to ensure that the NPD governance principles provided by Basel III, King III, ISO 31000 and the Banks Act are adhered to, and will need to report to the board any negligent behaviour or actions which may occur.

The rationale for allowing the flexibility in terms of the Level applicable is that the residual risk (overall risk exposure) needs to be considered per project. Should a Level 1 for example fail to deliver on its objectives there would be minimal financial, regulatory, operational or reputational exposure, and the cost, time and effort spent on the project would be minimal (cost versus benefit analysis). A project that is extremely complex and that has a high risk profile (Level 4) should

not allow for flexibility in respect of the approach applied for moving it form the conceptualisation phase to launching to the market due to the significant risks it exposes the organisation to.

The New Product Approval committee is also confirmed to be in place (Bullet 1 in Figure 4.12) and will need to confirm that the required governance and requirements contained in the proposal are adhered to before finally approving a project for launch to market.

5.5 Recommendation for further studies

The research conducted was specific to FNBs Consumer/Retail Banking segment and it is recommended that this research is extended to the other divisions within FNB and the FirstRand Group. It is also suggested that the study is extended to research the disclosure of NPD failures as no information was provided in the literature reviewed on the actual products that failed, the costs associated with it or the disclosure thereof to internal and external stakeholders.

5.6 Summary

Key findings identified indicate that the time, effort and financial resources spent on formal NPD and risk management practices may not always be justified. In addition to this the lack of flexibility of NPD processes may impede new product success. The study also identified a concern relating to the difference in perception based on the respondents' role as part of NPD. This may have a significant impact on NPD within the organisation and the effectiveness of risk management as part of the process.

This chapter concludes the study and provides recommendations that are considered to be enhancements to best practices not only from a risk management point of view but also new product development. It requires the integration of both these concepts and will certainly increase the likelihood of new product success in the organisation.

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APPENDIX 1

08 April 2016

Mr Wilhelm Frans Christoffel Kleyn (214580174)
Graduate School of Business & Leadership
Westville Campus

Dear Mr Kleyn,

Protocol reference number: HSS/0346/016M
Project title: The effect of risk management on New Product Development – A case study of the Retail Banking environment

Full Approval – Expedited Application

In response to your application received on 05 April 2016, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

Please note: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

[redacted]
.....
[redacted] (Chair)

/ms

Cc Supervisor: Prathana Amrithlal
Cc Adademic Leader Research: Dr Muhammad Hoque
Cc School Administrator: Ms Zarina Bullyraj