AN INVESTIGATION INTO THE EXTENT OF FOCUS BY METROPOLITAN RETAIL, SOUTH AFRICA ON TECHNOLOGY INNOVATION CAPABILITIES AND PERSPECTIVES

BY

THATO SIMON MOTSOENENG

Thesis submitted in partial fulfilment of the requirements for the degree of Magister in Business Administration at the Nelson Mandela Metropolitan University Business School.

PROMOTOR: W GROENEWALD

NOVEMBER 2005
DECLARATION

“I, Thato Simon Motsoeneng, ID No 6108225584080, hereby declare that:

- The work in this research paper is my own original work;
- All sources used or referred to have been documented and recognised;
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ABSTRACT

This paper reviews the literature on innovation in order to build an agenda for an investigation into the extent to which Metropolitan Retail, within Metropolitan Life Pty in South Africa, focuses on technology innovation capabilities and perspectives.

The research was conducted in the areas of, technology innovation capabilities, perspectives guiding the business strategy to integrate and accelerate innovation and contextual aspects influencing innovation perspectives. The extent of focus by the firm on capabilities and perspectives was measured. Data gathered was disseminated and processed by means of Microsoft Excel spreadsheets.

The results on current focus indicate that the firm’s focus is mostly on improving core business, although the extent is less than adequate. In other words, generate incremental innovations that can be developed and implemented rapidly and inexpensively. This approach of implementing innovation is in line with the business strategy, more specifically, with the objective of reducing costs and making profits.

The findings of the research further suggest that the firm should consider focusing mostly on exploiting strategic advantages.

In many firms the fundamental emphasis on technology innovation in developing products, processes and services is thought to determine their ability to cope with never ending customer demands and competitive practices. Coupled with this thought is a reality of high failure rate of technology innovation projects. Against this backdrop, general managers are faced with strategic innovation options, which can make or break firms.

Changes in the economic and government environments influence the innovation approach of the firm most. These changes have undoubtedly presented firms with opportunities as well as risks. Possibly the greatest challenge confronting general managers in this context is the building of critical capabilities to enhance the firm’s agility. This challenge presents opportunity for further research.
ACKNOWLEDGEMENTS

The successful completion of this research would not have been possible without
the support, advice, assistance and encouragement of others.

I would like to record my sincere thanks and appreciation to the following people:

- My promoter, Wendy Groenewald, for her professional and constructive
guidance during the course of my research efforts.
- My employer, Metropolitan Life Ltd for the bursary towards this qualification.
- Dr Gerrit Muller, of Metropolitan marketing research unit, for professional and
constructive guidance during my research efforts.
- My wife, Emily, and children, Pontsho and Tshediso, for being patient with
me for spending little time with the family during my study days.
- Neil Fourie, Liezell Ficker and Ferrandi Makka my fellow MBA group
members, for valued co-operation and support over the study period.
- The staff and lecturers of the MBA Unit for their invaluable contribution and
assistance.
- Lorraine Johnstone for proof reading the research report.
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PART I INTRODUCTION

CHAPTER 1
PROBLEM STATEMENT / DEFINITION OF CONCEPTS

1.1 INTRODUCTION

The rise of innovation as a key element of competitiveness and growth in Metropolitan Retail (South Africa), has posed a fundamental challenge to research on the potential of the firm to innovate and the approach it uses to implement. Recently, the firm has recognised innovation as one of the most important resources of profits.

In the context of the firm, innovation plays an important part in:
- Finding new or better ways to do things.
- Creating new insurance products and services.
- Applying new technologies to solve existing problems.
- Using existing products and technologies to meet new needs.

In order to drive continuous innovation and sustain the innovation environment it is important for the firm to evaluate the focus on capabilities and its approach towards the implementation of innovation strategies. In this way the firm can determine distinctive capabilities in order to define innovation perspectives that can be most effective in their context. The extent of focus on these capabilities will determine the success or failure of these strategies.

Metropolitan Retail has a history of innovation. The outcomes of past innovations seem random. However, the processes by which these innovations are packaged and shaped are predictable.

This raises the question of which innovation strategies should the firm pursue, when considering implementing innovation projects.

The purpose of this research is to investigate and analyse the extent to which Metropolitan Retail focuses on innovation capabilities and the perspectives guiding the implement innovation strategies.
It also examines the influence of electronic information laws when considering the
decision to follow a specific perspective.

1.2 PROBLEM STATEMENT / DEFINITION OF CONCEPTS

1.2.1 The main problem statement

The rationale behind this study can be traced to: “The investigation and analysis of
the extent to which Metropolitan Retail focuses on innovation capabilities and the
perspectives guiding the implementation of innovation strategies”.

This study poses the question: “What technology innovation capabilities and
perspectives should the firm focus on?”

Against this introductory perspective, the sub-problems, which will be addressed in
order to deal with the main problem, are:

1.2.2 Sub-problems

Sub-problem one
How is the concept of innovation defined and what are the different forms/
categories?

Sub-problem two
What are the innovation perspectives offering a framework for integrating different
innovation categories and the extent to which the firm focuses on these?

Sub-problem three
What is the framework and process that can be used to arrive at a better
understanding of why innovation is a key resource for profits?

Sub-problem four
To what extent does the firm focus on innovation capabilities that facilitate and
support strategies?
Sub-problem five
What are the main changes to the Electronic Communications and Transactions Act 2002 (Act 25 of 2002) and what are its effects on business transactions and strategy?

Sub-problem six
What is the business and technology strategy of Metropolitan Retail, and what specific major cases of technology innovations were implemented or pursued?

1.3 DELIMITATION OF RESEARCH

In the quest to explore the concept of innovation, many definitions have been proposed. According to Burgelman, Christensens and Wheelwright (2004: 3) different innovation approaches or perspectives have been identified in literature. These authors list:

- Incremental innovation as the adoption, refinement and enhancement of existing products and services, and/or production and delivery systems.
- Radical innovation that involves entirely new products and services categories, and/or production and delivery systems.
- Architectural innovation as the reconfiguration of the systems of components that constitute the product.

On the other hand, Johne (1999: 6-11) indicates three types of innovations, which contribute to organic business development, namely, product, process and market innovation.

This research investigates innovation in the context of the extent to which it is incremental, radical or architectural within Metropolitan Retail. The literature review focuses, amongst others, on capabilities and perspectives of innovation in order to enhance understanding of the phenomenon of innovation in relation to the business strategy.

The delimitation of subjects to be included in the research was done on the basis of accessibility and within the confines of the major technology innovation projects referred to in the studies. A measurement has been secured via a survey eliciting the extent to which the firm focuses on innovation capabilities and innovation perspectives.
The data collected and analysed is in the context of Metropolitan Retail, at head office.

1.4 SIGNIFICANCE OF RESEARCH

The results of this research could provide a scientific basis for future decision-making within Metropolitan Retail, concerning technology innovation perspectives to focus on given the innovation capabilities.

1.5 DEFINITION OF KEY CONCEPTS

1.5.1 Strategy

Strategy is the way firms make fundamental choices about developing and deploying scarce resources to achieve and maintain a unique and valuable position. It involves a set of activities different from competitors, yet consistent amongst the activities. These activities, when performed differently from rivals, create a position termed ‘competitive advantage’.

Strategy deals with configuration of activities:

- How activities fit in with and reinforce each other.
- How to constantly upgrade and leverage capabilities to achieve and sustain competitive advantage.

Strategy is reflected in a stream of decisions, not a plan enunciated at one point in time. Deciding what not to do, is as important as deciding what to do.

Strategy is needed because:

- Resources are always scarce.
- Market opportunities are not equally attractive.
- Once a firm chooses a business direction, its flexibility may become severely limited.

Coulter (as cited in Coulter & Robbins, 2002: 7) defines strategy as: “a series of goal-directed decisions and actions that match the organisation’s skills and resources with the opportunities and threats in each environment”.
More insight can be gained from Mintzberg and Quinn (1996: 7) who view strategy, as: “a pattern or plan that integrates an organisation’s major goals, policies, and action sequences into a cohesive whole”.

Strategy involves a stream of decisions, or choices, to yield a unique and valuable position. For a competitive position to be realised, general managers have to set direction, concentrate efforts and maintain consistency.

1.5.2 Technology

“Technology refers to the theoretical and practical knowledge, skills, and equipment that can be used to develop products and services as well as their production and delivery systems” (Burgelman et al, 2004: 2).

Burgelman et al (2004: 210) further define technology as “a process, technique, or methodology – embodied in a product design or in manufacturing or service process – which transforms inputs of labour, capital, information, material and energy into outputs of greater value”.

1.6 KEY ASSUMPTIONS

In the light of innovation capabilities and the business strategy of Metropolitan Retail, it is assumed that the manifestation of the dominant innovation perspective of the firm is influenced by legislative changes (Personal observation, 19 September 2004). Other reasons are not excluded.

Managerial practices, capabilities and resources to innovate are inherently accepted as key influencing aspects regarding perspectives to innovation. This will be tested by the research.

1.7 RESEARCH METHODOLOGY

The approach outlined below was followed in an attempt to solve the main problem and sub-problems:
1.7.1 Literature review

In order to make the review of the literature more effective the strategy used entailed the exhaustive coverage of the main aspects of the study and a fair treatment of authors.

- Literature research was done to develop an in-depth understanding of technology innovation categories and perspectives that can be used to integrate these. This addressed sub-problems one and two. Innovation is the key element of competitiveness in all industries including the insurance industry. Metropolitan Life had conducted brand valuation and had further confirmed the view when it rated innovation as one of the key resources for profits.

- The literature review was conducted to give an insight into frameworks and processes that can be used to understand why innovation is a key resource for profits. This addressed sub-problem three.

- The literature research and survey were undertaken to thoroughly understand and to evaluate the extent of the firm’s focus on innovation capabilities and characteristics. This addressed sub-problem four.

- In addition, a literature study and survey were done to understand how changes in information laws influence the firm. A specific reference is made to the Electronic Communications and Transactions Act 2002 (Act 25 of 2002) ("ECT Act"). This act is discussed in terms of electronic storage of records and documents as a number of opportunities have been created for companies to streamline their business. These address sub-problem five.

- Furthermore, the literature research was done to thoroughly understand, what is the business and technology strategy of Metropolitan Retail, and what specific major cases of technology innovations have been implemented or pursued. This addressed sub-problem six.

1.7.2 Research design

In this company-specific study, a quantitative research (predominantly descriptive) method was followed to address the following sub-problems:

- Sub-problem two: “What are the innovation perspectives offering a framework for integrating different innovation categories and what advantages and disadvantages are there for these perspectives?”
• Sub-problem four: “To what extent does the firm focus on innovation capabilities that facilitate and support strategies?”
• Sub-problem five: “What are the main changes to the Electronic Communications and Transactions Act 2002 (Act 25 of 2002) and what are its effects on business transactions and strategy?”

For the purposes of quantitative research, questionnaires were developed to test the perceptions of a target group of middle to senior management staff on the following:

• The extent to which the firm focuses on capabilities supporting innovation (Appendix C).
• The extent to which the firm focuses on different innovation approaches or perspectives (Appendix D).
• The main influencing aspects to the firm as to the choice of innovation approach (Appendix E).

The results of the assessment were presented in the form of conclusions and recommendations.

1.7.3 Data collection

Data was collected using the following methods:

• Interviews: Personal interviews were done with key individuals in business and Information Technology areas, usually senior management.
• Questionnaires were developed to probe the following areas: the extent to which the firm focused on innovation capabilities and perspectives; and the effects of changing legislation with specific reference to the Electronic Communications and Transactions Act 2002 (Act 25 of 2002).

1.7.4 Sampling

Judgement sampling, a non-probability sampling technique, was used to decide which departments within the business unit would participate, as well as making contact with key individuals. Potential respondents within these departments were then selected randomly.
1.7.5 Data analysis

Data was processed and analysed using Microsoft Excel spreadsheets. The outcome of the analysis was integrated with the information derived from the literature review in order to draw conclusions and make recommendations.

1.8 STRUCTURE OF THE RESEARCH PROJECT

The dissertation contains the following main reports and sections:

PART I INTRODUCTION

Chapter 1: Introduction, problem statement, delimitation of the research, key assumptions, significance of the research and an outline of the research approach.

PART II LITERATURE REVIEW

Chapter 2: The definition of the concepts of innovation and different categories

Chapter 3: Technology innovation perspectives, focus areas and key strengths

Chapter 4: Innovation as a key resource for profits, framework, process, benefits

Chapter 5: Innovation capabilities


PART III ACTUAL SITUATION IN THE FIRM

Chapter 7: Business and technology strategies, evolution of business and information technology relationships, global trends, major technology innovations aligned to trends and those implemented, accomplishments and failures
The end product of this chapter is the outline of the nature and purpose of the research, in respect of the problem statement, sub-problems, assumptions, delimitations as well as the importance thereof. The research approach has been outlined and followed by the structure of the report.

Although the company is international, operating mainly in the continent of Africa, the head office remains in Cape Town, South Africa. It is a diversified company operating within the financial industry under the insurance sector. In the light of this background it was decided to focus the research within one of the business units called “Metropolitan Retail” at head office.

Chapter 2 comprises the literature research, to investigate how the concept of innovation is defined, followed by views on different categories. The main aim of researching how this concept is defined and different categories is to gain a thorough understanding of what the concept entails as explained by different authors, more importantly, to distinguish the line of thinking around categories that this research has chosen to investigate.
CHAPTER 2
CONCEPT OF INNOVATION DEFINED: DIFFERENT CATEGORIES

2.1 INTRODUCTION

This chapter discusses how the concept of innovation is defined. The definitions explored are not a definitive list as there are many views presented by different authors.

In the light of these considerations, it was decided to exclude the discussions on categories of innovation that specifically apply to off-line and on-line firms, as defined in Rayport and Jaworski (2001: 234), whereby they classify off-line and on-line innovation types into three categories, namely, line extensions, changing the basis of the competition, and new industries.

This chapter addresses how innovation is defined by exploring different definitions and views from the literature. Furthermore, it seeks to highlight differences between forms of innovation.

2.2 DEFINITION OF INNOVATION AND DIFFERENT CATEGORIES

From experience one can take a view that small changes could turn out to be big innovations; and that the accumulation of small changes are a source of big innovations. This observation can be explained by the phenomenon of ‘scope creep’ in project management.

Burgelman et al (2004: 2) describe the origins of technological innovation process as inventions and discoveries. Webster (as cited in Burgelman et al, 2004: 2) further explains this view and points out that, “[w]e discover what before existed, though to us unknown; we invent what did not before exist”.

These authors highlight that the criteria for success regarding invention and discoveries are technical; meaning is it true or real, while those for innovation are commercial.
According to Burgelman et al (2004: 3, 211) different categories of innovation have been identified in literature: They list:

- Incremental innovation as the adoption, refinement and enhancement of existing products and services and/or production and delivery systems. Incremental changes also refer to:
  1. Improvements in component performance that build upon the established technology concept.
  2. Refinements in system design that involve no significant changes in the technological relationships amongst components.
- Radical innovation involves entirely new products and services categories and/or production and delivery systems. It can also involve both new architecture and a new fundamental technological approach at the component level.
- Architectural innovation is the reconfiguration or rearrangement of the systems of components that constitute the product.
- Modula innovation is a fundamental change in the technological approach employed in a component, where the product architecture is fundamentally left unchanged.

Janszen (2000:3) is more specific about what constitutes an innovation and refers to it as something new, which includes:

- A new technology.
- A new application in the form of a new product, service or process.
- A new market or market segment.
- A new organisational form or a new management approach.
- A combination of two or more of these elements.

These definitions of innovation from the literature review indicate that innovation needs to be driven and managed. Firms make profits when they provide customers with better value than their competitors do. This value comes from performing the activities of the product’s value chain in a more efficient and/or different manner to the competitor. Emphasising the view Professor Clarke, (as cited in Drucker, 1985: 30), defines innovation as an economic or social rather than a technical term.
Thompson (2005:2) in the article, “Harnessing IT to Grow the Business” further endorses this view when he defines what is on the minds of chief executive officers (CEOs). Mentioned in the order of domination are:

- The primary business imperative is growth.
- For growth, CEOs needs to partner and innovate.
- CEOs worry that skills gaps will impede growth plans.

2.3 APPLICABILITY OF INNOVATION CONCEPT

The context for innovation is formed by the interactions between a firm and the world around it. Wycoff (2004) indicates that the culture of the organisation becomes important, as it is the playing field for all innovation activities and projects (http://thinksmart.com/library/BigTenInnovationKillers.htm)

Mcleod and Smith (1996:253) argue that the concept of innovation is more favoured in Western culture as a major way of achieving improved processes. It relies on adoption of new techniques or breakthrough technologies, which radically change the way in which the task is approached.

These authors further state that there is disagreement as to whether the Japanese management technique can work in Western firms as they use mostly the concept of continuous, small improvements, or kaizen. This method relies on experience with the task and actively looks for opportunities to do better the next time.

2.4 OBSERVATIONS

From these definitions the following observations may be inferred:

- Innovation is defined as the ability to generate and use new ideas and knowledge.
- The central role of firms is to translate knowledge and ideas into profits, wealth and economic growth.
- The future success of an economy lies on the capacity of firms and organisations to identify, access, absorb and apply new ideas, knowledge and technology.
- Both innovation and continuous, small improvements approaches to achieve improved processes are useful.
2.5 CONCLUSION

The literature review proposes many definitions of innovation. This chapter does not review or conclude a definition of innovation. Rather it considers different categories of innovation in order to better understand the relationships with approaches of innovation according to Burgelman et al (2004: 3) amongst others, as compared to business strategy and the firm's innovation capabilities.

It is critical to understand the categories of innovation, which comes to play during the strategy formulation as well as implementation. This understanding helps ease the burden of comprehend innovation capabilities of the firm, which requires focus.

The importance of thoroughly understanding the concept of innovation cannot be over emphasised. Other concepts such as creativity, discovery and invention often tend to mask the real realm of innovation. Although these concepts may be interrelated in some way, they encapsulate different things. The strategies and actions to realise optimal result out of each, are vastly different.

Furthermore, understanding a category of innovation encapsulating a particular thinking in the strategy helps formulate an accurate view of the innovation perspective realm the firm intends exploring.

These different perspectives or approaches of implementing innovation are dealt with in Chapter 3. In order to gain good insights into these perspectives literature review is done. A survey then followed in order to determine the current / what should be the extent of focus of the firm on these perspectives.
CHAPTER 3
TECHNOLOGY INNOVATION PERSPECTIVES

3.1 INTRODUCTION

The previous chapter highlighted various views in an attempt to define innovation. A key learning point, which will be further explored in this chapter, is that innovations are the outcome of the innovation process. For the purpose of the discussion, process is defined as “patterns of interaction, coordination, communication, decision-making and use of employees to transform resources into products and services of greater worth” (Burgelman et al, 2004: 542).

Literature research was done in Chapter 2 to develop an in-depth understanding of technology innovation categories. This chapter deals with perspectives that can be used to integrate these.

There are perspectives of innovation, which offer a framework for simultaneously accelerating and integrating basic categories of innovation from the incremental to the revolutionary. These perspectives specify what type, level and category of innovation a team or organisation unit can attack at any given time. They also help address two fundamental dimensions of any business model: strategic scope and organisational capabilities.

3.2 INNOVATION PERSPECTIVES / APPROACHES

Van Wyk (1997:34) suggests three guidelines to improve strategic focus, being focus, fit and familiarity.

Burgelman et al (2004: 1110) emphasise the question of how general managers should integrate technology and innovation in their firm’s strategy. The challenges exist at different levels and are identified as:

- Exploiting a firm’s existing opportunities to the fullest – relatively few are available and they vanish if not seized.
- Generating entirely new opportunities.
- Balancing the portfolio of existing and new opportunities over time. This task is particularly difficult for two reasons:
  1. Resources at any given time are limited.
2. New and existing innovation opportunities require that conflicting management approaches be exercised simultaneously.

An analysis of the literature suggests that there are various perspectives of innovation, which could be identified in the innovation path of a firm. Hickman and Raia (2002:15) provide four perspectives, which could be used to offer a simple framework to accelerate and integrate innovation from incremental to revolutionary. These are: improving core business, exploiting strategic advantages, developing new capabilities and creating revolutionary change.

3.2.1 Perspective one innovation: Improving core business

Hickman and Raia (2002:15) intimate that perspective one innovation focuses on stretching a brand or product/service line as far as it can go without demanding major changes in the company’s strategic scope or organisational capabilities. This category of innovation constitutes incremental innovations that can be developed and implemented rapidly and inexpensively. Examples of such innovations include:

- New and improved products or service variations.
- More convenient packaging and delivery.
- Other product or service modification.

The essence of innovation in this realm encapsulates remaining within the company’s current strategic scope and utilising the company’s existing organisational capabilities to improve core business. Burgelman et al (2004: 658) refer to this innovation approach as exploiting innovation opportunities in the induced process. Typically, technological innovations associated with the induced process are incremental or architectural. More importantly they emerge, in part, from the firm’s research and development investments. To meet the challenges of this innovation approach, firms must develop strong but flexible product and process development capabilities, so that appropriate processes are employed in each situation.

According to (Hickman and Raia, 2002:15) perspective one innovations focus on:

- Continually enhancing, refining, and improving primary business through productivity/service line extensions.
- New and improved product/service variations.
- More convenient packaging and delivery.
Other product/service modification.

They further mention that the **key strengths** of this perspective are rapid implementation and relative cost efficiency. The **potential weaknesses** are market myopia and inadequate responsiveness to market and competitor changes. **Organisational** implications for this perspective are that there is more dependence on in-house innovation and incremental changes.

The essence of perspective one innovation is focusing on what you do best. Thus company loyalists, both staff and customers appreciate the sturdy, traditional design, reliability, and durability of resultant products or services.

**3.2.2 Perspective two innovation: Exploiting strategic advantages**

Hickman and Raia (2002:15) state that perspective two innovation focuses on distributing the brand or product line to new customers and markets beyond the company’s current strategic scope without requiring major changes in organisational capabilities. In the main, it calls for new ways to apply the company’s existing capabilities to new product or service categories, market or customer segments, usage occasions or patterns, and channels of distribution.

The essence of innovation as applied in the context of perspective two refers to moving beyond the company’s current strategic scope and involves leveraging strategic advantages. These strategic advantages may include:

- Unique brand.
- Value and cost position relative to competitors.

Maximum advantage is derived from spreading these advantages across a broader range of markets and customers. The success of reaching out to new markets and customers is significantly dependent on strong brand and technical know-how.

Perspective two innovations may include application in any of the four main indicators of a major change in strategic scope, i.e. new products or service categories, new market or customer segment, new usage occasions or patterns, and new channels of distribution.
Burgelman *et al* (2004: 658) talk about exploiting innovation opportunities in the autonomous process. Typically, technological innovations associated with the autonomous process are radical.

More importantly, such opportunities emerge unexpectedly from the firm’s research and development investments, especially corporate research. To meet the innovation challenge associated with the autonomous process, firms must develop a capacity to manage internal entrepreneurship.

Hickman and Raia (2002:15) mention that perspective two innovations focus on dramatically broadening the scope of strategic thinking to find new products or services categories, market or customer segment, usage occasions or patterns, and channels of distribution that can exploit the company’s strategic brand/value/cost advantages.

These authors further states that the **key strengths** of this perspective are relatively low risk investment for potential high return and strategic value or cost leverage. The **potential weaknesses** include relative ease of duplication by competitors with similar advantages, and dependence on talent with exceptional strategic versatility. **Organisational** implications make for high utilisation of consultants, researchers, advertising agencies, and contract employees.

### 3.2.3 Perspective three innovation: Developing new capabilities

Hickman and Raia (2002:16) intimate that perspective three focuses on deepening customer satisfaction and loyalty to the brand or product/service line by adding new organisational capabilities without introducing major changes in the strategic scope. Put differently, this perspective seeks to develop or acquire new technologies, talents, services and businesses to better serve the company’s current strategic scope of customers and markets.

The essence of innovation in this realm means moving beyond the company’s existing organisational capabilities to better satisfy the needs of current customers by introducing technologies and services through newly acquired talents and business acquisitions.
Burgelman et al (2004: 658) refer to this innovation approach as “a balancing act”. The point is made that firms must balance the relative emphasis on all innovation approaches throughout their development. They recommend that these approaches be practised mainly sequentially rather than simultaneously.

Perspective three innovations focus on substantially expanding the company’s capabilities through the acquisition or development of new technologies, talents, services, and business enterprises. Its key strengths are long-term customer advantage and brand or loyalty leverage. There are potential weaknesses in the investment cost and implementation time. Organisationally it puts the firm in a position to make use of outsourcing, acquisitions, joint ventures, strategic alliances, licensing, and franchising (Hickman and Raia, 2002:17).

### 3.2.4 Perspective four innovation: Creating revolution change

Perspective four innovation focuses on transcending current product/service lines or brands to orchestrate fundamental changes in both strategic scope and organisational capabilities. Put differently it envisions new business models, new markets and industries, new approaches to organisations and work, and other game-changing solutions that are completely outside the company’s current experience both in terms of internal organisation and the external market place (Hickman and Raia, 2002:17).

The essence of innovation in this perspective means removing all the barriers to imagination and implementation to create a revolutionary new future for the company and its stakeholders. Discovery Life has not only mastered innovation in perspectives one, two, three, but has also worked ever-diligently to master perspective four innovation.

Perspective four innovations focus on transforming the future of the business enterprise by:

- Introducing new business models and groundbreaking organisational forms.
- Creating new industries and markets.

The key strengths of this perspective is that it embodies the first mover advantage and heightened competence in creative destruction. Potential weaknesses can be
found in a lack of urgency and the high risk of failure or irrelevance. It affects the organisation by its reliance upon perpetual outsourcing and “virtualism” (virtual teams, virtual solutions, virtual environments or virtual alliances) (Hickman and Raia, 2002:17).

3.3 HOLISTIC VIEW IN IMPLEMENTING INNOVATION

Hamel (1996:69-82) proposed a philosophical foundation for strategy by declaring that “strategy is revolution; everything else is tactics”. His basic premise is that organisations pursue incremental change at their own peril, while their rivals are reinventing the industry.

In contrast to the revolutionary view of innovation strategy, there is an evolutionary view. The observation is that this view acknowledges that:

- All organisations must change in order to compete successfully in the turbulent market place. However, they must not change everything at once all the time. Such a radical change could be unsustainable to the business and the people who support it.
- Radical change has all the elements of imposing unbearable stress to the organisation and its people, thereby risking the destruction of what makes it viable, if not successful.
- There is continuous change that more importantly calls for incremental steps, even in turbulent times.

Brabeck of Nestlé (as cited in Wetlaufer, 2001:113-119) cautions that:

- Dramatic change is fine for times of crises, but that not every organisation in the world is in a crisis all the time.
- Big disruptive change programs are not pragmatic and the traumatic impact, distraction in the running of the business, the fear it provokes in people, and the demands it makes on management’s time are not to be underestimated.
- Slow steady change that adapts, improves and restructures is a continuous process.

Abrahamson (2000:75-79) further endorses the view of an evolutionary approach by asserting that major change initiatives should be interspersed amongst carefully paced periods of smaller, organic change. He calls this approach for managing overall
change ‘dynamic stability’ which he further defines as a process of usually small, reconfigurations of existing practices and business models rather than the creation of new ones.

In the main, the overall purpose underpinning the four perspectives of innovation is to support business leaders to apply four fundamentally different levels or manifestations of innovation systematically and simultaneously. Hickman and Raia (2002: 17) give a few guidelines for doing so:

- Begin by providing each innovation perspective with time, space, and mass.
- Move towards providing each of the innovation perspectives with its own incubator organisation, each having its unique organisation process, systems and leadership. When it is time to diverge, do it well; when it is time to converge, do that well, too.
- Once the incubator organisations are operational, continue developing different ways of working with each perspective.
- Finally, whenever an innovation from an incubator meets with market success, everything about incubator’s process, people, teams, struggles, breakthroughs, highs, lows, mistakes, revelations, and results needs to be illuminated in both conceptual and concrete terms so that everyone inside and outside the company can learn from it and draw inspiration from it. This practice will not only boost organisational morale but, more importantly, it will fuel further innovation.

Mcleod and Smith (1996: 253) state: “innovation tends to be unpredictable, risky and disruptive, but it can yield spectacular results.”

### 3.4 CONCLUSION

Achieving the right balance between innovation and execution, blending divergent thinking with convergent thinking, and nurturing innovation from incremental to the revolutionary are never easily accomplished in large organisations, but the four innovation perspectives can help speed up and simplify the process.

There are other innovation perspectives, like “value innovation” which have not been explored in this paper. Hammer (2001) states that the fundamental questions to ask
when defining value innovation concerns:
(www.1000ventures.com/business_guide/innovation_value.html)

• What value offering needs to be introduced or increased to meet customer needs?
• What value offerings can be reduced or eliminated, because they do not constitute real value for customers?

Firms should recognise the value of innovation and create the environment to manage it. Chapter 4 addresses the value of innovation in creating profits. The equation or framework that can be used to demonstrate the contribution of innovation to profits is the one defined by a company called “BrandMetrics”. It encapsulates the value of a brand as a function of several variables including technology innovations.
4.1 INTRODUCTION

Innovation is the key element of competitiveness in all industries including the insurance industry. This was shown in the brand valuation that Metropolitan Life has recently conducted. This was the outcome of a session facilitated by officials of a company called “BrandMetrics” that was attended by senior executives and management on 15 March 2005. The view was further confirmed when Metropolitan rated innovation as one of the key resources for profits. The framework and process, which may be used, to arrive at this conclusion is investigated and discussed together with the benefits derived.

4.2 INNOVATION A KEY RESOURCE FOR PROFIT

Sinclair (2005), professor of marketing at the University of Witwatersrand, in Johannesburg (South Africa) has identified the value of the brand as a function of technology innovations amongst others (http://www.brandmetrics.com).

In their statement on *Innovation: Building a 21st Century Economy in Western Canada*, the government of Canada defines innovation as the process of transforming knowledge into new products, processes and services – which in turn generate economic and social benefits (http://www.innovation@iird.vic.gov.au).

In another study, *Victorian government driving innovation*, the Victorian government (Australia) states, “Innovation is not only about technology. Innovation is about people. It is making sure we use ideas, technology and knowledge to give all Victorians a high quality standard of living, more satisfying and rewarding jobs and a better environment in which to work and raise their families” (http://192.148.120.96/).

4.3 PROCESS TO CALCULATE THE VALUE OF THE BRAND

BrandMetrics (2005), developed a brand valuation tool for measuring the future economic benefits of the brand asset (http://www.brandmetrics.com). These steps are followed:
First, extract the economic profit from the brand’s income statement and balance sheet. Economic value is the net operating profit after tax minus the product of the capital employed in generating that profit, multiplied by weighted average cost to company of that capital.

Next, examine the category in which the brand trades to test its volatility or stability. The results of this systematic appraisal are measured in the number of years of expected economic life.

Apply the discipline called the resource recognition procedure to identify the resources within the firm that drives economic profit. Once they have been reduced to the major resources, they are quantified to produce what is called “dilution” (ibid.) This percentage is applied to the economic profit to extract the portion attributable to the brand: the brand premium profit. The resource recognition procedure deals with:

1. Ability to earn superior profits, where the firm examines the resource set to determine what resources are responsible for the brand’s ability to earn superior profits.
2. Ranking and listing the ten most frequently mentioned resources.
3. Distributing on a 100 point scale the weighting of the six highest ranked resources, indicating the most important to the least important; and
4. Evaluating each of these resources on a ten point scale where 10 indicates that the brand being valued is highly influential in generating profit and 0 indicating that the brand name has no influence.

Finally, market research is used to establish the brand’s standing within its market. A brand knowledge structure (BKS) is derived for the brand, and indicates the nationally strongest and weakest brands in the country.

Growth patterns that reflect the long-lived nature of the brand earnings are used and projected into the future and discounted to present value.

4.4 RESOURCE SET COMPONENTS

Sinclair (2001) ’s article highlights the following key resources set components (not an exhaustive list) for determining brand value (http://www.brandmetrics.com):

- Financial – control of costs, beneficial raw material contracts, management of margins, management of fixed investment and investment returns.
- **Legal** – registered legal rights, patents, trademarks, franchises, licences and copyrights.
- **Branding** – branding awareness and equity, price premium, market share, speed to market with new products and innovations and brand portfolio.
- **Customer** – installed customer base, customer lists, stable customer relationships and satisfaction/retention.
- **Process** – consistent product quality, innovation, research and development.
- **Logistics** – supply chain management, favourable distribution arrangements.
- **Technology** – special computer systems, technology innovation and patented technology.
- **Management** – strong leadership, stable management team and quality management.

This further demonstrates that technology innovations are a key resource, which requires special attention and focus if a firm intents reducing costs and making profits.

### 4.5 SECONDARY BENEFITS

Although the purpose of the process outlined above is to arrive at the value of the brand there are supplementary benefits, which may be produced, namely, economic profit, resources, intangibles and vulnerability.

#### 4.5.1 Economic profit

This entails identifying that portion of economic profit that is solely attributable to innovation. The Victorian state of Australia in their study of (2002), *Victorian government driving innovation*, identifies how innovation benefits the country (http://192.148.120.96/):

- Innovation benefits the economy by driving economic growth, attracting global investments, and keeping and attracting skilled and talented people.
- Innovation benefits the community by driving advances in medical treatment and delivering better transport and communication.
- Innovation benefits the environment by creating new ways to conserve and make efficient use of natural resources.
Greg Sword, General secretary of the National Union of Workers, is quoted in the same paper as saying that, “Innovation is an important part of Victoria being competitive and growing the number of good jobs for working people” (http://192.148.120.96/).

Kaplan (2005), chief economist for the Department of Trade and Industry of the South African National Research and Development Strategy (NRDS), notes the critical importance of research and development in promoting economic growth and enhancing the quality of life. He highlights some of the key weaknesses that need to be addressed (http://www.essa.org.za/pagejour.htm):

- The decline of research and development in the private sector.
- The appropriate funding of the National System of Innovation – the NRDS argues that South Africa spends far too little on research and development. “Current South African total (public and private sector) expenditure on research and development amounts to approximately 0.7% of gross domestic product (GDP), whereas the average developed country expenditure is 2.15% of the GDP” (Kaplan, 2005: 21).
- A key indicator of performance in research and development is the share of turnover devoted to research and development in the business sector.

4.5.2 Resources

This entails identifying major resources that generate the innovation premium profit, a value that can also be derived from the value of the firm’s brand. Examples may include, but are not limited to people, special computer systems, information communication technology and biotechnology.

4.5.3 Intangibles

This deals with developing a greater understanding of what intangibles are at work and how they contribute to profit. To illustrate this point, it should be noted that in their statement *Innovation: Building a 21st Century Economy in Western Canada* (2005), the government of Canada has made it top priority to make Canada one of the most innovative countries in the world. This objective would be achieved by creating the connection amongst the following intangibles (http://www.innovation@iird.vic.gov.au):
- Enhanced coordination and alignment of innovation priorities and strategies between federal provincial and other innovation players.
- Work to improve knowledge infrastructure and capacity.
- Help for communities to develop and implement strategies, and to enhance the coordination and alignment of innovation priorities between innovation system players.
- The enhancement of technology commercialisation and adoption.

### 4.5.4 Vulnerability

Vulnerability examines the stability and risk inherent in the industry to anticipate the forces of change. Firms and general managers are confronted with a challenge of integrating technology to business strategy. The most important element in this is the ability to do systematic technology forecasting. The main challenge is in the long-term predictions. Examples of this are predictions made by Gartner CEO Michael Fleisher (2003) that 2004 would see the increase in Information Technology (IT) spend. He further said: “2004 will be the year that the majority of companies make the turn from protecting profitability to driving growth. Cost cutting and control are not over, but are fading as the main preoccupation of IT and business executives” Fleisher (as cited in Farber, 2003).

If an accurate forecast of IT trends were possible, it would assist both organisations and individuals. Firms and organisations would be able to position themselves at the forefront of technology and remain ahead of their competitors, as well as choose IT and business innovation strategies wisely. Individuals in the IT departments and business would be aware of capabilities that would be in demand. This would allow for better planning and ensure that critical capabilities are developed.

Different types of forecasting methods can be used to project the innovation premium profit and technology trends. Several authors including Burgelman et al (2004: 8) have presented useful technology forecasting techniques:

- **Trend extrapolation** assumes that the future of a time series is completely captured by the past of that series, which only needs to be extended according to the mathematical laws that describe it, e.g. trend, cycle growth curve, etc.
- **Leading indicators** assume that the future of one time leading series is completely captured by the past of another time series known as the “leading
indicator” (ibid.). A change in the leading indicator will be followed by a corresponding change in the time series to be forecast, e.g. Producer Price Index (PPI) is a leading indicator for changes in Consumer Price Index (CPI).

- **Causal models** assume that the relevant variables and their linkages are known and can be described in mathematical equations, e.g. eclipses.
- **Stochastic methods** give a range of values for the outcome and the probability distribution over the range, e.g. odds on racehorses.
- Technology progress function (S-curves) as identified by (Foster 1986: 31).
- Other methods, e.g. Delphi and the use of expert opinion.

Wycoff (2004) cautions that while it is impossible to compute the exact percentage of business initiatives that fail, it is widely acknowledged that most do. The same reasons for any change initiative to fail tend to be the same culprits that make innovation fail (http://thinksmart.com/library/BigTenInnovationKillers.htm). She highlights the following top ten reasons:

- Not creating a culture that supports innovation.
- Not getting buy-in and ownership from business unit managers.
- Not having widely understood, system-wide process.
- Not allocating resources to the process.
- Not tying projects to company strategy.
- Not spending enough time and energy on the fuzzy front-end.
- Not building sufficient diversity into the process.
- Not developing criteria and metrics in advance.
- Not training and coaching innovation teams.
- Not having an idea management system.

**4.6 CONCLUSION**

The insight gained from the literature leads to the conclusion that successful countries and firms invest significantly in technology and innovation. There are possibly other frameworks, which can be used to determine the value of innovation in a firm. It is observed that innovation is an important element in developing the competitiveness of a firm. If well driven and managed, it helps the firm to capitalise on new opportunities, to access global markets and to create profits.
A firm, with heightened levels of consciousness of the value of technology innovations, will invariably manage the intangibles that are at work to contribute to more profits better.

A significant contribution of innovation to profits, come about as a result of implementation of information technology initiatives. These technology initiatives are particularly vulnerable to change and thus a firm has to master the art of technology forecasting in order to enhance long-term survival.

On the other hand, the understanding of the firm’s potential and barriers to innovation are essential to comprehend if one wants to make effective proactive strategic choices. Investigating and analysing the literature on innovation capabilities in Chapter 5 may help gain this understanding. The insights gained are later used to formulate a survey to test the extent of the firm’s focus on innovation capabilities. More specifically, to determine the extent of the current focus compared to what the focus should be.
CHAPTER 5

TECHNOLOGY INNOVATION CAPABILITIES

5.1 INTRODUCTION

Innovative capabilities can be defined as “the comprehensive set of characteristics of an organisation that facilitate and support innovation strategies. The criteria for the success of technological innovation are commercial rather than technical; a successful innovation is one that returns the original investment in its development plus some additional returns” (Burgelman et al 2004: 2-9).

Burgelman et al (2004:9) go on to state that the process of assessing innovation capabilities can be better understood by using the audit framework at both business unit and corporate levels:

- **Business unit level** – an innovative capability audit identifies the critical variables that influence the innovation strategies at this level.
- **Corporate level** – an audit at this level identifies the critical variables that influence both the relationship between corporate and business unit levels in terms of innovative capabilities and the formulation and implementation of an overall corporate innovation strategy.

This chapter reviews the literature relating to the framework for doing an innovation audit capability of a firm. Specific reference is made to the business unit level audit framework. The different capabilities constituting the audit framework at the business unit level are discussed.

5.2 INNOVATION CAPABILITIES

Baghai, Coley and White (1999: 100-109) define capabilities in a broad sense to include the classes of resources mentioned below:

- **Privileged assets** – physical or intangible assets that are hard to replicate and that confer competitive advantage on their own.
- **Growth-enabling skills** – include skill in acquisition; deal structuring, financing, risk management and capital management.
- **Special relationships** – ties with existing customers and suppliers that can provide growth opportunities and should be nurtured.
Burgelman *et al* (2004: 9-12) bring another angle that refers to five important categories of variables or characteristics influencing the innovation strategies of a firm, namely, resources available for innovation activities, competitors and industry evolution, the business technology environment, the business unit structural and cultural context, and strategic management capacity.

5.2.1 **Resources available for innovation activities**

Resources available embrace the:
- Level of research funding and evolution.
- Breadth and depth of skill and business unit level in research and development.
- Distinctive competence in areas of technology relevant to the business unit.
- Allocation for research and development.

5.2.2 **Competitors and industry evolution**

The capabilities required to understand the competitors’ innovation strategies and industry evolution include:
- Intelligence systems and data available.
- Capacity to identify, analyse, and predict industry strategies.
- Capacity to identify, analyse and predict industry evolution.
- Capacity to anticipate facilitating or impending external forces relevant to business unit’s innovation strategies.

5.2.3 **Business technology environment**

The capabilities required to understand the business unit technology environment would include:
- Capacity for technological forecasting relevant to the business unit’s technologies.
- Capacity to assess technologies relevant to the business unit.
- Capacity to identify technological opportunities for the business unit.
5.2.4 Business unit structural and cultural context

Variables and characteristics affecting these contexts include:

- Mechanisms for managing research and development efforts.
- Mechanisms for transferring technology from research to development.
- Mechanisms for integrating different functional groups in the new product development process.
- Mechanisms for funding unplanned new product initiatives.
- Mechanisms for eliciting new ideas from employees.
- Evaluation and reward systems for entrepreneurial behaviour.
- Dominant values and the definition of success.

5.2.5 Strategic management capacity

Capabilities required to deal with entrepreneurial behaviour are:

- Business unit level management capacity to define a substantive development strategy.
- Business unit level management capacity to assess the importance of entrepreneurial initiative.
- Business unit level management capacity to assess the relatedness of entrepreneurial initiatives to the unit’s core capacities.
- Capacity of business unit level management to coach product champions.
- Quality and availability of product champions in the business unit.

5.3 CONCLUSION

The first three categories of capabilities listed above are inputs for the formulation of business unit innovation strategies; the last two are important for the implementation of business unit innovation strategies. Although the combination of the five categories determines the relative strength of a business unit for formulating and implementing innovation strategies, the leadership of the firm remains critical for their success.

A thorough understanding of a firm’s innovation capabilities provides answers to the following:

- Current competencies that may fuel new products and services.
- Competency gaps that if filled, can fuel growth.
- Alternatives for filling competency gaps.
Chapter 6 explores the changes in information laws and how these affect business transactions and strategy. The literature study is being done to further determine and thoroughly understand what external factors are influencing the firm’s approach to the implementation of technology innovations. The understanding of these factors is further used to design a survey to test the most dominant influencing factor. Of particular impotence is that the extent of influence by these factors on the firm’s approach is compared to managerial practices, capabilities, and resources to innovate. The assumption is that the firm’s approach to implementation of innovation is mainly driven by managerial practices, capabilities, and resources to innovate.
CHAPTER 6

CHANGES IN INFORMATION LAWS: ELECTRONIC COMMUNICATIONS AND TRANSACTIONS ACT 2002 (ACT 25 OF 2002)

6.1 INTRODUCTION

Reviewing and analysing the literature reveals that the influence of specific innovation mechanisms, approaches and perspectives in an industry depends on three broad contextual aspects (Da Silveira, 2001: 21, 771):

- Economy and government.
- Technology strategies and innovation paths of firms.
- Managerial practices, capabilities, and resources to innovate.

The innovation gaps within firms can be explained to a large extent, as all these concepts are context-based.

The literature review also informs our understanding of the changes in information laws. Specific reference is made to the Electronic Communications and Transactions Act 2002 (Act 25 of 2002) (“ECT Act”) and how this act has created a number of opportunities for companies to streamline their business by means of the electronic storage of records and documents (http://www.internet.org.za/ect_.html).

6.2 OVERVIEW OF INFORMATION LAWS

Information laws cover:

- The current status of the Electronic Communications and Transactions Act.
- The Regulation of Interception of Communications and Provision of Communications-related Information Act 2002.
- Data protection in national and international business.
- The effect of policy documents such as the King Report on corporate governance.

6.2.1 Electronic Communications and Transactions Act

The Electronic Communications and Transactions Act came into effect on 30 August 2002. One of its main objectives, amongst others, is to facilitate and regulate
electronic communication and transactions. The key aspect of the act is that it is largely empowering, rather than restrictive – unless you are undertaking on-line transactions, or providing authentication services. Instead of creating a compliance nightmare, the Act provides a framework within which the legal status of electronic communication is defined. In terms of the electronic storage of records and documents, the ECT Act actually creates a number of opportunities for companies to streamline their businesses.

6.2.2 Key provisions

Some of the key provisions of the Act are:

- A requirement by law that a document must be in writing if the document or information is in the form of a data message and is accessible in a manner usable for subsequent references (ECT Act, 2002, Act 25 of 2002, Chapter III, Part 1, section 13(1)).

- If law requires a signature, and the type of that signature is not specified as a requirement in relation to a data message, that this is met if an advanced electronic signature is used ((ECT Act, 2002, Act 25 of 2002, Chapter III, Part 1, section 13(3)).

- Chapter III, Part 1, section 1.3 of the act. Importantly, this does not relate to instances where law does not require a signature, such as with normal commercial contracts. This is an area of potential risk for organisations and there are certain clauses, which are recommended for insertion in a company’s agreements to address this risk.

- If the law requires information to be retained, that such a requirement is met if the information is retained in the form of a data message, if such information is accessible so as to be usable for subsequent references; if the data message is in the format in which it was generated, sent or received, in a format which can be demonstrated to represent accurately the information generated, sent or received; and if the origin and destination of that data message and the date and time it was sent or received can be determined (ECT Act, 2002, Act 25 of 2002, Chapter III, Part 1, section 16(1)).

- That an agreement is not without legal force because it was concluded partly or wholly by means of a data message and, in cases where parties to the agreement have not agreed as to the issues provided in the agreement, an
agreement concluded by data message if it is concluded at the time when and
the place where the acceptance of the offer was received by the offeror (ECT
Act, 2002, Act 25 of 2002, Chapter III, Part 1, section 22(1)).

- Once again the default position is not entirely clear or comforting and it is
  recommended that the provision of the Act in this regard be excluded or
  modified in the contract document when parties enter into commercial
  agreements.

### 6.2.3 Compliance issues

The statutory compliance issues are minimal unless there is involvement in on-line
transacting (e-business). A good example is Internet banking where authentication of
customers has become a critical issue.

### 6.2.4 Corporate governance issues

From the corporate governance perspective, the ECT Act creates a number of
potential headaches in that employees can potentially transact, conclude written
agreements and create potential evidence in their day-to-day e-mails. Due to the fact
that for a long time e-mail has been used as an information medium, the potential for
mischief and unintended consequences is huge, especially in light of the fact that
many of the provisions of the ECT Act have not been tested or been given substance
by way of legislation.

### 6.3 CONCLUSION

With regard to the ECT Act the following actions are recommended:

- Ensure that your agreements contain appropriate clauses to ensure that
  unintended consequences do not arise due to the provision of the ECT Act.
- Implement a comprehensive Electronic Communication Policy which regulates
  the manner in which staff use the company’s electronic communication
  resources.
- Implement a document retention policy to ensure that vital evidence created
  electronically is appropriately archived and kept for future reference,
  independently of the continued employment of individuals within the
  organisation.
Chapter 7 captures the actual situation in the company with the aim to create a practical view and thorough understanding of how the main problem statement applies to the formulation of strategy and implementation of technology innovations. The literature review in this chapter highlights amongst others the firm’s dilemma and the business strategies formulated and technology innovations implemented to arrest the problem. Of particular importance is the perspective of innovation and the approach that the firm adopted to implement technology innovations.
PART III ACTUAL SITUATION IN THE FIRM

CHAPTER 7

BUSINESS AND TECHNOLOGY STRATEGIES: MAJOR TECHNOLOGY INNOVATIONS IMPLEMENTED

7.1 INTRODUCTION

In this chapter the actual situation within the firm is addressed. The aim is to gain a thorough understanding of the research question in the context of Metropolitan Retail in respect of:

- Firstly, the business strategy, the major technology innovations implemented or pursued.
- Secondly, the relationship between business and information technology (IT).
- Thirdly, the description of specific cases of innovation implementation with the aim of understanding the influencing aspects and approaches adopted.

Also highlighted in this chapter is the evolution of the relationship between the business and information technology disciplines in the firm. The insights gained will help understand the cultural context capability of the firm.

7.2 MANAGEMENT DILEMMA

Metropolitan Retail is under pressure to rapidly align information technology resources and processes so as to directly support the most critical business objectives. One of the underlying management dilemmas is how to increase revenue opportunities on the one hand, and how to reduce processing and service costs on the other.

There is also the challenge to develop a greater understanding of what intangibles are at work and how they can be managed in order to:

- Enhance coordination and alignment of innovation priorities and strategies.
- Develop and implement strategies.
- Enhance adoption.
7.3 BUSINESS STRATEGY

With the help of performance management tools, Metropolitan Life had identified strategic objectives for the period 2002–2007. Performance measures have been set to achieve strategic objectives defined broadly along four distinct perspectives:

- **Financial** – to reduce operating costs and to make a profit.
- **Customer** – to retain existing customers by satisfying product and service needs.
- **Internal processes** – to generate repeat business and to deliver value.
- **Learning and growth** – to have the necessary people, tools and information.

The failure to co-align technology with the business strategy does lead to competitive weaknesses, arising from below average performance, expensive structures, and incompatibility with market need, Frohman, Schroeder et al. (as cited in Da Silveira, 2001:21, 770).

7.4 TECHNOLOGY INNOVATION STRATEGY

Burgelman et al (2004: 142) indicate that technology strategy serves as the basis for fundamental business strategy decisions. It helps to answer the following questions:

- Which distinctive technological competences and capabilities are necessary to establish and maintain competitive advantage?
- Which technologies should be used to implement core product design concepts and how should these technologies be embodied in products?
- What should be the investment level in technology development?
- How should various technologies be sourced internally or externally?
- When and how should new technology be introduced to the market?
- How should technology and innovation be organised and managed?

These questions present a strong case for the firm’s capabilities in terms of its people at corporate and business levels, while taking cognisance that the research and development competency and resources are equally paramount.

7.5 EVOLUTION OF RELATIONSHIP: BUSINESS AND IT

Historically there have been two distinct domains in Metropolitan Business and Information Technology, determined by two specific areas of responsibility: **business** being responsible for the process and its successful execution; and **IT** being
responsible for the management of the infrastructure, systems and data and their successful execution. Over the last few years, this distinction has evolved allowing the two domains to come closer, and addressing the demand for new business models to meet global and market needs. The requirement to use technology as a business process enabler has never been more critical. It has become an imperative to enterprise survival. This strategic imperative requires an unlocking of business process flexibility so as to provide business value through process innovation and ultimately business model innovation.

### 7.6 OLD BUSINESS AND IT RELATIONSHIP

To assess process and understand how business and IT traditionally worked within a process, four main components have been analysed, namely, people (both business and IT people), infrastructure, systems and information.

Information is key to the firm since business people use information and because it passes through infrastructure and is managed by systems. Although traditionally IT people were the custodians of data, they made little effort to assist business to effectively transform this data into information and thus provide real business value. Conversely, business people paid little attention to the systems that they saw mainly as an administrative aid. It was not until the advent of the ‘green terminal’ that business touched IT through the infrastructure component as indicated in the Figure 7.1.
7.7 NEW BUSINESS AND IT RELATIONSHIPS

Figure 7.2 shows the new, evolving world. There are three significant changes depicted here. Firstly, Business people are not only interacting with the infrastructure but are also now directly involved with systems. Secondly, IT people have expanded beyond the pure infrastructure and systems (IT) domain subsets and are now playing a part in the information layer. In this way, IT people are beginning to contribute to business process effectiveness. Thirdly, and probably most importantly, there is an emerging overlap between the Business and IT people components. This enables the concept of Business Process Management.
7.8 MATURING OF RELATIONSHIPS

There is now a dawning realisation in organisations of the inherent value in business and IT people working together towards the same objective – and only recently has the firm begun to see the future of IT enabling business change. The emergence of business process management has given rise to new realities to link business needs with IT capabilities, as indicated in the model, Figure 7.3.
The result is that the organisation’s competitive ability is enhanced through the delivery and execution of superior business processes at a lower cost than competitors. This statement has not been researched and may not necessarily be true for Metropolitan Retail.

### 7.9 GLOBAL TRENDS

Gartner (2005: 2) identifies the following trends that will change the role of the information technology organisation (http://metweb1/is_techplan/tpwebnew/bulletins/Gartner/Current.htm).

- Enhanced business growth emerges as key for chief information officers (CIO). Delivering projects that enable growth tops the priority list for CIOs in 2005, according to Gartner’s latest survey.

  Recommendation: Corporate management will likely not fund broad, sweeping infrastructure projects.

- Returns decline on automation investments designed to drive down operating costs. The era of massive automation projects on the shop floor and in the office is nearing its end.

  Recommendation: Identify key people who will contribute most to completing those business objectives that the chief executive officer is charged with.
Identify at which key behaviours these key workers will have to excel at. Apply the resources narrowly to help them succeed.

- Decision-making becomes more centralised. IT investments tend to pay the highest returns when made by firms with decentralised decision-making.

  Recommendations: Incorporate gradual migration to decentralised decision-making in business plans to support business growth.

- Enterprises focus on the core competencies that drive their competitive advantage and outsource the rest. This trend will continue, which means companies will collaborate with trusted partners, suppliers and even customers to sustain their operations.

  Recommendation: The firm no longer provides IT for itself. Rather, it serves workers inside and outside the firm who pursue the firm’s goals within the wider IT ecosystem of the extended firm.

- Companies demand higher skills from workers, particularly creative and analytical skills. The demand for people who can think on their feet is outstripping supply.

  Recommendation: Extend the e-learning platform across the firm and keep expanding the roles and subjects for which content is available. Above all, recognise the value of collaboration and create a reward system for employees who help their peers.

- Multitasking ‘ad hocracies’ replace fixed-function bureaucracies. As opposed to fixed functions and responsibilities, move towards an environment in which people may tackle several transitory assignments.

  Recommendation: Implement tools to help key employees stay on top of a complex array of responsibilities, and to help them understand and bridge the many gaps that separate them from their collaborators.

- Consumers drive the IT industry, and consumer technology sets the tone within firms. In the future, consumer technologies will introduce workers to new functions and set their expectations for what IT should be able to do.
Recommendation: Create a supportive environment in which users can test the latest gadgets and concepts the IT firm is considering.

- Knowledge about new technologies spreads more rapidly and shortens the time that they can provide a competitive advantage. Firms will be valued for being continually responsive to changing needs and circumstances more than for implementing individual blockbuster projects.

Recommendation: Cut big-project ambitions and structure the firm to quickly tackle small, ad hoc projects that create business value.

7.10 INNOVATIONS IN METROPOLITAN ALIGNED TO TRENDS

There are numerous projects and initiatives currently underway that support the above statements and trends. These projects are elaborated on in paragraph 7.11. The most notable of these are:

- The Retail Initiative, REI. However, there are others within Retail, Corporate Business and International where the importance of the closer relationship between Business and IT is critical to the success of the project.
- Retail’s review of their distribution model.
- The back office environment.
- Virtual Workplace.
- Mobile support solutions.

These are just some examples of where business and IT have worked together to improve business effectiveness and to enhance business value.

7.11 MAJOR TECHNOLOGY INNOVATIONS IMPLEMENTED

The framework used in the presentation of actual manifestations of the implementation of innovation and management practices in Metropolitan addressed the following aspects. Firstly, the key influencing aspect that motivates the adoption and exploration of the new technology innovation; and the approach (innovation perspective) and strategies adopted by the firm in that context. Secondly, the focus on the evaluation of the adoption of the new technology innovation in the context of the former aspect.
7.11.1 Retail Enhancement Initiative (REI)

The objectives of REI is to make business simpler, to be more customer focused and more profitable.

Key influencing aspects are that the project was triggered mainly by economic reasons and the need to exploit changes in the Electronic Communications and Transactions Act. The sales process had to be supported by voice technology instead of paper.

The innovation approach of this initiative is considered as constituting a radical departure from the sales process.

7.11.2 Straight through processing (STP)

The objectives of STP are to eliminate or greatly reduce manual intervention in the completion of transactions.

Key influencing aspects are that the project was initiated with a goal to reduce costs and to make a profit. The key building blocks for the project were digital and biometric technologies implemented in order to replace paper.

The innovation approach of this initiative is considered to be mainly the enhancement of current systems, processes and services; especially that the biometrics part was discarded due to risks.

7.11.3 Virtual Work Place (VWP)

The objectives of the Virtual Workplace are to provide Metropolitans brokers with an application that will support their own marketing efforts and act as their single interface with Metropolitan.

The key influencing aspects are that at the time of the initiation of the project the firm was regarded as pioneering the creation of virtual brokers.
The **innovation approach** meant that the system would be WEB-based with all applications and data residing centrally at Head Office. This initiative is considered to be a radical departure from the traditional way of interacting with and servicing brokers.

### 7.12 ACCOMPLISHMENTS AND FAILURES

Although recently there has been much focus on business processes and business process management, Business and IT have always worked within processes. In the past, the focus was not on the process itself, but rather on the individual tasks that made up these processes. This led to tasks being done well but processes not necessarily being as effective. It leads back to the old adage that you mustn’t only do things right, you must also do the right things! Simply put, a process may be defined as a structured set of tasks that receive information (or goods) and delivers value.

### 7.13 CONCLUSION

This chapter covered the actual situation in the firm in the context of innovation. The business strategy, the evolution of the relationship between business and information technology and technology trends were addressed. In recent years, several technology innovation projects have been pursued by Metropolitan Retail some resulting in expensive failures whilst others succeeded.

The literature further reveals that the firm has been relatively radical in its approach to the implementation of technology innovations. This can be observed in the extent of the impact of technology projects implemented. Whether all these technology innovations once implemented had the desired effect in solving the firm’s dilemma is a subject of interesting debate.

Chapter 8 deals with the research methodology and design of the empirical survey to address sub-problems two, four and five. Several sources of literature have been explored to thoroughly understand the process of research. The insights gained have been used to facilitate a decision to adopt a specific research methodology, which would yield optimal results in the context of the main problem statement and sub-problems.
CHAPTER 8

RESEARCH METHODOLOGY

8.1 INTRODUCTION

The literature review in the previous chapters has highlighted, amongst others, why innovation is considered as a key driver for profits. The importance cannot be overemphasised of understanding the capabilities and approaches that may characterise innovation and changes in the firm.

It is therefore the central focus of this study to review literature on technology innovation to build an agenda for empirical research on the extent of focus of the firm on capabilities in relation to innovation perspective manifestations. The main idea is to identify the best fit and to recommend options.

The research approach outlined below has been done to also test, the assumption that the manifestation of the dominant innovation perspective of the firm is influenced more by legislative changes.

8.2 RESEARCH METHODOLOGY

The underlying thought process in this research of qualitative and descriptive methodologies will be discussed first, after which the research design, data collection and data analysis processes will be described.
8.2.1 Flow of activity in the application of the research method

In 1959, Kemeny (as cited in Alexander, 2002: 32) defined the scientific research method as a progression that alternates between observation and explanation saying, “I observe something; I explain why it might be true; I deduce general principles consistent with the explanation; and I define additional observations necessary to test my new understanding.”

Figure 8.1 emphasises the methodical verification of an hypothesis. It begins with induction and deduction and then goes on to state the hypothesis that can be tested by observation as in Step A. Step B defines the experiments required to perform the test for the hypothesis. Step C comprises the execution of those experiments and the collection of data. The remaining steps comprise verification of the original hypothesis in the light of the data.
8.2.2 The thought process

Cooper and Schindler (2003: 33) refer to the importance of thought process and sound reasoning in research. They classify six styles of thinking in terms of:

- Untested opinion.
- Self-evident truth.
- Method of authority.
- Literary.
- Scientific method.
- Postulational.

The detailed explanation of these styles is not within the scope of this research document. However, the dominant thinking style in this study has displayed some of the principles of scientific method mentioned by Cooper and Schindler.

In explaining the scientific method Cooper (as cited in Cooper and Schindler, 2003: 35) identifies the essential principles of science as:

- Direct observation of phenomena.
- Clearly defined variables, methods, and procedures.
- Empirical testable hypothesis.
- The ability to rule out rival hypotheses.
- Statistical rather than linguistic justification of conclusions.
- The self-correcting process.

8.2.3 Models

Cooper (as cited in Cooper and Schindler, 2003: 55) refers to a model as a representation of a system that is constructed to study some aspect of that system or the system as a whole. He asserts that models have three major functions, namely, description, explication and simulation.

- **Descriptive models** describe the behaviour of elements in a system where theory is inadequate or non-existent.
- **Explicatory models** extend the application of well-developed theories or improve our understanding of their key concepts.
Simulation models clarify the structural relationship of concepts and attempt to reveal the process relations. Thus static relationships represent a system at one point in time, whereas dynamic relationships represent the evolution of a system over time.

The decision to focus the research effort on studying technology innovation at the level of the firm is facilitated by the use of the innovation research framework as reflected in Figure 8.2. The research questions that tested the extent of focus of the firm on innovation capabilities, were based on the audit framework by Burgelman et al (2004: 10). The insights gained from Hickman and Raia (2002: 15) have also been used to test the extent of focus of the firm on innovation perspectives.

One of the arguments put forward in this study (see paragraph 8.2.2) is that the thinking style has a direct influence on the choice of research methodology. Research methodology has two primary functions:

- To control and dictate the gathering of data.
- To guide the processing and interpretation of the data so as to extract meaning from it.

### 8.2.4 Qualitative research methodologies

Qualitative research is inclined to employ more questions to guide the reader. This is in direct contrast with quantitative methods, which do not normally make use of questions. In the latter the researcher performs laboratory work to answer questions. What is common about the two methods is that experiments are designed albeit with varying rigorous statistical protocols. Thus in attempting to deal with the main research problem, it was necessary to employ more questions whilst adhering to the essential principles of a scientific method.

Cooper and Schindler (2003: 151) state that the objectives of exploration may be accomplished with different techniques. Both qualitative and quantitative techniques are applicable, although exploration relies more heavily on qualitative techniques.

Qualitative research in broad terms as referred to by Brynard and Hanekom (1997:5), embodies:
- **Interpretative research** – which means building on a collection of records including context, persons, actions and perceptions of participants as the basis of inductive (discovering general laws from particular facts) generation of an exploratory theory.

- **Critical theory** – which means making assumptions differing from those generally accepted.

According to Welman and Kruger (2001:178-190) qualitative research can also be classified in groups according to specific objectives:

- **Basic or pure research** which means expanding knowledge by developing theories.
- **Applied research**, which means finding solutions or answers to specific research issues, problems or questions.
- **Action research**, which aims at immediately applying research results to find solutions to problems that emerge at the time.
- **Developmental research**, which aims at establishing new projects, customs, policies, and so on.
- **Team research**, which describes a number of researchers, acting as a team, undertaking a particular research project.

Peshking (as cited in Leedy and Ormrod, 2001: 148) explains that qualitative research studies typically serve one of the following purposes:

- **Description** – to reveal the nature of certain situations, settings, processes, relationships or people.
- **Interpretation** – to enable the researcher to gain insight about the nature of a particular phenomenon, to develop new concepts or theories about the phenomenon, and/or to discover the problems that exist within the phenomenon.
- **Verification** – to test the validity of certain assumptions, claims, theories or generalisation within real world contexts.
- **Evaluation** – to provide the means through which the researcher can judge the effectiveness of particular policies, practices or innovations.

The flow of activities depicting the application of the qualitative research method is shown in Figure 8.1.
8.2.5 Quantitative research methodologies

Quantitative research methodology is appropriate where quantifiable measures or variables of interest are possible, where hypotheses can be formulated and tested, and inferences drawn from samples of the population.

This research approach is supported by a basic statistical design of experiments, which requires specific skills, assumptions and research practices. While quantitative research has many approaches; a distinction may be made between the historical research, descriptive research and experimental research.

Quantitative research in broad terms as referred to by Brynard and Hanekom (1997: 6) encapsulates:

**Historical research** searches for answers in the past, present and future.

**Descriptive research** searches for answers through the survey method by a complete description of the present. There are three survey methods: descriptive surveys, comparative surveys and evaluative surveys.

*Descriptive* surveys may take any of the following forms:
- A *mass* survey, such as the collection of data at the national level.
- A *case study* survey, such as the attitude of employees towards the implementation of a specific company policy.
- A *correlation* survey, to determine whether method ‘A’ is better than ‘B’, for example.
- A *retrospective* survey, such as experience gained by teachers in class has an effect on their performance as school principals.

*Comparative* surveys aim to compare two or more research situations in terms of pre-selected criteria.

*Evaluative* surveys seek to evaluate certain aspects of research situations in terms of a particular system of criteria, for example by posing the question ‘How effective is ...?’ This includes:
- *Longitudinal* research which involves the investigation of the same situation or persons over two or more periods of time.
• Cross-sectional research, which studies different persons, representing different levels of development at the same time.

Finally, experimental research refers to searching for answers in the future by means of the introduction of new approaches or changes in the present situation. This type of research normally uses:

- Independent variables, denoting the condition or element that is being investigated.
- Dependent variables, denoting the criteria according to which the independent variable is being investigated.

Simply put, the independent variable is the cause, while the dependent variable is the effect. The term variable is used synonymously for construct or the property being studied (Cooper and Schindler, 2003: 47). The importance of control variables cannot be overemphasised as it is at the empirical level where the hypothesis is tested and because a researcher deals with variables.

**8.3 RESEARCH DESIGN**

The research process for this study started out by identifying the main problem, and seeking further clarification thereof in the form of sub-problems after which a research design was selected. The main research problem was: “What technology innovation capabilities and perspectives should the firm focus on?”

In order to understand and deal with the main problem, the sub-problems were identified as:

- How is the concept of innovation defined and what are the different forms and categories?
- What are the innovation perspectives that offer a framework for integrating different innovation categories and what advantages and disadvantages are there for these perspectives?
- What is the framework and process that can be used to arrive at a better understanding of why innovation is a key resource for profits?
- What is the business and technology strategy of Metropolitan Retail and what are specific major cases of technology innovation implemented or pursued?
What were accomplishments and failures in each case of technology innovation, and implications to business strategy?

- What innovation capabilities that facilitate and support innovation strategies, can be gained from the literature?
- What are the main changes to the Electronic Communications and Transactions Act 2002 (Act 25 of 2002) and what are their effects on business transactions and strategy?

Initially, the main problem was further delineated after doing the literature study, that is, researching the levels at which innovation diffusion can be studied and analysed. Abrahamson’s research framework for innovation (1991), as illustrated in Figure 8.2, was used to arrive at a decision to study and analyse innovation at the firm level.

Da Silveira (2001) holds that firstly, innovation may be studies at the industry level, focusing on mechanisms of innovation diffusion: rationalism; bandwagon pressure; and forced choice. Secondly, research may be studied at the firm level. This view is explained further in Figure 8.2 (Abrahamson 1991; Abrahamson and Rosenkopf, 1993; Schroeda et al., 1995, (as cited in Da Silveira, 2001: 768). The main focus of this chapter is to investigate the approaches by the firm towards the development and adoption of innovative technologies.

![Figure 8.2 Innovation Research Framework](source: Da Silveira (2001: 768))
Doing the literature study included researching technology innovation categories and perspectives that can be used to integrate these. They were dealt with in the first and second sub-problems. Data required for dealing with sub-problem one centred on various definitions by several authors. From these definitions it was observed that various authors categorised levels of innovation in order to create a comprehensive understanding.

The purpose of doing literature study yielded different perspectives of innovation (sub-problem two) and helped to determine the link between the implementation of innovation strategies in relationship to categories of innovation in order to execute a business strategy.

Literature for both sub-problems one and two was obtained by means of an Internet search and searches of the databases in the Cape Peninsula University of Technology and University of the Western Cape.

The findings were that innovation is the key element of competitiveness in all industries including the insurance industry. Metropolitan Life had conducted a brand valuation and had further confirmed this view when it rated innovation as one of the key resources for profits.

The literature review was conducted to give an insight into frameworks and processes that can be used to understand why innovation is a key resource for profits. This served to deal with sub-problem three. Data for this sub-problem was obtained by initially conducting an interview with the brand manager of the firm. Literature was obtained by means of an Internet search and searches of databases in the Cape Peninsula University of Technology.

The fourth sub-problem was addressed by doing a literature study to research:

- Business strategy.
- Technology strategy.
- Major technology innovations implemented or pursued.
- Accomplishments and failures.

Literature was obtained by means of searching the intranet archives of the firm, an Internet search and searches of databases in the Cape Peninsula University of Technology.
Technology. Additional data was gathered by conducting a face-to-face interview with the senior project manager in the project support office of the firm.

The fifth sub-problem was addressed by means of questionnaires to respondents, as well as personal interviews with relevant personnel within business and information technology communities. The questionnaires dealt with:

- The extent of focus of the firm on innovation capabilities.
- Manifestations of innovation perspectives.
- The contextual aspects and variables driving or influencing the innovation approach.

All questionnaires were forwarded under cover of the letter dated 3 November 2005 (see Appendix B). A list of details of respondents is in Appendix I. The study of innovation capabilities, innovation perspective manifestations and conceptual aspects influencing the innovation approach were included in Chapters 3 and 5 for completeness.

The sixth sub-problem was addressed by means of a questionnaire to respondents, as well as personal interviews with relevant personnel within the business and information technology communities. This questionnaire specifically dealt with the contextual aspects and variables driving or influencing the innovation approach. It was forwarded with the letter dated 3 November 2005 (see Appendix B) and details of the targeted respondents can be found in Appendix I.

The reviewing and analysis of the literature showed that the influence of specific innovation approaches and perspectives in an industry depends on three broad aspects, namely:

- Economy and government.
- Technology strategies and innovation paths of firms.
- Managerial practices, capabilities, and resources to innovate.

In the literature review specific reference was made to the Electronic Communications and Transactions Act 2002 (Act 25 of 2002) and the space it created for companies to address issues of electronic storage of records and documents in order to streamline their business.
8.4 SAMPLING DESIGN

Judgement sampling, a non-probability sampling technique, was used to make contact with key individuals, whilst the selection of respondents to questionnaires was done randomly within groups of staff according to area of operation. The choice of key individuals was based on the researcher’s own expert knowledge of the functions per operating area and the roles inherent in each position.

Because the population of key individuals is heterogeneous and the sample size is small a judgement sample could yield a more representative sample than would random sampling methods.

The selection of respondents within groups was left to key individuals and was conducted on a random basis. In this way a more representative sample was obtained and rendered the results of the survey much more reliable.

The selected sample of 11 people, 4 from information technology area and 7 from business out of a population of 43, was treated as one sample and there was no distinction made based on area of operation during the analysis of responses. The sample was drawn randomly from the two groups of employees at company head office. The target population was small as only senior managers and senior business analysts were included due to confidentiality issues.

8.5 DATA COLLECTION METHODS

For the purpose of the quantitative study additional data about the strategic technology-based projects and innovation approaches were obtained via:

- Interviews – personal interviews were conducted with key individuals in business and information technology areas. All interviews were face-to-face.
- Internal sources – management documents, operations documents and databases, company project repositories have been used to gather relevant data.
- Questionnaires – questionnaires were developed to probe the following areas: the focus of business strategy, the level of fit of technology innovation categories and perspectives implemented. Finally the effects of changing legislation with specific reference to the Electronic Communications and
Transactions Act 2002 (Act 25 of 2002) were examined. The advantages of questionnaires were that they:

1. Created contact with wider participants.
2. Were the lowest cost options.
3. Could be perceived as being more anonymous.
4. Facilitated rapid data collection.
5. Could be conducted by contacting participants telephonically, thus motivating them to respond and avoiding a possible low response.

### 8.5.1 Cover letters

Cover letters for the questionnaires were drafted with the aim of persuading the respondents to participate. The following guidelines were considered:

- Content, purpose and importance of the research.
- The respondent’s importance to the study.
- The time that it would take to complete the questionnaire.
- Confidentiality and anonymity.
- Information of how the results will be used.

### 8.5.2 Questionnaires

The content of questionnaires included, amongst others, sections of possible managerial practices, capabilities, resources and influencing aspects to innovate.

Respondents were requested to rate on a scale of 1–5, the extent of focus of the firm on capabilities, innovation approaches. The extent to which the firm is influenced by conceptual aspects in its approach to innovation was also measured using same scale. This represented the qualitative view of the research. The rating scale introduced called for a quantitative analysis of the measurement of focus as rated by respondents.

Advantages of this method of collecting data are:

- It is less costly.
- It can be completed at the respondent’s convenience.
- The respondent is assured of anonymity.
- Questions are standard and are easy to analyse.
- Respondents are not biased by the presence or opinion of the interviewer.
● It is easy to access people at any location.

Disadvantages of this method of collecting data are:

● The lack of flexibility as no explanation can be given if questions are not clear;
● The response rate could be low.
● Another person other than the intended participant may fill in the questionnaire.
● Questions have to be simple and easy to understand.
● The lack of representativeness as response rates may be low.
● Incompleteness is a concern as certain questions may be left unanswered.

The basic aim in questionnaire design is to obtain information relevant to the purpose of the survey. Eiselen, Greenacre, Grupel, et al (1986: 104) recommends the following procedure when designing a questionnaire: preliminary decision, questionnaire construction, and questionnaire implementation.

**Preliminary decision**

● **Objectives of the survey** – It is imperative to have a clear definition of the objective(s) of the survey before designing a questionnaire. The purpose of a questionnaire is to obtain information from a population of people.
● **Target population** – The target population must be defined depending on the objectives of the survey.
● **Data collection method** – Possibilities have to include personal and telephone interviews or mailing the questionnaire.
● **Type of question** – Questions can be broadly classified into four types in terms of what they measure:
  (1) *Demographic* questions may measure, for example, age, income etc.
  (2) *Behaviour* questions concern actual activity engaged in by the person as well as the frequency of this behaviour.
  (3) *Knowledge* questions determine the level of knowledge or awareness regarding the issue addressed by the survey.
  (4) *Attitude* questions relate to a person’s disposition regarding an issue addressed by the survey.
Questionnaire construction

Questionnaire construction takes into account question content and question wording. **Question content** means that each question should provide relevant information. **Question wording** means that each question should be clear and unambiguous. In the design of question wording the following have to be noted and implemented:

- **Question sequence**, which requires that one proceed from general to more specific questions or vice versa. Questions should address each topic entirely before moving on to the next topic. Questions that can bias others or are sensitive should be placed at the end of the questionnaire.
- **Format of responses** may take a form of open questions, multiple choice questions or dichotomous questions.
- **Measurement of responses** where numerical scales or attitude and rating scales may be used.

Questionnaire implementation

The implementation of questionnaires needs careful consideration of:

- **Practical considerations** which include physical appearance, the covering letter, that the questionnaire must be short, the timing and cost of implementing.
- **Pilot study and pre-tests**, which mean, that the pilot study is conducted after the initial pre-testing has been completed. It is a trial run of the major survey and differs from it in scale.

In this research the extent to which the firm focuses on a capability is the sum of all allocated ratings expressed as an average of all available total scores (not sure responses excluded). The higher rating means higher focus.

8.6 DATA ANALYSIS

Data has been processed and analysed using Microsoft Excel spreadsheets. The outcome of the analysis has been integrated with the information derived from the literature review in order to draw conclusions and make recommendations. No comparisons were made between groups in the sample.
8.7 LIMITATIONS AND IMPLICATIONS

The sample includes middle and senior management but exclude executive management at head office. Although the population was 43, small in statistical terms, the response rate of 11 from a sample size of 11 is considered good. Some respondents expressed interest in the objectives of the survey.

All questions were intended to determine the level of knowledge or awareness regarding the issues addressed by the survey. Some respondents expressed limited knowledge on areas of focus. Less than 1% of questions were not answered as a result.

8.8 MEASUREMENT

The technology innovation capabilities were analysed and measured separately from the innovation approaches or perspectives. Capabilities were analysed as a whole as well as individually by focusing on characteristics. Innovation approaches were analysed and measured as a whole as well as individually.

8.9 CONCLUSION

The objective of this chapter was to emphasise some of the main aspects of the process of research. These included the characteristics of good research and the steps taken to complete the research project. Although there were limitations in this survey they would not impact significantly on the acceptability of the results.

In the literature the variables under study are identified as innovation capabilities, perspectives and the aspects influencing the approach of the firm in implementing technology innovations.

It is my view that even if the concerns of little knowledge about certain areas that the survey focused on are addressed the outcomes of another survey could not be significantly different. The insignificant number of such concerns reported confirms the view.
The responses were processed and the information derived is presented and discussed in Chapter 9. The interpretation and commentary on the results is limited to the variables under study.
PART V PRESENTATION OF RESULTS

CHAPTER 9

RESULTS AND ANALYSIS OF THE EMPIRICAL SURVEY

9.1 INTRODUCTION

As mentioned in Chapter 7, the key aspects of the business strategy of the firm are financial (to reduce operating costs and make a profit); customer related (to retain existing customers by satisfying product and service needs); internal processes (to generate repeat business and deliver value); and learning and growth (to have the necessary people, tools and information).

The firm is looking to identify primary technology innovation capabilities and to focus on these in support of an appropriate innovation perspective that is aligned to the business strategy. It is of particular importance to gain an understanding of what strategy options form the best fit to the implementation of technology innovations. Therefore, this chapter presents the results of the qualitative and descriptive research data gathered from a sample of respondents during the empirical survey. The purpose is to highlight:

- The extent of focus on technology innovation capabilities, currently, versus what the level of focus should be.
- Perspectives and approaches of technology innovation being implemented, currently, versus what is possibly the best fit for the business strategy.
- The major drivers for change.

The sub-problems being addressed in this empirical survey are:

- Sub-problem two – Innovation perspectives and approaches:
  What are the innovation perspectives offering a framework for integrating different innovation categories and what advantages and disadvantages are there for these perspectives?
- Sub-problem four – Innovation capabilities:
  What is the level of focus on innovation capabilities, those facilitating and supporting innovation strategies?
- Sub-problem six – Legislation:
What are the main changes to the Electronic Communications and Transactions Act 2002 (Act 25 of 2002) and what are the effects on business transactions and strategy?

9.2 RESULTS – INNOVATION CAPABILITIES

Five innovation capabilities are discussed, namely: resource, competitor strategies and industry evolution, the business unit’s technological environment, and strategy management. First the question posed to participants in the study is given, followed by the results of the survey in graph form. The graphs could be used in conjunction with questionnaires in order to have a complete view of the findings. This can be done in all results including perspectives and influencing aspects.
9.2.1 Capability 1: Resources

Findings:
1. The firm focuses fairly on the availability of resources and allocation although the gap is significantly wide in relation to what the focus should be.
2. Distinctive competences in areas of technology relevant to multiple business units scored the lowest in terms of what it should be. It is currently rated as having the highest focus though.
3. Allocation of resources for research and development to support mainstream business is considered as most critical. It is currently less than fair.
4. The current focus of the firm in funding research and development is less than fair on the following: evolution, exploratory research and innovation.

<table>
<thead>
<tr>
<th>Rate</th>
<th>Extent of focus on capabilities and characteristics by Metropolitan Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale (1-5)</td>
<td>1 = Marginal; 2 = Fair; 3 = Adequate; 4 = More than adequate; 5 = Excellent</td>
</tr>
</tbody>
</table>

**Question:** Please use the rating scale above to rate the extent of focus by Metropolitan Retail on the characteristics below.

**FIGURE 9.1 RESOURCE AVAILABILITY AND ALLOCATION**
9.2.2 Capability 2: Competitor strategies and industry evolution

Findings:
1. The firm focuses marginally on capacity to anticipate impeding external forces relevant to business unit’s innovative strategies. The anticipated focus is also scored the lowest of all characteristics.

2. Understanding competitors’ innovative strategies and industry evolution is considered a strong characteristic of the firm.

<table>
<thead>
<tr>
<th>Rate Scale (1-5)</th>
<th>Extent of focus on capabilities and characteristics by Metropolitan Retail</th>
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</tr>
</tbody>
</table>

**Question:** Please use the rating scale above to rate the extent of focus by Metropolitan Retail on the characteristics below.

![Figure 9.2: Understanding Competitors’ Innovation Strategies and Industry Evolution](image)

**FIGURE 9.2 UNDERSTANDING COMPETITORS’ INNOVATION STRATEGIES AND INDUSTRY EVOLUTION**
9.2.3 Capability 3: Business unit’s technological environment

Findings:
1. The firm’s focus on understanding the business unit’s technological environment is considered marginal.

<table>
<thead>
<tr>
<th>Rate Scale</th>
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<tbody>
<tr>
<td>(1-5)</td>
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</tr>
</tbody>
</table>

Question: Please use the rating scale above to rate the extent of focus by Metropolitan Retail on the characteristics below.

![Capability 3: Technology environment](image)

FIGURE 9.3 UNDERSTANDING THE BUSINESS UNIT’S TECHNOLOGY ENVIRONMENT
9.2.4 Capability 4: Business unit’s structural and cultural context

Findings:
1. There is need for more focus on mechanisms for eliciting new ideas from employees.
2. There is higher expectation to focus on evaluation and reward systems for entrepreneurial behaviour.

<table>
<thead>
<tr>
<th>Rate Scale (1-5)</th>
<th>Extent of focus on capabilities and characteristics by Metropolitan Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 = Marginal; 2 = Fair; 3 = Adequate; 4 = More than adequate; 5 = Excellent</td>
</tr>
</tbody>
</table>

Question: Please use the rating scale above to rate the extent of focus by Metropolitan Retail on the characteristics below.

![Figure 9.4 Business Unit Structure and Culture](image)
9.2.5 Capability 5: Strategic management capacity

**Findings:**

1. Quality and availability of technology product champions in the business unit have the biggest gap between the current and expected focus.

<table>
<thead>
<tr>
<th>Rate Scale (1-5)</th>
<th>Extent of focus on capabilities and characteristics by Metropolitan Retail</th>
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<tbody>
<tr>
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</tr>
</tbody>
</table>

**Question:** Please use the rating scale above to rate the extent of focus by Metropolitan Retail on the characteristics below.

![Graph of Capability 5: Strategic management](image)

**FIGURE 9.5 STRATEGIC MANAGEMENT CAPACITY TO DEAL WITH ENTREPRENEURAL BEHAVIOUR**
9.3 RESULTS OF OVERALL CAPABILITIES

FIGURE 9.6 OVERALL CAPABILITIES: CURRENT VS SHOULD BE

The first three capability categories are important inputs for the formulation of business unit innovation strategies (Burgelman et al, 2004: 10). The focus on current availability and allocation of resources has the widest gap compared to the required level of focus. The last two are important for the implementation of business unit innovation strategies (Burgelman et al, 2004: 10).

The structural and cultural context of the business unit affecting internal entrepreneurial behaviour is reflected as lacking focus. There is also a wide gap between current focus and focus needed.
9.4 RESULTS – INNOVATION PERSPECTIVES LEVELS

9.4.1 Perspective 1: Improving core business

Findings:

1. Rapid implementation of innovations seems to be enjoying the lowest focus currently, even though it is rated the highest amongst those levels of innovation needing attention. A business strategy focusing on developing core business, as is the case with the firm requires high focus in this area.

2. The focus on relative cost efficiency is seen as receiving more focus than required. This may suggest that the focus on reduction of cost is beginning to harm the firm.

<table>
<thead>
<tr>
<th>Rate Scale (1-5)</th>
<th>Extent of focus on innovation perspectives / approaches and levels (by Metropolitan Retail)</th>
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<tbody>
<tr>
<td></td>
<td>1 = Marginal; 2 = Fair; 3 = Adequate; 4 = More than adequate; 5 = Excellent</td>
</tr>
</tbody>
</table>

Question: Please use the rating scale above to rate the extent of focus by Metropolitan Retail on the type of innovation perspective / approach and level of innovation below.

![Perspective1: Core business](image_url)  
**FIGURE 9.7 IMPROVING CORE BUSINESS**
9.4.2 Perspective 2: Exploiting strategic advantages

Findings:

1. The firm is focusing the least on dramatically broadening the scope of strategic thinking to find new technology innovations.

2. The need to focus on dramatically broadening the scope of strategic thinking to find new products is rated the highest, followed by new markets and then services.

<table>
<thead>
<tr>
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</tr>
</tbody>
</table>

Question: Please use the rating scale above to rate the extent of focus by Metropolitan Retail on the type of innovation perspective / approach and level of innovation below:

FIGURE 9.8 EXPLOITING STRATEGIC ADVANTAGES
9.4.3 Perspective 3: Developing new capabilities

Findings:
1. The focus on expanding the firm’s capacities through development of new talent is rated the lowest currently, even though it requires highest attention.
2. The firm needs to pay attention to leveraging long-term customer advantage and loyalty.

<table>
<thead>
<tr>
<th>Rate Scale (1-5)</th>
<th>Extent of focus on innovation perspectives / approaches and levels by Metropolitan Retail</th>
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</tbody>
</table>

Question: Please use the rating scale above to rate the extent of focus by Metropolitan Retail on the type of innovation perspective / approach and level of innovation below:

![Perspective 3: New Capabilities](image)

FIGURE 9.9 DEVELOPING NEW CAPABILITIES
9.4.4 Perspective 4: Creating revolutionary change

Findings:

1. Transforming the future of the business by introducing new business models is rated the highest focus currently. It is also viewed as needing most attention.

2. The respondents expect the firm to focus more on transforming the future of the business by introducing new markets.

3. There seem to be a balance between current and expected reliance on virtual teams.

4. The respondents also suggest that outsourcing initiatives be kept to the minimum.

<table>
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<tr>
<th>Rate Scale (1-5)</th>
<th>Extent of focus on innovation perspectives / approaches and levels by Metropolitan Retail</th>
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<td></td>
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</tbody>
</table>

Question: Please use the rating scale above to rate the extent of focus by Metropolitan Retail on the type of innovation perspective / approach and level of innovation below:

![Perspective 4: Revolutionary change](image)

FIGURE 9.10 CREATING REVOLUTIONARY CHANGE
9.5 RESULTS OF OVERALL APPROACHES / PERSPECTIVES

The respondents expressed a view that the focus of the firm must be highest in exploiting the firm’s strategic advantages and least on creating revolutionary changes. Also equal extents of focus must be applied to improving core business and developing new capabilities.
9.6 RESULTS – INFLUENCING ASPECTS

9.6.1 Influencing aspect 1: Economy and government

Findings:

- The influence of economy and government on the technology innovation approach of the firm is significantly high.
- Government regulations is rated the highest influencing factor.
- The influence of changes in the Electronic Communications and Transactions Act could also be observed in the nature of projects undertaken by the firm. Specific examples in Chapter 7 are firstly, the project to radically change the new business and sales process (REI). This process is based on voice technology in order to replace paper as a means of transacting. Secondly, the implementation of the straight through processing projects. One of the key building blocks of this process is ability to identify customers via, amongst others, digital signature based on biometric technology.

<table>
<thead>
<tr>
<th>Rate Scale (1-5)</th>
<th>Extent to which aspects and attributes below influence innovation approach of Metropolitan Retail.</th>
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<tbody>
<tr>
<td></td>
<td>1 = Marginal; 2 = Fair; 3 = Average; 4 = Above average; 5 = Significantly high</td>
</tr>
</tbody>
</table>

**Question:** Please use the rating scale above to rate the extent to which Metropolitan Retail’s innovation approach is influenced by the aspects and attributes below.

**FIGURE 9.12 ECONOMY AND GOVERNMENT**
9.6.2 Influencing aspect 2: Technology strategies and innovation

Findings:

- Forced choice mechanisms, like legal compliance as it was established during personal interviews, is rated the highest influencer. This is followed by technology and innovation history of the firm.
- The technology innovation history of the firm is reflected briefly in Chapter 7, where the evolution of information technology and business relationships is discussed.
- Bandwagon mechanisms are rated third.

<table>
<thead>
<tr>
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</tr>
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</tr>
</tbody>
</table>

**Question:** Please use the rating scale above to rate the extent to which Metropolitan Retail’s innovation approach is influenced by the aspects and attributes below.

**FIGURE 9.13 TECHNOLOGY AND INNOVATION PATHS OF FIRMS**
9.6.3 Influencing aspect 3: Managerial practices

**Findings:**

1. Investment in research and development has the highest influence on the innovation approaches the firm is implementing, followed by technical skills and training.

<table>
<thead>
<tr>
<th>Rate Scale (1-5)</th>
<th>Extent to which aspects and attributes below influence innovation approach of Metropolitan Retail.</th>
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</table>

**Question:** Please use the rating scale above to rate the extent to which Metropolitan Retail’s innovation approach is influenced by the aspects and attributes below.

![Influencing aspect 3: Managerial practices](image)

**FIGURE 9.14 MANAGERIAL PRACTICES, CAPABILITIES AND RESOURCES TO INNOVATE**
9.7 RESULTS OF OVERALL INFLUENCING ASPECTS

![Influencing aspects: Overall](image)

FIGURE 9.15 OVERALL INFLUENCING ASPECTS

In the highest number of technology innovations implemented or pursued, changes in the economy and government environments influenced the innovation approach most.

9.8 CONCLUSION

This chapter contains summaries of the qualitative and descriptive data gathered during the empirical survey. The empirical survey took the form of three questionnaires, which covered three areas, which mirror the three sub-questions posed in Chapter 1. The questions investigated the extent of focus of Metropolitan Retail on different categories of innovation capabilities, innovation perspectives and the influencing aspects with particular focus on changing information laws.

Chapter 10 summarises the results, draws conclusions and makes recommendations. Conclusions are drawn after a thorough analysis of the results with specific emphasis on the current extent of focus versus what the focus should be on the variables under study. Recommendations are mainly informed by what the respondents view as the extent of focus required.
PART VI CONCLUSION

CHAPTER 10

CONCLUSION AND RECOMMENDATIONS

10.1 INTRODUCTION

The focus of the previous chapter was on the presentation and analysis of the data gathered during the empirical survey. This chapter summarises the main findings, the problems encountered and the shortcomings. Recommendations are made and opportunities for further research are highlighted.

The framework used to guide the interpretation of results, is partially based on the statement by Burgelman et al (2004: 11) that one frame of reference for interpreting the results of the innovation capabilities audit is historical, that is how the current situation compares to the past; a second frame of reference concerns the firm’s position relative to current competitors.

In this research, the survey was designed to obtain current and desired focus of the firm on capabilities and innovation approaches.

10.2 MAIN FINDINGS

The main findings are addressed in three categories matching the sub-problems identified in Chapter 1, those of capabilities, innovation perspectives and influencing aspects; and changes in information laws. A summary of these findings follows.

Capabilities

The expected (should be) overall rating for the capability categories, which are required as input for the formulation of business unit innovation strategies, is higher than those required for the implementation of the business unit innovation strategies. These are:

- Input capabilities – the resource availability and allocation, understanding the competitors’ innovative strategies and industry evolution, and understanding the business unit’s technological environment.
Implementing capabilities – the business unit’s structural and cultural context, and strategic management capacity to deal with entrepreneurial behaviour.

It is notable that the current overall scores for both categories are significantly lower (fair), that what they should be.

**Innovation approaches / perspectives**

Current technology innovation manifestations of the firm and what these should be have been summarised as follows:

- The respondents expect the firm to focus on exploiting more strategic advantages rather than to pursue the creation of revolutionary changes.
- Equal extents of focus must be applied to improving core business and developing new capabilities. The focus on developing new capabilities currently lags behind all innovation perspectives.

In the main, the overall ratings suggest that the firm’s focus currently is on improving core business. According to the insights from the literature study in Chapter 3, the essence of innovation in this realm encapsulates remaining within the company’s current strategic scope and utilising the existing organisational capabilities to improve core business. This is a manifestation of an incremental way of implementing technology innovations.

**Influencing aspects; changes in information laws**

As discussed in Chapter 6 and elsewhere, the Electronic Communications and Transactions Act 2002 (Act 25 of 2002) created a number of opportunities for companies to streamline their business in terms of the electronic storage of records and documents.

Chapter 7 dealt with various technology innovations implemented by the firm. Although the relationship between business and information technology staff is seen as good, the structural and cultural context of the business unit affecting internal entrepreneurial behaviour is reflected as lacking focus.
The survey confirmed the assumption that the main influencing aspect to the approaches of technology innovations that the firm implemented were mainly due to the opportunities created by changing legislation.

10.3 LIMITATIONS AND IMPLICATIONS OF THE RESEARCH

The sample size selected was kept small although the level of interest to participate seemed very high. This can be seen in the response rate reaching 100%. The number of ‘unsure’ responses is also less than 1%.

Although the population and the sample included middle to senior management and information technology specialist staff, the analysis of the results were not categorised based on staff groups. Executive management have been excluded from the survey and they may have different perceptions as to the levels of focus on capabilities and innovation approach manifestations.

The capabilities, innovation perspectives and influencing aspects included in the survey questionnaires were those compiled by the researcher. There could have been others, which might have been more relevant.

The sample size selected can be viewed as representative of the target population and therefore the perception aired can be generalised for the total population.

10.4 RECOMMENDATIONS

The findings of the research highlighted that Metropolitan Retail scored fair to average in all innovation perspectives, measured on the extent of focus. The measurement on current focus indicates that the firm’s focus is mostly on improving core business. In other words, to generate incremental innovations that can be developed and implemented rapidly and inexpensively. This approach of implementing innovation is in line with the business strategy, more specifically, aligned to the objective of reducing costs and making profits.

The gap between the current extents of focus compared to what the focus should be is significantly wide in all innovation perspectives. The findings of the research further suggest that the firm should consider focusing most on exploiting strategic
advantages. In other words, to generate new ways to apply the firm’s existing capabilities to new products and services categories, market and customer segments, usage occasions and patterns, and channels of distribution.

More significant though, are the observations that:

- The focus on capabilities required as inputs for the formulation of business unit innovation strategies were rated fair to average.
- Similarly with those required for the implementation of business unit innovation strategies.
- Both innovation perspectives referred to above can be implemented without requiring major changes in the firm’s innovation capabilities.

It can also be concluded that these observations support the strategic options highlighted above, namely that the firm should consider exploiting strategic advantages.

10.5 OPPORTUNITIES FOR FURTHER RESEARCH

This study highlighted that changing legislation has the highest influence on the firm in its choice of a specific approach in implementing innovation. South Africa is a new democracy and more changes to the electronic communication space have been done. Thus it can also be expected that more changes are inevitable.

These changes have undoubtedly presented firms with opportunities as well as risks. Possibly the greatest challenge confronting general managers in this context is the building of critical capabilities to enhance the firm’s agility. It is a challenge that presents opportunity for further research.

10.6 CONCLUSION

No one firm exhibits excellence in every one of the innovation perspectives discussed in this document at any one time, nor are the less successful firms totally lacking in all. Nonetheless, outstanding firms tend to score high in most of these perspectives, while less successful ones usually score low in several.
Insights gained from the literature and the survey conducted highlighted that a firm can learn to implement the innovation perspectives discussed in this paper systematically and simultaneously.

Another aspect, which has not received the same emphasis, is that possibly the greatest value of strategic fit is a selective focus on one or more perspectives, which is determined by the capabilities of a firm.

In this research the key observation is that where the incremental innovations were implemented, these were motivated by a business strategy, amongst others, which focused on developing core business with specific emphasis to cost reduction.

The literature review exploring the actual situation in the firm identified a number of technology innovations, which were implemented and a note is made that some of them failed. This failure suggests that the management dilemma was not solved. In this study an impression is created that the right extent of focus on the firm’s innovation capabilities and perspectives can go far in helping resolve the management dilemma. The answer to the main problem statement has also been found in the responses given by the respondents.
REFERENCES


Dear Executive General Manager

Business Unit address: ..................

Date: 31 October 2005

RE: MBA RESEARCH – INNOVATION OPTIONS FOR METROPOLITAN RETAIL, SOUTH AFRICA

I refer to our discussions today and would like to thank you for granting me permission to conduct a survey in your business unit. The survey is about “The investigation and analyses of the extent to which Metropolitan Retail focuses on innovation capabilities and the approach being followed to implement technology innovations”.

The survey questionnaires address three areas, innovation capabilities, approaches and influencing aspects. The insights gained are necessary to make effective strategic innovation choices in order to remain competitive.

Thank you for your valued co-operation

Thato Simon Motsoeneng
Dear Metropolitan Employee
Department address:………
Date: 03 November 2005

RE: MBA RESEARCH – INNOVATION OPTIONS FOR METROPOLITAN RETAIL, SOUTH AFRICA

Background

Thank you for agreeing to participate in this survey. The survey is about “The investigation and analyses of the extent to which Metropolitan Retail focuses on innovation capabilities and the approach being followed to implement technology innovations”.

The survey questionnaires address three areas, innovation capabilities, approaches and influencing aspects. The insights gained are necessary to make effective strategic innovation choices in order to remain competitive.

Please respond to the questions openly and honestly. Confidentiality is guaranteed.

Instructions

Please carefully read the entire questionnaire before completing. Definitions of terms are reflected at the end of the questionnaire. Fill in your personal details in section A, and then complete the questionnaire in Section B.

It will be sincerely appreciated if the completed questionnaire can be returned to the email address below on or before the 7th November 2005. smotsoeneng@metropolitan.co.za. Questionnaires may be returned via internal post to: Att: TS Motsoeneng, Parc Du Cap, Building 8/G
Enquiries: Tel (021) 940 5524

Thank you for your valued co-operation
Thato Simon Motsoeneng
APPENDIX C

INNOVATION CAPABILITIES QUESTIONNAIRE- BUSINESS UNIT

A: Personal Details
Position:

| IT Manager-1 | Business Manager-2 | IT Specialist-3 |

B: Capabilities influencing technology innovation strategies of a firm

<table>
<thead>
<tr>
<th>Rate Scale (1-5)</th>
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</tr>
</tbody>
</table>

Definition: Innovation capability can be defined as the comprehensive set of characteristics of an organization that facilitate and support innovation strategies.

Please use the rating scale above to rate the extend of focus by Metropolitan Retail on the characteristics below:

- Allocate a rating per capability
- Capability not rated reflect that the respondent is unsure
- See descriptions of terms at the end of the questionnaire

<table>
<thead>
<tr>
<th>Capability: 1 Resource availability and allocation</th>
<th>Rating</th>
<th>Should be</th>
</tr>
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<tbody>
<tr>
<td>C1.1 Level of R &amp; D funding and evolution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1.2 Breath and depth of skills at business unit level in IT R&amp;D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1.3 Distinctive competences in areas of technology relevant to multiple business unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1.4 Allocation of R&amp;D to exploratory research</td>
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<tr>
<td>C1.5 Allocation of R&amp;D to support mainstream business</td>
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<tr>
<td>C1.6 Allocation of R&amp;D to support new innovations</td>
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<tr>
<td>Capability: 2</td>
<td>Understanding competitor’s innovative strategies and industry evolution</td>
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<td>--------------</td>
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<td></td>
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<tr>
<td>C2.1</td>
<td>Intelligence systems and data available</td>
<td></td>
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<tr>
<td>C2.2</td>
<td>Capacity to identify, analyse and predict competitor’s innovative strategies</td>
<td></td>
</tr>
<tr>
<td>C2.3</td>
<td>Capacity to identify, analyse, and predict industry evolution</td>
<td></td>
</tr>
<tr>
<td>C2.4</td>
<td>Capacity to anticipate impeding external forces relevant to business unit’s innovative strategies</td>
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<table>
<thead>
<tr>
<th>Capability: 3</th>
<th>Understanding the business unit’s technological environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3.1</td>
<td>Capacity for technological forecasting relevant to business unit’s technologies</td>
</tr>
<tr>
<td>C3.2</td>
<td>Capacity to assess technologies relevant to business unit</td>
</tr>
<tr>
<td>C3.3</td>
<td>Capacity to identify technological opportunities for business unit</td>
</tr>
</tbody>
</table>
### Capability: 4 Business unit structural and cultural context

<table>
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<tr>
<th></th>
<th>Rating</th>
</tr>
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<tr>
<td>C4.1</td>
<td>Mechanisms of managing R&amp;D efforts</td>
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<tr>
<td>C4.2</td>
<td>Mechanisms for transferring technology from research to development</td>
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<tr>
<td>C4.3</td>
<td>Mechanisms for funding unplanned new product/services initiatives</td>
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<tr>
<td>C4.4</td>
<td>Mechanisms for eliciting new ideas from employees</td>
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<tr>
<td>C4.5</td>
<td>Evaluation and reward systems for entrepreneurial behaviour</td>
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<tr>
<td>C4.6</td>
<td>Relevance of dominant values and definition of success</td>
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### Capability: 5 Strategic management Capacity to Deal with Entrepreneurial Behaviour

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<td>Business unit level management capacity to define a substantive development strategy</td>
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<td>C5.2</td>
<td>Business unit level management capacity to assess strategic importance of entrepreneurial initiatives</td>
</tr>
<tr>
<td>C5.3</td>
<td>Business unit management capacity to assess relatedness of entrepreneurial initiatives to unit’s core capabilities</td>
</tr>
<tr>
<td>C5.4</td>
<td>Quality and availability of Technology product champions in the business unit</td>
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</table>

**Definition of terms:**
- “R & D” – Research and Development
- IT - Information Technology
- Technology - The theoretical and practical knowledge, skills, and equipment that can be used to develop products and services as well as their production and delivery systems
### A: Personal Details

**Position:**

<table>
<thead>
<tr>
<th>IT Manager-1</th>
<th>Business Manager-2</th>
<th>IT Specialist-3</th>
</tr>
</thead>
</table>

### B: Innovation perspectives / approaches

<table>
<thead>
<tr>
<th>Rate Scale</th>
<th>Extent of focus on innovation perspectives / approaches by Metropolitan Retail</th>
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<tr>
<td>(1-5)</td>
<td>1 = Marginal; 2 = Fair; 3 = Adequate; 4 = More than adequate; 5 = Excellent</td>
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</table>

**Definition:** Innovation perspective provides a common language for specifying what type, level and category of innovation an organization can attack at any given time.

Please use the rating scale above to rate the extend of focus by Metropolitan Retail on the type of innovation perspective / approach below:

- Allocate a rating per innovation approach
- Approaches not rated indicate that the respondent is unsure
- See descriptions of terms at the end of the questionnaire

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<thead>
<tr>
<th>Perspective: 1</th>
<th>Improving core business</th>
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<tr>
<td><strong>P1.1</strong></td>
<td>Continually enhance and refine primary business through product service, convenient packaging and modifications</td>
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<tr>
<td><strong>P1.2</strong></td>
<td>Rapid implementation of innovations</td>
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<tr>
<td><strong>P1.3</strong></td>
<td>Relative cost efficiency</td>
</tr>
<tr>
<td><strong>P1.4</strong></td>
<td>Responsiveness to market</td>
</tr>
<tr>
<td><strong>P1.5</strong></td>
<td>Responsiveness to competitor changes</td>
</tr>
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<td><strong>P1.6</strong></td>
<td>High dependence on in-house innovation and “incrementalism”</td>
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<tr>
<td>Perspective: 2</td>
<td>Exploiting Strategic Advantages</td>
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<td>Dramatically broaden the scope of strategic thinking to find new technology innovations</td>
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<td>P2.2</td>
<td>Dramatically broaden the scope of strategic thinking to find new products</td>
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<td>P2.3</td>
<td>Dramatically broaden the scope of strategic thinking to find new markets</td>
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<td>P2.4</td>
<td>Dramatically broaden the scope of strategic thinking to find new services</td>
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<tr>
<td>P2.5</td>
<td>Relative low risk investments for potential high return and strategic value / cost leverage</td>
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<tr>
<td>P2.6</td>
<td>High level of utilisation of consultants</td>
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<table>
<thead>
<tr>
<th>Perspective: 3</th>
<th>Developing New Capabilities</th>
<th>Rating</th>
<th>Current</th>
<th>Should be</th>
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<td>P3.1</td>
<td>Substantially expand the firm’s capacities through the acquisition of new technology</td>
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<td>P3.2</td>
<td>Substantially expand the firm’s capacities through development of new technologies</td>
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<td>P3.3</td>
<td>Substantially expand the firm’s capacities through development of new talent</td>
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<td>P3.4</td>
<td>Substantially expand the firm’s capacities through development of new services</td>
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<td>P3.5</td>
<td>Leveraging long term customer advantage and loyalty</td>
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<td>P3.6</td>
<td>Substantially expand the firm’s capacities through acquisition or development of business enterprises</td>
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<td>P3.7</td>
<td>Substantial use of outsourcing, joint ventures and strategic alliances</td>
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<tr>
<td>Perspectives: 4</td>
<td>Creating Revolutionary Change</td>
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<td>P4.1</td>
<td>Transform the future of the business by introducing new business models</td>
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<td>P4.2</td>
<td>Transform the future of the business by introducing new organisational forms</td>
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<td>P4.3</td>
<td>Transform the future of the business by introducing new markets</td>
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<tr>
<td>P4.4</td>
<td>Transform the future of the business by introducing new game-changing solutions that are outside current company experience</td>
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<td>P4.5</td>
<td>Reliance upon perpetual outsourcing</td>
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<td>Reliance upon perpetual virtualism (virtual teams)</td>
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### Definition of terms:
- “R & D” – Research and Development
- IT - Information Technology
- Technology - The theoretical and practical knowledge, skills, and equipment that can be used to develop products and services as well as their production and delivery systems.
APPENDIX E

INFLUENCING ASPECTS QUESTIONNAIRE – BUSINESS UNIT

A: Personal Details
Position:

| IT Manager-1 | Business Manager-2 | IT Specialist-3 |

B: Influencing aspects

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<th>Rate Scale (1-5)</th>
<th>Extent to which aspects below influence Metropolitan Retail in implementing technology innovations.</th>
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<td>1 = Marginal; 2 = Fair; 3 = Average; 4 = Above average; 5 = Significantly high</td>
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Definition: Items 1-3 are contextual aspects / variables driving and influencing the approach regarding implementation of technology innovation.

Please use the rating scale above to rate the extent to which Metropolitan Retail’s innovation approach is influenced by the aspects below:

- Allocate a rating per aspect.
- Aspects not rated indicate that the respondent is unsure
- See descriptions of terms at the end of the questionnaire

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<td>A1.1 Regulatory mechanisms</td>
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<td>A1.2 Economic variables</td>
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<tr>
<td>A2 Technology strategies and innovation paths of firms</td>
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<td>A2.1 Technology and innovation history of the firm</td>
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<tr>
<td>A2.2 Band wagon mechanism</td>
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<td>A2.3 Forced choice mechanisms</td>
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<td>A2.4 Technology pioneering approaches</td>
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<td>A2.5 Technology imitation approaches</td>
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<tr>
<td>A3 Managerial practices, capabilities, and resources to innovate</td>
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<td>A3.1 Ability to adopt and explore technology innovation</td>
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<td>A3.2 Investment in technical skills and training</td>
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<td>A3.3 Investment in research and development</td>
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</table>
Definition of terms:

- “R & D” - Research and Development
- IT - Information Technology
- Technology - The theoretical and practical knowledge, skills, and equipment that can be used to develop products and services as well as their production and delivery systems
## APPENDIX F

### INNOVATION CAPABILITIES QUESTIONNAIRE - RESULTS

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Notes: N=43, n=11
## APPENDIX G

### INNOVATION PERSPECTIVE QUESTIONNAIRE- RESULTS

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## INFLUENCING ASPECTS QUESTIONNAIRE – RESULTS

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- N=43, n=11

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## APPENDIX I

### LIST OF RESPONDENTS

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