UNIVERSITY OF KWAZULU-NATAL

STRATEGIC ENACTMENT: AN INTERPRETIVE APPROACH TO ORGANISATIONAL STRATEGY

By

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DECLARATION

I, Shamim Ahmed Bodhanya, declare that

(i) The research reported in this thesis, except where otherwise indicated, is my original research.

(ii) This thesis has not been submitted for any degree or examination at any other university.

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Signature:

DEDICATION

To

Zahida

ACKNOWLEDGMENTS

All praise is due to God, Most High, Sustainer and Cherisher of all the worlds.

I wish to acknowledge my parents for their love, caring, support and for my strengths. My weaknesses are my own.

I express my sincere gratitude to my loving wife Zahida, and my wonderful children, Maryam, Thameez-Ahmad and Yaaseen who provide me with unstinting support, and the space for my intellectual growth, often at the expense of the time that I ought to spend with them.

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ABSTRACT

The purpose of this thesis is to explore the field of strategy by way of its historical trajectory and to consider the major branches that constitute this broad, but fragmented discipline. It is an interdisciplinary endeavour that draws specifically on systems theories and complexity theory as a way to enrich the field. The strategy field tends to be philosophically unreflexive. As a result it is dominated by an objectivist ontology, which underpins strategic choice. One of the aims of this thesis is to explore the implications for strategy, if instead, an interpretive stance, based on an ontology of social constructionism, is adopted. The literature has not fully explored and developed different ontologies in the context of strategy and hence has left a major gap in theorising about strategy. This thesis attempts to address that gap and therefore one of the contributions of the study will be a tentative theory of strategic enactment.

This research attempts to answer the following key questions:

1. What are the major theoretical frameworks and conceptual models that frame the field of strategy?

2. How well do these frameworks and models contribute to strategy under conditions of high ambiguity and uncertainty?

3. What contributions may be made by applying complexity theory to the field of strategy?

4. What are the implications of adopting an interpretive approach to strategy?

5. What are the implications of strategic enactment on strategic leadership?

Given that these research questions are of a philosophical and theoretical nature, the research methodology and approach is one based on theoretical exploration. It is therefore not an empirical study, but a conceptual one embracing both breadth and depth. It is broad in that it covers multiple literature sets which include bodies of knowledge in organisational theory, leadership, strategy, systems thinking and complexity theory. It is deep in its interrogation of core conceptual constructs that are pertinent to the strategy frame of reference and in its comprehensive coverage of the major topics that circumscribe the field. While it relies on an extensive coverage of existing texts it is not a hermeneutic study from a methodological point of view. It does not purport to interpret and to elicit the meaning of texts. The term interpretive in the title instead refers to the ontological notion of sensemaking and interpretation that is central to strategic enactment. Interpretive in this sense is not an interpretation of texts in a hermeneutic fashion, but interpretive in relation to enacting reality. Despite being a theoretical study it still draws on deductive, inductive and abductive reasoning.

The study makes several contributions. It re-conceptualises strategy in a way that lends itself to be generalisable across all sectors, approaches strategy formulation and implementation as a single intertwined process, interrogates, combines and integrates strategy-related and other concepts in way that has not been done before, provides a theoretical basis for scenario planning and demonstrates how it may considered as a soft systems approach, presents a practical methodology for undertaking scenario planning, critiques existing CAS-based theorising about strategy, leadership and organisation and draws out the potential of complexity theory for strategy and leadership. The final contribution of this study is a tentative theory of strategic enactment that highlights key constructs such as identity and agency that have been under-emphasised in the strategy literature. Such a theory offers alternative explanations from that of strategic choice, and is able to deal with the phenomenon of emergence in organisational settings. It is unique in that it

integrates complex adaptive systems with an interpretive approach to organisational strategy.

The following may be identified as key findings of this study:

- Strategy is still a pre-paradigmatic field and hence its theoretical underpinnings are of necessity eclectic.
- While strategic choice is the dominant approach, many of its tenets are contested, especially when organisations are considered as complex adaptive systems.
- Deliberate strategy is not possible as all forms of strategy are ultimately emergent.
- Agency is an important construct in strategy. Agency does not reside in the key power brokers alone, but extends to all organisational actors and their structural networks of relations. Agency is also invested in non-human actors in the form of artifacts.
- Agency is limited to micro-level actions and does not embrace macros states of the system.
- Identity is an important construct in strategy. The identity of agents is shaped in their interactions with other agents. Who they are impact on what they can and cannot do, and also impact who they construct themselves to be. In this sense there is a strong link between agency and identity.
- Identity is also shaped in situated activity in practice and therefore strategy-as-practice is important.
- Strategic enactment presents alternate explanations for the utility of strategy tools and strategic plans from strategic choice.

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LIST OF ACRONYMS

CAS	Complex Adaptive Systems
CLD	Causal Loop Diagram
OR	Operations Research
RBV	Resource Based View
SD	System Dynamics

Chapter 1 - Introduction

Introduction

Strategy is a flourishing area of inquiry and practice. Academics, executives, practitioners and hundreds of consultants (for whom strategy is a source of livelihood, and a generous one at that), all seek to identify appropriate strategy theory and best practice, especially in the postmodern world of hyper-competition, complexity and turbulence (Volberda, 2004). Strategy affects millions of us as the big decisions made by the power brokers in organisations whether big governments, global multilateral organisations, security establishments, transnational corporations or local organisations, ostensibly result from their strategies.

I use the term strategy to broadly embrace other cognate terms such as strategic management, strategic planning, strategic thinking, strategy formulation and implementation. Strategy may be considered as concerned with both the means and the ends for large scale change. It has connotations of the future; whether that is organisational survival and longetivity in the face of a future, unpredictable environment for all organisations in general, or competitiveness, profitability and growth of commercial organisations, in particular. When it comes to strategy it is the future of the organisation itself, at whatever scale, which is at stake.

Despite the tendency by some to highlight the military roots of strategy by dating back to the writings of Sun Tzu, strategy became an academic field of study in its own right in the latter half of the 20th century, drawing primarily from economic theory, industrial organisation, organisational theory and later from other social sciences (Faulkner, 2002). Although there are a variety of classifications of strategy, for example, strategic choice, evolutionary, cognitive, political and cultural perspectives, the field has been dominated by strategic choice theory based on strongly rational and analytical approaches (Child, 1972; Moore, 2001; Porter, 1980, 1981; Stacey, 2003). Strategic choice

is based on the premise that there is an objective pre-given reality that can be understood by a few rational actors. These actors have the ability to choose an appropriate strategic position, and design or formulate the strategy. Once the strategy is formulated it is then implemented. This is based on a kind of technical rationality that is more suited to technical problems. It is based on the ability to predict, forecast and optimise. The goal is to achieve optimal outcomes based on the strategy formulation and subsequent implementation. Although this overly rational approach, especially in the guise of strategic planning, has been subject to significant critique it continues to dominate (Mintzberg, 1990; Mintzberg, Ahlstrand, & Lampel, 1998; Mintzberg & Waters, 1985; Stacey, 1995, 2003). The assumption, which underpins much of organisational theory and strategy, of an environment that is predictable and knowable, implies that it is easy to offer prescriptions for engaging in strategy. By drawing on complexity theory, we may conceptualise social systems in general and organisations in particular, as complex adaptive systems (CAS). These have specific properties that have profound implications for the field of strategy. A key lesson is that it is not possible to stand outside the system and analyse the organisation and the environment, and design strategy. This makes it very difficult to come up with normative suggestions on how to do strategy. It also raises questions about who does strategy, because potentially everybody does strategy. This translates to strategy as a form of intertwined thinking-acting and is consistent with the strategy-as-practice approach (Jarzabkowski, 2005).

Strategic choice approaches are not satisfactory for strategy-making under conditions of turbulence and high levels of ambiguity and uncertainty (Stacey, 2003). Most contemporary organisations operate in such conditions. Globalisation and concomitant levels of integration and interdependence between markets, economies, institutions and organisations compound the problem. The higher the levels of inter-dependence the higher is the level of non-linearity and hence higher levels of turbulence and uncertainty (Sterman, 2000). There is therefore a need for alternate approaches to strategy that take

cognisance of such dynamics and non-linearities. The sub-field of organisational dynamics is therefore pertinent to strategy. This in turn leads to further problems that strategic choice does not address adequately, such as bounded rationality, satisficing behaviour, differing motivations, and power relationships which all feature because human actors now become central. The various schools of strategy (Mintzberg, et al., 1998) such as the political school, the cultural school, the entrepreneurial school etc., have addressed some of these issues. The literature has highlighted the importance of emergent forms of strategy. Despite these advances and broadening of perspectives, there is still much work to be done if alternate approaches to strategy are to challenge the dominance of strategic choice. Scenario planning is one way for dealing with environmental uncertainty and turbulence (Ringland, 2002; Schwartz, 1998; van der Heijden, 1996; van der Heijden, Bradfield, Burt, Cairns, & Wright, 2002). Although beneficial in practice, scenario planning is still under-theorised. The concept of emergence and attempts by learning perspectives to incorporate emergent strategy offers promise. Emergent strategy within the ambit of the learning school is covered in Chapter 2. Emergence deals with the idea that entities have properties that are attributes of the whole entity but which do not exist as attributes of any of the parts in isolation – rather it is the relationships between the parts that enable such attributes to emerge. This is discussed in Chapter 5.

Although there has been some strategy-related literature (Anderson, 1999; Cunha & Cunha, 2006; Kurtz & Snowden, 2003; Mason, 2007; Stacey, 2007) that considers complexity theory, the strategy field has, by and large, not drawn the full benefit of this body of knowledge. This is significant because it provides a basis to deal with some of the challenging issues that plague the field of strategy, and can contribute to strategic approaches that may counter the dominance of strategic choice. These include dealing with uncertainty and ambiguity, deliberate versus emergent strategy, non-linear relationships, firm-environment boundary, and perceived implementation failures.

Although there has been some spill-over into public sector strategy, much of the literature still focuses on business or commercial organisations (Ferlie, 2002). Where ideas of strategic management are applied in non-commercial contexts, existing models and frameworks have to be "force-fit", not fully taking into account the completely different nature of the context, issues and constraints of the non-commercial sector (Wilkinson & Pedler, 2003). A case is to be made that strategy and organisation are so intertwined that wherever we have organising, strategy is applicable. It may therefore be applied to government, business, NGOs, international institutions, and even other organised formations within civil society such as community-based organisations, coalitions, and other 'movements'.

The purpose of this thesis is to explore the field of strategy by way of its historical trajectory and to consider the major branches that constitute this broad, but fragmented discipline. By doing this, I shall be able to ascertain the state of the art in the field, expose the gaps, reveal the logical flaws in many of the extant approaches to strategy, discover which approaches and perspectives are dominant and which ones have been marginalised and why, and to determine the extent to which social constructionism and complexity theory do or do not inform the field of strategy. Furthermore, it will enable me to locate my work appropriately within the field, drawing on its strengths and to identify opportunities for making a contribution.

The study considers the espoused theory of strategy as presented by strategic choice with the theory-in-use by way of a critical interrogation of the literature. It is an interdisciplinary endeavour that draws specifically on systems theories and complexity theory as a way to enrich the field. Systems theory has a long history embracing many strands including cybernetics, general systems theory, autopoiesis and system dynamics, and may be considered as a trans-discipline (Jackson, 2000). Complexity theory while complementary in some ways to systems theory, had its own separate genesis

primarily at the Sante Fe Institute and followed its own independent development trajectory (Kauffman, 1995a; Waldrop, 1992).

The strategy field tends to be philosophically unreflexive. As a result it is dominated by an objectivist ontology, which underpins strategic choice. One of the aims of this thesis is to explore the implications for strategy, if instead, an interpretive stance, based on an ontology of social constructionism, is adopted. This is termed strategic enactment. Smirchich & Stubbart (1985) alerted us a long time ago to different ontologies in the context of strategy. Faulkner (2002, p. 13) noted that this insight of Smirchich and Stubbart has "profound implications". While I concur with this, the strategy literature has not fully explored and developed it, and hence has left a major gap in theorising about strategy. This thesis attempts to address that gap and therefore one of the contributions of the study will be a tentative theory of strategic enactment.

Research questions

This research attempts to answer the following key questions:

1. What are the major theoretical frameworks and conceptual models that frame the field of strategy?

2. How well do these frameworks and models contribute to strategy under conditions of high ambiguity and uncertainty?

3. What contributions may be made by applying complexity theory to the field of strategy?

4. What are the implications of adopting an interpretive approach to strategy?

5. What are the implications of strategic enactment on strategic leadership?

Methodology and approach

Given that these research questions are of a philosophical and theoretical nature, it is natural that the research methodology and approach is one based on theoretical exploration. This study therefore is not an empirical study.

> "One of the important criteria for evaluating theory is the extent to which it runs ahead of existing empirical research in terms of alerting us to research opportunities hitherto unanticipated."
>
> (Kilduff, 2006, p. 252)

The study, in aspiring to achieve the above, is a conceptual study embracing both breadth and depth. It is broad in that it covers multiple literature sets which include bodies of knowledge in organisational theory, leadership, strategy, systems thinking and complexity theory. It is deep in its interrogation of core conceptual constructs that are pertinent to the strategy frame of reference and in its comprehensive coverage of the major topics that circumscribe the field. Given that this is a theoretical study it is concerned with concepts and constructs. This means that although there was some level of reliance on books and other sources, when it came to interrogating substantive concepts covered in the literature the "centre of gravity" was on peer-reviewed scholarly journal articles.

A theoretical study while not as common as empirical studies at PhD level within the business and management disciplines is nevertheless, an entirely legitimate and valid research endeavour.

> "Theoretical research does not occur in a vacuum, it is rather the result of thinking about previous empirical research and of debating the different theoretical interpretations that others have made."
>
> (Remenyi, Williams, Money, & Swartz, 1998, p. 32)

> "The theorist reflects on these ideas and using his or her intellectual capabilities constructs a new or different view of the situation, which sometimes may be regarded as a new theory. At the end of the theorist's work conclusions are drawn and a claim is made that the researcher has added to the body of knowledge."
>
> (Remenyi, et al., 1998, pp. 31-32)

Some authors contend that that the theoretical approach is more challenging and is less understood than empirical research and is therefore less popular.

> "The most important reason for this is that empirical research is less intellectually demanding than theoretical research and the risk of failure with a theoretical research project is greater than with an empirical project. As most masters and PhD candidates as well as their supervisors, are risk averse it is not surprising that the theoretical approach is less popular."
>
> (Remenyi, et al., 1998, p. 47)

It is important to note that while this study refers to an interpretive approach to strategy and it relies on an extensive coverage of existing texts it is not a hermeneutic study from a methodological point of view. It does not purport to interpret and to elicit the meaning of texts. The term interpretive in the title instead refers to the ontological notion of sensemaking and interpretation that is central to strategic enactment. Interpretive in this sense is not an interpretation of texts in a hermeneutic fashion, but interpretive in relation to enacting reality.

A theoretical study such as this one has some similarities with qualitative research. This will be understood more clearly if we use the term research materials instead of data. In qualitative research the data from interviews, observations, and other forms of collection constitute the research materials which the researcher interprets and analyses. In the case of theoretical research, the frameworks, models, concepts, constructs, premises and

conclusions of a variety of authors constitute the research materials. The researcher analyses and interprets these in a way that is akin to that in some forms of qualitative research. For example, the notion of constant comparison that is done in grounded theory studies is also applicable in theoretical studies (Charmaz, 2000; Goulding, 1999; Locke, 2001). Similarly the researcher engages in clustering and works with themes and categories, but these are not always explicitly coded as in qualitative research. In theoretical research, the researcher engages in pattern matching, and applies deductive, inductive and abductive reasoning. For example, deductive reasoning applies when the researcher draws out premises from one or more sources of literature and logically presents the conclusions from the premises and their conjunctions. Similarly, the researcher engages in inductive reasoning when attempting to generalise a finding from a few instances to a larger set of circumstances or when taking a concept that applies in one context as presented in the literature that he or she has interrogated and demonstrates how it applies in other contexts. This is similar to the case study method in qualitative research (Eisenhardt & Graebner, 2007). Every source of literature such as a journal article that deals with a particular construct or concept represents a single case. In this sense, a theoretical study is like dealing with multiple sets of case study research.

Abductive reasoning is a primary mode of operation when engaging in a theoretical study such as this one.

> "Abduction is a process of drawing conclusions that includes preferring one hypothesis over others which can explain the facts, when there is no basis in previous knowledge that could justify this preference or any checking done."
>
> (Levin-Rozalis, 2004, citing Pierce, 1956, p.151)

Quite often in a theoretical study there are little *a priori* hypotheses and no advanced presuppositions. The researcher, in the early stages of formulating the research topic and agenda, relies entirely on the literature and his or her own experience to define the problem statement and to formulate research

questions. This is done though a process of abduction. Later, as the study progresses abductive reasoning continues to be applied as the research proposes tentative findings and constructs the best possible explanation for them.

> "Abduction is inference to the best explanation. It is a form of problem solving used in a diverse number of problems, from diagnostics to story understanding, to theory formation and evaluation, to legal reasoning, to, possible perception."
>
> (Levin-Rozalis, 2004, citing Fox, 1998, p.1)

Weick (1989) refers to theory construction as "disciplined imagination." A theoretical study is a form of designing, conducting and interpreting imaginary experiments, as the researcher identifies key constructs and orders the relationships between them (Weick, 1989, p. 516). Furthermore, Eisenhardt (1989) indicates that an important aspect of theory building is through comparison of the emergent concepts, relationships, and hypotheses with the extant literature.

One of the challenges in a study such as this one is the extent to which the researcher's contribution is apparent to the reader and manifest in the work. At one level it is necessary to sketch out the terrain and hence there has to be coverage of the extant literature in a meaningful way.

> "[a] careful explication of relevant prior theory and research helps build causal arguments and signal the value added of your work..."
>
> (Kilduff, 2006, p. 252)

Such a presentation tends to belie the underlying contribution of the researcher as the extent of the level of inductive, deductive and abductive reasoning of the researcher is not obvious to the reader, who has to make a judgement of the extent to which the work is merely a description of the state of the art in the field, and the extent to which the work represents the original and novel contributions of the researcher. This is particularly a challenge when the work is entirely a theoretical study where the literature serves as the

research materials. It is therefore necessary to point out that the creative insights, pattern matching and contribution to theory development, may seem muted at first glance, but actually permeate the entire work and is embedded in every section and chapter. The comparison with qualitative forms of research discussed earlier, hopefully, demonstrates this point adequately. Ultimately, the reader will judge.

> "Theory – in the form of big ideas that can lead to new research questions – has *an autonomy of its own* and is not the summation of existing empirical research."
> (Kilduff, 2006, p. 252, emphases added)

The following section describes the researcher contributions more explicitly.

Contribution to knowledge

The study has a number of novel elements. It re-conceptualises strategy in a way that lends itself to be generalisable across all sectors. Much of the strategy literature is limited to business or commercial organisations. Although this has spilled over to strategy in the public sector to some extent, it is still limited. This work, based on a proposed theory of strategic enactment, extends the notion of strategy to any kind of organised formation including business, government, international (e.g. multilateral organisations), political parties, coalitions and movements (such as social, environmental, and liberation movements).

It approaches strategy formulation and implementation as a single intertwined process and not two separate processes. Even key critics of strategic planning such as Mintzberg, who was one of the first to problematise this was at best able to signal the shift by using the term "formation" as opposed to formulation, but was forced to still retain separation between the two. The proposition that the failure of strategy is primarily a failure of implementation is challenged (Hrebniak, 2006; Mintzberg, et al., 1998).

The thesis also makes a variety of separate but incremental contributions in each of the chapters. While some of the topics and their underlying concepts

have been partially explored elsewhere, they were done largely in isolation from each other. They have not been interrogated, combined and integrated before as has been done in this study.

One of the strategy approaches that is able to deal well with environmental turbulence and uncertainty is scenario planning. However, given that scenario planning originated from practice, and the innovations in the approach continue to emerge from the world of practice, it has been criticised for lacking theoretical support and justification. An important contribution of this study, therefore, is that it addresses this shortcoming, by providing a firmer theoretical basis for scenario planning. Indeed, it demonstrates that scenario planning may be considered as a soft systems approach. In addition, a practical scenario approach termed *Futurescope* is presented in detail in Appendix 1. It is meant to be readily applied by practitioners who wish to benefit from scenario work in engaging in strategy under complexity and uncertainty. Comparisons are made between *Futurescope* and other approaches to scenario planning.

A further contribution of this study is the investigation of complexity theory in the social sciences and its application to organisations as complex adaptive systems. The philosophical underpinnings of emergence which are generally neglected in organisational theory are discussed. Complexity theory is usually applied to social systems in a metaphorical way. I interrogate the role of metaphor in theory construction and science and then present a model of metaphor in theory construction based on existing literature. While metaphorical application of complexity theory to social systems has merit, I have taken a step further by demonstrating that social systems are complex adaptive systems in a literal sense, and one does not have to resort to metaphor alone. Furthermore, I have shown how CAS may be considered a tool for organisational ontology. I elaborated the model of strategic choice, chance and determinism of De Rond & Thietart (2007) in the light of CAS.

The assumption that the key actors in strategy-making are those in leadership positions is critically analysed and contested. One important contribution of the study is that *all* of the characteristics of CAS have to be taken into account, singly and together as a *whole*, if progress is to be made in advancing leadership theory in the context of organisations as CAS. This is important because, as I show later in this study, there are shortcomings in existing CAS-based theorising about leadership and organisation when only some of the characteristics and features of CAS are taken into account.

The final contribution of this study is a tentative theory of strategic enactment that highlights key constructs such as identity and agency that have been under-emphasised in the strategy literature. Such a theory offers alternative explanations from that of strategic choice, and is able to deal with the phenomenon of emergence in organisational settings. It is unique in that it integrates complex adaptive systems with an interpretive approach to organisational strategy.

Limitations of the study

Since this study is a theoretical one there is not yet a firm empirical basis for the findings. An appropriate research design will have to be constructed to test the theoretical propositions underpinning a theory of strategic enactment, which were developed in this research.

While the study has considered the practical implications and provided some direction on concrete tools for application in strategy-making, further work will need to be done. This is not a limitation of strategic enactment as such, but rather a challenge for any work that adopts an interpretive stance based on an ontology of social constructionism. It is not a straight-forward matter to provide normative prescriptions when the world and social reality is complex, ambiguous, turbulent and constantly in flux.

Outline of the thesis

Chapter 1 - Introduction

This chapter provided the context and purpose of the study, the key research questions to be explored, the methodology and the theoretical contributions to be made.

Chapter 2 – The Strategy Terrain

This chapter describes the field of strategic management and the broad strategy terrain. It explores some of the major classifications and taxonomies. Further, it highlights some of the key debates and challenges.

Chapter 3 – Resource Based View

The Resource Based View (RBV) has become more prominent in the last decade. This chapter covers the RBV together with a complementary perspective, competitive strategy dynamics, which is practice focused, and which draws in elements of system dynamics. Finally, it extends the discussion to include the dynamic capabilities approach.

Chapter 4 – Scenario Planning

Scenario planning is a practice-based approach that attempts to deal with strategy under conditions of ambiguity and uncertainty. However, it is under-theorised. This chapter attempts to provide scenario planning with a firmer theoretical platform.

Chapter 5 – Complexity Theory and Organisations

This chapter is an extensive investigation of complexity theory as applied to organisations. It shows how organisations may be conceptualised as complex adaptive systems. Since complexity theory is often applied metaphorically in organisational contexts, the chapter also covers the role of metaphor in theory construction and science.

Chapter 6 – Leadership and Complexity

This chapter explores the evolutionary trajectory of leadership. It then considers the implications for strategic leadership viewed from the lens of complexity theory.

Chapter 7 – Strategic Enactment

This chapter proposes a theory of strategic enactment by drawing on work covered in the earlier chapters. The basis of strategic enactment is complexity theory in the form of complex adaptive systems coupled with an interpretive stance based on a social constructionist ontology.

Chapter 9 – Conclusions

This chapter revisits the research questions in relation to the study, considers the contributions of the study, highlights its limitations, and offers concluding remarks.

Chapter 2-The Strategy Terrain

Introduction

In this chapter, I draw primarily on the strategy literature to sketch out the major concerns and issues, and to highlight some of the categorisations and perspectives of strategy. I begin with a brief historical trajectory of how the field of strategy has evolved. Thereafter, I indicate the broad terrain of strategy by presenting a general set of questions that typify the major concerns of strategy. I show how many of the strategy tools and techniques applied in practice are a result of examining inter-relationships between subsets of these questions.

This is followed by a description of classifications of strategy. I then proceed to engage in a wide-ranging discussion of different aspects of strategy from numerous perspectives including strategy-as-practice, strategising/organising duality, strategic change, actor-network theory and strategic enactment. This demonstrates that the field is not an integrated and coherent one, but is rather eclectic and still quite fragmented, typical of a pre-paradigmatic field.

A brief historical trajectory

Although some authors suggest that strategy is as old as humanity itself, or several centuries old emanating from Sun Tzu's, "The Art of War", or that of von Clausewitz, it has a history of some four decades as a systematic field of study (Faulkner, 2002). Classical strategy has its roots in post world war II America. It is often traced back to the groundbreaking studies of Alfred Chandler. Like any field of study, it is important to realise that it is not a single, linear trajectory, but rather would have faced a number of bifurcations over time. There are two distinct approaches to the early field of strategy. Chandler's approach was that of the business historian. The field was "carved out" by academics from the Harvard Business School. Here, strategy was rooted in descriptions of real organisations, primarily business corporations. It was based on the experience of those at the helm of such organisations.

Indeed, as part of its teaching approaches, Harvard Business School often brought in these managers and practitioners as guest lecturers to teach their students of strategy. The remnants of this are still with us today, as the "case study" is ubiquitous in business school teaching. The second approach, dating back to the 1960s, was that of Igor Ansoff who argued for a more analytical, rational approach to the field of strategy (Faulkner, 2002).

It was over a period of time especially the 1970s and 1980s that the field of economics started to penetrate strategy to the extent that strategy research started losing its rootedness with practice and rich data, and instead started to rely on large databases and surveys, utilising the analytical tools of statistical treatment. Strategy became somewhat detached from the practice that it purported to study. It also became wedded to instrumental rationality. The economic assumptions of rational expectations and market equilibrium became prominent.

The incursion of economics dominance into strategy began with what was known as Industrial Organisation (IO) of Bain/Mason (Porter, 1981). The premise was that Industry Structure (S) determines Firm Conduct (C) which gives rise to Firm Performance (P). The IO paradigm was thus encapsulated into S-C-P. It was left to Michael Porter to take this SCP approach and apply it to the field of competitive strategy in the form of his 5 forces model. The pre-occupation was with industry structure and industry attractiveness. It must be noted that this view of strategy is a *positioning* view of strategy. Firms must locate themselves within a particular position in the market, given the characteristics of the industry.

There is a third thread in the development of the field of strategy that is not always given sufficient attention. This is the role of the big consulting boutiques, such as McKinsey and Co. Each of these developed strategic tools which were then applied primarily by American corporations and later spread to other parts of the world. These tools even became synonymous with the

particular strategy boutique, for example the Boston Consulting Group (BCG) matrix. This third thread is equally important as the other two because it indicates how academics, consultants, and business practitioners influenced the work of others and how they collectively shaped the field of strategy.

The strategy terrain: concerns and issues

The field of strategy is considered to be fragmented (Volberda, 2004, p. 37). There are various approaches and categorisations. Mintzberg et al. (1998) offer one such categorisation by way of their ten schools. Other authors distinguish between strategy content, strategy process and the context in which strategy happens. Although strategy may be applied to the public sector (Ferlie, 2002, p. 279) and other settings (Whittington, Pettigrew, & Thomas, 2002, pp. 481-483), much of the field of strategy is still concerned with commercial organisations. There are many different definitions of what strategy is. A simple way of exploring the strategy terrain is to examine what the key concerns or questions are. I have constructed Table 2.1 to identify the major issues and concerns of strategists based on my overall sense of the field drawing from both the literature and my own experience of working in the strategy field.

What is the purpose of the organisation?
What is our vision or strategic intent?
What is our mandate and whose interests do we serve?
What is the industry that we operate in?
What are the characteristics of this industry?
What are the "rules of the game" in this industry?
What are the characteristics of industry growth?
What are the critical success factors to thrive in this industry?
What are the entry and exit barriers in this industry?
What business are we in?
Who are our suppliers and customers?
What is our bargaining power over them?
How do we segment the market and which segments do we serve?
Which geographical areas do we serve?
What is our share of the market?
What products or services do we offer?
How do we distinguish our products or services?
Who are our competitors?
How do we gain advantage over our competitors?
What resources, skills, technology, knowledge and capabilities do we have?
How do we deploy these for competitive advantage?
How do we fund our activities?
Who are our funders?
What returns do they expect?
How can we reshape the "rules of the game" to our advantage?
How can we get efficiencies in what we are doing?
What alliances and partnerships should we engage in?

Table 2.1: Major issues and concerns of strategy

Although this set of questions may not be exhaustive, it provides the broad scope of the concerns of strategy. The questions are not distinct and are not usually considered in isolation from each other. Many strategy tools and techniques are essentially a construction, based on a combination of a small subset of these questions, in the form of a matrix or some other relationship grid. For example, Porter's 5 forces model is basically a consideration of a subset of questions related to the characteristics of the industry and the relative bargaining power of key stakeholders. By crossing the questions about 1) which markets to serve, 2) distinguishing characteristics of products, and 3) considerations of efficiency and cost, we may arrive at Porter's generic positioning matrix. The Boston Consulting Group (BCG) matrix is a cross consideration of the questions related to industry growth and market share.

The resource based view (RBV) and the dynamic capabilities approach (Eisenhardt & Martin, 2000; Teece, Pisano, & Shuen, 1997) is an elaboration and deepening of the questions related to resources, skills and capabilities. Recent interest in innovation examines ways of changing the industry rules of the game and internal processes to arrive at innovative strategies (Hamel, 1996; Markides, 1997; Tidd, Bessant, & Pavitt, 2001). As interest in leadership has increased, the roles of leaders in strategic development and in formulation of strategic intent and vision have also increased. The answers to most of these questions relate to strategy content. On the other hand, a separate line of literature suggests that the answers to the questions are not necessarily what are important, but rather *how* organisations arrive at the answers, that is, the strategy process, is of importance (Birkinshaw, 2004; Chakravarthy & White, 2002; Pettigrew, 1990; Rajagopalan & Spreitzer, 1996). Thus strategy content, process and context are all important considerations.

The perspective adopted on what constitutes strategy differs according to context, organisational type, and industry structure. It is also dependent on who is engaged in strategy. This is not a trivial issue as we shall examine later in the chapter. Numerous authors have categorised the field of strategy based on where the actors concerned with strategy are placed in the organisational hierarchy. As a result, some make a distinction between levels of strategy as that of 1) corporate strategy, 2) business strategy and 3) functional strategy (Johnson & Scholes, 2002; Thompson & Strickland, 1999). This is a relic of the predominantly American multi-divisional (M-form) organisation(Mir & Watson, 2000). Corporate strategy is considered at the board level of the firm as a whole. The strategy content at this level is preoccupied with which businesses the firm needs to engage in, which markets to serve, how it will organise these businesses into strategic business divisions, how resource allocation will be distributed amongst the divisions, what common policies will apply to all divisions and other such considerations. Business strategy is conducted at a divisional level which focuses more specifically on products, technology, operations and market segments. The business strategies are

meant to be aligned to the corporate strategy. Functional strategy is concerned with different managerial and professional functions such as marketing, production, and engineering and how they are to align with the divisional and corporate strategy. This approach to strategy is a very linear, reductionist and mechanical one. It has been challenged by other approaches. For example the M-form organisation has been superseded by other "innovative forms of organising" (Pettigrew, et al., 2003).

Traditionally, competitive advantage was thought to be created by the right product-market configurations and positions. This meant that firms need to supply products or services to meet specific market needs. If they are able to do this at a lower cost than their competitors, or are able to differentiate their products and services sufficiently from them, they will be able to accrue rents from these advantages. The resource based view (RBV), by contrast, suggests that advantage does not reside in the products and services in and of themselves, but rather in the underlying resources and capabilities that give rise to these products and services. If the resources are "valuable, rare, inimitable and nonsubstitutable" then the firm will be successful (Eisenhardt & Martin, 2000, p. 1105). The focus shifts from managing a portfolio of businesses (divisions) to managing a portfolio of resources, competencies and capabilities. This means that the corporate-divisional-functional strategy categorisation is untenable.

Competitive strategy dynamics is a recent but relatively lesser known approach in the broader strategy literature. I contend that it is a hybrid of the resource based view, the dynamic capabilities approach and asset-stock approach. The focus here is on the time-paths and patterns of the resources and capabilities (Warren, 2002). It is reminiscent of system dynamics stocks and flows (Warren, 2004). The competitive strategy dynamics approach offers promise if more attention is paid to the feedbacks loops that affect the flows to and from the assets, resources and capabilities stocks (Warren, 2005). Further, it takes into consideration intangible resources which are important

in a knowledge economy. The RBV, dynamic capabilities and competitive strategy dynamics approaches are covered in more detail in Chapter 3.

Classification of strategy: the ten schools of strategy

There are a variety of classifications of strategy. I shall explore several of them in this section. Perhaps the most common is that of the ten schools of strategy (Mintzberg, et al., 1998).

The Design School

Strategy is a process of conception of a key actor or actors. The CEO is the chief strategist and architect of the organisational strategy. The focus is on the strategic fit between the organisation and the environment in which it is embedded. There is a clear separation between thinking and acting which may be translated into a separation of strategy formulation and strategy implementation. The power brokers in the organisation are the thinkers and the lower level organisational members are the doers (Hrebniak, 2006). Not only is thinking separated from action, but thinking precedes action. Implicit in this approach is that strategy conception is of a higher order than merely implementation. Although strategy is the conception of the chief strategist it is made explicit so that it can be translated into action by the doers. Chandler's notion of structure follows strategy is an important component of the thinking in the design school. Once the strategy is conceived, it has to be implemented. The structure of the organisation, which includes its reporting lines, organogrammes, processes of integration and differentiation, delegations of authority and culture, are all part of the structure of the organisation. The ubiquitous tool of SWOT emanating from the Design school indicates that there is not an inordinate emphasis on either the organisation or the environment (Mintzberg, 1990). Both are considered important if we wish to achieve strategic fit. Another popular strategy framework, namely the 7-S framework of McKinsey and Company, may also be considered as part of the design school. This framework is an elaboration of the structure, and hence there is a subtle shift towards the inner workings

of the organisation more than that of the environment. Since the 7-S framework is about achieving congruence it is also about strategic fit between the organisation and the environment.

The Planning School

The planning school (Brews & Hunt, 1999, p. 889; Faulkner, 2002, pp. 5-6) considers strategy as a formal process. It applies the same basic model of the design school, but it is more systematised and formalised. The central actors shift from the chief strategist to an "army" of planners. They design and plan the strategy which has to be approved by the executive and the chief executive officer. The planning school introduces the link between strategic planning and the annual budgeting cycle. The formalisation is a form of decomposition. The strategy is decomposed into goals, objectives, forecasts, checklist and budgets. This is a very technocratic approach to strategy. We have the same separation between thinking and acting as in the design school. The distinction is now between strategic planning and strategic implementation. The planning school may be considered as one that focuses on "predict and plan". The planners are a form of high priesthood that plans the strategy that the rest of the organisation will implement. Since it bypasses line managers who merely provide input into the checklists and templates of the planners, there is a disconnection between the strategy and operations systems, which is problematic for organisational action to achieve the strategy. The focus is on number crunching and strategic controls.

The Positioning School

In this school, strategy becomes an analytical process. The focus shifts from an infinite number of strategies as conceived by a chief designer or plans as prepared by planners, to identifying a few possible strategies which are feasible as positions in a market or industry, by considering the competitive forces in the industry (Porter, 1979, pp. 143-144). As opposed to the strategic planners, we now have the strategic analysts who analyse the industry to identify generic strategic positions and select from them. Thinking and action

is still separated. The thinking is based on the analysis, which identifies the feasible positions. It is then up to the doers to implement the strategies to secure those positions. As was the case in the planning school, the focus is still formal and based on calculations dependent on hard, quantifiable data. The definition of what constitutes meaningful data is that which is economic and quantifiable, and tends to disregard the softer aspects such as social, political, and cultural aspects which are non-quantifiable. The bias is towards big, mature firms, and towards stability. There is a shift in focus to the industry and away from the internal factors and capabilities of the organisation. The planning school focuses on the external environment half of the SWOT, namely the opportunities and the threats. The Porterian tools such as the 5 forces, generic positioning matrix, and value chain analysis are all part of the positioning school (A. I. Murray, 1988, pp. 76-78; Porter, 1979, pp. 37-42).

The PIMs database, and strategy approaches that depend on analysis of strategic groups also fall under this school. The Boston Consulting Group matrix may also be considered as part of the positioning school, except it now focuses on the positions of strategic business units of the diversified corporation.

The Entrepreneurial School

The entrepreneurial school shifts from prescriptive to descriptive accounts of strategy. Strategy becomes a visionary process. It is focused on the intuition, judgment, wisdom and experience of the single, visionary leader who has the entrepreneurial streak to identify and exploit opportunities. It is Schumpeterian in its search for new combinations that will contribute to "creative destruction"(Faulkner, 2002, p. 3). The focus is on growth of the enterprise as the visionary leader pushes the organisation to seek out new opportunities consistent with his (her) vision. Strategy is considered as a perspective of success embodied in an implicit image or vision which must be made explicit so that it is translatable for others to strive to achieve. Strategy-

making is dominated by an active search for new opportunities. Power is centralised in the leader or CEO, and large, bold decisions are made in the face of uncertainty. The growth of the enterprise is a significant objective. Strategy is both deliberate and emergent in the entrepreneurial school.

> "[E]ntrepreneurial strategy is both deliberate and emergent: deliberate in its broad lines and sense of direction, emergent in its details so that these can be adapted en route" (Mintzberg, et al., 1998, p. 125).

Cognitive School

Strategy is a mental process in the cognitive school. It occurs in the mind of the strategist. There are two branches within this school. The first takes a positivist and objective stance that captures images of an objective, external reality, and thus cognition is based in *representation* of the world. Such representations are in the form of mental schemata, scripts, maps, and mental models. This is based on an information-processing model of cognition. There is recognition of a number of biases in individual cognition based on the work of cognitive psychologists. The second branch is a based on a non-positivist, subjective, constructivist stance on reality, and thus cognition is based on interpretation. Once again, cognitive and knowledge structures such as schemata, scripts and mental models are important, except now they are not *representations* but rather *constructions* of external reality. Environments are enacted (Smirchich & Stubbart, 1985). In the cognitive school, there is less emphasis on the SWOT analysis of the design school, all of the formulaic approaches in the planning school, as well as the 'objective" positions of the positioning schools. The focus is rather on managerial beliefs and predispositions, that impact on the future of the organisation. Analogy, metaphor, and symbolic gestures all feature more prominently. Vision is based on the interpretation of the strategist that gets translated into a collective image. Strategy becomes much more emergent as perspectives based on mental models, schemata and framing of how people consider the environment.

> "Strategies thus emerge as perspectives – in the form of concepts, maps, schemas, and frames – that shape how people deal with inputs from the environment."
>
> (Mintzberg, et al., 1998, p. 170)

The Learning School

Strategy is an emergent process in the learning school. There is a shift away from prescription of how to do strategy to describe how strategy happens. The learning school questions the proposition that a failure of strategy is a failure of implementation. It points to the flaws in the separation of strategy formulation and strategy implementation. The underlying concept is important. A separation of formulation and implementation amounts to a separation of thinkers (designers, planners, analysts, entrepreneurs) and doers (implementers lower down in the organisation). This in turn amounts to a separation in thinking and acting, which is challenged by the learning school.

Strategy is no longer based on a grand design as conceived by the strategist, nor is it elaborate plans from the planning school, nor even strategic positions that have been carved out before hand. Rather, it is the little actions and stream of decisions made over time which results in the strategy. The birth of this school has been traced back to Lindblom's "muddling through" and later "logical incrementalism" (Quinn, 1978). The learning school picks up on the idea that when there has been major strategic change, it rarely occurs from a formal planning process. Instead, they occur from little, often *ad hoc,* actions made by different people in different parts of the organisation without any collective intent, that over time coalesce into a new direction. In many cases these are based on accident, chance and serendipity. This has significant implications for strategy, as it is now no longer a single, all powerful person (design school) that is the strategist. Neither is it a group of planners (planning school), analysts (positioning school), nor a visionary leader (entrepreneurial and cognitive schools). Many individuals anywhere in the organisation can contribute to the strategy. The strategists are diffused throughout the organisation.

> "[S]trategic initiatives often develop deep in the hierarchy and are then championed, or given impetus, by middle-level managers who seek the authorization of senior executives."
>
> (Mintzberg, et al., 1998, p. 186)

Strategic learning occurs as actions are taken, feedback processes occur, and adaptations based on the feedback are made.

> "[S]trategies appear first as patterns out of the past, only later, perhaps, as plans for the future and ultimately, as perspectives that guide overall behaviour."
>
> (Mintzberg, et al., 1998, p. 209)

The Power School

According to the power school, strategy formation is the outcome of a process of negotiation. The underlying assumption is that organisations are comprised of many actors with differing motivations, goals, objectives and desires. Therefore, strategy is subject to processes of bargaining and negotiation between competing interests and positions of actors. Since the exercise of power and influence is accentuated, the power school is inherently about politics. This will embrace both overt and covert forms of politics (Stacey, 2003). As there are often incompatible positions and interests, the power school also embraces conflict as a key variable in strategy making. A differentiation may be made between macro and micro power (Mintzberg, et al., 1998, p. 243). Micro power relates to actors *within* an organisation and how their inter-relationships affect strategy. Macro power relates to how organisations as a whole exercise power with broader stakeholders in the transactional and contextual environments (van der Heijden, 1996, pp. 6-8). This will include customers, suppliers, regulators, government departments and competitors. While the positioning school also focused on bargaining in the form of Porter's 5 forces and industry analysis, there it was primarily from an economic point of view, whereas the power school considers bargaining from a much broader perspective and looks at power other than that of competitive and economic power. The application of game theory in strategy falls under the power school. The work on strategic alliances, co-opetition,

strategic manoeuvring and the focus on networks of organisations also fall under the power school umbrella.

Strategy as position and ploy is more prominent than strategy as perspective in this school and strategy tends to be emergent.

The Cultural School

In the cultural school the organisation is conceptualised as a collective social system and strategy is considered as a collective process. This is driven by the organisational culture that is rooted in the fundamental assumptions, beliefs, values, norms and practices that are shared by organisational actors. These are shaped through processes of acculturation and socialisation. These are primarily tacit and may often be non-verbal. However, there are also processes of indoctrination by application of organisational propaganda in the form of top management speeches, gestures, myths, and manipulation of symbols. These become embedded in the material artifacts of the organisation in the form of vision and values statements, newsletters, memoranda and reports. There is therefore a complex interaction between implicit and explicit culture and between actors and the material culture. They inform, shape and constrain each other. A statement attributed to Winston Churchill, "we shape our buildings and then they shape us" underlines this. Culture, while a collective phenomenon, manifests itself in individual behaviour. Culture is the lens by which people interpret the world, and is therefore a perceptual filter. Different organisations faced by the same environment interpret the world differently and hence may be said to operate in different environments. The organisation's dominant logic is determined by its culture, and the cues that it chooses to focus on in the environment are determined by this dominant logic. Paradoxically, in the cultural school, strategy is deliberate, though not necessarily conscious.

Mintzberg et al.(1998) place the resource based view of strategy under the cultural school, albeit they refer to that as the hard face of the school. This

placement appears to be a little curious. While inimitability of resources may be partly due to the underlying culture of the organisation, the RBV is a much broader approach to strategy as will be discussed in Chapter 3.

While the power school fragments the organisation into competing perspectives and agenda of actors, the cultural school unifies the organisation in the form of collective intentions and cognition. This highlights the downside of culture which hinges on strategic stability and hence a reluctance to change in the face of a changing environment.

The Environmental School

In the environmental school, strategy is considered as a reactive process. The central actor is the external environment which constrains the organisation. The environment is presented in the form of general forces, to which the organisation is subject to. One thread in the environmental school is that based on contingency theory. The organisational form and actions are contingent on the circumstances and context in which it finds itself i.e. the environment. In stable environments, mechanistic forms of organisations suffice, while in unstable, turbulent environments, other, more adaptable forms of organisations are required. A second thread is the population ecology view of organisations (Hannan & Freeman, 1997, p. 929). It needs to be stressed that here the unit of analysis shifts from a single firm or organisation to the population of organisations. This is a neo-Darwinian approach that applies the variation-selection-retention model. A birth of an organisation is akin to a new variation introduced into the population. It has to attract resources from the environment. Given the fixed total resources available (carrying capacity) it has to compete for resources within the larger population of organisations. The fitter the organisation is, the greater its ability to survive. Organisations have to find feasible and viable niches in the environment in which they survive otherwise they will be selected out by the processes of neo-Darwinian evolution. At the extreme, there is no role for leadership in the environmental school as the organisation is subject to the

vagaries of the forces in the external environment, and thus the school becomes one of extreme determinism (Hafsi & Thomas, 2005, p. 515).

Configuration School

Strategy formation is a process of transformation in the configuration school. It is a stage or lifecycle model of organisations and strategy. An organisation may be described in terms of a stable configuration of its characteristics. The configuration refers to the strategies, structure, technology and culture, processes and other organisational characteristics. During periods of stability the organisation adopts a particular form suitable to the context. In this regard it is a form of contingent approach similar to the environmental school. The configuration school attempts to tie in various aspects of all the other schools and tries to be "all things for all purposes".

> "The key to strategic management, therefore, is to sustain stability of at least adaptable change most of the time, but periodically to recognise the need for transformation and be able to manage that disruptive process without destroying the organization."
>
> (Mintzberg, et al., 1998, p. 305)

> "Accordingly, the process of strategy making can be one of conceptual designing or formal planning, systematic analyzing or leadership visioning, cooperative learning or competitive politicking, focusing on individual cognition, collective socialization, or simple response to the forces of the environment, but each must be found at its own time and its own context."
>
> (Mintzberg, et al., 1998, pp. 305-306)

Stability is interrupted by transformation, where an organisation leaps to another configuration. The configuration school seems to be a stages model of organisations. The organisation has stable configurations for long periods of time. When faced with shocks from the environment, or discontinuous change, it will be transformed and move to a new state with a new set of configurations. This is consistent with the model of punctuated equilibrium, where there are long periods of stability punctuated by discontinuous change, resulting in a shift to a new equilibrium.

An alternate categorisation

In this section, I offer an alternate categorisation of the field of strategy by considering two main determinants. The first is the underlying assumptions of ontology, and the second is the extent of agency and volition of the strategic actors and to what extent they can control the outcomes from their collective actions.

Based on these considerations strategy may be classified as 1) strategic choice, 2) population ecology, 3) learning and 4) emergent approaches. Although I shall describe each of these approaches briefly here, I shall revisit emergent approaches to strategy in a later chapter after we have explored complexity theory, as the latter is consistent with a complex adaptive systems sensemaking methodology.

Strategic choice

Strategic choice (Child, 1972) is a rationalist approach to strategy. It is based on an ontology of objectivism. It assumes that there is an objective reality that may be studied and understood by a small group of organisational actors. It makes a clear distinction between the organisation and the environment both of which are real and objective. This, single, objective reality may be probed using the tools of positivist science. This has been, and continues to be, the dominant approach to strategy. It assumes that a single or a small group of actors may stand outside of the system and be able to design and implement strategy. Actors may take deliberate action to respond to changes in the environment, hence leading to a fit between organisation and environment.

It is noted that in strategic choice there is the classical distinction between thinking and acting, between strategy formulation and strategy implementation. It will incorporate the design, planning and positioning schools of the Mintzberg et al. classification. Managers are able to design and choose a strategy, hence strategic choice. Implicit in this approach is that actors have full agency and volition, and are able to achieve the intended

results from acting on that agency and volition. The unit of analysis may be either the industry or the firm.

Population Ecology

The population ecology approach (Hannan & Freeman, 1997) shifts the emphasis to a population of organisations that evolve in an external environment. It is also based on an objectivist ontology. It is a neo-Darwinian perspective that assumes that organisations are subject to the vagaries of the environment, and if they are unable to find an appropriate niche they will be selected out. In this view, there is little volition and agency on the part of strategic actors. This is similar to the evolutionary school of the Mintzberg et al. classification. The unit of analysis is the population of organisations. The import of this school is that there is very little agency and volition on the part of human actors within the organisation. It therefore has an undercurrent of fatalism.

Learning approaches

The learning approach (Rajagopalan & Spreitzer, 1996) to strategy is akin to the learning organisation view of organisations in general. It includes aspects of the entrepreneurial school, the power school, the cultural school, the configuration school and the learning school in terms of the Mintzberg et al. classification. The assumption is that in order for organisations to survive, they must be able to change at a rate equal to or greater than the rate of change of the environment. Here, human actors have full agency and volition, but the focus is on the group agency in the form of collective learning, action and change. Although this approach has merit in that it broadens the scope of who participates in strategy making, it perpetuates the dominant managerial discourse of top management and the professional elite, and is a form of control through ideological commitment. It is also limited in that it will not apply under conditions of disagreement and dissent amongst organisational actors. The underlying assumption is that there is a level of shared consensus and commitment.

Where the strategic choice perspective assumes that the environment may be known and understood, the learning approach assumes that the environment is too fast changing and turbulent, and therefore the rate of learning within the organisation must be equal to or greater than the rate of change in the environment. It is therefore a weak form of strategic choice. As long as the rate of learning is high enough, the environment may still be known and therefore organisational actors may be able to choose and implement a strategy. The notion of vision is very important in the learning approach. It acknowledges the issues in the power school, but considers power as something bad that must be minimised, and therefore, the learning approach proposes mechanisms for overcoming power differences in the organisation.

Emergent Perspective

An emergent approach (Mintzberg, et al., 1998, p. 189; Quinn, 1978, p. 387; Stacey, 2003) to strategy takes as its point of departure that strategy is not a result of conscious and deliberate actions that have been planned and designed in advance. Rather, strategy emerges through a variety of organisational interactions and processes that become a consistent, coherent pattern in a stream of actions over time. Mintzberg and Waters (1985, p. 258) very early on made the distinction between planned, emergent, deliberate and realised strategies. I shall reiterate this very briefly. If the strategy that was planned is realised, then we may term that deliberate strategy. If the strategy that was planned does not happen, it may be termed as unrealised strategy. Strategy that is different from what was planned and emerges over time into a coherent pattern of actions, may be referred to as emergent strategy that is realised.

This perspective incorporates aspects of the learning school, power school, evolutionary school and the cognitive school. This is the arena of bounded rationality (Simon, 1991, pp. 125, 132) and satisficing actions. This perspective draws its justification from complexity theory.

Strategy in crisis

Due to the proliferation of theories and perspectives some authors lament that strategy is in crisis, is fragmented and is in a state of disintegration (Hambrick, 2004, p. 91; Volberda, 2004, p. 37). Some authors have even gone to the extent to state that the traditional understanding of the concept of strategy may have passed (Farjoun, 2007, p. 198). It is acknowledged that strategy is a vast field of knowledge, and draws from a variety of underlying disciplines, especially in the social sciences, including economics, psychology, sociology, marketing, and organisational behaviour. Given the disparate research agendas and the perceived fragmentation, the field may be in danger of losing its coherence, becoming indistinguishable from adjacent fields and being absorbed into them. There has therefore been a call for more integration and consolidation. Hambrick (2004, pp. 93-95) suggests the following in order to remedy this deficiency.

There should be renewed interest and better integration between strategy content, strategy process and implementation. Those focusing on strategy content tend to ignore the implications for implementation and the constraints that are faced in real organisations. This tends to over-simplify and may result in far-fetched and implausible strategies. This belies the complex nature of strategic processes. Presently these are studied too much in isolation from each other, and researchers working in these different areas seem to live in different "fact universes"(Gerzon, 2006, p. 121).

The tendency to assign anthropomorphic qualities to organisations gives rise to ignoring the human element in much of strategy research. This needs to be remedied in some way whether it is taking into account the human strengths, predispositions, or weaknesses, biases and frailties. Ultimately, it is people that are engaged in organisational work. If this richness is stripped out, it leaves many gaps in our understanding.

The field needs to overcome "its fetish about novelty" (Hambrick, 2004, p. 94). The academic journals are loathe to publish material that is not new. This is a disincentive to rework and replicate previous research, and thus the field moves relentlessly forward towards new conjectures and hypotheses without deepening our knowledge of what is already known.

Further, the strategy field is also obsessive about theory. As a result, work that tends to be descriptive about every day organisational phenomena, do not easily get published in major journals, unless it is able to make a significant theoretical contribution. This, according to Hambrick, is counter-productive. He notes that other fields regularly "publish articles that report descriptions of complex phenomena, as well as unexplained associations between phenomena" (p.95).

Volberda (2004) also acknowledges that the strategy field is very fragmented, and is full of varying prescriptions and directions on successful strategy and performance. It is also full of inconsistencies and contradictions (Hafsi & Thomas, 2005). It may therefore benefit from integration and consolidation, from an academic standpoint. Volberda suggests that what is required is synthesis and not necessarily integration for the field to move forward. He argues that the force toward integration leads to theoretical frameworks that become disconnected from practice and strategic problems in the real world. Citing Mahoney (1993), he notes that strategy is still a pre-paradigmatic field (Mezias & Regnier, 2007), and there is therefore benefit in pluralism that draws concepts and theories from other fields to enhance our understanding of strategy. Synthesis from his point of view does not require a single, unifying paradigm, with universal laws and concepts, but rather requires a form of clustering into a few major groups of strategy problem areas. He proposes clustering into three strategy schools, namely the boundary school, the dynamic capability school and configuration school. While, I tend to agree with his basic notion of how to achieve synthesis, the final clusters that he arrives at, is in my view, quite idiosyncratic with insufficient articulation of the

rationale and justification for how it was arrived at. Further, it does not cover the strategy terrain in a broad enough way, ignoring for example the learning, political and cognitive approaches.

Further critique of the field is that much of the research is dominated by instrumental rationality, and on the reliance on large statistical databases with large sample sizes. This is far removed from the richness, complexity, ambiguity and messiness of strategy as experienced by organisational practitioners. Strategic management is seen as obsessed with theory and disconnected from the world of practice (Hoffman, 2004, p. 213) and has relatively little influence on the formulation of public policy (Mahoney & McGahan, 2007, p. 79).

> "In particular an unholy coalition seems to have emerged between a dominant theory (rational choice theory) (Ostrom, 1998) and a dominant research methodology (Large N research)."
>
> (Heugens & Mol, 2005, p. 119)

This raises the question of the relationship between strategic choice, chance and determinism in strategy. De Rond & Thietart (2007, p. 537) present the following conjectures in order to theorise about this:

Conjecture 1: Causality is a necessary condition for freedom of choice.

Conjecture 2: Chance coincidences can open up new avenues for further choices.

Conjecture 3: Strategic choice is in itself insufficient to account for strategy.

Conjecture 4: Causal backgrounds are necessary in order for us to interpret and exploit chance events.

> "Strategy results from a complex interplay between chance and choice as mediated by causal background."
> De Rond & Thietart (2007, p. 544)

The theoretical model of De Rond & Thietart (2007) is shown in the diagram below:

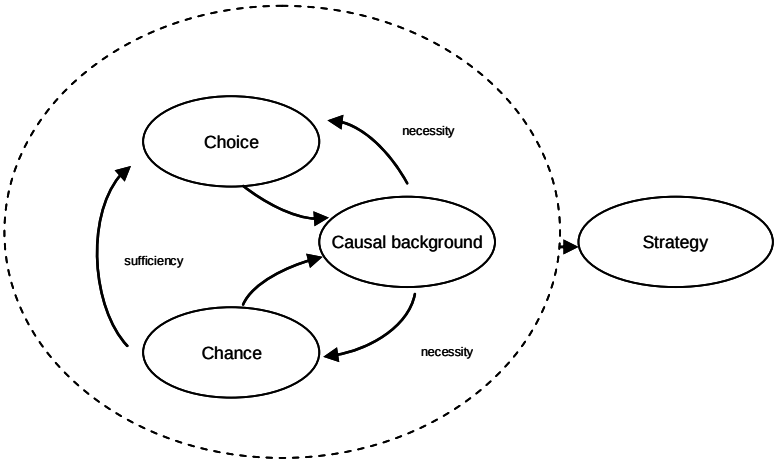

Figure 2.1: Strategic choice, chance and inevitability
Source: De Rond, M., & Thietart, R.-A. (2007, p.546)

This theoretical position is one attempt to resolve the dilemma of deliberate or emergent strategy. Realised strategy may only be deliberate if the strategic actors have strategic choice. To the extent that they believe they do, they will act, take decisions and hold themselves and others accountable for these actions and decisions. Determinism and strategic choice may be seen as polar opposites on a continuum. Extreme determinism implies that outcomes are based on teleological cause-effect relationships. Therefore, causal relationships are central to determinism. Strategic choice implies that human actors may intervene in the world (organisational contexts) to achieve desired ends by employing selected means. Paradoxically, however, strategic choice also depends on causation. In order to intervene, strategic actors have to work on the presumption of cause-effect relationships that make their choices and actions meaningful. This is the very basis of means-ends relationships. Where does chance fit into this scheme? Extreme determinism, while denying strategic choice, would also deny chance. However, chance events are not

inconsistent with causation. What chance does is enable different possibilities to materialise. Given path dependence, random events do not only effect a single period, but leave their traces on the future possibilities of the system. Furthermore, chance events may be magnified by positive feedback to the extent that they overwhelm the behaviour of the causal process. This is manifested in path-dependence. Since strategy is also dependent on the micro-processes and little actions that coalesce into patterns of actions over time, strategic choice is insufficient to account for strategy. This is given further support from a complex adaptive systems view of organisations. Finally, according to De Rond & Thietart (2007, p. 546) "causal background is a precondition for chance insofar as organizational actors rely on it for interpretation, prioritization, legitimization, explanation, and sanctioning or discarding alternatives".

A critical perspective of strategy implies that we have to go back to some of the foundational assumptions of the field. It has been argued by Ruef (2003, p. 243) that the ultimate goal of the field, that of profit maximisation, is an institutional construct. Further, given that the emergence of strategic organisation is conditioned by history, then the principles that the field has accepted as normative need to be considered not as ahistorical, but rather as a product of institutional developments (Ruef, 2003, p. 243).

Strategising and organising

There has been recognition that while strategy and organisation have been considered distinct and separable, there may actually be a strategy-organisation duality. This is marked by two separate but related shifts. The first shift is the recognition of the duality to the extent that strategic organisation has become conjoined and considered one single endeavour within the field of strategy. This is particularly marked by the creation of a new strategy journal, titled *Strategic Organization*. In an article of the inaugural edition of this journal, Whittington emphasises that strategy and organisation are fundamentally connected (Whittington, 2003). The second shift which is

possibly more profound is that of a shift from the noun forms of strategy and organisation to the verb forms of strategising and organising, respectively. Further, the terms elide into each other to become strategising/organising. Strategising shifts the focus to the active processes of strategists engaged in strategy-making. That is, strategising is something that people *do*, and the interest is in *doing* strategy. One may already detect a shift to that of practice and the practice turn in the field of strategy, that has led to its own subfield termed strategy-as-practice. The focus in the latter is on strategy as a type of work and not just a property or feature of organisations (Jarzabkowski & Whittington, 2008).

While the strategy-as-practice approach has claimed to have taken a more reflexive position of strategy, others have contested this view (Carter, Clegg, & Kornberger, 2008b). They argue that strategy from its seminal stage has had the imprint of modernist and instrumental rationality. The strategy-as-practice approach seems to be wedded to addressing the needs of practising managerial elites (Carter, Clegg, & Kornberger, 2008a). This coupled with its pre-occupation with the "real", means that it is stuck in the tradition of functionalism.

> "From an epistemological point of view, the strategy as practice approach seems to resemble a crude version of positivism that understands practice as being 'closer' to reality and delivering a 'more accurate' description of the real world."
>
> (Carter, et al., 2008b, p. 88)

Other criticisms are that the idea of practice is ambiguous and not well defined, that the distinction between practices and processes are muddled, the focus is on top managers with insufficient attention to complex networks of actors, little discussion on language, symbols and artifacts used in strategy making, and too much focus on formal procedures rather than those that emerge spontaneously. A further critique is that while there is a huge body of work in sociology that is well known and has contributed to organisation studies, strategy-as-practice which claims to have a strong sociological

perspective, has not used these insights except in "an ornamental way" (Carter, et al., 2008a).

> "It does so with the aplomb of a colonialist newly 'discovering' an already peopled continent, for whose existing inhabitants scant regard is given."
>
> (Carter, et al., 2008b, p. 85)

The verb form of organising reflects the interest in the dynamic process and fluidity of organisation in opposition to the stable structure and fixidity of organisation. The strategising/organising perspective is concerned with the micro-activities of strategists in every day practice and in the "murmurings of everyday life" (Whittington & Melin, 2003, p. 44, citing De Certau, 1984).

> "We use the phrase *organizing is strategizing* to capture the central argument that organizing and strategizing are parts of the same managerial processes, and that, therefore, they cannot be treated as separate managerial activities."
> (Achtenhagen, Melin, & Mullern, 2003, p. 75, emphases in the original)

Organising is defined as:

> "the creation and use of structural practices and coordination processes by internal stakeholders to enact the organization's identity, culture and interests"

while strategising is defined as:

> "planning, resource allocation, monitoring and control practices and processes through which strategy is enacted."
>
> (Colville & Murphy, 2006, p. 632)

There are four strands in the broader social sciences that underpin the strategising/organising approach. These include complementarities in economics, postmodernism, the practice perspective and structuration theory (Whittington, 2004).

Complementarities refer to the increasing returns to other activities by doing one activity. It is related to a virtuous circle driven by positive feedback of

activities that mutually reinforce each other through networked and web-like relationships. While complementarities in economics often focuses on these network effects and positive externalities generated by activities done by one firm for other firms, the same underlying synergistic logic operates within a single organisation as well. One aspect of this is how the dynamics of organisational relationships impact strategy, and how strategy-making influences the structural components of organisation.

Postmodernism questions the sharp distinctions, fragmentation and specialisation embedded in modernism. It is destabilising in its effects, and merges distinct boundaries into a new kind of holism, yet at the same time deconstructing grand theories and narratives. The sharp distinction of strategy and organisation in their particular ordered sequence is therefore no longer tenable. Strategy and organisation are a new whole. In addition, postmodernism shifts from static structures to dynamic processes, hence the support from strategy to strategising and organisation to organising. Verb forms are preferred in postmodernism.

> "… a postmodern style of thinking is one which eschews thinking in terms of accomplishments, of nouns, end-states, insulated, discrete social entities and events. Instead it is a style which privileges action, movement, process and emergence."
> (Chia, 1995, p.593, cited in Whittington & Melin, 2003, p. 43)

The practice perspective in social theory has as a central focus, situated activity in practice. It is interested in what people do as practitioners in shared sets of practices and activities. Thus, the focus is on micro-activities and the little improvisations made by practitioners as they navigate a complex world of practice. This naturally leads to the concept of learning from effective practice. The kind of learning that is needed for effective practice does not rely on formal learning but rather that type of learning that is drawn from the practitioners' *habitus*, defined as:

> "the accumulated schemes of perceptions, thought and action derived from their pathway through life."
> (Whittington & Melin, 2003, p. 44)

Habitus is second nature to the individual, embedded in his history, is tacit and embodied, and leads to responses as second-nature, producing practices spontaneously, naturally and barely consciously.

> "[H]abitus acquires through experience an integrated, if fuzzy, coherence"
> (Whittington & Melin, 2003, p. 44).

Thus, the practice perspective heightens the active sense of strategising/organising, the rootedness in what practitioners do, and the kind of skills that are not easily reducible to conventional scientific approaches. These skills are non-formulaic, highly contextual and difficult to transmit. Learning and practice shapes processes within organisation and is integral to organising. Moreover, the practices in strategising and organising call on similar skills and techniques (Whittington, Molloy, Mayer, & Smith, 2006).

Structuration theory refers to the duality of structure and agency. Structure is intertwined with action as action gives rise to structural relations, which in turn animates and constrains actions. This has implications for leadership, as it is not the lone, heroic efforts of leaders that determine organisational futures. Leader's actions are constrained and enabled by the structural rules, resources, and routines, which they themselves shape and construct. However, the rise of structural relationships which subsequently enable and constrains leader's actions, are also shaped and constructed by wider set of actors within social contexts. Structuration theory is aligned to processual approaches to strategy with its focus on creating, and recreating structures. It therefore has a contribution to the strategising/organising perspective.

> "Organizations can be viewed as continuous and intertwined processes of strategizing and organizing, as dynamic entities rather than just as static structures and strategic positions."
>
> (Achtenhagen, et al., 2003, p. 75)

Colville & Murphy (2006) argue that the change of pace in the external environment, leading to uncertainty and unpredictability is the driver from strategy to strategising / organising. They cite the case of pharmaceutical firm, Eli Lilly, and indicate how first strategy was pre-eminent, then the move to equal weighting given to strategy and organisation, and finally to strategising/organising. They suggest that leadership is the key element that connects strategy and organisation and enables strategising / organising. Here leadership is about a bigger role for human agency, and is understood from the perspective of sensemaking.

> "[S]trategy and organization emerge from local cumulative actions viewed retrospectively."
>
> (Colville & Murphy, 2006, p. 674)

The focus is on how people organise to make sense of fuzzy cues and enacting the result back to achieve a more orderly world. Paradoxically, the action shapes interpretation retrospectively (p.671).

Under the ambit of strategising/organising, attention is drawn to new theoretical and practical insights by considering organisation as pluralistic contexts (Jarzabkowski & Fenton, 2006). This is a different view of strategy, where the organisation is not reified as a coherent whole. Pluralistic contexts imply that organisations have stakeholders with sufficient power to make demands that legitimately influence the strategic goals of the organisations. In many cases these strategic goals are competing, incompatible and conflicting. Pluralistic internal stakeholder demands leads to multiple organising contexts and processes that are tied to the identity and professional goals and associations of the differing groups, while pluralistic stakeholder demands leads to multiple strategic processes which may not be compatible with each

other (Colville & Murphy, 2006). Jarzabkowski & Fenton (2006) present the following framework for diagnosis of pluralistic organisational contexts.

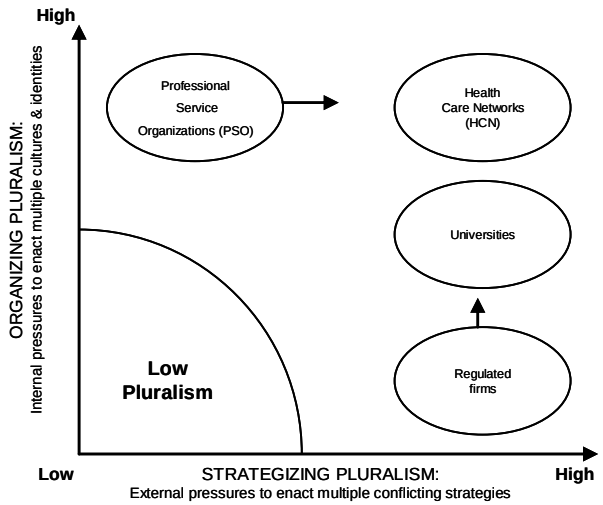

Figure 2.2: Association between organising and strategising pressures
Source: Jarzabkowski, P., & Fenton, E. (2006, p.637)

They identify three problems as a result of the interdependence between organising and strategising in pluralistic contexts:

- Pluralistic organising pressures have unintended strategising implications
- Pluralistic strategising pressures strain organising capacity
- Protracted tensions between organising and strategising

In order to address these problems, organisations need to strive for ongoing mutual adjustment between organising and strategising. They identify the interdependent mode

> "as an ideal state in which organizing and strategising are mutually reinforcing, creating organisational practices that are tailored to the demand of different strategic goals, and strategizing practices that recognise the interests and identities of different organizational groups."
>
> (Jarzabkowski & Fenton, 2006, p. 642)

This requires ongoing dialogue on a regular basis with a wide spectrum of organisational actors, with the aim of achieving common ground by placing the various interests within the wider context of multiple positions, interests and goals. Interdependence is not a steady-state but an ideal that the organisation has to strive for, dealing with the small imbalances between strategising and organising that occur *daily*, and making the necessary mutual adjustments.

The separation of strategic planning and implementation which dominates much of the literature has also been problematised. One way of dealing with it is to consider strategy as a "perennially unfinished project" (Knights & Mueller, 2004) that implies that it is a continuous process of self-formation and reconstruction. This is a much more dynamic view of strategy. The idea is that projects are made up of a variety of stakeholders that have different power and demands. Strategy appears as different configurations as the organisations attempts to placate the diverse sets of stakeholders and fulfil their demands.

> "Like the subjectivities or identities of the various stakeholders that strategy seeks to manage, the corporate or managerial subjectivity of strategic agents is also multiple, often fragmented, fragile and precarious."
>
> (Knights & Mueller, 2004, p. 56)

One of the rationales of the strategy as project notion is to overcome the subjectivist or objectivist poles of strategy. It is positioned as reflective of a

discourse approach to strategy. The latter treats strategy as a discourse or narrative where organisations are dominated by words, texts, stories and conversations. The discourse approach in some ways dissolves the subjectivist-objectivist duality. The objectivist stance assumes that the organisation is subject to general forces from the environment, but does not take into account the mutual shaping between the environment and the internal relations. These relations are dependent on the social architecture that is constituted in the subjectivities of the people that make up the social architecture of the organisation. Further the organisation-environment boundary is itself problematised, as this boundary is not fixed. A subjectivist stance posits that the environment is subject to interpretation but at the same time gives sovereignty to the managers, but does not take into account how the mindsets of managers are in themselves constituted and mediated through sets of social relations.

> "Far from a neutral notion, the 'environment' is politically constructed as the demon or dragon that, simply for purposes of self-survival, has to be slain or controlled."
> (Knights & Mueller, 2004, p. 57)

The strategy-as-project concept considers how strategy has the unintended side effects of transforming individuals into subjects, and therefore shapes and impacts their self-identity, as they engage with the various activities in strategy-making. This in turn depends on the various demands made by the stakeholders in the "project" and the configurations that are continuously reconstructed.

Actor-network theory

I now turn to what actor-network theory has to say about strategic organization.

> "[A]ctor-network theory is best thought of as a language rather than as an explanatory framework"
>
> (Steen, Coopmans, & Whyte, 2006, p. 304)

Actor-network theory focuses on micro-foundations of organisation, disrupts the dichotomy between structure and agency, and considers the exercise of agency and choice of individuals. In actor-network theory, conventionally what has been considered structures are configurations of human and non-human actors interacting together and thus structures are not stable entities, but are rather fleeting, and emerge out of confrontation and interactions. In actor-network theory what presents itself as an actor may not be a single individual, but may be an entire network (Czarniawska, 2006, p. 1554). Resources within the organisations are no longer static, but are dynamic, heterogeneous assemblages of human and non-human actors. Agency is not thought of as intentionality but rather it becomes a form of distributed action with structure and agency shaping each other. As indicated by McKiernan & Carter (2004, p. 5) "strategy is mediated through a broad gamut of technologies that possess agency".

> "Instead of a single actor in control, we have to be open to the possibility that it is an amalgam of people in various positions as well as technologies, regulations, memos, etc., that produce the effect of strategic organization."
>
> (Steen, et al., 2006, p. 107)

Actor-network theory lends itself to situations of uncertainty, flux and change, because that is where new associations are formed. It therefore affords the opportunity to methodologically link in with strategy-as-practice approaches. Both focus on the micro-activities of organisation life, and situated activity in practice. There is no longer a preoccupation with fixed boundaries and categories. In strategy-as-practice, the human actor is centre

stage to the extent that we are interested in how (s)he does strategy. Actor-network theory disrupts the relations between this human actor and the activities, and other non-human actors. Furthermore, agency is not just invested in human actors, but rather in non-human actors in the form of objects and technologies as well. Elsewhere, in my discussion of complexity theory (Chapter 5), I use the term artifacts to address these, and consider them as agents. This is very similar to agency being invested in non-human actors, as in actor-network theory. While the actions of individuals are important, it is not isolated from the relations and connections that make these individuals purposeful. Strategy-as-practice researchers are typically concerned with "lived experience and the mutual constitution of actors and their worlds" (Jarzabkowski & Whittington, 2008, p. 104). It therefore eschews positivism and is not concerned with objective reality.

The role of number systems in strategy-making has raised some interest (Denis, Langley, & Rouleau, 2006). In conditions of ambiguity and plurality, numbers enable action to occur. This "action at a distance" is enabled because numbers contain the properties of mobility, stability and combinability. Mobility is the possibility for agreed conventions to be transported from one point to another. Stability provides for shared meaning through accepted norms and conventions. An example of this is the standards and conventions of generally accepted accounting principles. Combinability is the property that allows numbers to be aggregated, compared and converted into alternate numbers in the form of ratios. They also allow normalisation of numbers for comparison. The quantification of aspects of reality into numbers is driven out of the necessity for trust to enable action at a distance. Therefore, number systems are required under conditions of distrust and pluralistic decision contexts.

> "By definition, however, quantification transforms rich and complex realities into more abstract and thinly described representations. Their claim to objectivity is therefore inherently suspect."
>
> (Denis, et al., 2006, p. 353)

This use of number in strategy-making links into actor-network theory, in that we note how number-based and quantification systems assume strong elements of agency, to the extent that users of numbers are seen to be detached from the decisions that they make based on those number systems. Therefore numbers are a political tool that allows strategic actors to influence and marginalise contesting positions and present an "aura of neutrality". The application of technologies of quantification is also important as they are embedded in micro-practices of strategy making, and are therefore an important component of the strategy-as-practice perspective. Numbers are a form of "constructing objectivity" (p.360).

The issue of agency is not a straight-forward one, however, as exemplified in the following quotation.

> "The number system in fact provided a means for people to consent to the closure of institutions, yet distance themselves from the decision. Not they, but the numbers, were responsible for the final fateful choice."
>
> (Denis, et al., 2006, p. 368)

Strategy as "Serious Play"

An interesting model of strategy-making is that of strategy as serious-play (Roos & Victor, 1999). This is based on the work of these authors at the Strategic Imagination Lab at the International Institute for Management Development (IMD) in Switzerland. The work is a research effort at developing and refining a conceptual framework from conducting experiments on strategic challenges faced by real strategy-making teams.

The model is shown below:

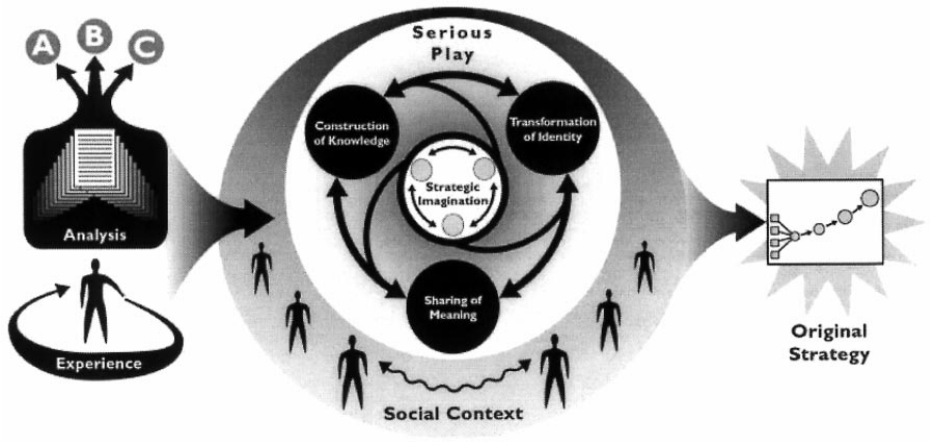

Figure 2.3: Strategy as serious play
Source: Roos, J., & Victor, B. (1999, p.354)

The authors suggest that superior strategies depend on originality, and this in turn requires strategic imagination. Strategic imagination is defined as an emergent process based on the interactions between three distinct types of imagination.

Descriptive Imagination

This type of imagination is drawn from framing images and representations of a complex world. It is a matter of sifting through large amounts of data drawn from analytical processes, identifying patterns and regularities and constructing images of the environment. They include most of the conventional strategy tools such as five forces, value chain analyses, SWOT, portfolio analyses, a variety of 2x2 strategy matrices, and even scenarios and Morgan's "images of organization" as techniques for stimulating the descriptive imagination.

Creative Imagination

This refers to creativity that generates new opportunities that are inherent but not previously realised. The authors suggest that creativity plays a central role in many of the suggested mechanisms on strategy-making, such as

skunkworks, intrapreneurship teams, and visioning. The focus is on innovative possibilities. They state that the strategy literature refers to the role of analysis before any attempts at strategic creativity. They caution that some organisations may opt for strategies that are so different that they become disconnected from major stakeholders. These stakeholders do not understand and therefore do not legitimise the new strategies. This is a problem as these are the stakeholders that enable access to the strategic resources that are required. The inherent danger of creative imagination is "flights of fantasy" that lose touch with reality.

Challenging Imagination

It is with this type of imagination that:

> "we negate, defame, contradict and even destroy the sense of progress that comes from descriptions and creativity…It is with our challenging imagination that we find the disillusioning, the absurd and the outrageous in everyday experience."
>
> (Roos & Victor, 1999, p. 350)

The challenging imagination is based on deconstruction and sarcasm. The danger is that the challenging imagination does not provide an alternative for the object of deconstruction once it has been dismantled.

It is the complex interplay between these three kinds of imagination in a social context that leads to strategic imagination. The result is an emergent process that is consistent with Mintzberg's emergent strategy. This has three major elements, 1) construction of knowledge gathered from analysis and experience, 2) sharing of meaning from such knowledge and 3) transformation of identity assimilating the new knowledge. The authors state that during the strategy-making process much of it is concerned with what could be, and hence is akin to "make believe". They connect this insight related to the social dynamics of strategy-making with learning from anthropology and social psychology that relates to "play". Therefore strategy-making is a form of "serious play" where executives agree to participate in a

learning experience that is collective and has intellectual, emotional and social elements (p.352).

> "[I]t is an activity that draws upon the interrelated domain so the intellectual, emotional and social life of the organization. Since the strategic imagination must be an organization-wide imagination, the strategy process must not only stimulate the individual's imagination. The strategy-making process must enable the transformation of the individual imagination into something that is shared."
>
> (Roos & Victor, 1999, p. 352)

The strategy-making model from this work therefore highlights that strategy-makers draw on their strategic imagination, when there is an emerging strategic idea that can be shared. This is done through a process of story-telling about the possibilities, which then impact on transforming their identities that incorporate the new knowledge.

In later work, reported by researchers from the Imagination Lab, they explored the use of a multimodal approach to strategy. They note that Morgan's application of metaphors and images of organisation indicate the importance of multiple perspectives and views in order to get a richer understanding of organisational life. However, when it comes to strategy-making the "*effect of strategy imagery on strategy making itself* has not been explored in the literature" (Burgi & Roos, 2003, p. 69, emphases in original). This is what their research attempted to address. They draw on the work of Piaget who demonstrated that knowledge was constructed in the mind while there was active construction in the world. This indicates that knowledge construction is dependent on more than reading, writing and speaking, to include physiological aspects. If this idea is coupled with Gardner's multiple intelligences, beyond mathematical and verbal, then a strong case is made for multimodal approaches to imagery including pictorial/visual, verbal/ narrative, and spatial/kinaesthetic. Since strategy-making conventionally tends to be highly abstract there is an assumption that it has to be highly cognitivist. The multimodal approach experimented with by these researchers focuses on

a more concrete approach to strategy-making that is underpinned by constructionist perspectives of knowing. Their work was a form of action research, in the case of one strategy-making team in a single organisation. The research indicated success in the application of the strategy-making process in relation to previous processes that were followed, and that it was more effective than other means. They note that there are challenges to generalise their findings. However they further state:

> "And, as action research that seeks to access and understand the subjectivities that affect the imagery of strategy makers, techniques have to be used that allow such access even at the cost of a broader, more objective cross-sectional sample of different factors affecting the strategy formulation."
>
> (Burgi & Roos, 2003, p. 76)

A paradoxical lesson from this work is that since much of imagery of organisational life is abstract and seeks to reduce information, the multimodal approach deepens understanding of reality, reducing the level of abstraction felt by strategy-makers.

In a later paper on the ongoing work of the Imagination Lab, Roos, Victor, & Statler (2004), report further on "serious play". It considers the conventional technologies that are used in strategy-making workshops. These technologies are usually whiteboards, flipcharts, PowerPoint presentations, and at times computer support and group decision-making tools. These are generally two-dimensional media. They introduce three-dimensional media, in the form of LEGO blocks, into the strategy-making process. The introduction of this simple technology has a profound impact on the way strategy-making is conducted. The LEGO blocks are used by participants "to make and express meaning" (p. 552). They present a framework that focuses on two variables that are changed. The first variable as already mentioned is media. The use of the LEGO blocks, shifts from two-dimensional to three-dimensional, and presents a tactile dimension to the work that strategists engage in. This introduces a connection between hand and mind, which, they hypothesise

affects the outcomes. The second variable that they consider in their framework is that of mode. The mode in conventional forms of strategy making is primarily cognitive. The introduction of the new media widens the mode to include affective aspects and additional processual elements. The mode therefore is now expanded to include cognitive, emotional and social interaction elements. The mode is also important in another way, which relates to the intentionality behind which strategy-making occurs. There has long been the consideration of strategy as deliberate or emergent. Roos, Victor, & Statler (2004) note that by the introduction of the LEGO blocks media, the mode is expanded to include both deliberate and emergent perspectives of strategy making. One of their early hypotheses in using the "serious play" approach is that by changing the media and the mode, and thereby the strategy process, it will lead to a change in the strategy content. This means that if their hypotheses are valid they have discovered an effective bridge between strategy content and strategy process.

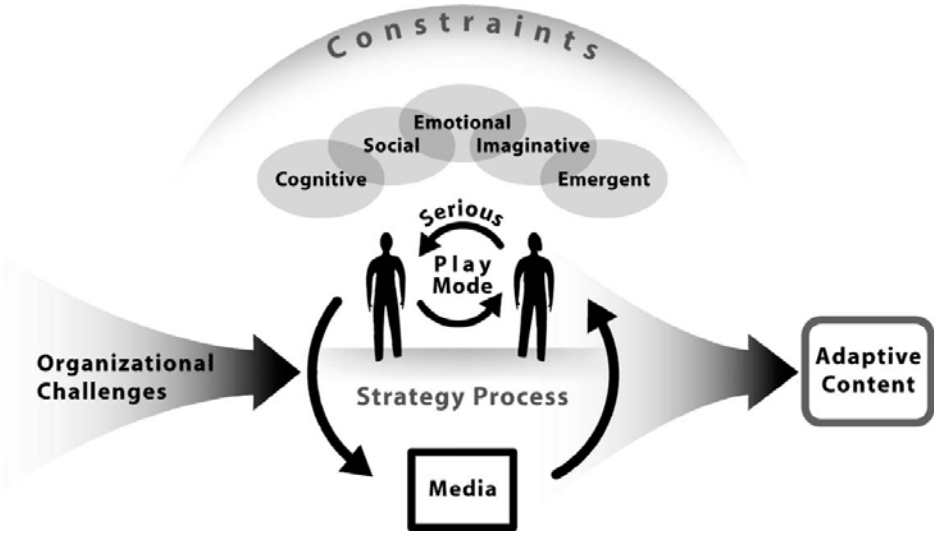

Figure 2.4: Media and mode in strategy as serious play
Source: Roos, J., Victor, B., & Statler, M. (2004, p.564)

This leads us to consider what other aspects can serve such a bridge. How do we facilitate a change in the strategy content by changing the strategy process?

Does this mean that different forms of processual approaches, automatically impact on strategy content?

They offer three case studies of the application of "serious play" in strategy making. In one of the sessions, they offered participants an assortment of LEGO materials in predefined strategic management categories including resources, connections, people and dynamics, together with usual two-dimensional materials such as flipcharts, transparencies and whiteboards. They observed that participants were easily able to present their ideas, concerns and opinions around challenges and opportunities that they faced. This was supported by improved participation in groups. In explaining what they built, they told "elaborate stories" that exhibited strong affective dimensions. They attributed meaning to shapes, sizes, and colours of the LEGO blocks. Some included temporal dimensions.

Although in one of the cases, strategy-makers seem to revert to the dominant approach, there was nevertheless some impact on the outcomes. The other two cases appear to support the hypotheses.

> "Overall, our observations and associated literature supports our initial hunch that changing the medium and the mode constraints on strategy processes can lead to changes in strategy content."
>
> (Roos, et al., 2004, p. 560)

The lessons from this work are summarised below:

- Play is an activity that is voluntary and not forced. It can be encouraged and supported but not imposed.

- Serious play draws on descriptive, creative and challenging imagination so that participants see their organisational reality differently from "normal reality".

- It integrates cognitive, social and emotional dimensions of experience.

- Despite drawing on intentionality it stimulates emergent outcomes on organisational issues and challenges.

- In order to achieve innovative strategy content, organisations require innovative strategic processes.

- Play develops the capacity to understand meaning and the ability to recognise social rules such that participants act and communicate according to them.

- Manipulation of material brings in an integrative link between hand and mind, and offers new ways to interact with the world.

- The constructions utilising the new medium of LEGO bricks is a form of creating analogues of mental models of participants, and therefore shared construction means new, shared mental models. This has links to the learning organisational literature.

- The research shows the benefits of non-positivist approaches to strategy.

> "Instead of making an observer-independent, retrospective account of processes conducted after they unfolded, we have tried to make observer-dependent, real-time observations of events after they unfolded, and *without knowing the outcomes in advance*."
>
> (Roos, et al., 2004, p. 564, emphases added)

We may also consider to what extent the "serious play" intervention relies on the use of metaphor and analogical reasoning, and whether there is merit in combining the application of metaphor and analogy together with the change to three dimensional media. Another avenue worth further investigation is the use of other three dimensional media, that rely more heavily on the tactile dimensions. I would suggest that this could be extrapolated to potter's clay or play-dough, as here the tactile dimensions are accentuated. We may also consider how the cognitive aspects may be temporarily suppressed by suppressing the dominant sense of sight. So we could ask participants to use the potter's clay while they are blindfolded. This extends the potential of metaphorical and analogical reasoning by emphasising different sensory faculties.

Finally, we may consider how the use of the LEGO blocks to present a representation of the organisation, contributes to sensemaking.

The strategy-as-practice perspective focuses on practices which includes tools, procedures and routines that are deployed in the strategy-making process. This in itself provides a theoretical rationale for the strategy as "serious play" discussed in this section. Managers do not just design abstract strategies and structures, but also construct physical objects with which to communicate them (Whittington, et al., 2006).

A case has been made that there is a need for more process thinking in strategic organization. This is about understanding "movement, activity, events, change and temporal evolution" (Langley, 2007, p. 271). One implication of this is that the application of strategy tools in strategy-making is in itself not static, nor are the organisational routines that underpin them.

Examples include the resource based view and the dynamic capabilities approach. Routines "are recursively reproduced and yet adapted each time they are invoked" (2007, p. 275).

Minocha & Stonehouse (2007) note that strategising tends to favour the verbal and the "text", that is strategising is seen as "disembodied". So although strategy has followed the linguistic turn also found in organisation and management studies, it has been slower in taking the "bodily turn". They call for taking into consideration the impacts of the body on strategising.

> "In calling for acknowledgement of the body we urge the study of non-verbal gestures, sounds, silences, gestures, voices and the overall physicality of strategizing processes. However, study is not limited to the physical body but also its embodiment – the meaning-made body (Bourdieu, 1977:75), the lived body (Grosz, 1994, 1995), the becoming body (Styrene, 2004:104)."
>
> (Minocha & Stonehouse, 2007, p. 437)

They wish to elaborate the strategy-as-practice approach, and indeed draw heavily on Whittington's agenda for strategy-as-practice. They consider each of his research questions from a body-aware perspective. It offers important linkages with appropriate methodological approaches such as performance ethnography. Their suggestion may be important in considering strategy in pluralistic and multi-cultural approach contexts especially if there are indigenous traditions that are in themselves more bodily-aware.

Strategic enactment

Conventional approaches to strategy consider organisations as stable and enduring, and strategic change is what happens between these stable states. This is further underpinned by organisational routines that are stable patterns of behaviours and actions that are recurrent and repeatable. This means that organisations are prior and change is a property of organisations. An alternate conception is that change is ontologically prior to organisations (Tsoukas & Chia, 2002). The focus is on how organisational change is a reweaving of the webs of beliefs, and hence actions of organisational actors as they interact

with each other. For example, Amason & Mooney (2008) show how framing strategic issues differently as either opportunities or threats lead to different actions and outcomes.

These different conceptions of change date back to the different philosophies of Democritus and Heraclitus (Van de Ven & Poole, 2005). Democritus considered reality as made up of stable substances, which only changed in terms of properties and features. Heraclitus considered reality as a constellation of processes and not stable things, and hence his oft repeated quote that "you can't step into the same river twice."

Much work on strategic change is based on synoptic accounts of change which has an outside-in focus providing snapshots of organisational states. This is a stage model of change, outlining the various states over different points in time. However, such synoptic accounts lose the "open-ended microprocesses that underlay the trajectories described" and misses the "fluidity, pervasiveness, open-endedness and indivisibility" that are the distinguishing characteristics of change (Tsoukas & Chia, 2002, p. 572). "We say that the acrobat on the high wire maintains her stability" (p.572) but do not pay sufficient attention to the constant adjustments that she is making to deal with the micro-imbalances as she moves on the tight-rope. The same applies to organisational routines. We focus on what is stable in these routines, but at the level of individual action and interactions, routines are constantly adapted, re-arranged and are situated "ongoing accomplishments" (Tsoukas & Chia, 2002, p. 572, citing Feldman 2000, p.613). Change is therefore experienced by practitioners as an unfolding process, as they adapt to local situations and contingencies, based on local and tacit knowledge. In addition, knowledge and action can be understood to develop together (Hatchuel, 2005). The routines that appear stable at one level of abstraction are dynamic at another, as rules and actions are adapted at a more detailed level.

> "There is a stable core in a category, consisting of prototypical members, which accounts for the stability with which the category is often applied. However there is also an unstable part, consisting of nonprototypical members, which its situated application may bring about."
>
> (Tsoukas & Chia, 2002, p. 573)

Organisational routines, therefore, have stable characteristics, but also a dynamic, unstable part which differs in application in context. All of this means that a stages model of strategic change, based on synoptic accounts of change tends to privilege strategic change that is planned and deliberate while ignoring the emergent nature of change resulting from micro-processes, improvisation and situated action.

If change is ontologically prior, and it is dependent on local context, local actions and adaptations of routines, then clearly the idea that the strategist is the chief executive or are a select group of top managers becomes untenable. This means that potentially all actors influence the strategy that ultimately emerges, and potentially all actors are strategists. Furthermore, since improvisation is a recursive process of action and adaptation, thinking and acting are very closely intertwined, meaning that strategy formulation and strategy implementation is a *single* process. It means that strategy is enacted through local actions and not through bold and grand strategic moves that are conceptualised by strategists and then implemented by lower level organisational participants.

A structuralist-functionalist approach takes a positivist stand that considers reality as objective and fixed. A constructivist approach suggests that reality is constructed by organisational actors through their interactions and changing webs of belief. A constructionist approach goes further in identifying *how* social reality is constructed. It suggests that this happens through language and discourse. Rather than using language to discover the objective reality out there, language has been invented to create the world that we know. Ford (1999) suggests that there are two forms of constructed realities, namely first-

order and second-order realities. First-order realities are made up of un-interpreted data and facts. They are accessible, verifiable and based on empirical processes and shared knowledge that have accumulated over long periods of time. An example of a first-order reality is the price of a competitor's product or the current exchange rate between two currencies. It could also refer to properties of physical substances such as the atomic weight of gold and silver. First-order realities imply that new knowledge is unlikely to cause us to radically revise our understanding of the phenomena that it refers to. It is important to note that although first-order realities may appear to be like that of reality based on a structuralist-functionalist ontology, they are not. They require a set of shared conventions, linguistic agreements and understandings. The first-order realities are themselves constructed, unlike the structuralist-functionalist approach where concepts, words and terms reflect the objective real world referents. The terms in our discourse in the latter are representations while in first order-realities they are social constructions.

Second order realities are based on interpretations of the events and facts in first-order realities. They create reality separate from first-order reality in that there are consequences from our interpretations that lead to actions which give rise to events in a subsequent first-order reality. Let us take the example of a competitor that reduces the price of a product (first-order reality) that competes with ours. We may interpret that as a strategic move to encroach on our market share (second-order reality). Based on such an interpretation we retaliate by lowering our prices on a whole suite of our products, and launch a product in a market segment where our competitor is dominant in order to send out a strong symbolic message. This leads to successive price cuts in the industry resulting in a price war and hence all prices settle at a new lower equilibrium (first-order reality).

> "Because second order represented realities provide the context in which first-order realties are present, changes in second-order representations can lead to fundamental and *practical* changes in an organisation regardless of what happens to first-order realities."
>
> (Ford, 1999, p. 483, emphasis added)

Organisations may be considered as networks of conversations constituting first and second-order realities. Important organisational processes such as planning, budgeting, and managing are all interconnected conversations that make up the organisation. These conversations result in commitments that become part of recurrent conversations which have predictable broad patterns of activity. An example of this is an order fulfilment process. Such a process invokes a recurrent conversation that is embedded in functions and activities, and hence organisational routines. Therefore, we can see that organisational routines that are normally considered stable and enduring are actually forms of recurrent conversations.

Strategic change may now be conceived as a result of shifting conversations within organisations. As such there is no single "*the*" change (Ford, 1999), that is implemented. Rather, it is

> "an unfolding of conversations into already existing conversations and how a 'change' occurs to participants will depend on the second-order, represented realities within which they engage the unfolding dynamic."
>
> (Ford, 1999, p. 487)

This indicates the importance of languaging which is defined as a process in which language is not only maintained but is developed and enhanced (Von Krogh, Roos, & Slocum, 1994) . The use of words and terms are not static, but are changed taking on new meanings, or shifts of emphasis and context, or creating new metaphorical connotations.

Here again we see that change is now improvisational, and not scripted in advance, but rather *the script is written as it is enacted.* Therefore strategy is emergent, unfolding in a dynamic, adaptive, improvisational fashion.

However, there is now some place for intentionality. If we wish to enact a new strategy and organisation change, we may intentionally bring in new conversations to extend, revise or delete existing conversations. It must be noted, however, that while we may have intentionality and agency in injecting new discourse, we do not have any control of how the conversations, and hence the emerging strategy will unfold. Gioia, Thomas, Clark, & Chittipeddi (1994, p. 365) indicate a "complex interrelationship among symbolism, sensemaking and influence".

Generalising strategy

If we consider the various schools of strategy and the myriad perspectives that we have explored, we note that the preponderance of the effort is on commercial organisations. The very notion of strategy has embedded in it the idea of competition. This is particularly the case when we consider competitive strategy and how competitive advantage may be sustained. The focus here is usually on strategy content. However, we know that other literature considers strategy process. The literature on strategic change may also be considered together with that of strategy process. It is my contention that strategy is generalisable across all kinds of organising formations, not just commercial organisations. If we stay wedded to strategy content this is difficult to do. However, if we take a process approach, then it leads itself to such generalisation. The central question shifts from how to achieve sustainable competitive advantage to that of how does the organisation adapt and co-evolve in an uncertain future. This is supported by a definition of strategy as a consistent pattern of action over time. Such a definition does not constrain us to a commercial setting. The central question then shifts to how do organisations achieve a consistent pattern of action over time? This perspective means that much of what has been covered earlier in this chapter applies equally well to non-commercial organisations.

Many of the strategy tools may be applied across sectors and are generic. There are others, however, that do not translate as easily. There is another

caution in that while I make the case that strategy is applicable across sectors, I do not mean that such other sectors must necessarily become like corporations. In other words, it will not be helpful if universities, for example, start mimicking private sector organisations as that undermines their viability.

I consider viability to mean an organisation will be able to survive in a turbulent, uncertain environment while retaining its core identity. The notion of identity is critical and there has been insufficient attention to it in the strategy literature. Viability and identity go hand in and hand. The question that is raised is what are the boundaries of identity? The danger is that if identity is defined too narrowly, it is overly constraining and hence adversely impacts viability. In the context of fast changing, turbulent environments, it is important that organisations need to have the ability to adapt, to change and to redefine themselves. The issue is how much they change. I shall use an analogy here. We can identify a species as being similar to identity. As long as the change does not destroy the species then the identity may be shaped and adjusted. If, however, the identity changes to such an extent that the organisation may no longer be identified as part of its original species, then we may say that that organisation has been destroyed. It is morphologically something else. The point that I am making is that the over-corporatisation of non-commercial entities mean that more and more organisations of other species start to look like corporations. Their identities are thus destroyed. The application of strategy and strategic thinking must not lead to this as then it is destroying an important element of society and value to humanity.

If we wish to do a comparative study of different organisation species type, then it becomes important that we understand the various contexts of those species types. Strategy context is therefore as important as strategy content and strategy process.

So, for example, if we are considering strategy in the public sector we need to understand the "publicness" and what it means. If we are looking at NGOs

we have to understand what is distinctive about NGOs and similarly, international agencies and social movements.

Discussion

Table 2.1 listed a number of questions that highlights the key issues and concerns in the field of strategy. A closer inspection of these indicates that most of them are framed from the point of view of commercial organisations. Many of the strategy models or frameworks that are derived from a consideration of these questions also tend to privilege commercial organisations. Thus, we have a very restricted view of strategy. As we have seen in the resource based view of the firm, the underlying issue is that of sustainable competitive advantage. Thus, much of the framing of strategy is around the profit motive and competitive advantage. Even though some of the strategy models have been applied in non-commercial settings such as in government departments, universities, schools and non-governmental organisations, an uncritical translation of the key concerns of strategy into these contexts are problematic. Every model has embedded in it value positions, and the primary one in models designed for commercial settings is that of the profit motive. Values travel with their models. Thus, a more critical stance is warranted when we apply such models to non-commercial settings otherwise they are likely to have several unintended consequences. An argument may be made that when academics and theorists develop theoretical and conceptual models for application in practical settings, the values embedded in the models need to be made more explicit. Part of good theorising is clarifying the boundary conditions of models and theoretical frameworks. When do these models apply and when do they break down? The suggestion is not meant to be limiting because it is of enormous benefit to take learning from one field of endeavour or context and apply it to others. Nevertheless, there are always dangers of uncritical application and hence this issue is an important one.

Even if we restrict the discussion to commercial settings for now, the preoccupations in strategy as indicated in Table 2.1 has other problems. It tends to favour one set of stakeholders, namely shareholders, over others. However, organisations serve a much broader set of stakeholders and society at large. Therefore, strategy should not ignore the demands and goals of these other stakeholders. Moreover, organisations are multiple and plural, and a focus on competitive advantage and the profit motive alone is a very reductionist approach. The questions in Table 2.1 reveal that much of the strategy field is pre-supposed on an objectivist ontology. There is little appreciation for how interpretation and construction of reality feature, and how they are important determinants of strategic actions.

The delineation of strategy into corporate, business and functional strategies is limiting in that it treats organisations from a very linear perspective. This is the classical organisation-as-machine bureaucracy. This conception of organisation has been critiqued from a systems thinking perspective (Jackson, 2003; Morgan, 1997). Once again, this categorisation belies the preponderance of strategy with commercial organisations and one that is less relevant to other forms of organising.

A conclusion that is drawn from this chapter is that strategy is a broad and diverse field of endeavour. Yet it still remains highly fragmented, disintegrated and there is little in the way of cumulative knowledge. There has therefore been a call for more consolidation and integration. If this is not achieved, the field is in danger of becoming subsumed into the base disciplines especially in the social sciences or into adjacent fields. Others, such as Volberda (2004), have argued that integration is not yet achievable, and therefore what is required is synthesis. While this is a noble goal, the attempt made by him towards synthesis is quite idiosyncratic. The question is what should be the basis for the synthesis? Until this is remedied, other attempts are likely to be just as idiosyncratic.

The position that I take on this matter is that strategy is still a relatively young field, and the argument that it is a pre-paradigmatic one has merit. Therefore there should not be any rush to achieve integration. This is given even more weight because it draws from a variety of base disciplines. Therefore it is, and should be, an inter-disciplinary endeavour. Plurality gives it richness.

Strategy research is dominated by instrumental rationality relying on large statistical databases and large sample sizes. This is because of the heavy influence of economics. Although learning from other social sciences has begun to influence the field, there is a long way to go. As a result, research has become too disconnected from practice, and has been criticised for having relatively little influence on public policy.

The principles of the field need to be considered from a historical standpoint, and that they are a product of institutional development needs to be recognised. As one example, the goal of profit maximization is an institutional construct and not a value free objective phenomenon.

Traditionally, strategy and organisation have been considered as distinct concepts. Recent work, especially from the strategy-as-practice sub-field indicates that strategy and organisation are intertwined, and there is merit in reframing them in the verb form as strategising-organising. Strategy-as-practice has been criticised as still having the modernist imprint, especially because it is wedded to the interests of the managerial elite, and that it is also still stuck with an objectivist ontology. Despite this criticism of strategy-as-practice it has made a significant contribution to a much richer understanding of strategy, and its focus on situated activity in practice. Furthermore, it helps in identifying the close links between strategy and organisation and in strategising-organising. The strategy formulation-implementation dichotomy that is so strong in the dominant approaches to strategy has been problematised. The idea of strategy as an unfinished project helps to deal with this. This approach may be seen as aligned to that of strategy-as-practice, but

it also brings another perspective to strategising-organising in the form of highlighting the important of discourse. Where strategy-as-practice has been criticised in terms of its functionalism, strategy as unfinished project, brings in interpretation and social constructionism in the form of discourse. It also highlights that the organisation-environment distinction is not "innocent". Rather it is based on constructions of the social actors involved.

Actor-network theory offers us a new language for understanding strategy. While it is consistent with strategising-organising, and strategy-as-practice, it offers us a more complex understanding of agency. Agency no longer resides with human actors alone, but agency is invested in artifacts. Furthermore, there is now more fluidity between structure and agency. An area that has not received sufficient attention in the literature is that of the technologies of quantification. The use of numbers, as we have seen, gives an "aura of neutrality" and a way of constructing objectivity. As these technologies of quantification are applied, there is a steady detachment from the socially constructed nature of the phenomenon. Eventually, actors start to believe that these are objective facts. Moreover, such number systems are invested with agency. At its extreme, when "facts" (read, the numbers) speak for themselves, decisions are taken as if they were not made by the human actors involved. Number systems are integrally involved with situated activity in practice and are therefore an important component of strategising-organising.

An important aspect of strategy is the suite of the strategy tools that are employed. These include strategy indabas[1], planning sessions, and the associated technologies that are deployed during group strategy processes. The technologies include whiteboards, flipcharts, PowerPoint presentations and over-heads. Strategic frameworks and conceptual models such as SWOT analysis, Porter's 5 forces and the BCG Matrix are also part of the

[1] In the South African context, this term refer to a strategy breakaway session, usually attended by senior management of organisations (public and private) conducted in a place of retreat away from the office.

technologies deployed in group strategy sessions. The strategy as "serious play' research offers innovative approaches by changing the mode and media in group strategy processes. Perhaps an even more significant contribution of that research is that it notes the change in identity of human actors in the process of strategy-making. This appears very promising in relation to a theory of strategic enactment. "Serious play" offers potentially a better understanding of the relationship between strategy content and strategy process, and may serve as a bridge between deliberate and emergent strategy. It encourages the application of metaphor and analogy and is explicit in getting actors to represent the organisation metaphorically.

While conventional approaches to strategy consider organisations as stable, an alternate conception is that change is ontologically prior to organisations. What we then have is a constant flux or a "sea of change". This alternate framing shows that organisational change is a reweaving of the beliefs of organisational actors. It also calls into question the widespread assumption that routines are entirely stable. Routines themselves are dynamic in their application. When we take a strategising-organising view, we realise that routines are constantly being adapted in situated activity in practice. Another contribution towards a theory of strategic enactment may be drawn from the work of Ford (1999) on shifting conversations. Change is viewed as the dynamic unfolding of conversations. There is a place for some level of intentionality and hence agency. If we wish to achieve organisational change, it means changing the nature of conversations and injecting new conversations into strategising-organising. This in turn affects first-order and second-order realities as theorised by Ford (1999). This is entirely consistent and aligned with sensemaking. Strategic enactment is therefore a form of strategic improvisation.

Chapter 3 - The Resource Based View

Introduction

This chapter covers the resource based view of the firm, and its extension referred to as the dynamic capabilities approach. While the resource based view offers a very different perspective to that of industry analysis approaches to strategy, the chapter explores the framework of Amit & Schoemaker (1993) which attempts to bridge the two perspectives. It is important to understand that the resource and capabilities perspective are as a result of particular characteristics of asset-stock accumulations. These characteristics are, therefore, discussed. Finally, the chapter presents the competitive strategy dynamics approach that includes elements of the resource based view, dynamic capabilities approach, and system dynamics.

Resource based view

While the industrial organisation approach to strategy focuses on the industry and the external environment, the resource based view (RBV) of the firm turns its gaze inward to the firm itself. The premise is that sustainable competitive advantage is not achieved from product and services but rather from the underlying resources that give rise to the products and services. The industrial organisation approach places emphasis on the Opportunities and Threats in the conventional SWOT analysis, while the RBV places emphasis on the Strengths and Weaknesses of the conventional SWOT analysis. One of the arguments of the RBV is that in rapidly changing environments, products and services do not render stable advantage, while the underlying resources do. The basic logic of the RBV is that firms are made up of bundles of heterogeneously distributed resources. Provided that these resources are valuable, rare, inimitable and non-substitutable, referred to as the VRIN attributes of resources, they will be able to achieve sustainable competitive advantage (Eisenhardt & Martin, 2000). Resources have been categorised as

physical resources, financial resources, technological resources and intellectual resources. It is important to note that

> "resource endowments are 'sticky': at least in the short run, firms are to some degree stuck with what they have and may have to live with what they lack."
>
> (Teece, et al., 1997, p. 514)

It is not only the resources that are important, but also the firm's capabilities. Grant (1991) defines capabilities as teams of resources that work together. These are seen as akin to organisational routines (Nelson and Winter, 1982). He asserts that

> "[o]rganisational routines are regular and predictable patterns of activity which are made up of a sequence of coordinated actions by individuals."
>
> (Grant, 1991, p. 122)

In this reading, capabilities are sets of interacting routines. Competitive advantage may be sustained if the resources have particular characteristics. These include durability, transparency, transferability and replicability. These attributes are categorised and described according to Grant (1991)as follows.

Durability

Resources and capabilities depreciate or erode over time. Different types of resources become obsolete at different rates. For example, as a result of technological advancement, machinery becomes obsolete more rapidly. On the other hand resources such as brands, reputation and image may take a longer time to erode under normal circumstances. They are more susceptible to catastrophic loss, however. An example is that of a pharmaceutical firm whose reputation may be damaged by a drug that unintentionally leads to poisoning of patients. This exemplifies the idea that different resources can have differing rates at which they are built up and that at which they depreciate. It also shows the differing build and erosion rates of the *same* resource.

When resources tend to be based on the tacit knowledge of key individuals then they are not as durable, because they are lost if these individuals leave the firm. Patents, by contrast, lock in resources for fixed time periods and therefore have high durability.

Capabilities may be more durable than resources because they rely on teams of resources, and may be retained when some of their underlying resources are lost. This may be achieved, for example, by replacing certain individuals, or through buffers and redundancy of knowledge within the teams of resources.

Social capital, which is based on relationships between individuals and the levels of trust within groups, are more durable than human capital, as the latter relates to the knowledge that resides within individuals (Cohen & Prusak, 2001, pp. 3-8). Capabilities are based on systemic relationships between resources and are therefore more durable. The more durable the resource or the capability, the longer the competitive advantage may be sustained.

Transparency

Transparency is related to how easy it is for competitors to understand and to imitate a firm's competitive advantage. The constraints in achieving this relate to information transparency. Competitors need to understand what the competitive advantage is and what the underlying capabilities and associated resources are. The relationship between resources and capabilities, and the relationship between capabilities and competitive advantage determine the level of transparency. There is a high level of transparency if there are a few highly visible resources which together form one capability that is the source of competitive advantage. An example of this would be a patent that is about to expire, together with a single piece of equipment which constitutes a single capability that is the source of competitive advantage. By contrast, the level of transparency is low if there is a combination of resources some of which may

be implicit or tacit that gives rise to a capability. If there is a need for a high level of co-ordination of resources and several interlinked capabilities, then the level of transparency will be low. The higher the transparency the less enduring is the competitive advantage.

Transferability

Transferability refers to the ease with which competitors are able to procure the necessary resources and capabilities. Resources may be available in factor markets at similar or lower cost than that of the incumbents. In such cases, the competitive advantage will not be sustainable. There are limits to transferability of resources. These are as a result of geographic immobility, information asymmetries, tacit know-how, and other firm-specific resources, as well as legal impediments. Geographic immobility refers to the relative location of key resources in relation to the incumbent and competitor firms. It can refer to a situation where a plant is located close to the source of its raw materials (e.g. a bauxite source for an aluminium smelter) or close to factor markets for specialised employees. Information asymmetries refer to the knowledge that a firm has on productivity of resources not available to competitors, and hence asymmetries in resultant pricing, which puts competitors at a disadvantage. Firm specific resources refer to the *use* of the resource within a firm that renders it more productive than if the resource was used in another firm. An example is when a particular technology offers a firm economies of scope through its application in a variety of different processes for multiple products that share that technology. Thus, the productivity of the resource will be higher than that of another firm that is only able to deploy the same technology in a single process for a single product.

Given that capabilities are embedded in systemic relationships they are more immobile than resources.

Replicability

If a competitor is unable to acquire resources and capabilities through market transactions e.g. by buying in from factor markets or by acquisition of whole firms to acquire capabilities, then it will have to develop and build the resources and capabilities itself. In some sectors e.g. financial services it is easy for rivals to imitate resources through their own development. Tacit knowledge and complex arrangements of resources will make this more difficult.

Grant (1991) raises the question of appropriability of rents even when a firm has access to resources that are not easily transferable or replicable. This has to do with the relevant bargaining power of actors within the firm, more specifically, between the firm and its employees. The extent to which the deployment of an employee's skills depends on other resources and is enmeshed in organisational routines, determines who is able to appropriate most of the rents. The more it is embedded in such systemic relationships, and the more dependent it is on other resources, the more control the firm can exercise over the benefits that accrue from deploying the employee's skills and know how. Grant (1991) offers the following prescriptive framework for strategy by beginning with the resources and capabilities that underlie its competitive advantage.

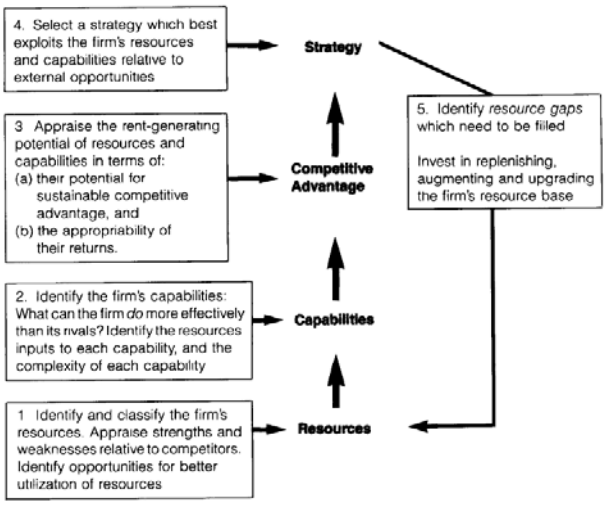

Figure 3.1: A resource-based approach to strategic development
Source: Grant, R. M. (1991, p.115).

Grant (1991, p. 117) suggests that

> "…business strategy should be viewed less as a quest for monopoly rents (the returns to market power) and more as a quest for Ricardian rents (the returns to the resources which confer competitive advantage over and above the real costs of the resources)."

He goes further to show that even market power is based on the underlying resources. The logic is that one of the major contributors to market power is barriers to entry for others. These barriers to entry are dependent on

> "scale economies, patents, experience advantages, brand reputation, or some other resource which incumbent firms possess but which entrants can acquire only slowly or at disproportional expense."
>
> Grant (1991, p. 117)

Dynamic capabilities

The resource based view on its own has been criticised as being too static, and insufficient as an explanation for sustained competitive advantage. The dynamic capabilities approach (Teece, et al., 1997) seeks to elaborate and enhance the resource based view. The term dynamic capabilities is used to describe organisational processes that may be routines in themselves or

"routines about routines." These could include organisational processes such as strategic development, product development, order processing and logistics capabilities.

Essentially, the dynamic capabilities approach considers how resources change over time, but more importantly focuses on the ability of firms to reconfigure sets of resources.

Teece *et al* (1997, p. 516) define dynamics capabilities as:

> "… the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. Dynamic capabilities thus reflect an organisation's ability to achieve new and innovative forms of competitive advantage given path dependencies and market position."

Dynamic capabilities refer to organisational processes and routines that create, combine, integrate and split existing resources. The argument is that new value arises from the application of dynamic capabilities. The notion of dynamic has a number of meanings. Firstly, it relates to the speed or velocity of markets or changes in underlying industry structure. Secondly, it relates to the dynamic way in which resources are manipulated to match the environmental requirements.

The use of the word, capabilities, is to focus on

> "the key role of strategic management in appropriately adapting, integrating, and reconfiguring internal and external organisational skills, resources and functional competences to match the requirements of the external environment."
>
> (Teece, et al., 1997, p. 515)

It is noteworthy that this has resonance with organisational learning, yet the RBV literature does not pay much attention to the possible contributions from this body of knowledge.

While dynamic capabilities are considered to be idiosyncratic in their detail, emergent, and path dependent, Eisenhardt & Martin (2000) argue that they also have common features, in the form of "best practices" that are known to be important components of such capabilities. For example, the use of concurrent engineering tends to be common in successful product development processes. They further suggest that they have equifinality. Different firms can start off at different conditions, but are able to develop the dynamic capabilities that are different in their detail, yet have the same essential broad features and are more fungible and substitutable than suggested in the literature. From their point of view, dynamic capabilities, despite being idiosyncratic and path dependent, do not fulfil the VRIN criteria in their entirety. Therefore dynamic capabilities do not yield sustainable competitive advantage, but the resource configurations do.

The purpose of Eisenhardt & Martin's paper was to address one of the critiques of dynamic capabilities in the RBV approach which states that they are tautological in nature and insufficiently grounded empirically. In order to make their case, they focus on capabilities such as product development and the ability to develop strategic alliances. These have very strong empirical work but are not usually covered in the RBV literature. By focusing on the broad, common features of these capabilities, they arrive at their conclusion that dynamic capabilities are more homogenous, equifinal, and substitutable thereby violating the VRIN attributes. They do not pay sufficient attention to the emergent, idiosyncratic, non-linear and path-dependent ways that dynamic capabilities are constructed. So although a competitor may replicate a dynamic capability that does have some of the common features of the incumbent firm, it is not the *same* dynamic capability that has been constructed. It is quite often the idiosyncratic detail that renders the competitive advantage. One example is the Toyota Production System. Although the broad features of it are well known and documented, it is very difficult for others to replicate this capability. Moreover, Eisenhardt and Martin have not paid sufficient attention to the systemic nature of dynamic capabilities. It is very difficult to replicate

an entire system without knowing the idiosyncratic detail of such a system, with its myriad inter-relationships and feedback loops.

As Teece *et al* have shown, an important component of organisational processes and capabilities is the coordination mechanisms and routines used by managers. Citing, Clark and Fujimoto (1991), they indicate that there are significant firm-level differences in such coordination routines, and they are therefore firm-specific in nature. These firm-specific capabilities have an important impact on performance outputs, including quality and development costs.

Factor markets are incomplete. Certain assets are firm-specific and non-tradable. When a firm has such non-tradable assets or resources, then it can only earn rents from them by using those assets to develop products and services that are tradable. If a firm does not have an important non-tradable asset that is needed for a specific product or service, then it has to build that non-tradable asset (Dierickx & Cool, 1989). Examples include quality, dealer loyalty and R&D capability. Dierickx & Cool (1989) point out that the building of such non-tradable assets as strategic assets require adherence to a consistent set of policies over a period of time. In other words, the non-tradable asset is a *stock* that accumulates over time, while the consistent application of policies and activities relate to *flows* over time.

Strategic assets underlying sustainable competitive advantage

Amit & Schoemaker (1993) present a framework where they incorporate both industry analysis and the resource based view. They identify Strategic Assets as a subset of the resources and capabilities that are scarce, non-tradable, inimitable, appropriable and specialised and that overlap with Strategic Industry Factors. The basis for generating economic rents, at the industry level of analysis, is the capabilities and resources that are subject to market failure.

They note that these are determined at a market level

> "through complex interactions among the firm's competitors, customers, regulators, innovators external to the industry, and other stakeholders."
>
> (Amit & Schoemaker, 1993, p. 36)

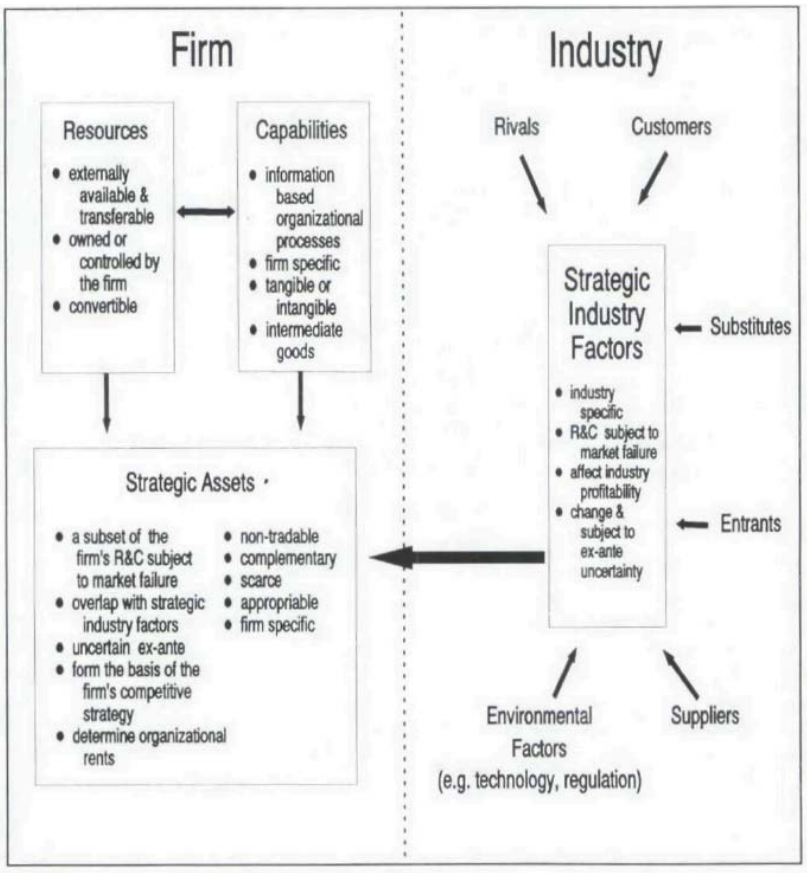

Figure 3.2: Strategic assets framework
Source: Amit, R., & Schoemaker, P. J. H. (1993, p.37)

Strategic Industry Factors are industry specific and may change over time. The firm's Strategic Assets may be characterised by complementarities. This is because Strategic Assets in combination with each other may have higher strategic value than the sum of their values when considered in isolation and the combined value is higher than the cost of developing or deploying each one independently. This synergy in combination is known as positive externalities.

The task of strategic managers in generating economic rents is to understand the current and expected Strategic Industry Factors, and to focus on developing current and creating new strategic assets that match.

In the same way that the Strategic Industry Factors are subject to complex interactions of factors in the external environment, the decisions around Strategic Assets are subject to high levels of uncertainty and complexity, and thus it is not possible to give specific prescriptions on their development as articulated below:

> "Given the competitive and changing context in which managers must decide which R&C to develop as their firm's basis for competition, it is doubtful that decisions about which SA to develop and deploy can be optimally deduced from a general normative theory. More likely, continually changing heuristics will emerge that strive to better incorporate the uncertainty, complexity and organizational conflicts confronting managers."
>
> (Amit & Schoemaker, 1993, p. 40)

They show that decisions about resources and capabilities are made in the context of uncertainty, complexity and intra-organisational conflicts. Managers operate under conditions of uncertainty about the broader contextual environment which includes the PESTEL (political, economic, social, technological, environmental and legislative) trends, competitor behaviour and customer preferences. Complexity arises from inter-related sets of causes and events that determine the environment. Competitive moves arise from different *interpretations* of the environment. Since strategic decisions affect different organisational stakeholders differently, the stage is inherently set for intra-organisational conflict. Therefore managerial decisions that shape the resources and capabilities are done in the context of such uncertainty, complexity and intra-organisational conflict.

> "Owing to uncertainty, complexity, and conflict (both in and outside the firm), different firms will employ different Strategic Assets, without any one set being provably optimal or easily imitated."
>
> (Amit & Schoemaker, 1993, p. 44)

An important contribution of their approach is that they include Behavioural Decision Theory. This focus on cognitive biases and bounded rationality of managers is both a source of, and a response to uncertainty, complexity and conflict. Further, it serves to partially explain the heterogeneity of resources and capabilities, and hence their inimitability. It is therefore an extension of the resource based view.

Asset-stock accumulation

We have seen earlier in the RBV that one of the important components is the degree of inimitability. Dierickx & Cool (1989) highlight the underlying determinants of resource inimitability. Their fundamental insight which has profound implications is the basic principles of asset-stock accumulation. As indicated earlier when factor markets are incomplete, firms have to build non-tradable assets (stocks) by applying consistent policies over a period of time (flows). They state,

> "[w]ithin the framework presented in this paper, a firm's *strategy* involves choosing *optimal time paths of flows*, whereas its *competitive position* and hence its potential profitability is determined by the levels of its *stocks*."
>
> (Dierickx & Cool, 1989, p. 1510, emphases in the original)

In this framework, resources are stock variables that accumulate over time. These asset-stock accumulations are changed by flows. The flows represent the instantaneous amounts of a resource that is being accumulated in the stock. There is therefore a mathematical relationship between a stock and its corresponding flows that determine their inter-related behaviour. While the value of the flows may be changed instantaneously, the value of the stock is historically determined and may not be changed instantaneously. It is only through persistent patterns of changes in the inflows and outflows that the

values of the stock may be changed. An example is the relationship between HIV incidence (flow) and HIV prevalence (stock). If there was to be a mechanism to immediately halt the rate of HIV incidence, the current HIV prevalence cannot be reduced instantaneously. Unless there is a cure for HIV, the prevalence rate will only decrease as the stock of HIV infected people die.

These asset-stock accumulations have a number of characteristics that directly affect the imitability of resources (Dierickx & Cool, 1989). These include:

Time-scale diseconomies

This is due to an asymmetrical relationship between time and other variables that lead to accumulation of asset-stocks. This simply means, for example, that halving the time and doubling other variables leads to less accumulation of the stock variable. A common example is that of doubling of R&D expenditure over half the period of time. This does not achieve the equivalent level of R&D output. This may also be an underlying reason for the lack of success of similar types of "crash programmes", for example in the project management environment. It may also contribute to Brooke's law. Since many of the asset-stock accumulations are determined by multiplication of factors that determine the flow, it means that there are non-linear relationships between the variables. In practical terms this translates to longer term sustained commitments of inputs for results to be achieved. Another example would be the choice between a certain rate of marketing expenditure, over an extended period of time, as opposed to a higher rate of expenditure for a much shorter period of time. This will clearly lead to different results, even if the total spend was the same in both cases.

Asset-mass efficiencies

In certain asset-stock accumulations the current value of the stock determines the rates of the flows, which gives rise to asset-mass efficiencies. In system dynamics terms this translates to an underlying positive feedback loop which results in reinforcing behaviour. There is a positive feedback relationship

between the stock variable and the inflow to the stock. The simplest version of this is a compounding relationship between the stock and its associated inflow. This reinforcing behaviour translates to the notion that success breeds success. The firm with a higher level of resource will be able to build that resource much faster than one that starts off with a lower level of the same resource. For example, a firm with a higher level of R&D and scientific knowledge will be able to generate more knowledge much faster than one that has a lower level of that asset-stock. Similarly a firm with a higher customer base can accrue advantages much faster and grow that same customer base, through word of mouth, social contagion effects, bandwagon effects and herding behaviour. The customer base asset-stock may also affect other asset-stocks, for example, through maintenance agreements, selling complementary products, better customer knowledge that impacts new product development and so on. Asset mass efficiencies are also achieved through network effects, for example when a firm is part of a network of firms with complementary products and services, such as Windows and Intel (Wintel), or motor vehicle manufacturers and associated dealerships. Asset-mass efficiencies may be considered as one explanatory factor for the increasing gap between developed economies and that of developing economies, especially in the era of the network economy that is knowledge-based.

Another important consideration is when there are discontinuities that require a critical mass of the asset-stock (Dierickx & Cool, 1989, pp. 1507-1508). In some instances there are tipping points (Gladwell, 2000), or thresholds before any difference may be made. One example is the level of marketing spend below which there is no discernable difference to the impact that it may have on sales.

Interconnectedness of asset-stocks

It may be relatively easy for a competitor to replicate one resource or asset-stock, but it is much more difficult for them to do so, when they are part of an interconnected *system* of asset-stocks. Here the value of one or more of the

stocks influences the rate at which the other stocks accumulate. We have already seen examples of this when considering the notion of network effects in a web of firms, but the same principle applies to the interconnectedness of asset-stocks within the same firm. For example, higher levels of staff training influence product quality, which in turn impacts brand and reputation. The example of customer feedback impacting product development as shown earlier applies here as well. While asset-mass efficiencies (Dierickx & Cool, 1989, pp. 1507-1508) means that stock accumulations are dependent on the initial value of the *same* stock, the interconnectedness of stocks indicate that the value of the asset-stock accumulation is dependent on the initial values of *other* stocks (Warren, 2002, pp. 55-61).

Causal ambiguity

Causal ambiguity means that firms may have resource positions that are superior to those of competitors, and they are unable to replicate the resource positions because the causal relations that give rise to those positions are difficult for the competitor firm to understand (Dierickx & Cool, 1989, pp. 1508-1509). It may even be the case that the incumbent firm knows that it has an advantage and that it is as a result of the inter-connectedness of asset-stocks, but does not know *how* they are interconnected and what the causal relationships actually are.

Asset erosion

Every asset stock is subject to decay. In system dynamics parlance, this relates to stock outflows, in particular through a draining process. We may therefore refer to the "half-life" of an asset stock. If the decay rates are high, or in other words, a stock has a low half-life, then it becomes difficult for the firm to sustain its competitive advantage, as it increases the imitability of the asset stock. This translates to the need for the firm to "maintain" expenditures on the accumulation of the stock, to counter the asset erosion effects. However, as Dierickx & Cool (1989, p. 1508) have indicated, it is important for firms to engage in punitive actions or credible threats when competitor firms enter the

market. They note, for example, that advertising expenditure is not a credible threat, while capacity or brand loyalty is. The reason is that the former are flows which may be instantaneously implemented by competitor firms themselves, whereas the alternatives are asset-stock accumulations that cannot be changed instantaneously. The lesson is that firms have to maintain values of their key stocks, and not allow them to erode to the extent that they are no longer credible threats to entry.

Each of the characteristics of asset-stocks discussed above, though important on their own, also have systemic effects that impact the inimitability of resources. In summary, the asset-stock formulation denotes that the extent to which resources and asset-stocks are imitable is determined by the characteristics of stock accumulations discussed above. These resources and assets may be deemed strategic assets if they are non-tradable in factor markets, are inimitable and non-substitutable. The latter indicates that even if asset-stocks are inimitable they may be substituted by entirely new formulations of different asset-stock configurations. This is akin to replacing a whole *system* of inter-related stocks with others that become a source of competitive advantage.

Competitive strategy dynamics

A combination of the RBV, the characteristics of asset-stock accumulations and system dynamics offers promise in terms of competitive strategy. Kim Warren has made significant contributions in this regard and developed a framework described as competitive strategy dynamics (Warren, 2002). It needs to be noted that Warren himself indicates how it is different from the RBV, and critiques much of system dynamics as it has departed, in his view, from its most powerful contributions (Warren, 2004). These include:

> "[s]tock-flow analysis, complete with quantitative time-path portrayal of all important system variables (*especially* of the stocks and flows themselves), cannot be avoided ..."
>
> (Warren, 2004, p. 346, emphasis in original)

His focus, therefore, is primarily on asset-stock accumulations, and "fact based" determination of timescales and time-paths of the flows that affect these asset-stock accumulations.

System dynamics scholars and practitioners use the causal loop diagram (CLD) analysis in conceptualising, analysing and understanding the relevant systems. There has been debate within the system dynamics community itself about the pitfalls of the use of causal loop diagrams. These relate to not distinguishing between stock and flow variables, and therefore leading to misunderstanding some of the key stock-flow relationships.

An example given in Richardson (1986) is the relationships between population (stock) and births (flow). A depiction is provided below:

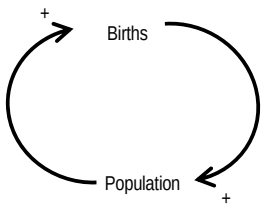

Figure 3.3: Causal loop diagram of population and births

The normal interpretation is that an increase in births leads to an increase in the population. Since this is compounding behaviour, by closing the loop, we note that an increase in population in turn leads to an increase in births. This is a positive feedback loop. However, reading the CLD in the opposite direction often leads to an error of interpretation. The normal reading of the CLD means that a decrease in births leads to a decrease in population. This is not the case as births can never decrease the population. All it means is that a decrease in birth leads to less of an increase in population than it would otherwise have been. It is only an outflow from the stock, e.g. deaths, which can lead to a decrease in the stock of population. The CLD does not make this distinction between Population as a stock and Births as a flow, thereby leading to such misunderstandings.

Some proponents of system dynamics suggest that the stock and flow rendition is superior as this overcomes the conflating of the distinct nature of these variables that are inherent in the CLD rendition.

On the other hand, a problem with the stock-flow rendition is that it is quite difficult to infer the feedback loops and their direction. Warren (2004) gives the example of how a stock of customers change, to demonstrate this point:

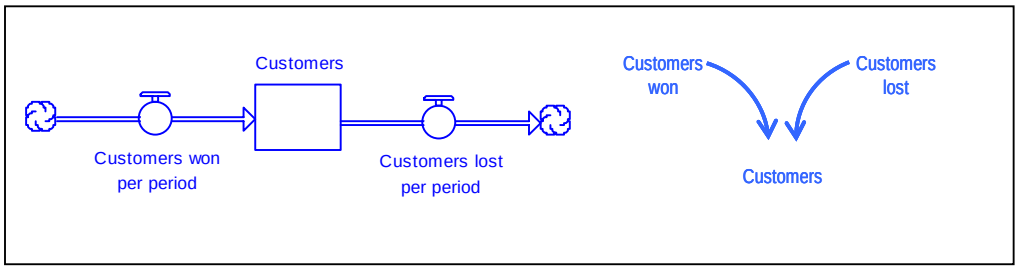

Figure 3.4: Stock flow and causal loop diagram of customer acquisition
Source: Warren, K. (2004, p.340).

The above CLD and stock flow renditions are equivalent. However, there appears to be a contradiction in the direction of causality in the stock-flow rendition, which according to Warren may be quite confusing to novices.

He further notes that neither the CLD nor the stock-flow notation deals with the difficulty that system dynamics promises to solve. This is an awareness of the time-path behaviour (and time-scale) of policy related variables. A fundamental principle of system dynamics is that structure drives behaviour (Sterman, 2000, p. 107). Neither the CLD nor the stock-flow rendition provides this information, and hence it is quite difficult to see how the underlying structure explains the behaviour. Warren contends that this is the intellectual challenge that system dynamics is supposed to solve, and fails to do this. In addition, the CLD does not capture the fundamental mathematical relationships of asset-stock accumulations, and may therefore lead to significant errors with the possibility for catastrophic actions in practice, based on flawed understanding.

He goes further to suggest that system dynamics also has managerial flaws. In his view, neither the CLDs nor the stock-flow notation contain enough information about the problem situations, and do not help managers determine what policy interventions they need to make, with which variables

and when. This means that qualitative system dynamics is of no real use for strategy and policy. However, as a counterpoint Coyle (2000, p. 225) has made the case that qualitative system dynamics is appropriate, especially as a rigorous approach to system description. He has also shown how in some cases the uncertainties involved in quantification are too large, and therefore problematic leading to misleading results. The response of the system dynamics community to Warren's assertion would be that the way to determine policy and strategic intervention is by simulation modelling, which means moving to a quantitative model first. Warren tends to dismiss this as well, for the following reasons. He suggests that if this was the case then there would be a higher uptake of the methodology by executives and managers. He shows that this is not the case. He acknowledges that there is no systematic evidence to as to why system dynamics does not have the desired uptake. He suggests that this may be because the outcomes of system dynamics modelling are unreliable or the benefits are insignificant. Alternatively if they are reliable, then the benefits do not outweigh the costs. He then refers to the underlying flaws of qualitative mapping, and suggests that if they contained errors, then any quantitative model based on these will also be flawed.

Warren's prescription is that system dynamics can only be beneficial if it is based on the stock-flow notation, together with quantitative time-paths of both stocks and flows.

In a subsequent paper, Warren (2005) considers how strategic management may be improved by drawing on the fundamental principles of system dynamics. It is an elaboration of his earlier arguments, except that he now gives more credence to how system dynamics may be beneficial.

The principles that he highlights include:

- Focus on performance over time
- Resources drive performance
- Resources fill and drain
- Resource building depends on existing resource levels

An analysis of these principles indicates how they are entirely consistent with system dynamics and the basic nature of asset-stock accumulations discussed earlier in this chapter. The principle that resources drive performance and a focus on performance over time relate directly to the cardinal principles in system dynamics that structure drives behaviour and a focus on reference modes. The latter two of Warren's principles are directly related to the behaviour of stock variables in system dynamics as mechanism of asset-stock accumulations.

Warren himself indicates how system dynamics has always been interested in the behaviour of important variables over time. These are usually termed behaviour over time (BOT) graphs in popular systems thinking or reference modes in quantitative system dynamics work. System dynamics usually tries to explain the reference mode by understanding the feedback loops that represent the hypothesised feedback structure that drives them. It is expected that this is surfaced by eliciting the collective mental models of the team. By contrast, the approach presented by Warren is what he terms a "rigorous, coherent, and evidence-based explanation for how the organisation's performance has arrived at its present state" (p.345). The approach traces backward along a chain of causality that explains the time-charts, which ultimately leads back to asset-stock accumulations. The time-charts of these reflect the historical accumulations. Further causal tracing reaches the flow variables, and their underlying policy variables and other asset-stocks. Once

again the time-charts of the variables are explicated. The focus on the building and retention of stocks do not necessarily place emphasis on the feedback loops, as in many cases these are not the primary drivers of the asset accumulation.

There is another divergence with conventional system dynamics approaches and Warren's approach. He suggests that often exogenous variables are important and have significant influences on the behaviour and system performance of the system whereas an important principle in system dynamics is that behaviour is as a result of endogenous variables and their related feedback loops. Warren cautions that undue attention to feedback loops may result in missing important exogenous influences. He cites the example of car sales in Indonesia that appeared to be explained by positive feedback effects typical of tipping points, while the actual driver was changing income levels that were exogenous.

Finally, Warren highlights how this approach diverges from the resource based view. He notes that in the latter, the focus is on inimitability of resources that comply with the VRIN attributes, while in his approach the focus is not really on VRIN, and includes many "mundane" variables that explain the performance of the firm. A counter to his argument is that if that is the case, then his framework is merely about explaining performance arising out of a complex set of relationships between asset-stocks in the form of resources and capabilities, but says nothing about sustaining competitive advantage.

Warren presents the complete competitive strategy dynamics approach in his book with the same title (Warren, 2002), and in a more recent book, entitled *Strategic Management Dynamics* (Warren, 2008). In essence, it represents a strategic architecture based on asset-stock accumulation of resources, together with the associated timescales and time-paths of the flows that cause the stocks to accumulate or deplete over time. While his emphasis is still on

understanding these time-paths, he does now rely more heavily on a system dynamics approach, in the sense that he acknowledges the importance of positive and negative feedback loops that impact the asset-stocks. In Part 1 of the book (Warren, 2002), he devotes a chapter to each of these types of feedback loops. In Part 2 of the book, he enriches the framework by considering other strategy concepts and tools including dynamics of rivalry, the experience curve, generic positioning strategy, environmental and industry analysis and so on.

There are two other important elements that he considers in the latter part of his work. The first is soft factors. We notice that this has always been a consideration in system dynamics where these have been termed "soft variables". This is important as it enables the consideration of intangible resources such as quality, morale, perceptions, confidence, and knowledge.

The second is the notion of capabilities. He defines this as follows:

> "A resource-building capability is the relative rate at which the organization is able to build a specific strategic resource, for any given availability of other resources needed for that task."
>
> (Warren, 2002, p. 208)

Capabilities in his formulation, are themselves asset-stocks, and hence may also be treated in a similar way to resources. It is therefore a natural extension to the basic resource stock architecture.

Another interesting avenue is the links with learning whether at individual or organisational level. Warren defines learning as "the current rate at which a given capability is being increased" (Warren, 2002, p. 212).

It is important to note that this use of capabilities in the competitive strategy dynamics is a way of incorporating ideas from the dynamic capabilities approach. Warren explicitly refers to Amit and Schoemaker (1993) in his discussion of capabilities.

Discussion

In this chapter, we explored the resource based view, the dynamic capabilities approach and Amit and Schoemaker's strategic assets framework. The key insight of the resource based view is that sustainable competitive advantage may be achieved through resource positions that meet the VRIN attributes. Firms are considered as heterogeneous bundles of resources. While the RBV has merit and provides an alternate to the positioning and industry analysis approaches, it is still firmly a strategic choice approach. One of the valuable contributions is that even though the literature does not explicitly use systems terminology, it is inherently a systemic approach. Thus, the systemic relationships play an important role in giving rise to the VRIN attributes. Given that the basis of RBV is the resources, it is the nature of resources that has to be understood. Resources are asset-stock accumulations which have peculiar characteristics as indicated by Dierickx and Cool. These characteristics include time scale diseconomies, asset-mass efficiencies, interconnectedness of asset-stocks, causal ambiguity and asset erosion. By drawing on these, the RBV offers a richness to strategy that was not available in the industry analysis view. It helps explain differences in firm performance and positions that are just not possible from an industry analysis point of view. Furthermore, the RBV highlights the importance of context and the firm specific nature of assets and attributes. While the strategy literature has long identified process and content as important concepts, less attention was paid to context prior to the RBV. The RBV has been criticised as being too static. The dynamic capabilities approach attempted to deal with this criticism. Here the focus is broadened to the "teams of resources", and the ability to reconfigure resources in a dynamic way. As opposed to merely considering resource positions, the dynamic capabilities approach considers how resources change over time. Furthermore, it points to the benefits in high velocity and fast changing environments which some claim that the RBV is unsuitable for. The strategic assets framework of Amit and Schoemaker attempts to bridge the industry analysis approach and the RBV. It may be

seen as an elaboration of the resource based view. While the RBV is relatively silent on the specific resources that a firm has to develop, the strategic assets framework makes the assumption that specific resources and capabilities need to match with strategic industry factors. In other words, for a firm to be able to achieve sustainable competitive advantage, the resources and capabilities and the strategic industry factors must overlap. This seems to be a regression to the old idea of "fit" between organisation and environment that has been so prevalent in the strategy literature. The strategic assets framework therefore circumscribes the universe of possible resources and capabilities that underpin competitive advantage, which by contrast, the RBV and the dynamic capabilities approaches leave much more open. Thus, we may state that the strategic assets framework restricts the degrees of freedom that a firm has in the development of its resources and capabilities, relative to the RBV and the dynamic capabilities approach. Although not exactly the same, this has similar connotations to the design and planning schools relative to the positioning schools. In the design and planning schools, there are, in principle, an infinite number of strategies. What the positioning school did was to circumscribe these to a limited number of generic industry positions. The contribution of the strategic assets framework was that it acknowledged the complexity under which decisions about resources and capabilities are made, and it highlighted the cognitive biases and bounded rationality of strategic actors. The RBV and the dynamic capabilities approach did not deal explicitly with these. As a result, the strategic assets framework recognises the difficulty in deriving normative approaches that will yield optimal results. It therefore admits the need for a heuristic based approach to work with the complexity in the development of resources and capabilities. In relation to a theory of strategic enactment, what we need to pay attention to is that in the strategic assets framework, there is a recognition that competitive interactions are not entirely based on a fixed environment, but rather on the *interpretations* of that environment by different actors.

We discussed Warren's competitive strategy dynamics in the chapter. It was shown that this has elements of the RBV and system dynamic approaches. It was also pointed out that Warren has highlighted how it differs with the RBV and his critique of system dynamics. Nevertheless, it was shown that there are still very strong relationships with both the RBV and system dynamics especially when he uses the feedback relationships in developing his dynamic strategic architecture. Competitive strategy dynamics is a way of operationalising the asset-stock accumulations and their characteristics as highlighted by Dierickx and Cool. It also incorporates dynamic capabilities, in Warren's formulation of capabilities as asset-stock accumulations. While this strategic approach may be useful as a methodology for practice that embodies some elements of the RBV, dynamic capabilities, and asset-stock accumulations, a problem with this approach is that it is overly rationalistic and functionalist in its orientation. This functionalism, based on an ontology of objectivism, is revealed in Warren's claim that his approach is a "rigorous, coherent, and evidence-based explanation for how the organisation's performance has arrived at its present state" (p.345). We notice that this does not admit any plurality, there is no tolerance of multiple perspectives, but even more serious is that it assumes reified worlds of asset-stocks that relentlessly change over time through objective means. Where is the human actor? Where are the interpretations of the human actors, and what of the human foibles and frailty that animate organisational life? We may draw some relationships with the competitive strategy dynamics and the technologies of quantification of number systems discussed earlier. Claims like the one made by Warren above, are what present a façade of "facts speak for themselves" which is a form of reductive and instrumental rationality that strips away the richness of what strategising-organising is, and then takes the high moral ground that nothing else is of value because they are not evidence-based. Unfortunately they do not scrutinise assumptions of what constitutes evidence, and how values inform what is admitted as evidence and what is not. Evidence, like all of social reality, is a human and social construction.

Scenario-based strategy

Strategic management is confronted with a complex and turbulent world. This poses the dilemma of how managers and practitioners are to cope with such complexity. We require appropriate methodologies and tools to understand and operate in complex and uncertain environments. Scenario planning with roots in post World War II military planning, and later spreading to business and other sectors is one such approach. It has evolved into a set of well-established practices over the last 30 years and is applicable in all types of organisational settings. It is particularly appropriate for large scale change. It is related to understanding how the future may evolve and hence it is an important element of strategy and strategic change.

Scenario based strategy may be considered a *process* based approach that simultaneously ensures that strategy *content* is adequately given attention. It is a set of tools and approaches that brings significant organisational participants together to consider important factors of strategy content including industry factors, competition, and other important factors in the organisation's environment in order to determine how it should respond in the case of uncertainty of those factors. This strategic response is related to internal organisational factors including resources and capabilities, organisational culture, processes and systems.

Scenario planning is versatile in relation to its applicability across different schools (paradigms) of strategy. It may be applied from an Industry Analysis perspective of strategy. For example, it may be embedded in a positioning approach, where there is little emphasis on resources and capabilities. Rather, competitive advantage is seen to stem entirely from the organisation's position in the industry. In this way it is an extension of the positioning approach, by taking into account uncertainty in the industry. The objective of scenario based strategy in this case is to identify those generic positions that

will be robust against any of the futures that will emerge. By contrast, it may equally be applied as a strategy approach that disregards industry positioning as the basis of competitive advantage but one that is based on inimitable resources and capabilities. In such an application, the preoccupation will be identifying and developing a set of resources and capabilities that are robust against the uncertainties embedded in each of the scenarios. Thus, it then becomes an extension of the resources and dynamic capabilities approach.

It may also be considered as a practical approach that *bridges* the industry analysis approach to strategy with one that focuses on internal organisational factors. Although scenario planning does not dictate the application of a resource based perspective, as indicated in the preceding paragraph it does not preclude it. It is entirely consistent with the respective frameworks of Grant (1991, p. 115) and that of Amit & Schoemaker (1993, p. 37) covered in Chapter 3, and may be considered as one *method* of operationalising them. As opposed to a single set of Strategic Industry Factors, each scenario may embed different sets of them, given the uncertainty in the contextual environment. Consequently, this will require a response to identify those Strategic Assets that have the optimal overlap with these sets of Strategic Industry Factors, such that the organisation will be robust against any of the scenarios or futures that may occur.

Similarly, scenario planning may be combined with the competitive strategy dynamics approach (Warren, 2002). Each of the major asset-stocks and flows in the latter will now have multiple sets of time-paths reflecting the changes in these variables under different sets of uncertainty as embodied in each of the scenarios.

There is much potential for synergistic application of scenario planning and system dynamics modelling. There are four important ways in which this may be achieved. Firstly, a system dynamics model is constructed for the key focus question that frames the scenario planning. The model may then be used as a

tool for identifying and understanding the key uncertainties that become part of the scenario analysis. This is the approach followed by Maani & Cavana (2002, p. 85). Secondly, given that each of the scenarios have sufficient divergence, it is likely that the underlying systemic structure of the scenarios will differ markedly. In order to enrich the scenarios, a system dynamics model may be developed for each scenario that embeds the different underlying structure and hence uncertainty. Thirdly, system dynamics modelling may be used to explore different approaches to responding to the future uncertainty, in order to generate robust strategies. Fourthly, system dynamics modelling may be used to stimulating strategic conversation. This may be achieved by developing microworlds or management flight simulators (Bakken, Gould, & Kim, 1994, p. 245; Senge, 2006, p. 325; Senge, Kleiner, Roberts, Ross, & Smith, 1994, pp. 529-531) based on an underlying system dynamics model to extend the results of the scenario process to the whole organisation.

Futurescope

Although it was originally devised for long term *planning*, I shall use the terms scenario work, scenario practice, or simply scenarios as opposed to the term scenario planning. The reason is that planning has limited connotations whereas the significance of the approach goes beyond planning to incorporate scenario thinking, learning, strategic development and modelling of futures.

Scenario practice has been applied to all kinds of systems with the resultant outcomes covering global, regional, country, government, institutional and departmental scenarios. Moreover, since scenarios focus on driving forces in the contextual environment, and considers the roles of various stakeholders in the transactional environment, it also takes into account how organisations and other forms of institutional actors in themselves shape large scale change. Scenario practice is therefore very relevant to strategy under uncertainty, and may be considered as complementary to other strategy approaches.

Although some approaches to scenarios do not take systems thinking into account and it is possible to construct scenario narratives without it, the position taken here is that it is fundamental to an effective scenario process. This is by conceptualising scenarios as plausible futures, each describing the future world as a *system*. It is supported by deploying systems tools in the process of scenario practice. In relation to complexity, scenario practice is designed specifically to work with causal ambiguity and uncertainty.

Scenario work has emerged from the world of practice, and has been criticised for lacking theoretical support and justification. In this part of the chapter, I attempt to make a modest contribution to address this concern. The discussion is framed around a proposed scenario approach that I have termed *Futurescope*[2], to conduct scenario work. The name is a metaphor for making the future perceptible. The dictionary defines scope as "the state of the environment in which a situation exists" (Wordweb 1.63). Since scenario work is ultimately about understanding the state of the environment, the name seems relevant. The metaphor of *Futurescope* is also drawn from instruments like the microscope, telescope and oscilloscope. We use such instruments to understand and study phenomena that are usually imperceptible to us. A telescope makes distant objects perceptible. A microscope makes very small objects perceptible. An oscilloscope makes various electrical quantities perceptible. *Futurescope* is intended to make the future perceptible.

Theoretical considerations

It is somewhat paradoxical that although much has been written about scenario planning, and there are many articles published in the academic literature, scenario planning is under-theorised. Despite this extensive literature the lament of several authors is that it is not adequately justified, and

[2] The *Futurescope* process together with a critical discussion of how it compares to other approaches to scenario work is presented in Appendix 1.

that it has tenuous theoretical underpinnings. This is surprising given that it has been applied for at least three decades in all kinds of organisational contexts spanning both time and geography. It has been applied in commercial, government, and non-governmental sectors globally (Verity, 2003). The range of scenarios is broad in that it has been applied to global macro scenarios, at regional level such as the European Union, at country level, industry, firm and individual department level. It has also been applied in large and small organisations, as well as in multi-stakeholder settings. It is therefore very versatile. As an approach and methodology it has emerged from practice, and continues to grow by way of innovations in practice. Given the success of scenario planning in practice, what is the theoretical basis for it? O'Brien, Meadows, & Murtland (2007, p. 243) cite Hodgkinson and Wright (2002) as stating that scenario planning is a

> "practitioner-derived method with very little supporting evidence, other than basic anecdotal evidence, for its efficacy."

Bradfield (2007, p. 260) notes that

> " …unlike other long-range forecasting methods, there is yet no solid theoretical-based foundation underpinning scenario techniques."

In what follows, I make some suggestions on how to address the paucity of theoretical and philosophical underpinning of scenario work. Although the scenario approach has emerged from practice, it is a well established one that works and continues to offer benefit across all kinds of organisations. The critique of insufficient theoretical justification, while valid, does not mean that the method should be discredited. Since it works in practice, there ought to be a stimulus for seeking out the theory that makes it work. This is consistent with the learning cycle, where we reflect on practice to improve our theory. The learning cycle is not prescriptive, and accordingly, we can start anywhere in the cycle. By considering some of what the practice entails, we may be able to induce certain theoretical principles. In this section, I intend to explore this

a little further by investigating what scenario practice is in contradistinction with other methods.

Decision making, planning and risk analysis

Theoretical distinctions are made between scenario planning, contingency planning and sensitivity analysis. These distinctions revolve primarily around how each of them deals with uncertainty. This is well covered in Schoemaker (1993, pp. 186-188) and summarised below. He cites Habermas' (1985) concept of "epistemic risks" that do not fit in with people's conceptual frameworks. These are not easily handled with traditional frameworks such as forecasting or decision analysis.

> "Whereas forecasting techniques try to abandon any uncertainty by providing managers with only one forecast, multiple scenario analysis deliberately confronts decision makers with environmental uncertainties by presenting them with several, fundamentally different outlooks on the future. Scenarios are generally built upon a dynamic sequence of interacting events, conditions, and changes that are necessary to reach a particular outcome. Thus, scenarios focus attention on causal processes and crucial decision points."
>
> (Cornelius, Van de Putte, & Romani, 2005, p. 95)

Scenarios are an effective way for working with such epistemic risks. Most conventional methods for working with uncertainty embed it in a single model, whereas scenario work builds uncertainty across models. Contingency planning prepares an alternate plan based on a single uncertainty whereas scenarios work with multiple uncertainties all at the same time. Sensitivity analysis identifies major variables that are uncertain and looks at the impact by changing a single variable at a time. Scenarios consider the change in many interacting variables all at once, without keeping others constant. Scenarios therefore enable a more powerful approach to working with uncertainty than conventional approaches to decision making (Schoemaker, 1993, pp. 186-188).

Scenarios as interpretive systems methodologies

The System of Systems Methodology (SOSM) (Jackson, 2003) considers two dimensions. The first dimension is whether the context is simple or complex, and the second dimension relates to the nature of relationships between participants or stakeholders in a given context.

This is shown in the diagram below.

<table>
<tr><td colspan="5">Participants
Increasing divergence of values / interests →</td></tr>
<tr><td></td><td></td><td>Unitary</td><td>Pluralist</td><td>Coercive</td></tr>
<tr><td></td><td></td><td>Functionalist</td><td>Interpretive</td><td></td></tr>
<tr><td rowspan="2">Types of Systems

Increasing complexity ↓</td><td>Simple</td><td>Hard systems thinking</td><td rowspan="2">Soft systems Approaches</td><td>Emancipatory systems thinking</td></tr>
<tr><td>Complex</td><td>System Dynamics
Organisational Cybernetics
Complexity Theory</td><td>Postmodern systems thinking</td></tr>
</table>

Figure 4.1: System of systems methodologies
Adapted from (Jackson, 2000) and (Jackson, 2003, p. 24)

By considering the practice of scenario work we may be able to infer how it may be related to the SOSM. Before "placing" scenario work on the ideal typology of the SOSM, one has to first make the argument that it may be considered as a systems methodology. It may appear unusual to classify it as a systems methodology, given that it did not emerge from a systems tradition, and many approaches to scenarios do not incorporate systems ideas. However, it has been common to use some systems tools such as influence diagrams and cause-effect relationships as methods in some stages of scenario process. *Futurescope* does this in a conscious, deliberate and explicit way. There is more to the story of why it is a systems approach than just the application of systems tools. This is by conceptualising scenarios as systems. This is done

first, by identifying the 'system under scrutiny" (Curry, 2007) and second, by conceptualising each scenario as a "system as mental construct" describing a possible future. We explore the systemic relationships that will impel a given outcome. Furthermore, as we shall see later, boundary considerations are an important component of scenario work. This is in relation to both spatial and temporal boundaries. The relationship between the "system under scrutiny" and the environment is an important aspect of scenario work. Viewed this way, scenario work becomes inherently a systemic approach. The concept of methodology as implied in the SOSM is that there is some form of intervention. Although scenario work sometimes stops at the stage of creating scenarios, in most cases there is some form of implementation by considering strategies, decisions or options against each of the scenarios. Therefore scenario work ultimately leads to intervention, and is a critical component of the approach. In summary, we can offer some theoretical justification for scenario work as a form of systemic intervention.

Scenario planning is designed to work with ambiguity and uncertainty that result from complex underlying relationships. In terms of the vertical dimension of ideal typology of the SOSM, scenario work applies at the complex end of the continuum. This indicates complex contexts or problem situations with large numbers of interacting elements, and high levels of interdependence amongst elements. Scenario approaches are applicable across all three contexts of unitary, pluralist and coercive in the horizontal dimension of the SOSM, but seem to align best under pluralist ones. The early days of scenarios may be classified as unitary in the sense that the approach tended to be rational and objective, where the scenarios were meant to be descriptions of the future in an objective way. I mean this in the sense that the assumption was that scenarios were descriptions of an objective reality in the world. This is akin to hard systems approaches and functionalism, relevant to unitary contexts in the SOSM. Although such application is not widespread it is conceivable that scenario work may also be applicable in coercive contexts, where the goal is to overcome dominance. There may be opportunities for

this especially when working in multi-stakeholder contexts such as when a municipality, citizens, business and NGOs come together in a scenarios exercise. In this chapter, the focus will be on showing how scenarios have the highest critical mass when considered as an approach for pluralist contexts. Here we assume that there is divergence in worldviews, goals, values and interests of the participants and the stakeholders, but there is room for accommodation of differences and there are elements that bind stakeholders together in some way and the possibility that through engagement and dialogue there may be some move towards "common ground." In this case, scenario work may be seen as an interpretive systems approach (Jackson, 2000). This is supported by the following features of scenario work.

- It is always participatory.
- It relies heavily on inter-disciplinary participation.
- The methods and techniques applied are designed to accommodate divergent viewpoints.
- It recognises multiple perspectives and eschews the idea of a single truth.
- Plausible futures are constructed from the many inputs of participants.
- Uncertainty is embedded as a fundamental concept.
- It can accommodate low levels of conflict and in some cases may be able to handle higher levels of conflict.
- Scenarios are constructed by the participants. The construction is based on interpretation of facts, events, trends, and forces.

- Scenarios are written as narrative constructions. Every narrative is an ethnographic account open to multiple readings and interpretations.

- Scenarios are mental conceptions. They do not describe an objective reality, but rather they describe the plausible, future reality as perceived by the participants.

- Every stage in the scenario process is based on the exchange of perceptions, values, and views of participants and some level of accommodation amongst these to achieve the outputs of each stage.

We may identify further support for scenarios as an interpretive approach by going back to the work of Pierre Wack (Wack, 1985a, 1985b). He was one of the leading scenario practitioners whose work spawned, and whose original insights still permeate many of the scenario approaches and methodologies applied today (Selin, 2007). Through experience, Wack and his team discovered that scenarios were most effective when they were able to assist decision makers in "re-perceiving reality." We can infer from this that scenarios act as "perceptual devices". It is commonly accepted that scenarios do not represent forecasts, but rather possible pathways into the future. Nevertheless, even if we accept this, it may appear that scenarios still describe objective reality in some way, but does it by circumscribing all possibilities because the future cannot be predicted. If it is merely a perceptual device then we mean that scenarios eschew positivism and objective rationality. The implications of this at a philosophical level are that by accepting scenarios and scenario practice, in effect we are referring to an ontology of social constructionism and enacted reality. Many practitioners of scenarios do not realise this.

The very nature of scenarios and the attention that it pays to uncertainties shows how they automatically take into account competing worldviews. This is most explicit in the intuitive-logics approach to scenarios where the

different logics are in themselves different worldviews. An example is the logics of globalisation-fragmentation. These implicitly refer to different worldviews in the globalisation logic and the fragmentation logic respectively.

Based on the forgoing we conclude that scenario work may be classified as a form of interpretive systems methodology. When we evaluate scenario work as described in this chapter, with Jackson's constitutive rules for a generic interpretive systems methodology, we may indeed classify it as an interpretive systems methodology (Jackson, 2000, p. 282, Table 7.5). This may come as a surprise to both scenario practitioners as well as academics.

Scenarios as a form of modelling

In our attempt to induce theoretical justification for scenario work, we may follow another line of argument, where we propose that scenarios are a form of modelling. If this is done then it may be evaluated alongside other approaches to modelling such as mathematical modelling, formal modelling, and system dynamics modelling. We need to explore what is meant by a model. A model is an abstraction of reality. Any good model distils the essence of reality relative to some purpose. It is common wisdom that a model cannot represent reality in its entirety otherwise the model will be as complex as reality itself. This common wisdom is embodied in the phrase, "a map is not the reality." However this does not mean that a map is not useful. It abstracts out those features that are important to the purpose, in this case orienting one spatially and offering the ability for navigation between two points. Scenarios are models of the future. They are not meant to represent all aspects of the future, but rather those elements of the future that are important to some purpose. Another important aspect of scenario practice is that as a model it may be considered as a *soft* model. It does not model the future *per se* but rather the conceptions of the future of the scenario team. In this sense, the nature of scenarios is fundamentally an interpretive one.

The role of narratives in scenarios

In the same way that a set of econometric models may represent an economy at a high level, or other real world systems may be represented by formal models, we may conceptualise scenarios as models of the future. These models are based on the knowledge drawn from the mental models of the decision makers, supported by information and research related to the future. Scenarios are therefore models of uncertainty. The same justification that is used to develop system dynamics models or operations research models such as Bayesian uncertainty in dealing with stochastic systems, or queuing models in the case of deterministic systems, may be used for the development of scenarios. From this point of view, scenarios may be classed as a form of soft OR modelling (Pidd, 2004, p. 10) when it is based on a systematic and rigorous process of data collection, analysis, synthesis, testing and validation.

Scenarios are sensemaking devices. They help us make sense of large amounts of conflicting and complementary data. Since scenarios are perceptual and sensemaking devices the narrative form is an appropriate form. It is a kind of paradigmatic internal validation. Why use narratives? Later in this chapter, I shall describe the benefits of using narrative, but here it is also suggested that theoretically we are bound to use narrative. We are *constructing* futures not merely describing them, and in addition they are jointly constructed through facilitated meaning making and sensemaking processes. As the saying goes "words create worlds".

This is perhaps also an underlying reason why those that get the most benefit from scenarios are the participants and not necessarily the executives and decision makers who did not participate in constructing them. This offers a number of challenges and opportunities in scenario practice and how far we can go in using them in a way that is theoretically justifiable.

When the scenarios are underpinned by cause-effect structure diagrams as it is in *Futurescope* then there is automatically an underlying systems model for each

scenario. I wish to extend the argument that the narrative form ought also to be considered as a form of modelling. When the narrative is considered a model of uncertainty, it is extremely powerful. Narrative offers a framework for drawing together disparate data and types of data into a coherent whole, and it offers a framework for judgment (Schwartz, 1998, pp. 37-39). It captures complex relationships as well as non-linear relationships between variables. This is not easily achievable with some kinds of formal modelling. For example, if we wished to represent the same relationships in the form of equations, the first difficulty is how to go about formulating them. The second difficulty is that even if we are able to formulate them, they are likely to be intractable. I am not suggesting that narrative as a form of modelling is superior to formal models but I am highlighting narrative as "fit-for-purpose" when dealing with highly complex systems and high levels of uncertainty and ambiguity. I wish to conclude this section by re-iterating that scenarios are 1) models of the future and 2) models of uncertainty.

Scenarios and self-organisation

One of the important features that we draw from complexity theory is that of self-organisation. I shall not dwell too much on this here, except to raise one important point. Although the scenario process is a facilitated one, it does rely heavily on self-organising processes, which are subject to emergence (Anderson, 1999, pp. 217-218). Much of the raw material in scenario construction is the various data that are generated during each of the stages. These are large amounts of data. Since the process is a transparent one, all of this information is represented as a form of "group memory" in flipcharts and whiteboards. Wheatley (1992, p. 106) notes how information serves as a structuring dynamic. Although this is not unique to scenario work, and is applicable to other forms of participatory work, and small and large group facilitation there is room to draw theoretical support from complex systems theory in relation to emergence and self organisation. In scenario work there has to be novel elements and surprises as important components (van der Heijden, 2005). Without these, scenarios are unlikely to engage the decision

makers sufficiently, nor are they likely to challenge their mental models in any fundamental way. This highlights the need for scenario work to be a creative act and a form of artistry. Complexity theory offers the "science" behind the art, by way of self organising processes leading to emergent outcomes that may not be specified in advance. The "information as a structuring dynamic" serves as the mechanism to effect the self organisation. This is by way of amplification of some inputs, and attenuation of others.

Epistemological issues

Good scenarios are created when there is a judicious mix of facts based on intensive research, data collection and analysis, and the "subjective" knowing of the scenario team as embedded in their mental models and schemata. Every scenarios exercise is a form of knowledge construction. The SECI model of Nonaka and Takeuchi (1995, p. 71) offers a theoretical framework to underpin this aspect of scenario work. This is shown in the diagram below:

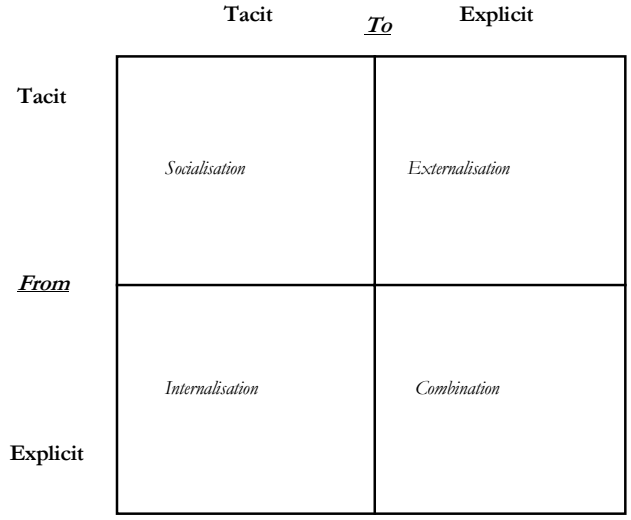

Figure 4.2: SECI model
Adapted from Nonaka and Takeuchi (1995. p.71)

The SECI model is based on the idea that new knowledge is created when there is dynamic interaction between tacit and explicit knowledge. The scenario team traverses the knowledge spiral several times as it goes through

the process. Van der Heijden (1996, p. 120) draws on the "zone of proximal development" as defined by Vygotsky (1986) to demonstrate how scenarios act as a form of scaffolding to enrich one's knowledge base. The zone of proximal development lies around a person's existing cognitive structures. By a process of scaffolding, people are able to make meaning out of their empirically rich tacit knowledge, and unconnected bits of insight. This is a kind of pre-analytic knowledge. When we engage in conversation and social interaction then this pre-analytic knowledge in the zone of proximal development is connected to the logic of reasoning in the outer conversation of the group, and we thereby create new knowledge (van der Heijden, 1997). The underlying message here is that sensemaking can only occur in the zone of proximal development. Each of the steps in the scenario process is designed such that the tacit knowledge embedded in the scenario team becomes codified and articulated in the final outcomes, and there is collective learning as new bits of insight and hunches start to form in the minds of participants thereby extending their tacit knowledge and the zones of proximal development. The SECI model and the zone of proximal development therefore offer epistemological support for scenario work.

Cognitive psychology and scenario work

The scenario literature (Heathfield, 2007; Schwartz, 1998; van der Heijden, 1996) makes reference to the work of neurobiologist, David Ingvar, who discovered that there is the propensity for the human brain to weave stories about anticipated sequences of events, and creates alternate sets of action plans and alternate timepaths about the future. These are termed "memories of the future". We are constantly creating such memories of the future in an unconscious way and look for correspondence between new streams of information and one of these memories of the future. We, thus, use them to filter new information and respond to new situations based on them. Scenarios are akin to a memory of the future at the group level, which enables an organisation to rehearse the future before it happens.

The literature has also considered the relationship between cognitive psychology and scenarios. The focus here has been on cognitive biases and traps, a number of which have been identified. By drawing on cognitive psychology, Bradfield (2007, p. 263) notes that there is some consensus that knowledge and memory are stored in the form of mental schema and associative networks. When new information is received then different schema or parts of the associative network are activated. Hence new information is dealt with on the basis of past experience embodied in the schemata and the associative network. The activation of one node in the network results in identifying other nodes based on the associative logic that ties the parts together. This means that dependent on which node is activated, different knowledge from the network is elicited. This leads to a number of cognitive biases that will be treated shortly. For now we can see how scenarios may actually be applying this in a beneficial way. Because each of the scenarios is different, it means that different parts of the associative network are brought to bear. Therefore, a more comprehensive and holistic picture may be achieved, than if relying on a more limited set of the network and schemata.

The following is a summary of the cognitive biases and mental traps drawn from Bradfield (2007, pp. 264-270). The representative heuristic results in individuals assigning more weight to events or samples that are closer to how they represent their current mental models. The availability heuristic results in events that have occurred recently, are more concrete or vivid, and those which an individual is familiar with, given more weight. Anchoring and adjustment mean that individuals form their judgments of an estimate based on the starting position or anchors with which the information around an event is presented. Belief perseverance indicates that once individuals have formed a mental model or theories about situations, people, and relationships between variables, they tend to adhere to those beliefs even when presented with conflicting data. This means that once the theories and beliefs are formed they become independent and disconnected from the data on which

they were formed. The confirmation bias implies that once a belief is formed, individuals give more credence to supporting evidence and less to disconfirming evidence. The latter are considered erroneous or unreliable. The experience bias indicates that the past experience and knowledge of individuals bias how they interpret and work with new information. They will focus more on things that they understand and "fit" with their past experience and how they frame or conceptualise a problem, thereby limiting the solution space. The overconfidence bias indicates that individuals are over-confident in their predictions, because they seem unaware of the fallibility of the assumptions on which they base their predictions. The single outcome bias shows that as opposed to what conventional decision models imply that we seek out many alternatives or options and evaluate them based on a set of objective criteria, individuals tend to settle on one outcome based on a single interpretation, and one alternative to achieve that outcome. This is done by magnifying the attractiveness of the preferred outcome against that of alternative outcomes, and hence the spread between them.

Bradfield acknowledges that most of the mental traps and heuristics referred to above are from cognitive psychology studies conducted a long time ago, that the findings are not unanimous, and that research is based on probabilistic forecasts. He further adds that

> "as scenario practitioners will be quick to point out, scenarios have nothing to do with either probabilities or forecasts."
>
> (Bradfield, 2007, pp. 272-273)

His contention however is that scenario work will be affected by such cognitive processes, and that while experienced scenario practitioners may be aware of this through experience, most scenario practitioners are unaware of them. This leads to his argument that scenario work is not as deceptively simple as made out to be in much of the literature. This is certainly important to bear in mind especially by those who may be new to scenario work. Bradfield has unfortunately not considered how scenario work may actually

contribute to overcoming some of these cognitive biases and traps, and even using them as points of leverage that other approaches to planning and decision making are unable to. For example, Schoemaker (1993, pp. 208-209) has shown how scenarios rely on one set of biases to overcome another. In his research, indications were that scenarios exploited the conjunction fallacy to overcome the overconfidence trap. This is a fertile area for further research. It is beyond the scope of this chapter, but there is merit in interrogating each of the cognitive biases individually and in relation to each other, to formulate design principles to include in a scenario process. They are off course all invaluable for those that facilitate scenarios processes to bear in mind as they conduct their work.

Discussion

One of the key research questions in this study was related to strategy under conditions of high ambiguity and uncertainty. In this chapter we investigated scenario planning as one such methodology. It was shown that it is a very versatile approach that is applicable from the perspective of different schools of strategy, for example industry analysis and positioning, as well as from the resource based view. Since scenario planning emerged from the world of practice it has been critiqued as under-theorised. Therefore an attempt was made in the chapter to induce theoretical principles for scenario planning. There are a number of promising avenues to achieve this. Firstly, it was shown how scenario planning deals with uncertainty by comparing it with contingency planning and sensitivity analysis. Secondly, a case was made that scenario work may actually be classified as a form of systems methodology. This was done with the aid of Jackson's SOSM. More importantly, it was shown that scenario planning may be considered as an *interpretive* systems approach. This is akin to soft OR or a soft systems approach. Therefore, it is likely that we may draw contributions from scenario planning towards a theory of strategic enactment. Thirdly, an argument was presented that scenarios are a form of modelling, and may be evaluated alongside other kinds of modelling such as mathematical modelling, formal modelling and

system dynamics modelling. Scenarios, therefore, represent models of the future and models of uncertainty. Another important point that was highlighted was that scenarios require rich narratives, and these narratives may be considered as models of uncertainty. Fourthly, it was shown how an effective scenario process relies heavily on processes of self-organisation and emergence, by relying on "information as a structuring dynamic". Fifthly, the SECI model was applied to indicate the relationship between tacit knowledge and "zones of proximal development" and how new knowledge is generated during a scenario process. Finally, relationships between scenario practice and cognitive psychology were explored.

Managers and practitioners require appropriate methodologies and tools when confronted with a complex and turbulent world. Scenario planning is one such approach that has evolved into a set of well-established practices over the last 30 years. It is relevant to large scale change, because it refers to future uncertainty and focuses primarily on the driving forces for change in the external environment. Scenario practice has been applied to all kinds of systems with the resultant outcomes covering global, regional, country, government, institutional and departmental scenarios. It considers the roles of various stakeholders in large scale systems and also takes into account how organisations and other forms of institutional actors in themselves shape large scale change.

Despite its success, various authors lament its lack of theoretical support and justification. I have offered some suggestions to begin to address this criticism by considering various theoretical approaches as well as epistemological issues in relation to scenario work. These include decision making, planning and risk analysis, cognitive psychology, modelling and soft OR, and the SECI model. Furthermore, I have presented a case that systems thinking is fundamental to effective scenario practice, and that scenario practice is most appropriately considered as a soft systems intervention or interpretive methodology in terms of the SOSM. As Curry (2007, p. 371) has noted, scenario planning is a

form of "systems thinking without systems specialists", or in other words scenario planning is "systems in disguise".

Chapter 5 - Complexity Theory and Organisations

Introduction

One of the aims of this study is to determine the extent to which complexity theory may help in understanding organisations and strategy. This chapter therefore explores complexity theory in some detail, and thereafter defines and identifies important characteristics of complex adaptive systems. A case is made that social systems including organisations are complex adaptive systems and will therefore exhibit their properties. I also explore complexity theory in the context of the social sciences in a broader way as this endeavour signifies an ontological shift in our understanding social reality. Given that a substantial portion of the literature on complexity theory in relation to the social realm is based on metaphorical application, I cover the concept of metaphors and their relation to scientific knowing quite substantially. This chapter also sets the framework for the subsequent chapter on leadership.

Complexity Theory and Complex Adaptive Systems

Complexity theory (Anderson, 1999; Chiles, Meyer, & Hench, 2004; Cilliers, 1998; Kurtz & Snowden, 2003; D. L. Levy, 2000; Stacey, 2007) is an emerging worldview and approach for understanding and working with complex systems. Technically, these systems are referred to as non-linear dynamical systems. This focus on non-linear dynamical systems is significant in itself. Most real-world systems whether physical or social systems, are non-linear dynamic systems. Mathematical analysis of non-linear systems was intractable until about thirty years ago. They only became amenable to mathematical treatment as non-linear dynamic systems as a result of more powerful computing tools. Prior to that, they had to be approximated as linear systems.

> "Whenever nonlinear equations appeared, they were replaced by linear approximations. Instead of describing the phenomena in their full complexity, the equations of classical science deal with *small* oscillations, *shallow* waves, *small* change of temperature and so on."
>
> (Capra, 2002, p. 35, emphasis in original)

The study of such complex, non-linear systems, was given much impetus with the application of powerful computer based simulations. Simulations of complex adaptive systems vary from cellular automata, Boolean networks, and genetic algorithms to other forms of agent based simulations. It may be argued that such simulations offered researchers and scientists a new *method* for undertaking science.

Complexity theory has been described as a "kind of qualitative holistic mathematics" (Waldrop 1992, cited in Agar, 1999, p. 99).

Complexity theory, though having its roots in natural and physical systems, has evolved into an interdisciplinary field of study that draws on *inter alia* biology, economics, sociology, information systems and communications. The central concern of complexity theory or complexity science, as it is sometimes termed, is to understand the underlying characteristics of complex systems, their resulting behaviour and how the two are related. There are a number of important concepts that is associated with complexity theory. Some of these are: emergence, self-organisation, self-organised criticality, chaos, edge of chaos, dissipative structures, autopoiesis, strange attractors, sensitive dependence on initial conditions, and fitness landscapes (Cilliers, 2000; Coleman Jr., 2000; Escobar, 2003; Lissack, 1999).

Complexity theorists are not drawn from a single discipline. Many different scientists and scholars including biologists, physicists, chemists, philosophers, mathematicians, psychologists, economists, and other social scientists have contributed to the development of complexity theory. The genesis and development of complexity theory has been a transdisciplinary one. Moreover, the concerns of complexity theory are with all types of natural and

social complex systems, their properties and behaviour. This includes the issues of interdependence, turbulence, messiness, unpredictability, fluctuations, value laden-ness, multiple perspectives and context (Klein, 2004, p. 4).

Delgado Diaz (2004, p. 50) identifies several complexities. The first is complexity as science, which is the study of non-linear dynamical systems and their properties. This is what is usually referred to as complexity theory or complexity science. The second is complexity as method, that is, the ways of thinking and application that we draw on from complexity as science. The third is complexity as worldview which is related to our perspective of the world and our relations with it.

Complex systems are open systems because they exchange energy, resources and information with the environment. Anderson (1999, pp. 217-218) identifies six insights that he regards as scientifically established. He provides significant support for this point by highlighting a significant literature that covers this extensively. Furthermore, these insights are corroborated by much of the literature on complexity theory referred to elsewhere in this thesis.

First, many non-linear dynamic systems do not reach point or cyclical equilibrium. Point equilibrium is when a system stabilises around a single point. A common example is a pendulum subject to friction. If a pendulum is released, at say 90^{o} to the vertical, it will traverse a path that eventually comes to rest at the origin (0^{0}), at point equilibrium. If we release a marble at the side of a concave container like a bowl, it will eventually settle at the bottom of the container, at its point equilibrium. The absence of point equilibrium is a key difference between complexity theory and some branches of systems thinking, such as cybernetics. Cybernetics considers systems as homeostatic and hence systems that reach point equilibrium. Cyclical equilibrium is when a

system never comes to rest but follows a trajectory that is repeated cyclically, such as a pendulum that is not subject to friction.

Second, many processes that are apparently random are actually chaotic. Chaos implies that system states are unpredictable yet bounded. They revolve around a strange attractor.

Thirdly, chaotic systems are subject to sensitive dependence on initial conditions. This is popularly framed by the metaphor of the "butterfly effect." A way to understand the mathematical operation that leads to sensitive dependence is to consider the stretching and folding of baker's dough. Suppose we mark baker's dough with two droplets of blue and red ink right next to each other. As the typical kneading action of folding and stretching is done, the red and blue spots begin to successively move further and further away from each other. Another example is two droplets of rain close to each other falling at the top of a cliff. One raindrop falls to the left and the other to the right, consequently ending up in two very different oceans. Both examples demonstrate that an imperceptible difference in starting conditions gets amplified leading to radically divergent outcomes.

This phenomenon of sensitive dependence on initial conditions enables chance events or historical accidents to tip a system into a particular trajectory. It leads to lock-in and path dependence. This is one of the underlying reasons for the "arrow of time" or irreversibility of time, that characterises complex systems. In such systems, "history matters." Brian Arthur shows how positive feedback in the economy magnifies such small differences in starting conditions. An example is that of the VCR, which was introduced in two competing standards, VHS and Betamax, at roughly the same time, selling at roughly the same price. Due to chance events, and external circumstances, the VHS format was able to get a small lead over the Betamax format, ultimately leading to VHS capturing the whole market (Arthur, 1990, p. 92). A second example from Arthur shows how some

regions attract industry as a result of chance and not necessarily geographic superiority based on factor endowments, natural resources, or skills. He indicates that in the 1940s and 1950s, key individuals in the electronics industry set up operations in Sara Clara County near Stanford University. As a result this attracted many other related firms into the area, which today has become Silicon Valley. Arthur asserts that if they chose to locate elsewhere (many other university towns would have sufficed) the concentration of the electronics industry would have been elsewhere.

Fourth, complex systems are not amenable to reductionist analysis, because of the myriad inter-relationships and feedback loops characterised by mutual and circular causality, to the extent that the feedback relationships are not discernable (Stacey, 2007).

Fifth, complex patterns of behaviour emerge from the relationships between the parts of the system.

Sixth, complex systems have the propensity for self-organisation. Given a random starting condition, they will evolve to a state of order poised between chaos and disorder, or what is termed the "edge of chaos".

Cilliers (2000, p. 24) provides what he terms a qualitative description of complex systems, and identifies the following features:

- Consists of large numbers of elements which in themselves may be simple.

- The elements interact dynamically, in a non-linear way, and the interactions are rich. The effect of local interactions may be propagated globally.

- The interactions are comprised of many direct and indirect feedback loops.

- These are open systems, operating far-from-equilibrium, exchanging energy and resources with the environment.

- Such systems have memory that is distributed throughout the system. The behaviour of the system is dependent on the history. This point is significant as it indicates that two systems that appear to be very similar, have different embedded histories, and hence are very different. This relates back to the discussion in Chapter 3 where system states are embodied in the cumulative history of all its asset-stocks. This embedded history underlines the importance of path dependence in complex systems. Another point that is important is that the memory is distributed throughout the system, and not in any one agent. Therefore no agent has global understanding of the system and how it came to be where it is.

- Since the system behaviour is based on interactions between components, and less on what is contained within the components themselves, and such interactions are feedback-laden with many, multiple interacting feedback loops, the behaviour of the system may

not be predicted. Cilliers emphasises that this is not an argument against causality but rather against deterministic forms of prediction.

- Complex systems are adaptive, meaning that they can (re)organise their internal structure without the intervention of an external agent. This means that system changes may be endogenous and not necessarily as a result of shocks from the environment.

Levy (2000, p. 68) considers complexity theory as an umbrella term that covers both chaos theory and network theory. Chaos theory is based on recursive application of non-linear, deterministic equations. A common example is that of the logistics equation. The state of the system at time t_{n+1} is dependent on the state of the system at time t_n.

Complexity theory is not a single theory but rather an ensemble of ideas, concepts, frameworks, propositions and metaphors. It draws largely from physical, biological, physiological and other natural systems but has application in social systems. The following is a definition of a complex adaptive system (Bodhanya, 2008, p. 12):

> A complex adaptive system (CAS) is a system comprised of many heterogeneous agents that interact locally with each other based on local schema, such that the behaviour of the system arises as a result of feedback relationships between the agents, and the system evolves as the schemata of the agents adapt based on the feedback.

By applying this definition, the application of CAS is not restricted to physical and natural systems, but includes social systems. The notion of an agent is a generic one, and applies at different levels of abstraction. In the case of a physical substance, we may consider molecules as the agents. If it is an ecological system then the agents may be species. Neurons are the agents in the physical brain, while artificial neurons are the agents in an artificial neural network. In the case of an organisation, individuals, groups, and departments may be identified as the agents. In an economy, the population of firms

represents collections of agents. There are alternate conceptions of agents in social systems. For example, in the complex responsive process approach, the agents are narrative themes (Stacey, 2007). Others have considered Dawkin's memes as agents (Price, 2004, p. 42).

Characteristics of complex adaptive systems.

Agents with schemata (Anderson, 1999, p. 219). A complex system is made up of a large number of interacting agents. These agents have cognitive structures termed, schemata. As the agents interact with each other, the schemata change. Anderson notes the distinction between system dynamics where feedback loops are between system variables, whereas in complex systems the feedback loops are considered to be between agents.

Sensitive dependence on initial conditions. This is one of the major lessons from chaos theory and has assumed the popular connotation of the "butterfly effect" (Gleick, 1998, pp. 8,20-23; D. Levy, 1994, p. 170). The implications of this are that it is not possible to forecast a future state of a system with any precision because minor changes in initial conditions may lead to vastly different outcomes. A corollary to this, as discussed earlier, is that complex systems exhibit path dependence (Arthur, 1990).

Fitness landscapes. Agents in complex adaptive systems traverse a metaphorical fitness landscape (Anderson, 1999, p. 220; Kauffman, 1995b, p. 121; Levinthal & Wraglien, 1999, pp. 344-345; D. L. Levy, 2000, pp. 72-73). A climb up the landscape represents an increase in fitness. Conversely, a traversal down the landscape represents a decrease in fitness. As agents interact with each other, each agent strives to increase its fitness based on the payoff functions for each of the steps of the traversal (Anderson, 1999, p. 220). As an agent changes it changes the environment of the other agents, and hence the agents traverse an adaptive landscape. The fitness landscape represents the environment. This results in achieving dynamic, as opposed to, static equilibrium. The fitness landscape is not static as the actions of other

agents affect it, thus, the agents traverse a constantly deforming landscape. This leads to co-evolution between the agents and the environment. Agents do not merely react or adapt to changes to the environment but they co-evolve with it. This may be considered as co-evolution at a micro-level.

Co-evolution. At a higher level, the system as a whole is also co-evolving with the macro-environment. In this case, the interpretation is that a population of organisations or systems are traversing this shifting, heaving landscape. This represents co-evolution at a macro level.

Co-evolution to the edge of chaos. CAS have the tendency to gravitate to a state of self-organised criticality (Anderson, 1999, p. 223; Morel & Ramanujam, 1999, pp. 281-282). This is a state poised at the edge of chaos between static order and chaos. It is a region that is paradoxical in that it has characteristics of stability and instability simultaneously. It is a state where the system is in dynamic equilibrium, or what Stacey (2003, pp. 228-230) refers to as bounded instability. Slight changes can lead to small or large outcomes that follow a power-law distribution. Such power law equilibria occur at the edge of chaos. The power law distribution implies that large system changes occur exponentially less frequently than small system changes, and large fluctuations occur more often than when characterised by the normal (Gaussian) distribution (Anderson, 1999, p. 223; D. L. Levy, 2000, p. 80).

Dissipative structures. Complex adaptive systems are a form of dissipative structure, operating far-from-equilibrium, by importing energy, information and resources from the environment. As agents are connected to other agents, their behaviour is determined by the subset of agents that they interact with. This leads to system level outcomes that are ordered, but that was not determined by any one or small groups of agents. This is a form of *negentropy*, and may appear to violate the second law of thermodynamics. This is not so, because the system has to import energy from the environment in order to

maintain the self-organised state. At the level of the system, entropy is reduced, but at the level of the environment the overall entropy increases.

Self-organisation. Complex adaptive systems exhibit the property of self-organisation (Morel & Ramanujam, 1999, p. 282; Pascale, 1999, p. 89). Order emerges from the interactions between agents in the system and is not imposed from outside of the system. This indicates that there is a level of control, but the control is an emergent property that is not imposed on the system. The system therefore displays bounded behaviour. It traverses the state space and is bounded by an attractor, a confined region in state space that constantly displays novelty, as it never repeats a state. It is also possible for the system to shift to an entirely new attractor that is a different pattern and bounding of the state space. There is the potential for entirely new forms of order to spontaneously emerge.

Recombination and system evolution. There is the possibility of the network of agents changing in a CAS as new agents enter, or existing agents leave the network (Anderson, 1999, p. 225). The relationships between agents may also change. There may be new sets of connections between agents that did not exist before. Alternatively, the strength, direction, or intensity of the relationships may change. Agents may also be transformed as existing entities may recombine or split. An agent may itself be a complex adaptive system.

Emergence. Complex adaptive systems display the properties of emergence ("effects do not equal causes"). This may be interpreted in a number of ways. Firstly, as in systems thinking, the system displays emergent properties. These are properties of the system as a whole that are not properties of the parts. Secondly, we have emergence in the form of different system states. The state of the system emerges as a result of self-organisation. In this sense, we do not have only emergent properties but emergent order. Finally, and perhaps this is the most radical interpretation, we have emergence in that the system itself emerges.

Egalitarianism. Complex adaptive systems have the paradoxical property that although agents are heterogeneous, and some agents have more influence than others in a number of ways, there is one aspect in which there is egality in that no agent can stand outside the system and understand the whole (Cilliers, 2000, p. 24; Stacey, 2007). As agents interact at a local level with the environment and they co-evolve at a micro level, no agent can understand the whole environment. Similarly no single agent can understand the system as a whole.

Artifacts as (a kind of) agents. In the case of higher level CAS when we consider social systems, we may include artifacts (Maxfield, 1998) as (a kind of) agents. Our artifacts may include all kinds of human creations such as physical infrastructure, machines, technology, measuring instruments, as well as ideational constructions such as knowledge, blueprints, policies and information. They are agents in the sense that the human agents co-evolve with artifacts. As we create new artifacts it opens up new possibilities for action, and that in turn enables us to create new artifacts. The artifacts therefore also liberate and constrain the evolution of human agents. This has resonance with structuration theory as well as with actor-network theory.

Complexity and the social sciences

Urry (2005) refers to the 'the complexity turn" in the social and cultural sciences. This complexity turn is as a result of developments in a variety of disciplines including physics, biology, mathematics, ecology, economics, and computer simulations. He shows that complexity has permeated in a variety of social and intellectual discourses and practices besides science. He makes a key point that complexity sciences focuses on phenomena characterised by large numbers, and that when it comes to the social worlds then it is dealing with large numbers with "over 6 billion people, 700 million cars, 1 billion Internet users, 44 000 multinational corporations" (p.3). Urry cites key developments in 20th century sciences focusing on relativity theory, space-time, quantum theory, chaos theory, and thermodynamics that set the stage

for the complexity turn. The complexity turn is preoccupied with non-linear dynamic systems that operate far-from-equilibrium, fuelled by fluctuations and positive feedback. The impetus for the complexity turn is further elaborated by Thrift (1999). Since complexity theory has yielded a rich set of metaphors, and such metaphors have the propensity to travel, the theory has permeated out of science into many of the disciplines, business and the public discourse. Using actor-network theory, Thrift demonstrates how this has occurred because the metaphors have "circulated in "heavily mediatized" networks of science, "cultural circuit of capitalism" (including academia, management consultancy and management gurus, and New Age practices. In some cases, complexity theory has travelled back into and is shaping (the acceptance of) the science.

Byrne (2005, p. 97) defines complexity theory as

> "the interdisciplinary understanding of reality as composed of complex open systems with emergent properties and transformational potential."

He states that complexity science is inherently dynamic, and that it implies that knowledge has of necessity to be local and not universal. It introduced the idea of trajectory, representing the actual pattern of change, which is important for the social sciences.

> "Complexity theory is not a matter of importing ideas from the 'hard sciences' into the consideration of the social, although some of the terminology of non-linear dynamic theory can be rather useful to us. Rather it involves thinking about the social world and its intersections with the natural world as involving dynamic open systems with emergent properties that have the potential for qualitative transformation, and examining our tools of social research with this perspective informing that examination."
>
> Byrne (2005, p. 98)

This point by Byrne is very significant philosophically, as it indicates that the demarcations between physical reality and social reality are much more diffuse

and permeable than was hitherto thought. Put another way, it means that the distinction between the hard sciences and the social sciences are not as fast and fixed. While much of the literature around complexity theory emphasises that its roots are in the physical sciences but has applicability in the social sciences, we now have an emerging argument that this is not necessarily the case. This points to an ontology where physical and social reality interpenetrate and is intertwined. So it is not just a matter of taking learning from the physical sciences and incorporating into the social sciences. The knowledge that we supposedly gained from the physical sciences is actually from this intertwined single reality, which in itself is open, emergent, mediated contextually and has the potential for radical and qualitative transformation.

This is an argument for transdisciplinarity. When considering real world problems from the perspective of this single, undivided reality (Bohm, 1980, p. xi), we note that they do not present themselves in neat packages that are susceptible to treatment from individual disciplines. The real world is messy and wicked (Rittel & Webber, 1973, p. 160). In order to understand the underlying complexity of real world problems, there will be a need to bring multiple perspectives to bear in transcending disciplinary boundaries. Let us make a number of distinctions between disciplinary, interdisciplinary and transdisciplinary approaches. Disciplinary research brings the theoretical tools of a particular discipline to bear on some problem. For example, if the phenomenon of interest is poverty, then we may draw on the discipline of economics to understand it. Given the nature of the discipline there are a number of implicit assumptions that are brought to bear. These may include instrumental rationality, perfect markets, general equilibrium, and specific relationships between supply and demand. Here, poverty is seen as an economic problem. The focus may be on the distribution and allocation of resources. Concepts such as human agency are probably quite restricted. There will be a tendency for the units of analysis to be somewhat large, thereby relying on the "law of large numbers" and employing certain probability distributions. It will rely on economic measures such as output,

productivity and elasticity. By doing this we reduce the real world problem to fit out axioms and our constructs of the world. We discount any intentionality of human agents. It is unlikely that we shall consider issues such as trust and social capital (Beinhocker, 2006, p. 435) that may exist in the community. Let us now move to the idea of interdisciplinarity. Here we acknowledge the shortcomings of considering problems from the perspective of a single discipline. We shall therefore attempt to draw in a wider set of perspectives by bringing a variety of disciplines to bear on our problem. We may therefore attempt to understand poverty from the viewpoints of several disciplines including, for example, economics, sociology, psychology, and urban planning. This enables a richer perspective of the issues under consideration. By contrast, Klein (2004, p. 6) argues that interdisciplinary studies are still rooted in concepts of modernisation and development, focusing on "narrow indicators of economic efficiency" and has discounted "indigenous knowledges and traditional technology" (p.6). Transdisciplinarity embraces broader concepts such as social and environmental justice, draws on ways of knowing of indigenous and local communities, and incorporates a plurality of languages, knowledge and participatory methods at different levels of inquiry.

> "Gaps between Western and non-Western traditions must be bridged as well as esoteric and organic knowledges, colonial and indigenous traditions, official and peoples knowledges. One of the transgressive purposes of the new discourse of transdisciplinarity is to renounce the logic of instrumental reason by creating a more democratic discourse involving participation."
>
> (Klein, 2004, p. 7)

The quest for universality is not possible in terms of complex systems. Phenomena are not independent of the context in which they occur. The feedback loops that contribute to manifestation of phenomena that are perceptible to us are integrally part of the context.

> "[C]omplexity theory challenges the nomothetic programme of universally acceptable knowledge at its very heart – it asserts that knowledge must be contextual. Moreover, it breaks down the boundaries between natural and social as objects of knowledge and action, and necessarily places social agency as of crucial historical and potential significance for the constitution of planetary reality as a whole, precisely because human agency can change system trajectory."
>
> (Byrne, 2005, p. 97)

Suteanu (2005) brings another perspective to the arguments made above. He notes that scientists do not generally change their interpretive frameworks in order to expand their horizons. Rather they do so when they are compelled. He identifies the three pillars for a phenomenon to be studied scientifically, namely, it must be measurable, reproducible and predictable, and proceeds to show how complexity studies have changed all three of these pillars. He provides an excellent example in the work of Mandelbrot to illustrate how the pillar of measurability has been transformed. Natural scientists had incredible difficulty in describing complicated objects such as trees, clouds, rivers and coastlines quantitatively. Mandelbrot's fundamental insight was that different points of view produce different results, and a way of getting fuller insight into these objects was to extract the *relations* that connect these multiple views. He developed a mathematical approach to describe these relations. What he did was to understand the phenomena at different scales and linked those together in his fractal geometry. This was an approach that cast qualitative features into a quantitative schema, and one that is able to characterise patterns. The result of Mandelbrot's method was not numbers of units, but rather a measurement in relation to a dimension, and therefore instead of "measuring objects, it tells us *how the object is*" (Suteanu, 2005, p. 117, emphasis in original).

Suteanu argues that the way that complexity has answered the measurability requirement of science is that these irregular, immeasurable entities have been transformed into objects and entered into the quantitative realm. If we examine this a bit closer, it indicates that nothing in reality has actually

changed – there is no transformation *per se*. All of the features of reality have stayed the same, but our understanding now indicates the intertwined natural and social reality of a coastline that may now be measured in fractal dimensions and have become objectified.

> "Beyond the practical application of multi-scale methods, the principle discovered by Mandelbrot proved relevant for the understanding of complex systems and complex situations: it revealed the importance of promoting not just one – the arguable "best – point of view, but of considering the same problem from multiple perspectives."
>
> (Suteanu, 2005, p. 117)

The focus on multiple perspectives is a longstanding one in systems theories and is here accentuated again through complexity theory.

Goodwin (2000) argues for a science of qualities that are complementary to the dominant science of quantities that we are well acquainted with. Modern science is only interested in "primary qualities" of phenomena that are amenable to counting and measurement, and disregards "secondary qualities" such as colour, texture, taste, beauty and form, which are referred to as qualia. He suggests that one of the main constraints in science is the restriction of data to that which is measurable and quantifiable, and that there is no intrinsic reason for why this constraint should be accepted. He argues that what is needed is a methodology where subjects come to some agreement on their observations and experiences, which is the same basis for quantitative measurement, except there it is an agreement on method. This is already practiced, for example, in the medical professions. A diagnosis is not made just on measurements such as blood pressure, heart rate etc. but medical professionals take into account other patient qualities such as colour and texture of skin, colour of eyes, posture and so on.

While the above is appealing, skeptics will raise the question as to what the theoretical justification for accepting a "science of qualities", as proposed by Goodwin, is. I would argue that it is theoretically defensible if we draw on the

concept of emergence. While recent as a key idea from both systems thinking and complexity theory, emergence, has been long established as a philosophical perspective. Hodgson (2000) shows how the concepts "emergent property" and "emergence" and the general idea underlying them is more than two centuries old, by noting that it is reminiscent of Hegel who stated that "the law of transformation of quantity into quality" (p.65), and Auguste Comte, "society is no more decomposable into individuals than a geometrical surface is into lines, or a line into points" (p.65). Therefore secondary qualities or qualia are seen as emergent properties of a phenomenon. If we wish to understand complex systems, we have no choice but to pay attention to these emergent properties, and therefore any science of organisation has to include a science of qualities.

Hodgson further cites Veblan's "treatment of institutions as phenomena that are dependent on individuals but not reducible to them" (p.66). The implication of this is that human society can evolve beyond, and more rapidly than that of individuals on their own. This is very important philosophically, as it decouples biological evolution from societal and human evolution. The arguments from this discussion resonate with that of holism and reductionism covered in systems theories. It sharpens that difference by explaining that it is emergence that argues against reductionism.

Hodgson (2000) further cites Polanyi (1967, p.36) as stating "you cannot derive a vocabulary from phonetics, you cannot derive the grammar of language from its vocabulary; a correct use of grammar does not account for good style; and a good style does not provide the content in a piece of prose… it is impossible to represent the organizing principles of a higher level by the laws governing its isolated particulars."

Given that we seem to have legitimacy for emergence from a philosophical standpoint, we need to extend this. Emergent properties imply that higher level macrostates have an independent ontological status that is not reducible

to constituent individuals. This raises a number of issues that do not feature prominently in the literature on organisations and strategy, and questions some of the prescriptions that are common in this literature. The most problematic is the largely unquestioned assumption that desired features of organisations may be *designed*, by manipulating and configuring the constituent parts. Such an assumption is only valid if the macrostates are reducible to the individual components. They are not. This gives weight to the position taken by Goodwin that the science of quantities, are insufficient, and a science of qualities is equally necessary. One example from the organisation theory will suffice. Organisational culture is considered as an organisational feature that may be designed. Culture is a macro-level outcome based on relations of individual components of organisation. Hence, culture, may not be designed.

> "Furthermore, reductionism is still conspicuous in social science today and typically appears as methodological individualism. This tends to be defined as 'the doctrine that all social phenomena (their structure and their change) are in principle explicable only in terms of individuals – their properties, goals and beliefs' ... It is thus alleged that explanations of socioeconomic phenomena must be reduced to properties of constituent individuals and relations between them."
>
> (G. M. Hodgson, 2000, p. 72)

Complexity theory and theoretical metaphors

Since many applications of complexity theory in various domains, especially in the social sciences, are based on metaphor it is important to consider metaphor more closely. There are two basic types of metaphor which are fundamentally different, namely literary and theoretical metaphors (Chettiparamb, 2006).

I have developed the following basic model of theoretical metaphors by my *interpretation* of the key points presented by Chettiparamb, and by drawing on the work of Knudsen (2003).

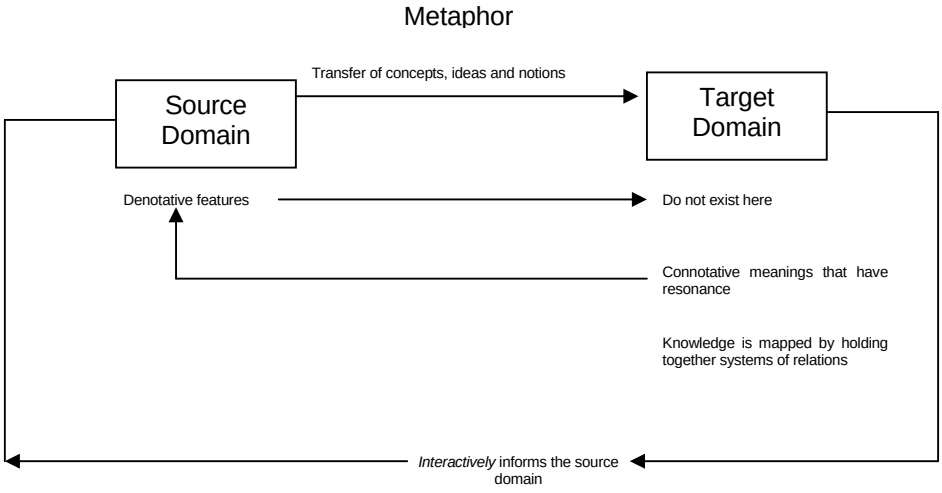

Figure 5.1: A model of theoretical metaphors

A theoretical or scientific metaphor involves the transfer of ideas, concepts, models and notions from a source domain to a target domain. The transfer may include elements of isomorphism, that is, direct structural mapping between the target and source, but will usually involve the non-isomorphic mapping of features. The source domain will also denote features that are not present in the target domain, but these connote features that give rise to meanings that have resonance with the features in the source domain. The metaphor is "denotatively false and connotatively true" (Chettiparamb, 2006, p. 75, citing Hunt and Menon). The mapping involves the carrying over of a system of relations, which gives the metaphor its richness and appeal.

When transmitted for the first time into a target domain, theoretical metaphors are marked as "strangers within the discourse" (Soyland 1994, cited in Knudsen, 2003, p. 1254). They are accepted as tentative, fuzzy and ambiguous, and need to be clarified and explained. Over time, as the metaphor is used for theory construction in the target domain it gets a life of its own, it evolves and assumes new meaning in the target domain which interactively influences the source domain. As such it is based on a unique evolutionary history and is highly context dependent (Knudsen, 2003, p. 1248). This is different from literary metaphors which over time get

subsumed into the vocabulary of target domain and lose their metaphorical qualities, as they get embedded in literal usage.

The function of theoretical metaphors is to serve as a form of theory construction including generation of hypotheses, theories and concepts. As with hypotheses generated in other ways they are subject to testing, challenge and extension for them to become acceptable within the scientific discourse. Knudsen asserts that as a result of the development of the metaphor over time it is subject to transformation until experienced scientists no longer consider the metaphor to be metaphorical, but it becomes an accepted concept like any other scientific one. This may be termed as a closed metaphor. It is notable that when dealing with theoretical metaphors the process of development often relies on a whole conceptual network of other metaphors.

Knudsen cites Boyd (1993) who made a distinction between theory-constructive metaphors and pedagogical or exegetical metaphors. The former are indispensable to any scientific theory, as they form an important component of scientific reasoning and conceptualisation. According to Boyd (cited in Knudsen, 2003, p. 1249), theory-constructive metaphors are impossible to paraphrase while pedagogical metaphors may be paraphrased. Pedagogical metaphors are relied upon for teaching of concepts or for explanation.

Knudsen illustrates the powerful impact of theory-constructive metaphors by an example of the contribution of the physicist, Edwin Schrödinger, who first introduced the metaphor of the genetic code in biology.

> "[S]chrödinger had in fact produced what no biochemist, molecular biologist, or geneticist had been able to produce so far: a metaphorically expressed, constructive hypothesis about the workings of the genetic material."
>
> (Knudsen, 2003, p. 1252)

It is important to highlight, that the metaphor as presented by Schrödinger was not entirely accurate, as he had associated it with the wrong chemical entity and thus theory-constructive metaphors ought not to be considered as representing scientific truths in the target domain. This is an example of the "denotatively false and connotatively true" as indicated earlier in this discussion. The idea of the genetic code as presented by Schrödinger had connotative meanings that resonated with ideas from the source domain.

We can now turn our attention to the application of metaphors in organisations. A distinction may be made between primary metaphors and complex metaphors (Cornelissen & Kafouros, 2008, p. 957). This is in opposition to earlier work that distinguished between surface and root metaphors. The latter are based on static images, whereas the former is akin to a more dynamic, evolving sense of how complex metaphors are related to primary metaphors. A primary metaphor has an experiential basis, and involves a single point of correspondence between the target and the source domain. It is "the most basic metaphorical description of a target domain and has minimal structure" (p.961). Complex metaphors are a

> "self consistent metaphorical complex composed of more than one primary metaphor and hence implies more source domains and more points of correspondence and entailment in relation to a target domain."
> (Cornelissen & Kafouros, 2008, pp. 961-962)

They lead to a complex metaphorical image that may be very detailed, but one that is easily assimilated, worked with and manipulated by scholars. Metaphorical thought drawing on complex metaphors is a "creative and dynamic process that allows scholars to combine primary metaphors in a novel ways" (p.963) and therefore opens up many new avenues for theoretical development and extension. This relationship between primary and complex metaphors is particularly salient when considering how complexity theory is applied metaphorically to social systems, and especially to organisations. Cornelissen & Kafouros (2008) use the metaphor of "organization as a

complex adaptive system" to illustrate their position of the relationship between primary and complex metaphors! Complex metaphors enable scholars to mentally simulate an entire scene about events, actions and interests, in a way that they tend to obey constraints of reality.

> "[W]hen scholars run through such metaphorical scenes in their minds and imagine them in a concrete and specific form, it often makes those events and the related inferences seem real."
>
> (Cornelissen & Kafouros, 2008, p. 964)

There is an acceptance that complexity theory has travelled widely to numerous different target domains based on the complex metaphors. An interesting question is what was the underlying momentum? One of the vehicles was the ubiquity of models and images of strange attractors as exemplified by the Lorentz attractor (Mackenzie, 2005). In relation to primary and complex metaphors we may consider the Lorenz attractor as a visualisation of a complex metaphor. Although it relates more to chaos theory than complexity theory *per se*, it embodies within in it a number of complex concepts and mathematical notions that are pertinent to complexity theory. Some of these include phase space (a mathematical abstraction), basins of attraction, patterned outcomes that are unpredictable yet bounded, sensitive dependence on initial conditions, periodicity, and bifurcations. It is quite surprising that as a visualisation in two dimensions, the Lorenz attractor is successful in exhibiting features of three dimensional abstract space and evoking multidimensional mathematical relationships.

> "This is both more modest than a paradigm shift, or a shift between modern and postmodern science (Cilliers, 1998), and yet more troubling because it starts to break the ways in which the positions of knower and known are constituted. Rather than a shift in worldviews, from a world of mechanical causes and effects to a world of complex instabilities, events and bifurcations, what counts as the right question to ask, as the most relevant way of posing problems, changes."
>
> (Mackenzie, 2005, p. 48)

An observation by De Landa cited in Mackenzie (2005, p. 53) drawn from phase space is that "a change in mathematical practice can change the very object of knowledge in surprising ways, and in ways that are not easily understood as metaphor change." This is another example of transforming objects of the world by transforming our tools of apprehension (See earlier discussion regarding Mandelbrot and the transformation of objects).

Counterpoint – The pitfalls of metaphor

> "The dangers of metaphorical reasoning are well known. They provide tools for explanation, giving us insights rather than understanding, and insights can prove illusory. They must be considered points of departure for the reasoning process rather than points of arrival."
>
> (Boisot & Cohen, 2000, p. 123)

The use of metaphors as a form of reasoning is inextricably linked with reasoning by analogy and abstractions, and the distinctions between them need to be clarified. Reasoning by metaphor treats phenomena that are different as if they are the same in one significant respect which is left implicit. Reasoning by analogy treats them as if they are the same in many significant respects. This is done in a much more rigorous way than metaphor. Reasoning by abstraction treats them as if they are the same in all significant respects. Metaphors connote, analogies denote and reasoning by abstraction changes to propositional (Boisot & Cohen, 2000).

Complexity theory and chaos theory in particular are not without their criticism, especially in the field of organisation science. There are several authors who criticise the loose application of chaos theory and complexity

theory to organisations (Cilliers, 2000; Galbraith, 2004; D. L. Levy, 2000). Some writers make it seem that chaos is ubiquitous in organisations, and others have been criticised for their "evangelical zeal" when applying it to organisations (D. L. Levy, 2000, p. 68). There has been very loose application of metaphors from chaos theory especially that of strange attractors, and the butterfly effect. Much of this type of critique has merit. A common example is that chaos is equated to disorder or to crisis in organisations. This quickly leads to prescriptions for top management to manufacture crises in their organisations. Apart from the very idea being questionable, there are also ethical issues around such prescriptions. In a similar way, the concept of attractors is loosely applied. Some authors equate concepts such as leadership, vision, and spirituality to attractors. What is the warrant for mapping such abstract concepts to attractors? There is little justification for it. In terms of chaos theory, a strange attractor has a very special meaning, which has to do with the trajectory that the system traverses through state space and in the case of strange attractors, one that never repeats yet is bounded. There is no reason to equate a strange attractor in the loose fashion as mentioned above. Similarly there is no warrant to equate crises with chaos. Chaos in chaos theory also has a very specific meaning which relates to aperiodic deterministic behaviour in a mathematical sense. There is no reason to equate that with the everyday, common-sense use of chaos, meaning haphazard, disorganized, and filled with crises. Such loose application of metaphor to new target domains has serious pitfalls especially when they lead to normative claims and to prescriptions for practice. This is illustrated by the critique of several papers applying chaos theory to educational administration and leadership (Galbraith, 2004, pp. 10-18). This work shows how these applications are based on misunderstanding the nature of non- linear dynamic systems, feedback characteristics, and other important characteristics of complex systems. This raises the distinction between metaphor, archetype and model. Galbraith concedes that one level or type of representation is not necessarily superior to the others and that it depends on the purpose. He

cautions, though, that the nature of the claims made, and the evaluation criteria are markedly different.

Sheard (2006) explores complexity theory in the light of continental philosophy. He tries, based on an extensive discussion of metaphor from a philosophical point of view, to resolve the tension between whether complexity theory is universalistic or locally contingent on context. This is an interesting avenue of exploration, because unlike other forms of metaphor in scientific contexts, when it comes to complexity metaphors, they are not restricted to very specific phenomena in restricted contexts in a specialised domain. Rather, they have the potential for mobility from multiple source domains to multiple target domains, because complexity is all pervasive and may be said to be everywhere. As they move across these domains they in turn get mediated in complex ways that are self-referential and recursive. The whole notion of theoretical metaphors in the scientific endeavour thereby gets "complexified". Complexity theory indicates the fluid, indeterminate and unpredictability of phenomena which means that knowledge is contextual and locally contingent. On the other hand, complexity theorists argue that it applies generally across many domains to the extent that it may be interpreted as universalistic. How do we resolve this inherent tension?

This brings us back to the crucial question about the application of complexity theory as metaphor, as model or as literal. This is a much deeper philosophical question that relates to transdisciplinarity. What is the extent to which a concept or idea that is applicable in one domain may be carried over into another domain? When will such transfer be valid and when will it not?

From a philosophical point of view, all science is a form of mapping concepts to some real world referent. There is no absolute validity for the mapping. When we use symbol processing (as in the case of logic or mathematics) and language in the social sciences we are establishing a mapping between a symbol or word and the real world referent. When we apply mathematical

procedures we are applying a set of rules to transform the symbols into different forms. Why is this then not valid when using words and language as an alternate symbol processing system or an application of rules? The point that I am highlighting is that we should not be imprisoned by positivist notions when trying to establish validity of representation and mapping to real world referents. A case may therefore be made that under certain circumstances the use of metaphor and analogy offer similar benefits to more formal symbol processing systems and sets of rules. The question that then becomes important is how loose or how tight must the metaphor be?

We also need to look at the similarities and differences between literal, analogy, metaphor, model and formalism. What is meant by each of these?

This raises questions around deduction and induction, and when are they valid or not? If we want absolute truth then only deductive reasoning is appropriate. But again this is from the point of view of positivism. One may argue that it is never possible to generate theory by way of deduction. Both deduction and induction are crucial to theory building. As Weick (1989, p. 516), refers to theory building as "disciplined imagination", we can see the importance of inductive reasoning. Deductive reasoning in the true sense may only be applicable in a closed system. The real world is an open system, and hence we may not rely on deductive reasoning alone. In any closed system there are always a set of axioms that are considered to be self-evident. What is the warrant for that? Can we then not have other concepts in other philosophical systems that are not axioms but something else that gives us warrant as the starting point?

The issue then is the difference between theory and truth. As we have more confidence in a theory we tend to think that it is closer to the truth. Again this is a relic of positivism. Given the discussion of axioms covered earlier, it is not possible to achieve absolute truth even in the positivist sense. Our axioms

only hold in the world that we have constructed. For example, the axioms of Euclidian geometry only hold in a "flat world", so to speak.

In assessing the position taken by Boisot and Cohen as indicated in the quotation at the head of this section and the ensuing discussion above, I adopt the stance that metaphor is a valid approach and actually indispensable for theory construction. This was covered in the earlier discussion on theoretical, theory-constructive, primary and complex metaphors. Nevertheless, the counterpoint presented by Boisot and Cohen serves as useful caution in relation to uncritical acceptance of the promise of metaphors.

Lissack (1999, p. 111) calls on social construction of reality, where organisations may be viewed as "systems of interpretation", in order to justify the application of complexity metaphors within organisation science. He further states that metaphors are world constituting for those who use them, and that it is inappropriate to discard the contribution of metaphors and models from complexity theory to organisation science. He indicates that both complexity theory and organisation are interested in uncertainty and there should therefore be a fruitful relationship between the two.

> "At the overlapping boundaries of complexity science and organization science is where the importance of vocabulary, language, metaphors and models come into play."
>
> (Lissack, 1999, p. 121)

Discussion

One of the important aspects of this study is the extent to which complexity theory helps us understand organisations and strategy. While the instruments of classical science like the telescope enable us to understand macro aspects and the microscope to understand the micro aspects of the universe, the tools and instruments of complexity science are simulation models of complex systems. Without the instruments of classical science there were important constituents of the universe that we were not able to perceive, and it may be said that those constituents did not exist. In the same way the instruments of complexity science makes constituents of the world that have been hitherto imperceptible available to our understanding. From another angle, the tools of logic and the language of mathematics made other "hidden" aspects of the world perceptible. So too do the instruments of complexity science make them perceptible. Here we are referring to abstract aspects of understanding. For example, mathematics enables us to perceive and visualize imaginary numbers or complex numbers. Complexity theory enables us to visualise complex relationships, emergence, bifurcations and so forth, which were hitherto "hidden" from us. If we follow this argument further then mathematics and formal systems of representation are ontological tools. They make us understand reality in multidimensional ways. In this way, complexity theory is a kind of ontological tool that widens our understanding of reality even further.

We may now make the assertion that complexity theory is also a tool for organisational ontology. It renders aspects of organisation that were previously imperceptible to us, available for us to understand. If social systems are conceptualised as complex adaptive systems, then the concepts from complexity theory and the general properties of complex adaptive systems, would also apply. Hence, organisations which are a specific type of social system, also exhibit such properties. This means that any inquiry about organisations and strategy making will be partial if it neglects a study of

complexity theory. This has far-reaching implications. It means that much of our theorising about organisations in the past were lacking in a fundamental way. It calls into question many of the prescriptive approaches to strategy, as the underlying assumptions are based on a traditional worldview as opposed to the emerging worldview (Dent, 1999).

Complexity theory is an approach to understanding non-linear dynamical systems. Complex adaptive systems consist of large numbers of heterogeneous agents with schemata. They are subject to sensitive dependence on initial conditions. This means that minor changes to a system can lead to radically divergent outcomes. Therefore, long term prediction and forecasting is not possible in complex systems. Previously it was thought that prediction and forecasting, even though difficult in practice, is theoretically possible in principle, given sufficient time, resources and information. Sensitive dependence indicates that it is not possible even in principle. Therefore some of the dominant approaches to strategy that rely implicitly on the assumption of prediction, in principle, are flawed. What is more significant however is that any approach to strategy that is predicated on a plan, position, posture, vision, or detailed goals and objectives are fundamentally flawed. The myriad little actions that are involved in implementation of these are susceptible to minor changes and fluctuations, and hence subject to sensitive dependence. System order cannot be achieved by design. What this amounts to is that deliberate strategy is simply unachievable. This ought to be quite disconcerting, because the major part of the strategy literature and most of the 10 schools of strategy rely on this to a greater or lesser extent.

Complex adaptive systems traverse a fitness landscape that is constantly changing and deforming. This means that there is co-evolution at a micro level between agents in the system. In addition, there is co-evolution at macro-level, where the system as a whole is co-evolving with the environment. This calls into question the entire notion of "fit" between the

organisation and the environment. A cardinal principle in many of the dominant approaches to strategy is that the strategy must ensure that the organisation is able to have a good "fit" with some future environment, be it in the form of designs, plans, positions, or postures.

Complex adaptive systems are understood as dissipative structures that operate far from equilibrium. This is a significant departure even from many systems approaches, such as cybernetics, which rely on equilibrium in the form of homeostasis. They exhibit the property of self-organisation, where the system displays bounded behaviour. This is as a result of emergence and is not imposed from outside the system, not internally by any of the actors in isolation. While system behaviour is bounded it displays novelty because no single state is repeated as the system traverses state space bounded by an attractor. Since the system can shift radically to a different attractor, there is potential for new forms of order to emerge. This is another disconcerting finding for strategists. It means that although there is order in the system, it is *emergent* order and not designed order.

The property of egalitarianism in CAS sounds the death-knell for any pretensions to deliberate strategy. This property indicates that no single agent (CEO, planner, designer, leader) or small group of agents (top management team, management board, strategists) can stand outside the system and understand the system and the environment as a whole, and design a strategy that can be implemented to achieve deliberate strategy. Therefore the basic premises of the design, planning, positioning, entrepreneurial, and cultural schools are called in to question. The entire notion of intended strategies is discredited. The property of emergence indicates that organisational macro-states emerge from the interactions between agents. Macro-states may not be designed in advance. At a simplistic level, since the evolutionary school is based on an ecosystem metaphor, one would assume the evolutionary school is one that is entirely consistent with a complex adaptive systems view. However, when we are dealing with human activity systems such as

organisations, each of the agents does have power, volition and agency. Therefore, agency and identity is much more complex in strategic enactment. We have agency at a micro-level, but this agency does not extend to macro-level. This means that population ecology is insufficient to explain strategy.

In the context of the model of strategic choice, chance and inevitability (De Rond & Thietart, 2007) discussed in Chapter 2, we may now state that strategic choice is applicable at the level of agency of the individual actor, but does not translate to choice at the level of organisational macro-states. We may now elaborate their model further. They refer to causal background as necessary for both chance and choice. We can understand the causal background as the context in which the agent is embedded. This context also includes all other agents, their schemata and their actions. Therefore we may re-interpret their model in a recursive way. The causal background is made up of interacting models of choice and chance of all other agents. We may also investigate the relationship between chance and the causal background. To the extent that actors can perceive and trace out cause-effect relationships, they are classified as part of the causal background. To the extent that these relationships are too complex, and the cause-effect relationships are indiscernible, they may be classified as chance events. Therefore chance is not an absolute that is independent of the set of observers. What we discover here is that chance is relative to the observers and the bounded rationality of such observers. While critical systems thinking has raised the importance of boundaries at the level of a system, what we notice here is that boundary judgments are also important at the local level. It means that rationality is dependent on the boundary judgment of the local actor. Each of the actors acts on the basis of the boundaries that he or she has constructed. To the extent that these boundaries are congruent or commensurable, there will be agreement on the rationality of actions. To the extent that these boundaries are significantly different, what is perceived as rational from the point of view of one actor is not from the point of view of other actors.

Thus the following propositions follow:

Proposition 1: Chance and causal backgrounds are inter-related.

Proposition 2: Chance is not absolute, but is observer dependent.

Proposition 3: Rationality is dependent on local boundary judgments.

Proposition 4: Agency is related to both chance and boundary judgments.

Let us now explore the relationship between chance and agency. The more that an actor can understand and discern causal relationships, the higher the mass that resides in the causal network, and the lower is that, which resides in chance. Therefore the higher the local agency the lower the chance elements that come into play.

I presented an argument earlier that artifacts may be considered as kinds of agents in complex adaptive systems and that human agents co-evolve with such artifacts. These artifacts may include physical infrastructure, machines, technology, blueprints, policies and information. This provides us with a clue to what strategy in the schools that subscribe to deliberate strategy may actually do. The strategy as design, plan, position or posture is actually an artifact. This shows that they do have an influence on the strategy as they constrain and influence other agents in the form of co-evolution. They do not result in deliberate strategy. These specific artifacts are but one small set of agents, together with a whole gamut of other artifacts and agents that interact to give rise to system behaviour. Therefore, there is no warrant to claim that these artifacts can have any over-arching influence to yield deliberate strategy.

It was also shown from the property of agent recombination and system evolution, that the system is constantly changing as the entire network of agents evolve. New agents enter, existing agents leave and the nature of the

relationships between agents changes. Thus the boundary of the system is not fixed but is constantly changing.

Complexity theory has a number of implications for the social sciences, and presents new tools for understanding social reality. As highlighted by Byrne, complexity theory involves considering the intersections between the social and natural worlds as dynamic and emergent, offering the potential for qualitative transformation. Goodwin argued that the science of quantities that is so pervasive in the sciences needs to be supplemented with the science of qualities. These lead us to the understanding that the demarcations between physical and social reality are much more diffuse and permeable than we had previously thought. We may then refer to an ontology where physical and social reality interpenetrate and are intertwined. This is an argument for trans-disciplinarity. In the case of strategy research, it implies that strategy must break free from the "strait-jacket" of the dominance of economic theory and positivist approaches with large statistical databases and large sample sizes. There is merit in richer studies that are contextual, with deep engagement with the unit of analysis. This will include qualitative studies, ethnographic accounts, action research, and multi-methodological approaches.

The point made by Suteanu about Mandelbrot's work needs further consideration. To recap some of the arguments on this, we note that by taking a different point of view, Mandelbrot was able to extract the relations connecting multiple points of view. The result in the form of fractal dimensions was a transformation of qualitative features into a quantitative dimension that was able to characterise patterns. The point was made that the features of interpenetrating social and natural reality had not changed but our *understanding* of it changed through the insight of Mandelbrot. Furthermore, the social understanding of rugged natural features became objectified in the transformation.

Given that a substantial portion of the literature on complexity theory in relation to the social sciences is based on its metaphorical applications, metaphor was covered quite substantially in this chapter. The discussion explored the justification of such application of metaphor, and therefore of necessity, was extended to the philosophical considerations around how metaphor contributes to the construction of knowledge and the extent to which metaphor contributes to the scientific endeavour. Lissack (1999) in drawing on the theory of social constructionism, indicates how using complexity-related metaphors, opens up a new language in organisation science, and points to language as tool for managers in understanding and opening up new possibilities for action. This is significant in a number of ways. Firstly, implicit in his discussion, is how complexity metaphors become a tool for organisational practitioners. Secondly, there is now another link between complexity theory and sensemaking which is not given sufficient attention in the literature. Thirdly, he shows how the possibilities for action lead to the potential for a new identity for an organisation. All of these are important in constructing a theory of a strategic enactment, which is one of the central objectives of this study. This is picked up again in Chapter 7. Fourthly, the arguments made by Lissack reinforce the lessons that we were able to draw from strategy as "serious play" discussed in Chapter 2. Finally, he boldly declares the strengths of complexity as both a "management tool and – the conceptual underpinnings" of the inaugural edition of the *Emergence* academic journal (p.123).

Introduction

Since complex adaptive systems are subject to emergence and self organisation, it begs the question as to what the role of leadership is, in organisations conceptualised as complex adaptive systems. This poses a number of challenges to conventional leadership. Furthermore, the field of strategy is closely related to that of leadership because the strategy literature assumes that the key actors in strategy-making are those in leadership positions. This chapter, therefore, begins by exploring the evolution of leadership theory and considers the various conventional theories of leadership. This is followed by considering the implications of complexity theory on leadership and discussing leadership in complex adaptive systems. The chapter offers a critique on writers who ostensibly draw on complexity theory in understanding leadership, but who do not fully rise to the challenge as they revert to conventional prescriptions that do not address the key issues adequately. Finally, the chapter raises the important aspects of sensemaking and interpretation in the context of complex foresight horizons.

Evolution of leadership theory

Leadership has been studied formally since the early 20th century. The evolution of leadership theory has been conceptualised into 10 distinct eras (Van Seters & Field, 1990). This is depicted in Figure 6.1 and discussed below.

Personality Era

During this era the focus was on great men (not women). Leadership was equated with their personalities. If others could adopt similar personality traits of specific individual "hero" leaders then they too could be effective leaders. The traits theory approach was similar to that of personality, but as opposed to the personality linked to a specific individual, researchers tried to identify general traits of great leaders, that would enable others to achieve leadership

greatness. One of the problems was that different studies identified different lists of traits and characteristics, and these were not necessarily good predictors across a variety of situations. They then regress to being no better than a laundry list of characteristics that were of little use in practice (Van Wart, 2003, p. 217). Furthermore most of the early trait studies consisted of groups made up of adolescents, low level managers and supervisors. They did not cover individuals with significant leadership responsibilities for organisations as a whole (House & Aditya, 1997, p. 411).

Influence Era

Here leadership is extended beyond the individual leader to the dyadic relationship between the leader and the follower. This looked at the power and influence that the leader had over the follower. The role of the leader was dominant.

Behaviour Era

In this era, the focus shifted away from personality traits and power to what leaders do. It was a kind of extension of the traits approach. Two of the important variables were the leader's behaviour in initiating task structure, and in the leader's consideration for relationships. Initiating structure had to do with behaviours related to the definition of roles, coordination, task allocation and control mechanisms. Consideration is related to behaviours that involve development, inclusion and the positive feelings of followers. Behavioural theories were found to be useful in that they offered simple conceptual constructs that could easily be understood, taught and implemented by practicing leaders. Their shortcomings, however, were that they relied on too few variables to explain a complex phenomenon (Van Wart, 2003, p. 217). Research that contributed to behavioural theories, like the earlier trait theories, were limited to "laboratory studies" using students or lower level managers and supervisors (House & Aditya, 1997, pp. 420-421).

Situation Era

This era recognised that leadership occurs in a context that extends beyond the leader and the follower. It therefore took into account other contextual factors such as the nature of the task, the social status and the position of the leader and the follower, and the broader organisational and environmental context. The context and situational factors will determine the traits, behaviours and influence that give rise to effective leadership.

Contingency Era

In the contingency era it was recognised that leadership is multi-dimensional, transcending traits, behaviours, power and influence, in that all of them together with other factors impacted leadership effectiveness. Leadership was therefore contingent both on the situation and on all of these other factors.

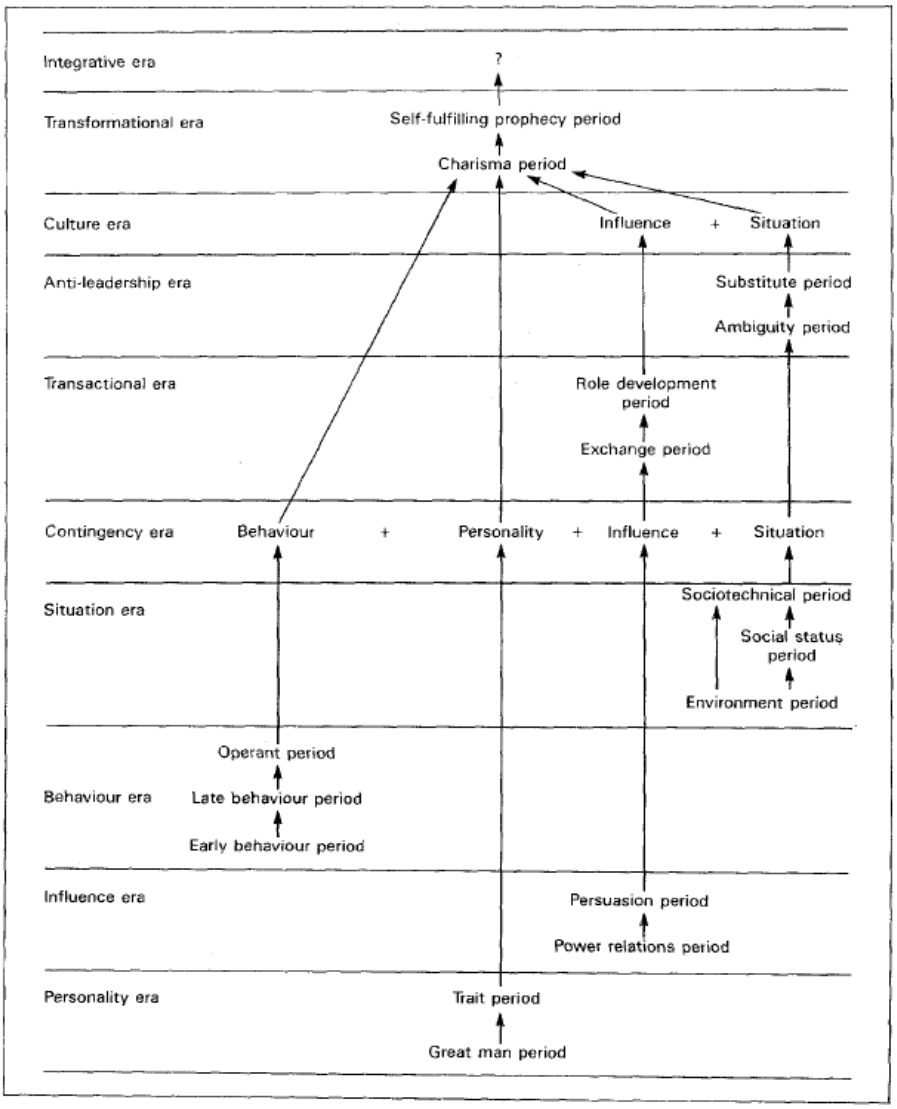

Figure 6.1: The evolution of leadership theory
Source: Van Seters, D. A., & Field, R. H. G. (1990, p.33).

Transactional Era

The transactional era, like the earlier influence era, looks at the relationship between the leader and follower, but here more credence is given to the reciprocal relationships between them and it assumes that there is an implicit process of exchange. Therefore, leadership can be seen as a transactional process. The nature of the exchange may differ in the different approaches to transactional leadership. For example, the leader gives rewards in exchange for the follower undertaking what the leader wants. Alternatively, the

followers ascribe status and esteem to the leader in exchange for the leader assisting in meeting the group objectives.

Anti-Leadership Era

The key argument in the anti-leadership era is that there may not be an "articulable concept called leadership" (Van Seters & Field, 1990, p. 36). The previous eras had identified so many variables and factors that ostensibly explained leadership, to the extent that they were so confusing and muddled that they do not explain anything. Leadership was an overarching term that described organisational changes that are beyond our framing, so leadership frames these for us and gives us a useful ordering mechanism. In this case "leadership is only a perceptual phenomenon in the mind of the observer" (p.36).

Cultural Era

There was an acknowledgement in the cultural era that leadership was not just a phenomenon of the individual, dyad, or group, but rather of the whole organisation. It was embedded in the culture of the organisation. The role for leadership becomes prominent only when the culture of the organisation requires significant change.

Transformational Era

The transformational era places much more emphasis on the intrinsic motivation of followers rather than extrinsic rewards. Transformational leadership relies on a charismatic leader. The leader articulates a vision around which followers are energised. The vision gives followers meaning and purpose, and shifts their attention from rewards, status, needs for affiliation to recognition, achievement and self-actualisation. One of the central concepts of transformational leadership is that of charisma which has been traced back to Max Weber (Canella Jr. & Monroe, 1997, p. 228). Charisma according to Weber was as a result of endowment of divine grace on particular individuals that gave them extraordinary gifts. These enabled the leader to exude confidence, a sense of purpose and meaning and appeal to

followers. As Canella Jr. & Monroe (1997) point out, while charisma is no longer associated with divine grace, it is still considered as an important quality of transformational leaders, that creates intense emotional and affective appeal.

Transformational leadership was also important because it conceived of leadership in the context of a changing environment. It emphasises another thread that is inherent in the evolution of leadership, that of a successive broadening of the scope of leadership. While some of the earlier eras such as the traits and behavioural ones were limited to the individual or dyads, the situational and contingency ones embraced the team or workgroup. The cultural, transactional and transformational era extended to the whole organisation.

> "Leadership theory began as a very one-dimensional, internal and individualistic process in which only a leader's personality, traits, or behaviour were considered. Then dyadic relationships evolved as leader's interactions with others were considered. Situational elements external to the leader-member dyad were subsequently added to the leadership equation, as well as an acknowledgement of group processes."
>
> (Van Seters & Field, 1990, p. 39)

An alternate, but similar classification of leadership eras is given by (Van Wart, 2003) as shown in Table 6.1 below. He separates out great man and trait theories, and dates great man theories as prior to the 20th century. He also includes Servant Leadership as a separate classification. Finally, he highlights an attempt at integrating previous work in what he terms the multifaceted era beginning in the 1990s, which underlines the need for a more holistic approach to leadership than in previous eras, especially given the current globalised context.

Era	Major time frame	Major characteristics/examples of proponents
Great Man	Pre-1900; continues to be popular in biographies.	• Emphasis on emergence of a great figure such as a Napoleon, George Washington, or Martin Luther, who has substantial affect on society. • Era influenced by notions of rational social change by uniquely talented and insightful individuals.
Trait	1900–48; current resurgence of recognition of importance of natural talents.	• Emphasis on the individual traits (physical, personal, motivational, aptitudes) and skills (communication and ability to influence) that leaders bring to all leadership tasks. • Era influenced by scientific methodologies in general (especially industrial measurement) and scientific management in particular (for instance, the definition of roles and assignment of competencies to those roles).
Contingency	1948–80s; continues as the basis of most rigorous models but with vastly expanded situational repertoire.	• Emphasis on the situational variables leaders must deal with, especially performance and follower variables. Shift from traits and skills to behaviors (for example, energy levels and communication skills to role clarification and staff motivation). Dominated by bimodal models in its heyday. • Era influenced by the rise of human relations theory, behavioral science (in areas such as motivation theory), and the use of small group experimental designs in psychology.
Transformational	1978–present.	• Emphasis on leaders who create change in deep structures, major processes, or overall culture. Leader mechanisms may be compelling vision, brilliant technical insight, and/or charismatic quality. • Era influenced by the loss of American dominance in business, finance, and science, and the need to re-energize various industries which had slipped into complacency.
Servant	1977–present.	• Emphasis on the ethical responsibilities to followers, stakeholders, and society. Business theorists tend to emphasize service to followers; political theorists emphasize citizens; public administration analysts tend emphasize legal compliance and/or citizens. • Era influenced by social sensitivities raised in the 1960s and 1970s.
Multifaceted	1990s–present.	• Emphasis on integrating the major schools, especially the transactional schools (trait and behavior issues largely representing management interests) and transformational schools (visionary, entrepreneurial, and charismatic). • Era affected by a highly competitive global economy and the need to provide a more sophisticated and holistic approach to leadership.

Table 6.1: Different eras in leadership theory
Source: Van Wart, M. (2003, p. 218)

Academic theories and their evolution as presented above in terms of the major classifications, schools or eras tends to be somewhat ahistorical and is isolated from the social, political and cultural context and the economic realities which were pivotal in their birth. As such what we have is a sanitised picture. By contrast the "history of leadership – like history itself – is rife with ruptures, discontinuities, multiple interpretations, and competing narratives engaged in hegemonic struggles"(Trethewey & Goodall JR, 2007, p. 459). In order to highlight this, Trethewey & Goodall JR (2007) offer a reframing of leadership as situated in a grand narrative of post-World War II history and culture. They identify three hidden storylines in leadership, each related to a dominant historical era. These are the Cold War, Post-Cold War and Post-9/11 eras respectively.

The Cold War era of leadership is traced back to how the traits and leadership styles theories were rooted first in the human relations and then human resources approaches to human motivation. This has strong links to Maslow's theory of motivation, which in turn was a direct response to the Cold War. It is a story of human freedom achieving utopia by keeping the forces of fascism and totalitarianism at bay. Leadership was meant to ensure that organisational

goals are achieved, and both leaders and follower would strive for self-actualisation. The method to achieve this was to take on the characteristics of "brightside" leaders against that of "darkside" leaders (p.462). Brightside leaders are those that may be associated with Theory Y, self-actualisation, contingency, and team-based leadership. Darkside leaders are associated with Theory X, rigid, control-oriented and repressive regime masters.

> "If there ever was a clearer symbolic depiction of Capitalism versus Communism, of the US and our allies against the Soviets and their satellites, we cannot name it."
>
> (Trethewey & Goodall JR, 2007, p. 462) (p.462)

Despite these brightside theories there was still a perversion in this era, because all of the higher ideals and utopian visions ultimately became associated with the material world of markets and commodities and the central role of accumulation of wealth and material possessions.

Given the demise of the Soviet Union and the victory of capitalism over communism we had the move to unfettered markets in the Post Cold War Era. Globalisation became a dominant force in influencing organisation and business practices. This was the transition to the hyper-competitive world underpinned by technological advancements and the notion of "business at the speed of thought". This became an era of unlimited opportunity for the entrepreneurs and those who were enterprising and who could sail the superhighway of the digital and cultural worlds. A result of this, there was the need for an

> "iconic, media savvy leader capable of igniting and inspiring audiences worldwide through scripted, focus room, and poll-tested messages..."
>
> (Trethewey & Goodall JR, 2007, p. 463)

The brightside aspect of leadership was transformational. Here we had a leader who could inspire and unleash personal capacities of followers for growth and change. The rhetoric was about how personal commitment could enable positive changes in the world, as embodied in notions of

empowerment and team-based learning. What about the "darkside" to the transformational approach to leadership? It became subsumed in a market-based entrepreneurial ideology. Leaders tended to shift from one management fad to the next, without fully taking into account the impacts of their actions. Since charisma is one of the key facets of transformational leadership, combined with the hyper-competition of a globalised world, leadership often resorted to "spin". There was the blurring of reality and truth to the extent that it became difficult even for those who wove the spin to make the distinctions.

> "Furthermore, in a consumer-rich culture where charisma trumps character for awe-inspired manager and citizens and spin replaces truth for shareholders and voters, short-term economic and political gains rather than long term ecological investments and decision making begin to make perfect, if totally corrupt, global sense."
>
> (Trethewey & Goodall JR, 2007, p. 465)

As a result of the 9/11 attacks, a key organisational problem became how to be prepared for and defend against attack by non-state actors. One of the consequences has been that businesses and other organisation now resort to intelligence gathering of their employees and customers using similar tactics to that of government. There is somewhat of a reversion to characteristics of the Theory X style of leadership with a focus on authority and controlling of power leading to a culture of fear and an expectation of blind loyalty on the part of followers. As a result, Western leadership has resorted to a kind of fundamentalism where there are single truths that maintain sharp divisions between those who agree with us and those who do not. The post 9/11 leadership has manifested the darkside of leadership.

> "We elect and are led by leaders who know their own truth, do not tolerate disloyalty, do not bother with argument or evidence, and who make decisions guided only by their self-interest and their faith."
>
> (Trethewey & Goodall JR, 2007, p. 468)

Trethewey & Goodall JR (2007) propose that if we wish to reclaim the brightside of leadership it requires that we embrace what they term, pragmatic complexity. This is a model of communication that is more embracing of plurality. It is a shift from dominion narratives to engagement narratives (p.471). It requires openness to multiple meanings, participation and inclusion on a wide scale. This means that leadership has to be open to "ontological insecurity", embracing uncertainty and complexity. Meanings are "never fixed, but they are provisional, pragmatic, experimental, and fundamentally open to change" (p.471).

They argue that it requires the following three leadership principles:

1. Provisional meanings are constructed in local situations and through participatory dialogue.

2. Provisional meanings are tested in ongoing social practice, so leadership is experimental as opposed to recipe driven or treated as doctrine. This is a reflexive approach to leadership. Meanings are based on multiple interpretations and are co-constructed.

3. Leaders must embrace an *ironic* stance which is the "tension of holding incompatible things together because both or all are necessary and true" (citing Haraway, 1990, p.190).

Mumford *et al* (2000) state that traditional leadership is considered as an inter-personal phenomenon based on leader-follower interactions. They propose a theory wherein effective leadership behaviour is presupposed on complex problem solving skills to deal with the messy, complex, unpredictable and ambiguous issues and problems that arise in organisations. Leadership is thus exhibited as a form of complex social problem solving. Given the complex nature of organisational contexts, leaders do not have the luxury of analytically generating options and solutions in a rationalistic fashion. Rather, they have to rely on shortcuts, heuristics, and general models to deal with

complex problems. Problems are not isolated, but are rather, multiple and overlapping, and unfolding over time in a dynamic system. Their solutions must therefore be extemporaneous (p.14). Moreover, solutions may not be found independently, but is reliant on interactions with a range of different people including followers, peers, and other stakeholders. Leadership is therefore viewed as a complex phenomenon involving multiple forms of cognition including social cognition. This highlights the importance of leadership skills including creative problem solving, social judgment skills and broader organisational knowledge. Effective performance in dealing with ill-defined problems requires a creative and flexible problem-solving orientation that formulates procedures during problem construction, seeks out key facts and observations that are anomalous while gathering information and using appropriate metaphors and analogies to generate new understandings (p.18). None of this is done in an isolated context, but has to work in a social context. Social judgment skills of the leader require an understanding of the social dynamics in which he or she is operating. Some of the skills that are important include communication and persuasion, negotiation, conflict management and coaching (p.20). Finally complex problem-solving in dynamic social contexts also require leaders to have knowledge of the situation and the domain. The knowledge will be based on formal, conscious knowledge structures together with experiential knowledge from previous experience, and in addition knowledge structured in associational networks.

> "These experience-based representational networks influence how leaders define problems, evaluate restrictions, and implement plans."
>
> (Mumford, et al., 2000, p. 21)

These authors suggest that their skills-based approach to leadership takes into account the "dynamic interaction between the person and the environment" (Mumford, et al., 2000, p. 27).

Leadership as a process of simplification

Harter (2006) adopts a philosophical approach to the topic of leadership in the context of complexity. He notes that complexity can have both objective and subjective assessments. Where complexity is considered as an objective attribute of a system, it implies that when systems achieve a certain level or stage, they are inherently more complex in and of themselves, irrespective of our human experiences of such systems. By contrast, a subjective assessment of complexity implies that it is our experience of systems that are labelled simple or complex. In this perspective, as we become more familiar with a system, and our understanding of it increases then we can say that the system is less complex. Harter suggests that we have to take into account both attributions of complexity. Further, he highlights that simplicity and complexity are not opposites of each other, but following Plato he refers to them as a metaxy. This is a bi-polar, static model of complexity where complexity and simplicity are two directions between which we operate in a form of a tension. As we are pulled towards one pole we move further away from the other pole. However, this static model has to be complemented with a more dynamic model. Following the philosopher Vogel, Harter states that such a dynamic model "depicts a process from compactness through differentiation toward order" (p.78). Compactness is a state of fusion that is an undifferentiated mass, which has features that have not yet become distinguishable. Differentiation is a state of consciousness where the mind apprehends the distinguishing features, and thus the undivided form may be broken into parts that the mind perceives as differentiated. Subjective complexity arises when this differentiation reaches a critical point such that it is overwhelming, where we cannot make sense of all of the number of parts that have proliferated. It is thus confusing and difficult for us to fully comprehend all of this detail from the previous undifferentiated mass that was blended together. To prevent the separate parts merging together into compactness, we have to order the system in some way, by creating a schema based on their relations with each other. There is a progression from

compactness through differentiation to order. In this process there is an increasing of complexity during differentiation by adding elements. This increases the pressure to simplify. We may be tempted to revert to the previous state of compactness, but this cannot be done indefinitely.

> "We shall have lost our innocence. The bell cannot be unrung."
>
> (Harter, 2006, p. 78)

The simplification that comes from ordering is "a simplicity on the other side of complexity". Harter contends that leadership can be seen as the promise of simplification. The question is which kind of simplification. Is this simplification by compactness or simplification by achieving a new order? His answer is that it can go in either direction and that no single way is the right answer. There are five ways in which leadership enables simplification.

Leader as a unifying symbol.

When there are tensions and conflicts, the leader can serve as a symbol that unifies a group. He becomes the focal point around which there is cohesion. Without this unifying cohesion the group or system fragments and disintegrates. The leader embodies in his person the identity of the whole. This is one explanation of the leadership theories that give prominence to great leaders. However, as Harter indicates this type of unifying actions of the leader actually presents a surface simplicity that obscures the complexity underneath. He cites the example of Saddam Hussein as an example of this. While he was in power he was able to maintain cohesion of differing and contesting groups such as Kurds, Sunnis and Shias, despite their underlying conflicts and tensions, and was able to contain the conflicts between Western and Muslim values, without Iraq breaking out into civil war. "[I]t was a simplicity bought with corruption and violence to preserve the charade that probably fooled outsiders more than it did the people of Iraq" (p.82).

Reverting to compactness

A second way for a leader to simplify is to revert to compactness. Harter cites Gardner (1990) who referred to the rhetoric in the US about unity and it being the melting pot of cultures. This masks all the different problems and factions in American society. Reversion to compactness by leaders is a promise to a more traditional community that is homogenous and unchanging. However, an attempt at reversion is perhaps not sustainable and leads to a distortion of reality.

> "In our quest to revert, we might neglect fresh, contrary evidence or stop listening to critics or in some other way cling to our beliefs beyond reason."
>
> (Harter, 2006, p. 82)

Achieving a new order

Harter refers to leadership as adaptive work as a third form of simplification. Adaptive work is based on the work of Heifitz (1994), and is a method for responding to conflict through clarification of values and aligning them with reality.

Shattering order and releasing its energies

This is about freeing oneself from the dominating order itself. What this amounts to is dismantling of the prevailing order in the system, and allowing a new order to prevail.

Pragmatic rhythms as we tolerate our deformations

This is about enabling the system to tolerate deformations. Systems usually have an overarching purpose without which they will disintegrate. There will, however, always be contradictions, contentions and disagreements in collective life. Furthermore, "no system exists in isolation from a network of interlocking forces and institutions" (p. 84). Therefore every system is in reality a form of deformation in some way or another. So leadership as simplification, here, is that of improvisation and minor adjustments and makeshifts to deal with the myriad contingencies, disturbances and deformations that the system faces.

Leadership in complex adaptive systems

Since complex adaptive systems are subject to emergence and self-organisation, it begs the question as to what is the role of leadership in organisations conceptualised as complex adaptive systems. This actually poses a challenge to conventional theories of leadership discussed above. Much of the literature on leadership focuses primarily on the traits, attributes, skills, knowledge or behaviour of the leader and the influence that these have on the actions and behaviour of followers. While some contingency approaches do take the context into account, it is a rather restricted and parochial view of the context. Context is limited to one or two key dimensions of the context of the dyadic leader-follower relationship. For example, situational leadership considers the emotional and task maturity of the follower, and then provides normative behaviours that the leader must apply. Transactional leadership considers the rewards or sanctions that the leader promises in exchange for follower compliance with the leader's desires or instructions. This is a perspective that is locked into instrumental rationality. Transformational leadership, by contrast, seeks to activate higher order needs and aspirations of followers, and is therefore considered to be more receptive to the human potentials that are latent in followers. However, both transactional and transformational leadership still privileges the leaders and give primacy to his or her goals, desires and objectives, with the follower in a subordinate role. Much of conventional leadership theory therefore discounts the varied and myriad degrees of freedom that are inherent in followers. It is also surprising that given the changing environmental context, and the rise of the network society, these theories are relatively silent on how leadership roles are not fixed or static, but actually travel according to time, place, task, and project at hand. We may even refer to shifting leadership in the sense that the leadership role shifts many times during even a single meeting or conversation.

When we apply complexity theory to organisations as complex adaptive systems, the natural question that has to be addressed is what are the implications for leadership? We may contrast this with traditional views of

leadership. One of the most important differences is that traditional views of leadership consider organisations as equilibrium-seeking systems. In such systems, futures are knowable and may be controlled by planning and intervention, primarily by leaders. As seen in the discussion of the work of Harter (2006), one of the roles of leadership is to reduce complexity. However, under processes of self-organisation where organisations are far from equilibrium, it is not possible for leaders to establish control. What then are the roles of leaders? Plowman et al. (2007) suggest that the role is to *enable* rather than control desirable futures as articulated by Marion & Uhl-Bien (2001). Based on a case study they suggest that leaders enable emergent self-organisation by three types of mechanisms. Firstly, leaders disrupt patterns by increasing uncertainty and conflict. Secondly, they encourage novelty through the establishment of simple rules for "swarm like" behaviours and they promote non-linear interactions. Thirdly, they act as sense makers by creating correlations through language, and taking on the role of tags.

Marion & Uhl-Bien (2001) ask how complexity theory informs leadership. They draw on Kauffman's idea of autocatalysis. This is a process whereby certain events lead to a variety of other events that in turn trigger the production of events that keep the entire process operating by itself. For example, an event A leads to B which in turns leads to C and D. Now suppose that B and C collectively lead to A, which keeps the process self-generating. Autocatalysis does not require any coordinating behaviour from outside the system, the order in the system arises naturally out of the interactions occurring at a micro-level within the system. The idea, though, is that certain events act as catalysts for the autocatalysis to occur. Marion and Uhl-Bien cite Holland (1995) who was able to distinguish such catalysts and labelled them as tags.

They define

> "a social tag as any structure or information that catalyses (enables or speeds up) certain social behaviours."
> (Marion & Uhl-Bien, 2001, p. 398)

This means that tags can be ideas, technology, symbols or symbolic acts, myths or beliefs, or as they argue, even a leader can be a tag. Tags are what enable certain behaviours to be correlated, and they lead to aggregates, which may in turn combine into higher level meta-aggregates. Therefore, they suggest that complex leadership implies that leaders have different roles than defined in traditional leadership theory. These include the following:

Foster network construction
Leaders must actively engage in constructing new networks, and encourage inter-dependencies between various agents. This includes internal participants as well as those external to the organisation. The argument is that the networks are of value themselves. They provide a structure for innovation and for new value to be created by the interactions between participants.

Catalyse bottom-up network construction
In addition to building networks, leaders must actively catalyse network construction by enabling followers to create and build networks, and providing opportunities for network construction.

Become leadership tags
Here leaders assume the role of tags where they rally people around a concept, idea or attitude. However, they acknowledge that leaders cannot control the movement and outcomes. They state, for example, that "they (leaders) are simply along for an inevitable ride" (p.405).

Drop seeds of emergence
Leaders are meant to stimulate emergence by identifying knowledge centres, encouraging creativity, increasing communication of these ideas, sending workers to conferences and other activities to spawn new ideas. They "create

organized disorder in which dynamic things happen at multiple locales within the system" (p.406).

Think systemically

They suggest that complex leaders must think systemically, in the way defined by Senge from the point of view of systems thinking.

> "In sum, complex leadership should be viewed as creating conditions that enable interactions through which the behaviours and direction of organizational systems emerge. Leaders provide control by influencing organizational behaviour through managing networks and interactions. They do not delude themselves with the notion that they can determine or direct exactly what will happen within the organization. The dynamics of interaction, guided by complex leaders, help the organization develop appropriate structure, innovation and fitness."
>
> (Marion & Uhl-Bien, 2001, p. 406).

Hazy (2006) aspires to the ability to measure leadership effectiveness in organisations as complex systems. He asserts that in order to achieve this, leadership is conceptualised as an organisational meta-capability which processes information on the organisation and the environment, and then reconfigures existing capabilities and builds new ones. He presents the Leadership and Capabilities Model in which he identifies 5 points of leverage in complex systems where leaders may intervene. This is shown in the diagram below:

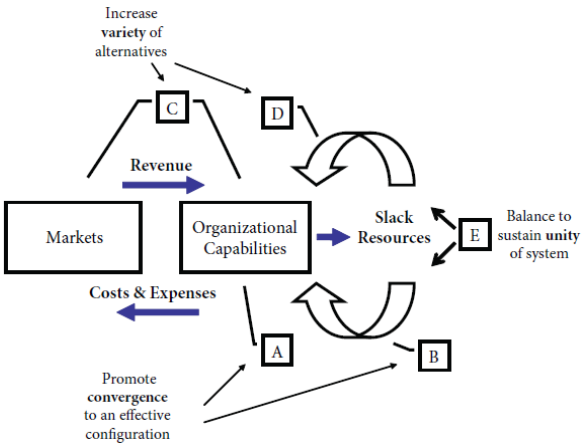

Figure 6.2: Leadership under complexity
Source: Hazy, J. K. (2006, p.66)

These points of leverage relate to 1) promoting convergence in the organisation towards building capabilities, 2) ensuring that extra capacity is used to build up slack resources for future capability building as opposed to being appropriated by individuals, 3) increasing variety in order to be able to appropriate revenue and other resources from the environment into the organisation, 4) increasing variety to convert slack resources into new capabilities and 5) balance points of tension and risks in the other points of leverage towards some convergence by taking a systems perspective (p.67).

Although Hazy has raised very interesting points, a fundamental error, is that while he identifies leadership as a meta-capability driven by bottom up interactions and emergence, he reverts to a traditional view of leadership as specific individuals who have agency that can transcend emergence. He therefore confuses leadership as a meta-capability with leadership invested in specific individuals.

He states that:

> "[t]he organizing activities that occur are interpreted by organization's members as *leadership*."
> (Hazy, 2006, p. 61, emphasis in original)

He also acknowledge that if one is to act in order to influence the outcomes of a complex system one has to first understand the system. However, as shown by complexity theory this is not possible.

Hazy has missed an important opportunity for extending the notion that leadership is distributed.

> "Throughout the organization, many individuals in various leader roles, by word and action, continually send an array of signals to the organization's members."
> (Hazy, 2006, p. 71)

Much of his paper reverts to normative prescriptions about leadership that is no different to that from traditional leadership approaches. Some of these are in contradiction with what complexity theory indicates, and yet his basis is that of complexity theory. As an example he refers to the cultural cornerstones for effective leadership. These include clear vision, strategy and road map, and engaged and committed employees. In a self-organising emergent system that is far-from-equilibrium it is not possible to achieve these by leadership decree or action.

Boal & Schultz (2007) attempt to address the same question, that is, what is the role of leadership if organisations are complex adaptive systems? They argue that leadership indeed has a role, in that they create the context, and structure in which interactions between agents occur. They make a distinction between supervisory theories of leadership and theories of strategic leadership. The former focuses on the task and behaviours of leaders and followers, while the latter is concerned with the evolution of an organisation as a whole which includes its capabilities. Strategic leadership makes sense of the environment and gives meaning to ambiguity and turbulence as

experienced by organisational participants. One way of achieving this is through processes of story-telling.

> "It is through the telling of stories, principally about the organisation's past history, that strategic leaders provide a rationale for past actions and a legitimate perspective that guides future potential behaviours."
>
> (Boal & Schultz, 2007, p. 412)

Similar to Plowman et al. they resort to the notion of tags as one way of coordinating behaviour of agents. They suggest that there are many examples of tags including uniforms, brands, trademarks and a variety of other symbols. In addition, strategic leaders may embody tags in themselves. Here they are able to transform or change agent interactions, where they are "acting as a sort of traffic cop" (p.415). They also link this to the process of sensemaking.

> "Because strategic leaders are central in cognitive networks of organizations and thus the tagging processes that control contacts between organizational agents, they will have a strong influence on the exchange of information and advice and its interpretation."
>
> (Boal & Schultz, 2007, p. 417)

By drawing on the concept of a lifestory schema of individuals they posit the importance of an organisational lifestory schema, which "exists as a widely shared mental representation which draws attention to, elaborates, and arranges the many tales and legends told among members into a consistently patterned, autobiographical account of the organization over time" (p.420).

This is done through an interactive process between leaders and followers. Different agents bring their own lifestories into the process and this contributes to a socially constructed organisational lifestory. The importance of this is that it works with the individual identities of agents and integrates the various identities. The role of strategic leaders is to help the construction of the autobiographical pattern on historical accounts to create a coherent picture of the organisational identity. The way that it achieves this is via temporal coherence, thematic coherence, causal coherence and the cultural

concept of biography. The cultural concept of biography ties in the various stages and events in an organisation's life to cultural norms.

They further link the organisational lifestory to the organisational vision.

> "Although all individual members are 'coauthors' of an organization's life story (Czarniawska, 1997, p.14), powerful individuals, such as strategic leaders, can produce narratives for which the rest of the organization is more of a passive audience. That is the special role of strategic leaders as agents within an aggregate of agents in a complex adaptive system; they promote the proliferation of life story narratives as a tagging process."(Boal & Schultz, 2007, p. 422)

They assert that strategic leaders can have control over the vision formation process by control over storytelling and how members interpret the organisation's path over time. Despite the apparent control that strategic leaders have over organisational narratives, the authors concede that the development of stories may be subject to mutation and distortion, and that counter-narratives may arise that could lead to alternate identities and visions. These are very significant disclaimers in the context of organisations as complex adaptive systems.

Generative leadership (Surie & Hazy, 2006, p. 13) identifies leadership as that which creates the context for innovation and adaptation to occur in organisations as complex systems. The key argument is that the task of leadership is to foster connectivity and interactions between organisational participants, but in a structured way. It also has the underlying notion of problem-solving in complex organisational contexts. Given that the focus is system wide, leadership is not limited to a few people at the top of the hierarchy. Furthermore, in the generative leadership framework, innovation may become an embedded organisational capability. Generative leaders have a number of processes at their disposal to nurture interactions while at the same time managing complexity. They may apply symbolic language to enable participants to understand experiences as personalised. They specify system

level goals so that knowledge that is gained may be selected and applied to problem solving in a way that ensures alignment. They facilitate the speed of interactions through judicious use of group and ICT technology. Interactions are partitioned though application of resource allocation and modular organisational systems. This is a way of restricting interactions in a structured way. Interactions are leveraged by identifying opportunities for reuse of learning and knowledge across organisational systems. This may include codifying knowledge gained from interactions and embodying them in tools and methodologies for others to use.

> "In contrast to traditional perspectives that conceive of leaders as the gatherers, interpreters, and synthesizers of feedback and as those who heroically convert the information into a strategy or vision, generative leadership channels feedback through the organization's members who are in the best position to interpret and synthesize the information into more useable models of the environment."
>
> (Surie & Hazy, 2006, p. 19)

There is an argument that leadership is not based on a leader's use of symbolism, motivation and the application of charisma. In the context of complexity, traditional and hierarchical approaches to leadership are inappropriate. An alternate conception of leadership is possible in what has been termed complexity leadership theory. Lichtenstein et al. (2006) state that leadership does not reside in individuals, but as a complex, dynamic process that arises in the interactive "spaces between" people. Leadership in this view is an emergent phenomenon, and an outcome of the relational interactions that people engage in.

This has the following implications:

- A shift to a whole-system view across an entire social system
- A focus on micro-strategic leadership actions at different levels within the organisation and across organisational boundaries
- Less emphasis on variables and more emphasis on complex interactions
- Leadership that gets enacted in complex environments

One notes that this is referring to leadership as something that is distributed within a social system, and that "it does not lie in a person but rather in an interactive dynamic" (p.3).

> "Instead, 'leadership' becomes a term that is descriptive of certain social forces at play amongst actors, which may include a formal leader."
>
> (Lichtenstein, et al., 2006, p. 7)

Computational modelling in leadership

Given the complexity of the world, some argue for new methods for understanding leadership. Computational modelling is one such new method for understanding leadership processes. Hazy (2007) provides some coverage of this by identifying numerous such studies. These include system dynamics, discrete event simulation, NK modelling, agent based modelling and hybrid models. He provides a summary in the form of a typology (Hazy, 2007, p. 397).

> "A complexity science perspective would suggest that it is more likely that 'leadership' is a negotiated artifact of agent interactions, an artifact that is interpreted by the agents as 'leadership'."
>
> (Hazy, 2007, p. 397)

Other authors (Schreiber & Carley, 2006) also support the notion of complexity leadership theory, discussed earlier, and have applied computational modelling to leadership. In their terms, the idea of leadership as an emergent outcome of interactions is adaptive leadership. They frame this as one of three aspects of entangled roles of leadership, the other two being managerial leadership and enabling leadership. Managerial leadership according to them is the conventional, position based formal leadership. Enabling leadership creates an enabling environment for adaptive leadership and for "channelling" productive outcomes (which arise as a result of emergence) back to managerial leadership for strategic planning and exploitation. This is depicted in Fig 6.2 below.

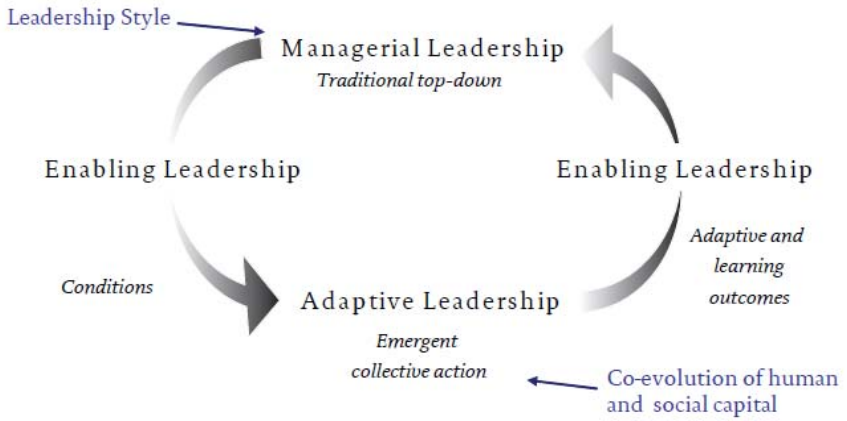

Figure 6.2: Entangled roles of leadership
Source: Schreiber, C., & Carley, K. M. (2006, p.64)

They argue that enabling leadership is enacted by creating tensions that stimulates interactions and interdependence amongst agents. This facilitates the flow of knowledge and learning. They then tie this back to the relationship between human and social capital. Their thesis is that effective leadership occurs by way of creating complex network functioning in

organisations. They then proceed to answer the question of whether leadership style affects such complex network functioning, by drawing on computational modelling techniques. This is achieved via multi-agent dynamic network analysis. Leadership style in the model may be either directive or participative. They used network characteristics as proxies for human capital, social capital and adaptive leadership. For example, social capital is indicated by graph density and clustering coefficients. Adaptive leaders are identified as agents that are "central to shaping the overall communication structure of the organization" (p.68). The proxy measure for this was the betweenness centrality of the simulated agents. Their results indicate better performance with a participative style as well as higher levels of adaptive leadership. Furthermore, the agents that exhibited adaptive leadership differed across the two different leadership styles.

> "This suggests that agents in the informal network will serve different roles – such as leader, peer and sub-ordinate – depending on the conditions. This includes formal leaders, as they are also embedded in the complex functioning of the informal network."
>
> (Schreiber & Carley, 2006, p. 71)

Another interesting observation was that even though the only difference in the initial conditions of the network was the leader and their connections, while the initial network structure of the members were the same, two different member networks emerged. They note that this indicates that leadership style has second-order effects in networks, and a change in leader can lead to unintended structural changes.

Strategic leadership in the context of complexity

In the context of uncertainty and complexity a distinction may be made between clear, complicated and complex foresight horizons. Lane & Maxfield (1996) show these distinctions by outlining the following scenarios:

The first is that of an 18th century general overlooking the plain of a battle the next day. On a clear day he has a good view of the landscape, and the

positions of both party's troops. During the battle there will be movement of the troops from the opposing camps, and battle engagement between them. This will be based on the orders that he and the opposing commander gives, together with the myriad contingencies that neither of them will have control over. He can anticipate the possibilities that may occur, even though he cannot predict the outcomes with certainty. In addition, there is a clear terminal date, tomorrow. They refer to this scenario as characterising a clear foresight horizon.

The second scenario that they outline is that of a US cavalry column marching though unchartered territory in the 1870s. The commander does not know the full lay of the land, nor the location of the nearest river. Neither does he know whether there are any impassable areas ahead. In addition, he does not know the location of the Native American tribes, where they have established their camps, and whether they will want to engage in combat. Although he knows the general direction that he wishes to take, he is unable to make any detailed forecasts, as there are too many possibilities and unexpected occurrences to envision. At best he has to scout what lies just ahead as his column proceeds, and adjust his plans accordingly. The authors refer to his foresight horizon as a complicated one. Although he does not have a clear terminal date, his interest is to get his troops to an assigned destination in the next few days or weeks.

The third situation is that of a Bosnian diplomat trying to bring an end to bloodshed in his country in 1995. This is a much more complex situation as he is not sure who his allies and who his enemies are. He has fought against the Croats and with them. He has engaged in battle with Bosnian Serbs, but his close relatives have aligned themselves with them. There are a plurality of political and security actors including the UN security forces, NATO troops, and politicians from Russia, Serbia, and Croatia. He is unclear about who is involved, and what to expect from whom. And even when he settles on this, it is likely to change the next day. In terms of a terminal date, there is no end

in view for him. This Bosnian diplomat faces, according to Lane and Maxfield, a complex foresight horizon.

> "The social landscape through which he moves constantly deforms in response to the actions he and the others take, and new features, not previously envisaged or even envisionable, emerge."
>
> (Lane & Maxfield, 1996, p. 217)

This differentiation of foresight horizons are of interest from the point of view of leadership. Each of the three key actors in the vignettes given above would usually be considered as leaders. The question becomes how should each of the three leaders, the General, the Commander and the Bosnian diplomat respond given their respective foresight horizons.

What are the lessons for leadership in the case of complex foresight horizons? In order to answer this, it is important to understand their notion of agent/artifact space. The structure that a firm faces is made up of the plurality of agents (actors) involved and their relationships, as well as the artifacts with which they engage. Furthermore, it is also the *interpretations* of the agents of the agent/artifact space which is changing and which is important.

Although the authors do not use the term sensemaking, this is at the heart of the issue. It has to do with the attributions that agents make in relation to other agents and artifacts. To the extent that there are shifts in such attributions, it means that their possibilities for action change, and result in how they act. Moreover, it is these attributions that give rise to the agent's own identity. These changes in attributions give rise to new actions which in turn affects the agent/artifact space. Attributional shifts are facilitated through generative relationships. Generative relationships are defined as those relationships that lead to changes in how people see the world and act in it. Not all relationships are generative. The preconditions are that there must be a level of heterogeneity between agents, and some level of shared directness. The heterogeneity may be in competence, in attributions, and access to other

agents or artifacts. Shared directness implies that there is the possibility to bridge the differences between participants in a generative relationship.

This leads to the identification of two kinds of strategic practices. The first is referred to as "populating the world". This is all about identifying agents and artifacts and considering the attributions made to them. It is a process that occurs through discourse that contributes to building and interpreting a representation of the external environment (Maxfield, 1998). This is in relation to the identity that has been attributed to the agents and artifacts. In order to do this the firm is not the appropriate unit of analysis.

> "To understand the structure of agent/artifact space, then, 'firms' cannot be taken as the primary agent unit. Instead the focus must be on relationships defined by recurring patterns of interaction, which happens inside firms, across their boundaries, and sometimes even beyond them, in places like university departments and government agencies."
>
> (Lane & Maxfield, 1996, p. 227)

This populating of the world is not restricted to a select group of leaders within an organisation, but rather all agents that face a complex foresight horizon engage in this practice in order to identify opportunities for action.

The second strategic practice is that of fostering generative relationships. This is about agents monitoring their relationships with other agents, assessing the potential for generativeness, and assigning resources to unleash or nurture such potential. Much of this is about engaging in conversations and interactions. While this is crucial, to fully realise the generative potential, at some point the participants must engage in *joint action*. These strategic practices of populating the world and fostering generative relationships do not work in isolation. Rather they contribute to a bootstrap dynamic. Structural change in artifact space leads to generative relationships that contribute to shifts in attributions. These attributional shifts lead to actions which open up possibilities for new generative relationships. Thus we have a classic positive feedback loop that is the engine of the bootstrap dynamic.

> "These constructive positive feedbacks have an obvious cognitive counterpart: as the agent/artifact space undergoes ripples of change, new agents and artifacts come into being and old ones acquire new functionalities, so identities change…"
>
> (Lane & Maxfield, 1996, p. 224)

Discussion

The field of strategy is closely related to that of leadership, because much of the strategy literature assumes that the key actors in strategy-making are those that are in leadership positions. Although earlier leadership theories such as behavioural and traits approaches sometimes feature in the literature on strategic leadership, it is usually more aligned with transformational, charismatic, and visionary leadership. There is an unquestioned assumption that strategic leaders are or need to be brightside leaders. We have seen from the critique of Tretheway and Goodall that theories of leadership are not ahistorical, and have been heavily influenced by the social, historical and cultural context. They identify three hidden story-lines of leadership each covering a dominant historical era, namely Cold War, Post-Cold War and Post-9/11. In each of these eras there are also darkside characteristics of leadership. They argue that we need to embrace pragmatic complexity which is a model of communication that consciously draws in plurality. The focus is on the construction of provisional meaning in a local context, that are tested in ongoing social practice, and where meanings are based on multiple interpretations and are co-constructed, together with the ability to take an ironic stance, meaning holding incompatible positions. We notice 1) resonance with the findings from complexity theory, 2) an alignment with strategising-organising through situated activity in social practice and 3) interpretations and meaning-making are accentuated. Thus, all of this ought to have some bearing towards a theory of strategic enactment.

Harter identified leadership as a process of simplification and identified the following five ways that this could be achieved:

- Leader as unifying symbol
- Reverting to compactness
- Achieving a new order
- Shattering order and releasing its energies
- Pragmatic rhythms as we tolerate our deformations

The first two ways are more related to leadership as an individual capability. The last three tend to be more systemic in nature, and leadership begins to take on a more provisional, tentative and improvisational stance.

Complexity theory poses a number of challenges to conventional theories of leadership. Earlier theories of leadership focused mainly on the dyadic relationships between leader and follower, without taking into account the context. While contingency and situational leadership attempted to bring in contextual variables they were rather limited. Transactional and transformational leadership while focusing more on the whole organisation, privilege leaders and give primacy to the leader's goals, objectives and desires. Conventional leadership discounts the many and varied degrees of freedom that are inherent in followers, and neglects the wider systemic relationships. Finally, conventional leadership theories, in the limited case, of when they do look at the organisation as a whole, view them as equilibrium-seeking systems, where futures are knowable, and may be controlled by planning and intervention on the part of leaders. These are not as helpful in the case of complex adaptive systems that are far-from-equilibrium, subject to emergence and the processes of self-organisation. We would therefore expect that authors who draw on complexity theory will address some of these

challenges. Unfortunately this promise has not been fully met. Plowman et al. state that leaders are unable to *control* desirable futures but are able to *enable* them. They suggest that leaders can enable emergent self-organisation by 1) increasing uncertainty and conflict by disrupting patterns, 2) encouraging novelty through rules for "swarm like behaviour" and 3) creating correlations by acting as tags.

These prescriptions are firstly, not fully justified and secondly, assign agency to leaders in a similar way to conventional theories that they simply do not have. Thus, Plowman et al. have merely shifted the problem slightly, without necessarily addressing it. Let's begin with their prescription for increasing uncertainty and conflict. While the underlying idea of disrupting patterns may have merit, the solution on how to go about doing it is not as straightforward. Increasing uncertainty and conflict within organisational contexts sounds very similar to "manufactured crises". This is unethical because it increases anxiety and tension amongst organisational participants which may in turn lead to pathological organisational behaviour. Furthermore, there is no evidence to claim that this will lead to new patterns that are desirable. Their second prescription is that leadership needs to establish simple rules to promote swarm-like behaviour. This is another common prescription from authors who try to apply complexity theory to organisations. While there is nothing inherently wrong in establishing simple rules, it becomes quite problematic if we are relying on them to lead to desired futures. We need to interrogate the underlying rationale for simple rules. These are based on the simple rules in certain computational models that attempt to replicate swarming behaviour. Examples of these include simulations of flocks of birds, or shoals of fish, or in a slightly different format, simulation of ant colonies. These simulations illustrate how a few simple rules enable emergent outcomes that exhibit a level of coordinated behaviour and order. There are a number of problems of translating this directly to organisational contexts. Firstly, these simulations are based on homogenous agents whereas in social systems agents are heterogeneous (Stacey, 2003). Secondly, the agents in these simulations are

dumb agents in the sense that they do not have the capability for adaptive learning. Thirdly, in the real world, human agents can choose to disobey the rules, which is not possible in these simulations. Fourthly, the ordered behaviour of simple rules in this simulation is outside the control of any of the agents in the model. There is therefore no guarantee that even if there is ordered behaviour in organisational contexts from simple rules, that this will lead to *desirable* futures. The most important critique against the prescription of simple rules, however, is that there is simply no way of selecting and identifying the simple rules. How does one distinguish which rules to apply?

Plowman et al. also refer to the suggestion of Marion and Uhl-Bien that leadership may assume the role of "tags". This is based on the process of auto-catalysis, where certain events are catalysts that lead to a process operating by itself. Holland (1995) identified such catalysts in a computational model and labelled them as tags. Marion and Uhl-Bien used this as a metaphor for structure or information as social tags. These could refer to symbols, flags, ideas or technology that enable aggregate patterns to form through correlations. By extending this, leadership, apparently can assume the role of tags. Once again, there is a big leap between tags as catalysts in autocatalysis and leaders becoming tags. Some of the problems are identifying how leaders are tags and what types of behaviours are related to the processes of correlation. Four important points have been overlooked in suggesting that leaders can be social tags. First, tags may not be seen in isolation from the system in which they are embedded. It is a tag because of the specific feedback relationships in the auto-catalytic process. Therefore we cannot claim that because an individual is a formal leader in a system then he or she may automatically assume the role of tag by *choice*. Tags may not be imposed. Second, even if human agents may be tags, there are a myriad other agents who may catalyse the correlating behaviours. Third, there needs to be caution in singling out one concept from complex systems and developing theoretical propositions based on it, without noting all the other characteristics of complex adaptive systems such as self-organisation, co-evolution, and

sensitive dependence on initial conditions. Fifth, leader as tag invests far too much agency in the leader, to the extent that it assumes that the leader has agency over macro-states of the system. This has been shown to be impossible given the characteristics of complex adaptive systems. While Marion and Uhl-Bien acknowledge the limited agency by stating "they (leaders) are simply along for an inevitable ride" (p.405), they nevertheless build a significant portion of their complex leadership theory on the idea of leader as tags.

Hazy (2006) also draws on complexity theory to present his Leadership and Capabilities Model discussed earlier in this chapter. He raises two important points. The first is that leadership is a meta-capability driven by bottom-up interactions and emergence. The second is that certain organising activities are *interpreted* by organisational members as leadership. Despite, these very two significant insights, Hazy misses the opportunity as he reverts to normative prescriptions about leadership that is the same as that of traditional theories of leadership. He confuses leadership as a meta-capability with leadership invested in specific individuals that are able to transcend emergence. So here we have a model that is ostensibly built on complexity theory but ends up in direct conflict with it.

Boal & Schultz (2007), also drawing on complexity theory, offer very significant insights by highlighting the role of storytelling and dialogue, and especially by introducing the concepts of the lifestory schema and organisational lifestory. Once again we have authors who draw on complexity theory, but do not follow through on their insights. They also fall back on the concept of tags, and assign leadership a relatively high level of control over organisational story-telling and even go to the extent of linking the organisational lifestory to the organisational vision via the tagging process. They, off course, offer disclaimers about distortion of narratives and the possibility of counter-narratives occurring but do not take into account how significant these are.

If we take the insights of some of these authors and follow through on them, we arrive at radically different conclusions from them. We begin to discern an emerging view that leadership has to be reframed not as the dyadic relationship between leader and follower, but rather a systemic meta-capability. Furthermore, leaders do not have agency over macro-states of the system. Leadership thus becomes much more diffuse and is distributed throughout the system. We may thus refer to dispersed and distributed leadership. This is supported by Lichtenstein who identifies leadership as a complex, dynamic process that arises in the interactive spaces between people. Leadership is therefore an emergent phenomenon and an outcome of the relational processes that people are engaged in. Important aspects such as interpretation and sensemaking have been neglected in the leadership literature. If we wish to move towards a theory of strategic enactment, we need to draw out the full implications of a complexity theory view of leadership.

Lane and Maxfield develop the construct of foresight horizons to show the distinctions between situations that are clear, complicated and complex. Under conditions of ambiguity and uncertainty characterised by complex foresight horizons, traditional approaches to strategic leadership are therefore inadequate.

Introduction

In this chapter, I draw on some of the theoretical insights from earlier chapters to sketch out the contours of a proposed theory of strategic enactment. This is supported by several propositions. In the context of complexity, the notions of grand narratives and grand theory are eschewed in favour of more tentative and provisional approaches to theorising and conceptualisation. In the light of this, a theory of strategic enactment may be viewed as "small" theory that may be able to provide a contesting set of explanations for strategy-making from that of strategic choice. Notwithstanding the provisional and tentative nature of this small theory development, the implications for the field are quite significant. This is not surprising from the lens of complexity theory which gives us the understanding that small perturbations can have large effects. A tentative theory of strategic enactment is constructed by drawing on important insights gained from the critical interrogation of the various theories in earlier chapters of this thesis.

Strategic Enactment

I use the term, strategic enactment, to signal that the framework is based on a constructionist ontology. Therefore, this is an interpretive approach to organisational strategy. In order to develop and build the theoretical framework, I shall offer a number of theoretical propositions. These are drawn on work covered in earlier chapters and developed in this chapter.

We begin with a fundamental question of what constitutes reality. Is there a fixed, objective reality that exists that we can probe, understand and ultimately control? By applying the tools of positivist science, physical scientists are able to probe the material world, develop models of reality, and capture them in their formalisms. It enables us to optimise and control the mechanistic universe. What of the world that the social scientist observes? An objectivist

ontology in social science assumes that social reality is also objective. For the positivist, social scientists with the right tools can probe and understand the social world and discover the social laws that apply in an unchanging way and independent of context. The translation of this positivist idea into the organisational realm implies that organisations and environments are objective reality that exists out there. A second ontological position is that although there is an objective reality we cannot fully know and understand that reality. This is the notion of perceived reality. As a result of lack of knowledge or flawed perceptions, we shall never have full understanding. Strategists are subject to bounded rationality and all of the cognitive biases of human beings as discussed in Chapter 4. One of their tasks is to minimise the gap between their flawed perception of the environment and that of the real environment. A third ontological perspective, one that I adopt, is that of enacted environments. This embraces both constructivist and constructionist approaches. The implication of this is that there is no objective social reality. Reality is enacted by human actors who construct their worlds through their experiences and their interactions. All that exists are material and symbolic actions and interactions.

An exploration and development of some of the key ideas and concepts covered in earlier chapters combined with an ontological perspective of enacted environments and constructed reality enables the development of a theoretical framework for strategic enactment in terms of a set of propositions as presented below.

Proposition 1: Social reality is enacted by human actors who construct their worlds through their experiences and their interactions. All that exists are material and symbolic actions and interactions which become subject to interpretation by human actors.

The term, enactment, implies that both thinking and action are involved in the process of constructing reality. It is through our interpretation of the world that we construct categories such as organisation and environment. We then react to these categories and therefore bring forth reality. Smirchich &

Stubbart (1985) alerted us to these different ontologies in their presentation of objective, perceived and enacted environments in the context of strategy. Faulkner (2002) noted that this insight of Smirchich and Stubbart had "profound implications". I concur with this, but argue that the strategy literature has not fully explored and developed it. This thesis attempts to do that.

We may now proceed to incrementally build on components of strategic enactment such that we realise an overarching framework. We may begin with the individual agent. Each agent has a schema that represents his understanding of reality. This schema is based on his or her life history, and hence embodies his knowledge from his socialisation and experiences. It is through the process of interaction between individuals that schemata of agents change, and hence we have a complex adaptive system that is the organisation. It is crucial that since the schemata of agents are based on their life histories and their interactions over time, there is a close link with the identity of the agent. Thus, the agent has multiple evolving schemata and overlapping, multiple identities. The agent's identity is therefore invested in the processes and outcomes of sensemaking.

At one level, we may assert that the changing interpretations and changing conceptions means that there is a change in agent identity. This in turn leads to changing actions. Thus thinking and acting are intertwined and inter-penetrating. Since an agent has the power to act in his local circumstances, it means that agency is also an important concept. Thus, we have a strong link between agency and identity of agents.

Proposition 2: Thinking and acting are not separate activities but are intertwined and operate through the mechanism of sensemaking.

Proposition 3: The identity of an agent is related to the changing agent schemata, and is therefore an emergent outcome of interactions between agents in the complex adaptive system of the organisation.

As changes in schemata happen through interactions between agents, we need to interrogate interactions in a deeper way. What are interactions? There are two kinds of interactions. First are interactions with other human agents, and second are interactions with other agents in the form of artifacts. The medium of interactions between human agents is discourse and conversation. This is not at the level of "speech acts" only. While it includes utterances, and languaging, it also includes gestures, emotions, change in body tenor, as well as the use of space. Thus, interactions are based on complex communication between agents.

One of the important concepts in strategy is that of organisational routines. Routines are recipes of action that get enacted daily, and become part of the dynamic capabilities of organisation as discussed in Chapter 3. In the development and application of routines, artifacts play a prominent role. If organisations are systems of meaning and systems of interpretation, then routines and artifacts are embodied interpretations which constrain and liberate further interpretation and action.

Proposition 4: Routines and artifacts are embodied interpretations which constrain and liberate further interpretation and action.

At the level of organisation we may now link in with the idea of the organisational lifestory (Boal & Schultz, 2007). This is a shared dynamic narrative at an organisational level. We may equate this with the identity of the organisation. This leads us to three findings. Firstly, the organisational lifestory exists everywhere and exists nowhere. It exists nowhere because there does not exist any explicit text, as such, that contains the organisational lifestory. It exists everywhere in that it represents the organisation as a whole, and is a shared tacit understanding of the organisation and how it has come to be what it is – it exists in the spaces between. Secondly, the organisational lifestory is not fixed, it is changing every moment as interactions are occurring and hence it is fuzzy and vague and constantly changing. Therefore, organisational identity is not something that is fixed, but it is multiple, plural

and shifting. Thirdly, a significant shift in organisational lifestory, represents a shift in identity, and hence strategy.

Moreover, organisational lifestory is a boundary setting mechanism. It determines the construction of the organisation from non-organisation. The issue of boundaries has played an important role in systems work. What are the dimensions of these boundaries and what do they imply? The following lists some of the possible dimensions:

- Spatial – This is the classic systems notion of boundaries as encapsulated in the systems holon. The system is embedded in an environment separated by the system boundary.

- Time – How far we look back and how far into the future is also a form of boundary setting.

- Observer – Who is assigning the boundary and what is their relationship to the system being inquired into?

- Granularity – when we assign a boundary, it is a form of separation. For example, if we refer to a geographical boundary such as a river, is the level of granularity that of the flowing river or of the molecules?

- Permeability – We know that things get exchanged across boundaries in open systems, if only conceptually, when we say that the environment influenced the system. But what about things that cross the boundary such as ideas or memes? Are they in the system or outside the system?

- From a complexity perspective we may say that the boundary is inextricably linked with the system; as the system elements including agents change the boundary changes – the boundary is not fixed.

The organisational lifestory will therefore be an unarticulated narrative with multiple threads that also incorporates the various dimensions of boundaries listed above.

Proposition 5: The organisational lifestory is a shared, dynamic but unarticulated narrative at an organisational level. It is not fixed, but it is multiple, plural and shifting. A significant shift in organisational lifestory, represents a shift in organisational identity, and hence strategy.

These arguments imply that change is ontologically prior. Thus, the organisation is a heaving, constant flux, and is not a stable entity. We may think of this as a "sea of change' out of which we identify frozen moments, and when we think of organisations as stable entities then it is these frozen moments that we are thinking about. Therefore, whenever we reify things such as organisation, environment, strengths, weaknesses, opportunities and threats, these represent frozen moments.

Proposition 6: Change is ontologically prior to organisations. It is improvisational, not scripted in advance but the script is written as it is enacted.

We now have two interesting perspectives that have been under-emphasised in the literature. Firstly, these organisational concepts such as strengths and weaknesses are not objective realities, but rather our interpretations of material and symbolic actions. Secondly, even these constructions are drawn from a constant, shifting sea of change, and stabilised as constructs that we can act on and react to.

Strategy now becomes a series of enactments through interpretation and interactions between human agents and artifacts. It is linked with situated activity in practice. There is no such thing as a grand strategy. All we have are micro-processes and micro-actions mediated through interactions and discourse. The outcomes of these are decisions and patterns of actions over time to which we assign coherence, and we may sometimes label as strategy. Integral to this is the process of emergence and self-organisation. Strategy is therefore not episodic, but rather ongoing and may sometimes be manifested

as discontinuous change. This is the case when we have the emergence of a radically different organisational lifestory. We consider a lifestory that changes in an incremental fashion a result of continuous change. What we mean by discontinuous change is basically that we have a radical revision of the organisational lifestory. Having said this, even this revisionist version of the lifestory is not something that is designed, but rather emerges from changing identities of organisational participants who all contribute to the lifestory in some way. Furthermore, it is interesting that the lifestory is not something that merely changes in a linear way. Rather it is truly revisionist in that we completely rewrite the organisational lifestory because we re-interpret and reconstruct earlier events and milestones that are different from the previous lifestory. Strategy is not something that we do once a year in our strategic planning sessions, it something that is happening all the time.

We now have to consider how organisational lifestory may be changed. Since the organisational lifestory represents the identity of the organisation, we may regard it as a composite of the identities of the agents. However, since it is an emergent phenomenon, the law of super-position does not apply. Therefore while it is a composite of the identities, it does not reduce to the individual identities. We may think of it as an agglomeration of identities. The changing of agent identities will therefore contribute to a changing of the organisational lifestory. We have already seen that agent identities are subject to the local interactions and changing of schemata, and since interactions are based largely on discourse, changing discourse implies ultimately changing the organisational lifestory.

Previous chapters have shown that one of the most powerful ways to change organisational discourse is the use of analogies and metaphors. Therefore, we may conclude that if new metaphors and analogies are injected into collective organisational life, it represents a radical departure from ordinary discourse. Metaphors and analogies open up new possibility space, and new "adjacent possibles" (Lissack, 1999). From a dissipative structures point of view, the

injection of new discourse through introduction of metaphors and analogies may be seen as akin to injecting new energy and thus pushing the system far-from-equilibrium, to the extent that a new level of order emerges.

Proposition 7: Analogy and metaphor may be used as methods for changing organisational discourse and thereby the organisational lifestory, its identity and ultimately its strategy.

It is important to note that this conception of strategy is very different from strategic choice approaches. Firstly, strategic choice is based on an objectivist ontology. Secondly, it invests agency in omniscient actors. The strategic enactment perspective proposed also grants agency to individuals but in a very different kind of way. Agency is restricted to a local level, in that agents have the power to act in their local interactions, but they have no agency in terms of system level outcomes. Strategic choice actually invests agents with agency over system level outcomes. This is clearly not possible in complex systems. Secondly, given that local actions can affect global outcomes, the strategic enactment perspective does not diminish the local agency, in the way that a population ecology view would.

Proposition 8: Agents have the power to act in local interactions, but do not have agency over system macro-states.

As shown in Chapter 5, drawing on complexity theory and actor-network theory, agency is not limited to human agents but also it is invested in the structural relations in networks of agents and in the artifacts that they create.

Proposition 9: Agency is invested in human agents, structural relations in networks of agents and in artifacts.

The strategic enactment framework is one that is consistent with sensemaking. There are similarities in that it deals with issues of identity in a similar way. The framework tends to also refer to agency that is less emphasised in sensemaking. If we bring in a sensemaking perspective then it accentuates the notion of working with equivocal inputs, and how order is imposed on the world through sensemaking.

Parry & Hansen (2007) consider how organisational stories actually constitute leadership. Although this is different to the idea of the organisational lifestory as used here, there is some relationship between them. We may consider that the organisational lifestory is an amalgam of the stories referred to by Parry and Hansen, who show how stories are used to make sense of events, and impact on the actions that people embark upon.

> "When we tell stories about ourselves to others, they know us not only by those stories, but 'as' those stories."
> (Parry & Hansen, 2007, p. 287)

What we discern from this work is that once again stories are a form of identity-construction. Since stories are not one-dimensional and do not depend on the individual alone, what we also note is that it is through communicative interactions between agents, in this case in the form of stories, that identities are shaped. Even more interesting is that we again have support for the relationship between agency and identity. Given that stories constrain what people can or cannot do, it also determines the degrees of freedom available to them in relation to agency. Another angle on this is that stories embody the constraints and freedoms available for thought and action, decision-making and implementation. Therefore, there is naturally a link with strategy-making. The schemata of agents are shaped by the story telling and re-telling that they are involved in. Parry and Hansen cite Ouchi (1981) who made the point that a management philosophy is like a general theory that organisational members may use in relation to their particulars. From this perspective, the organisational lifestory becomes such a general theory of action that determines what people do and not do.

> "From the perspective of sensemaking, who we think we are (identity) as organizational actors shape what we enact and how we interpret, which affects what outsiders think we are (image) and how they treat us, which stabilizes or destabilizes our identity."
>
> (Weick, Sutcliffe, & Obstfeld, 2005, p. 416).

This quotation exemplifies the link between sensemaking and the strategic enactment framework. It highlights the role of sensemaking in identity construction. Thus, the nature of interactions between agents is central to the identity construction of those agents. This link between identity and agent schemata means that the emergence of organisational macrostates in the complex adaptive system is also linked to individual agent identities. What this amounts to is that every agent is not just potentially a strategist, but every agent *is* a strategist, if by strategy we mean the actual organisational macrostates that have emerged.

Proposition 10: Every agent is implicated in the emergence of organisational macro-states and therefore every agent is a strategist.

Now that we understand the importance of the relationship between agency and identity in strategic enactment, we can draw lessons from Maxfield and Lane, to incorporate as part of the framework. They identify the importance of agent-artifact space, populating the world, generative relationships and cognitive re-interpretations. The agent-artifact space is made up of two components. One is structural and the other is cognitive. The structural component relates to the agents and artifacts and the relationships and connections between them. The cognitive component is as a result of the attributions made by agents on who the other agents are, and what the artifacts do and do not do. Maxfield and Lane present the following 4 lessons:

"Structural change in agent-artifact space is mediated by new attributions about the identity of agents and the meaning of artifacts" (p.222)

This fits in very well with the discussion earlier. Here we see a direct link between sensemaking, identity construction and structural change. Under situations of complexity there are cascades of change. As a result, agents are

constantly faced with equivocal inputs from the environment. They engage in sensemaking to impose an order on those equivocal inputs. As a result, the interpretations that they make of themselves, other agents and of artifacts, that is, the attributions that they make in turn impact the changes in agent-artifact space.

"Generative relationships are the locus of attribution shifts" (p.223).

Generative relationships are those that cause agents to understand their world in a different way. This is as a result of changed attributions of the agent-artifact space. We may also link this to one of the fundamental objectives of scenario planning, discussed in Chapter 5, which is of "re-perceiving reality" (Wack, 1985a). Certain relationships between agents can be the source of attributional shifts. Not all relationships have this potential. There are two important prerequisites. The first is that there must be some level of heterogeneity between agents. This could be in areas of competence, in attributions, and in their access to other agents and artifacts. If there is too much homogeneity between agents, then they tend to engage in recurrent patterns of interaction that becomes shared which does not lead to attributional shifts. The other prerequisite is that there has to be some shared directness. This is the converse of the distance given by agent heterogeneity. Here, it is a closeness that opens up the space for some level of shared meaning and understanding.

"Structural change in agent/artifact space proceeds through a bootstrap dynamic" (p.224).

This is related to the stimulation of positive feedback loops. Generative relationships give rise to new attributions and new artifacts. This shift in agent-artifact space opens up new possibilities for new relationships or new kinds of relationships which impact the agent-artifact space. Furthermore, new functionalities of artifacts give rise to changing identities. These lead to new interpretations, which in turn create dissonance between observed facts and reality, and increasing ambiguity. Agents respond to this ambiguity

through sensemaking, and once again we have attributional shifts in agent-artifact space as well as increasing attributional heterogeneity.

"The window of predictability for the attributional shifts and structural changes that characterise complex foresight horizons are very short – and virtually non-existent outside the particular generative relationship for which they emerge" (p.224).

Prior to the emergence of a generative relationship it is not possible to predict what kinds of attributions will be possible and what these will mean for agent-attribute space. Even though agents work to create and enhance generative relationships there is no guarantee that such generativeness will actually occur. Moreover, an understanding of the attributional shifts if at all possible, will only be detectable within the particular relationship itself.

Earlier, we considered how the schemata of agents change through agent interactions. We can now link this in with attributional shifts in agent-attribute space. A change in attribution is also a result of changing agent schemata. We may now distinguish between interactions that lead to a change in schemata and those that do not. In some cases, agent interactions tend to reinforce existing schemata. This may be considered from the point of view of single-loop and double-loop learning. In single-loop learning, learning occurs while existing schemata are reinforced, while double-loop learning means a change in schemata, and hence in attributional shifts.

Attributional shifts and changes in agent-artifact space may be embodied in artifacts, routines, practices and discourses.

Strategy tools in the context of strategic enactment

It will be useful to consider the relationships between strategy tools and that of the strategic enactment framework. The strategy literature is replete with tools that are deployed in strategy making. However, there is also an area of fuzziness in defining what a strategy tool is. For example, SWOT, the BCG matrix, and some of the Porterian frameworks such as the five forces analysis and the generic positioning matrix are all considered to be strategy tools.

What about scenario planning? While some consider it as a strategy tool, others refer to it as an approach or methodology. Some of the steps in scenario planning may in themselves contain strategy tools such as a SWOT or a TOWS analysis. Thus, the boundaries between tools, models, methodologies, frameworks and theories are not sharply defined but are rather blurred. Some authors refer to core competencies or even dynamic capabilities as tools whereas in their broader sense they may also be considered as theories. It has been shown by Spee & Jarzabkowski (2009) that strategy tools are not applied instrumentally in practice, but rather are shaped by the socio-political process in which they are applied. Strategy tools are therefore used more as heuristic devices and quite often are applied in a way that is quite divergent from what their authors, inventors or originators may have intended. In addition, they are used for conversational purposes rather than purely for their analytic purposes (Spee & Jarzabkowski, 2009).

When strategy-making is considered to be episodic, then it is during those episodic sessions during which the strategy tools are applied, that strategy formulation is considered to occur. However, in the context of a theory of strategic enactment, strategy tools are considered to be artifacts. These then co-evolve and impact on the interactions between agents. Spee & Jarzabkowski (2009, p. 225) state that

> "[S]trategy tools thus assume the status of an artefact, structuring information and providing grounds for interaction around a common tool that is easily recognizable by participants in a strategy task."

They draw on the literature of boundary objects to show how strategy tools may be considered as boundary objects. Boundary objects are defined as

> "[f]lexible epistemic artifacts that inhabit intersecting social worlds and satisfy the information requirements of each of them."
>
> (Spee & Jarzabkowski, 2009, p. 227 citing Star and Griesemer, 1989, p.393))

What this brings is that strategy tools are no longer seen in isolation, but are rather important for how they create meaning in their actual use. Precisely because they are boundary objects, it means that the meanings are not unambiguous across participants from the different social worlds, and that they are applied flexibly. Therefore meaning is not necessarily embedded in the tool itself, but rather meaning is created in the interactions as the strategy tool is applied. This fits in perfectly with a theory of strategic enactment which is preoccupied with sensemaking and interpretation.

Strategic enactment and other theories of strategy

We may now proceed to consider the theory of strategic enactment in relation to some of the theories covered earlier in this thesis. There are close relationships between strategy-as-practice, strategising-organising, "strategy as unfinished project" and a theory of strategic enactment (Jarzabkowski, 2005; McKiernan & Carter, 2004; Whittington, 2004). The focus in strategy-as-practice is on the doing of strategy, with much attention paid to situated activity in practice. Strategic enactment helps indicate how practices are related to agency, identity and interactions.

The focus has shifted from standard forms of theorising about strategy to that of the *doing* of strategy. Strategic enactment, like strategy-as-practice is consistent with the strategising and organising perspective. The strategy-as-practice approach favours the verb form as opposed to the noun form as in strategis*ing* as opposed to strategy, and organis*ing* as opposed to organisation (Whittington & Melin, 2003). It also notes that each of the dualities elides into each other, and hence we may refer to strategising-organising. This gives further weight to the idea that organising *is* strategising (Achtenhagen, et al., 2003).

It is at the level of activities that relate to organising, especially when these activities lead to a consistent pattern of actions over time that we are referring to strategising. In addition, since activities are being conducted in every practice, it means that by definition we are referring to ongoing change, activity is doing, and doing is change. This suggests that organising is in a constant state of becoming. Furthermore, activities do not occur in isolation but are as a result of processes of interactions between agents as highlighted in strategic enactment.

Strategic enactment theory is informed by actor-network theory to the extent that agency is not only vested in human agents but also in objects and technology in the form of artifacts, and its focus on micro-activities and interactions. While actor-network theory accentuates the disruption of centrality from the human actor to the network of actors and agents, in strategic enactment this is not as explicit, as the focus in the latter is on the interactions and less on the network. The network of agents is what gives rise to the possibility of interactions, and the nature of the network is constantly shifting. Here, strategic enactment takes its inspiration more from complex adaptive systems than it does from actor-network theory.

What are the relationships between strategic enactment and the resource based view? The RBV is a strategic choice approach and based on a realist ontology. The implications of strategic enactment on the RBV are that the VRIN attributes that are central to it, may not be as clear-cut as originally conceived. Some of the VRIN attributes may be *interpreted* to be valuable, rare, inimitable and non-substitutable. Furthermore, the RBV tends to assign more agency to actors than that of strategic enactment. Since the Amit and Shoemaker framework takes into account behavioural theory and cognitive biases it may be able to inform a theory of strategic enactment but this is outside the scope of this discussion. It would appear that there is more alignment between the dynamic capabilities approach and strategic enactment. This is because of the focus on capabilities and routines. Strategic enactment

explains how routines and capabilities emerge through the interactions between agents.

From complexity theory we may conceptualise an organisation as a complex adaptive system, and identify that organisations have the various characteristics of CAS. Based on the premises of complexity theory no single agent or small group of agents can stand outside of the system. This is embodied in the property of egalitarianism discussed in Chapter 5. It is therefore not possible to design and implement strategy in advance. This is a radical perspective of strategy and the implications are far-reaching. A complex adaptive systems approach offers a good theoretical basis for evaluating and understanding emergent approaches to strategy. An emergent form of strategy implies that small actions by organisational actors may coalesce in time into a coherent pattern of actions that becomes its strategy. This coalescence happens without any central intelligence organising and directing it. Rather, it is a form of spontaneous self-organisation that emerges through interactions between agents, and through everyday situated action in practice. The same explanation addresses even that of organisations that are ostensibly operating on a premise of strategic choice or learning approaches to strategy. In strategic choice, the organisational elite engage in strategy-making by way of strategy bosberaads, indabas and lekhotlas[3]. Participants may indeed be engaging in environmental analysis, examining internal resources, skills, and capabilities, and applying a variety of strategy tools and techniques. The result is articulated in some form of strategy document designed by the "strategists". These are then issued to the rest of the organisation to implement. No doubt this is conducted in hundreds of organisations throughout the world on an annual or perhaps more frequent basis. An emergent approach to strategy as explained by strategic enactment does not deny that this may be happening. However, its explanation is that

[3] These terms refer to strategy breakaway sessions usually attended by senior management of both government and private sector organisations in South Africa. These sessions are often conducted in a place of retreat away from the office.

the strategic designs and plans are merely artifacts that agents co-evolve with. It is not that they do not play any role. They play a role like any other artifact. They inform and may constrain practice, but they do not determine strategy as designed. In short, strategy may not be designed and implemented. It emerges even if we operate from the premise of strategic choice. If we restate this in the terms that are used by Mintzberg, we can say that planned strategies are never realised, and that therefore there can be no deliberate strategy. The realised strategy is *always* emergent strategy. Thus, strategic enactment is a theory that indicates how strategies emerge bottom-up through micro-processes of interaction and situated activity in practice, as opposed to that of grand strategy designed from the top.

A theory of strategic enactment also incorporates strategic leadership that is consistent with complexity theory and not in contradiction with it. It was shown in Chapter 6 that there are very significant implications for strategic leadership when organisations are conceptualised as CAS. It was also shown that several of the leadership theories that ostensibly draw on complexity theory, fail to fully account for it. A theory of strategic enactment attempts to overcome this failure. It accounts for strategy based on an ontology of social constructionism and interpretation of reality. It is consistent with the notion of change as ontologically prior to organisation and with the ideas of organisations as shifting conversations through first-order and second-order constructed realities. Thus, leadership in strategic enactment does not focus on the dyadic relationship between leader and follower, but rather considers leadership as a systemic meta-capability. Since leaders like any other agent in the system do not have agency over macro-states of the system, leadership is much more diffuse and is distributed throughout the system. We may thus refer to dispersed and distributed leadership. This view of leadership supports that of Lichtenstein who identifies it as a complex, dynamic process that arises in the interactive spaces between people. Leadership is therefore an emergent phenomenon and an outcome of the relational processes that people are engaged in. Strategic enactment places much emphasis on

interpretation and sensemaking that have been largely neglected in the leadership literature.

A theory of strategic enactment offers a number of benefits. It may serve as a synthesising framework that draws together the various approaches to strategy including strategic choice, population ecology, learning and emergent approaches.

Moreover, it resolves a number of the false dichotomies that are prevalent in the strategy literature. These include formulation-implementation, thinking-acting, process-content and strategic-operational. These are not distinct phenomena but are rather intertwined; they may not be separated out. As discussed in Chapter 2, we need to understand strategy not as a noun but as a verb. This naturally raises the question of who does strategy. This means that we are also concerned with what strategists do in their everyday activities. The idea that strategy is largely episodic or something that is done once a year say, is inconsistent with strategic enactment. Strategists do strategy every day. Since they are not in strategy workshops every day, it means that there are a myriad other activities conducted by strategists that also constitute strategy.

Strategic enactment also clarifies the relationships between strategy content and strategy process through its support of strategy-as-practice. Strategy-as-practice offers an integrative view of process and content. The activities that strategists engage in are part of strategy process. The outcomes of the strategy process results in the strategy content. The practice approach offers a way of understanding the application of strategy tools, and therefore enables a bridge between different schools of strategy. For example if one takes an IO view, and applies Porter's 5 forces, then a practice approach sees this as the activity of doing strategy where the 5 forces model is considered as a strategy tool to assist in that process.

From a research point of view, strategic enactment is broad enough to embrace many different approaches. The focus, however, will, like in strategy-

as-practice, tend to be on situated action in practice. We shall be interested in the micro details of what strategists engage in as they conduct their practice. This naturally lends itself to thick description and close interaction with the unit of analysis. However, we need to ask what exactly is the unit of analysis? In conventional approaches to strategy, the unit of analysis is the industry (IO view), firm (learning, culture etc.), resources (RBV), capabilities (dynamic capabilities), or the collection of firms (population ecology). In the case of CAS it is likely to be the actors (strategists and others). In the practice approach, the unit of analysis tends to be the activity.

Is strategic enactment descriptive or normative? If we pay attention to micro activities of situated action in practice, on interactions between actors, and the relationship between actors (agents) and artifacts then we may say that is descriptive. However, we may ask whether such rich descriptions lend themselves to identifying common patterns of behaviour, activities, decision or actions that enable us to generalise, and if so, it could mean that strategic enactment may also under certain circumstances be normative. This would off course have to be the subject of further research.

A theory of strategic enactment may serve to fulfil the purpose of a "wild card" as defined by McGahan & Mitchell (2003). Wild cards in their conception are concepts and ideas that are ill-fitted to existing conceptual frames and that serve as a bridge amongst existing theories and offer potential for new theories.

Practical implications

I now proceed to draw out the practical implications of a theory of strategic enactment. Given that it is premised on a theory of social constructionism, it implies that actors need to be more circumspect about "evidence" based approaches to strategy, and need to be careful of what they define as facts. The idea that strategy may be designed in advance does not hold true. What can organisations do in furthering their strategy? It requires an understanding

that the unit of analyses is not singular but plural and will involve the situated activity in practice. It will involve the local, specific relationships that potentially could lead to generative relationships. Local conversations and discourse may need to be attended to. We can draw on two specific practices of Maxfield and Lane viz. "populating the world" and "fostering generative relationships". There are a variety of ways of "populating the world". Episodic encounters in the form of large scale group processes (Bryson & Anderson, 2000) such as Appreciative Inquiry, Future Search, and Open Space may all be valuable in achieving the end of populating the world.

It also means that strategy tools may be used in much more flexible ways, and opportunities to do so should be encouraged. The expectation of strategy to be documented in a strategic plan needs to be reconsidered. A theory of strategic enactment shows that strategic plans are merely artifacts, like all other kinds of artifacts – so while there is nothing inherently wrong in producing strategic plan documents, there ought to be caution on what they are considered to be. Provided that strategic plans are considered as artifacts and not strategy as plans or designs in the sense of strategic choice, there is likely to be little harm. However, the amount of resources that is expended in compiling and maintaining such strategic planning documents would need to be explored, as it could be a form of wastage and hence value-destroying as opposed to having strategic benefit. Another important issue that arises is whether strategy workshops, away-days etc. applied in conventional episodic strategy-making are still necessary. Again there is little harm if they are conceived to be inputs into a strategy making process that is inherently ongoing and constantly in flux. These episodic interventions are a form of generating discourse and artifacts around which other agents may co-evolve. What this means is that there is nothing inherently wrong in engaging in these but understanding what and what they cannot do for strategy becomes important. Furthermore, there is a danger that organisational actors come to believe that strategy happens in these episodic encounters and therefore only those participants are the strategists without realising the impact of the

broader actors and agents that ultimately contribute to the strategy that will be realised though a process of emergence.

> "[A]ll of social practice, and all of the organization's practitioners, are inherently implicated in the emergence of strategy."
>
> (Campbell-Hunt, 2007, p. 817)

One of the central elements of strategic enactment is that of interpretation by agents or strategic actors. This is about how they perceive reality. Thus from this view we may use scenario planning as a tool for interpretation, re-perceiving reality (Wack, 1985a), and for changing agent attributions of agent-artifact space. It may thus also be applied as one method for "populating the world" as advocated by Maxfield and Lane.

Addressing the key research questions

This research attempted to answer the following key questions:

1. What are the major theoretical frameworks and conceptual models that frame the field of strategy?

2. How well do these frameworks and models contribute to strategy under conditions of high ambiguity and uncertainty?

3. What contributions may be made by applying complexity theory to the field of strategy?

4. What are the implications of adopting an interpretive approach to strategy?

5. What are the implications of strategic enactment on strategic leadership?

The following section discusses the extent to which the research questions were addressed in this study.

Theoretical frameworks

We have noted in this study that strategy is still a pre-paradigmatic field and hence is lacking integration and synthesis. There are a variety of theoretical frameworks and conceptual models. These were presented and discussed in Chapter 2. One of the common classifications is the ten schools of strategy (Mintzberg, et al., 1998). It must be noted that the schools in themselves do not necessarily constitute theoretical frameworks or conceptual models. Rather, each school considers numerous theoretical frameworks, models and approaches to strategy. The ten schools classification may be said to be encyclopaedic. Given that it has been 10 years since the Mintzberg *et al*

publication, it does not cover newer developments such as strategic organisation, strategising-organising and strategy-as-practice. These have been covered in Chapter 2 of the thesis.

Strategy under uncertainty and ambiguity

While there is general acceptance that organisations are faced with high levels of ambiguity and uncertainty, the field of strategy is, with a few exceptions, not explicit about how strategy is to be handled under such conditions. I offered an alternate classification of strategy in Chapter 2, that identified strategic choice, population ecology, learning and emergent approaches to strategy. Strategic choice is not well suited for conditions of ambiguity and uncertainty. This is especially pronounced because of the dichotomy between thinking and acting, and planning and implementation in strategic choice. In addition, given that the strategic actors are restricted to a limited number of people, it is difficult for such actors to handle the overwhelming complexity in which their organisations find themselves. The evaluation of population ecology against environmental uncertainty and turbulence is trickier. On the one hand, since the key driving force is considered to be the environment, one point of view is that it handles uncertainty extremely well. The organisation is subject to the vagaries of the environment, and as the rate of change increases the organisation has to adapt accordingly. However, the counterpoint to this is that strategic actors have no agency, and therefore are unable to deal with environmental turbulence. A third approach to the issue is that since the unit of analysis is the entire population of organisations, those that are unable to adapt to the higher levels of complexity and uncertainty, will simply be selected out. From this point of view, the population ecology approach merely confirms the impact of ambiguity and uncertainty but offers us nothing on how to deal with it. The learning approach to strategy is well suited to uncertainty and ambiguity, as the major thrust of this approach is to specifically deal with it through learning, and hence enabling the organisation to be more responsive to environmental turbulence. A theory of strategic enactment is an explanation of an emergent approach to strategy which is

very appropriate under conditions of uncertainty and turbulence, as this is a bottom-up approach that co-evolves with the environment.

Contributions from complexity theory

Sensitive dependence on initial conditions indicates that it is not possible to engage in long term forecasting. The property of egalitarianism shows that neither a single powerful individual such as a CEO or strategic planner nor a small group such as a strategic management team is able to stand outside the system understand the environment and the organisation and thereafter formulate and implement strategic plans. Organisational outcomes and macro-states of the system are not as a result of deliberate strategic planning and design by the organisational elite, but rather emerge from system and agent interactions as defined in complex adaptive systems. Order may not be imposed from outside the system in the form of deliberate strategy, but rather order is a consequence of self-organising processes. Furthermore, complexity theory shows us that the competitive environment is not fixed but is constantly shifting in the form of a fitness landscape. Complex adaptive systems are considered to be far-from-equilibrium systems, while much of the strategy field is based on an underlying assumption of equilibrium and homeostasis. It is therefore clear from the foregoing that the major contribution from complexity theory is that it calls into serious question the prescriptions from the dominant strategic choice approaches, and heralds the way for an alternative approach to engaging in strategy.

It was shown earlier in this thesis how complexity theory may be able to enrich our understanding of strategy. This was further embodied in the strategic enactment approach by combining it with social constructionism. Strategic enactment is a perspective that dissolves some of the false dichotomies in the field of strategy as discussed below:

Organisation and Environments.

If the world is socially constructed then there is no distinct organisation and environment with a fixed boundary. What is this thing called an organisation? Heil (2003) and Heil, Maxwell, & Whittaker (2003) ask a similar question, albeit it in a somewhat different context, and for a different purpose towards that which is intended here. An organisation is not single and distinct but rather multiple, fluid, temporal and transient, depending on our issue, context and point of view at a particular point in time. While there is material reality in the form of plant, technology, products, raw materials and people, we construct a social reality that draws relationships between them to identify managers, customers, the competition and strategies (Smirchich & Stubbart, 1985). How we make meaning of the world and construct our social reality determines what the environment is. We actively make our environments and then react to that environment that we have reified.

Formulation and implementation

The separation of strategy formulation and implementation is one of the false dichotomies that continue to bind strategy into a straight-jacket that it is struggling to break free from. This is a remnant of strategic choice. It is based on omniscient actors who may stand outside of a system and objectively understand the environment. They then design and formulate strategy which has to be implemented. Off course, these all powerful, omniscient actors do not implement it themselves – but rather this becomes the responsibility of the "plebeians" in the organisation. This is a separation of thinking and doing, which translates to a separation between thinkers (strategists) and doers (implementers) (Mintzberg, et al., 1998). How often do we hear the refrain that the failure was not that of the strategy but that of implementation? Thinking and action may not be separated. Thinking *is* action (Bodhanya, 2005). As human beings, we are engaging in sensemaking in every instant and hence actively constructing and reacting to the world that we create (Bodhanya, 2008). It is through sensemaking that we construct categories that we then work with. These are the categories such as industry, markets,

products, customers, strengths, weaknesses etc. These are precisely the same type of categories that the questions in Table 1 in Chapter 2 refer to.

Strategy, Operations and Tactics

When we make strict distinctions between categories and reify them then we separate out strategy, operations and tactics. In this way we deem that lower level workers and practitioners work with tactics, middle level managers focus on operations and higher professional and managerial elites must be pre-occupied with strategy. This becomes part of the dominant organisational discourse and we treat these as if they are real, objective and fixed facts. When the professional elite or senior manager is engaging in situated action in practice we deem that as strategic, while a lower level person engaging in situated action in practice we deem as tactical. Firstly, sensitive dependence on initial conditions from chaos theory already shows why treating such a distinction between strategy, operations and tactics as fixed reality is problematic. Secondly, we have seen how complex adaptive systems are subject to non-linear amplification and attenuation of fluctuations in the form of dissipative structures that result in self-organisation of macro-states. Therefore, the situated action of the lower level person is no different to that of the situated action of the professional elite. Thirdly, there are feedback loops between actions of agents that interact within the organisation, which coalesce into a coherent stream of actions over time that becomes the strategy. In that way, the lower level agent may contribute to the strategy that eventually emerges, in the same way that the professional elite does.

A strategic enactment perspective also extends the notion of co-evolution that we draw from complexity theory. We know that there is co-evolution at a micro-level between agents, and at a macro-level with the environment. Given that reality is socially constructed, we may then speak of not just co-evolution but rather co-creation both at the micro and the macro-level.

Strategic enactment – an interpretive approach to strategy

It is of significance that the Mintzberg et al. classification pays very little attention to epistemological and ontological considerations. Indeed, strategy as a discipline tends to be philosophically unreflexive. In relation to the ontological aspects of strategy, most of the approaches to strategy, especially those that fall under strategic choice are based on an objectivist ontology. Therefore, despite the early signal by Smirchich and Stubbart (1985) of the profound implications of adopting an interpretive approach, there has been a dearth of work on it in the strategy literature. This study begins to remedy that.

Strategic enactment is a theory of strategy based on an ontology of social constructionism, and draws on the lessons of complexity theory to indicate the dynamic nature of organising. Organisations are considered to be complex adaptive systems, and in contradistinction to other strategic approaches, it is not equilibrium-seeking. This theory indicates that change is ontologically prior to organisation. It draws on a number of strands of theory including strategy-as-practice, strategy as unfinished project, actor network theory and complexity theory. Strategic enactment places attention on concepts that are not normally given focus in the strategy literature. This includes identity and agency, and shows how agency and identity are linked, and how they give rise to organisational identity embodied in the organisational lifestory. If we tie this back to complexity theory, then we may state that the schemata of the agents are able to encode the environment, and the important features of the environment also become embedded in the organisational lifestory.

It was shown in Chapter 6 that when organisations are understood as complex adaptive systems, the implications for leadership are very significant. Numerous authors that attempt to frame complexity leadership theories, do not address the full ramifications of the positions that have they taken. They end up resorting to leadership as tags. It was demonstrated in Chapter 6 that this is problematic as it leads to many contradictions and logical

inconsistencies. A theory of strategic enactment presents an alternate conception of leadership from that of conventional theories of leadership discussed, yet is still in consonance with complex adaptive systems. Instead of a preoccupation with dyadic relationships between leader and followers, strategic enactment considers leadership as a strategic meta-capability.

Contributions of the study

The thesis has made a variety of incremental contributions in each of the chapters. Chapter 2 provided diverse and broad coverage of the literature. In addition to the historical trajectory of the field and the classifications usually discussed in the literature, it extended the discussion to include strategy-as-practice, strategising-organising, strategy as unfinished project, actor-network theory and strategy as serious play. While these topics and their underlying concepts have been explored elsewhere they have not been interrogated, combined and integrated before.

The same applies to Chapter 3. While the relationships between resource based view and the dynamic capabilities approach is relatively well known, this thesis also presented a critical analysis of the relationships between strategy and system dynamics. With the exception of Kim Warren, the field of system dynamics is relatively unknown by strategy scholars. Again, while the nature of asset-stock accumulations (Dierickx & Cool, 1989) serves as a platform for the resource based view, its relationship with strategy remains unexplored, in the main, by strategy scholars. The same applies to the characteristics of the asset-stock formulation and the natural relationship of this approach with system dynamics.

Given that scenario planning originated from practice, and the innovations in the approach continues to emerge from the world of practice it has been criticised for lacking theoretical support and justification. The contribution of Chapter 4 has been an attempt to address this shortcoming. In addition to exploring the relationship of scenario planning with other approaches such as

decision-making, contingency planning and risk analysis, as well as cognitive psychology and behavioural theory, it was shown that scenario planning may be considered as an interpretive systems methodology that complies with Jackson's constitutive rules for a generic interpretive systems methodology (Jackson, 2000). An argument was presented that scenarios are a form of modelling that may be evaluated alongside other kinds of modelling such as mathematical modelling, formal modelling and system dynamics modelling. All of these are novel contributions.

A further contribution was the formulation of a proposed scenario approach termed *Futurescope*, as presented in detail in Appendix 1. It is meant to be readily applied by practitioners who wish to benefit from scenario work in engaging in strategy under complexity and uncertainty. While I do not make any special claims for *Futurescope*, I engage in a detailed discussion of how it relates to other approaches to scenario work.

Additional contributions were made in Chapter 5 in investigating complexity theory in the social sciences and organisations as complex adaptive systems. While some of the characteristics of CAS are well established in the literature, the property of egalitarianism was developed and accentuated, as this has significant implication on agency. Furthermore, I presented an argument that artifacts may be considered as agents. This is not generally covered in the complexity theory literature. I also showed that this has some resonance with actor-network theory. The chapter discussed the philosophical underpinnings of emergence which are generally neglected in organisational theory. Since complexity theory is usually applied to social systems in a metaphorical way, I felt that it was necessary to interrogate the role of metaphor in theory construction and science. A model of metaphor in theory construction was presented based on existing literature.

While the topics covered here have been discussed elsewhere, they have not been integrated as they have in this study, and it is rare to find this type of

discussion in the field of organisation theory and strategy. Despite the more frequent application of CAS as metaphor, I developed the position that social systems are indeed CAS, and one does not have to resort to metaphor alone. I have shown how CAS may be considered a tool for organisational ontology and therefore one of the key philosophical insights of the chapter was that of an ontology where physical and social reality interpenetrate in an intertwined single reality, which in itself is open, emergent, mediated contextually and has the potential for transformation. I elaborated the model of strategic choice, chance and determinism of De Rond & Thietart (2007) in the light of CAS.

Given that much of the strategy literature assumes that the key actors in strategy-making are in leadership positions, the field of strategy is closely related to that of leadership. The former assumption is critically analysed and contested in Chapter 6. A significant finding is that all agents are implicated in strategy and not only those who happen to hold positions of formal leadership in organisation. While it was shown that complexity theory poses significant challenges to conventional theories of leadership, I attempted to demonstrate how even authors whose point of departure is complexity theory and who have begun to frame a new "complexity leadership theory" tend to fall into the trap of reverting to conventional positions that are contradictory with logical inconsistencies. This is sometimes as a result of their relying on one or two characteristics of CAS at the exclusion of others. One important contribution of the chapter was therefore the lesson that *all* of the characteristics of CAS have to be taken into account, singly and together as a *whole*, if progress is to be made in advancing leadership theory in the context of organisations as CAS.

The final contribution of this study is a tentative theory of strategic enactment. It is unique in that it integrates complex adaptive systems with an interpretive approach to organisational strategy. As was shown in the study, the dominant approaches to strategy are based on an objectivist ontology. Furthermore, I have not found evidence of previous work that integrates

CAS with an interpretive stance. Strategic enactment draws on and is therefore consistent with strategy-as-practice, strategising-organising, strategy as unfinished project and actor-network theory. The relationship of strategic enactment with that of other theories of strategy is addressed. It contests existing explanations of organisational phenomena made by strategic choice perspectives, and provides alternate explanations for them. It highlights important concepts such as agency, identity and organisational lifestory and the relationships between them in relation to strategy. These are generally neglected in the literature. Finally, some of the practical implications of strategic enactment are considered.

Limitations of the study

Since this study is a theoretical one there is not yet a firm empirical basis for the findings. In order to address this, further research will be required. An appropriate research design will have to be constructed to test the theoretical propositions underpinning a theory of strategic enactment, which were developed in this research.

While the study has considered the practical implications and provided some direction on concrete tools for application in strategy-making, much further work will need to be done. This is not a limitation of strategic enactment as such, but rather a challenge for any work that adopts an interpretive stance based on an ontology of social constructionism. It is not a straight-forward matter to provide normative prescriptions when the world and social reality is complex, ambiguous, turbulent and constantly in flux.

Conclusion

This study has shown that the strategy field is diverse and fragmented. It is philosophically unreflexive and not self critical; shortcomings that this thesis has tried to address. It is not possible to identify a canonical set of rules or laws for strategy. It has even been suggested that the field is pre-paradigmatic. Researchers therefore have two main roads they can follow. They may adopt one perspective and work within the confines of that perspective. The second road, which this study has attempted to follow, was a more tortuous one. It meant going into the depths and details, the cliffs and ravines of the field to try and establish a sense of order. When one emerges from that journey one finds that such an order is not readily manifested. Some of the reasons for this are that unlike a base discipline such as economics or psychology, the field of strategy draws from a number of such base disciplines from both the physical and the social sciences. The best one can achieve is to highlight some of the key themes and attempt to order the field into a limited number of constructs and the relationships between them. The question is how does one do this? What variables or dimensions should one use? What are the criteria that must be applied to engage in this ordering mechanism? This study was based on an exploration of the field of strategy by taking a number of diversions outside the literature sets normally associated with strategy and the resulting work was, hence, eclectic out of necessity. It has proposed one ordering mechanism in the form of strategic enactment.

The following may be identified as key findings of this study:

- Strategy is still a pre-paradigmatic field and hence its theoretical underpinnings are of necessity eclectic.
- While strategic choice is the dominant approach, many of its tenets are contested, especially when organisations are considered as complex adaptive systems.
- Deliberate strategy is not possible as all forms of strategy are ultimately emergent.

- Agency is an important construct in strategy. Agency does not reside in the key power brokers alone, but extends to all organisational actors and their structural networks of relations. Agency is also invested in non-human actors in the form of artifacts.
- Agency is limited to micro-level actions and does not embrace macros states of the system.
- Identity is an important construct in strategy. The identity of agents is shaped in their interactions with other agents. Who they are impact on what they can and cannot do, and also impact who they construct themselves to be. In this sense there is a strong link between agency and identity.
- Identity is also shaped in situated activity in practice and therefore strategy-as-practice is important.
- Strategic enactment presents alternate explanations for the utility of strategy tools and strategic plans from strategic choice.

Appendix 1

FUTURESCOPE

In Chapter 4, I considered scenario-based strategy. In this Appendix, I describe the *Futurescope* process as one approach to engage in scenario work. I also discuss how it relates to other approaches to scenario planning. The process described here is meant to be readily applied by practitioners who wish to benefit from scenario work in dealing and working with complexity and uncertainty. Figure A1.1 is a high level depiction of *Futurescope*. For ease of presentation, only the major steps are shown in the diagram. The figure does not reflect the iterative nature of the process. Furthermore, underpinning the entire process is research and immersion in the research data in order to detect patterns and new insights about the environment.

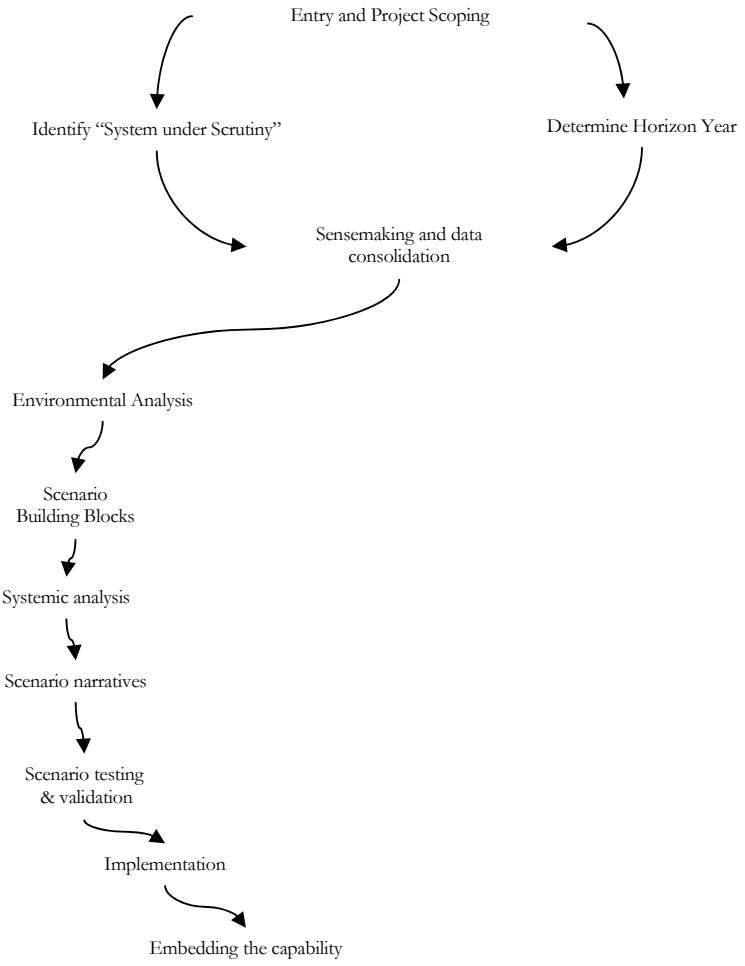

Figure A1.1 *Futurescope*

Entry and project scoping

Although scenario planning has been applied for many years, it is still relatively unfamiliar to many executives, managers, professionals and other practitioners. It is therefore important that there is appropriate upfront discussion with the client group on what it is, the opportunities and challenges, the costs and benefits, timeframes, nature of processes that will be involved, and what the outcomes are likely to be. It is useful to have a short framing document about scenario planning that may be discussed with and given to the client. This should be supported by a short presentation. It is particularly important to clarify to the client upfront that scenarios are not

about prediction, forecasting or optimisation, but about learning and preparedness for alternative futures.

One needs to ensure that there is some level of organisational readiness for scenario work. If the client group and the organisational power brokers have a dominant paradigm of a future based on a single line forecast and are unwilling to entertain different possibilities then scenarios may not be appropriate for such an organisation. There is a caveat. Most organisations do have a dominant paradigm which results in an "official future". This, in itself, does not render scenarios inappropriate. Sometimes it is important to demonstrate through scenario practice how such "official futures" may be logically inconsistent or implausible given the trends and uncertainties. The major criterion on whether scenario practice is appropriate for an organisation is the extent to which the official future is embedded, the readiness to question that official future and to entertain other possibilities.

The nature of the project needs to be clarified and understood upfront, especially in relation to how the scenarios are to be used. Scenario work is used to help organisations work with complexity, ambiguity and uncertainty. A key question that must always be considered is what the scenarios are to be used for. We have to specify the purpose of undertaking scenario work. The following identifies some possibilities:

- General understanding of driving forces and possible futures.
- Decision making in relation to a key decision(s) that has to be made in the face of uncertainty. For example, market entry of a multinational company into a new country or some large investment decision.
- Strategy making.
- Organisational learning.
- Policy formulation.

Once the project scope and framing is clear, the project timing and activities have to be spelt out. This is project specific and is related to the magnitude of the project. Scenario projects can range from a one-day workshop leading to

ongoing actions, to work conducted over a period of several months. This depends on the nature, magnitude, and scope of the project. The timeframes, activities and workshops for a typical project intended for strategy making purposes is depicted in Figure A1.2 below.

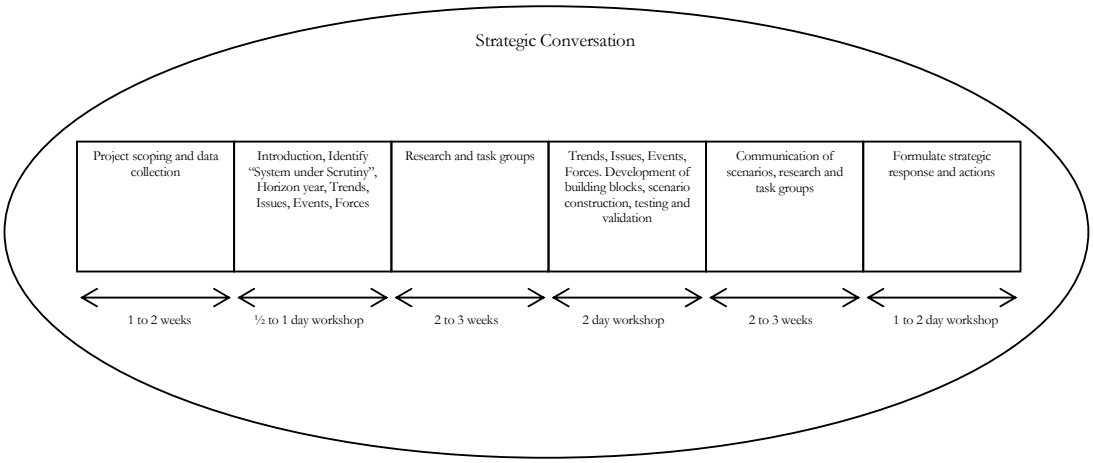

Figure A1.2 Typical scenario activities and timelines

The facilitator needs to prepare the team beforehand about the requisite mindset, attitude and predisposition for effective of scenario practice. The following is a useful list to share and discuss with the team up front.

- Inter-disciplinary
- Suspend disbelief
- "Think the unthinkable"
- Let intuitions flow freely
- Tolerate ambiguity
- Open to surprises
- Tolerate overload (cognitive and overwhelming amount of data)
- Soft data may be more useful than hard data

Research and data collection

It is imperative that we engage in a rigorous research and data collection process if we wish to construct high quality scenarios. Ultimately, scenarios draw on real world data and imaginative possibilities by discerning patterns in the data. There are many data collection methods that may be applied.

Examples include interviews, focus groups, participant observation, surveys and interactive data gathering workshops. Data may also be drawn from existing secondary research available in the form of reports, market and customer intelligence, newspaper cuttings, scientific articles, country and demographic information and any other relevant information. Initially the project scope and purpose, and later the key focus question and the "system under scrutiny" together with the horizon year will help define what types of research and information will be required.

System under scrutiny

In order to identify the system under scrutiny, we identify a key focus question. The key focus question and the selection of the horizon year go hand in hand. The determination of the key focus question influences the selection of the horizon year and *vice versa*. It serves as a boundary setting mechanism. It determines the scope of our scenarios in terms of identifying what is relevant and what is not. It acts as a filtering mechanism. There are an infinite number of cues and signals in the environment. The key focus question determines which ones we pay attention to and which ones we ignore. Alternatively, the key focus question is linked to a decision. We engage in scenarios to help us with important decisions that need to be made. The key focus question therefore ensures that the entire scenario effort is geared towards such decisions.

The following diagram is referred to as a systems holon and indicates that the system under scrutiny is made up of sub-systems and is itself embedded in a supra-system which we refer to as the environment. We may draw further boundaries that make a distinction between the transactional environment and the contextual environment.

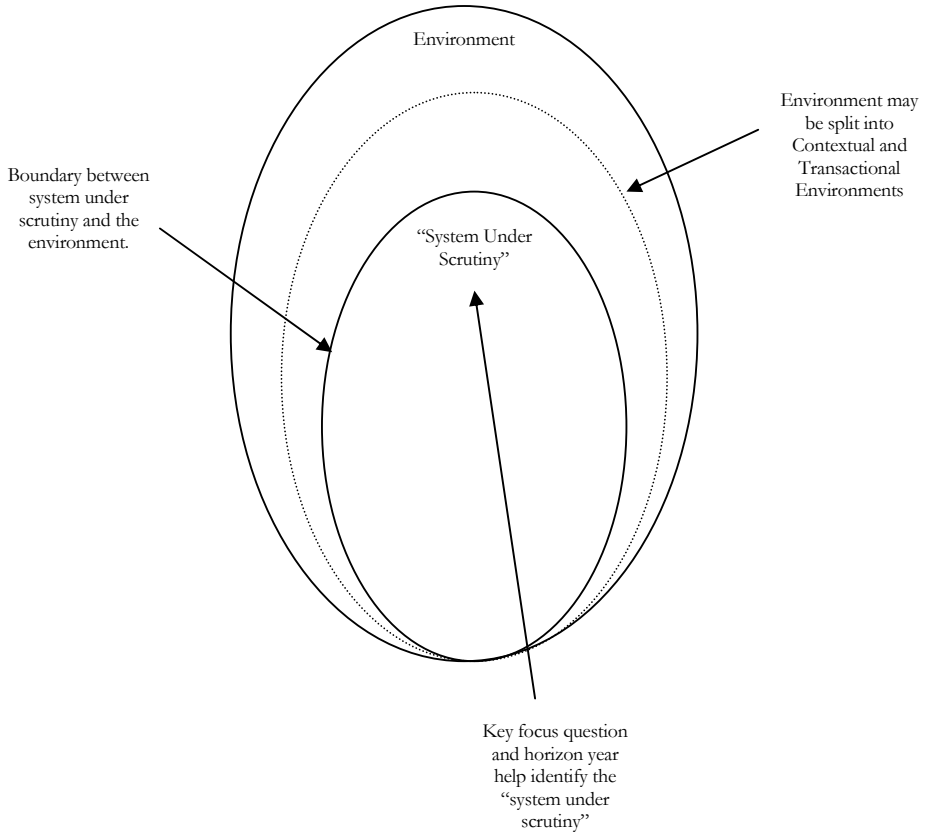

Figure A1.3 Systems holon and the system under scrutiny

The raw material of scenarios is events, trends, cues or signals from the external environment. In principle, there are an infinite number of such forces and trends. The key focus question is the arbiter of which of these we consider significant. For example, if our key focus question is related to new customer parts in the automotive sector in the Southern African Development Community (SADC), it is unlikely that geopolitical forces related to oil in the Caspian Sea will be relevant. This is an extreme example, but it serves to illustrate the point. The key focus question also serves to determine the granularity of information that we shall use. I like to think of this as a fish-net with different net sizes. If the size of the holes in the net is very small we are looking for fine granularity, whereas larger size holes imply much coarser granularity. The key focus question is subtle in the sense that it is framed as a question related to the external environment, but has

significance to the system under scrutiny. It is also important to realise that the definition of the key focus question is an interactive process done in an artistic way rather than in a mechanical way. By that I mean that there is not necessarily a right or a wrong key focus question, but rather one that is more relevant given the decision context, and the defined system under scrutiny.

Horizon year

As already noted, this is done in conjunction with the key focus question. The horizon year represents the end year of your future history. As such the scenarios will describe a trajectory from time now, t_{now}, to the horizon year, t_h. The selection of the horizon year will differ according to context, application and need. The horizon year will probably be at least 5 years into the future, if we wish to get the most benefit from the scenario process. The reason for this is quite simple. Scenarios help us deal with uncertainty. The shorter the duration to the horizon year, the more predictable is the likely future. The higher the predictability, the lower is the benefit from scenario planning, and the higher the benefit from conventional approaches such as single point forecasting. The 5 years is merely a guideline. There will be exceptions, say for example, if we are working in a sector that is characterised by higher levels of change. This would be applicable in some high tech sectors such as ICT. It would also apply in the case of high conflict zones, for example, Iraq or Zimbabwe.

Sensemaking and data consolidation

At the start of the workshop process there will already be extensive data available from the research and information gathering. There is therefore a need to engage in collective sensemaking and consolidation of such data by the scenario team. The following tools are useful for such a purpose. The Rich Picture is an integral part of soft systems methodology (SSM) (Checkland & Scholes, 1999), that is applied during the situation awareness phase. It may be detached from SSM and used in a stand-alone mode as a sensemaking device in its own right. The facilitator will ask the group to

construct a Rich Picture based on the data that is available. The participants are informed that the Rich Picture is a diagram that captures key elements of the situation and the relationships between those elements. It is a cartoon like picture using symbols, icons, speech-bubbles together with keywords, labels, captions and phrases. It includes static elements such as people (actors), buildings, machinery, institutions, policies as well as activities and dynamic processes embedded in the form of relationships between the various elements. Conflicts, disagreements and controversies are highlighted in the Rich Picture. Participants are advised to take the key focus question into account in developing the Rich Picture.

Once the Rich Picture is constructed, participants are then asked to convert this into a Rich Narrative that describes the Rich Picture. The Rich Picture and the Rich Narrative are then iteratively extended. The Rich Picture and associated Rich Narrative together constitute shared conceptual understanding and consolidation of the major issues that are important in relation to the system under scrutiny. It offers a platform around which further data including events, issues, trends and uncertainties may be elicited in a workshop setting. In some cases it may be useful to include a short data generation phase immediately after the key focus question has been defined. This may be done by breaking the participants up into a number of small teams and to run one-on-one interviews between team members and, or small focus groups. The facilitator will have to frame a short set of questions to assign to the various sub-teams, in relation to the scope of the project and the key focus question. This is a very efficient form of data gathering, especially when the timeframes do not allow a more extensive data collection prior to the first workshop, or when key information is required from busy executives. In such cases the Rich Picture and Rich Narrative helps bring the various disparate data from the various teams together in a coherent way.

Environmental analysis

Since scenarios are focused on how the world will evolve, an important element of the process is to scan and analyse the external environment. There are many approaches and tools for environmental scanning and analysis. A common approach is the PESTEL analysis. PESTEL is a mnemonic or acronym as shown below:

P – Political Developments
E – Environmental Developments
S – Societal Developments
T- Technological Developments
E – Economic Developments
L – Legislative Developments

The term, *development*, is meant to give a sense of trajectory, or change over time, as opposed to a single event. You may notice that I have used the plural notation, developments. The reason is that ideally we want to be able to identify trends, issues, signals and forces under each of the categories. This does not preclude events, but our emphasis should shift towards identifying and understanding patterns and trends. It is also important to note that some categories will generate more data than others. This will depend on the key focus question. Our scope must determine which categories hold more weight than others. We should still stretch our thinking as much as possible, to consider all of the categories.

The facilitator leads the scenario team to generate the forces and trends in a structured way. Members of the team write down statements on cards or Post-it notes. The format should be full statements, as opposed to merely phrases, dimensions or factors. A useful approach is for the facilitator to ask the team members to write down statements under each of the PESTEL categories in sequence. Since the team members are doing this individually, there may be similar statements or duplicate statements. This ought not to

matter at this stage. The duplicates will be handled later in the data treatment stage.

Once the PESTEL statements have been completed, the facilitator extends the stage of writing of statements by adding new categories or finer details of sub-categories of the PESTEL. For example, additional categories may include customer or citizen demographics, health issues such as HIV/AIDs, and educational developments. The facilitator pays particular attention to the key focus question in generating new categories. Experience shows that while team members readily generate statements easily at the start of the exercise they quickly find themselves overwhelmed and diminishing returns set in quite early. The facilitator has to be sensitive to this and find ways to motivate team members to continue writing statements. One way to do this is to set a high enough target but not one that is unrealistic. For example, it will be relatively easy for a team of 10 people to generate 200 statements in about half of an hour. A quick calculation shows that this requires an average of 2 statements per individual for each of the PESTEL and four additional categories. The upper limit is probably about 300 statements in total. It is very important to note that there are usually diminishing returns in both the quantity and *quality* of the statements. The facilitator must therefore pay particular attention to the quality of the statements, offer assistance in improving them, making suggestions, probing what the team members wish to articulate and help formulate the statements. This has to be done in a firm but gentle and non-condescending way. The facilitator will draw the team's attention to the interview transcripts, rich pictures and the rich narrative as an additional source of data for generating statements.

The cards or Post-it notes are pasted on the board in full view of the teams as the participants are generating the statements. The visual display of the statements as they are generated, acts as a stimulus for team members to generate new data, by linking what they see with their own knowledge, experience and mental models. Since the team is inter-disciplinary, one

statement by a team member generates new insights by other team members who have different perspectives and knowledge bases.

Once the full data-set has been generated the team is required to do a quality check on the data. This is a matter of first checking that the format of statements are correct, that there are no cards with just single words or factors, eliminating duplicates or separating duplicates into their own statements if the intent was different.

When the team is made up of external researchers together with organisational team members it may be useful to have them use different coloured pens, as this will enable a meta-level analysis later. This has to be done with caution as there is the danger that this could lead to splitting of sub-groups in a dysfunctional way and could lead to game playing and other forms of destructive group behaviour.

Scenario building blocks

At this stage we will have a full set of data about the external environment. There is far too much data to be readily converted into scenarios. There are a variety of data treatment methods. The application of intuitive clustering is an effective approach. The purpose of this is pattern detection and pattern making. This technique is based on the affinity diagramming process. It requires large amounts of free wall space. The process begins with the facilitator inviting one participant to take a handful of statements and randomly assigning them to different parts of the wall space. The next participant will then take a few more statements and paste them based on whether there is a relationship between the statements already up on the wall. If there is a relationship then the new statement will be placed in close proximity to the one already on the wall. If there is no relationship a new group will be established. The facilitator then invites the rest of the team to proceed in this way, and clusters of statements will begin to form. Team members are free to move a statement if they disagree with its placing and to

place it in another cluster. This usually causes some consternation among team members as a statement may be moved from one cluster and then returned to its original cluster. This should not be a cause for concern, as it soon settles down into appropriate patterns of data. At the start of the process the team members work silently without any discussion. After about 10 or 15 minutes once some clusters start emerging the facilitator invites participants to engage in discussion if they wish, as they assign the statements to different clusters. During the process, the team is free to generate new statements as necessary. If this is done they should use different coloured pens or cards to enable a meta-analysis to be done later.

Under certain circumstances the facilitator may allow the team to discard an existing statement from the clusters, but the statement should not be completely destroyed. This will also be useful in the event that a meta-analysis of the process is done. This form of pattern detection or pattern construction is an art and not a science. As such there are no hard and fast rules, but a useful guideline is to end up with between 9 and 13 clusters. The size of clusters does not need to be the same, but if a cluster is too big it may make sense to split it into smaller clusters. Similarly, if some clusters are too small they may be reduced into existing clusters or combined into a bigger cluster.

Driving forces

We now proceed to identify the driving forces in the external environment. We shall identify a driving force for each of the clusters. For the purposes here we may define a driving force as a variable that represents high explanatory power of the underlying data. There is an underlying logic that ties the data together in each cluster. This logic is often implicit as it was based on the relationships that were discerned by different members of the team, and although there was discussion, it is unlikely that there will be a shared understanding of the logic of the whole cluster. The task now facing the team is to ensure that this logic is explicit and shared amongst members of the team. The facilitator will ask the team to treat each cluster of data in

turn. The participants are to engage in discussion to try and identify the relationships amongst the data within the cluster. This is now a matter of understanding the pattern of relationships in the data for a given cluster. Once again, there is no restriction in generating new data or moving some data between clusters to fit better with the overall logic. Similar to defining headers in an affinity diagram, participants are asked to label each cluster by identifying the driving force. The driving force must be framed as a variable, with polar values. The implication of framing it as a variable is that it can have different values. The notion of polar values is to capture extremes, which means that we are able to cover the full envelop of uncertainty (Ralston & Wilson, 2006) when addressing the whole set of driving forces. Examples of polar values are High-Low, Positive-Negative, Stable-Unstable, Cohesive-Fragmented, and Implicit-Explicit.

The driving forces together with their polar values are summarised in a Driving Forces table as illustrated below.

Driving Forces	**Values**	
1. Service Capacity Provision	Inadequate	Adequate
2. Taxes	High	Low
3. Supply of water	Inadequate	Adequate
4. Community Management of HIV/AIDS	High Impact	Low Impact
5. Stakeholder perceptions	Negative	Positive
6. Local Government Leadership	Ineffective	Effective
7. Technical Skills	Unskilled	Skilled
8. Level of entrepreneurial Skills	Low	High
9. Land use management	Ineffective	Effective

Table A1.1 Driving Forces Table

Axes of Uncertainty

Now that we have the driving forces, we proceed to rank them using the Axes of Uncertainty. Each of the driving forces is written up on Post-it notes or cards. The facilitator draws up the set of axes on a whiteboard or flipchart. The participants are asked to rank the driving forces as follows. They are asked to assess the driving force firstly in relation to the impact it has on the key focus question, and then in terms of how unpredictable the driving force is. Once the first driving force has been placed on the board, the next one is taken and is ranked in relation to the first one on the board in terms of its relative impact and uncertainty. It is important to note that this is a relative ranking and not absolute ranking. There are no absolute values on each of the axes on the Axes of Uncertainty.

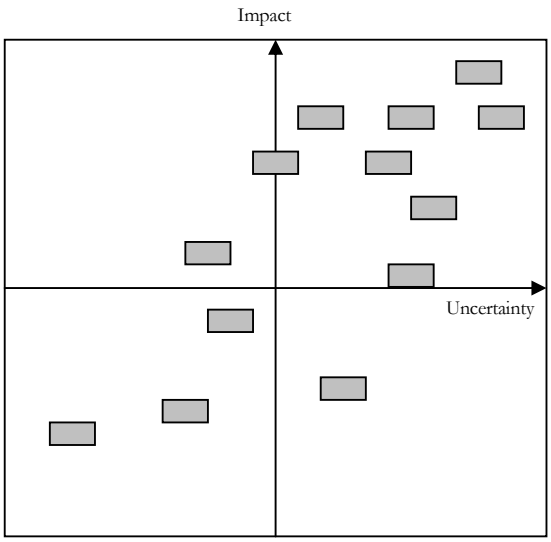

Figure A1.4 Axes of Uncertainty populated with Driving Forces

Once the driving forces have been arraigned on the Axes of Uncertainty the team needs to select the two driving forces with the highest impact and uncertainty. The way that this is done is to redraw the axes such that a smaller subset of driving forces is in the High Impact-High Uncertainty quadrant. The team then engages in a discussion to select the two driving forces. There are a number of important considerations here. Firstly, the driving forces that are selected must be orthogonal (van der Heijden, 1996). By this it is meant that they should be mutually exclusive and have no correlation. If the driving forces selected are not orthogonal, we are effectively reducing the uncertainty to a single dimension. Secondly, the selection of the driving forces should not be done mechanistically. It needs to be done in the context of the key focus question and there should be licence to select a driving force that is not necessarily the highest ranked.

Scenario logics and matrix

By crossing the two driving forces selected in the last step, we automatically generate the scenario logics and matrix. Each of the quadrants in the matrix now represents a different future. Figure A1.5 depicts the scenario logics and

matrix by crossing two driving forces, Stakeholder Perceptions and Land Use Management.

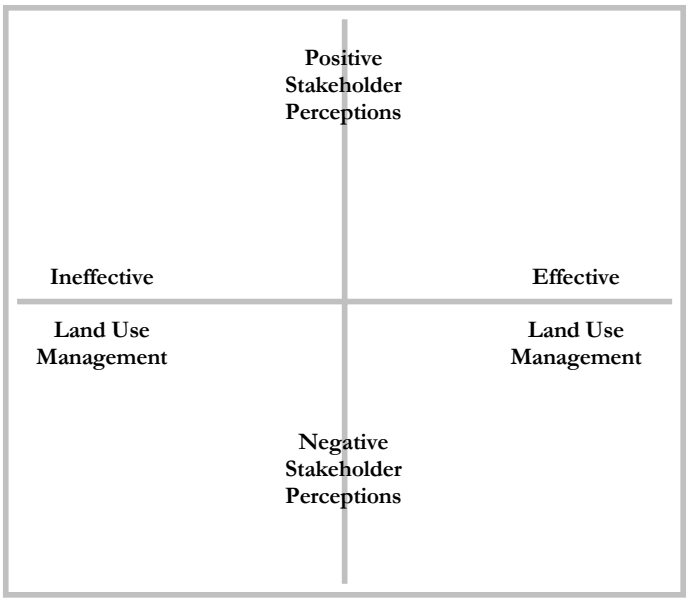

Figure A1.5 Scenario Logics and Matrix

Scenario plots

We have now got the boundaries of four distinct futures, the extremes of which represent the envelope of uncertainty. In this step we apply systems thinking tools to help articulate the plots and development of the trajectory of each of the scenarios.

The team is broken up into four groups each of which will work with one of the scenarios. The task is to identify a handful of important variables and the cause-effect relationships between them for each quadrant. The two driving forces from the Scenarios Logics and Matrix will automatically be two of the variables in the set. The identification of additional variables will be based on the other driving forces as well as studying the underlying data in each of the data clusters constructed earlier in the process. The team will hypothesise the behaviour over time (BOT) of each of the important variables until the

horizon year. This is illustrated for a few variables in Figure A1.6 below. It is important to begin the BOT graphs with the time axes beginning at some time in the past, which represents historical data that is known.

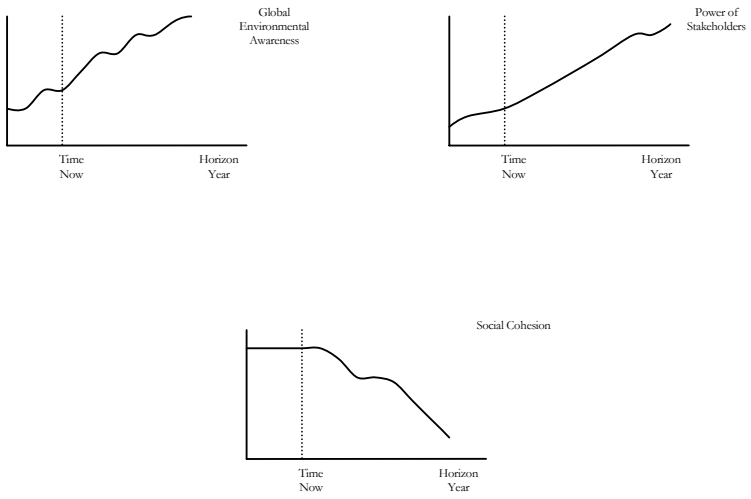

Figure A1.6 Behaviour over Time Graphs for Key Variables and Drivers

The team will then proceed to develop the causal structure between variables that give rise to the BOT graphs. It is important to note that this is an iterative process, where the teams will alternate between the BOT graphs and the cause-effect diagrams. An example of a cause-effect diagram is given in Figure A1.7 below.

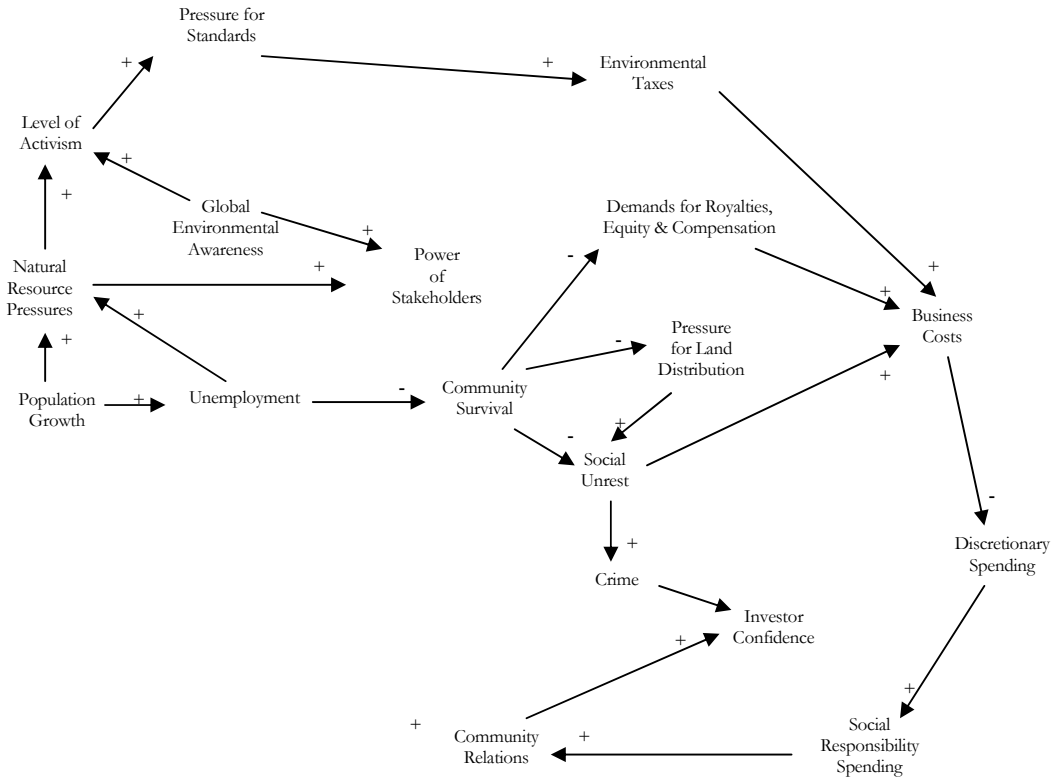

Figure A1.7 Cause–Effect Diagram

When the exercise is complete the team will have generated a skeleton of the main plot merely by "reading" the cause-effect diagram. This is illustrated in the Box A1.1 below.

Global environmental awareness leads to an increased level of activism and increasing power of global, national and local stakeholders. This is compounded by increasing in-migration, population growth that increases pressure on the natural resources, which in turn fuels the levels of environmental activism. The population growth leads to higher levels of unemployment and hence community survival in the surrounding areas are put at risk. This contributes to high levels of crime and social unrest. The costs of doing business increases as a result of crime, increased security requirements, hijackings and general social fragmentation in the local area. Business has less discretionary spending available putting pressure on training and development as well as social responsibility spending, which exacerbates the already poor community relations. This results in a vicious cycle with further social unrest. As community survival is at risk, pressure is brought to bear on government for alleviation and demands for royalties, compensation and equity participation in business. There is also pressure for land distribution, shifting of mining rights and new community structures which are likely to lead to further bleeding of company profits.

Box A1.1 Skeletal Plot from reading the Cause-Effect Diagram

Although it is possible to generate the scenario narratives without engaging in this step, there are a number of benefits of doing it. It adds rigour by automatically building in internal consistency through the cause-effect relationships, helps stay rooted to the underlying data, and prevents the development of scenarios that are "fairy tales." It is therefore a crucial step in ensuring that the scenarios are credible for the clients.

Scenario narratives

We may now proceed to generating the scenario narratives. The benefit of narrative is that it enables drawing in disparate sets of complex data in a coherent way and offers a framework for judgment. It enables us to incorporate non-linear relationships between variables in a system without the need to formulate complex mathematic equations, which in themselves would be intractable and unsolvable.

The scenario team will construct a narrative offering a rich description and explanation of how the world has evolved from time now to the horizon year for a given future. It enables the reader to understand the trajectory of how the future history has come to be what it is. The facilitator will ask the team to begin by reading the main plot from their cause-effect diagram. Thereafter the team will embellish this plot into a rich story. An effective way to do this is for the team to draw a timeline to the horizon year. Thereafter they will identify key events or milestones that are plausible and consistent with the main plot. These will be depicted on the timeline. The story is then fleshed out further with these events, what led up to them, and what the consequences of these events were. The development of the narrative is a gestalt whole-pattern activity that draws on the BOT graphs, the scenario matrix and logics, the driving forces table and the underlying data in each of the data clusters. For example, by inspecting the BOT graphs we could frame events that help explain inflection points or discontinuities.

Although the two driving forces in the scenario matrix are important elements that frame the scenario, the other driving forces need to be drawn into the scenarios as well. Some of these will already feature as they have been incorporated in the cause-effect diagram and are therefore part of the main plot. Some of the other driving forces need to be incorporated into the narrative, and they may be used as the basis for sub-plots that relate to the main plot.

Since the scenario is a story, it needs to have elements that are critical components of good story telling and narrative. Schwartz (1998, p. 327) offers useful advice in this regard:

> "Every good plot has characters. In scenarios characters are not persons, but 'larger than life' – institutions like corporations, government bodies or even entire industries, ecological forces like global or regional weather, mass entities like populations of eligible voters or high school age males, or societal trends like nationalism or religious movements."
>
> (Schwartz, 1998)

We note from this that we could actually cast some of the driving forces that do not feature in the scenario matrix as important characters in the story that represents sub-plots. It is useful to consider natural, physical and social laws when elaborating the stories. An example is how the economic laws of supply and demand impel certain outcomes. This contributes to making the scenarios realistic.

> "A well-told story has the same flow as reality itself, and we can (intuitively) see how its different parts hang together and form the whole."
>
> (Nordfors, 2007, p. 203)

Nordfors suggests that it is important to ground the scenario in narratives of the present. He cites the work of Denning (2005) and the use of "springboard stories" to achieve this. These have the advantage of simplicity, focusing on one place with one protagonist. A springboard story is true, the dates are provided and facts may be checked (Nordfors, 2007). The scenario narrative

works with the springboard story and then elaborates that into a rich narrative giving us a future history. Another benefit of the springboard story is that it helps "create pockets of future in the present" (Nordfors, 2007).

There are series of standard plots that we could draw on in terms of constructing scenario narratives. These include (Schwartz, 1998):

- Winners and Losers
- Challenge and Response
- Evolution
- Revolution
- Cycles
- Infinite possibilities

Another possibility is to draw on messages embedded in popular fairy tales, parables, and other similar messages from the wisdom literature. The facilitator may also introduce participants to the techniques of free writing and generative writing (R. Murray, 2002) to enable them to begin writing up their narratives.

When using the scenario matrix and logics, there is one important caveat to bear in mind. Given that the driving forces are framed as polar values, there is the tendency to interpret the matrix in a way that there is one very positive quadrant and an extremely negative quadrant. If applied mechanistically this could lead to one utopian and one doomsday (dystopian) scenario with two middle of the road or mediocre scenarios. This must be avoided, with one exception to be discussed later. Another problem is that the diagonally opposite quadrants will tend to be mirror images of each other, and the adjacent quadrants mirror each other as opposites on one key dimension. As a set, the scenarios must be balanced, and individually, each scenario must have good and bad features. The scenarios must also represent distinctly different worlds. In order to overcome the problems highlighted above, the team will draw on different sub-plots and use the other driving forces and underlying data in creative ways.

The team must be encouraged to be as creative as possible in constructing the narratives. Once the narratives are completed and validated they will be supported by quantitative data, graphs, drawings, pictures, photographs and cartoons. One may think of a feature article in a high quality magazine to get a sense of how this supporting information may be used appropriately.

The facilitator will ask each team to represent each of the scenarios in a different way. Some examples include:

- Speech given by head of state or some important body
- Newspaper article
- Report on a conference related to the key focus question
- Investigative journalism
- Interview

The scenario narratives must be vivid, evoke lots of imagery and must be compelling and engaging. They must be assigned highly evocative names. The purpose of this is psychological. Once the reader has read the scenario and associates the name with the scenario, the scenario name ought to conjure up the scenario in the mind's eye of the recipient. It therefore represents a gestalt of the whole scenario.

Scenario testing and validation

One the scenarios have been developed they need to be validated. This is a process of checking for plausibility and internal consistency. This should be done by first reviewing each scenario on its own. This should be followed by assessing all the scenarios together as a set. One of the important checks is to conduct an Actor test for plausibility. The assessment considers that given how the future unfolds in the scenario, is there an actor or a set of actors who have the power to react and respond in a way that invalidates the scenario? If that is the case, the scenario has to be modified and refined accordingly. We can see from this example that scenario construction and validation are iterative steps.

Implementation

The complete set of validated scenarios now provides the envelope of uncertainty. The organisation has to consider the implications if each of the scenarios were to occur, and what its response ought to be. There are numerous possible actions, decisions, strategies and next steps that would need to be implemented. These will differ depending on the purpose of undertaking the project.

If the primary aim of the project is for strategy-making, then it is a matter of identifying strategic options and adapting them such that the strategy is robust across all scenarios. Strategy-based scenario brings together thinking in the World of Business and thinking in the World of Management (Sharpe & van der Heijden, 2007). Thinking in the World of Business is encapsulated in the scenarios which circumscribes the environmental uncertainty. One of the ways that thinking in the World of Management is encapsulated is by way of the Business Idea (van der Heijden, 1996). The Business Idea is a self-reinforcing positive feedback loop that represents the organisations "success engine" made up of its distinctive competencies which underlie its competitive advantage. Due to changes in the World of Business, the Business Idea erodes over time and may no longer be robust. Therefore, the current Business Idea is identified and then tested against the various scenarios, via a process referred to as wind-tunnelling. The focus is on how the Business Idea needs to be adapted or recreated such that it will be robust across all scenarios. This process gives rise to the strategic options that are to be pursued. This is well-covered in van der Heijden (2005). While the use of the Business Idea and wind-tunnelling against the scenarios is an effective form of strategy making, many other approaches to strategy making may equally be deployed subject to testing the strategy against the scenarios (Fink, Siebe, & Kuhle, 2004).

Once the scenarios are developed there needs to be a communication initiative where the scenarios are shared widely across the organisation.

Embedding the capability and strategic conversation

One of the benefits of scenario work is that it offers a framework for ongoing strategic conversation within an organisation. Although a scenario project may be a once-off initiative for strategy-making or policy formulation, ideally scenario work ought to become an embedded capability within an organisation, rather than just an "episodic occurrence" (Voros, 2003). It is therefore important for a transfer of skills and capability during *Futurescope* from the facilitators to participants within the client organisation itself. Since it is a transparent process it will be relatively easy to achieve such an outcome. If the first set of scenarios developed are at a relatively macro level within organisational terms, it is also conceivable that different sub-systems within the organisation could then create lower level scenarios that are consistent with the first set that have more relevance for those particular sub-systems. In this way we have interlocking sets of scenarios at different levels of hierarchy and granularity that then serve as the bounding mechanism for strategic conversation.

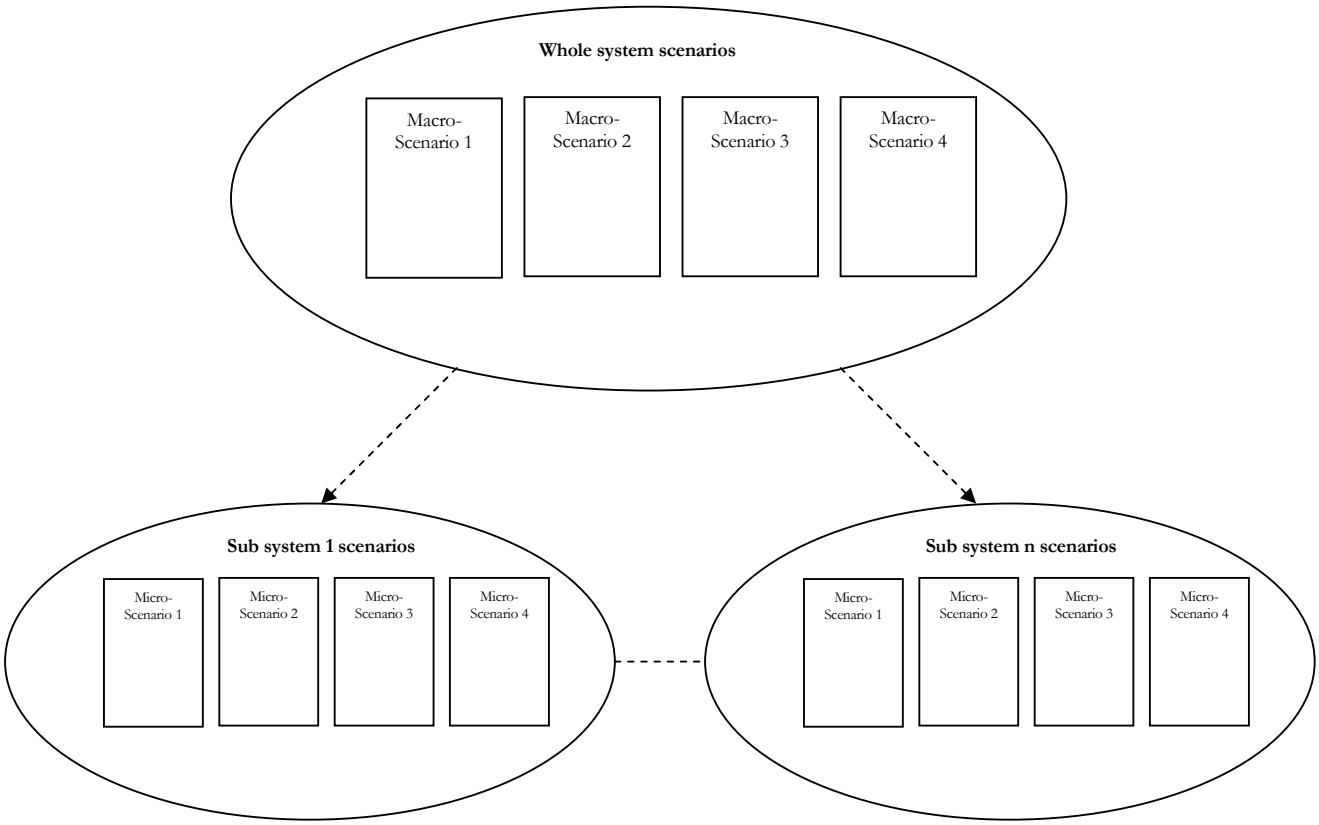

Figure A1.8 Interlocking set of macro and micro scenarios to stimulate strategic conversation

This may be considered as a form of large scale action research as the organisational members engage in a reflexive loop of thinking and acting where the scenarios act as a mediating device in this reflexive loop. They continuously test their actions against the scenarios, and adapt their actions as a result of the learning.

Discussion

The preceding section presented the *Futurescope* approach. This is but one possible approach amongst many. Numerous authors offer suggestions on how to engage in scenario work. Some examples are given below:

- O'Brien, Meadows, & Murtland (2007)
- Ralston & Wilson (2006)
- van der Heijden (2005)
- Lindgren & Banhold (2003)
- van der Heijden, Bradfield, Burt, Cairns, & Wright (2002)
- Ringland (2002)
- Schoemaker (1998)
- Schwartz (1998)
- van der Heijden (1996)
- Schoemaker (1993)

Although each of the proposed approaches differs in the number of steps to be followed, in the application of specific methods and techniques in each of the steps, and in their particulars, they are similar at a general level. They all look at the environmental trends, identify predetermined elements and key uncertainties, and generate scenarios in the form of narratives. *Futurescope* is no different in this sense, and I do not claim any special status for it. It is worthwhile to make some comparisons. Although several of the approaches highlighted above utilise some level of systems diagramming as one of the methods, not all of them do. For example, van der Heijden, Bradfield, Burt, Cairns, & Wright (2002) recommend the use of cause-effect diagrams. In their scheme, the scenarios are developed first, and then they attempt to apply systems diagramming to capture the structure of the scenarios. By contrast, I propose that systems diagramming is used prior to the construction of the scenarios. My rationale is that in this way we automatically build in consistency and it is a way to prefigure the scenario validation which comes later. Another difference is that whereas I begin with events and trends in the contextual environment, and then elicit relationships in the form of driving

forces with polar values, they begin with identifying driving forces with polar values.

One area that requires further interrogation is the use of the so called 2x2 box. This is a very common method to frame the scenarios. One of the reasons is that it is easy to grasp conceptually, especially for the client organisation, and those who wish to conduct scenario work for the first time. I have therefore also applied the 2x2 box in the discussion of *Futurescope*. It is important to note, however, that there are more sophisticated approaches that are less constraining and which may be more appropriate under some circumstances. This is especially the case when there is no clear logic to select the two driving forces with the highest ranking in the Axes of Uncertainty. Alternatively we may want to address a series of driving forces in a more flexible way. In such cases, we may use a more inductive way to construct the scenarios. We move straight into the rest of the steps of Futurescope without creating the scenario matrix and logics. In such a case the logics of the scenario are not bound *a priori* but emerges through an iterative an inductive process. This allows more flexibility and scope for creativity, and enables richer sets of scenarios. This is consistent with the complexity theory concepts of emergence and self-organisation.

It has been posited that it is important to highlight the distinctions between scenarios when engaging in wind-tunnelling. The use of narratives while crucial can cause cognitive overload during this process. Hodgson & Sharpe (2007) suggest that drawing out the systemic structure by way of causal loop diagrams can help overcome this problem. This is similar to what is done in *Futurescope* except, the focus here is on the dominant feedback loops. They provide an example of a set of simple reinforcing and balancing feedback loops. This has merit if such dominant feedback loops can be identified. By extending their argument, we could also adopt the full set of system archetypes (Senge, 2006), as the basis of the systemic structure of each

"scenario as system". The systems archetype then becomes the basis of an archetypal story.

One of the benefits of using the cause-effect diagrams and BOT graphs as in *Futurescope* whether in the form of systems archetypes or more specific causal structures is that we may move onto a next phase after the construction of the narratives. Each of the scenarios is a hypothesis about how the future may evolve. A set of system dynamics (SD) models may be constructed to represent each of the scenarios. The qualitative mapping is the first step in this process. In this way the hypotheses of the future may be tested by way of the SD model. In addition the SD model may be converted into learning laboratories and micro-worlds (Morecroft & Sterman, 1994) that enable the scenarios to be widely communicated, and experimented with. This is another means to facilitate strategic conversation and organisational learning.

Earlier, I indicated that each of the scenarios ought to have both good and bad features, and that we should avoid a utopian and a dystopian scenario. There may be circumstances when a dystopian scenario may be acceptable. This is in the event that the "official future" is very entrenched and there is a need for a kind of shock-therapy to jolt participants to consider other possibilities.

Ramirez & van der Heijden (2007) consider the changing boundary between the contextual and the transactional environments. They focus on extending the transactional environment into the contextual environment i.e. staking out new space in the contextual environment and colonizing it. This may be a good seed for innovation. However, they seem to have missed the value of more systemic boundary analysis.

Heathfield (2007) refers to the use of a future map as a way to build a comprehensive strategic future management system. The issue is how to link in the scenarios with the everyday management system. One of the problems with scenarios and indeed other strategy approaches is how to keep the

attention of executives and other managers beyond the work done in the scenario workshops. In Hodgson's (2007) terms the question is how to get decision-makers to "move" based on the scenarios, especially if they were not involved in the construction? In one sense, this is the same question as asking how to ensure that organisations maintain a strategic conversation. This is a question that does require further research.

Nordfors (2007) suggests that scenario work should draw on methods used by historians, for example, the method of colligation. This is a process of checking what binds together, or how things fit together, whereas cause-effect analysis focuses on what causes something. Here we look at how something fits in. This may be particularly useful in drawing the story around unfolding events as well as in determining sub-plots. A question that needs further research is to what extent the application of cause-effect diagramming as a way of representing systemic structure is consistent and compatible with methods such as colligation.

I indicated in Chapter 4 that scenarios may be considered as an interpretive systems approach. It is also possible to apply it as a postmodern systems approach in relation to the SOSM. Although scenario practice evolved from modernism and many of the techniques have not changed, there is merit in re-interpreting it in relation to the postmodern turn. Every set of scenarios by definition involves multiple narratives that are structurally and interpretively different. Although not necessarily the case, this lends itself to shifting way from grand, totalising narratives that are dominant in what has been termed in scenario work as "the official future." We may consider how the different scenarios represent small narratives that embody multiple realities. Scenarios are fundamentally participatory processes. Both of these are consonant with a postmodern approach. There is still the danger that the organisational elite who are often the clients in scenario projects use scenario work and its outcomes to continue power dominance in organisational settings, especially if there is a grand totalising ideology that circumscribes the overall scenario

set. For example, in commercial settings the profit motive still dominates at the expense of other organisational objectives, as it is a prevalent across the population of business institutions and hence permeates individual businesses. There is little in the form of emancipation and liberatory potential if scenario work is conducted in such a milieu, in which it often is.

As we have seen there are multiple approaches to conducting scenario work, and there is not necessarily one best way. The methods range from fairly simple, structured ones, to more open, flexible and creative modes. While the former have been well tried and tested, there are exciting new possibilities in the latter. This is the in the realm of aesthetics, further work on narrative and storytelling (Boje, 2001; Rasmussen, 2005), and drawing on a wider set of methods and approaches from the social sciences and the humanities in particular.

Conclusion

In this Appendix, which draws on Chapter 4 of this thesis, I presented *Futurescope* as an approach to conduct scenario work. This is designed to enable managers and practitioners to readily apply scenarios in their work. I engaged in a discussion of *Futurescope* in relation to other approaches to scenario planning, and highlighted a number of areas that would benefit from further work.

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