

# **The Use of Scenario Planning for Managing Environmental Uncertainty**

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**For my daughter Tayla Carmen and my wife Lesley-Anne**

*You gave me the most precious gift of all - your love.*

*With it, I have found that anything is possible.*

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**DECLARATION**

I declare that this research report is my own, unaided work. It is submitted in partial fulfilment of the requirements for the degree of Master of Science in the University of Natal, Durban. It has not been submitted before for any degree or examination in any other University.

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15<sup>th</sup> October 2003



**ABSTRACT**

There were two main objectives for this research. The first objective was to understand how organisations think strategically and formulate strategy for the current and future environments in which they operate, and the second objective was to determine what the organisations were doing to manage complexity and uncertainty in these environments. This necessitated a review of “traditional” or “rationalist” strategy, the “resource based view” of strategy, and if and how organisations use scenario planning as a means to reduce environmental uncertainty, develop strategic options, improve the quality of strategic decisions, and facilitate organisational learning.

The methodology followed for the research was qualitative in nature and involved a literature review and three case studies of organisations in two industries. Primary data was acquired from semi structured interviews and workshops, and secondary data came from annual reports, analysts reports, books, journals and periodicals, and documents made available by the subjects of the study. The workshops were also used to confirm the veracity of data and explore emerging information, themes and concepts.

The research led to the development of a framework for the analysis of strategy formulation in organisations, and it surfaced three predominant themes:

1. The strategy process and strategic response of organisations will develop in accordance with its market dynamics and environmental drivers. The primary drivers shaping the strategy process and strategic response is the nature of demand in the market and the market context. Secondary drivers are the political, economic, social, technological and regulatory environments.
2. The market context is determined by the industry structure, which can be monopolistic, oligopolistic or open and competitive, and the profile and characteristics of the competition.
3. There are three organisational determinants of the strategic response: the political and cultural systems metaphors, the mental models that develop as a result of these systems, and the type and nature of individual and organisational learning.

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## 1. INTRODUCTION

Roberto Goizueta, a past chairman of The Coca Cola Company, wrote in the 1994 Coca Cola Company Annual Report: *"...we obviously have little control over global economic trends, currency fluctuations and devaluations, natural disasters, political upheavals, social unrest, bad weather or schizophrenic stock markets. We do, however, have complete control over our own behaviour ..."* Goizueta's comments highlight the seemingly arbitrary nature of the phenomena that characterise the operating conditions of organisations today, and the disruption and change within organisations that these conditions bring. This view is shared by Ralph Dickerson, President of United Way in New York, who characterises the disruption and change as uncertainty, choosing to describe his personal response to the phenomena rather than the phenomena: *"The thing I am uncertain of, obviously, is what's going to happen tomorrow. I'm uncertain about people's prognostications of what the market is going to do. I'm uncertain about whether an organisation is going to have the ability to survive. I'm uncertain of the changing needs for services and products. I'm uncertain ..."* (Finney, 2002: p84).

The literature, both popular and academic, is replete with statements from senior executives of organisations, of all types, sizes and forms, that uncertainty in the operating environments of their organisations is the key management challenge, and the biggest strategic issue, their organisation has to face (Finney, 2002; Schoemaker, 2002; Pietersen, 2002; Cannon, 1996 and others). In fact, if we extend the review of the literature beyond senior executives to management and employees, we find the common belief that all organisations, regardless of their nature, face an uncertain future (Courtney, Kirkland and Viguerie, 1997). However, some organisations strategise and organise for this uncertainty better than others and are successful regardless of the type of change the future brings. Sadly, other organisations stumble along, eking out an existence, or simply fail and cease to exist.

A superficial analysis of the statements of senior executives in the literature points to the emergence of two perspectives on the operating environment:

- The first being that the external operating environment is highly uncertain and beyond the control of most organisations because of the vagaries of political, economic, social and environmental events that occur. These events seem to be random and are not foreseeable, and
- Secondly, that the internal operating environment is more controllable than the external operating environment and the appropriate internally focused strategies and organisation development will lead to greater organisational certainty. This perspective, when applied in the context of Goizueta's statement, suggests that controlling the internal environment, by facilitating organisational flexibility and responsiveness, is the best way of responding to the uncertainties of the external environment.

While these perspectives would appear to negate the approaches to strategy suggested by traditional strategy practitioners, practice has proved these perspectives to be limited in application, and traditional strategy still has validity and relevance. It is therefore important to understand both traditional and new perspectives of strategy since this will help with situating uncertainty in the context of the organisation and the organisations strategic response to the uncertainty in its operating environment.

Uncertainty exists not only because of management issues or an inability of organisations to understand and adapt to changes in the market, but also because of the increasing complexity in the external operating environment (Johnson and Scholes, 2002). This complexity has arisen because of globalisation, continual quick shifts in markets, the greater emphasis on networks in business, and the increasing importance of managing relationships at all levels from customer through the organisation and supplier to society as a whole (Hamel and Valikangas, 2003). According to Schoemaker (2002), *"The rise in uncertainty is driven by a variety of factors. An ideological shift in politics and business from centralised planning toward free-market dynamics is resulting in much more complex socioeconomic systems. In addition, new technologies are accelerating change, often in a disruptive way. Furthermore, profound demographic changes and value shifts are occurring. All these forces combined result in much greater complexity."*

Successful companies think strategically, facilitate strategic conversation (in whatever form), learn, and develop processes to support the formulation and implementation of strategy that manages environmental complexity (van der Heijden, Bradfield, Burt, Cairns and Wright, 2002). Since the successful implementation of strategy would be premised on, and is a result of, sound strategy formulation in conditions of uncertainty and complexity, this dissertation is focused on developing a clearer understanding of how organisations formulate strategy to manage complexity and the resultant uncertainty.

Three case studies, in two industries that face considerable complexity and uncertainty in their operating environments, were conducted for this dissertation. It is argued in *Chapter 2: The Methodology* that understanding the strategic thinking and the processes of strategy within these two industries will assist all organisations to do a better job of planning for and managing uncertainty and complexity in their environments.

### 1.1 The Problem Statement

*"The main problem in business environment analysis is dealing with complexity" according to Kees van der Heijden (1996: p94). "There is a lot to consider. The world is large indeed and there is room for ever more interpretation of the events we observe. Another complication is that we will be considering the future, with its inherent uncertainties."*

Traditionally, strategy formulation in organisations is based on the acquisition and analysis of historic and current data and trends which are used to project the future state of markets and operating conditions (Mintzberg, Ahlstrand and Lampel, 1998). With this picture in mind, organisations set about creating a new organisation and/or developing themselves to ensure that they are able to compete effectively in this new environment.

This tradition is beset with problems. With the acceleration in change brought about by globalisation, improved communications, and technological innovation, these approaches become insufficient and do not help organisations facing an uncertain

future. With discontinuous change, where the rules of the operating environment are rewritten (e.g. the advent of the personal computer), yesterday and today cannot be used to predict tomorrow.

While traditional approaches dominated strategic thinking through the 1970s' and most of the 1980s', it became apparent that the nature and speed of change demanded a new approach to strategy (Tidd, Bessant and Pavitt, 2001). This resulted in the birth and rise of the resource based view of strategy which emphasised organisational learning and flexibility as a means to quickly adapting the organisation to changes in the future environment.

This meant that strategy had moved from a historic data based, cognitivist and linear approach, with strategy formulation that included both the internal and external environment, to a future orientated view of strategy that focused on the internal environment. However, strategy needs a future orientated approach that deals with the external environment, that is, it needs to be able to minimise uncertainty in the external environment in a way that enhances the resource based view of strategy and improves the quality of decisions within the organisation.

While Scenario Planning is one of the few tools available to strategists to address this shortcoming in strategy, it is by no means a complete solution. This research seeks to identify and understand how companies faced with rapid and discontinuous change in their external environment are managing this shortcoming.

### *1.2 The Purpose of the Study*

The research context (set out above) and the problem statement gave rise to two questions that focused the research:

1. What are organisations currently doing to manage complexity and uncertainty in their future external operating environments?
2. To what extent, if at all, are organisations using scenario planning as a tool for improving strategic conversation, learning, generating strategic options and managing uncertainty?



The research questions, formulated above, facilitated the drafting of the research purpose, and this statement of research purpose also served to delineate the extent and scope of the study. There are four aspects to the research purpose:

1. Understand how the researched organisations deal with complexity and uncertainty in the environments in which they operate.
2. Understand how these organisations think strategically and develop strategy for their future environment, that is their political, social, economic, technological, market and competitive environments.
3. Establish the extent of use of scenario planning as a means to
  - a. reducing uncertainty about the future external environment,
  - b. developing strategic options,
  - c. improving the quality of strategic decisions.
4. Determine the effectiveness of the strategy process for:
  - a. managing complexity and uncertainty,
  - b. surfacing strategic options,
  - c. the quality of strategic decision making,
  - d. performance and sustainability,within the context of the organisation and its environment.

### 1.3 The Scope of the Study

The dissertation was bounded by the research questions and the nature of the research being conducted. As such, the focus of this research is on identifying and managing the uncertainty arising from complexity in the external operating environment but it is recognised that complexity arises from and exists in both the internal and external operating environments of organisations (Stacey, 2000).

According to the traditional schools of strategy formulation, the target market, and the environment in which it exists, will determine the shape of the organisation (Grant, 2002; Mintzberg *et al*, 1998). However, structuring the organisation to meet the needs of an uncertain future (van der Heijden *et al*, 2002; Ringland, 2002), the development of a culture of learning and innovation (Senge, 1990; Tidd *et al*, 2001), and the role of

dynamic capabilities (Teece, Pisano and Shuen, 1997) and competencies (Hamel and Prahalad, 1994), core and others, is seen as the organisations response to complexity and uncertainty in its operating environment and the research will document it accordingly. As such, the complexity inherent in the internal environment is not specifically addressed in this research other than where it enhances the analysis and conclusions of the thesis. This approach recognises that the external environment is a primary, but not the only, driver in the development of the organisation, and the organisations response will determine whether it will enjoy success, simply survive, or it will cease to exist.

The research is based on three cases in two industries that are characterised by rapid and discontinuous change, and is exploratory and descriptive in nature. The research was guided by the two focusing questions, seeks to fulfil the purpose as stated above, and provides a segue to further focused research that may provide answers to the question of how organisations manage future uncertainty.

#### *1.4 The Significance of the Study*

Uncertainty in the future operating environment, and the organisations response to this uncertainty, is the single biggest challenge facing the management of organisations today (de Geus, 1997). All other management issues arise from managements' responses to this challenge. These responses take the form of activities (or inactivity), that can be labelled strategic initiatives, that arise from formal or informal, conscious or unconscious strategy formulation processes (Stacey, 2000).

The traditional approaches to strategy formulation, based on the acquisition and analysis of historic and current data and trends which are used to project the future state of markets and operating conditions, are becoming increasingly irrelevant in a world of rapid and discontinuous change (Lewin and Regine, 2000). Recognition of the shortcomings of traditional strategy approaches led to the development of the resource based view of strategy as a means to managing the change that characterised operating environments from the late 1970's. However, the internal focus of the resource based view was not a complete solution to the problem. It simply prepared organisations to

respond quickly and effectively to rapid and discontinuous change without being clear on what form the change would take. In some cases it even allowed organisations to initiate change in the operating environment (Hamel and Prahalad, 1994), but it still fell short of providing a clearer view of how the organisation should respond to what the future would bring.

One of the primary objectives of all organisations is to position themselves for sustainable success (Porter, 1985). This implies that an organisation needs a clearer picture of how the future will unfold in order to position itself appropriately. The management of most organisations recognise this and attempt to develop strategy accordingly. However, the approach to strategy in most organisations still leans towards the traditional, is contextually driven and different across organisations, and results in greater and lesser degrees of success.

The research looks at how the selected organisations manage uncertainty and develop strategy for the future, the success their approach to strategy brings, and the lessons that can be learnt from these organisations experiences. This is integrated with the available literature on the subject, and the analysis and reflection of the researcher, to develop a view of how the art and science of strategy can be enhanced to improve strategy formulation processes and the quality of strategic decision making in organisations.

### 1.5 Structure of this Dissertation

The research conducted for this dissertation is, by nature, empirical, and a preliminary literature review was conducted for setting the research context, formulating the research problem, defining the scope of the research and for deciding on the methodology to be used. However, the literature review played a far more important role in this dissertation in that it constantly informed the research analysis and conclusions and was not limited to developing an understanding of what has been done in this field of study. As such, the methodology was completed before detailed work on the literature review began. This approach was useful in that the methodology provided detailed guidelines and actions necessary for completion of the research.

The chapter on methodology therefore follows the introductory chapter and provides information on the research philosophies and strategies, justifies the choice of research methods and techniques, and gives a detailed description of the processes of case selection, data acquisition and analysis, and the drawing of research conclusions.

The literature review follows the methodology and contains a review of the existing scholarship. The review is organised by themes and key constructs in the study – an approach that reflects the exploratory nature of the research. In addition, researcher reflection and analysis of the concepts and data contained in the literature, has been included in the review. The review, reflection and analysis informs the case studies and this approach is explained in the methodology.

Chapter 4 of this dissertation deals with three case studies which are each structured in the same way with a context section, system description, organisational learning philosophies, strategy processes and case analyses. This chapter feeds into the fifth chapter, titled ‘The Conclusions’ which integrates and synthesises the literature review and the case studies to provide a theory/ies that facilitate achievement of the research objectives.

## 2. THE METHODOLOGY

The methodology followed for the research was qualitative in nature and was based on three case studies in two industries. Primary data was acquired from semi structured interviews and workshops, and secondary data came from annual reports, analysts reports, journals and periodicals, and documents made available by the subjects of the study. The workshops were also used to confirm the veracity of data and explore emerging information and concepts. Combinations of inductive and deductive approaches were used to analyse the information and draw conclusions.

### 3.1 A Qualitative Research Design: Approach and Rationale

According to Creswell (1994: pp1-2) a qualitative study *“is defined as an inquiry process of understanding a social or human problem based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting.”* Mouton (2001: p148) provides a more accessible definition of qualitative research: *“Studies that are ... qualitative in nature ... provide an in-depth description of a group of people or community. Such descriptions are embedded in the life-worlds of the actors being studied and produce insider perspectives of the actors and their practices”*. The research sought to identify, describe and evaluate the practices of the actors regarding strategy formulation in the organisations (communities) to which they belonged, and a qualitative paradigm, based on the writings of Creswell (1994) and Mouton (2001), was therefore applied.

An *“ethnographic research”* approach (Mouton, 2001: p149), considered by Mouton (2001) as being most suited for business studies, was adopted. Three case studies were selected (see section 3.2 *The Research Design* below) with the intention of building a picture of how the selected case organisations manage uncertainty, from a strategic perspective, in their operating environments. In building this picture, a number of characteristics associated with a qualitative paradigm were present:

- the data was empirical and, mostly, textual;
- both primary and secondary data were used;

- exploratory and descriptive questions were asked in a natural setting resulting in low control and structure for data acquisition;
- from an ontological and epistemological perspective, it was accepted that reality is subjective and multiple, as seen by the participants in the research, and the researcher interacted extensively with both the participants and the organisational system in building the picture (Creswell, 1994).

The decision to use a qualitative paradigm was further reinforced by the research approach. Through the process of interviews and workshops the views of individuals in each of the organisations was sought, and it was evident that the data / information acquired from the process was value-laden, biased and substantially informed by the organisation and research context as well as the research process.

Another aspect of the qualitative paradigm in evidence was the use of a combination of inductive and deductive reasoning for analyses and drawing conclusions. This was most suitable for facilitating the emergence of patterns and theories and allowing for the drawing of inferences from observations. Through this approach it was possible to obtain a better understanding of the research subjects.

In conclusion, the nature of the problem was such that it required exploratory research. In each of the three cases, the context was extremely important for the research but, due to the complex nature of the organisations' situation, could not be properly defined. In addition, there were a number of unknown variables impacting the organisations' approach to dealing with uncertainty. In such conditions, the application of a qualitative research approach, focused on exploring the problem, is most appropriate.

### 3.2 The Research Design

The research is based on three case studies in two industries that are characterised by rapid and discontinuous change. The industries selected were financial services and technology. Both these industries were subjected to substantial non-linear change (discontinuous change) and uncertainty during the 1990's when the industry rules were rewritten because of the impact of globalisation, changing markets, technology

innovation, and competition. These industries have also been at the forefront of developing new business and operational models to meet the challenges of discontinuous change and are best positioned to provide insights into the strategic processes used by organisations for the management of uncertainty in their operating environments.

Since the research objective was to explore strategy formulation phenomena in uncertain environments, and describe and illustrate the insights generated by this exploration, a purposive sampling approach was considered most appropriate for selecting the cases for study. According to Saunders, Lewis & Thornhill (2003: p175) *“Purposive or judgemental sampling enables you to use your judgement to select cases that will best enable you to answer your research question(s) and to meet your objectives”*. This form of sampling is usually used when working with a small number of samples, such as in case study research, and when you wish to select cases that are particularly informative (Saunders *et al*, 2003).

*“Typical case”* sampling, a strategy associated with purposive or judgemental sampling, was used to select the three cases (Saunders *et al*, 2003). This sampling strategy is used to provide a descriptive profile, based on a representative case, which illustrates what can be considered ‘typical’ for an observed phenomenon. The illustration of what is considered to be ‘typical’ is not intended to be definitive or representative of a larger population.

The selection process was conducted in accordance with the research objectives and the methodology to be applied. Fifteen organisations, with profiles that would substantially contribute to the research, were chosen, and a letter was sent to the Chief Executive Officers / Managing Directors / Strategy Executives of these organisations (see Appendices 1 and 3). Based on the response to the letters, and subsequent telephone conversations with senior executives of each of the fifteen organisations, three organisations were considered suitable for progression to the research stage. The criteria used to establish suitability were:

- The organisations had to be significant players in the financial services or technology industries;

- A track record of growth in revenue, profit and share price, or developers of internationally recognised leading-edge technology during the past 5 to 10 years;
- An international footprint;
- The targeted organisations had to be amenable to being researched;
- Unrestricted access had to be provided to relevant management and senior strategy personnel;
- Had to be willing to be named as a participant in the research.

Both exploratory and descriptive research techniques were applied to the three cases that were selected. While this approach required additional effort to make it work, it was seen as necessary for the achievement of the research objectives. According to Bless and Higson-Smith (1997: p43), *"Exploratory and descriptive research differ in many respects. They have different aims, arise from different levels of understanding of the area of interest and require different degrees of precision in the data. Both, however, rely on particular forms of data collection. These are observation, questionnaires and interviews."*

Using the questionnaires, interviews and workshops as an integrating mechanism, the exploratory and descriptive techniques were leveraged to ensure that a richer picture was extracted from the data. Initially, an exploratory research method was used to surface underlying theories, themes and patterns, processes and strategic behaviours. Subsequently, and in parallel with ongoing exploratory research, a descriptive method was used to record, specify, expand and verify the findings of the exploratory research.

During the course of the research, and in parallel with the work done on the case studies, an ongoing and iterative literature review was conducted with the objective of incorporating the views, theories and experiences of academia and other organisations in dealing with uncertainty, and the use of scenario planning in planning for and managing this uncertainty. This facilitated a synthesis of the case research findings and literature, and resulted in a clearer understanding of the processes of strategy formulation and, specifically, the extent of use, role and scope of Scenario Planning in dealing with environmental uncertainty.



### 3.3 Data Collection Process

The data collection process was premised on “*participant observation*”, where the researcher joined the group of people being studied in order to better understand their behaviour, feelings, beliefs and attitudes and how this translated into the strategic management process (Bless and Higson-Smith, 1997). The process involved a number of interactive personal interviews which were, in most cases, supplemented by a series of workshops to explore topics that arose out of the interviews.

The purpose of the interviews was to identify and describe:

1. The process and characteristics of strategy formulation and implementation in the organisation.
2. The use, if any, of scenario planning for:
  - reducing uncertainty about the future external environment,
  - the development of strategic options,
  - developing strategic conversations within the organisation,
  - improving the quality of strategic decisions.
3. The effectiveness of the organisations’ approach to strategy formulation and implementation.

The interviews were loosely structured around the key research questions and this provided focus while also allowing for exploration of the various aspects of the research. Prior to the interview interviewees were asked to consider and reflect on the following themes:

- The formal and informal process of strategy formulation and implementation in the organisation.
- The impact of uncertainty and sudden unexpected changes in the market and operating environment.
- The role of strategic conversation.
- The strategic decision making process.
- The effectiveness of strategy formulation and implementation in the organisation.

At the interview, in a conversational setting, the interviewees were asked to provide narratives around these themes. It was found that this approach added qualitative richness, through the responses of the interviewees, to the data that was obtained.

The process was structured to achieve the objectives of both the exploratory and descriptive research techniques, and incorporated the following steps:

- An initial interview with the senior executive carrying responsibility for the formulation of strategy in the organisation. In consultation with this executive, between two and six additional interviews were set up with management in key strategy formulation roles.
- The interviewees were contacted and the background and research objectives explained to him/her. A copy of the interview questions was given to the interviewee on confirmation of a time, date and venue for the interview (refer Appendix 2).
- The interviews were conducted and transcribed, and acknowledgement of the accuracy of the transcript, or a corrected transcript, was sought from each interviewee.
- All information / data obtained from observation, the interviews and the review of documentation (where appropriate) was consolidated and reduced to a single narrative report for analysis.

The process of observation and interview was supplemented, in most cases, by workshops that sought clarity and/or consensus on key issues that were identified by observation and in the interviews. The workshops also explored the research topic in a group situation. All workshop outputs were documented, approved by the participants in the workshop, and added to the narrative report for analysis. It must be noted that the workshop environment stimulated group dynamics that led to different perspectives and richer results.

### 3.4 Process of Data Analysis

The narrative report generated during the data collection process, and consisting of transcripts and notes derived from observation, interviews, workshops and a review of secondary data sources, was subjected to a three stage process of analysis:

1. The underlying theories, themes and patterns, processes and strategic behaviours that emerged from observations, interviews and the workshops were specified, expanded and verified and, through a process of analysis and reflection on the part of the researcher, new and different perspectives were drawn out of the narrative report. The analysis involved mapping the emergent information on existing theory (derived from the literature review and personal experience) in order to identify and expand on new perspectives and the emergence of new theory.
2. The outcomes of the first stage of analysis were then presented to strategy consultants / practitioners, the research subjects and businessmen with the intention of seeking informed comment and encouraging debate. This led to novel perspectives and observations for inclusion in the dissertation analysis and conclusion.
3. On completion of the second stage of the analysis, further review, analysis and reflection by the researcher on the underlying theories, themes and patterns, processes and strategic behaviours was conducted. This enhanced and shaped the output of the first two stages of the analysis process and produced material for synthesis with the review of the literature.

### 3.5 Review of Literature

Saunders *et al* (2003) are of the view that there are two main reasons for conducting a review of relevant literature: the first being to generate and refine the research ideas, and the second, often referred to as the “critical review” (Saunders *et al*, 2003: p43), is part of the “research project proper”. The critical review demonstrates the researchers’ awareness of the current state of knowledge of the subject, its limitations, and how the research fits in this wider context. Mouton (2001) supports this view, also stating that there are two ways of looking at the literature review: either as a study on its own (a “literature study”) or as the first phase of an empirical study.

The research conducted for this dissertation is, by nature, empirical, and a preliminary literature review was conducted for setting the research context, formulating the research problem, defining the scope of the research and for deciding on the methodology to be used. However, the literature review played a far more important role in this dissertation in that it constantly informed the research analysis and conclusions. As such, the research has a clearly defined purpose and objectives but it did not start with any predetermined theories or conceptual frameworks.

As the exploratory research method surfaced the underlying theories, themes and patterns, processes and strategic behaviours, theories were developed that *"subsequently relate to the literature. This is known as an inductive approach."* (Saunders *et al*, 2003: p46). This resulted in the literature review and the empirical research being conducted in parallel after the research context and purpose had been established and the research methodology chosen.

The literature review was conducted with the objective of incorporating the views, theories and experiences of organisations (other than the research subjects), academia, subject matter experts and practicing professionals in the area of strategy into the analysis of the narrative report and the conclusions of the research. Specifically, the review covered the following areas of study:

- An overview of complexity theory and the uncertainty it generates in the operating environments of organisations.
- A review of the strategy paradigms that have led to the development of the art and science of strategy formulation.
- The weaknesses and strengths associated with each paradigm and the state of the practice of strategy today.
- How organisations and individuals learn, and the importance of learning in the formulation of strategy.
- How organisations deal with complexity and uncertainty in the environments in which they operate.
- How organisations think strategically and develop strategy for their future.

- The use of scenario planning as a means to reducing uncertainty about the future external environment, developing strategic options and improving the quality of strategic decisions.

### 3.6 Synthesis of Research and Literature

Once a clear understanding of the implications of the narrative report had been achieved, review and integration of the report / research findings and the literature review took place. This led to a process of review, analysis, research and reflection which was repeated until the narrative report, the literature review, the resultant analyses and the conclusions were internally consistent. On completion of this process the findings were once again discussed with subject matter experts from industry and academia.

The synthesis of the case research findings and the literature review resulted in a number of outcomes that include, *inter alia*:

- A clearer understanding of how organisations manage the uncertainty inherent in their future operating environment.
- An indication of the extent of use and the role and scope (limitations and opportunities) of Scenario Planning.
- Ideas for future research that could lead to a comprehensive theory for dealing with environmental uncertainty.

### 3. THE LITERATURE REVIEW

This literature review tells a story about how the environment in which we live and work has radically changed over the past thirty years, how globalisation and new technologies have changed the way we perceive the world and relate and communicate with each other, and how this adds complexity and uncertainty to our lives. The literature review also situates us in a holistic systems context within this changing environment, and examines how our existence is affected by the different political, social, economic and environmental phenomena and trends that impact the system.

The story would not be complete without telling the reader that people, organisations and societies have, and are, responding to the challenges this new world brings in creative and innovative ways. People in general, as individuals and within organisations, are reflecting deeply, learning quickly, and developing better strategy for coping with complexity and uncertainty in this new world. Some will be successful in this new environment, and some will not. This literature review also covers some of the academic and empirical thought surrounding the opportunities and issues this story raises.

#### 3.1 A World of Complexity and Uncertainty

According to Schoemaker (2002), *“Life is inherently uncertain – from the moment of our birth to the unknown moment of our death – and yet we hate uncertainty, particularly in business.”* This is reflected in the pervasive attitude in organisations that skill in management is often seen as a process of avoiding surprises, and uncertainty an *“evil that detracts from one’s ability to manage with control.”*

This attitude is born out of a 17<sup>th</sup> century Newtonian image of the Universe, and for three centuries we’ve been *“planning, predicting and analysing the world”* based on an intense belief in the principle of cause and effect (Wheatley, 1999). In our complex environment individuals and organisations often seek order through planning and

organising for uncertainty, and exerting management control over all strategic and operating processes.

Wheatley (1999: p28) describes Newton's universe in an evocative fashion: *"As the great clock ticked, we grew smart and designed the age of machines. As the pendulum swung with perfect periodicity, it prodded us on to new discoveries. As the Earth circled the sun (just like clockwork), we grew assured of the role of determinism and prediction. We absorbed expectations of regularity into our very beings. And we organised work and knowledge based on our beliefs about this predictable universe."*

Lewin and Regine (2000: p5) resonate with Wheatley in stating *"Where once the natural world was viewed as linear and mechanistic, where simple cause-and-effect solutions were expected to explain the complex phenomena of nature, scientists now realise that much of the world is non-linear and organic, characterised by uncertainty and unpredictability."* As in science, managers of organisations are finding that their world is predominantly non-linear, organic and complex, and not linear and mechanistic. Lewin and Regine use the metaphor of an *"ecosystem"* to describe this new view of the world.

The metaphor of the 'ecosystem' is clearly explained by Wheatley (1999: pp20-21) who sees life as creation, and uses the term 'autopoiesis' to describe the ability to create. Autopoiesis is life's process for creating and renewing itself for growth and adaptation. Furthermore, *"A living system is a network of processes in which every process contributes"* directly or indirectly *"to all other processes"* in an ever-dynamic structure that constantly seeks its own self-renewal. Capra (2002) extends the explanation of autopoiesis by stating that *"autopoiesis identifies the pattern of self-generating networks as a defining characteristic of life."*

Quantum physics, which can be used to describe life at the subatomic level, provides us with a theory that explains the process of autopoiesis. At the subatomic level change happens in jumps that are beyond any power of precise prediction. Furthermore, an observer cannot observe change *"without interfering or, more precisely, participating in its creation"* (Wheatley, 1999: p22). These qualities of the quantum call into

question the scientific and philosophical beliefs in determinism, predictability and control, and seem to point to a world of chaos and disorder. However, the work of Prigogine (1998) points to some paradoxical truths, the most counter-intuitive being that chaos and disorder can be the source of new order.

Prigogine (1998) coined the term 'dissipative structures' to describe the contradictory nature of quantum physics. Wheatley (1999: p20) explains the contradiction: *"Dissipation describes loss, a process of energy gradually ebbing away, while structure describes embodied order. Prigogine discovered that the dissipative activity of loss was necessary to create new order."* This discovery answered two critical questions: *"If, as science believed, entropy is the rule, then why does life flourish?"* And, *"Why does life result in newness and evolution, not deterioration and disintegration?"*

According to Wheatley (1999: p22) order exists even in situations of absolute disorder – the state of existence we define as chaos. *"Chaos theory has given us images of 'strange attractors' – computer generated pictures of swirling motion that trace the evolution of a system. A system is defined as chaotic when it becomes impossible to know what it will do next. The system never behaves in the same way twice. But as chaos theory shows, if we look at such a system over time, it demonstrates an inherent orderliness. Its wild gyrations held within an invisible boundary."* The existence of chaos transcends boundaries and throughout the universe *"order exists within disorder and disorder within order."*

The lessons of quantum theory and the theory of non-linear dynamics (also known as complexity theory) are clear: the principles of Newtonian physics, the machine metaphor and determinism, are losing relevance in a world characterised by non-linear and unpredictable change (discontinuous change). In addition, the current management paradigms in organisations, such as prediction, analysis, planning and control, need to be extended and changed, where appropriate, to reflect the reality of our 21<sup>st</sup> century existence.

Lewin and Regine (2000: pp6-8) provide another perspective to this assertion. They contend that in a linear world things may exist independently of each other, and when



they interact, they do so in simple predictable ways. However, *“In a nonlinear, dynamic world, everything exists only in relationship to everything else, and the interactions among agents in the system lead to complex unpredictable outcomes.”* As such, relationships and interactions become the organising principle.

For Lewin and Regine (2000) complexity theory in the world of business focuses on relationships: relationships between individuals, teams and broader organisations; relationships to other companies in the business environment or economic web; relationships to the world of politics and civil society; and relationships with the natural environment. This systemic view of the world of business requires different paradigms and world views, and an acceptance that managers and executives cannot control their organisations to the degree that the mechanistic perspective implies, but they can influence where their organisation is going and how it evolves.

Organisations in rapidly changing business environments need to be able to learn quickly, innovate constantly, and continuously evolve and adapt to the changing circumstances of their operating environments if they are to survive. Success, in the face of uncertainty, requires evolution in accordance with quantum theory and the principles of nonlinear dynamics and a determination to make the most of complexity.

### 3.2 The Impact of Uncertainty: IBM and the PC

Complexity theory in rapidly changing business environments has taught us that we live in an age of *“continuous discontinuity.”* This occurs when significant shifts in the external environment, which are not linear developments from past situations, become commonplace (Cannon, 1996: p69). Furthermore, according to Cannon, *“The ability to manage continuous discontinuity is the key to success”* in current markets.

Discontinuity generally cannot be predicted. It arises because of innovation, in all its manifestations, as well as through political, social, economic and organisational complexity, and leads to significant uncertainty in people and organisations affected by it. The key questions for leaders in the face of discontinuity are: What will happen? What will the impact be? How will we manage it? Choosing the wrong answers and

developing strategy accordingly can have dire consequences for organisations and individuals (Cannon, 1996). IBM is an excellent example of how incorrect strategic choices were made when confronted with discontinuous change, and the impact these choices had on IBM. The following case is a summarised synthesis of readings from Pugh (1995), Gerstner (2002) and Mintzberg, Lampel, Quinn and Ghoshal (2003):

In the early 1980's Mainframes and Mini Computers were considered to be the preferred information technologies for organisations, but cheap microprocessors had been developed and were starting to make an appearance in personal computers. IBM had been a pioneer in this microprocessor technology but did not see a big enough market for it and chose, instead, to focus on the mainframe and mini market where its corporate clients and largest revenues resided. In addition, IBM licensed development of its operating system software to Microsoft because it did not want to become unfocused and apply resources to what it saw as a small market.

These choices proved to be a strategic disaster. IBM's linear strategic approach to discontinuous change was hopelessly inadequate, and IBM missed the shift in the market that saw the development of the PC into a personal productivity, education and entertainment tool. What made it worse for IBM was that organisations, the market IBM was focused on, adopted the PC as distributed processing and worker productivity became increasingly important to organisations.

From the perspective of complexity theory the shift in the computer market was very interesting. Prior to the advent of the microprocessor, computers had been inaccessible to the common man because they were complicated, expensive and difficult to maintain. The invention and development of the microprocessor changed that. Small computers became cheaper and easier to manufacture and required minimal maintenance. A number of smaller manufacturers entered the market for PC components because the big players were focused on mainframes and mini computers, and Apple and Microsoft made using the computer easy with their new operating systems. The development of the microprocessor and a simple decision by IBM to focus on the existing corporate market had snowballed, through a series of seemingly unrelated circumstances and unforeseen events, into multiple outcomes that would

fundamentally change the computing industry and, as a result, the way people live and work today.

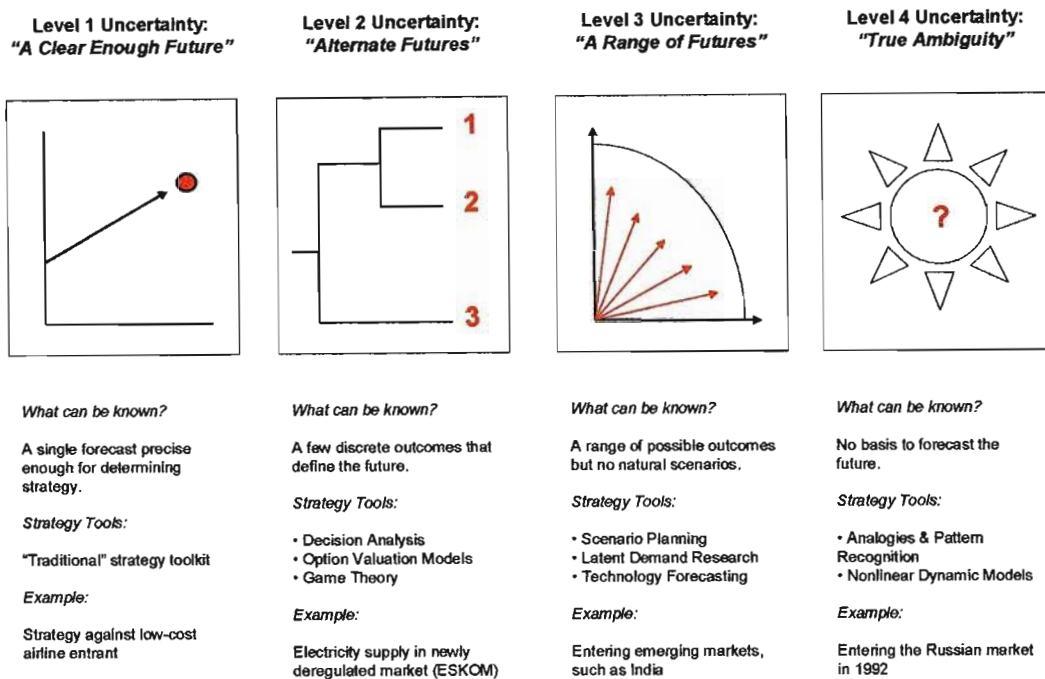
Had IBM appropriately addressed the uncertainty surrounding the introduction of the innovation (the microprocessor) the shape of the technology industry, and the world today, may be radically different. In IBM's defence, and from a strategy perspective, the dominant strategy paradigm at the time was what has become known as the environmental (Andrews, 1980) or rationalist (Tidd *et al*, 2001) approach to strategy formulation. This approach is based on the mechanistic, linear, cause and effect thinking of the Newtonian view. Stacey (2000), who refers to the environmental / rationalist approach as Strategic Choice Theory, refers to cognitive perspectives and cybernetic thinking as predominant characteristics of this view of strategy formulation.

### 3.3 Living with Uncertainty: New Approaches to Strategy and Organisation

As we have seen in sections 3.1 and 3.2 above we live with increasing complexity and constant uncertainty, and the 'traditional' approaches (mechanistic and linear) to strategy are no longer as relevant as they were prior to the last third of the 20<sup>th</sup> century when globalisation and technology became the major drivers of constant change. However, this does not mean that 'traditional' strategy has no place in this 'new' world. Brown and Eisenhardt (1998: p3) state that *"It is not that traditional strategies are wrong but rather that they are just not enough in industries with intense, high velocity change."* As such, complexity theory does not replace mechanistic management; it simply encompasses it in a larger context. The view, therefore, that organisations operate and succeed in simple and relatively stable environments is as incomplete as the view that all environments are complex, dynamic and uncertain.

In an effort to seek an empirical balance between the polarities of stability and dynamism, certainty and uncertainty, Courtney, Kirkland and Viguerie (1997) suggest that organisations operate at different points (sometimes simultaneously) along a spectrum with simple linear environments and complex nonlinear environments at the opposite extremes. Consequently, Courtney *et al* (1997) have identified four discrete points along this spectrum to illustrate *"what makes for a good strategy in business"*

*environments*” facing different levels of uncertainty. To do this they have described the operating environments associated with each of the four points, identified the strategy philosophies, techniques and tools most appropriate for each operating environment, and provided examples of situations that would likely occur at each of the four points. Figure 1: “Spectrum of Uncertainty” illustrates the levels of uncertainty proposed by Courtney *et al* (1997):



**Figure 1: Spectrum of Uncertainty**

*Adapted from: “Strategy Under Uncertainty” by Courtney, Kirkland & Viguerie  
Harvard Business Review: November – December, 1997*

At *Level 1* managers can develop a single forecast of the future that is accurate enough to provide a sound base for the development of strategy. Although “*it will be inexact to the degree that all business environments are inherently uncertain, the forecast will be sufficiently narrow to point to a single strategic direction*” (Courtney *et al*, 1997: p67). Uncertainty at this level is minimal and a *Level 1* situation manifests where there are few strategic variables to consider and information about the variables is accessible.

The increase in uncertainty associated with *Level 2* leads to a situation where the future can be described as one of a few alternative outcomes, or “*discrete scenarios*”. Analysis cannot identify which outcome will occur but it can help to establish

probabilities for each of the outcomes. According to Courtney *et al* (1997), a classic *Level 2* situation is where the possible outcomes are discrete and clear, it is difficult to predict which one will occur, and the best strategy depends on which one does occur. At *Level 2* the primary uncertainty arises in oligopoly markets where strategic decisions are contingent on the actions of competitors.

A range of potential futures present themselves as the uncertainty increases to *Level 3*. “The range is defined by a limited number of key variables, but the outcome may lie anywhere along a continuum bounded by that range.” In this situation there are no natural “discrete scenarios” (Courtney *et al*, 1997: p70). Companies in emerging industries or entering new geographic markets often face *Level 3* uncertainty.

At *Level 4* uncertainty organisations are entering the realm of “true ambiguity”. Multiple dimensions of uncertainty interact to create an environment that is virtually impossible to predict. It might not even be possible to identify all the variables that will define the future and, consequently, the range of potential outcomes cannot be identified. These situations are rare and tend to migrate to one of the other three levels as information becomes available. Organisations considering entering the Russian market in 1992 faced this type of uncertainty.

The increasing complexity, and resultant uncertainty, in business environments over the past thirty years has been the catalyst for the introduction of a new strategy paradigm. Mintzberg and Waters (1985) were partially instrumental in beginning this process of change with their observations on how “strategy is formed” and their identification of “deliberate and emergent strategies”. This work drew a distinction between strategy that is realised as planned, and strategy that emerges spontaneously in response to environmental conditions and opportunities. Kiechel (1984) in his article titled “Sniping at Strategic Planning” fanned these flames of change when he pointed to a study suggesting that only 10% of formulated or planned strategies actually got implemented.

The articles of Mintzberg and Waters as well as Walter Kiechel would seem to call into question the efficacy of the unquestioned application of ‘traditional’ approaches to

strategic planning that are based on the mechanistic, cognitive and linear view of the worlds of business and organisation. At this time Wernerfeldt (1984) wrote a paper that explored the usefulness of analysing firms from the resource side as opposed to the product / external environmental side. This seemed to trigger resource based thinking as opposed to the established environmentally based thinking on strategy and, following a series of articles by leading academics including Jay Barney (1991), Teece *et al* (1997), and Robert Grant (1991), as well as the popular “Competing for the Future” by Gary Hamel and C.K. Prahalad (1994), the resource based view became entrenched. In fact, according to Kay (1998), the Resource Based view of strategy has become the dominant view of strategy over the past decade.

However, as we see in the work of Courtney *et al* (1997), context is crucial to the view of strategy that should be adopted in any given situation, and both the environmental and resource based view are useful in specific circumstances. While both these views are dealt with in more detail in sections 3.7 and 3.8 below, it must be noted that few articles or books on these two views effectively situate contemporary strategy in the context of complexity and systems theory. It is therefore necessary to turn to the work of Lewin and Regine (2000) and Ralph Stacey (2000) prior to further exploration of the environmental and resource based views of strategy.

Lewin and Regine (2000: p6) believe that the *“The avenue most relevant to understanding organisational dynamics within companies and the web of activity among them is the study of complex adaptive systems.”* According to Lewin and Regine complex adaptive systems consist of a diversity of agents that constantly interact with each other and mutually affect each other. This generates novel behaviour for the system as a whole and can be seen in ecosystems, evolution and the output of the human mind. However, the patterns of behaviour are not constant because changes in the systems environment lead to changes in the behaviour of its agents and, as a result, the behaviour of the system as a whole also changes. This is important because the system is constantly adapting to the conditions around it and, over time, the system evolves through ceaseless adaptation.

Business organisations are also complex adaptive systems, have always been and will continue to be, and in fast changing business environments need to adapt and be in a state of continual evolution if they are to survive (Lewin and Regine, 2000). Common to the dynamics, both within and among businesses, is the emergence of mostly unpredictable patterns of phenomena that arise from interaction between agents in the system and the connectedness of the system. This, according to Lewin and Regine (2000: p42), leads to a new way of *“doing and being in the workplace of the new economy: in short a new management theory.”* The issue, however, is what management practice will nurture process and form in business so that organisations will naturally be as adaptive and creative as is necessary to thrive in the 21<sup>st</sup> century environment?

The solution to this issue may be partially found in the work of Ralph Stacey (2000), who draws on complexity theory, systems theory, psychological and sociological philosophies and frameworks, and the resource based view of strategy to argue for a new approach to strategy that is more appropriate for the uncertainty that will characterise the 21<sup>st</sup> century. Stacey's argument is that in order to succeed in uncertainty and continual change, organisations need to create new perspectives and learn from the chaos within which they operate.

The central tenet of Stacey's (2000) approach is premised on unpredictability and the limitations of control, and he argues against indiscriminate use of the environmental / rational models of strategy formulation and implementation that arise from the Newtonian paradigm of planning and control. This is done by:

- examining the impacts of the underlying systems, psychological and sociological theories, within the context of complexity, that give rise to the different high-level strategy paradigms that influence strategy formulation in organisations today, and
- emphasising the importance of narrative, conversation and learning from one's own experience as the means by which we can gain understanding and knowledge of strategy in organisations.

Stacey (2000) analyses the formulation of strategy, as practiced in organisations today, from two perspectives:



- the systemic nature of populations of organisations and their members, that is, how organisations and the entities of which they consist interact with each other, and
- the sociological and psychological assumptions that are made about the nature of human beings.

Stacey's argument is that different combinations of systems and psychological and sociological theories yield different ways of making sense of life and the dynamics in organisations.

Stacey started by looking at the traditional methods of strategy formulation and contends that the environmental / rational school of strategy formulation and implementation, which he terms "*Strategic Choice Theory*", is based on cybernetic systems, cognitive psychology and a touch of humanistic psychology, and is most suitable to "*simple rather than complex environments*" (Stacey, 2000: p29). In this view, psychological theories assuming the primacy of the autonomous individual combined with a theory of interaction between individuals is enacted in a system designed to move to stability in a self regulating manner.

If we change from a cybernetic system, but do not change the psychological and sociological processes associated with it, to system dynamics, we end up with the theory of the learning organisation (Stacey, 2000). While this theory pays attention to the same factors that "*Strategic Choice Theory*" focuses on, it also takes cognisance of the uncertainty created by the nature of the system and the need to understand the whole through a process of systems thinking. The purpose of this is to identify points of leverage that will assist in maintaining and/or increasing control of the system. Organisations evolve, and strategies are formulated and implemented, through a process of learning (Stacey, 2000).

In developing this line of thinking, Stacey identified a combination of open systems theory and psychoanalytic perspectives on the nature of human existence which focused attention on the irrational and neurotic as obstacles to rational decision making and effective task performance. This view points to ways in which learning is negated and strategic choice theory incapacitated, and it provides a segue into a variation of this combination which is the complex adaptive systems approach combined with cognitive



and humanistic psychologies. The result of this combination is a focus on the same factors as learning organisation theory. However, the retention of the assumption of primacy of an autonomous individual still mires this view in what Stacey (2000) calls the “*orthodox perspective*”.

Stacey is, however, of the view that the formulation of strategy is driven by people through a series of complex processes that reflect the complexity, paradox and ambiguity that is an inescapable part of human existence. Stacey (2000: p348) therefore proposes a theory of human interaction “*where the mind and the social are two facets of the same phenomenon*” and where “*complex adaptive systems coincide with relationship psychology.*” Stacey (2000) calls this the theory of “*Complex Responsive Processes*”. This theory abandons the position of the autonomous individual and the position of the objective observer, and replaces these assumptions with those of the simultaneous social construction of group and individual and the position of participative enquiry.

The concept of the complex responsive process is derived from complex adaptive system theory. According to Stacey (2000: p368) complexity theory can be used to provide a framework for thinking about the process of mind and self formation, that is “*a great many agents interacting with each other according to their own local rules and in doing so they are adapting to each other*”. If we think of humans as continuously responding to each other, that is, continuously making gestures that evoke responses from each other, and given that ‘responsive’ is a more apt term than ‘adaptive’ when applied to humans, it is more appropriate to refer to complex adaptive systems, where the core of the system is human, as a complex responsive process.

One of the primary characteristics of a complex responsive process is the ability of the actors in a particular scenario to self-organise around an opportunity or threat. The solution that is generated from this self-organisation will be guided by the vision, values, rules and themes that govern the environment in which the self-organisation took place. Complex responsive processes are interacting themes that organise human experience. These themes may be legitimate or shadow, formal or informal, conscious or unconscious. Human behaviour and interaction, in an organisational context, will be

governed by these themes, and decisions and actions that shape an organisation will be a reflection of these themes (Stacey, 2000).

Stacey's approach is intuitively attractive: people, organisations and the environments in which these agents exist and evolve are interacting systems within systems, and each of these systems is characterised by the nature of the system and the people and agents that enable it. In organisations the primary enabler of a system are the people within the organisation and these peoples' interactions with other people, organisations and the environment. It is therefore useful, from the perspective of this dissertation, to review systems theories and learning theories as a basis for understanding the evolutionary process people go through, in an organisational context, in the formulation and implementation of strategy.

### 3.4 From a Mechanistic to a Social Systemic View of Systems

People conduct their lives in accordance with a set of values, beliefs and perceptions that are formed by individual theories of the nature of life and existence. The most general theory that each and every individual holds is a theory of reality, of the nature of the world, a theory we call our worldview (Ackoff, 1996: p1). A shared worldview is the glue that holds a culture together, *"and it characterises what historians call an age. An age is simply a period of time in which a culture has a single, shared view of the nature of reality."* According to Ackoff we are in the early stages of a change of age – a transformation from one worldview to another.

The worldview that is fading away arose during the Renaissance and came to be known as the Machine Age or, as Wheatley (1999) describes it, the Newtonian view of the universe. The machine age was premised on three primary assumptions (Ackoff, 1996):

- The universe is completely understandable;
- Analysis is inquiry; and
- Everything can be explained in terms of cause and effect.

The consequences of cause and effect thinking are threefold: there has to be a first all-encompassing cause and that is God, environmental factors are excluded as causal

explanations for anything, and everything is predetermined – nothing happens by chance (Ackoff, 1996).

During the 20<sup>th</sup> century phenomena and events called into question the universal validity of the machine view of reality and posited an alternative view which Ackoff calls the Systems Age. This age stresses the relationships between all things and the importance of environment as an agent within a system. The seeds for this age were sown when Werner Heisenberg published his revolutionary findings on the behaviour of the atom in 1923 and Ludwig von Bertalanffy his treatise titled “General Systems Theory” in 1953.

According to Ackoff (1996) a system is a whole that is made up of two or more parts, each part affecting the behaviour of the whole depending on the parts interaction with other parts of the system. The essential properties that define any system are properties of the whole and none of the parts, discretely, have those properties. *“Once we take a system apart it loses its defining characteristic. If we were to disassemble a car, for example, even if we kept every piece we would no longer have a car. Why? Because the automobile is not the sum of its parts, it is the product of the parts’ interactions.”* Ackoff (1996: p7).

To understand a system, analysis says ‘take it apart’, but the act of taking it apart causes a system to lose its essential properties. As a result we cannot understand the nature of a system by traditional analysis and we need another way of thinking. This new way of thinking came to be known as synthesis and it is the *“polar opposite of analysis”*: analysis is useful for revealing *“how a system works (its structure) and gives us knowledge”*, and synthesis reveals why a system works the way it does and *“gives us understanding”* (Ackoff, 1996). Systems thinking is more about synthesis than it is about analysis, but both synthesis and analysis have their place - a view expressed by Arthur Singer Jr. (in Ackoff, 1996) when he contextualised the machine and systems views of reality by showing that cause and effect thinking is only one of a number of ways of looking at reality. Reality, Singer explained, is not one or *“two dimensional, it is multidimensional”*, and the systems view is not an alternative to cause and effect, it is complementary to it.

Flood and Jackson (1991) stress that, in the modern systems approach, *“the concept ‘system’ is used not to refer to things in the world but to a particular way of organising our thoughts about the world.”* Flood and Jackson go on to state that they consider the notion of a ‘system’ as an organising concept that uses system metaphors for structuring thinking about organisations and problem situations. The use of metaphor to categorise system types was picked up by de Geus (1997: pp10-11) who uses metaphor to describe commercial organisations as *“living companies”* which, like human beings, exist *“primarily for”* their *“own survival and improvement: to fulfil”* their *“potential and to become as great as”* they *“can be.”* Morgan (1998) resonated with this view when he wrote that the medium of organisation and management is metaphor, and management theory and practice is shaped by metaphorical processes that shape nearly everything we do. Morgan went on to identify the five key metaphors that, in his view, describe organisations:

- Machines, where the management focus is on control and efficiency;
- Organisms, where the focus is on development and adaptation;
- Brains, where the focus is on learning;
- Cultures, where the focus is on values and beliefs;
- Systems of government, where the focus is on conflicts of interest and power.

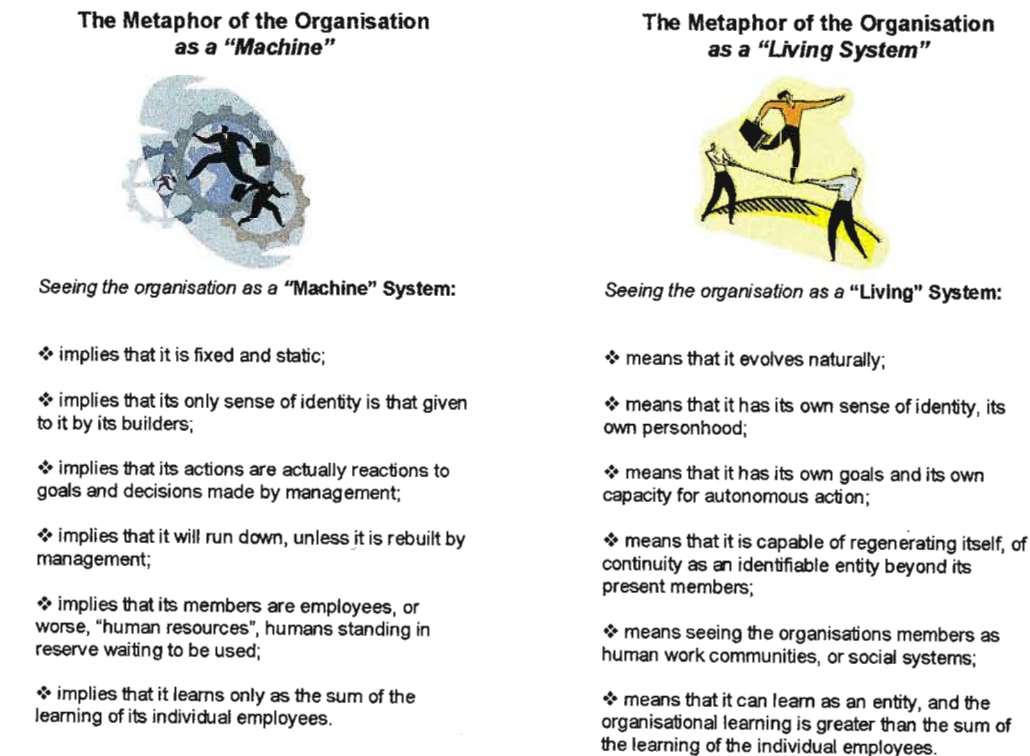
Morgan’s metaphors correspond with the conceptual framework developed by Capra (2002: p89), who states that *“the organism and brain metaphors address the biological and cognitive dimensions of life”*, while *“the culture and government metaphors represent various aspects of the social dimension. The main contrast is between the metaphor of organisations as machines and that of organisations as living systems.”* The question that Capra’s framework poses is *“what is a living system?”*

If we contrast the five system metaphors of Flood and Jackson (1991) with the five systems metaphors identified by Morgan (1998), we see that the metaphors are substantially the same. Flood and Jackson’s metaphors are:

- Machine metaphor or ‘closed system’ view;
- Organic metaphor or ‘open system’ view;
- Neurocybernetic metaphor or ‘viable system’ view;

- Cultural metaphor; and
- Political metaphor.

It can be argued that the “living system” is made up of the organic, neurocybernetic or brain, the cultural and political metaphors. Stacey (2000) argues that complex adaptive systems, which are analogous to the organic / biological and brain / neurocybernetic metaphors, when combined with the cultural and political metaphors produce complex responsive processes. The complex responsive process of Stacey is a good description for a living system, and it also describes what happens in de Geus’ (1997) “*living companies*”. Figure 2: “Two Views of Organisational Systems”, adapted from Senge (1997), contrasts the “Machine” metaphor with the “Living Systems” metaphor:



**Figure 2: Two Views of Organisational Systems**

Created from text: Peter Senge – from foreword to “The Living Company”  
by Arie de Geus (Harvard Business School Press: 1997)

In order to situate organisations within their environment, specifically with regard to complexity and the resultant uncertainty, it is useful to review the five metaphors and understand their organisational implications:

### 1. The “Machine” Metaphor or “Closed System View”.

The view of the universe as a “machine” dominated management and organisational theory for the first half of the 20<sup>th</sup> century and was typified by the “scientific management” theories of Taylor (1947). According to Capra (2002: p90), the principles of scientific, or classical, management theory have become so deeply ingrained in the ways we think about organisations *“that, for most managers, the design of formal structures, linked by clear lines of communication, co-ordination and control, has become almost second nature.”* Capra (2002: p91) considers this to be one of the main obstacles to organisational learning, adaptation and evolution in today’s organisations, and states that *“it is clear that organisations managed in strictly mechanistic ways cannot survive in today’s complex, knowledge-oriented and rapidly changing business environment.”*

Flood and Jackson (1991) elaborate on the “Machine” metaphor: *“The machine operates in a routine and repetitive fashion and performs predetermined sets of activities, seeking the rational and efficient means of reaching preset goals and objectives.”* More generally, there is a considerable emphasis on control within the organisation, and little emphasis on the environment in which the organisation operates. This approach is useful when the environment is stable, the task to be performed is straightforward, and where there is repetitive production of a single or few products. The approach also assumes that the people in the machine organisation will willingly “fit” into the machine design and are prepared to follow machine like instructions. The downsides of the machine organisation are that flexibility, adaptability and the potential for organisational evolution is severely inhibited, and the organisation becomes vulnerable in complex environments. Such organisations also require a “mindless contribution” from their people *“that is difficult to maintain with mindful parts”* (Flood and Jackson, 1991: p9).

## 2. The “Organic” Metaphor or “Open System” View:

The first challenge to the machine view came from the “mindful parts” or, more specifically, human relations theory. *“It was perceived that attention had to be given to the human aspect of organisations”* and it became increasingly prevalent to treat organisations as if they were organisms with psychological and social needs and

abilities (Flood and Jackson, 1991, p9). The “Organic” metaphor drew on biology, ecology and evolutionary theory and held to the idea that the “organism” or organisation is an open system. The open system is a complex network of elements and relationships that interact, forming highly organised feedback loops, and *“existing in an environment from which it draws inputs and to which it dispenses outputs”*. As such, an open system is self regulated, importing energy to maintain a steady state – unlike a machine system that is closed and degrades through wear and tear (Flood and Jackson, 1991: p10). This ability to *“self regulate”* makes survival and adaptability key concepts of open systems within the organic metaphor.

According to Flood and Jackson (1991), open systems promote responsiveness and change within organisations and are suited to complex environments with fluid market dynamics and / or with a variety of competitors. Open systems work well where there are open relationships within changing and evolving environments that are characterised by the shifting needs of people, but open systems do not recognise that organisations are socially constructed phenomena that must be understood from the point of view of the people within them (Flood and Jackson, 1991). As such, this view emphasises harmonious relations between the parts when, in organisations, they are often conflictual and / or coercive. Perhaps the most important aspect of open systems theory is that change is seen as being generated externally, as the system adapts to its environment, and does not allow for proactive internal development.

### 3. “Neurocybernetic” Metaphor or “Viable System” View:

This view of systems thinking developed in parallel with the open systems view, and emphasises active learning and control rather than the passive adaptability and reactive nature of the organic metaphor or open systems view (Flood and Jackson, 1991). The neurocybernetic view looks to the brain as a tried and tested control system that depends on the ability to communicate and learn. That is, it can accept dynamic rather than static objective setting and is reflective and self evaluating rather than just self regulating.

The viable systems view is most suitable where the environment is characterised by a high degree of uncertainty. It promotes dynamic goal seeking based on learning and a process of self-enquiry and self-criticism and, most importantly, promotes creativity and innovation. While acknowledging that this view recognises the importance of people in systems theory, Flood and Jackson (1991) also note that the neurocybernetic system metaphor has a downside: the view does not recognise that organisations are socially constructed phenomena. This social dimension includes the situations where individual purpose sometimes does not correspond with organisational purpose, and relationships between people that are characterised by conflict and / or coercion. Furthermore, evolution requires change that would threaten those favoured by the status quo and will be resisted.

#### 4. The “Culture” Metaphor:

This is a powerful metaphor can be used to consider almost any organisation or problem situation. It is best understood as the often unspoken but familiar ways of thinking and acting that exist in all firms and enterprises. According to Flood and Jackson (1991: p12) *“culture is a shared reality, or a socially constructed reality (of values and beliefs), that deems certain social practices to be normal, acceptable and desirable.”* Culture is important in all organisations because it determines how the organisation will react to change and what change will be considered feasible. As such, culture can act as a restraining force or as a force for innovation and evolution.

Flood and Jackson (1991) believe that the culture metaphor offers a new perspective on organisational change, and recognition and management of the values and perspectives of employees has a positive evolutionary impact on organisations. For Flood and Jackson the cultural view shows that the ‘rational’ aspects of organisational life are only ‘rational’ in terms of the prevailing culture in an organisation and contrasting the culture with other cultures and beliefs can lead to change and innovation. This highlights the value of diversity, both internally and within the external operating environment of an organisation.



The negative side of the cultural metaphor is that it may lead to ideological control that generates feelings of manipulation, resentment and mistrust amongst agents in the system and this often results in a dysfunctional system. Use of the metaphor is also problematic in situations where there is political in-fighting within the organisation.

#### 5. The “Political” Metaphor:

This metaphor sees the relationships between individuals and groups as competitive and involving the pursuit of power. It highlights all organisational activity as interest based and emphasises the key role of power in determining political outcomes – thereby placing conflict and power at the centre of all organisational analyses (Flood and Jackson 1991). Industrial relations literature and theory states that there are three contrasting views on the character of any political situation and these are labelled: unitary (a team metaphor), pluralist (a coalition metaphor) and coercive (a prison / authoritarian metaphor). This facilitates the analysis of the types of relationship between participants in any given situation (Flood and Jackson, 1991).

This paradigm recognises the organisational actor as political for both motivational and structural reasons, and emphasises that goals may be rational for some actors while not so for others. This prompts the question: “Whose rationality is being pursued?” The political view breaks down when recognition of the politics of the situation leads to further politicisation, polarisation and generates mistrust. The political view may also overemphasise the need to handle political issues at the expense of other factors which are essential to organisational health such as attending to the needs of the market and developing appropriate organisational structures and processes (Flood and Jackson, 1991).

In concluding this overview, it is worth reiterating the views of Capra (2002) on the nature of systems. While Capra acknowledges the five systems metaphors, he holds to the opinion that there are, essentially, only two categories of system that describe our existence: that of the machine and that of the living system. The five metaphors that have been described above are, however, useful for analysis and synthesis – the processes employed for understanding the nature of a system under inquiry.

According to the systems view of life, the spontaneous emergence of order and the dynamics of the constant structural changes that are characteristic of all living systems, are the phenomena that enable the process of learning. Moreover, according to Capra (2002: p88) *“we have seen that the creation of knowledge in social networks is a key characteristic of the dynamics of culture.”* Combining these insights and applying them to organisational learning allows us to clarify the conditions under which learning, knowledge creation and organisational evolution takes place. This will provide essential guidelines for the management of organisations that operate under conditions of complexity and uncertainty.

### 3.5 Learning: Context and Theories

In the 1980's the planning function for the Shell Group of companies conducted a survey of 30 companies that had been in business for more than 75 years. The objective of the survey was to build an understanding of the factors that led to these companies' longevity and prosperity over a time-span that had not only seen the rise and demise of countries, but had also seen the disappearance of many prominent and supposedly well-established companies. It is worth noting, for context, that the 75 plus years of the 30 companies' existence had been characterised by more uncertainty, change and environmental turbulence than any other 75 years of recorded human history.

In 1988, on completion of the survey, Arie de Geus (de Geus, 1988), then Head of Group Planning for Shell, wrote that the most impressive finding of this survey was the ability of the companies to live in harmony with their business environments. They were able to seamlessly switch from a survival mode when times were turbulent to a self development mode when times were favourable. De Geus (1988) noted that *“Outcomes like these don't happen automatically. On the contrary, they depend on the ability of a company's senior managers to absorb what is going on in the business environment and to act on that information with the appropriate business moves. In other words, they depend on learning”.*

In contrast, this same study found that the average life expectancy of Fortune 500 firms, from birth to death, was only 40 to 50 years - the vast majority of the companies perishing before their 50<sup>th</sup> birthday. These companies, according to de Geus (1997), suffer from learning disabilities and are not able to adapt and evolve as the world around them changes.

The learning that de Geus (1988, 1997) is talking about is organisational learning – the process whereby *“management teams change their shared mental models of their company, their markets, and their competitors.”* This view of de Geus (1988) is supported by Galer and van der Heijden (1992) who wrote *“In business, learning is a process through which management teams change their ‘mental models’ of”* the way their company operates, *“their markets and their competitors”*. It is the focus on internal configuration, the market and competitors, the essential components of strategy, that leads to the proposition that strategy formulation, strategic planning and strategy implementation can be thought of as a process of learning, and scenario planning as a process of learning about the future (de Geus, 1988).

Learning is a multi-faceted activity that takes place in various contexts, is dependant on the motivations and world views of the learners, and is composed of numerous layers made up of a cross-pollinated mix of context, motivations, world views, and the individual and collective ability to learn (Rogers, 2000). According to Rogers, learning is a question of focus and consists of four critical elements:

- Learning theories focusing on who is doing the learning;
- Learning theories focusing on the context;
- Learning theories focusing on the kind of learning task being undertaken;
- Learning theories focusing on the processes involved.

Each of these four elements comes with theoretical perspectives on the nature of learning, and each provides a piece of the mosaic that gives us a picture of why and how people, society and organisations learn.

Perhaps the most often debated aspect of learning is centred on Learner Based Theories which propose that learners change over time, some adopting a growth model (linear

and natural) and others a developmental model (diverse and purposeful change) (Rogers, 2002). The four key theories are:

1. *Behaviourist* that suggests the main aim of learning is to change behaviour, and that stimuli from outside the individual provoke responses that can be directed towards achieving desired behavioural changes. In this situation society, organisations or individuals, acting as the teacher, controls the process by selecting the stimuli and reinforcing the required responses. The learner is passive and only the “right” response is rewarded. This essentially linear process of learning limits creativity and tends to stifle innovation (Rogers, 2000).
2. *Cognitive theories* “direct attention to the activity of the learner in creating the response and to the nature of knowledge itself” (Rogers, 2002). The concept of intelligence as the basis of learning capability is central to this theory, as is the active engagement of the mind in processing data, managing perceptions, developing memory and facilitating insights. Although the learner is active rather than passive, the learning activity is bounded by the structure and sequence of the knowledge. These theories of learning dominate “traditional” strategy formulation and result in the production of linear outputs heavily influenced by historic experience.
3. *Personality theories* are based on the distribution of personality types along a continuum of one type or another. Learning, according to these theories, depends on an individuals’ perception of the subject and of their perceptions of themselves. The danger of this approach is that individuals are categorised, and this inhibits learning by narrowing learning options to those that are appropriate for the category in which the individual finds him / herself.
4. *Humanism* emerged as a response to the above theories, all of which reduce the control of the learners over their own learning, and are associated with theories that eschew the certainties of empirical science and the conclusions of objective research (Rogers, 2002). They introduce a world of living complexity, uncertainty, instability, the uniqueness of individual response and the conflicts of values (Rogers, 2002). Most importantly, these theories reassert the “agency of the learner in the learning process” and “stress that it is the learners’ actions which ... create the learning situation” (Rogers, 2002).

The Context Based Theories are premised on situating the learner in a social context where they suggest that learning is created and structured by ongoing interaction between the individual and the outside world. Each learning experience is unique and specific to a situation that is infrequently, if ever, duplicated. There are three primary theories in this category:

1. *Human Communications* theory which holds that communication links people together into an organisation established and maintained to achieve a common purpose. The organisation can be two or more people who transact through a communication process which involves a source (initiator), a transmission, a message and a receiver. There is inevitably distortion in the transmission and feedback is an essential element of the process. Learning, according to Rogers (2002), is a “*process of change based on reactions to the continuous reception of messages.*”
2. *Social Learning* theory emphasises the importance of relationships and interaction in learning and suggests that our primary learning comes from the imitation and internalisation of value systems which we acquire from family groups, social groups and peers. This shapes our perceptions and attitudes and determines how we manifest (through behaviour) in any given situation. The theory “*emphasises the active engagement of the person with the environment*” (Rogers, 2002) and role playing and modelling are important learning tools. It is important to note that the role an individual plays is socially and culturally constructed and is subject to constant change and reinterpretation.
3. *Situated Learning* suggests that we all learn by participating in activities with others as social beings. According to Lave and Wenger (1991) learning takes place when learners place themselves in “*legitimate peripheral participation situations*” on the “*edge of communities of practice*” where they learn the language, values, attitudes and practices that are necessary for participation in a particular community. Such learning can be limiting in that the individual may be confined to a particular community context, may be subject to the power relationships that exist in this environment (through the values and assumptions of the powerful in the community), and may be focused on the community rather than embrace a more

holistic view that accounts for and acknowledges the environment in which the community is situated.

Situated Learning theory is challenged by Critical Theory which postulates that society and organisations privilege certain knowledge and behaviour and thereby create power relationships that affect every learning context – especially situated learning. As such, learning is *“circumscribed by the sociocultural context within which it takes place”* Rogers (2002). Furthermore, modern learning theories have explored the engagement of the individual with the environment in a more holistic sense – not just the social or organisational environment. This suggests that we are all made up by our experiences, that experience is us: *“Cognition and environment become simultaneously enacted through experiential learning”* (Fenwick, 2001).

The Knowledge Based Learning theories focus on some infrequently explored aspects of learning – the *“influence exerted by different kinds of knowledge”* and *“the subject matter of the different learning tasks”*. These theories state that *“the interaction of learner, context, and processes in learning is incomplete without considering the knowing to be achieved in the learning”* (Rogers, 2002). The important consideration here being the conversion of information derived from experience into knowledge. According to Sallis and Jones (2002), *“Knowledge is information in use, and it is the interaction of information with the human mind that gives it meaning and purpose.”* Habermas (1978) identified three kinds of knowing:

- Instrumental / technical knowing – the acquisition and use of skills and understanding needed to manage the world we live in;
- Communicative knowing – interpersonal relationships and social / cultural understanding;
- Emancipatory knowing – self understanding and awareness of the cultural and personal predispositions that affect the way we act.

It is likely that any kind of learning will involve all three types of ‘knowing’ in proportions that will be determined by the learning situation. The knowledge based learning theories also distinguish between *‘socialisation learning’*, which is the internalisation of external knowing including socially based value systems, and

'*individuation learning*' which is creation of ones own knowing and is essential to being an individual (Rogers, 2002).

The Process Based Theories seek to explain *how* people learn. There are two dominant theories in this school of thought:

1. *Critical Reflection on Experience*: Freire (1972) suggests that learning takes place when experience is critically analysed and individuals act on the basis of this analysis and Schon (1983) talks of learning as reflective practice. According to Freire (1972) the learning cycle starts with experience, proceeds to the individual reflecting on this experience and taking action which in turn becomes concrete experience for further reflection and a new stage in the learning cycle. Action is an essential part of the learning process, not a result of learning, and not "*an add-on*" at the end. Rogers (2002) believes that Freires' learning cycle needs to be adapted to account for what Kolb (1984) refers to as "*abstract conceptualisations*" which arise when critical reflection leads to the development of generalisations. Critical reflection can be seen as asking questions about experience in the light of other experience and "*abstract conceptualisations may be seen as going beyond the specific answers to general principles. Only in this way will new insights generated by critical reflection become usable in other contexts.*" Furthermore, according to Rogers (2002), learning includes goals, intentions, choice and decision making, and it is not clear where these elements fit into the learning cycle. The problem with critical reflection theory is that there is a danger of being normative and prescriptive in describing the way adults learn and this detracts from the application of this theory.
2. *Constructivism*. According to Rogers (2002), "*cognitivist views stress the interaction of the learner with a body of knowledge that lies outside of themselves, and therefore the key process is the transfer of information from an expert source to the learner.*" Constructivism is a response to this view. Kelly (1955) states that learning is not determined by external influences – each individual creates their own learning. We form personal constructs from our ideas, feelings, and memories, evaluation of events, places and people in our lives or from our cultural background. "*In this way we create the world and manipulate it rather than respond to stimuli or*

*to external knowledge.*” From a scenario planning perspective, the most important element of constructivism is that the act of learning is largely initiated by the learner, *“exploring and extending their own understanding, holding what has been called ‘a learning conversation’ ... and “making individualised perceptions of reality, meanings and knowledge”* Rogers (2002). As such, learning does not mean the discovery of new or hidden truths but the construction of new perceptions.

The development of strategy in organisational contexts is always premised on one or more of the learning theories discussed above. This is because the strategy process draws on the perceptions, values, cognitive abilities, experience, critical reflection, and knowing of the individual and collective for the formulation of strategy in a particular context. This reflects the thinking of Rogers (2002) who contends that there is no consensus about learning because learning is a *“many faceted activity which incorporates a number of different processes ... instead of trying to establish one learning theory which covers all situations, perhaps we should be looking for more than one.”*

Certainly the ‘traditional schools’ of strategic thought, the *“prescriptive schools”* of strategy described by Mintzberg, Ahlstrand and Lampel (1998) and the strategic choice theory of Stacey (2000), draw heavily on cognitive theory for learning that informs the process of strategy formulation. And, although constructivism can be considered key to the sound development of scenarios (Chermack and van der Merwe, 2003), scenario planning also draws on situated learning, critical reflection on experience and the knowledge based theories of learning. Before exploring these assertions it will be useful to examine how strategy is formulated in organisations and the different perspectives that influence the process and content that determines strategy.

### 3.6 Strategic Responses to Complexity and Environmental Uncertainty

The strategic response of organisations to their environment is multi-faceted and dependant on the environmental conditions in which the organisation operates. So far, this dissertation has situated organisations and businesses in simple and complex environments, examined the impacts of uncertainty in both environments, described the



system metaphors that underpin the environment, and provided an overview of the individual and organisational learning theories that facilitate the evolution of individuals and organisations. However, it is also necessary to keep in mind that organisations are social constructions that reflect the culture and circumstances of the environment in which they are situated (Capra, 2002 and Stacey, 2000).

Capra (2002: p79) states that *"The central focus of a systemic analysis is the notion of organisation, or 'pattern of organisation'. Living systems are self-generating networks, which means that their pattern of organisation is a network pattern"*. This idea can be extended to the social domain by identifying the relevant living networks *"as networks of communication."* Social systems produce both non-material and material structures that generate formal and informal rules of behaviour known as social structures, and the processes that sustain a social network are processes of communication which generate shared meaning and rules of behaviour (Capra, 2000). The social domain referred to by Capra is actually tri-polar and consists of Government, Civil Society and Business, each of which is both separate and interconnected simultaneously (Perlas, 2000). This has a number of implications for the formulation of strategy in organisations.

The convergence of revolutionary political dispensations, cultural integration, innovative economic paradigms, and massive technological change over the past decade has led to a number of new political, social and economic models. These new models represent the strategic response of organisations to the changes in their operating environments, and account for the new environmental drivers that are shaping the political, social and economic domains in which we live.

As we have seen above, one of the effects of convergence is increasing complexity and uncertainty that arises through the proliferation of interrelationships and this has resulted in many of the new models being based on the use of partnerships as a surrogate for networks that describe the operational processes of organisations. This is because partnerships are an extremely effective way of reducing complexity and uncertainty. They provide a means of managing interrelationships to achieve the individual strategic objectives of the partners and minimise the risk associated with uncertainty.

While political partnerships have long been recognised as a strategy for advancing local, regional and geopolitical interests of countries, partnerships have only recently been formally incorporated in the strategies of civil and social groups and business entities. One emergent strategic model in the business world is the use of partnerships as a means to achieving economic advantage through collaboration between interested organisations and individuals (Perlas, 2000). The principles of partnership can be extended to bring together political, social, and economic interests to achieve strategic objectives that cannot be achieved by entities in each of these domains alone.

According to Perlas (2000), we live in a “*tri-polar world*” consisting of government, global civil society, and business – each with all their component elements. These three realms together make up the society in which we live. A healthy society is one in which these three realms exist in harmony, and develop their initiatives with full awareness of the initiatives’ impact on the other realms. However, if one of these realms dominates interactions, society will suffer and the tri-polar system we live in will be adversely affected. It must be remembered that “*business cannot truly represent the interests of culture or polity*”, nor “*can civil society truly understand the detailed workings of the economy or truly represent the political system*” (Perlas, 2000). Similarly, government cannot “*articulate economic and cultural aspirations*”. As such, organisational strategy in the business world must recognise the reality of our “*threefold*” existence (Perlas, 2000), and incorporate the interests of the political and social domains in its formulation.

Partnerships, by their nature, are social processes born from common interests, recognition that these interests cannot be realised in isolation, and a desire to combine resources and competencies to realise these interests. The concept of “*threefolding*” (Perlas, 2000) “*is first and foremost a social process*”, that has as its objective the sustainable development of the political, social and economic domains. Partnerships and threefolding are therefore complementary concepts where partnerships can be extended, through threefolding, into the realm of the holistic system.

The systemic / networked / threefolding approach to organisations and the environments in which they operate has given rise a number of new trends, which are strategic responses to the complexity and uncertainty in the environment, and are based on the synthesis of operational activities. One such trend is to synthesize strategy, individual and organisational learning, and decision-making, and to build integrated processes across these knowledge intensive areas. These areas include strategic thinking and strategy formulation, organisational development, innovation and knowledge management, organisational learning, strategic marketing, and business network development and management (ManyWorlds, 2003). Fundamental to success in these areas is learning, strategic conversation, and the ability of organisations, like chameleons, to change to meet the circumstances of their environments. The concepts, trends and themes discussed in this section are dealt with in more detail below.

### 3.6.1 Delivering Value: Porter's Value Chain

Kenichi Ohmae (1988) wrote: *"Of course it is important to take the competition into account, but ..... it cannot come first. First comes painstaking attention to the needs of customers. First comes close analysis of a company's real degrees of freedom in responding to those needs. First comes the willingness to rethink, fundamentally, what products are and what they do, as well as how best to organise the business system that designs, builds and markets them. Competitive realities are what you test possible strategies against; you define them in terms of customers. Tit-for-tat responses to what competitors do may be appropriate, but they are largely reactive. They come second after your real strategy. Before you test yourself against competition, **strategy takes shape in the determination to create value for customers**".*

In an environment of discontinuous change and hyper-competition, Ohmae's (1988) statement that *"strategy takes shape in the determination to create value for customers"* assumes enormous significance and has two implications for organisations:

- the organisation must be learning from its environment and constantly evolving to meet the ever changing needs of the market, and

- the focus is on the delivery of value to the customer rather than the establishment and defence of a competitive position in the market; a competitive position will evolve from this focus.

Adding more value to the customer than the competition is one of the better competitive strategies an organisation can adopt, but it requires an understanding of the concept of economic value, how value is created in organisations, and how it is delivered to the customer.

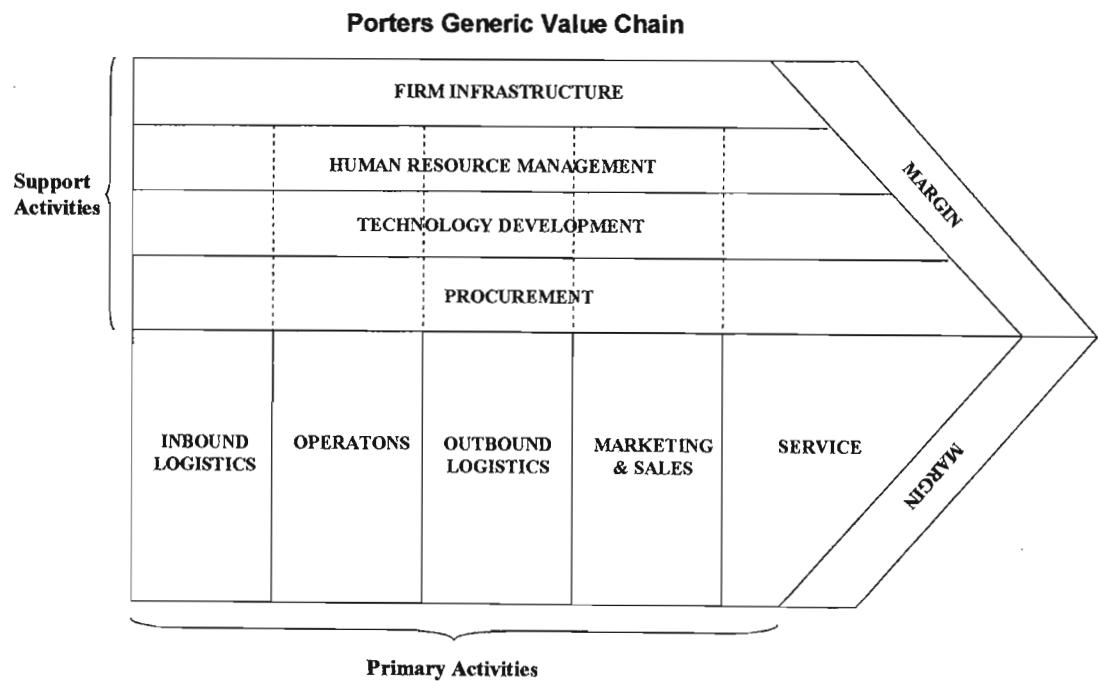
The competitiveness of an organisation is dependant on the value the organisation is able to create for its customers. Value can take many forms but, for the sake of simplicity, we will define value in economic terms: value is the amount customers are willing to pay for the products and services an organisation provides (Porter, 1985). From the organisations perspective, the goal is to ensure that the value created for customers (represented by the purchase price) exceeds the cost to the organisation of delivering that value.

Economics tells us that the purchase price (a measure of customer value) will vary according to the competitive environment in which an organisation finds itself. The more intense the competition, the lower the amount the customer is likely to pay. However, the organisation can achieve advantages in a competitive environment by adopting what Porter (1985) calls "*generic strategies*". According to Porter there are three generic strategies: cost leadership, product / service differentiation and focus (on specific markets within and / or across industries). The appropriate application of these strategies will allow an organisation to manipulate prices and costs and, in so doing, increase profits - thereby creating greater value for the organisations' shareholders / stakeholders.

The basic tool for diagnosing, and finding ways to enhance, competitive advantage (achieved by the appropriate application of the generic strategies) is what Porter (1985) calls the "*value chain*". The value chain divides an organisation into the discrete activities it performs in designing, producing, marketing and distributing its product and services. Furthermore, it "*displays total value, and consists of 'value activities' and 'margin'*" (Porter, 1985: p38). Disaggregating the organisation in this way facilitates

identification of the activities that underlie competitive advantage as well as the linkages and dependencies amongst activities that are central to competitive advantage. In addition disaggregation highlights opportunities for partnerships and alliances in the chain that can enhance performance, for example, outsourcing (Porter, 1985).

From the perspective of the application of generic strategy, wherever this may be appropriate, the value chain facilitates the identification of the sources of differentiation and the drivers that create differentiation, and an understanding of the behaviour of the associated costs. Many organisations also use the value chain as a mechanism to derive a strategically aligned organisational structure, and to develop an understanding of the relationship between technology and competitive advantage.



**Figure 3: The Generic Value Chain**

Source: Michael Porter (1985). *Competitive Advantage*  
Published by Free Press, New York

An important aspect of the value chain is that it is embedded in a larger stream of activities which Porter (1985: p34) terms a “value system”. Suppliers have value chains (upstream value) that create and deliver the purchased inputs used in an organisations chain. In addition, many products pass through the value chains of channels (channel value) on their way to the buyer. This reflects the networked / partnership and systemic

nature of value generation and, ultimately, this plugs the organisation and its value system into Perlas (2000) “*tri-polar world*”.

The value chain is an analytic framework or tool that is most commonly applied in the context of the positioning school of strategic thought (as described by Mintzberg *et al*, 1998). From this perspective the value chain reflects a mechanistic approach to strategy, the organisation and its operating environment, and a cognitivist view of human behaviour and interaction. For optimal effectiveness of value delivery, within a complex environment, this is problematic. If we change our perspective and view the value chain as a descriptive framework / tool that provides a good picture of an organisations situation, vis-à-vis the implications of its strategic decisions, at any point in time (past, present and future), we can see that it is not necessarily anchored in the positioning school theory and can be applied, with good effect, to map a value chain that describes a new strategic initiative arising out of a complex responsive process. In this way the value chain is also suitable for applications arising out of complex environments.

### *3.6.2 Strategy Formulation: A Contextual Overview*

Until the early 1990’s the dominant strategy paradigm was what has become known, depending on the perspective adopted, as the environmental (Andrews, 1980) or rationalist (Tidd, Bessant and Pavitt, 2001) or planning (de Wit and Meyer, 1998), or prescriptive (Mintzberg, 1998) approach to strategy formulation. This approach employs the mechanistic, linear, cause and effect thinking of the “Machine” Age, and is rooted in military thinking, the theories of industrial economics and the principles of “Scientific Management” or classical management theory. Stacey (2000), who calls the environmental / rationalist approach Strategic Choice Theory, refers to cognitive psychological and sociological perspectives and cybernetic systems thinking as predominant characteristics of this view of strategy formulation.

This strategy paradigm, also referred to as the “traditional” strategy paradigm, became less relevant as accelerating and discontinuous change in the last quarter of the 20<sup>th</sup> Century brought huge complexity to the external / operating environment. This resulted in traditional strategy development, mainly because of the lack of relevance and

inappropriate use, returning a dismal record of success. Kiechel (1984), in his article titled *"Sniping at Strategic Planning"*, pointed to a study that made the startling finding that only 10% of formulated or planned strategies were actually implemented. This suggests that 90% of realised strategy is strategy that emerges from *"ad-hoc initiatives, reactions, decisions and choices that managers make in response to daily pressures, without guidance from any overarching strategic concept"* Pietersen (2002).

The dawning realisation in academic and management circles that the traditional approaches to strategy formulation, premised on design, positioning, planning and control, were only appropriate under specific conditions, led to the development of the resource based view of strategy. While new thinking in the fields of economics, industrial economics, psychology and sociology was mainly responsible for beginning this process of paradigm shift, Mintzberg and Waters (1985) observations on how *"strategy is formed"* and their identification of *"deliberate and emergent strategies"*, played a significant part in the shift in emphasis from traditional strategy to the resource based view of strategy. Mintzberg and Waters work drew a distinction between strategy that is realised as planned, and strategy that emerges spontaneously in response to environmental conditions and opportunities.

According to John Kay the dominant view of strategy today is resource based theory. Kay (2000: p6) goes on to state that *"Strategy is not planning, visioning or forecasting – all remnants of the belief that one can control the future by superior insight and superior will. The modern subject of business strategy is a set of analytic techniques for understanding better, and so influencing, a company's position in its actual and potential marketplace."* The view that understanding the operating conditions of the organisation, and influencing the organisations position in the market by facilitating configuration and leverage of the organisations' resources, is the cornerstone of resource based theory. This is reflected in the following articles, books and notes: Resource Based Theory of Competitive Advantage (Grant, 1991), Dynamic Capabilities and Strategic Management (Teece, Pisano and Shuen, 1997), the Learning Organisation Theories of Senge (1990) and others, the Core Competency and Strategic Intent approach of Hamel and Prahalad (1989 and 1994), Christensen (2002), and Quinn (1980a and 1980b).

While the environmental and the resource based views have dominated strategy in the last 40 years, Mintzberg *et al* (1998, p4) contend that there are, in fact, *“10 distinct points of view ... most of which are reflected in management practice. Each has a unique perspective that focuses ... on one major aspect of the strategy formation process. Each of these perspectives is, in one sense, narrow and overstated. Yet, in another sense, each is also interesting and insightful.”* Mintzberg *et al* (1998) further state that the 10 points of view, or schools of thought, can be categorised as follows: three prescriptive schools (which correspond to the Environmental or Rational View), six descriptive schools (which all deal with aspects of the Resource Based View) and a configuration school which sees strategy as holistic and systemic and incorporating all the elements of the other nine schools.

What is particularly interesting about the comprehensive study of the literature and practice conducted by Mintzberg *et al* (1998) is that all 10 schools see the future environment in which organisations will operate in one or more of three ways:

1. The environment will be rational and its shape and characteristics can be determined by rigorous analysis (Design, Planning and Positioning schools). The focus of strategy is external and the emphasis is on ‘fit’ between the external environment and the organisation.
2. The shape and characteristics of the environment can be determined by a visionary process that is based on intuition, judgement and some analysis (Entrepreneurial School and, to a lesser extent, the Design School). The focus of strategy is external.
3. The uncertainty inherent in the environment is important only insofar as the organisation is able, or not able, to adapt to it (the Cognitive, Learning, Power, Culture and Environment schools). The focus of strategy is internal and the emphasis is on configuring the organisation to evolve in accordance with shifting environmental conditions.

In summary, it is clear that the art and science of strategy formulation in organisations is based primarily on two dominant views: the Environmental View and the Resource Based View. These two views can be divided into 10 schools of thought, each providing a narrow but insightful perspective on strategy. It must be noted however, that there are



a number of different approaches, perspectives and views to those described above, among them de Wit and Meyer (1998) who have described strategy as a set of paradoxes and Mintzberg (1987) who defines strategy in five ways: as plan, ploy, pattern, position and perspective. The views presented above are the most generally accepted, and are useful for advancing the argument contained in this dissertation.

### 3.6.3 *Intended and Emergent Strategy*

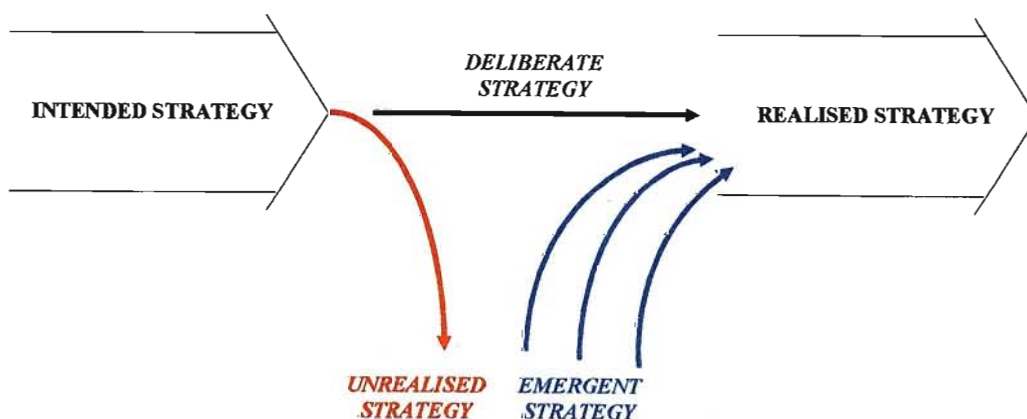
Walter Kiechel (1984) refers to a study suggesting that only 10% of formulated or 'planned' strategies were ever implemented (a figure Tom Peters, of 'In Search of Excellence' fame, said was "wildly inflated!"), thereby suggesting that 90% of strategy came about by means other than the traditional planning process. This finding supported studies carried out by Mintzberg & Waters (1985) where planned strategies were referred to as 'intended strategies' which, theoretically, should have resulted in 'realised strategies'. It was found however, that realised strategies owed more to 'emergent strategy' (or incrementalism) than intended strategy. According to Mintzberg & Waters (1985) strategies emerge unintentionally as individuals and organisations take one step at a time in an attempt to find a viable course of action in a continually changing world. This leads to the emergence of patterns of action as individuals and organisations gradually learn and agree on a course of action.

Bob de Wit and Ron Meyer (1998: p150), in commenting on the findings of Mintzberg and Waters, refer to a "*paradox of deliberateness and emergentness*", and conclude that the distinction between deliberate and emergent strategy goes to the heart of the debate on the topic of strategy formation in organisations. The crucial issue, according to de Wit and Meyer (1998: p151) is "*whether strategy formation should be more deliberate or more emergent. At the extremes of this debate, two radically opposite positions can be identified*", one being "*the strategists who argue that organisations should strive to make strategy in a highly deliberate manner*" by "*explicitly formulating comprehensive plans and then implementing them*", and strategists who argue that "*in reality, most new strategies emerge over time*" and organisations should "*facilitate this messy, fragmented, piecemeal formation process.*" The first point of

view is known as “the Planning perspective”, and the second point of view “the Incrementalism perspective”.

Quinn (1980b) provided some insight into the emergent strategy process with his concept of “logical incrementalism” where he described the process as follows: “The real strategy tends to evolve as internal decisions and external events flow together to create a new, widely shared consensus for action among key members of the ... management team.” Quinn (1980b) also stated that “In well run organisations, managers pro-actively guide these streams of actions and events incrementally towards conscious strategies ...” Logical incrementalism suggests that strategy develops in small incremental steps, based on individual and organisational learning, as the strategist deals with complex and unforeseen change and evolution in the environment.

The above exposition on intended and emergent strategy creates the impression that strategy formulation only takes place in either an intended or an emergent fashion. In fact, Mintzberg and Waters (1985) found that intended and emergent strategies “may be conceived as two ends of a continuum along which real-world strategies lie” and empirical strategy is a hybrid of the ‘pure’ intended and the ‘pure’ emergent strategy.



**Figure 4: Deliberate and Emergent Strategy**

Source: Mintzberg and Waters (1985), *Of Strategies, Deliberate and Emergent*  
Extracted from the Strategic Management Journal, Vol. 6 pp257 - 272.

In order to illustrate their assertion that formulated strategy in the “real-world” is hybrid in nature, Mintzberg and Waters (1985) identified eight types of strategy that lie along the continuum:

### 1. The Planned Strategy

Planned strategy suggests clear and articulated intentions, formal controls to ensure that the intentions are realised, and an environment that is acquiescent. Leaders articulate their intentions in the form of a plan, elaborate this plan in as much detail as possible, usually in the form of budgets, and then control the implementation of the plan and budgets (Mintzberg, 1985).

In this environment the intention is to ensure agent discretion is pre-empted, surprises are minimised, and there is a minimum of distortion in policy guidelines, agent action and targeted outcomes. With planned strategy, it must be kept in mind that the plan is of no use *“if it cannot be applied as formulated in the environment surrounding the organisation so the planned strategy is found in an environment that is, if not benign or controllable, then at least rather predictable”* (Mintzberg and Waters, 1985: p259).

Some organisations are powerful enough to impose their plans on their environments and others are able to predict their environments with enough accuracy to pursue rather deliberate planned strategies. Mintzberg and Waters (1985: p259) are of the opinion, however, *“that many planned strategies are found in organisations that simply extrapolate established patterns in environments that they assume will remain stable.”* Strategies *“appear not to be conceived in planning processes so much as elaborated from existing visions or copied from standard industry recipes.”*

### 2. The Entrepreneurial Strategy

With entrepreneurial strategy the condition of precise articulated intentions is relaxed and one individual, in personal control of an organisation, is able to impose his or her vision and direction on it. This most commonly occurs in young and / or small organisations that are able to find relatively safe niches in their environments. In these

organisations intentions are more difficult to identify and are less specific than those associated with planned strategy. In addition, there is less acceptance of these intentions by other actors in the organisation (Mintzberg and Waters, 1985).

The vision provides a general sense of direction and, within it, there is room for adaptation and evolution based on the individual and organisational learning that takes place. As a result, the “details of the vision” emerge as the organisation learns and acts and learns. It is often the case that as the organisation grows and becomes more formalised, the visions become the basis for planning and decisive changes are less in evidence (Mintzberg and Waters, 1985).

### 3. The Ideological Strategy

Vision can be collective as well as individual. According to Mintzberg and Waters (1985: p262) *“When the members of an organisation share a vision and identify so strongly with it that they pursue it as an ideology, then they are bound to exhibit patterns in their behaviour, so that clear realised strategies can be identified.”* These are known as ideological strategies.

Since the ideology is likely to be overt and perhaps even articulated, intentions can usually be identified. Because the intentions exist as a vision, in whatever form, they can be adapted or changed, but it must be remembered that collective vision is far more immutable than individual vision. Ideology is culturally based and all who share it must agree to change their *“collective mind”*. The environment is unlikely to impose change because, after all, the purpose of ideology is to change the environment (Mintzberg and Waters, 1985). Ideological strategy would therefore be highly deliberate – probably more so than even planned strategy.

### 4. The Umbrella Strategy

Umbrella strategy relaxes the condition of tight control (bureaucratic, personal and ideological) over the actors in the organisation and, in some cases, over the environment as well. Leaders who have only partial control over other actors in an

organisation often resort to what are known as umbrella strategies. Mintzberg and Waters (1985: p263) research indicated that leaders choosing the umbrella strategy “*set general guidelines for behaviour – define the boundaries – and then let other actors manoeuvre within them. In effect, these leaders establish kinds of umbrellas under which organisational actions are expected to fall*”.

*“When an environment is complex, and perhaps somewhat uncontrollable and unpredictable as well, a variety of actors in the organisation must be able to respond to it.”* In other words, the patterns in organisational actions cannot be established deliberately in one central place although the boundaries may be established there to constrain them (Mintzberg and Waters, 1985:p263). From the perspective of the leaders in the organisation strategies are allowed to emerge within the boundaries of the umbrella strategy. As such, the umbrella strategy is deliberately emergent: intended at the centre in its broad remit but not in the specific details at the peripherals.

It must be pointed out that most real-world strategies have umbrella characteristics in that in no organisation can the central leadership totally pre-empt the discretion of others (as is assumed in the planned and entrepreneurial strategies), and in few organisations does a central leadership defer totally to others unless it has ceased to lead.

## 5. The Process Strategy

The process strategy is similar to the umbrella strategy in that it tends to emerge in an environment that is complex, uncontrollable and unpredictable, and organisational actors, other than the leadership, must have considerable discretion to determine outcomes (Mintzberg and Waters, 1985). Instead of trying to control strategy content at a general level, through boundaries or targets, it controls the process of strategy making while leaving the generation of strategy content to other organisational actors. In this situation *“the resulting behaviour would be deliberate in one respect and emergent in others: the central leadership designs the system that allows others the flexibility to evolve patterns within it”* (Mintzberg and Waters, 1985: p264).

## 6. The Unconnected Strategies

The unconnected strategy is straightforward – one part of the organisation with considerable discretion, as a result of it being loosely coupled to the rest of the organisation, *“is able to realise its own pattern in its stream of actions”* (Mintzberg and Waters, 1985: p265). Since these strategies come neither from a central leadership nor the organisation at large, they appear to be emergent from the perspective of the entire organisation, but they can be deliberate or emergent, dependant on the intention, from the perspective of the unit or individual involved. Such strategy often falls within the ambit of the Umbrella strategy but just as often falls outside of the Umbrella strategy, especially when strategy becomes clandestine or is the result of individual creative effort.

## 7. The Consensus Strategy

In the first six strategies the condition of prior intention biased them towards deliberate strategy but consensus strategy drops this condition and, as a result, is more clearly emergent. *“Here many different actors converge on the same theme, or pattern, so that it becomes pervasive in the organisation”* without any central direction or control (Mintzberg and Waters, 1985: p267). Unlike ideological strategy, in which consensus forms around a system of beliefs that reflect widely accepted intentions in the organisation, the consensus strategy grows out of the *“mutual adjustment among different actors as they learn from each other and their various responses to the environment”*, and thereby find a common, and possibly unexpected pattern, that works for them.

The convergence is not driven by the intentions of central leadership, nor the prior intentions that are generally shared among the other actors, but simply evolves through the outcomes of a number of individual actions. As such, it derives more from collective action than from collective intention. It must be noted that when convergence is around a general theme rather than a specific action, the consensus will develop more slowly and will probably require a targeted intervention on the part of the actors to reach consensus (Mintzberg and Waters, 1985).

## 8. The Imposed Strategies

In each of the seven strategies described above, the environment has been considered benign or acquiescent, but strategy can be imposed from outside the organisation regardless of organisational intention or controls. This usually occurs when individuals or groups (e.g. shareholders, government or civil society) with considerable influence over the organisation “*impose a strategy on it*” (Mintzberg and Waters, 1985). In this situation the strategy is clearly deliberate but not by anyone in the organisation. However, given its inability to resist, the organisation has to resign itself to the pursuit of the strategy so that it becomes, in effect, deliberate. Sometimes the environment, rather than people, imposes strategies on organisations simply by severely restricting the options open to them. Many planned strategies seem to have this quality of determinism - they are pursued by organisations resigned to cooperating with external forces (Mintzberg and Waters, 1985).

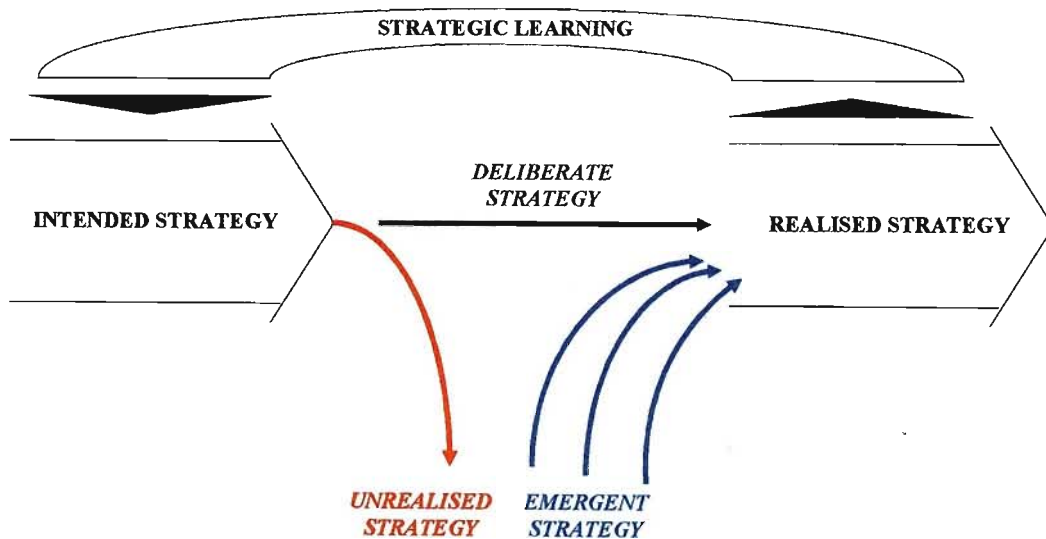
Reality, however, seems to bring organisations closer to a compromise between determinism and free choice. “*Environments seldom pre-empt all choice, just as they seldom offer unlimited choice. That is why purely determined strategies are probably as rare as purely planned ones*” (Mintzberg and Waters, 1985: p268). Alternatively, just as the umbrella strategy may be the most realistic reflection of leadership intention, so too might the partially imposed strategy be the most realistic reflection of environmental influence. As such, the environment bounds what the organisation can do, in effect determining under what part of the umbrella the organisation can feasibly operate.

The prescriptive (or traditional / environmental) schools of strategy formulation focus on control as a means to realising planned and intended strategy while emergent strategy emphasises learning as a means to realising strategy. As such, emergent strategy opens the door to strategic learning because it acknowledges the individual and organisational capacity, without the intervention of central actors or leadership, to identify opportunities and threats, experiment, reflect, act and evolve. In Mintzberg and Waters view (1985: p270), “*the fundamental difference between deliberate and emergent strategy is that whereas the former focuses on direction and control – getting*



*desired things done – the latter opens up this notion of strategic learning. Defining strategy as intended and conceiving it as deliberate, as has traditionally been done, effectively precludes the notion of strategic learning. Emergent strategy itself implies learning that works.”*

It must be remembered that emergent strategy means, not chaos, but unintended order, and it is also the means by which deliberate strategies change. As shown in Figure 5: “Strategic Learning” below, the feedback loop added to the basic diagram, it is often through the identification of emergent strategies that leadership and other actors in the organisation come to change their intentions.



**Figure 5: Strategic Learning**

Adapted from: Mintzberg and Waters (1985), *Of Strategies, Deliberate and Emergent*  
Extracted from the Strategic Management Journal, Vol. 6 pp257 – 272.

Of course, unrealised strategies are also a source of learning, as leadership finds out which of their intentions do not work, rejected either by their organisations or else by environments that are less than acquiescent.

Mintzberg and Waters (1985: p271) place deliberate and emergent strategy in context: *“Emergent strategy does not have to mean that management is out of control, only – in some cases at least – that it is open, flexible and responsive, in other words, willing to learn. Such behaviour is especially important when an environment is too unstable or*



*complex to comprehend, or too imposing to defy". Furthermore, "whereas the more deliberate strategies tend to emphasise direction and hierarchy, the more emergent ones open the way for collective action and convergent behaviour."*

#### *3.6.4 An Environmental View of Strategy: Planning and Control*

The environmental view of strategy is synonymous with the 'rationalist strategy' of Tidd *et al* (2001), the three 'prescriptive schools' of strategic thought (Mintzberg *et al*, 1998), the 'planning perspective' of de Wit and Meyer (1998), and the 'traditional' strategy referred to by a number of authors including Pietersen (2002), Mintzberg *et al* (1998), de Wit and Meyer (1998), Stacey (2000), Lewin and Regine (2000) and others.

The environmental view of strategy was born out of the 'Machine Age' and the Newtonian view of the universe, and has been heavily influenced by military and micro-economic thinking, the theories of industrial organisation, and the principles of cognitive psychology. The earliest proponents of the environmental view were the military-political strategists and writers, the better known being Sun Tzu, Machiavelli, Napoleon, Mao Tse-Tung, Lenin, Montgomery and Von Clausewitz, but the environmental view began to take shape in the organisational and business context with the publication of two books:

- Philip Selznick's "*Leadership in Administration*" in 1957, which introduced the concepts of "*distinctive competence*" (1957, pp42-56) and 'strategic fit', and suggests that it is essential to align the organisations "*internal state*" with its "*external expectations*" (1957, pp67-74), and
- Alfred Chandler's 1962 book titled "*Strategy and Structure*" in which he proposed that structure follows strategy and positioned strategy as a separate business function that is deliberate and iterative.

However, it was not until 1965 when a further two books were published, Ken Andrews' "*Concept of Corporate Strategy*" and H. Igor Ansoff's "*Corporate Strategy*", that strategy became entrenched as a formal function within organisations. Andrews' book emphasised the evaluation of the external and internal environment and precipitated the rise of the ubiquitous SWOT Analysis and the Design School of strategy, and Ansoff

initiated the establishment of the Planning School of strategy which saw strategy as a planning process that drew heavily on the principles of the Design school.

While the SWOT Analysis has become the foundation stone for most strategy analysis, the emphasis within the Environmental View is on the opportunities and threats side of the analysis. The environment drives the development of the organisation which then leverages resources and develops structure and processes, within the context of the environment, that emphasize identified strengths and eliminate identified weaknesses. Andrews (2003: p74) defines the environment of an organisation in business as *“the pattern of all the external conditions and influences that affect its life and development”*. These are the technological, economic, social and political conditions, the market and competitive conditions within the industry, the total business community, the organisations city, country and the world. Andrews goes on to say that *“in all these categories change is taking place at various rates – fastest in technology, less rapidly in politics.”* In the environmental view, the environment is subjected to analysis, within an organisations’ context, and extrapolated into the future to provide a premise on which to build the organisation and plan its development trajectory. The key concept is one of the organisations’ strategic ‘fit’ or congruence with its operating environment (Selznick, 1957; Andrews, 1980; Mintzberg *et al*, 1998). According to Tidd *et al* (2001), strategy in this view *“consists of the following steps: (1) describe, understand and analyse the environment; (2) determine a course of action in the light of the analysis; (3) carry out the decided course of action. This is a ‘linear model’ of rational action: appraise, determine and act”* hence Tidd *et al* (2001) describing the environmental view of strategy as *“Rationalist”* strategy.

This perspective is not without its problems. Mintzberg *et al* (1998) identified four areas of concern with the strategy concepts of Selznick, Chandler and Andrews (the Design School):

- The approach promotes thought that is independent of action - strategy formation is about conceiving rather than learning. Strengths and weaknesses are identified by a process of consideration, assessment and judgement that is supported by analysis rather than by experience.

- There is a separation of formulation from implementation – thinking is detached from acting. Managers formulate so that others can implement – this encourages *“superficial strategies that violate the very distinctive competences of the organisation”* (Mintzberg et al, 1998: p37).
- Making strategy explicit promotes inflexibility and limits the potential for addressing opportunities that may arise in the future. The focus is on the realisation of planned strategy, and strategy emergence through experience and learning is inhibited.
- Sometimes structure follows strategy; sometimes it is responsible for the development of strategy. *“Claiming that strategy must take precedence over structure amounts to claiming that strategy must take precedence over the established capabilities of the organisation, which are embedded in its structure”* (Mintzberg et al, 1998: p35).

Ansoff and the Planning School took a different tack from Selznick, Chandler and Andrews by building a strategic planning model around the SWOT Analysis, or variations of the SWOT Analysis, which divided SWOT *“into neatly delineated steps, articulated each of these with lots of checklists and techniques, and gave special attention to the setting of objectives on the front end and the elaboration of budgets and operating plans on the back end”* (Mintzberg et al, 1998: p49). This approach is still used extensively today, especially by strategy consulting organisations, and is based on a set of forecasts or predictions about the future which are then used to ‘prepare’ the organisation to capitalise on future opportunities and meet the demands of the future environment.

However, according to Mintzberg et al (1998: pp66-77), the Planning School is premised on three fallacies that seriously undermine its validity:

- *“The Fallacy of Predetermination: To engage in strategic planning an organisation must be able to predict the course of its environment, to control it, or simply to assume its stability. Otherwise, it makes no sense to set the inflexible course of action that constitutes a strategic plan.”* While certain patterns and trends may be predictable, the forecasting of discontinuities, such as technological breakthroughs,

wars, political shifts, social shifts or, mundanely, price increases, is practically impossible.

- “*The Fallacy of Detachment*”: Very seldom is management intimately involved in the operational processes or immersed in the details of the task. This lack of involvement means that a whole body of strategic insight is obtained second hand, or ignored, since most strategy is formulated at an executive / CEO level.
- “*The Fallacy of Formalisation*”: Can an institutionalised process produce the data and analysis necessary for the best strategy formulation? Probably not. The approach ignores the flashes of insight and entrepreneurial genius that reshapes or creates industries.

In summary, through the 1960’s until the late 1970’s there were two dominant schools of thought:

- Those who saw strategy as an informal process of formulation and implementation based on competitive advantage through congruence and fit with the environment (The Design School), and
- Those who saw strategy as a formal process based on an environmental assessment and resulting in a plan that consisted of sub-strategies and programs (The Planning School).

According to Mintzberg *et al* (1998), Michael Porter (1980 and 1985) was primarily responsible for the introduction and development of a third school of thought known as the Positioning School. This school had its roots in economics (industrial organisation) and military history, and sought to position organisations for competitive advantage in accordance with a set of Generic Strategies. Industry and Competitor Analysis frameworks and Value Chains were used as tools to analyse an organisations position and provide a foundation for the application of Generic Strategy theory. The Positioning School rose to prominence on the back of rigorous and well grounded theory and is still pre-eminent and highly influential in strategic thinking today.

Porter’s theories were premised on his background in economics and industrial organisation but also built on the work of, *inter alia*, A.D Chandler (1962), P. Selznick (1957), K.R. Andrews (1965), and C.R. Christensen (1965) who saw strategy as ‘fit’ between the external and internal environments of the organisation, and the work of

Ansoff (1965) who viewed planning processes as the basis of strategy formulation and implementation. The maxims of the military strategists Sun Tzu and Von Clausewitz also played a substantial role in shaping Porter's thinking.

According to Barney (2002), Porter *"adapted concepts from industrial organisation economics to the analysis of threats and opportunities in a firm's competitive environment. Before Porter, the analysis of a firm's competitive environment was not well structured and involved generating long idiosyncratic lists of threats and opportunities facing a firm. After Porter, the critical threats in a firm's environment, as derived from industrial organisation economics, could be described and opportunities facing a firm could be deduced from the structure of a firm's industry."* Porter had begun to provide a theoretical structure for analysing one critical component of the strategy formulation problem - the external operating environment of organisations.

Porter's Competitive Analysis, Industry Analysis, Generic Strategies and Value Chain framework were supplemented at the time by the development of a number of consulting company perspectives and initiatives such as PIMS and the Boston Consulting Group's Experience Curve, Growth Share Matrix and Portfolio Analysis, and reflected a need in the early 1980's to supplement the body of strategic thought that prevailed at the time (Mintzberg *et al*, 1998: pp81-122). Essentially, the Positioning School provided a theoretical foundation for the development of strategy **content** to what had been, up to the beginning of the 1980's, theories and frameworks for the **process** of strategy analysis and formulation.

The Design, Planning and Positioning schools which, according to Mintzberg *et al* (1998) are the three schools that make up the Environmental View of strategy, have a number of characteristics in common:

- The schools are prescriptive in nature, that is, they are more concerned with *"how strategies 'should' be formulated than how they necessarily 'do' form"* (do form: describes how strategy actually manifests) Mintzberg *et al* (1998: pp5-7).
- Strategy formation is perceived as a controlled, conscious process that produces full-blown and deliberate strategies for formal implementation.

- Strategies are based on extensive analyses that use existing data (current and historic) to predict a future state for which strategy is formulated and implemented.
- The strategies are premised on a high degree of certainty about the future / projected environmental conditions (Stacy, 2000: p83).
- Strategy, and the resultant organisational change, is the realisation of individually formed prior intention (Stacey, 2000: p83). Generally, this intention is formed at the executive (usually CEO) level and is cascaded down the organisation as the strategies become plans and the plans are implemented.

All three schools adopt a rational, sequential and calculating approach as a solution to dealing with the difficulties of choosing strategy in conditions of uncertainty and conflict. But this does not reflect the reality that organisations face in their everyday existence. The operating environment is, as a result of the interaction of people (as individuals and in an organisational context), social and political systems, uncertain and unpredictable and subject to the principles of complexity theory. This reality leads to a number of criticisms of the three schools of strategic thought (Mintzberg *et al*, 1998 and Stacey, 2000).

Perhaps the biggest problem is that the three schools favour systems and process over people and this compromises the richness of the strategies that are formulated. This leads to a few observations around the role of people in strategy formulation within the positioning school. According to Mintzberg *et al* (1998) “*the message of the positioning school is not to get out there and learn, but to stay home and calculate.*” The strategist deals with “*abstractions on paper, detached from the tangible world of making products and closing sales.*” As such, there is a process of thought that is independent of action – strategic learning is not factored into the equations. If we extend this argument it suggests that future strategic change, brought about by discontinuities, and based on what is still to be learnt from these discontinuities, is ignored when formulating strategy.

A final observation on the positioning school: strategies are generic positions and are not unique or specific to an organisations situation. Strategy is about perspective and this leads to creative strategic behaviour when vision, insight, intuition and diversity are

added to the process. Suggesting that all strategy can be categorised in three boxes (cost, focus and differentiation) based on analytical frameworks, and that this will result in a successful set of generic activities, is a very narrow perspective on any organisations strategic options.

### 3.6.5 *The Resource Based View of Strategy: Organisational Evolution*

The resource based view of strategy is synonymous with the ‘incrementalist strategy’ of Tidd *et al* (2001), the six ‘descriptive schools’ of strategic thought (Mintzberg *et al*, 1998), the ‘incrementalism perspective’ of de Wit and Meyer (1998), and incorporates the concepts of the ‘complex responsive process’ of Stacey (2000), the ‘complex adaptive system’ theory of, *inter alia*, Lewin and Regine (2000), Wheatley (1999), Capra (2002), the concepts of ‘logical incrementalism’ (Quinn, 1980b) and ‘dynamic capabilities’ (Teece, Pisano and Shuen, 1997), and the core competencies approach of Hamel and Prahalad (1994).

According to Grant (1991: p114) *“Strategy has been defined as the match an organisation makes between its internal resources and skills ... and the opportunities and risks created by its external environment. During the 1980s, the principal developments in strategy analysis focused upon the link between strategy and the external environment. Prominent examples of this focus are Michael Porter’s analysis of industry structure and competitive positioning and the empirical studies undertaken by the PIMS project.”* In contrast, the link between strategy and the firm’s resources and capabilities has suffered comparative neglect. Most research into the strategic implications of the firm’s internal environment has been concerned with issues of strategy implementation and the analysis of the organisational processes through which strategies emerge (Grant, 1991). While there can be few arguments with Grant’s assertions, his perspective has to be seen in the light of the environmental context of the last 30 years of the 20<sup>th</sup> century.

As environmental complexity increased through the 1970s and 1980s prediction of the future operating conditions became difficult, control of the environment almost impossible, and achievement of organisational objectives through the accepted methods

of planning and control were rare. Stacey (2000) provides some insight into this phenomenon by drawing a distinction between the simple environment in which organisations operated in the first half of the 20<sup>th</sup> century and the increasingly complex environment of the last half of the 20<sup>th</sup> century. As we saw in the work of Courtney *et al* (1997), the environmental approach is very effective in conditions of stability, but unstable and complex environments require a degree of adaptability that is not provided by the linear planning and control approach. According to Stacey, complex systems are characterised by nonlinear relationships with positive and negative feedback loops, and the links between cause and effect are distant in time and space. In this environment, a single stimulus can produce multiple results some of which will be unexpected and counter-intuitive, and change is rapid, unpredictable and apparently random. Pietersen (2002: p48) argues, *"in this kind of nonlinear world, characterised more by discontinuities than by incremental changes, it's almost impossible to forecast the future correctly"*. Rigid adherence to the planning and control approach in a complex environment would therefore be 'organisational suicide' and, according to Stacey (2000) and the complexity theorists, in such environments successful organisations adapt to the future as it occurs.

The problems associated with increasing environmental complexity and discontinuities led to a growing disquiet in academic and management circles that the traditional approaches to strategy formulation (premised on design, positioning, planning and control) were only appropriate under specific conditions, and there was also another mechanism, which facilitated organisational adaptation, by which firms achieved competitive advantage. At the time Grant (1991: p115) wrote: *"there has been a resurgence of interest in the role of the firm's resources as the foundation for firm strategy. This interest reflects dissatisfaction with the static, equilibrium framework of industrial organisation economics that has dominated much contemporary thinking about business strategy."* The search for answers was given impetus by the publication of Mintzberg and Waters (1985) observations on how *"strategy is formed"* and their identification of *"deliberate and emergent strategies"*. This led academics and practitioners into new and existing scientific and social disciplines in an effort to understand and explain organisational phenomena in the strategy domain that could not be explained by the then existing body of strategy knowledge. These efforts, and the



environmental circumstances, led to a shift in emphasis from traditional strategy to the resource based view of strategy.

The resource based view of strategy has its roots in what Capra (2002) describes as the “*living systems*” view of the universe (see section 3.4 above), and the first efforts to structure and validate the resource based view can be found in the work of Quinn (1980a and 1980b), Wernerfeldt (1984), Barney (1991), and Grant (1991). The resource based view has been heavily influenced by new thinking in the fields of evolutionary biology, complexity theory, economics and industrial organisation, organisational behaviour, political science, psychology, learning theories and sociology.

Essentially, the resource based view is focused on the “*resource bundles needed to be deployed to achieve or protect product market positions*” (Christensen, 2002). According to Christensen (2002) rents, within the resource based view, flow from unique firm specific assets that cannot be readily replicated. These assets take the form of market resources, functional capabilities and integrative competencies and, in the case of capabilities and competencies, are rooted in people (Teece *et al*, 1997). Barney (2002: p150) goes further and relates the resource based view back to Andrews (1965) SWOT Analysis and states that while “*models of environmental threats and opportunities are grounded in a single approach to economic analysis (the structure-conduct-performance paradigm) the study of firm strengths and weaknesses draws on a wider variety of research traditions, some in economics and others in non-economic disciplines.*” The most important of these are research on “*firm distinctive competencies*” and capabilities, “*Ricardian economics, and the theory of firm growth.*”

There are two basic assumptions on which the resource based view of the firm rests:

- First, firms can be seen as bundles of productive resources and different firms possess different bundles of these resources – “*this is the assumption of resource heterogeneity*” Barney (2002: p155).
- Second, some of these productive resources will be very costly to copy or will be inelastic in supply – “*this is the assumption of resource immobility*” Barney (2002: p155).

If the resources possessed by the firm enable the firm to exploit opportunities or neutralise threats, are possessed by only a small number of competing firms, and if the resources are costly to copy or inelastic in supply, then they may be considered to be firm strengths and are potential sources of competitive advantage (Barney, 2002).

One way of identifying resources, capabilities and competencies that can provide organisations with a competitive advantage is for the firm to engage in value chain analysis (Barney, 2002). A value chain is a set of vertically related business activities that result in a product or service (see section 3.6.1 above), and each set of activities or stages in a product / service value chain typically has financial, physical, human and organisational resources associated with it. Understanding in which stages of a product / service value chain a firm operates is useful for identifying the types of financial, physical, human and organisational resources a firm is likely to control. The ability of these resources and capabilities to generate competitive advantages can then be analysed. However, firms that operate in the same set of value chain activities may approach these activities very differently and therefore may develop different resources and capabilities associated with these activities. The value chain approach, within resource based theory, can therefore lead to a very rich and complex understanding of a firms overall competitive position in an industry (Barney, 2002).

According to Barney (2002: p160), the question that must be asked is: *“Do a firms resources and capabilities enable the firm to respond to the environmental threats or opportunities? In order for a firm’s resources and capabilities to be strengths, they must enable a firm to exploit environmental opportunities or neutralise environmental threats.”* Obviously, resources and capabilities that do not enable a firm to exploit opportunities or neutralise threats can be considered to be weaknesses. It must be remembered that the firm’s resources and capabilities are only valuable if they are aligned with the environment in which they are applied. Changes in customer needs, industry structure, or technology can diminish the value of firm resources and capabilities and leaves the firm with two options: develop new and valuable resources and capabilities and / or apply traditional strengths in new ways. It must be remembered that a firm’s resources and capabilities are valuable if, and only if, they increase the firms revenues or decrease its net costs compared to what would have been the case if

the firm did not possess the resources or capabilities (Barney, 2002). Obviously the resources of different firms can be valuable in different ways – even for firms competing in the same industry and targeting the same market segment.

Understanding the value of a firm's resources and capabilities is an important first step in understanding a firm's strengths and weaknesses. However, if a particular resource or capability is controlled by numerous competing firms then that resource or capability is unlikely to be a source of competitive advantage for any one of them. Effectively, such a situation will lead to competitive parity. Barney (2002) is of the view that under conditions of competitive parity, though no one firm gains a competitive advantage, firms do increase their ability to survive. This raises the question of resource and capability rarity and suggests that if a firm is to gain a competitive advantage it must exploit resources and capabilities that are different from those possessed by other firms competing in the same market. How rare a valuable firm resource or capability must be in order to provide a competitive advantage to the firm varies from situation to situation. A general rule of thumb is that as long as the number of firms possessing a specific valuable resource or capability is less than the number of firms needed to generate perfect competition dynamics in an industry, the resource or capability can be considered rare and a potential source of competitive advantage (Barney, 2002).

While valuable and rare organisational resources may be a source of competitive advantage, *"firms with such resources are often strategic innovators"* (Barney, 2002: p164), they can only be sources of **sustainable** competitive advantage if firms that do not possess them face a cost disadvantage in obtaining them or otherwise are unable to obtain them. This leads to the question of imitability: is it difficult or cost prohibitive to replicate or imitate a resource or capability? If it is, the firm in possession of the valuable, rare and difficult to imitate resource or capability will enjoy a sustained competitive advantage and above normal economic profits.

A firm's potential for competitive advantage depends on the value, rarity and imitability of its resources and capabilities but to fully realise this potential the firm must be appropriately organised to exploit its resources and capabilities. *"Numerous components of a firm's organisation are relevant to the question of organisation,*

*including its formal reporting structure, its explicit management control systems, and its compensation policies. These components are often called complementary resources and capabilities because they have limited ability to generate competitive advantage in isolation. However, in combination with other resources and capabilities, they can enable a firm to realise its full potential for competitive advantage” (Barney, 2002: p171). As such, the ‘organisation’ plays a facilitative role and is critical to the development of a sustainable competitive advantage. Absence of this facilitative mechanism will lead to unexploited opportunities, inappropriate responses to organisational threats and, in extreme cases, organisational chaos.*

Teece *et al* (1997: p515) have observed that “*global battles in high technology industries ... appear to have followed a ‘resource based strategy’ of accumulating valuable technology assets, often guarded by an aggressive intellectual property stance. However, this strategy is often not enough to support a significant competitive advantage. Winners in the global marketplace have been firms that can demonstrate timely responsiveness and rapid and flexible product innovation, coupled with the management capability to effectively coordinate and redeploy internal and external competences. We refer to this ability to achieve new forms of competitive advantage as dynamic capabilities.*” Teece *et al* go on to highlight two key aspects that are “*not the main subject of attention*” in other strategy perspectives:

- “dynamic” refers to the firm’s capacity to renew competences in order to achieve congruence with the constantly changing, and mostly complex, business environment, and
- “capabilities” emphasises the essential role of strategic management within the organisation in appropriately adapting, integrating, and reconfiguring organisational skills, resources and functional competences to match the requirements of the environment in whatever form it takes.

Teece *et al* (1997, p516) therefore define their concept of “dynamic capabilities” as follows: “*the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments.*”

While Barney (2002) does not specifically address the concept of dynamic capabilities in his value, rarity, imitability and organisation framework, it can be argued that

dynamic capabilities are embedded in the fourth leg of the framework labelled ‘organisation’ and, for the purposes of this dissertation, it is assumed that the argument is valid for the research and analysis that follows. Barney has titled the framework ‘The VRIO Framework’ (see Figure 6: “The VRIO Framework” below) and it is a useful tool for understanding the relationship between value, rarity, imitability and organisation and organisational strengths and weaknesses. The framework is also useful for assessing the competitive implications and the potential for economic returns associated with exploiting any of a firm’s resources and capabilities.

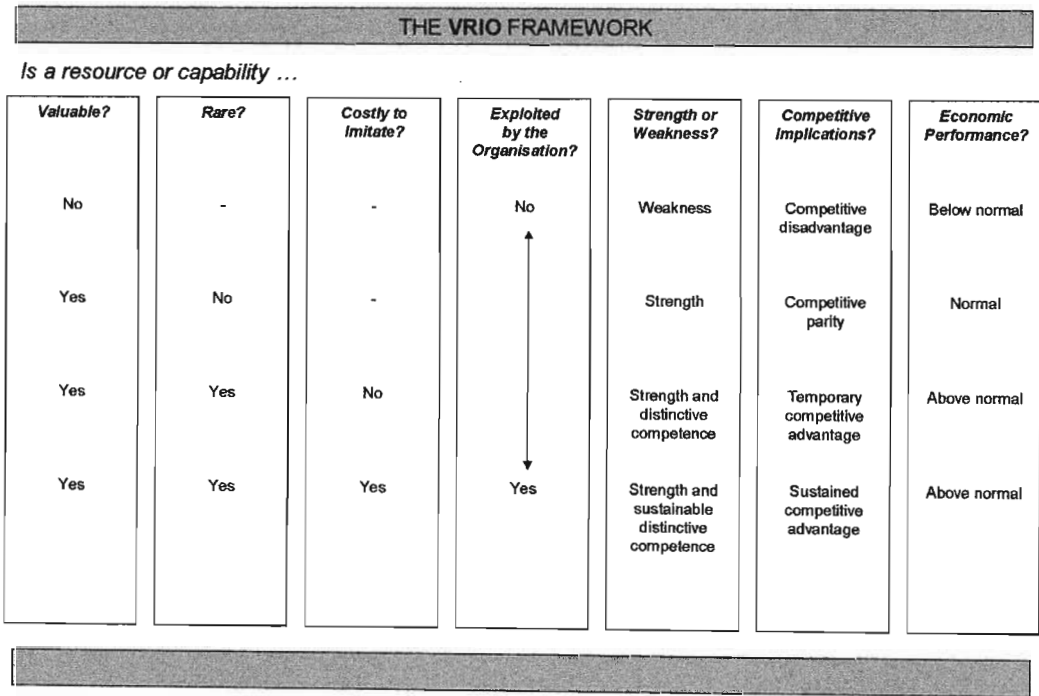


Figure 6: The Resource Based View - VRIO Framework

Adapted from: Barney J.B. (2002). *Gaining and Sustaining Competitive Advantage* 2nd Edition. Prentice Hall, New Jersey.

The success of the resource based view lies in its emphasis on firm flexibility, adaptation and constant evolution in response to the changing shape and requirements of the operating environment. This is facilitated by an organisation that emphasises dynamic capabilities (Teece *et al*, 1997), and promotes individual and organisational learning and innovation (Tidd *et al*, 2001) and the development of what Christensen (2002) calls functional capabilities and integrative competencies. However, the focus of the resource based view is on the resources, resource configuration, integrative competences and dynamic capabilities of the organisation and not the external environment in which it operates. As such, the organisation tends to be reactive to

stimuli from the environment rather than proactive. In effect this limits the strategic options that are available to an organisation and, as a result, the resource based view is not always an optimal response to complexity and uncertainty in the environment.

### *3.6.6 Scenario Planning, Learning, and the Art of Strategic Conversation*

According to Mintzberg *et al* (1998) strategy formation in the environmental view is perceived as a controlled, conscious process that produces full-blown and deliberate strategies for formal implementation. The strategies are based on extensive analyses that use existing data (current and historic) to predict a future state for which the strategy is formulated and implemented. Mintzberg *et al* have labelled this the “*Fallacy of Predetermination*” (see section 3.6.4 above), and Stacey (2000) has voiced his concerns about the fact that strategies, in the environmental view, are premised on a high degree of certainty about the future / projected environmental conditions.

As complexity and uncertainty in the environment has increased over the past 30 years, and the design, planning and positioning approaches have become less effective, the environmental view is losing relevance as more firms incorporate the concepts of the resource based view into their organisations. But the resource based view, while more relevant than the environmental view, is also flawed in its ability to address the challenges of complexity and uncertainty.

In the resource based view a firm’s strategic options will be limited by its resource configuration, and its ability to change its resource configuration, at any point in time. As such, the effectiveness of the resource based view of strategy, in the face of the quick and discontinuous change that characterises markets today, is almost entirely dependant on the dynamic capabilities of the firm. While the development of “leading edge” dynamic capabilities can overcome this limitation, it also emphasises the fact that the resource based view is primarily internally focused and reactive to external environmental conditions.

Since the main concern of most firms is what will happen tomorrow, next week, next year and further into the future, and prediction - while ideal - is impossible, firms will

continue to look for an approach to strategy formulation that gives them a better handle on what the future may bring. The rationalist and linear cause-and-effect thinking of the environmental view, and the internally focused and reactive resource based view, are less than ideal solutions to the problem of how to find competitive advantage in the future.

Scenario planning may provide a partial solution to this problem. The appropriate application of scenario planning often results in greater clarity and a better informed point of view on the potential shape and characteristics of the future external environment. It draws on the concepts, frameworks and tools provided by the environmental schools, and enhances the resource based view of strategy through providing direction for the acquisition and development of resources, competencies and capabilities. Most importantly, scenario planning can also lead to the identification of a wider range of strategic options and enhance strategic decision making within organisations.

Schwartz (1996) defines scenario planning as *“a tool for ordering one’s perceptions about alternative future environments in which one’s decisions might be played out. Scenarios are stories about the way the world might turn out tomorrow, stories that can help us recognise and adapt to changing aspects of our present environment.”* Michael Porter (1985) provides another perspective that enhances Schwartz’ (1996) definition: a scenario is *“an internally consistent view of what the future might turn out to be – not a forecast, but one possible future outcome.”* Ringland (2002) sees scenarios as *“possible views of the world, providing a context in which managers can make decisions. By seeing a range of possible worlds, decisions will be better informed, and a strategy based on this knowledge and insight will be more likely to succeed.”*

These definitions, philosophies and approaches are premised on four critical elements that must be present for successful scenario planning:

- A set of internally consistent views of how the future could evolve (van der Merwe, 2002 and Porter, 1985);
- The views provide a context for decision making (Ringland, 2002);

- The mental models and views of individuals in the organisation should converge on a common understanding of the issues and opportunities facing the organisation. This is facilitated through what van der Heijden (1996) refers to as “*strategic conversation*”,
- The three elements above are enabled by an individual and group learning paradigm that aligns the organisation with a common understanding of the organisations’ operating context (van der Merwe, 2002 and Chermack and van der Merwe, 2003).

From the perspective of strategy formulation the most important aspects of the scenario planning approach is the strategic conversation it stimulates and the individual and group learning about the operating environment that takes place. Strategic conversation emerges both formally and spontaneously from an ongoing process of strategy formulation and implementation, and serves to build a “*solid line of strategic reasoning around which people in the organisation can gather.*” (van der Heijden, 1996). Essentially, it builds consensus and aligns views in the organisation around how the future is likely to unfold and, as a result, enhances organisational learning and organisational decision making processes (van der Merwe, 2002). As such, scenario planning must be considered critical to the development of an organisation that learns, innovates, and adapts to the changing circumstances of its operating environment.

Both strategic conversation and learning (two sides of the same coin) help people within an organisation to converge on a common understanding of the challenges, issues and opportunities that need to be addressed, and this facilitates a more appropriate and effective strategic response to opportunities and threats in the environment. An interesting ‘spin-off’ is a dramatic improvement in operating efficiency as people develop shared objectives and motivations, debate and negotiate solutions, and learn together from actions that are taken in pursuit of the shared objectives. This search for commonality of understanding and purpose needs to be seen in the light of the reality that organisations consist of people, each of whom brings a unique mental model to the organisation. According to van der Heijden *et al* (2002: p158) mental models are “*those deep-rooted recipes, assumptions and guiding ideas that exist in our minds that determine how we interpret events going on around us, that predispose us to expect certain results, and ultimately, that guide our actions.*”



Unfortunately, these mental models can limit our thinking because they are the source of *“cognitive filters, recipes and biases”*.

Although mental models are generally thought to exist only at the individual level, they in fact also exist at organisational and community levels. As people work together and share experiences, it is inevitable that they begin to develop consensual views of the future. This is particularly relevant in older, larger organisations where success tends to lead to more defined and entrenched mental models (van der Heijden *et al*, 2002). However, van der Heijden *et al* (2002: p160) has some concerns about these entrenched mental models: *“although the recipes introduce an element of efficiency in managing large organisations, they become problematic if they are not periodically challenged.”* In other words, while an organisations ‘recipe’ may once have been built on ‘rules’ that functioned well, both the rules and recipe are always in danger of becoming obsolete as complexity and uncertainty come into play.

Since both the process and content of strategy formulation will be a result of the individual and organisational mental models at play, it is important that we understand how a mental model is formed and shaped. van der Heijden (1996) sees the strategy process as a strategic conversation with two parts: the formal well-defined part that revolves around the planning and budget cycles and quantitative information, and the informal part consisting of *“the casual conversations that people engage in at the coffee machine, in corridors, or over lunch. This part is not designed or controlled by the managers, and is usually qualitative and anecdotal in nature”* (van der Heijden *et al*, 2002: p161). The second part is extremely important because it determines where people’s attention is focused. Both parts of the conversation, and the manner and process by which the conversations took place, are influenced by the individual and organisational mental models in existence, and reflect how the individuals ‘see’ the world, how they interpret events, and how they decide what is important and what is not.

Conversations that influence mental models that in turn influence conversations, constitute a system that is locked in, predetermining where attention is focused in the

organisation (van der Heijden *et al*, 2002). According to van der Heijden *et al* (2002: p161-162), there are a number of problems associated with these processes and systems:

- *“The models are seldom exposed and subjected to scrutiny”*. While this may not be a problem in times of stability, as there may be a good match between the mental models of the decision makers and unfolding reality, in times of rapid change the mental models will break down as complexity is factored in. Wack (1985a) describes this as follows: *“mental models become a dangerously mixed bag; rich detail and understanding can coexist with dubious assumptions and selective inattention to alternative interpretations of evidence, and projections that are pretence.”*
- *“Biases ensure that the models are enduring”*. Individuals and organisations will retain their established theories and assumptions about their customers, markets and competition. In times of change this can quickly condemn the organisation to obsolescence.
- *“There may be excessive integration of the models leading to group think”*. Individuals, forming part of a cohesive group, tend to suppress any ideas that do not accord with the ideas favoured by the group or powerful and influential members in the group. As such, critical ideas are inhibited and only ideas and courses of action favoured by the group are examined.
- *“Alternatively, there may be a complete fragmentation of the mental models”*. In this situation there is little or no sharing of ideas and the organisation cannot function or act as a cohesive team. There are so many factions that it becomes impossible to start a coherent strategic conversation and paralysis takes hold.
- *“The models include expectations of what will happen in a given situation, the sequence in which things will happen, possible alternative courses of action, and the information required to decide”*. Because of these assumptions the models develop within a limited and rigid information domain and the effects of such framing biases makes it difficult to introduce and integrate new information and different perspectives into the information set.

Given the above, it is the view of van der Heijden *et al* (2002) that an effective strategic conversation would need to incorporate the following principles:

- All mental models must be made explicit;
- A balance between commonality and variety of models is established;

- A wide range of quantitative and qualitative information is introduced into the conversation.

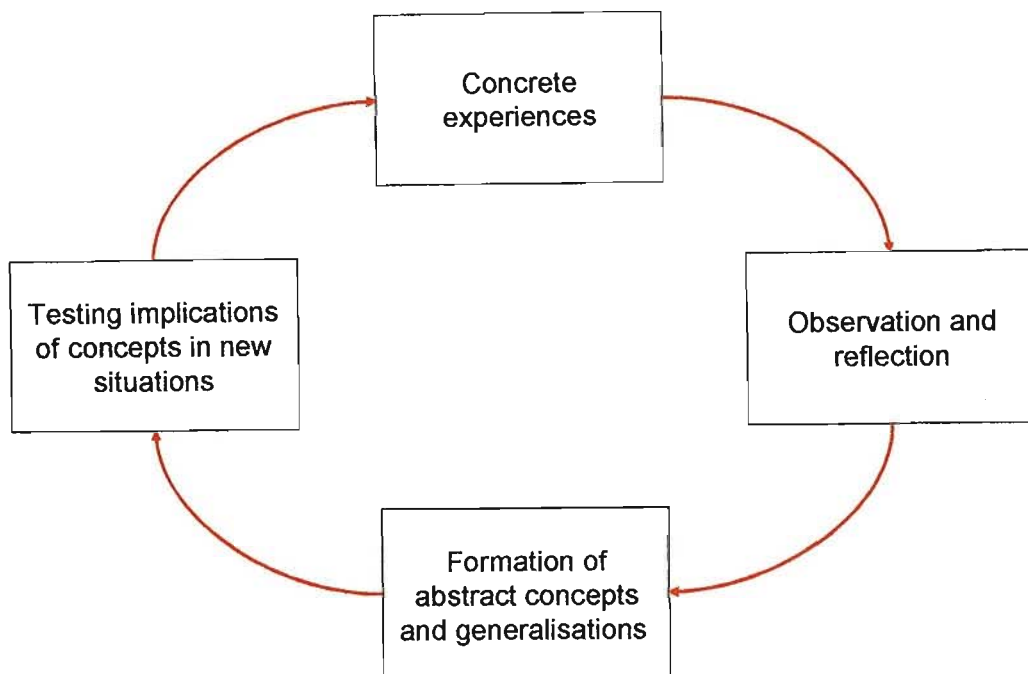
It is in the situations described above that scenario planning plays a critical role. Through the provision of a framework, combining the formal and informal elements of the strategic conversation, an organisations' executive and management is required to confront uncertainty by developing a set of plausible, but by no means certain, future conditions. It stimulates *"teams to think together in a disciplined and systemic manner, examine a wide range of information, to articulate and argue the logic of their understanding of the present, and to expose their assumptions as to how and why the future may evolve in particular ways"* (van der Heijden *et al*, 2002:p162). The outcomes of the strategic conversation include the development of a common language, the realignment of 'recipes' or mental models, and a shared, often new and rich, understanding of the situation. *"In the context of strategy, this shared understanding provides a platform for more effective organisational decision making"* (van der Heijden, 2002: p162).

Since the ultimate aim of organisations is to ensure their survival and wellbeing, and the business environment is subject to constant change, the organisation that adapts first will have the best chance in a competitive marketplace. This is where scenario planning can enhance the resource based view of strategy. Adaptation implies action, and adaptive actions come about through *"adaptive organisational learning"* (van der Heijden *et al*, 2002: p172). *"In business, 'learning' is generally used in the context of attempts on the part of organisations to improve their efficiency, effectiveness and innovation in uncertain market conditions. The greater the uncertainty in the environment, the greater the need for learning. This is to enable quicker and more effective responses to the challenges faced."*

A number of studies have been conducted suggesting that the majority of large and well established organisations suffer from learning disabilities that slow their ability to adapt to changing environmental conditions. Arie de Geus (1997) wrote that over the long run survival depends on sensitivity to the environment and the ability to adapt to meet changing environmental conditions. This can only come about through the organisations

ability to learn, to experiment, to continually explore opportunities to create new sources of growth and wealth, and to change behaviour so that it is appropriate for the conditions of the market.

According to Kolb (1984) the learning process consists of the four stages set out in Figure 7: “Kolb’s Learning Cycle” below:



**Figure 7: Kolb’s Learning Cycle**

Adapted from: Kolb D.A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Prentice Hall, New Jersey.

van der Heijden *et al* (2002: p172), paraphrasing Kolb’s work, states that the learning process is an iterative one: learning begins with observing what has occurred, we reflect on what has been observed and how it can be conceptualised, we make an assessment as to the underlying structures that drive the behaviour we observed and, from this, we develop a theory as to what is happening. This theory then influences the development of a response leading to the implementation of suitable and appropriate actions in the form of new patterns of behaviour. These actions establish expectations. However, almost invariably reality will deviate from the expectation, thereby drawing attention to what is different from our expectation, and this will start the next iteration of the learning cycle. This learning process is ongoing and not episodic. It is important to note

that reflection and action work together to produce learning; without action there can be no learning, since all that can be reflected on is one's previous reflections (Kolb, 1984).

Organisational learning takes place when the learning cycle is performed collectively. Individuals come together to reflect on their experiences, collectively developing new theories based on observation, and then acting together. This process is important because in joint reflection there is an unbundling and sharing of individual world views that leads to a shared understanding of situations and an alignment of mental models. As such, joint action is critical to organisational learning since this closes the loop and precipitates the next iteration of Kolb's Learning Cycle (Kolb, 1984 and van der Heijden *et al*, 2002). This process is known as double loop learning and involves altering all organisational rules and recipes that no longer fit experiences. *"This necessitates a reflective process of continuous experimentation and feedback, in which organisations act to grasp the systemic source underpinning events, ultimately arriving at new ways of looking at the world. Action is a fundamental part of this type of learning, which we have called adaptive organisational learning. As we have already seen, scenario planning is one such process"* (van der Heijden *et al*, 2002: p174).

Scenarios are based on driving forces, current and potential, that might affect or shape the environment in which the organisation operates. These driving forces are both within and outside the organisation and are often only recognised, by those participating in the scenario building process, through "out-of-the box" thinking. In the words of Schwartz (1996: p3) *"to act with confidence, one must be willing to look ahead and consider uncertainties: "What challenges could the world present me? How might others respond to my actions? ... Scenarios are a tool for helping us to take a long view in a world of great uncertainty."* Developing scenarios is a social, conversational process in which individuals collaborate to build the unconnected insights of their knowledge into coherent structures. Central to this social, conversational process is a systems approach to analysing the driving forces of the contextual environment. This approach starts with known and observable events and identifies the multiple and inter-related trends and patterns in the events. These trends and events will display structure in the form of organised behaviour and it will also be possible to see patterns in terms of relationships between multiple trends. Underlying all of this will be a systemic

structure that will drive the patterns, trends and visible events. This process, jointly conducted, provides a means by which individual unstructured insights and knowledge are given clarity and meaning and can be integrated into our individual and organisational mental maps (van der Heijden *et al*, 2002).

Perhaps the most important recent development in strategy formulation is the increased use of scenario planning as a means to develop the ability of individuals and organisations to cope with uncertainty and change in the environment. This is achieved through the two mechanisms discussed above: strategic conversation, and continuous learning – especially about the future. These two mechanisms are interdependent in that strategic conversation leads to learning, and learning leads to further strategic conversations. Scenario planning, through its focus on building stories of possible futures based on current trends, circumstances and environmental factors, provides a framework that facilitates strategic conversation and learning. This is summarised by van der Heijden *et al* (2002: p176): *“In essence, the scenario process is about enabling managers to visit and experience the future ahead of time, thereby creating memories of the future.”* This creates *“a matrix in the minds of managers and serves as subconscious guides to make sense of incoming environmental signals and to act on them.”*

Scenarios are very useful as an externally focused methodology for managing uncertainty in the future external environment, and a number of benefits have been noted by a leading proponent of the approach - Royal Dutch Shell (2002):

- *“Scenarios help us to understand today better by imagining tomorrow, increasing the breadth of vision and enabling us to spot change earlier.*
- *Scenarios provide an effective mechanism for assessing existing strategies and plans, and developing and assessing options.*
- *Participating in the scenario building process improves the ability to manage uncertainty and risk. Risky decisions become more transparent and key threats and opportunities are identified.”*

Scenario planning is receiving more and more attention as organisations seek to improve strategy formulation and strategic decision making in the light of the

shortcomings of traditional strategy (the environmental view) and resource based theory. The greatest strength of scenario planning is that it provides a rigorous, externally focused means of managing uncertainty in future environments, and the insights and options this methodology provides lays a solid foundation for the development of robust strategy.

### 3.7 Conclusion: How the Literature Review Informs this Study

The argument that has been developed in the body of this literature review lends itself to the development of a framework that will be used to analyse the three cases selected for this dissertation. Each case has been organised into five sections, each section dealing with an aspect, or aspects, covered by the literature review:

- Section 1 provides background and context for the analysis in the form of a narrative that sets out the history and events that brought the organisation to where it was when the research on the organisation was conducted.
- Section 2 provides an analysis of the organisations operating environment in terms of the environmental complexity and uncertainty that the organisation faces. Specifically, the political, social, economic and technology environment, as well as the market and competitors, are profiled to provide an indication of the level of complexity and uncertainty to which the organisation must respond.
- Section 3 develops profiles of the strategic conversation, systems thinking and the learning that takes place within the organisation, and relates these profiles to the mental models / world views that are predominant in the organisation.
- Section 4 maps and analyses the delivery of value in the organisation, and the strategy paradigm/s and processes that organise the organisations strategic response to its operating environment. The paradigms that are explored include the Environmental View of strategy, the Resource Based View of strategy, and Scenario Planning.
- Section 5 draws the analyses together, concludes on how the organisation is responding to complexity and uncertainty in its environment, the use of scenario planning to manage the uncertainty, and provides an overview of opportunities and issues that, potentially, face the organisation.

#### **4. THE RESEARCH: CASE STUDIES AND ANALYSES**

##### *4.1 Case Study 1: The Pebble Bed Modular Reactor - PBMR (Pty.) Ltd.*

PBMR (Pty) Ltd is currently a research and design company operating in the nuclear sector of the electricity generation market. Its long term mission is to develop, construct and commission advanced nuclear generation plants for the electricity utilities industry, but the company has spent the last 10 years in the research, design and development of its core product, the pebble bed modular reactor. The design is close to completion and PBMR is now in the process of building and reconfiguring the organisation to meet the demands of delivery and commercial operations.

At the time the research was conducted PBMR still had design issues that impacted on:

- the reactors commercial viability, and
- the safety, cost, and build considerations that are critical to ‘buy decisions’ within the electricity utilities industry.

In addition, the company was facing an environmental lobby that was opposed to the nuclear concept, and local government, at the proposed site of their demonstration plant, that was concerned about safety, waste and cost issues.

Some time later, when writing up this analysis, many of the design issues had been cleared but the nuclear waste issues had escalated, and PBMR had not yet received the go-ahead from local government to build the demonstration plant. However, while this was a preoccupation with management, the biggest issue that confronts PBMR going forward is not around safety, waste and cost, but around the ability of the current management to build a commercially viable organisation and deliver the generation plants as promised. For the last ten years PBMR has developed a team of scientists and engineers that form the core of the management team, but are primarily focused on research and design and have limited or no skills and experience in managing commercial organisations.



#### *4.1.1 Background*

In the late 1980s and the early 1990s ESKOM, the South African state owned electricity monopoly, spent many months re-assessing its strategic position in South Africa and Africa. These considerations resulted in the conclusion that to avoid losing its status as the pre-eminent and leading supplier of electricity in Africa and South Africa, ESKOM needed to change and improve the way it was conducting its business. A strategy was drafted to address the change, and lists of opportunities for evaluation and issues to be addressed were compiled.

An area identified as an opportunity, and an area of concern, was the ESKOM 'Generation' business. Political, social and environmental issues and the cost of delivering electricity had become urgent drivers for change in the existing 'Generation' infrastructure, and it was decided that the current infrastructure and capacity needed to be reviewed with a view to positioning ESKOM 'Generation' as a global, and globally competitive, provider of electricity.

Early in 1993 the executive management of ESKOM commissioned research into the use of nuclear energy as a solution to ESKOM's future generation requirements. By late 1993, the researchers and analysts had identified the Pebble Bed Modular Reactor (PBMR) as both a solution to the ESKOM 'Generation' concerns and also as a viable business opportunity.

PBMR (Pty) Ltd was incorporated and rapidly built its research, development and design capacity over the next 6 years until, in 1999, it had in excess of 200 scientists (mainly physicists and engineers) working on the project. By this time ESKOM had invested a substantial sum of money in the project and was looking for activities and results that would lead to commercialisation of the PBMR and a return on its investment.

In 2000 a number of initiatives to conclude the Research and Development ('R&D') and Design phase, and establish an infrastructure that would facilitate commercialisation, were undertaken:

- ESKOM brought 3 partners into the project to provide funding and spread the financial risk. These partners were the Industrial Development Corporation (IDC) from South Africa, British Nuclear Fuels Ltd (BNFL) from the United Kingdom, and Exelon from the United States of America.
- Exelon and BNFL (through both BNFL and its Westinghouse Nuclear subsidiary) would also provide the skills and assistance necessary to finalise the design of the PBMR.
- In addition, Exelon and BNFL would bring business skills to PBMR as well as providing credibility and an entrée to the USA and UK markets.
- The hierarchical structure and electricity utility policies and procedures of ESKOM were imposed on PBMR in an effort to structure the organisation for commercial activity and develop the appropriate infrastructure.

While these initiatives were seen as a means to overcome the barriers to commercialisation, the outcomes were not what were expected. Previous functional divisions between the physicists and engineers and the reactor, pressure vessel and turbine teams were exacerbated. This was compounded by the development of new divisions between the SA scientists, the UK scientists and the USA scientists. The lack of business and project management skills also became increasingly apparent as budgets were exceeded, the structure and infrastructure necessary for commercialisation of PBMR was endlessly debated and eventually abandoned, and the design moved away from the initial market differentiating parameters of inherent safety, environmental friendliness, short build time, modularity and cost.

In 2001 PBMR and its management team, recognising the problems, engaged the services of international and local strategy and organisational consultants and consulting engineers, and a “Transformation Program” team was established with a mandate to transform the organisation into a commercial entity capable of competing at a global level. The team was loosely structured, consisted of PBMR management and employees as well as consultants, and it set three simple objectives:

- Structure PBMR (Pty) Ltd for global competitiveness.
- Ensure that investor representatives were factored into the solution.

- Leverage the diversity of cultures, experiences and skills present in the existing mix of US, UK, French, Japanese and South African managers and scientists.

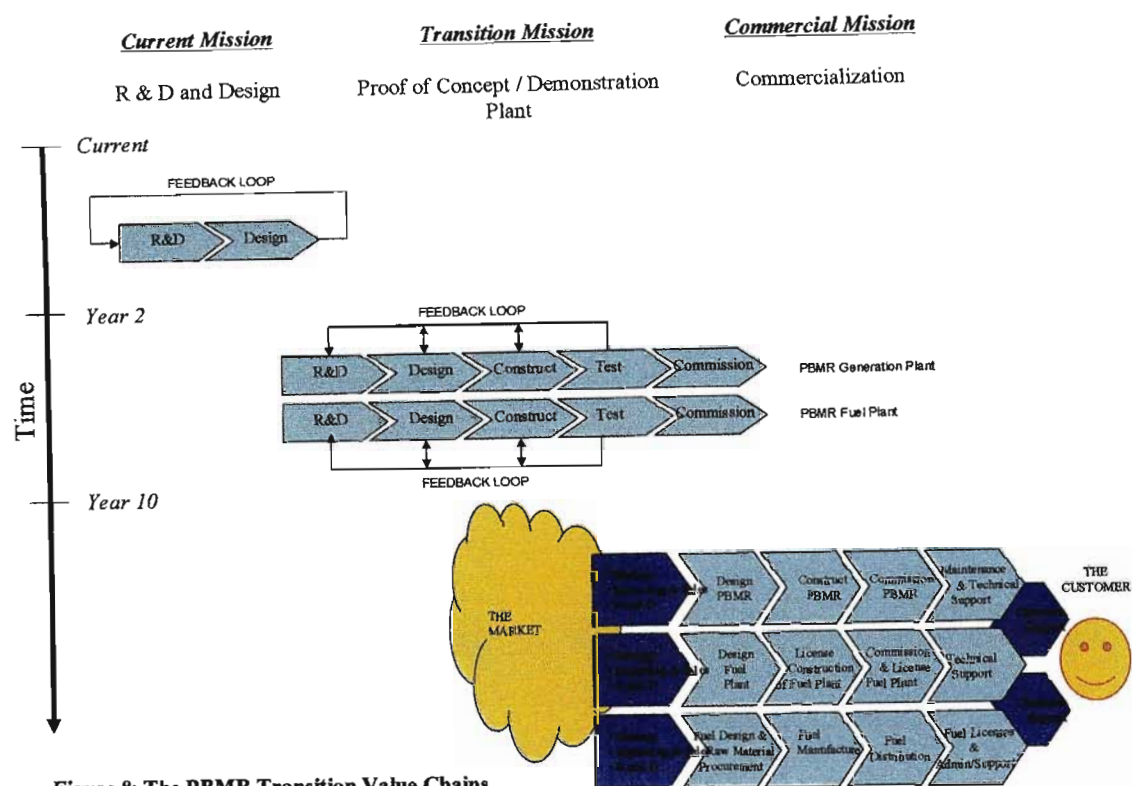
However, politics and entrenched organisational power structures, global developments, and questions regarding viability of the project derailed the process and resulted in a return to the state (with different faces) that characterised the organisation prior to the intervention of the “Transformation Program” team.

The problems facing ESKOM and PBMR were further exacerbated when, in 2002, Exelon withdrew from the partnership, citing political and economic reasons, BNFL focused all its attention on the design and development of the fuel plant and facilities (while experiencing crippling financial constraints in the UK), and potential French and Japanese partners, while showing interest in the development, declined the invitation to participate in the PBMR venture. During discussions with PBMR executive members and management it seemed that international interest was centred on keeping abreast of the development of PBMR rather than seeing PBMR as an alternative to existing ‘Generation’ methods and a viable investment opportunity.

#### *4.1.2 The Operating Environment: Uncertainty Profile*

While ESKOM’s objective is to commercialise the PBMR as quickly as possible, ESKOM also recognises that there will be a transition from the current R&D and design organisation, through a proof of concept / demonstration / testing phase to the point where PBMR can be considered a commercial organisation. This transition will be evolutionary and continuous but these three points have been mapped as value chains to illustrate that each has a different mission, operates under different environmental conditions, and each will deliver different value to a customer. This transition is illustrated in *Figure 7: “The PBMR Transition Value Chains”* and it must be noted that the value chains split to show both the reactor and fuel value streams. The ultimate objective of the transition is to commercialise PBMR and this suggests a commercial value chain with the following 3 high level value added processes:

1. Reactor design, construction and commissioning;
2. Fuel Plant design, construction and commissioning;
3. Fuel marketing and sales.



**Figure 8: The PBMR Transition Value Chains**

Currently, PBMR is required to deliver a workable design for the pebble bed modular reactor to ESKOM and the PBMR Project Management organisation, which is still to be established and developed. This will take approximately two years. Environmental complexity and uncertainty during this time will be minimal because PBMR's objective is clearly defined by its customers who are also funding its delivery. As such there are few agents in a tightly controlled system that is, to all intents and purposes, closed to its environment. Applying the "Spectrum of Uncertainty" (see *Figure 1* above) PBMR is operating at level 1 uncertainty – "A Clear Enough Future", and strategy can focus on one outcome – delivery of the PBMR design.

Complexity and uncertainty will increase when PBMR starts building the pebble bed modular reactor and the PBMR fuel plant because the range and number of stakeholders in the process will increase dramatically. PBMR will need to deal with the political and social considerations associated with building a nuclear plant in close proximity to urban areas, 'greens' will raise many valid concerns around environmental issues, and ESKOM (as customer and shareholder) and potential new shareholders will want to be assured that their investment is properly managed. PBMR will find itself operating

within a system that can no longer be controlled and that is now open to its environment. The number and diversity of agents in the system will multiply, and as the agents interact and mutually affect one another, the future will become less and less predictable. This situation will likely move PBMR to level 2 uncertainty – “Alternate Futures”, where a few discrete outcomes can be identified and these outcomes will define the future of PBMR.

As PBMR transitions to a fully commercial organisation and designs, builds and commissions pebble bed modular reactors, the political, social, environmental and shareholder management issues will intensify. In addition, the two most complex and uncertain elements of commercial operations will be introduced to the mix – the market and competitors. The market will cross geographic boundaries and cultures, will be subject to international political, social and environmental acceptance and concerns, and will be subject to intense direct and indirect competition. The direct competition will be in the form of other nuclear generation plant companies, and the indirect competition will come from coal, oil and gas electricity generation, solar and hydro-electric sources of energy, and other new sources of energy which will develop from new and innovative technologies. This will introduce level 3 uncertainty – PBMR will have to face “A Range of Futures” where there will be a range of possible outcomes but no natural scenarios.

What is particularly interesting about the PBMR case is that there are three distinct contexts, each affected by different levels of complexity and uncertainty, and each requiring a different strategic response and approach to developing strategy. This is explored further below.

#### *4.1.3 Organisational Analysis: Systems and Learning Profiles*

##### *System Profile*

From its inception in 1993 until the early months of 2002, PBMR was focused, almost entirely, on the development of a pebble bed modular reactor design that would meet the cost, safety and build requirements of the international electricity generation

market. As such, PBMR acted as an internally focused research, design and development organisation within ESKOM. Given the nuclear nature of the PBMR, the parastatal status of ESKOM, and the international regulations governing nuclear energy, the company was subject to numerous clearly defined and meticulously applied rules regarding design, safety and operation.

The vast majority of employees were scientists and engineers working directly on research and design activities and were backed up by a small administration function. PBMR was formally structured in a hierarchy with discrete functional objectives and functional lines, extensive and detailed procedures manuals for all activities within the functions as well as for integrating activities which crossed functional lines, and a formal performance and feedback mechanism. Initially there was limited communication and activity between the functions but this improved as integration between the core and sub-systems became more important.

In essence, PBMR is best described by the 'Machine' system metaphor since it exhibits all the characteristics of a 'Closed System'. Management emphasis is on control and efficiency, the system is fixed and static and its identity is derived purely from its objective to design the PBMR. The system will run down as soon as the design is complete, and it will need to be rebuilt as a commercial organisation delivering PBMRs if it is to survive. The principles of scientific, or classical, management theory, inherited from ESKOM, has led to the design of formal structures that are linked by clear lines of communication, co-ordination and control.

The closed system is particularly relevant to a routine environment where predetermined, routine and repetitive activities are carried out, and the emphasis is on seeking the rational and efficient means of reaching preset goals and objectives. There is considerable emphasis on control within the environment but little emphasis on the environment in which the organisation operates. This system is appropriate where the task environment is stable, the task to be performed can be clearly defined, and there is the production of a single or few products. While the closed system may be appropriate for the research, design and development phase of the PBMR, it will lead to dysfunction and failure in the demonstration and commercialisation phases.

The need to be open to the environment (exchange inputs and outputs) when PBMR transitions to a commercial organisation is highlighted by the number of interfaces with environmental elements, such as PEST, market and competitors, that will be necessary. If PBMR is not delivering products into the markets and receiving resources, information and feedback from the interfaces it will be doomed to failure. The living system consist of a complex network of elements and relationships that interact, forming highly organised feedback loops, and existing in an environment from which it draws inputs and to which it dispenses outputs. As such, the system is self regulated and imports energy to maintain a steady state – unlike a machine system that is closed and degrades through wear and tear. This ability to self regulate makes survival and adaptability key concepts of the living system. The living system promotes responsiveness and change within organisations and is suited to complex environments with fluid market dynamics and a variety of competitors, and works well where there are open relationships within changing and evolving environments that are characterised by the shifting needs of people.

The ability of PBMR to make the transition from its ‘Machine’ view and approach to organisation to a ‘Living’ system view and approach to organisation will be dependant on the ability of individuals and PBMR to learn and adapt to its changing circumstances as the company moves towards becoming a fully commercial organisation.

### *Learning Profile*

Learning in PBMR takes place primarily at the individual level, rather than the organisational level, and reflects the nature and mental models of the scientists and engineers that make up the majority of employees at PBMR. This is reinforced by the organisational objective and structure, the type of communication that is encouraged, and the co-ordination and control systems in place. Structure is functionally orientated, there are formal and structured communication and feedback systems, and there are rigidly applied rules governing behaviour.

The dominant mental model in PBMR is premised on the 'Newtonian' view of the universe, and is characterised by an unshakable belief in the principles of 'cause and effect', and analysis, prediction and planning. These mental models dictate a standard response to all contexts regardless of the level of complexity and uncertainty that, in part, defines different contexts. This mental model, in conjunction with the current organisational context, has predisposed PBMR towards learning models that are linear and that situate the learning process outside the control of the learner. In this environment, individual learning is separated from organisational learning which tends to occur within the boundaries of the stated organisational objectives.

Situated learning theory and critical theory provide some insight into the PBMR learning environment. According to these two theories, learning takes place when learners place themselves in 'communities of practice' where they learn the language, values, attitudes and practices that are necessary for participation in a particular community – in this case PBMR. The theory states that this type of learning can be limiting in that the individual may be confined to a particular community context, may be subject to power relationships that exist in this environment (through the values and assumptions of the powerful in this community), and may be focused on the community rather than embrace a more holistic view that accounts for the environment in which the community is situated. Critical theory goes a bit further and suggests that there is a sociocultural context within which learning takes place, and organisations, in this case PBMR, privilege certain knowledge and behaviour thereby creating power relationships that affect every learning context.

From an individual perspective, two theories describe the learning experience in PBMR. Behaviourist theories (the main aim of learning is to change behaviour) where PBMR acting as teacher, controls the learning process by selecting the stimuli and reinforcing the required responses – hence the 'numerous clearly defined and meticulously applied rules regarding design, safety and operation'. In these situations, the learner is passive and only the 'right' response is rewarded. This essentially linear process of learning limits creativity and stifles innovation – something PBMR does not want as it goes commercial. The second theory, which is applicable to the work activities of the scientists and engineers, is the cognitive theory. Intelligence, as the basis for learning, is



central to this theory, as is the active engagement of the mind in processing data, managing perceptions, developing memory and facilitating insights. Although the learner is active rather than passive, the learning activity is bounded by the structure and sequence of the knowledge. The cognitive theories dominate 'traditional' or environmental strategy formulation and result in linear outputs influenced by past experiences. This can be seen in the next section: "Current Strategy Paradigms and Processes".

In essence, both organisational and individual learning within PBMR is constrained by the mental models, learning models and organisational culture inherited from ESKOM, PBMR's association with the nuclear industry, and the perception in political and environmental circles that nuclear is not a good choice. Unfortunately, this has led to a situation of 'group think' around rationalist responses to the environment, a lack of innovation (other than technical) because of individual and organisational inability to interact and learn rather than react to the environment, and an inability to adapt to changing environmental circumstances and new contexts and evolve in accordance with environmental circumstances. This will severely hamper PBMR's transition from an R&D and design organisation to a commercial organisation.

#### *4.1.4 Current Strategy Paradigms and Processes*

The 'Newtonian' world view, the mechanistic systems approach to organisation, and the cognitive learning that characterises PBMR strongly suggests that the predominant strategy paradigm will be rationalist and will be premised on prediction, planning and control. This is, in fact, the case and PBMR follows a 'traditional' or 'environmental' approach to strategy formulation where the emphasis is on the concept of 'strategic fit' between the demands of the target markets and operating environments and the shape of the PBMR organisation.

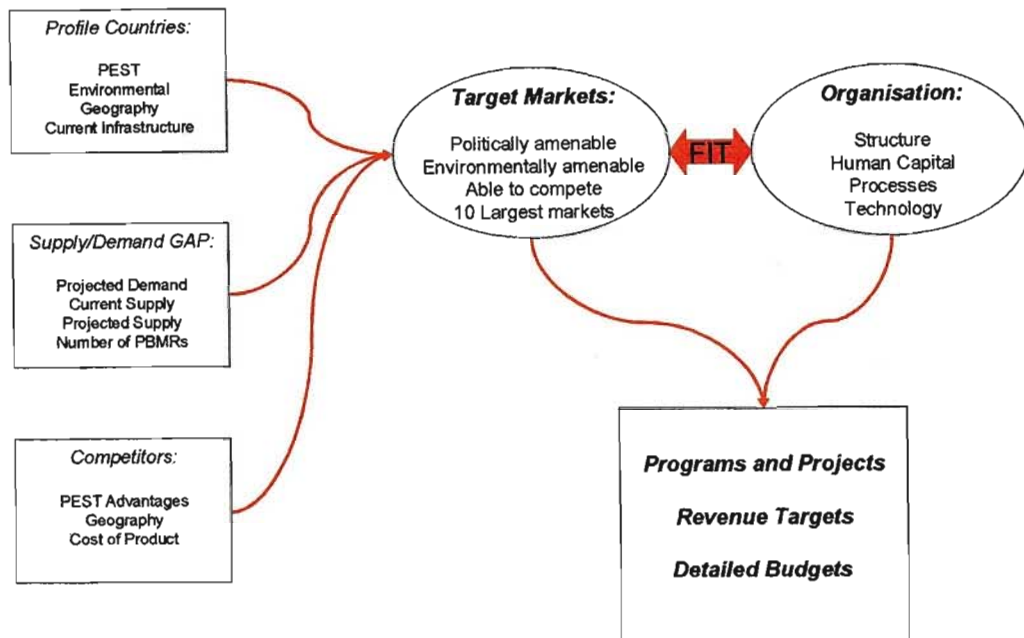
However, rationality and the environmental view of strategy have been taken to inappropriate extremes. The strategy planning process is very simplistic and overdoes the application of basic economic principles. Both the strategy process and content rest on a few simple assumptions:

- The global demand for electricity will increasingly exceed the global supply of electricity – based on a linear projection of current and historic trends.
- The demand / supply gap will be bigger or smaller in some countries, some countries will be predisposed towards nuclear power and others not, and some countries may take political and / or strategic decisions to go or not to go with nuclear power.
- If the per kW production cost over the lifetime of the PBMR, in countries that are amenable to buying a South African produced nuclear generation plant, is lower than alternative electricity generation sources, the market will buy whatever PBMR produces – limited to the size of the gap between demand and supply.

This thinking led to a strategy planning process, conducted by management and McKinsey (the consultants), that resulted in detailed revenue targets and budgets, and a series of project plans for implementation (see *Figure 9: “The PBMR Strategy Formulation Process”* below).

While this approach drew mainly from the Planning School of strategic thinking, concepts from the Design and Positioning Schools were also used:

- Strategy was seen as a process of formulation and implementation based on competitive advantage through congruence and fit with the environment;
- Strategy was articulated through a formal process based on an environmental assessment and resulting in a plan that consisted of sub-strategies and programs;
- The principles of economics, structured by the positioning school, were applied to position PBMR for competitive advantage in accordance with a generic strategy – PBMR will focus on the low cost production of electricity.



**Figure 9: The PBMR Strategy Formulation Process**

The environmental view of strategy, of which the design, planning and positioning schools are a part, suffers from a number of drawbacks which have particular relevance to the approach used by PBMR for the development of strategy:

- To engage in strategic planning an organisation must be able to predict the course and future shape of its environment and it must either be able to control it or assume its stability. Otherwise, it makes no sense to set an inflexible course of action that constitutes a strategic plan. While certain patterns and trends may be predictable, the forecasting of discontinuities, such as technological breakthroughs, wars, political shifts, social shifts or, mundanely, price increases, is practically impossible.
- Generally, it is very seldom that management is intimately involved in the operational processes or immersed in the details of the task. This lack of involvement means that a whole body of strategic insight is obtained second hand, or ignored, since most strategy is formulated at an executive / CEO level. In the case of PBMR, nobody has been involved in the operational processes or immersed in the details of the task, and insight is not available - either first or second hand.

Establishing an inflexible course of action under these circumstances, in the form of a strategic plan, is therefore foolhardy.

PBMR has adopted a rational, sequential and calculating approach as a solution to dealing with the difficulties of choosing strategy in conditions of uncertainty and conflict. However, the words of Mintzberg *et al* (1998) are particularly appropriate: “*the message ... is not to get out there and learn, but to stay home and calculate.*” The strategist deals with “*abstractions on paper, detached from the tangible world of making products and closing sales.*” As such, there is a process of thought that is independent of action – strategic learning is not factored into the equations. If we extend this argument it suggests that future strategic change, brought about by discontinuities, and based on what is still to be learnt from these discontinuities, is ignored by PBMR when formulating strategy in the environmental view.

#### *4.1.5 Opportunities and Issues*

PBMR's operating environment will be characterised by continuous change and increasing complexity and uncertainty. The organisation will operate in a number of different countries with different cultures and ways of doing business, and will be delivering customized PBMR systems solutions into these countries. While this presents a number of complex challenges from the marketing and sales perspective, the complexity is amplified in the supply chain, in construction and in project management. When this is considered in the light of the above analyses, it becomes apparent that a number of issues need to be addressed by PBMR if the organisation wishes to make a successful transition from a R&D and design organisation to a competitive commercial organisation. These issues fall into four broad categories:

- The context in which PBMR will operate at each stage of its transition and the impact of complexity and uncertainty in each of these contexts on PBMR.
- How PBMR will change individual and organisational mental models and establish a process of individual and organisational learning that will introduce innovation and adaptability to the organisation?
- What internal systems are appropriate for the operating context throughout the transition and how will they be introduced?

- The introduction of an appropriate strategy formulation and implementation process.

This last category is emphasised by a problem that manifested in the strategy formulation process, where the current mental models, learning models, behaviours and systems were used as the basis on which PBMR started planning its transition into the future. Furthermore, the future that was being predicted during the strategy formulation process is between 10 and 30 years away. What is cause for the greatest concern is that this predicted future is now being used to establish and develop an organisation that will start commercial delivery of PBMRs in 10 years time.

The environment PBMR currently operates in is unlikely to look anything like the environment in which PBMR will have to operate in 10 years time. Quite apart from the complexity that will be introduced to the system by normal operations, as discussed above, it is likely that PEST conditions will change the shape of the world as we know it in ways that we currently cannot imagine, much less predict. Linear projections and predictions, based on history and the current paradigms of management and consultants, are hardly appropriate in the circumstances.

It is in precisely these situations that scenario planning and the resource based view of strategy become highly relevant. Scenario planning can help PBMR structure their perceptions about the alternative future environments in which their decisions, both current and future, might be played out. This will be based on a set of scenarios or stories about the way the world might turn out tomorrow, and these stories will help PBMR recognise and adapt to changing aspects of their present and future environment. Essentially, scenarios will provide PBMR with a range of possible views of the world that will provide a context in which the management of PBMR can make decisions. By seeing a range of possible worlds, decisions will be better informed, and a strategy based on this knowledge and insight will be more likely to succeed.

The appropriate application of scenario planning often results in greater clarity and a better informed point of view on the potential shape and characteristics of the future external environment. As such, scenario planning enhances the resource based view of

strategy through providing direction for the acquisition and development of resources, competencies and capabilities. Most importantly, the resource based view will help PBMR to adapt to the future as it occurs rather than set a course for the wrong future and wind up with an organisation that is not appropriate for the future environment in which it will have to operate.

The resource based view of strategy has its roots in the “living systems” view of the universe, and is based on the resource bundles needed to be deployed to achieve or protect product market positions. These resource bundles, or assets, take the form of market resources, functional capabilities and integrative competencies and, in the case of capabilities and competencies, are rooted in people. The key to the resource based view, and the reason it is particularly suitable for PBMR’s situation, is that it substantially enhances the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. The success of the resource based view in complex and uncertain environments lies in its emphasis on firm flexibility, adaptation and constant evolution in response to the changing shape and requirements of the operating environment. This is facilitated by an organisation that emphasises dynamic capabilities, and promotes individual and organisational learning, innovation and the development of functional capabilities and integrative competencies.

The leadership of PBMR will need to confront significant challenges that will arise as the organisation makes the transition from a predominantly mechanistic R&D and design organisation to a market orientated and commercial organisation. The challenges will include:

- Move from maintaining stability through planning, organising and controlling behaviour to increasing learning and self organising in continuously changing contexts guided by a shared vision and values and the application of simple rules.
- The development of business related competencies / skills that are appropriate to an organisation involved in marketing and selling, designing, constructing, and supporting PBMRs. This may take the form of re-skilling, competency / skills acquisition, and competency / skills development.

- The development of the competencies / skills necessary to apply new models and methods that will understand and foster change rather than propagate models that assume the organisation is linear and predictable.
- The introduction of systems thinking and behaviour and individual and functional inter-dependence.
- Encourage and reward a willingness to embrace change, increase information through creating communication networks and developing appropriate and focused communication channels.
- Move away from centralised decision making, controlling information flow, and minimising uncertainty.

PBMR will need to develop supporting structures for these resources and competencies that will ensure the optimisation of resource flow, information, communication and continuous learning. The emphasis for these supporting structures should be on the fact that PBMR designs, constructs and delivers PBMR systems and the supporting structures should reflect this. The supporting structures should also reflect the environmental conditions that exist at any point in time and location. This means that the organising principle should be the development of flexible, self-organising structures that deliver PBMR systems to local and international clients. As such, PBMR will need to organise around competencies and people and not around control structures.

#### *4.2 Case Study2: Nedcor Ltd*

Nedcor is one of South Africa's leading financial organisations with assets in excess of R250 billion and more than 22 500 employees. The Nedcor Group is listed on the JSE as Nedcor Ltd and has an international presence in London, Isle of Man, Singapore, Hong Kong, Beijing and sub-Saharan Africa. The holding company, Nedcor Limited, is currently structured as follows:

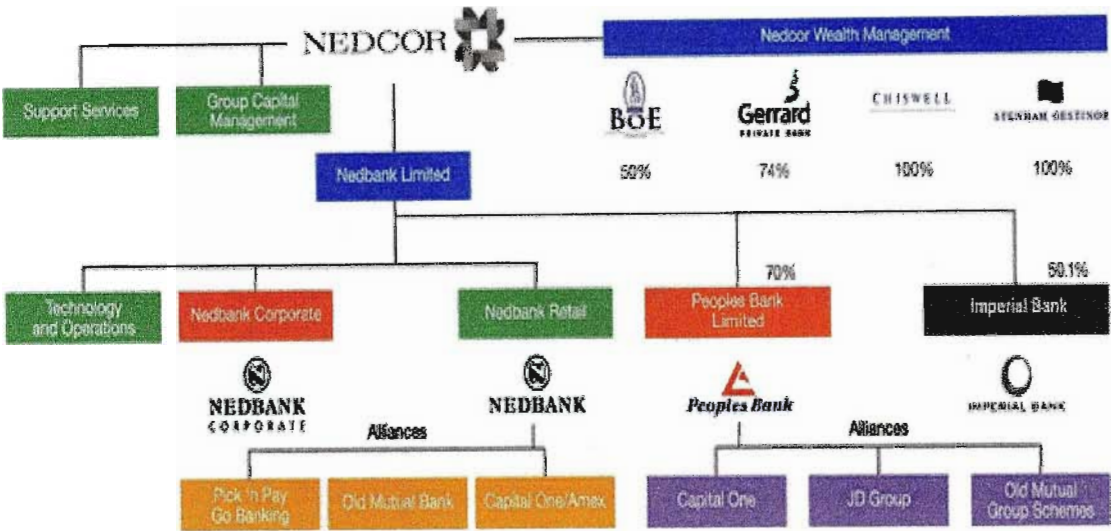


Figure 10: The Nedcor Group

According to Richard Laubscher (Nedcor Ltd, 2003b), the group structure has been set up to optimise the ability of the Nedcor group to service their varied client base. The size and structure of the group provides focus and enhances the ability of the group to specialise in key areas while still enabling Nedcor to offer a full range of banking services to corporate and commercial as well as retail clients.

This strategy was facilitated by the BoE merger and the establishment of several alliances, and helped Nedcor gain market share in areas where the Group had previously been weak. These alliances are predominantly on the retail side and include Imperial Bank and Pick 'n Pay. The parameters for the new bancassurance and wealth management relationship with Old Mutual, another focused customer centric initiative, have been put in place and involve the rationalisation and consolidation of Permanent Bank and Old Mutual Bank.

Over the past ten years Nedcor has invested heavily in technology in the belief that technology will drive and provide competitive advantage in the core banking area. With this considerable investment and the innovative technology initiatives, Nedcor is now in a position to offer outsource banking services which will allow the Group to better



utilise the capacity that has been created and, in due course, to defray some of the costs associated with the technology development. It is envisaged that, ultimately, this will provide a new and considerable revenue stream and profit for the Group.

The focus on leveraging the Groups market and competitive position and its resources and competencies to launch new initiatives and provide new and alternative revenue streams, has resulted in Nedcor being seen as a leader in innovative banking and, through the composition of their merged core businesses and the attributes of their alliances, they have gained:

- One of the largest banking footprints in SA;
- A strong stable of strategic partners in SA;
- A more effective bancassurance and wealth management model;
- Focus on their targeted client segments; and
- A meaningful presence in corporate and investment banking with the creation of Nedbank Corporate.

#### *4.2.1 Background*

The Nedcor Group has its origins in the Netherlands in 1888 with the establishment of the Nederlandsche Bank & Kredietvereniging, which opened its doors in South Africa as the Netherlands Bank of SA in 1951. In 1971 the Netherlands Bank of South Africa changed its name to Nedbank Limited, a move that was followed shortly thereafter by the formation of the Nedbank Group Limited, which was a merger of Syfrets SA, Union Acceptances Limited and Nedbank Limited. In 1974, shortly after this merger, Nedfin Bank Limited, a subsidiary of the Nedbank Group, was formed from the merger of Credcor Limited with Lease Plan International.

A period of stability and relative inactivity followed and in 1980 a significant milestone was reached when The Nedbank Group became the first bank in South Africa to hit R100 million profit before tax. This was followed by a period of further expansion as Nedbank went international and opened offices in New York in 1983 and, in 1984, in Jersey, Hong Kong and Grand Cayman. At this time, Nedbank also established a

banking company in Zurich, Switzerland.

1986 saw the resumption of acquisition and merger activity and The Nedbank Group bought Finansbank Limited and created Nedbank Investment bank (NIB). Also in 1986, a merger of subsidiaries saw the Cape of Good Hope Bank become part of The Nedbank Group Limited. At this time there was a significant development in the ownership of The Nedbank Group that would have far reaching implications and alter the course of the Group's fortunes and result, ultimately, in the organisation known as Nedcor Ltd today. At this time Nedbank was experiencing financial difficulties due to its considerable exposure to clients that went bad, and this precipitated the intervention of government to prevent the collapse of the Nedbank Group. The government granted a concession to the then mutual fund, Old Mutual, to acquire 53% of the equity in Nedbank Limited and inject much needed capital into the group.

By 1987 the Nedbank Group was a diversified financial services group that had grown through mergers and acquisitions, and some help from Old Mutual, to consist of Nedbank, Nedfin, UAL, Syfrets, Finansbank, Nefic, NedTravel, World Travel, Secured Investments, NedFactors, and Minets. At this time the circumstances of the 1986 'rescue' by Old Mutual, and market and competitive pressures, precipitated a shift in focus from growth through acquisitions and mergers to organic growth through a focus on core activities and improving the delivery of value to customers.

Over the next six years Nedbank opened its first drive-in ATM in Cape Town. By the end of the 1988 it had 770 retail electronic banking terminals in operation and the number of ATM cards in circulation rose to 213 000. Two years later Nedbank and Permanent's combined ATM network was the largest in South Africa. During this period, Nedbank in association with the World Wide Fund for Nature (WWF), launched The Green Trust; NedEnterprise became operational, providing finance to small and medium enterprises; and NedTravel Group Holdings became the second largest travel group in South Africa and a wholly owned subsidiary of Nedcor Limited.

Between 1992 and 1997 a number of internal consolidations and reorganisations took place with the intention of streamlining operations and improving service delivery.

Nedfin, Permanent and Nedbank, together with their support divisions, became known as Nedcor Bank Limited, a wholly owned subsidiary of Nedcor Limited, Finansbank merged with Nedbank Financial Services Division to form Financial Services Division, Nedfin Bank became Nedbank Commercial Division, Financial Services Division changed its name to Nedbank Investment Bank Division, and Syfrets merged its activities with those of UAL and Nedbank Investment Bank to form Nedcor Investment Bank.

The improvement in service delivery went ‘hand-in-glove’ with initiatives to segment and target specific markets with tailored service offerings, and in April 1995 the Permanent split its operations into two separate banks of equal status, namely Permanent Bank and Peoples Bank and the two banks, with new logos and corporate identities, were launched to target specific segments of the market. At this time, The Sports Trust and The Arts and Culture Trust were formed, and full transactional banking was made possible via the internet using NetBank.

This customer focused activity set the stage for a period of unprecedented success in the fortunes of Nedcor. The organisations share price went from R65 in 1996 to R171 in 2000 and its net asset value per share at book from R24.75 to R66.58 over the same period. However, this type of momentum was difficult to sustain as competitor banks caught up to the market innovations and branding that Nedcor had developed, and in its efforts to seek competitive advantage it seems Nedcor turned inwards and focused on technology as a potential source of competitive advantage. The rationale for this shift was that the low cost producer and the developer of technology based innovation would enjoy competitive advantage over the next number of years. At the same time, and in an effort to achieve greater focus, Nedcor was consolidated around its core business activities and, to achieve some economies of scale, Nedbank Private Bank and Syfrets Private Bank were merged to create the largest private bank in South Africa. This strategy also resulted in the sale of NedTravel to Tourvest.

By the year 2000 it seems as if customer centric initiatives had run out of steam and Nedcor returned to its old ways of growth through acquisition and merger. Over the next three years it acquired the legal practice of Edward Nathan and Friedland and

made an unsuccessful bid for Standard Bank Limited. It did, however, acquire FBC Fidelity Bank Limited and merged the operations of Permanent Bank and Old Mutual Bank to form a new banking operation that was focused on wealth management and financial planning. The merged operation entrenched a move towards custom-built bancassurance institutions and, in this case, the initiative was focused on the retail middle market in South Africa.

In 2002, the High Court gave its approval for another highly significant event to take place - the Nedcor / Board of Executives (BoE) merger. This meant that the formation of one of South Africa's leading banks, with assets of more than R270 billion, became a reality. The merger had a number of strategic implications for both organisations. For BoE, it offered them an opportunity to overcome the financial problems it was experiencing and continue a long tradition of wealth management banking excellence with a personal service touch. For Nedcor, the financial expertise, quality and personal service orientation of BoE's people will add a dimension to its client offerings that had been lost in its focus on growth through acquisition, consolidation, the development and application of technology, and becoming the low cost producer – a client focus and personal touch.

On 1 January 2003 the new Nedcor Group was formed consisting of Nedcor, BoE, NIB and the Cape of Good Hope Bank. New management structures, that are intended to facilitate operational focus but also leverage the infrastructure and client base of the Group, became effective. The group now has banking licenses for Nedbank, Peoples Bank and Imperial Bank in South Africa, Gerrard Private Bank in the United Kingdom and several licenses in the rest of Africa and the Middle East.

#### *4.2.2 The Operating Environment: Uncertainty Profile*

The old adage “money makes the world go around” is particularly relevant for financial services organisations and, in particular, those in the banking sector. In good or bad economic times banks will always be at the centre of economic activity and will always have a role to play. What is important though, is how the Banks and financial services organisations respond to the challenges issued by these economic cycles, how they build

sustainable competitive advantage for good and bad times, and how they generate value for their stakeholders regardless of the economic situation.

The past three years have seen a period of enormous upheaval for financial markets, with a considerable impact on the sectors of the market in which Nedcor operates. From an economic perspective, global productivity and consumption is still weak and stock markets around the world, seemingly near the bottom of the cyclical downturn, are languishing. Most importantly, the behaviour of consumers, particularly in the US, does not reflect the economic conditions and may hide some economic adjustments that are still to come.

According to Nedcor (2003a), one lesson from the bursting of the dotcom bubble is that as soon as the cost of capital becomes meaningless, the allocation of capital and resources gets distorted. A similar distortion may well be under way in the US consumer market where, owing to unsustainable low borrowing costs and fuelled by fiscal expansion, consumers remain relatively buoyant despite low savings and massive debt.

Another consumer-related challenge lies in inflated property prices, especially in the US and Europe, that have been driven by the abnormally low cost of capital. History has shown that property prices follow stock market trends and, as the economy starts recovering and the demand for capital increases, the cost of capital will increase. This will adversely affect the ability of consumers to meet mortgage debt and there will be a resultant adjustment in property values. This has a knock-on effect and there should be some concern that any downward adjustment in property values could have a dramatic impact on consumer behaviour as consumers see their wealth dissipating.

While the global economy showed some consolidation in 2002, there is no obvious locomotive for growth in 2003. US consumers, supported by their government's willingness to tolerate a significant trade deficit, have been driving global economic growth to a large extent. With the US showing no signs of growth, and the European and Japanese economies not displaying the expansion necessary to assist in the stimulation of the global economy, the outlook for the next few years is not promising.

To some extent South Africa has been insulated against these global trends, showing better growth over the current cycle than many developed countries. This was mainly the result of:

- The major currency depreciation in late 2001;
- A significantly improved export performance, supported by the currency depreciation and productivity improvements; and
- Good performance in the tourism industry, helped by the perception that South Africa is excellent value for money and events such as the World Summit on Sustainable Development.

The outlook also appears reasonably positive. Interest rates and inflation should fall, significant plans for capital formation in many industries have already been announced, and a further fiscal boost will flow from the dividends of good public finance management. However, if the current slowdown in the world economy persists, the rand's recent strength could begin to impact negatively on exports, bringing SA back into line with global trends.

For the banking industry this has also been a year of major upheavals. The market adjustments referred to earlier, on the back of the depressed mood as a result of the events of 11 September 2001 as well as the ensuing corporate governance scandals, gave rise to a lack of business confidence that had a much wider economic impact than just on stock exchange values. With financial services being such an integral part of the economy, these adjustments had a major impact on banks: firstly on their access to capital; and secondly through the effects on their clients and markets.

The global and local economic conditions caused a 'flight to quality' by consumers in South Africa, and forced a major restructuring of the local banking industry, especially among second-tier banks. No fewer than 50 banking licences were cancelled, either through consolidation or voluntary termination. Nedcor's low-risk strategies, based on the concept that the low-cost producer will ultimately prevail, put the organisation in a good position to participate in the consolidation and future development of the industry.

According to PricewaterhouseCoopers (2003), the dramatic changes of the last couple of years have fundamentally altered the financial services landscape in South Africa. The market is no longer perceived as being overcrowded and there is now concern about the high level of market concentration. The industry consolidation and the ongoing search for competitive advantage in the current conditions has led to a level of competition that is now considered by respondents from the top five banking groups as being intense, especially in the merchant and investment banking and the retail banking sectors.

This has led to scrutiny of current strategy in these sectors and all participants in the South African market have reported that they are continually making changes to their strategies regarding these markets. It is very interesting to note that respondents in the PricewaterhouseCoopers survey saw technology, economies of scale and globalisation as the main drivers of change. This reflects an inward focus on the part of banks and seems to pay little attention to changing market profiles and the search for new markets and ways of delivering value to clients. In fact, respondents to the survey saw the three most pressing issues as profit performance, revenue growth and a distant third being retaining existing clients. This was reinforced by the view in the survey that the biggest criticism of South African banking was poor levels of customer service, high charges and cartel like behaviour.

What is particularly interesting about this economic analysis is that it firstly provides context in that it describes the environment in which local banks operate and, secondly, it illustrates how the fortunes and strategic responses of financial services organisations are intimately linked with what happens in the local and global economy. In terms of complexity and uncertainty, this would indicate that the conditions under which financial services organisations must operate, from a global perspective, are highly complex and uncertain – at least level 3 or level 4 uncertainty. Certainly, on a global scale, there is potential for “A Range of Futures” for the financial services market, and PEST, market and competitive factors could take the industry in any one of a number of directions.

However, this uncertainty is largely mitigated by the industry structure and market positions that the South African financial services organisations hold, and the fact that financial services are essential in good and bad times. To illustrate this, it is felt that the South African banking market is over regulated and the influence of the big four banks on the regulatory framework works to the disadvantage of other banks. The position of the major South African banks is further reinforced by high barriers to industry entry, and there are also onerous endowment capital requirements. As such, the South African banking industry operates as an oligopoly.

Given that the financial services organisations, especially the big five together with the Reserve Bank in South Africa, have the ability to stabilise and, to a degree, control the environment, the level of uncertainty that the larger banks face is probably a 2 on the Courtney *et al* (1997) scale: “A Few Alternative Futures”. Level 2 uncertainty leads to the situation where the future can be described as one of a few alternative outcomes, or “discrete scenarios”. Analysis cannot identify which outcome will occur but it can help to establish probabilities for each of the outcomes. A classic Level 2 situation is where the possible outcomes are discrete and clear, it is difficult to predict which one will occur, and the best strategy depends on which one does occur. At Level 2 the primary uncertainty arises in oligopoly markets where strategic decisions are contingent on the actions of competitors.

#### *4.2.3 Organisational Analysis: Systems and Learning Profiles*

##### *System Profile*

Nedcor Limited, in all its forms since it was established in 1951, has operated as a financial institution within a PEST and regulatory framework, and has been open to the market and competition. While Nedcor can be described as a system, it also exists as a part of a larger system that is Nedcor’s operating environment. Inputs and outputs have flowed relatively freely between Nedcor and its operating environment since 1951 and, as a result, Nedcor can be formally defined as an open system. However, open systems theory is based on the proposition that change is generated externally, as the system adapts to its environment, and therefore does not allow for proactive internal



development. This is clearly not the case with Nedcor, and it is necessary to refine the description of Nedcor in terms of the cultural systems metaphor.

The open system view treats organisations as if they are organisms with psychological and social needs and abilities. The open system is a complex network of elements and relationships that interact, forming highly organised feedback loops, and existing in an environment from which it draws inputs and to which it dispenses outputs. As such, an open system is self regulated, importing energy to maintain a steady state – unlike a machine system that is closed and degrades through wear and tear. This ability to ‘self regulate’ makes survival and adaptability key concepts of open systems.

Open systems promote responsiveness and change within organisations and are suited to complex environments with fluid market dynamics and / or with a variety of competitors. Open systems work well where there are open relationships within changing and evolving environments that are characterised by the shifting needs of people, but open systems do not recognise that organisations are socially constructed phenomena that must be understood from the point of view of the people within them. As such, this view emphasises harmonious relations between the parts when, in organisations, they are often conflictual and / or coercive and are governed by the organisations culture.

When one looks at the open system through the lens of culture, it enhances understanding of the system or organisation being studied. The cultural system metaphor is best understood as the often unspoken but familiar ways of thinking and acting that exist in all firms and enterprises. As such, culture is a shared reality, or a socially constructed reality (of values and beliefs), that deems certain social practices to be normal, acceptable and desirable. Culture is important in all organisations because it determines how the organisation will react to change and what change will be considered feasible. As such, culture can act as a restraining force or as a force for innovation and evolution.

While there can be little question that the current system (a blend of open and cultural metaphor) has worked for Nedcor up to now, from Nedcor’s perspective it is necessary

to establish if the blend of the open system and the cultural metaphor is appropriate for the environment in which Nedcor will operate in the future. Furthermore, it will be necessary to establish if the current culture within the open systems view is appropriate for the strategy that Nedcor has adopted, or if the culture is limiting the ability of Nedcor to respond effectively to changes in its environment.

While the focus of inquiry for the dissertation was on the strategy process, interviews and discussions surfaced a predominantly planning paradigm for the formulation of strategy. This would indicate a cultural predisposition within Nedcor for analysis, prediction, planning and control, and this would be supported by the system that underlies operations at Nedcor. As we have seen above, this is appropriate for level 1 environmental uncertainty, is less appropriate for level 2 uncertainty, and can become a recipe for organisational disaster at level 3 uncertainty. Within the historic and current relative stability of the South African financial services environment, which has probably moved from level 1 uncertainty to level 2 uncertainty over the past 20 years, the system and culture that supported this cultural disposition would prove to be robust.

However, if it is the view of Nedcor that the next five to ten years would see increasing uncertainty and complexity in the South African financial services environment, it may be in the best interests of Nedcor and its stakeholders for Nedcor's organisational systems and culture to be reviewed and changed. Specifically, strategy formulation and implementation that emphasised adaptability, organisational evolution, strategic conversation and organisational learning would have to be introduced, and the planning and control paradigm that currently exists would need to be discarded.

According to the systems view of life, the spontaneous emergence of order and the dynamics of the constant structural changes that are characteristic of all living systems, of which Nedcor is one, are the phenomena that enable the process of learning. Moreover, according to Fritjof Capra *"we have seen that the creation of knowledge in social networks is a key characteristic of the dynamics of culture."* Combining these insights and applying them to organisational learning allows us to clarify the conditions under which learning, knowledge creation and organisational evolution takes place.

This will provide the essential guidelines for the management of complexity and uncertainty at Nedcor.

### *Learning Profile*

While the focus on learning in Nedcor is primarily at the individual level, extensive learning at the organisational level also takes place through the small task groups that are constituted to resolve particular organisational issues. These issues can take various forms and range from considering strategy and strategic responses, through to the formulation and implementation of strategy, and the establishment of project teams to deliver on specific initiatives. This learning profile reflects the culture of analysis, planning and control discussed above, and provides a good indication of the mental models that drive behaviour in the banking environment.

The mental models within Nedcor appear to come from the long tradition of trust, security, structure and order that characterises successful firms in the banking industry, and the fiduciary nature, accountability and emphasis on control that comes from the many chartered accountants that occupy senior management roles in Nedcor. This is reinforced by the regulatory environment and the general nature of the industry. It is interesting to note that the approach to the development of strategy, the type of communication that is encouraged, and the co-ordination and control systems in place reflect these mental models. Strategy follows a formal planning process, structure is business unit / functionally orientated, there are formal and structured communication and feedback systems, and there are formal and informal rules governing behaviour - and these rules are strictly observed.

The dominant mental model in Nedcor is loosely premised on the classical scientific management theory of Taylor, and is characterised by an emphasis on 'cause and effect' thinking and analysis, prediction, planning and control. These mental models limit the ability of organisations to develop appropriate responses to different environmental contexts, and can severely inhibit the ability of organisations to respond to complexity and uncertainty in the environment. Obviously, the potential for organisational evolution and change is therefore considerably reduced. This mental model, in

conjunction with the current banking / financial services context, has predisposed Nedcor towards learning models that are primarily linear and that situate the learning process outside the control of the learner. In this environment, individual learning is separated from organisational learning which tends to occur within the boundaries of the stated organisational objectives.

Situated learning theory and critical theory provide some insight into the Nedcor learning environment. According to these two theories, learning takes place when learners place themselves in 'communities of practice' where they learn the language, values, attitudes and practices that are necessary for participation in a particular community – in this case Nedcor and the banking industry. The theory states that this type of learning can be limiting in that the individual may be confined to a particular community context, may be subject to power relationships that exist in this environment (through the values and assumptions of the powerful in this community), and may be focused on the community rather than embrace a more holistic view that accounts for the environment in which the community is situated. Critical theory goes a bit further and suggests that there is a sociocultural context within which learning takes place, and organisations, in this case Nedcor, privilege certain knowledge and behaviour thereby creating power relationships that affect every learning context.

From an individual perspective, two theories describe the learning experience in Nedcor. Behaviourist theories (the main aim of learning is to change behaviour) where Nedcor acting as teacher, controls the learning process by selecting the stimuli and reinforcing the required responses. This is evidenced by the 'formal and structured communication and feedback systems, and the formal and informal rules governing behaviour' and the fact that these rules are strictly observed. In these situations, the learner is passive and only the 'right' response is rewarded. This essentially linear process of learning limits creativity and stifles innovation – something Nedcor does not want as it faces a world of increasing complexity and uncertainty.

The second theory, which is applicable to the work activities of the accountants and bankers, is the cognitive theory. Intelligence, as the basis for learning, is central to this theory, as is the active engagement of the mind in processing data, managing

perceptions, developing memory and facilitating insights. Although the learner is active rather than passive, the learning activity is bounded by the structure and sequence of the knowledge. The cognitive theories dominate 'traditional' or environmental strategy formulation, based on analysis, planning, prediction and control, and result in linear outputs influenced by past experiences.

In essence, both organisational and individual learning within Nedcor is constrained by the mental models, learning models and organisational culture that characterises the banking industry, the traditions and attitudes that have made Nedcor what it is today, and the profile of the employees in Nedcor – many of whom have been with the bank for most of their working lives. It became apparent during the interview process that these mental models have led to a situation of 'group think' in that a number of responses during the interview process seemed to have been 'conditioned' and were the product of identical thought processes. Much of the thinking also reflected a rationalist response to the environment and a lack of thought, reflection and innovation around business and organisational issues. This appeared to be because of the structured nature of individual and organisational interaction and the learning models in place, and should raise concerns around the ability of Nedcor to adapt to changing environmental circumstances and new contexts, and evolve in accordance with environmental circumstances.

#### *4.2.4 Current Strategy Paradigms and Processes*

According to Richard Laubscher (Nedcor, 2003), *"during the year under review the SA banking industry experienced a period of intense consolidation. Some banks disappeared completely from the scene, some were sold off piecemeal to various players and others handed back their banking licences, essentially leaving the five big local banks and the internationals to carry on business in 2003 and beyond. 2002 also saw a number of international banks retreating from SA. This consolidation was driven by banks' need to achieve scale, critical mass by product and segment, lower unit costs, and the geographical spread that sheer size allows. This is what we had in mind and are currently achieving with the Nedcor BoE merger, which was the dominant event for the group in 2002."*

This statement reflects the umbrella strategy that Nedcor developed to guide the activities of Nedcor into the future. In essence, the strategy is premised on two driving forces, which Nedcor describes as scenarios, that will shape the industry:

- The financial services industry is over-banked and will consolidate; and
- Technology will drive growth and profitability through enhancing efficiency and leveraging economies of scale and technology to reduce costs.

This umbrella strategy was developed some time back and recent events, as described by Richard Laubscher, have proved its validity and effectiveness. However, the background review (section 4.2.1) above provides some evidence that industry consolidation is cyclical, and that technology introduced disruptive change that provided Nedcor with some competitive advantages (through the development of new products and channels, new revenue streams, improvement in operational efficiency, and the reduction of costs) is no longer disruptive. It would therefore seem that a consolidation strategy is *'ho-hum'* and a technology strategy, based on current technologies and technology trajectories, has run its course as a source of competitive advantage.

The question that this poses is “what strategy and process is in place to identify and exploit the opportunities that will arise out of the next disruptive change? And what is the next disruptive change likely to be?” Pieter Dirk Uys, the South African playwright wrote a play called “Adapt or Die” back in 1981. While the content of the play was political satire, the title of the play gets to the heart of evolutionary theory (as applicable to living organisms as it is to organisations) which proposes that organisms or organisations that are not suited to the environment in which they exist will simply cease to exist. Nedcor have adapted to the current environment but will they adapt to the new environment? And what shape and form will the new environment take?

Following the interview process, it was possible to identify the context and assumptions that have been made about banking in South Africa by the management and staff of Nedcor, and it is against the background of the following assumptions and context that the current strategy formulation process takes place:

- The assumption is that South Africa is small and over-banked. Whether this assumption is correct, given that the majority of South Africans do not use banks, is a moot point.
- Competitive moves within the banking industry in South Africa are transparent, and competitive differentiation is primarily based on brand, product, channel and technology. While competitive advantage based on product and channel has a short lifecycle, the technology advantage has a longer life cycle.
- The banking industry is mature and is characterised by growth through acquisition and merger, gains and losses in market share, and profitability through consolidation, rationalisation and cost reduction. There is a lack of true innovation other than in the technology domain.
- Banks are few, large, and individually and collectively shape the industry. They *are* the industry and if one is affected, they will all be affected in the same way.
- Uncertainty within the industry is low and the possibility of being “blind-sided” by discontinuous change and environmental uncertainty is seen to be unlikely.

While these assumptions narrow organisational thinking about strategic issues and predispose strategy content, they do provide a basis for strategy formulation. At Nedcor the process that delivers strategy, based on these assumptions, has been identified as being both informal and formal and rationalist in nature. The informal process involves the executive and senior management layer of Nedcor in strategic conversations that are generally unstructured and take place at informal venues. These conversations sometimes result in views of the future, ideas and approaches that are introduced to the organisation (other corporate executives and the business unit executives) through informal discussions and meetings. If these views, ideas and approaches are found to have merit, they are formalised and introduced to the Nedcor strategy thinktank (Nedcor top 40 leaders) that takes place three to four times per year and the idea is debated and structured. The structured concept will then be taken back to the organisation and tested, and formal and informal feedback will be given that results in the process beginning again. At each iteration the concept is refined, accepted or rejected. This process was responsible for the formulation of the umbrella strategy that currently provides strategic guidance to the business units at Nedcor.

The two driving forces within the Nedcor umbrella strategy have been called scenarios by the management of Nedcor, and while this terminology is perfectly acceptable in terms of the dictionary definition of scenarios, it fails to capture the essence of scenarios and scenario planning as discussed in *section 3.6.6: "Scenario Planning, Learning, and the Art of Strategic Conversation"*. As such, it loses many of the benefits of a sound scenario planning application such as 'out-of-the-box' thinking, the richness of an informed strategic conversation, and the individual and organisational learning and alignment of ideas that takes place. However, in the Nedcor context, it is very useful for informing the formal strategy process.

The formal strategy formulation process draws on the environmental view of strategy, and is a blend of the design, planning and positioning strategy perspectives. However, the planning school is predominant when it comes to applying the strategy process. This formal process has been adopted by the majority of business units and the umbrella strategy is used to inform and guide strategy formulation within the environmental paradigm. Unfortunately, the umbrella strategy has been accepted as having the force of law and, as such, the benefits of the informal strategy process are lost in the disconnect between corporate and the business units. What is of great concern is that the business units (specifically middle management and lower level employees) are at the market, customer and competitor interface, and this rich vein of information, knowledge and learning is lost to the executive who carry responsibility for the formulation of the umbrella strategy, and the business unit senior executive who have to implement the strategy.

Strategy at business unit level manifests through a process of digesting the guidelines of the umbrella strategy, deep analysis of PEST, market and competitors, an extrapolation of the results over the planning horizon where a future state of the environment is predicted, an identification of the type and shape of the organisation that will 'fit' the environment, and the development of detailed plans and budgets to build and maintain the identified organisation. As such, strategy in Nedcor is formulated and implemented "top-down" with the minimum of input from people at the customer interface, and with senior management as the primary drivers of change. It is prescriptive in nature, since the market interface has to implement but has no say in formulation, and is orientated



towards planned strategy as opposed to allowing strategy to emerge as circumstances dictate.

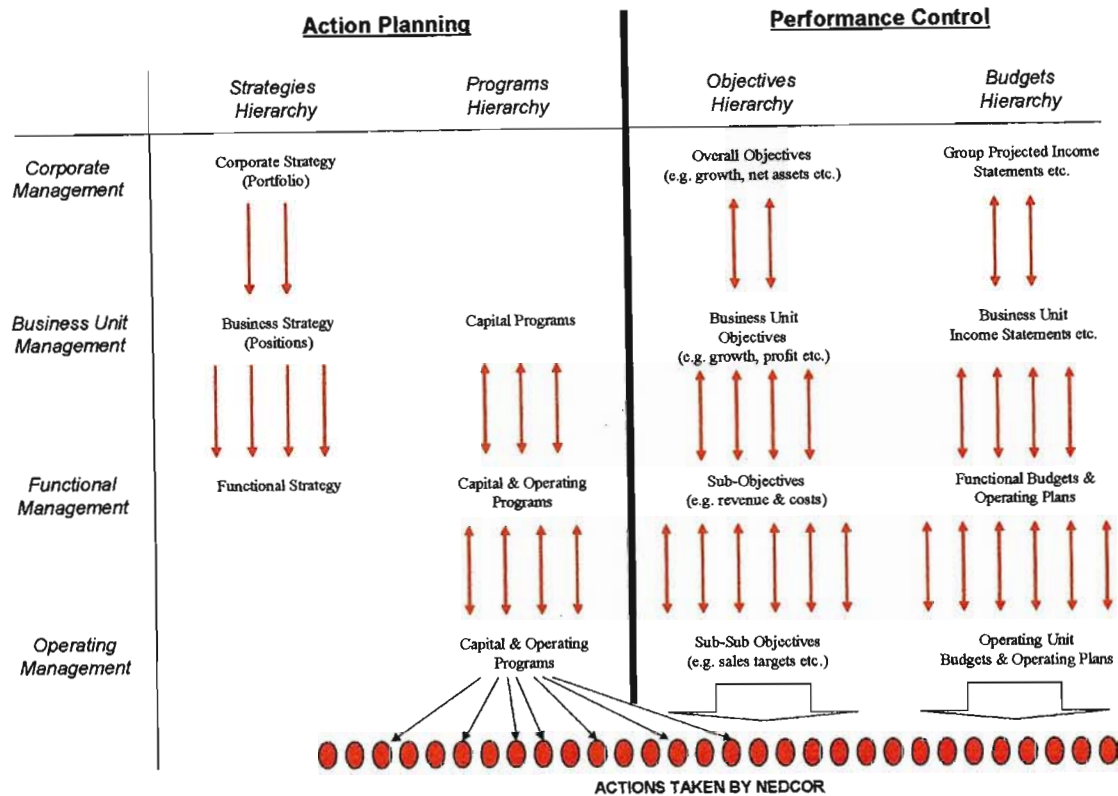


Figure 11: The Strategy Planning Hierarchies at Nedcor

Source: Mintzberg et al (1998). *Strategy Safari*, p56.

This approach to strategy formulation, known as the environmental view of strategy, suffers from a number of drawbacks which Nedcor will need to factor into their strategy process:

- To engage in strategic planning an organisation must be able to predict the course and future shape of its environment and it must either be able to control it or assume its stability. Otherwise, it makes no sense to set an inflexible course of action that constitutes a strategic plan. While certain patterns and trends may be predictable, the forecasting of discontinuities, such as technological breakthroughs, wars, political shifts, social shifts or, mundanely, price increases, is practically impossible. Nedcor will need to be very clear on how stable the operating environment is, or what degree of control they have over the environment.
- Generally, it is very seldom that management is intimately involved in the operational processes or immersed in the details of the task. This lack of involvement means that a whole body of strategic insight is obtained second hand,

or ignored, since most strategy is formulated at the executive level. The Nedcor process will need to be adjusted to facilitate input from the market interface, and to eliminate any disconnects between corporate and business units.

The focus of the dissertation was on the strategy process, but the interviews and research surfaced a number of content and implementation issues that inform the strategy process, and highlight the potential in the use of alternative strategy paradigms and frameworks. Perhaps the single largest content issue relates to the lack of a client orientation. It is significant that the period of Nedcor's best performance was the result of a client centric approach that focused on providing value to clients through more convenient banking, cheaper transaction costs and a host of brand building value-add activities such as the link to the WWF, Arts and Culture and Sport. These value-add activities provided additional meaning to the banking relationship for clients.

A second content issue relates to the input into the strategy process from the client interface. Currently the client interface is driven by a technology and rules based culture which provides little latitude for the interface to deal with client problems that deviate, however slightly, from the rule structure. Furthermore, the level of competence of the people at the interface is low because there is little or no need for them to make decisions and learn from the consequences of these decisions. This has a number of detrimental impacts on Nedcor:

- Clients are alienated and lose any sense of loyalty they might have to Nedbank. Furthermore, the client relationship is compromised and this, in turn, compromises client retention and development strategies.
- Because of the poor quality of people at the client interface, relevant and useful information from the client interface is not being fed back into the organisation. As a result, neither the individual nor Nedcor learn anything from the client interface. This has a severe negative impact on the quality of client related strategy that is formulated in Nedcor.
- There is the perception, within Nedcor, that the internally focused Technology & Operations (T&O) organisation is driving the delivery of value to clients of Nedcor rather than the client interface, who are focused on the client, and who build client relationships.

It would seem that the recent success of Nedcor was built on an awesome ability to implement strategy and to manage strategic change. The foundation for this lies in a culture of change, a project management orientation, and strong project related skills. The “funnel and gates” approach to prioritisation and the acceptance or rejection of projects looked to be extremely effective and provided a sound foundation for project delivery.

While these abilities facilitate adaptation and organisational evolution in the face of complex and uncertain environments, they currently reside within T&O and are not present to the same degree in the external delivery business units where, paradoxically, they are most needed. Furthermore, strategy seems to be driven by the inwardly focused T&O organisation, perhaps because of the umbrella strategy that states that the successful bank of the future will be technology driven, but this raises one fundamental question: are T&O driving delivery of the right strategies?

#### *4.2.5 Opportunities and Issues*

There can be no question that the assumptions Nedcor makes regarding its operating environment is limiting its thinking regarding the opportunities and threats that will present themselves in the future. These assumptions create a mental model in the minds of Nedcor management and employees and these models will be used to filter all information that is received. Furthermore, all strategic initiatives will be bounded by the thinking and perspectives contained in the mental model. The first step to remedying this situation is to change the current assumptions and mental models that exist in Nedcor, and build an inclusive and exploratory strategy process that recognises the fact that the environment will be characterised by continuous change and increasing complexity and uncertainty.

A starting point for Nedcor would be a review of how strategy is developed in the light of the benefits that could accrue to Nedcor by embedding scenario planning in the strategy formulation process. Scenario planning will help Nedcor structure their perceptions about the alternative future environments in which their decisions, both

current and future, might be played out. This will be based on a set of scenarios or stories about the way the world might turn out tomorrow, and these stories will help Nedcor recognise and adapt to changing aspects of their present and future environment. Essentially, scenarios will provide Nedcor with a range of possible views of the world that will provide a context in which the executive and management of Nedcor can make decisions. By seeing a range of possible worlds, decisions will be better informed, and a strategy based on this knowledge and insight will be more likely to succeed.

The appropriate application of scenario planning often results in greater clarity and a better informed point of view on the potential shape and characteristics of the future external environment. This is based on the individual and organisational learning that takes place through the medium of strategic conversation, the alignment of views amongst actors in the conversation, and the constantly evolving mental models of decision makers in the organisation. As such, scenario planning enhances the resource based view of strategy through providing direction for the acquisition and development of resources, competencies and capabilities. Most importantly, the resource based view will help Nedcor to adapt to the future as it occurs rather than set a course for the wrong future and end up with an organisation that is not appropriate for the future environment in which it will have to operate.

Furthermore, there are aspects of the resource based view of strategy that are highly relevant for strategy content especially with regard to the market and client interface. The resource based view of strategy has its roots in the “living systems” view of the universe, and is based on the resource bundles needed to be deployed to achieve or protect product and market positions. These resource bundles, or assets, take the form of market resources, functional capabilities and integrative competencies and, in the case of capabilities and competencies, are rooted in people. The key to the resource based view, and the reason it is particularly suitable for Nedcor’s situation, is that it substantially enhances the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing markets and client needs. The success of the resource based view in complex and uncertain environments lies in its emphasis on firm flexibility, adaptation and constant evolution in response to the changing shape

and requirements of the operating environment. This is facilitated by an organisation that emphasises dynamic capabilities, and promotes individual and organisational learning, innovation and the development of functional capabilities and integrative competencies, all of which are necessary at the client interface for retaining existing clients and attracting new ones.

#### 4.3 Case Study 3: Datatec Ltd

Datatec is an international networking and IT services group with operations in Europe, North America, South America, Africa, Middle East and the Asia Pacific region. Listed on the Johannesburg Securities Exchange (JSE), the Group generates more than 95% of its revenue in foreign currency outside of South Africa. The company positions itself as an IT Group focusing on investing in and developing lines of business which are complementary to its positioning as a networking and integrations service provider. Datatec's current annual revenue exceeds R20billion per annum and it employs more than 3 800 people around the world.

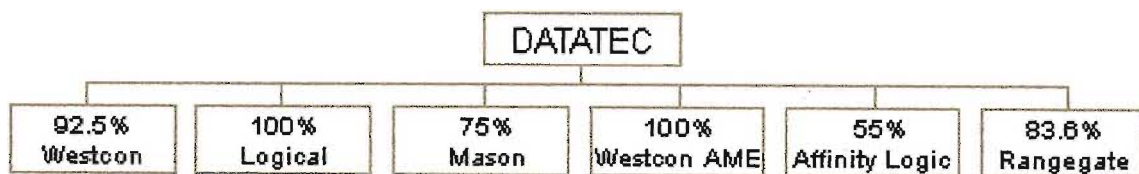


Figure 12: The Datatec Corporate Structure

Datatec provides active management support in the strategic direction and operations of its subsidiaries and has three principal lines of business which generate approximately 95% of the turnover:

- Westcon, based in New York, is a global channel provider of advanced networking, security, data and voice communications and convergence products and the largest distributor worldwide of equipment in this sector. The company has operations in fifteen countries.
- Logical is headquartered in Slough, UK and is an international professional services and IT network integration group with operations in ten countries.

- Mason is a strategic telecommunications consultancy headquartered in Manchester, UK. The focus of Mason's activities is on UK and European clients.

The Group also has similarly focused operations in South Africa producing approximately 5% of the group's turnover. These operations are Westcon AME, Affinity Logic and RangeGate.

#### *4.3.1 Background*

Datatec was founded in 1984 as an information technology company that was focused on the connectivity and networking market. Over the next ten years it grew substantially, consolidated its operations, and in 1994 listed on the Johannesburg Stock Exchange. The first three years as a listed entity corresponded with the start of the information technology boom, and on the back of strong organic growth and extraordinarily high PE ratios, began a period of exponential growth through a strategy of acquisition.

Over a two year period starting in 1997:

- Datatec moved into UK systems integration market and created the Logical brand, in the process acquiring Logical Networks plc and Bluepoint plc.
- Datatec established Web Solution and Training operations in the UK after the acquisition of The Web Factory and Training Solution.
- Datatec moved into France with the acquisition of the Paris based Datalan SA.
- The US distributor Westcon Inc. was acquired creating a vehicle for Datatec distribution on five continents - consolidated under the Westcon brand.
- The acquisition of CNI gave Datatec a foothold in the Australian market.

By the end of 1998, 75% of Datatec's operating profit was derived from operations outside of SA, the group had grown exponentially, and Datatec joined the elite ranks of the JSE All Share Index (ALSI) 40.

The next three years saw a continuation of the strategy of growth by acquisition fuelled by the share performance and PE ratios of technology stocks, but in Datatec's case it was tempered by the first moves to rationalise and consolidate the group. During this time a number of alliances and strategic partnerships were established in an effort to

provide some balance to the corporate portfolio, improve the client offering, create network effects and unlock value in the product-service value chain.

The acquisitions during this period included a 75% stake in Datatec's UK-based telecom consultancy, Mason; 75% of Catalyst It Partners; US-based Puget Sound Systems; Switzerland based Conexus Global Information; the largest Australian Cisco distributor, LAN Systems; the USA's leading Cisco-Gold Partner, AllTech Data Systems; Singapore-based Technocraft; Comstor.net in the US; Conexus in Switzerland; Anite Australia New Zealand; Loginet Netzwerk & Service GmbH in Germany; Bloomfield Computer Network Solutions in US and Satelcom in UK. These acquisitions can be juxtaposed with the sale of Datatec's 76% interest in UUNET SA (Proprietary) Limited to WorldCom Inc. This provided the first indication that Datatec was consolidating the portfolio of investments by disposing of non-core interests.

An interesting aspect of the analysis of Datatec is that a clear distinction has to be made between Datatec corporate and its operating subsidiaries. Datatec corporate is essentially a technology niche market portfolio manager domiciled in South Africa. Its operating subsidiaries are international market facing technology companies delivering value in the form of networking, communication and integration products and services. By 1999, 85% of Datatec's operating profits were generated outside of South Africa, and this was because approximately 85% of Datatec's technology company portfolio was domiciled outside of South Africa. As such, it is somewhat of a misnomer to classify Datatec as a technology company.

By the end of 2000, the dot-com bubble had burst, and portfolio managers, other investors, and technology companies throughout the world had seen billions of dollars lost as technology shares across the board 'tanked'. Datatec shares moved from a high of R146 in 2000 to a low of R5 in 2002. However, the businesses underlying Datatec were focused on a robust sector of the technology market and were able, with considerable adjustment, to withstand the downturn in fortunes of the technology sector and the general recession in the world economy.

2003 was another difficult year for Datatec and the entire technology sector. Continuing depressed conditions in virtually all major economies tested business strategies and the ability of all players to effectively adapt to change and uncertainty in their markets. The industry's response to these circumstances has been a period of rationalisation that has followed what can be described as a 'downward staircase' effect, where companies reduce capacity in steps as market conditions deteriorate. Some have rationalised ahead of changes in demand, while others have been slower to respond.

One of the key determinants of success or failure in this recession is how early and decisively organisations adapted to the changes. Another determinant of success or failure will be the ability of companies to stay the course and to continue managing in accordance with operating conditions. Datatec's response to market changes was earlier and more decisive than many other technology companies, and the results of this can be seen in the Group's strengthening balance sheet and cash position. The Group has continued to focus on optimising the balance sheet and on ensuring that cost-to-revenue ratios are maintained on a sustainable basis.

Datatec has assumed a higher profile and level of activity in the operations of its subsidiaries, providing them with strategic direction and management support. The strategy for the Datatec group has been to place an emphasis on ensuring a coherent and vigorous approach to operational management. This, coupled with the rationalisation and consolidation of the group, will position Datatec for success when the world economy turns around.

#### *4.3.2 The Operating Environment: Uncertainty Profile*

It is extensively documented that the information technology revolution, from the mid 1980s until today, has fundamentally changed the shape and form of human existence. The last twenty years, as a result, has been characterised by greater complexity and uncertainty than any other period in recorded human history. The information technology sector specifically, saw massive disruption and discontinuity, as innovation upon innovation reshaped the industry and all that were affected by it. As with most



cycles, the initial period of innovation is followed by a steep and traumatic decline in activity and then a period of stability before the cycle starts again.

It is difficult to pinpoint when and how the cycle will begin its upswing, but it is Datatec's view that the IT sector still remains challenging in all markets and across all geographies. According to Datatec, *"visibility is limited and any meaningful sign of recovery uncertain."* Macroeconomic indicators are not providing any clarity on the timing of an upturn, and Datatec management *"remains cautious about economic predictions."* It is a commonly held view among IT organisations that, when the economy starts its recovery, growth in the technology sector is going to be on a much more modest scale than that experienced during the late 1990s.

There can be no question that these are uncertain times for most organisations in the technology sector, and Datatec has chosen to manage the risks surrounding the uncertainty rather than initiate activity that could compromise its position in the market. To this end, Datatec has maintained a geographic and strategic spread of assets and maintained a well established skills base. The group is using this period of relative stability to build strength in its balance sheet and cash position in order to position themselves to maximise any opportunities to expand when growth resumes in the IT sector.

Looking systemically at the situation Datatec finds itself in, we can see that there are many, many agents in a system that is completely open to its environment and encompasses a wide range of cultures and markets. The number and diversity of agents in the system cannot be established, and as the known and unknown agents interact and mutually affect one another, the future becomes totally unpredictable. From an economic perspective, the information technology sector was, and still is, free market capitalism in its purest form. Up to the 'bust' in 2000, any number of outcomes could have been produced by the system, but the current period of stability has probably led to a narrowing of the potential outcomes to a definable range of possible scenarios.

Relating this back to the Courtney *et al* (1997) uncertainty matrix, at the height of the information technology 'revolution', environmental uncertainty would probably have

rated a level 4. At level 4 uncertainty organisations are entering the realm of 'true ambiguity'. Multiple dimensions of uncertainty interact to create an environment that is virtually impossible to predict. It might not even be possible to identify all the variables that will define the future and, consequently, the range of potential outcomes cannot be identified. However, these situations tend to migrate to one of the other three levels as the system stabilises and information becomes available. Currently, the level of innovation and turbulence that characterised the 1990s is absent, and the system stability that facilitates the identification of a range of potential futures is present. This would reduce the level of environmental uncertainty to level 3. At level 3 uncertainty it is possible to identify a 'range of futures' that is defined by a limited number of key variables, but the outcome may lie anywhere along a continuum bounded by the range. In this situation there are no natural 'discrete' scenarios.

#### *4.3.3 Organisational Analysis: Systems and Learning Profiles*

##### *System Profile*

Datatec Limited has, since its establishment in 1984, operated freely within a common PEST framework, and has been completely open to the market and competition. While the entity Datatec can be described as a system, it also exists as a part of a larger system that is the information technology sector's operating environment. Inputs and outputs have flowed relatively freely between Datatec and its operating environment since 1984 and, as a result, Datatec can be formally defined as an open system. However, open systems theory is based on the proposition that change is generated externally, as the system adapts to its environment, and therefore does not allow for proactive internal development. This is clearly not the case with Datatec, and it is necessary to refine the description of Datatec in terms of neurocybernetic or viable systems theory, as well as the cultural systems metaphors.

The open system view treats organisations as if they are organisms with psychological and social needs and abilities. The open system is a complex network of elements and relationships that interact, forming highly organised feedback loops, and existing in an environment from which it draws inputs and to which it dispenses outputs. As such, an

open system is self regulated, importing energy to maintain a steady state – unlike a machine system that is closed and degrades through wear and tear. This ability to ‘self regulate’ makes survival and adaptability key concepts of open systems.

Open systems promote responsiveness and change within organisations and are suited to complex environments with fluid market dynamics and / or with a variety of competitors. Open systems work well where there are open relationships within changing and evolving environments that are characterised by the shifting needs of people, but open systems do not recognise that organisations are socially constructed phenomena that must be understood from the point of view of the people within them. As such, this view emphasises harmonious relations between the parts when, in organisations, they are often conflictual and / or coercive and are governed by the organisations culture.

However, there is more to Datatec’s success than the simple reactive nature of the open system. Datatec learned from its environment and applied its learning to constantly innovate and improve its business model. The neurocybernetic or viable systems view therefore seems a more appropriate systems model for Datatec. This view of systems thinking developed in parallel with the open systems view, and emphasises active learning and control rather than the passive adaptability and reactive nature of the open systems view. The neurocybernetic view looks to the brain as a tried and tested control system that depends on the ability to communicate and learn. That is, it can accept dynamic rather than static objective setting and is reflective and self evaluating rather than just self regulating.

The viable systems view is most suitable where the environment is characterised by a high degree of uncertainty, as in Datatec’s case, and it promotes dynamic goal seeking based on learning and a process of self-enquiry and self-criticism. And, most importantly, it promotes creativity and innovation. While acknowledging that this view recognises the importance of people in systems theory, it must be noted that the neurocybernetic system metaphor has a downside: the view also does not recognise that organisations are socially constructed phenomena. This social dimension includes the situations where individual purpose sometimes does not correspond with organisational

purpose, and relationships between people that are characterised by conflict and / or coercion. Furthermore, evolution requires change that would threaten those favoured by the status quo and will be resisted.

When one looks at the open and the viable system through the lens of culture, it enhances understanding of the system or organisation being studied. The cultural system metaphor is best understood as the often unspoken but familiar ways of thinking and acting that exist in all firms and enterprises. As such, culture is a shared reality, or a socially constructed reality (of values and beliefs), that deems certain social practices to be normal, acceptable and desirable. Culture is important in all organisations because it determines how the organisation will react to change and what change will be considered feasible. As such, culture can act as a restraining force or as a force for innovation and evolution.

The question that arises from this analysis is: how relevant is a viable systems / cultural metaphor to the ongoing operations of Datatec? While there can be little question that the system in place has worked for Datatec up to now, it is also necessary to establish if the system is appropriate for the environment in which Datatec will operate in the future. Furthermore, it will be necessary to establish if the current culture within the viable systems view is appropriate for the strategy that Datatec has adopted, or if the culture is limiting the ability of Datatec to respond effectively to changes in its environment.

While the focus of inquiry for the dissertation was on the strategy process, interviews and discussions surfaced a predominantly entrepreneurial paradigm for the formulation of strategy at corporate level. This paradigm has four critical characteristics which also define the culture of Datatec:

- In the entrepreneurial mode, strategy making is dominated by the active search for new opportunities;
- In the entrepreneurial organisation power is centralised in the hands of the CEO;
- Strategy making in the entrepreneurial mode is characterised by dramatic leaps forward in the face of uncertainty;
- Growth is the dominant goal of the entrepreneurial organisation.

These four characteristics perfectly describe Datatec from 1994 to present day. The degree of success achieved by Datatec during this timeframe would indicate that the underlying system, described above as a viable or neurocybernetic system / and cultural metaphor, is appropriate for the strategy adopted by Datatec. Furthermore, it is a clearly stated intention of Datatec to resume their acquisition activities in line with the business model they employed before the dot-com bubble burst. As such, the organisational system will still have validity.

### *Learning Profile*

Within Datatec, the focus on learning is primarily at the individual level. Organisational learning occurs small task groups are constituted to resolve particular acquisition or organisational considerations, but the development of strategy relating to these considerations is not a source of organisational learning. This is because of the organisational culture that develops around the CEO in the entrepreneurial paradigm.

The entrepreneurial paradigm roots strategy formulation in the mental processes of the CEO and emphasises the intuition, judgement, wisdom and insight of the CEO which is manifested in the organisation as vision. The focus of other members of the organisation tends to be the implementation of this vision, and in this respect they react to the CEO rather than interact on strategy and learn. Most organisational learning within the entrepreneurial paradigm therefore takes place around implementation initiatives and issues.

The dominant mental model in Datatec is opportunist in nature and, as such, is comfortable with risk, and will be willing to explore the operating environment for opportunities that will provide growth for the organisation. The operating environment becomes the entrepreneur's domain as he/she directs the organisation into a protective niche. While this constant search for the deal has been successful in the past, one wonders how the mental model this approach creates will cope if the economic downturn is long term. In such a situation Datatec will need to adopt a maintenance strategy that focuses purely on managing the current portfolio of subsidiaries, and not on growth. As such, the entrepreneurial mental model may limit the ability of Datatec to

develop appropriate responses to different environmental contexts, and can severely inhibit the ability of the organisation to respond to complexity and uncertainty in different environments. In other words, this mental model has predisposed Datatec towards specific courses of action, and because organisational learning is not taking place at a strategic level a change in the course of action will be difficult, if not impossible.

Situated learning theory and critical theory provide some insight into the Datatec learning environment. According to these two theories, learning takes place when learners place themselves in 'communities of practice' where they learn the language, values, attitudes and practices that are necessary for participation in a particular community – in this case Datatec. The theory states that this type of learning can be limiting in that the individual may be confined to a particular community context, may be subject to power relationships that exist in this environment (through the values and assumptions of the powerful in this community), and may be focused on the community rather than embrace a more holistic view that accounts for the environment in which the community is situated. Critical theory goes a bit further and suggests that there is a sociocultural context within which learning takes place, and organisations, in this case Datatec, privilege certain knowledge and behaviour thereby creating power relationships that affect every learning context.

From an individual perspective, the cognitive theory of learning best explains individual learning in Datatec. Intelligence, as the basis for learning, is central to this theory, as is the active engagement of the mind in processing data, managing perceptions, developing memory and facilitating insights. Although the learner is active rather than passive, the learning activity is bounded by the structure and sequence of the knowledge. The cognitive theories dominate 'traditional' or environmental strategy formulation. Since the entrepreneurial paradigm is a variation on the design school paradigm, we can see the learning orientation will be based on analysis, prediction and the concept of strategic 'fit'.

Both organisational and individual learning within Datatec is therefore constrained by the mental models, learning models and organisational culture that characterises the

organisation. However, if the global economy improves, the technology industry picks up where it left off, and Datatec follows a strategy of 'more of the same', individual and organisational models are appropriate. However, should the CEO leave Datatec for any reason, and given that, from an organisational perspective, there may have been a lack of thought, reflection and innovation around business and organisational issues within Datatec, there could be a number of problems around the ability of Datatec to adapt to changing environmental circumstances and new contexts, and evolve in accordance with environmental circumstances.

#### *4.3.4 Current Strategy Paradigms and Processes*

At the outset of this analysis, it is important to distinguish between Datatec corporate and the Datatec subsidiaries. As stated above, Datatec corporate is essentially a technology niche market portfolio manager domiciled in South Africa, and its operating subsidiaries are international market facing technology companies delivering value in the form of networking, communication and integration products and services. The focus of this dissertation is on Datatec corporate and not the subsidiaries, but it is worth noting that the subsidiaries follow a rationalist approach to strategy that incorporates the environmental view. As such, the emphasis of strategy in the subsidiaries is on analysis, prediction, planning and control, and it is assumed that this is appropriate for the subsidiaries and the environments in which they are currently operating. It is interesting to note that since the downturn in the industry the rationalist approach has become institutionalised. Perhaps this reflects a desire to regain control over what is felt to be lost?

Strategy in the period from 1994 to 2001 can best be described as opportunistic and driven by the entrepreneurial mental model and approach of the CEO. This approach, however, has been modified as the focus has shifted from group growth to individual management of the subsidiaries. This aside, if results are anything to go by, the opportunistic strategy seems to have been perfectly suited to the environment in which it was applied.

From a strategy content perspective it would appear as though the CEO could do no wrong. First, he went to where the action was: competition was less intense, the market was far bigger, most development was taking place in this bigger market, and there was far more room and scope for a niche player strategy. As such, he used a business model that very effectively exploited the characteristics of the IT boom years. The technology frenzy had resulted in extraordinarily high PE's and good cash flow within the industry, and this provided an opportunity to capitalise on industry growth by growing Datatec through an aggressive and focused acquisition strategy. What is more, the focus on niche markets that enhanced the product and service offerings of major IT players ensured that Datatec would be supported in its strategy. An important spin-off of this business model was that it unlocked value in the information technology value chain by creating and exploiting synergies between niche markets. From the research it is not clear if this strategy was deliberate or intuitive, but it does highlight the importance of the entrepreneurial approach in building companies and industries.

A criticism could be levelled at Datatec that the lack of apparent structure in the strategy could lead to unplanned or unforeseen results. However, this is the nature of emergence and organisational evolution, especially in times of great complexity and uncertainty, and it is evidence that interaction, rather than reaction, with environmental systems is probably the best way of dealing with the vagaries of uncertainty.

It is also interesting to note that the business model used a few very simple rules: the acquisition had to fit into the portfolio focus, it had to be established, the acquisition had to perform or it was discarded, and the acquisition had to fit the risk profile and provide additional synergy to the portfolio. This is evidenced by the geographic spread of investments, the synergies between the investments, and the emphasis on durable technologies. The overall focus was on leveraging the portfolio and unlocking the value in the portfolio. This can be contrasted with Dimension Data Ltd, Datatec's main competitor in South Africa, where the primary focus was on developing positions and competitive advantage in the market.

From the year 2000, a rationalist approach to strategy crept in, and a process of rationalisation and consolidation was initiated with the objective of ensuring the



Datatec group was in a position to ride out the downturn in the IT sector and the global economy. This moved the CEO and Datatec from a transformational approach to leading the organisation, which approach was characterised by explosive growth, to a transactional approach to leading the organisation, and this was characterised by consolidation and stability. In many respects Datatec were ahead of the market in these initiatives, and this provides further evidence of the intuitive nature of the entrepreneurial paradigm. It almost seems as though the entrepreneur is completely plugged into the system in which he/she operates, so that at a cognitive and intuitive level he/she knows what actions should be taken and what the outcomes of these actions and interactions in the system will be.

#### *4.3.5 Opportunities and Issues*

The biggest opportunity and issue confronting Datatec is the entrepreneurial culture that pervades Datatec corporate. It is an opportunity because it can lead to further growth and success in the future and it can, ultimately, lead to Datatec positioning itself as a leading player in the IT sector. The biggest issue is the risk and focus that is associated with this culture.

What is clear from the research is that the drive for growth came, primarily, from the CEO and this drive was based on a vision and business model that was made only partially explicit. This is in accordance with the entrepreneurial model where the entrepreneur has a vision, but the details of the vision are worked out and constantly adjusted as circumstances in the environment dictate. As such, the entrepreneur has a clear goal in mind but retains his/her flexibility so that the steps taken to achieve the goal can be adapted to ensure that the vision remains intact.

The risk associated with this is twofold. First, the CEO may not always be around and his vision, knowledge and drive will be lost to the company. Others, within the company, may not fully understand where he/she is coming from, where he/she is going to, and how he/she intended getting there. This leads to the problem, discussed above, that the entrepreneurial culture is not good for organisational learning and, if the organisation does not learn, it will be very difficult for the organisation to maintain its

momentum when the entrepreneur leaves. This is because the organisation will lose direction and ability to act since it will not understand the vision and context that drives appropriate action in the organisation.

The entrepreneur, moving fast and retaining his flexibility, does not make his vision explicit and explain the context for his/her actions. Since learning takes place within a context and with an objective in mind, in the entrepreneurial environment it becomes dysfunctional. Another aspect to this is the problem of organisational alignment and efficiency. The organisation tends to follow the instructions of the entrepreneur regardless of whether or not they understand why the instruction was given. This has two spin-offs. The employee, not understanding the context or vision behind the instruction, may not always make the best decisions in carrying out the instruction. More importantly, the knowledge and insight the employee could add to both the vision and context is lost, and a less than optimal result will be achieved.

The second risk is that the company may get too big and require that the CEO shifts focus from a transformational leadership style to a transactional leadership style. In practice, entrepreneurs are seldom able to make this shift, and often wind up leaving the company when the shift becomes an imperative. In this situation, the result is the same as discussed above – the vision, appreciation of context, and drive of the entrepreneur is lost.

An extremely useful tool for developing shared vision and context, enhancing individual and organisational learning, developing organisational alignment, and preparing the organisation for the future regardless of what the future will bring is scenario planning. From Datatec's point of view, the appropriate application of scenario planning often results in greater clarity and a better informed point of view on the potential shape and characteristics of the future external environment. And this point of view will be shared rather than exist just in the head of the CEO. The clarity and informed point of view arise from the process and it is based on the individual and organisational learning that takes place through the medium of strategic conversation, the alignment of views amongst actors in the conversation, and the constantly evolving mental models of actors and decision makers in the organisation. An important effect of

this process is that it enhances the management of resources in the organisation through providing direction for the acquisition and development of resources, competencies and capabilities. Most importantly, the scenario approach will help Datatec, as an organisation and not just the CEO, to adapt to the future as it occurs and this will set the stage for an improved and more robust Datatec to emerge from the ashes of the dot-com bust.

## 5. THE CONCLUSIONS

### 5.1 Theme 1: Market Dynamics Shape the Strategic Posture of the Organisation

Businesses exist in a systemic relationship with the markets they target with their products and services. Markets are living systems and, as such, consist of “*networks of processes in which every process contributes*” directly or indirectly “*to all other processes*” in an ever-dynamic structure that constantly seeks its own self-renewal Capra (2002). This living system, the market, will be shaped by its dynamics and characterised by the level of complexity and uncertainty that exists in the system.

A theme that clearly emerged from the research conducted for this dissertation is that complexity and uncertainty in the markets / operating environment of organisations will determine the type and nature of the strategic response from the organisation. For example, an organisation will be inclined to adopt a traditional strategic posture, possibly based on Taylor’s scientific management principles and an environmental view of strategy formulation, where low market and environmental complexity will lead to a stable, and generally predictable, operating environment. We saw this with PBMR. Similarly, an organisation will likely adopt more dynamic strategic postures where complexity and uncertainty in the markets / operating environment is high. In such circumstances one would probably find the use of scenario planning and an emphasis on the resource based view of strategy. Or, as we saw with Datatec, adopt an entrepreneurial paradigm and introduce an entrepreneurial culture to the organisation.

This theme fits with the concepts that underlie evolutionary theory. If the organisation is not aligned with the markets and environment in which it operates, it will become dysfunctional and will probably cease to exist. Conversely, if the organisation is tightly aligned with the environment in which it operates it dramatically increases its chances of success - subject, of course, to the industry structure and competitive environment in which it operates. We saw this with both Nedcor and Datatec.

Understanding the complexity and uncertainty inherent in a market / operating environment is therefore a critical element of any organisational analysis. It is only

through this understanding that it is possible to assess an organisations strategic posture and develop appropriate organisational interventions to rectify the posture.

### *5.2 Theme 2: The Impact of Industry Structure and the Competitive Environment*

Industry structure and the competitive environment have to be seen in the context of Theme 1 above. The systemic nature of markets, operating environments, business entities, competitive environments and industry structures suggests that an established industry would have come into existence because it was aligned with a particular market requirement and operating environment. As such, it will reflect the dynamics of the market it addresses and will play a part in determining the strategic posture of firms within the industry.

It can be argued that some firms in an industry achieve success because they adopt a strategic posture that breaks the industry mould. However, a counter argument would be that it was the existence of the industry mould in the first place that allowed the firm to differentiate itself for success. Interestingly, as we saw in the literature review, the strategic posture and resultant actions of the firm will cause the system that is the industry, the competitors, the market and operating environment to evolve and accommodate this new posture.

This was described by Lewin and Regine (2000): systems consist of a diversity of agents that constantly interact with each other and mutually affect each other. This generates novel behaviour for the system as a whole and can be seen in ecosystems, evolution and the output of the human mind. However, the patterns of behaviour are not constant because changes in the systems environment lead to changes in the behaviour of its agents and, as a result, the behaviour of the system as a whole also changes.

The industry in which PBMR operates is monopolistic. Currently, its main shareholder will also be its biggest client, and the strategic posture of PBMR reflects this. The approach to strategy formulation is strictly rational and deterministic and PBMR's structure and culture mirror that of ESKOM. In this case PBMR is its industry. Nedcor's industry situation is similar but is not nearly as extreme, and Nedcor's strategic posture

follows this lead. The financial services industry is oligopolistic and highly regulated. There is a lack of true competition due to the industry structure (mainly barriers to entry and regulatory restrictions), and the level of uncertainty in the environment is low but higher than in PBMR's current environment. This has also resulted in a strategic posture that adopts a rational and deterministic approach to strategy formulation, as with PBMR, but there is recognition that the future could bring changes that will necessitate Nedcor changing its current strategic posture. This recognition has precipitated the use of umbrella strategy and rudimentary scenario planning.

Both PBMR and Nedcor can be contrasted to Datatec who operates in a very competitive environment that is made extremely complex by the high level of uncertainty that characterises the environment. Datatec has adopted an entrepreneurial strategic posture that is opportunistic and adaptive in nature and draws on some concepts of the environmental school but is firmly rooted in the resource based view of strategy. Both the industry structure (low barriers to entry and limited regulation) and the competitive environment (very competitive) have created an uncertain environment that cannot be managed by the pure application of rationalist strategy and traditional strategy approaches. The environmental view of strategy is therefore blended with the resource based view of strategy and adaptive and evolutionary principles to create a strategic posture that is aligned with the market, industry and competition.

### *5.3 Theme 3: Organisational Determinants of the Strategic Response*

The primary organisational determinants of the strategic response are the cultural and political metaphors for systems theory, the mental models and assumptions that determine behaviour in an organisation, and the learning models that facilitate adaptation and organisational evolution.

The cultural metaphor offers new perspectives on the strategic posture that is adopted, how to effect organisational change, and the value of diverse cultures and beliefs. It also provides insight into how culture, and the management of culture, can have a positive evolutionary impact on organisations and stimulate innovation. Culture is best understood as the often unspoken but familiar ways of thinking and acting that exist in

all firms and enterprises. According to Flood and Jackson (1991: p12) *“culture is a shared reality, or a socially constructed reality (of values and beliefs), that deems certain social practices to be normal, acceptable and desirable.”* Culture is important in all organisations because it determines what strategic posture an organisation will adopt, and how the organisation will react to change and what change will be considered feasible. As such, culture can act as a restraining force or as a force for innovation and evolution.

The cultural metaphor needs to be adapted to account for the effect that politics will have on the culture in an organisation. This effect is described by the political metaphor which sees the relationships between individuals and groups as competitive and involving the pursuit of power. It highlights all organisational activity as interest based and emphasises the key role of power in determining political outcomes. Industrial relations literature and theory states that there are three contrasting views on the character of any political situation and these are labelled: unitary (a team metaphor), pluralist (a coalition metaphor) and coercive (an authoritarian metaphor).

Both the cultural and political systems metaphors lead to the development of individual and organisational mental models that are primarily responsible for behaviour and actions in an organisation. Mental models are deep-rooted assumptions and guiding ideas that exist in our minds and that determine how we interpret circumstances and events around us, that predispose us to expect certain results, and that guide our behaviour and actions. These mental models can limit our thinking because they are the source of perspectives, cognitive filters, recipes and biases, but they can also expand our thinking if the mental model leads to exploration and is open to its environment. Although mental models are generally thought to exist only at the individual level, they in fact also exist at organisational and community levels. As people work together and share experiences, it is inevitable that they begin to develop consensual views of the future. This is particularly relevant in older, larger organisations where success tends to lead to more defined and entrenched mental models. Entrenched models run into problems where the ‘recipe’ may once have been built on ‘rules’ that functioned well but both the rules and recipe are now becoming obsolete.

As discussed in the analyses of PBMR, Nedcor and Datatec, the mental models guiding individual and organisational behaviour in their organisations has been shaped by the dynamics of the market / operating environment in which they were actors. This was modified by the industry and competitive environment in which they found themselves, and was further modified by the individual and organisational learning models that characterised their organisations. As such, the organisations strategic posture was determined by the mental models in existence at the time the organisation was profiled. Given the dynamic nature of living systems, of which we are all a part, these mental models will continually change and evolve as new agents and events are introduced to the system, provided that individual and organisational learning takes place. This learning will generally occur in accordance with one or more of the learning models discussed in *section 3.5 “Learning: Context and Theories”* above.

#### *5.4 The Use of Scenario Planning*

Of the three organisations researched, not one used scenario planning in strategy formulation, and only Nedcor recognised that scenarios could play a valuable role in the development of strategy. However, this view was not held by the Nedcor business units. Nedcor Corporate felt that they were already using scenarios but had not established a formal scenario planning process, and the two business units adopted a rationalist environmental view for strategy that they felt should exclude the use of scenario planning. In the words of one business unit executive: *“scenario planning is all very well when you have control over your own future, but we don’t”*.

It appears, from the research, that there is a lack of understanding of what scenario planning is, what it does for an organisation, and how it can be applied. In addition it was seen as *“another management fad”* that had already *“run its course”* by a number of respondents. What is interesting is that all three organisations share a rationalist mental model, and the ambiguity and sometimes intangible results of the scenario planning process lead to a form of organisational cognitive dissonance that results in a rejection of the process. It would appear, therefore, that a shift in the mental models of predominantly ‘rationalist organisations’ is necessary before a scenario planning process can be successfully introduced. This should become a priority for the three



organisations that were the subject of this research, because the one conclusion that can be drawn from the research is that all three companies would derive considerable benefits from the application of a sound scenario planning process in their organisations.

### *5.5 Scenario Planning in Context*

In order to support the assertions contained in section 5.4 above, it is useful to review the findings on scenario planning contained in this dissertation - specifically, the findings on the benefits of introducing a robust scenario planning process. We can start by stating the scenario planning is an extremely useful tool for developing shared vision and context, enhancing individual and organisational learning, developing organisational alignment, and preparing the organisation for a complex and uncertain future.

Scenario planning can help organisations structure their perceptions about the alternative future environments in which their decisions, both current and future, might be played out. This is based on a set of scenarios or stories about the way the world might turn out tomorrow, and these stories help the organisation recognise and adapt to changing aspects of their present and future environment. Essentially, scenarios provide organisations with a range of possible views of the world and a context in which management can make decisions. By seeing a range of possible worlds, decisions will be better informed, and a strategy based on this knowledge and insight will be more likely to succeed.

The appropriate application of scenario planning often results in greater clarity and a better informed point of view on the potential shape and characteristics of the future external environment. This is based on the individual and organisational learning that takes place through the medium of strategic conversation, the alignment of views amongst actors in the conversation, and the constantly evolving mental models of decision makers in the organisation.

Scenario planning has been around for centuries and has been used very effectively in politics and in military applications, but it has not been well received in the business environment because it has lacked structure in its application, and requires considerable skill to facilitate. However, it is probably the most effective tool we have for managing complex and uncertain environments. In addition, the use of scenario planning does not necessitate the development of completely new paradigms and the learning of new skills because it draws extensively on the concepts and tools of 'traditional' strategy and enhances the resource based view of strategy. From the resource based perspective, an important aspect of scenario planning is that it provides direction for the acquisition and development of resources, competencies and capabilities. Most importantly, scenario planning, on its own and through its integration with traditional strategy and the resource based view, will help organisations adapt to the future as it occurs rather than set a course for the wrong future and end up with an organisation that is not appropriate for the future environment in which it will have to operate.

### *5.6 Future Research*

The rapid and discontinuous change that characterised our world during the last half of the 20<sup>th</sup> century brought with it great complexity and concerns about how we, as individuals and organisations, can manage the resultant uncertainty. Answers were sought in domains as diverse as politics, military strategy, economics and social sciences that would allay these concerns. Eventually, these efforts converged on the business strategy discipline, where the environmental and resource based views of strategy formulation were structured.

The development of these strategy paradigms over the last thirty years happened in parallel with an exponential increase in environmental complexity and uncertainty. The current strategy paradigms, while providing partial solutions to the problems of complexity and uncertainty, still cannot address the issue of the management of uncertainty in the future external environment. Organisations, in an effort to find competitive advantage in a better system to manage the future and its inherent uncertainties, has gone from the interesting (scenario planning) to the bizarre (tea leaf

reading) without finding a definitive solution to the problem. It was against this background that this research was conducted.

The main objectives of this research were to develop an understanding of:

- How organisations manage the uncertainty arising from environmental complexity;
- The extent of use of scenario planning and strategic conversation to facilitate organisational learning, alignment and evolution in accordance with the demands of the markets the organisations address; and
- If scenario planning is not being used, what strategy perspectives have been adopted, and what methodologies are organisations using, to manage uncertainty in the future external environment.

It was intended that this research provide a base on which future research can build new theories around complexity and uncertainty and the approach to managing it. Specifically, future research could address the following areas of strategy:

- A theory base and methodology that accounts for uncertainty in the future external/operating environment and increases the number and quality of strategic options available to organisations;
- The development of decision making processes within organisations that optimise strategy formulation and implementation;
- The organisational determinants of strategic posture in organisations;
- The development of an integrated theory incorporating the environmental view, the resource based view and scenario planning that helps organisations manage uncertainty in the external/operating environment.

This list is not exhaustive, and the potential for further research in the areas of strategic risk, managing uncertainty and complexity, and strategy formulation, driven by informed views of the future, is limited only by the imagination of those conducting the research.

**Appendix 1: The Introductory Letter**

18<sup>th</sup> February 2003

Mr. A. Routledge  
Executive Director: Strategy  
Nedcor Ltd  
135 Rivonia Road  
Sandton

Dear Mr. Routledge

I am currently conducting research for a dissertation on strategy formulation and implementation and would like to include your organisation, Nedbank Ltd, in this process as a research subject. The dissertation will complete the requirements for the award of a Master of Science degree at the University of Natal Leadership Centre, and it explores the strategic response of organisations to complexity and uncertainty in their markets and operating environments. The dissertation title is:

*The Use of Scenario Planning for Managing Environmental Uncertainty*

To provide you with some background on the topic I have attached a document titled "Research Proposal – Summary". This document outlines the context, purpose and approach to the research and provides insight into the benefits for South African organisations and the current body of literature on the subject. In this regard, it is anticipated that the research will provide evidence that the current strategy paradigms are insufficient in times of rapid and discontinuous change, and that a new strategy paradigm needs to emerge.

The research will be conducted using case studies and will focus on strategy process and not content. To do this, a preliminary selection of four organisations from two industries has been made, one of which is Nedbank Ltd. I would like to emphasise that the participation of Nedbank Ltd in this research is entirely dependant on your agreement. However, I believe that the profile of your organisation is a good fit for the objectives and methodology of this research and your participation will add richness to the research results.

To conduct the research I will need a preliminary meeting with you, or a senior employee designated by you, and interviews with between 3 and 8 employees - depending on the outcome of our meeting. This will be followed by a workshop with all interviewees wherein the results of the interviews will be presented, confirmed and approved by Nedbank Ltd. I have attached a document titled "The Questionnaire" which lays out the purpose, method and themes / questions for the interviews for your information.

I will be contacting you, or your secretary, within the next week to establish whether or not you and Nedbank Ltd would be willing to participate in this research and, should you be agreeable, to set up a meeting to discuss the approach and logistics. I do not anticipate this meeting taking more than an hour of your time.

Thank you for taking time to consider this request.

Yours sincerely

Michael Shaw  
B. Comm., MBA (Wits), PDMM (UNISA)

Cell: 082 781 9790  
Email: [mikeandlesleyanne@hotmail.com](mailto:mikeandlesleyanne@hotmail.com)

## Appendix 2: The Questionnaire

**The purpose** of the questionnaire is to identify and record:

1. The process and characteristics of strategy formulation and implementation in the organisation.
2. The use, if any, of scenario planning for:
  - reducing uncertainty about the future external environment,
  - the development of strategic options,
  - developing strategic conversations within the organisation,
  - improving the quality of strategic decisions.
3. The effectiveness of the organisations' approach to strategy formulation and implementation.

**The method** that will be used to extract the relevant information is based on interviews and a workshop:

- An initial interview with the senior executive carrying responsibility for the formulation of strategy in the organisation.
- Between two and six additional interviews with appropriate members of staff.
- Development of a transcript of the interview for agreement by each interviewee.
- Consolidation of all information obtained from observation, the interviews and the review of documentation (where appropriate).
- A workshop for all participants to review, amend and agree:
  - the strategy process,
  - the effectiveness of the process in the organisations' context:
    - managing complexity and uncertainty,
    - surfacing strategic options,
    - quality of strategic decision making,
    - impact on performance and sustainability,
  - the desirability and level of strategic conversation in the organisation,
  - the role of scenario planning, if appropriate, in the formulation and implementation of strategy in the organisation.

**The interview questionnaire** will be used to guide the interview process and promote conversation around the themes of the research:

Prior to the interview interviewees will be asked to consider and reflect on the following themes:

- The formal and informal process of strategy formulation and implementation in the organisation.
- The impact of uncertainty and sudden unexpected changes in the market and operating environment.
- The role of strategic conversation.
- The strategic decision making process.
- The effectiveness of strategy formulation and implementation in the organisation.

At the interview, in a conversational setting, interviewees will be asked to provide narratives around these themes. It is anticipated that this approach will add qualitative richness to the responses of the interviewees.

However, during the interview, it is possible that the following specific questions will need to be asked to elicit information not provided by the interviewees in narrative form:

1. Is scenario planning used in the strategic planning process and, if it is, how extensive and effective is its use?
2. If scenario planning is not used, how is the complexity and uncertainty inherent in the future external environment managed?
3. Is “strategic conversation” a conscious or unconscious activity in the organisation? How does it take place?
4. Do leadership, the organisation and the strategy formulation process encourage “strategic conversation” as a means to “rehearse the future” and encourage organisational learning and flexibility?
5. Describe the formal and informal processes for strategy formulation and implementation in the company.
6. In your opinion, how effective are these processes and what can be done to improve them?
7. How does the strategy process surface the strategic options available to your organisation, and how are these options filtered and translated into strategic initiatives for implementation?
8. Describe the strategy level decision making processes in the organisation. Who is involved?
9. How effective are these decision making processes?
10. What, in your opinion, is the impact of your current strategy formulation and implementation processes on performance, and how sustainable is performance within this context?

**Please Note:** *The focus of the interviews and workshops is on strategy process NOT strategy content.*

**Appendix 3: Dissertation Summary for Case Study Candidates**

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Master of Science Degree in Leadership & Innovation  
Years: 2002/2003

**Research Proposal - Summary****Working Title**

The Use of Scenario Planning for Managing Environmental Uncertainty

**The Problem**

The currently dominant view of strategy is resource based theory. However, in practice, many consulting organisations and their clients make extensive use of the work of Michael Porter, Igor Ansoff and K.R. Andrews – all proponents of rationalist, analytical and, essentially, linear schools of thought on strategy. The current research and literature on strategy reflects this situation. Given the shortcomings of these strategy paradigms, there is considerable scope and opportunity for research and publication that addresses the areas of strategy not covered by these paradigms.

Traditionally, strategy formulation in organisations is based on the acquisition and analysis of historic and current data and trends which are used to project the future state of markets and operating conditions. With this picture in mind, organisations set about creating a new organisation and/or developing themselves to ensure that they are able to compete effectively in this new environment.

This tradition is beset with problems. With the acceleration in change brought about by globalisation, improved communications, and technological innovation, these approaches become insufficient and do not help organisations facing an uncertain future. While traditional approaches dominated strategic thinking through the 1970s' and most of the 1980s', it became apparent that the nature and speed of change demanded a new approach to strategy. This resulted in the birth of the resource based view of strategy which emphasised organisational learning and flexibility as a means to quickly adapting the organisation to changes in the future environment.

This meant that strategy had moved from a historic, linear approach with strategy formulation that included both the internal and external environment, to a future orientated view of strategy that focused on the internal environment. However, strategy needs a future orientated approach that deals with the external environment, that is, it needs to be able to minimise uncertainty in the external environment in a way that



enhances the resource based view of strategy and improves the quality of decisions within the organisation. This research seeks to identify and understand how companies faced with rapid and discontinuous change in their external environment are managing this problem.

### Purpose of the Study

The research problem gave rise to two questions that focuses the research:

3. What are organisations currently doing to manage complexity and uncertainty in their future external operating environments?
4. To what extent, if at all, are organisations using scenario planning as a tool for improving strategic conversation, learning, generating strategic options and managing uncertainty?

The purpose of the study is to:

5. Understand how the researched organisations deal with complexity and uncertainty in the environments in which they operate.
6. Understand how these organisations think strategically and develop strategy for their future environment, that is their political, social, economic, technological, market and competitive environments.
7. Establish the extent of use of scenario planning as a means to
  - a. reducing uncertainty about the future external environment,
  - b. developing strategic options,
  - c. improving the quality of strategic decisions.
8. Determine the effectiveness of the strategy process for:
  - a. managing complexity and uncertainty,
  - b. surfacing strategic options,
  - c. the quality of strategic decision making,
  - d. performance and sustainability,
 within the context of the organisation and its environment.

### The Research Approach

The research will look at how the selected organisations manage uncertainty and develop strategy for the future, the success their approach to strategy brings, and the lessons that can be learnt from these organisations experiences. This will be integrated with the available literature on the subject, and the analysis and reflection of the researcher, to develop a view of how the art and science of strategy can be enhanced to improve strategy formulation processes and the quality of strategic decision making in organisations.

The methodology that will be followed for the research will be qualitative in nature and will reflect the type of research to be conducted. According to John W. Creswell a qualitative study *"is defined as an inquiry process of understanding a ... problem based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting."* The research will be based on case studies designed to build a picture of how the selected case organisations manage



uncertainty, from a strategic perspective, in their operating environments. This will be done through a process of interviews and workshops where the views of individuals in each of the organisations will be sought. Inductive reasoning will be applied to facilitate the emergence of patterns and theories, allow for the drawing of inferences from observations, and provide a better understanding of the research subject.

There will be four case studies drawn from two industries that are characterised by rapid and discontinuous change. The reason for selecting these industries is that the level of uncertainty within the industries is very high because of the impact of globalisation, changing markets, technology innovation, and competition. These industries have also been at the forefront of developing new business and operational models to meet the challenges of discontinuous change and are best positioned to provide insights into planning for and the management of uncertainty. The industries are technology and financial services.

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