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# Developing and testing a new framework for strategic alignment

Hui-Ling Wang

*University of Wollongong*

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**UNIVERSITY OF  
WOLLONGONG**



**School of Management, Operations and Marketing**

**Faculty of Business**

# **Developing and Testing a New Framework for Strategic Alignment**

**Hui-Ling Wang**

**"This thesis is presented as part of the requirements for the award of the  
Degree of the Doctor of Philosophy from University of Wollongong"**

**March 2014**

## **DECLARATION**

I, Hui-Ling Wang, declare that this thesis, submitted in partial fulfilment of the requirements for the award of Doctor of Philosophy, in the School of Management, Operations and Marketing, Faculty of Business, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

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Hui-Ling Wang

30 March 2014

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My two young children endured many years of thesis writing, and piles of paper strewn across the home. But they made tea for me, hugged me and filled my heart with joy.

## ABSTRACT

The notion of strategic alignment has assumed considerable importance in the discourse on business strategy. Strategic alignment is commonly acknowledged as a key determinant of business performance. Given this, a precise formulation of the conceptual underpinnings of causal analyses of business performance is essential, yet the discourse on strategic alignment tends to be *ad hoc*, involving abstract (and sometimes vague) formulations of the problem.

This research addresses a precise formulation - *the problem of determining whether a given set of strategies is aligned*. This research addresses a critical gap in the literature on strategic alignment – *the absence of crisp, actionable definitions of alignment*. This dissertation develops and validates a conceptual framework for strategic alignment. This framework could be leveraged for *prediction* (identifying situations where strategies might be misaligned), *explanation* (providing an account of why strategic decisions led to specific outcomes) and *achieving* alignment (appropriately modifying a set of strategies in situations where they might be misaligned).

This dissertation contributes to scholarship of strategy and strategic alignment in several important ways. It systematizes a diversity of distinct conceptions of strategy by offering a simple, yet general, scheme for documenting strategies. It also systematizes a diversity of alternative conceptions of strategic alignment, by offering a uniform formulation of the problem as one of alignment between a set of strategies. While this formulation does not subsume all of the other conceptions that exist in the literature, it is general enough to subsume several. It develops a specific definition of alignment between a set of strategies. It offers a mechanism for using this definition to analyse whether a set of strategies are aligned. Finally, it validates the scheme for documenting strategies (the vocabulary), the definition of alignment and the mechanism for analysing alignment using a detailed case study.

From the perspective of practitioners (such as managers charged with formulating and implementing strategies, or consultants) a key challenge is devising a standard means of documenting and describing strategies, both for the purposes of effectively

communicating these to key stakeholders and also for enabling the analysis of alignment between strategies. The first *contribution to practice* of this dissertation is in offering a simple, yet practical, vocabulary for documenting strategies. Another challenge for practitioners is being able to analyse alignment using a structured and principled mechanism, as opposed to leveraging experience or largely tacit knowledge, as is often currently the case. A structured alignment analysis technique also makes it easy for practitioners to explain their analysis to other stakeholders. The second contribution to practice of this research is to make such a technique available to practitioners. Identifying what needs to be done to “fix” misalignment is another challenge for practitioners (who, once again, typically take recourse to experience and tacit knowledge). The third contribution to practice of this research is to support the process of identifying strategic “fixes” – these naturally emerge from the vocabulary for alignment analysis presented here.



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## LIST OF ACRONYMS

|        |  |
|--------|--|
| NBCCL  | Bharat Coking Coal Limited                                       |
| BCE    | Before Common Era  |
| BIFR   | Board for Industrial and Financial Reconstruction                |
| BSC    | Balanced Score Card  |
| CCL    | Central Coalfields Limited                                       |
| CIO    | Chief Information Officer  |
| CIL    | Coal India Ltd Limited   |
| CMAL   | Coal Mines Authority Limited                                     |
| CMPDIL | Central Mine Planning and Design Institute Limited               |
| DVC    | Damodar Valley Corporation                                       |
| EC     | Electronic Commerce  |
| ECL    | Eastern Coalfields Limited                                       |
| GRAAL  | Guidelines Regarding Architecture Alignment                      |
| HR     | Human Resource   |
| HRM    | Human Resource Management  |
| IISCO  | Indian Iron and Steel Company Limited                            |
| IEA    | International Energy Agency                                      |
| IO     | Industrial Organization  |
| IPO    | Initial Public Offer   |
| IS     | Information System   |
| IT     | Information Technology   |
| KPI    | key Performance Indicator  |
| LCAG   | Learned, Christensen, Andrews and Guth                           |
| LHDs   | Load Haul Dumpers  |
| Ltd    | Limited  |
| MBV    | Market-based View  |
| MCL    | Mahanadi Coalfields Limited                                      |
| MIS    | Management Information System                                    |
| MIT    | Massachusetts Institute of Technology                            |
| NCL    | Northern Coalfields Limited                                      |
| NECL   | North-Eastern Coalfields Limited                                 |
| NCDC   | National Coal Development Corporation                            |
| PESTEL | Political, Economic, Social, Technological, Ecological and Legal |
| PSU    | Public Sector Unit   |
| R&D    | Research and Development   |
| RBV    | Resource-based View  |
| ROI    | Return on Investment   |
| RQ     | Research Question  |
| SAIL   | Steel Authority of India Limited                                 |
| SAM    | Strategic Alignment Model  |
| SAMM   | Strategic Alignment Maturity Model                               |
| SBU    | Strategic Business Unit  |
| SCCL   | Singareni Collieries Company Limited                             |
| SCP    | Structure Conduct Performance                                    |
| SDLs   | Side-Discharge Loaders   |
| SEB    | State Electricity Board  |
| SECL   | South Eastern Coalfields Limited                                 |

|        |  |
|--------|--|
| STRIPS | STanford Research Institute Problem Solver       |
| StrOBE | Strategic Orientation of Business Enterprise     |
| StrOIS | Strategic Orientation of Information Systems     |
| SWOT   | Strengths, Weaknesses, Opportunities and Threats |
| TISCO  | Tata Iron and Steel Company Limited              |
| TQM    | Total Quality Management                         |
| WCL    | Western Coalfields Limited                       |

## **LIST OF PUBLICATION (ACADEMIC PAPERS BY RESEARCHER RELATED TO THESIS)**

The following academic papers were prepared during this project, and are related to aspects of the thesis. They were developed in collaboration with academic staff, but the researcher was the principal author of each paper. The papers were published in conference Proceedings, presented at conferences, or submitted to journals or conferences.

1. Wang, H. L. (2000), "A framework to support strategic decision-making in business-to-business electronic commerce", *extended abstract at the 11th Australasian Conference on Information Systems (ACIS) Doctoral Consortium*, Brisbane, Australia.
2. Wang, H. L. (2001), "Supporting strategic decision-making in business-to-business electronic commerce: A research-in-progress report", accepted for publication in the *Proceedings of the 2001 Information Resources Management Association (IRMA) International Conference*, Toronto, Canada.
3. Wang, H. L. (2004), "A framework to support and understand strategic decision-making in business-to-business electronic commerce", accepted for publication in the *Proceedings of the International Workshop on Business and Information (BAI 2004)*, Taipei, Taiwan.
4. Wang, H. L. (2004), "New paradigm of strategy in business-to-business electronic commerce", accepted for Publication in *the Proceedings of the eBiz World Conference 2004*, Seoul, South Korea.
5. Wang, H. L. (2004), "The strategic underpinnings of success in B2B e-commerce (extended abstract), accepted for publication in the *Proceedings of the 5<sup>th</sup> Association for Pacific Rim Universities Doctoral Students Conference*, Sydney, Australia.

6. Wang, H. L. (2004), "Strategic thinking in B2B e-commerce: The role of intraorganizational units of analysis", in the *Proceedings of the 18th Annual Conference of the Australian and New Zealand Academy of Management (ANZAM 2004)*, Dunedin, New Zealand.
7. Wang, H. L. and Ghose, A. K. (2005), "The strategic underpinnings of success in B2B e-commerce" (extended abstract), accepted for publication in the *Proceedings of the 5th Association for Pacific Rim Universities Doctoral Students Conference*, Sydney, Australia.
8. Wang, H. L. and Ghose, A. K. (2006), "On the foundations of strategic alignment", in the *Proceedings of the 20<sup>th</sup> Annual Conference of the Australia and New Zealand Academy of Management Conference (ANZAM 2006)*, Rockhampton, Australia.
9. Wang, H. L. (2008), "Dynamic re-alignment: understanding organizational response to changing business contexts using a conceptual framework for strategic alignment", in the *Proceedings of the 22nd Annual Conference of the Australian and New Zealand Academy of Management (ANZAM 2008)*, Auckland, New Zealand.
10. Wang, H.L. and Ghose, A. K. (2011), "Green Strategic Alignment –Aligning Business Strategies with Sustainability Objectives", in Unhelkar, B (ed.), *Handbook of Research on Green ICT: Technology, Business and Social Perspectives*, New York: Information Science Reference, pp.29-41.

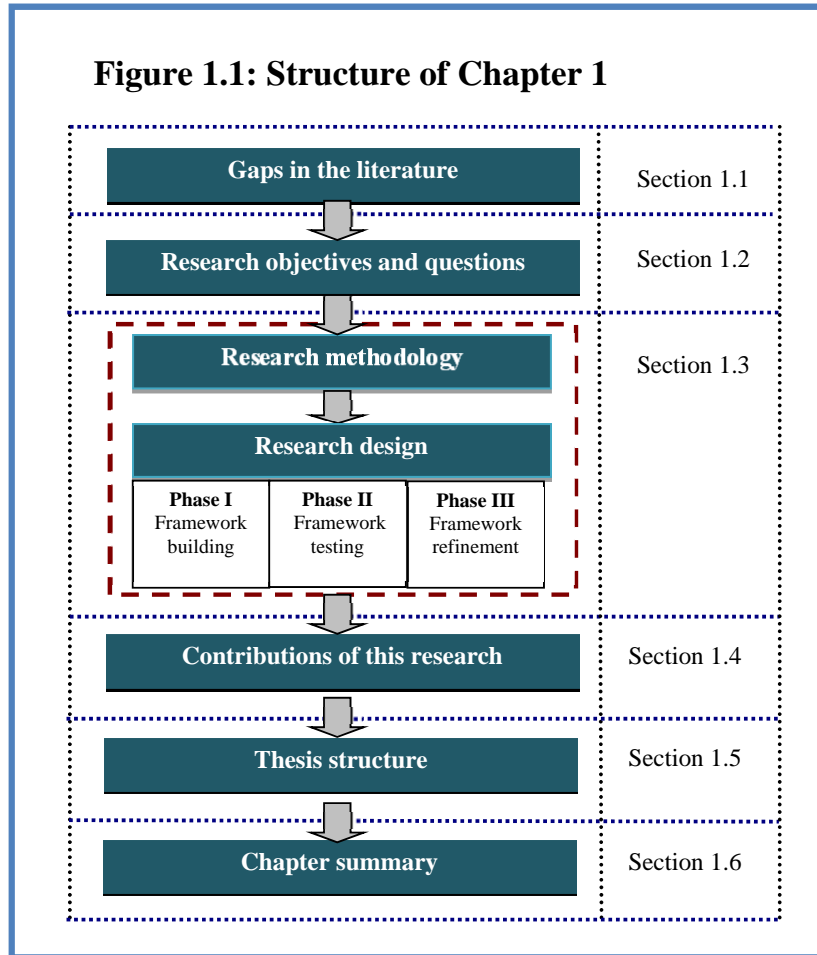
# CHAPTER 1: INTRODUCTION

With increased globalization and the concomitant increase in competitive pressures, businesses face the need, as never before, to be efficient, cost-effective and purposive. That latter need to be purposive is often referred to as being *strategic*, and involves ensuring that the various aspects of the business do not work at cross-purposes, but “pull together” to achieve the intended outcomes (as formulated by senior management). In simple terms, this is the challenge of *strategic alignment*. The notion of strategic alignment has assumed considerable importance in the discourse on business strategy. Strategic alignment is sometimes used to provide the conceptual underpinnings of causal analyses of business performance, yet the discourse on alignment is almost always ad hoc.

While the literature (reviewed in Chapters 2 and 3) addresses, for the most part, extremely abstract (and sometimes vague) formulations of the strategic alignment problem, this research addresses a precise formulation - *the problem of determining whether a given set of strategies is aligned*. This research addresses a critical gap in the literature on strategic alignment – *the absence of crisp, actionable definitions of alignment*. The aim of this study is to develop and validate a conceptual framework for strategic alignment. This framework could be leveraged for *prediction* (identifying situations where strategies might be misaligned), *explanation* (providing an account of why strategic decisions led to specific outcomes) and *achieving alignment* (appropriately modifying a set of strategies in situations where they might be misaligned).

This chapter provides an overview of this dissertation. It briefly reviews the existing literature on alignment in its various forms (a more detailed literature review is provided in Chapter 2). It uses this literature review to identify a critical gap in the literature. It presents the research questions to be addressed and the research methods used. It then summarizes the key contributions of this thesis, and describes its. The structure of Chapter 1 is shown in Figure 1.1.

**Figure 1.1: Structure of Chapter 1**



## 1.1 Gaps in the literature

There is widespread acknowledgement of the importance of strategic alignment (Baets, 1996; Henderson and Venkatraman, 1993; MacDonald, 1991; Parker *et al*, 1988; Powell, 1993). There are two critical problems with the existing literature on strategic alignment.

First, *the literature suffers from a lack of systematization*. The general problem of alignment has been formulated in a variety of different ways. In some instances, alignment is viewed as a relation between a strategy and a firm's resource base (sometimes described as *fit*) and in some others, alignment is used to describe the relation between a strategy and a business context. A wide variety of near-

synonymous notions have also been discussed in the literature, including *matching*, *linkage*, *congruence*, *co-evolution*, *co-variation*, *integration*, *balance*, *bridge* and *fusion*. A large portion of the literature focuses exclusively on IS alignment, i.e., on the problem of aligning the IS strategies of a firm with its business strategies. While the question of business-IS alignment is important to the information systems community, it is only one of many critical questions from the perspective of the management community. Thus the alignment between the corporate strategy, the supply chain/procurement strategy, HR strategy or marketing strategy is arguably equally deserving of attention. This latter point is especially important since it also goes to the heart of the debate on what constitutes strategy. While some, such as Porter (1985) who offered a limited repertoire of strategies which all had to do with the *market positioning* of the firm, have argued that strategy is necessarily abstract, high-level and long-term in temporal scope, others have argued that strategies can also be lower-level, shorter-term in temporal scope and address specific functional areas such as the ones listed above. The multiple conflicting vocabularies/frameworks can pose a problem by impeding discussion and deliberation over strategies and strategic alignment.

*Second, the literature offers little by way of conceptual underpinnings or methodological support for the **analysis** of alignment.* The bulk of the literature on strategic alignment (including its many variations and manifestations, referred to above, and discussed in detail later) offers a range of alternative conceptualizations of the notion of alignment, but stops short of extending these to obtain *actionable guidelines* on how to look at a given organizational setting and determine whether the strategies in question are aligned. One might argue, then, that the literature on strategic alignment is replete with contributions to the *theory* of strategic alignment, but deficient in offering guidelines to inform the *practice* of strategic alignment. There is a large body of literature offering domain-specific empirical insights, based on assessments of managerial perception, correlating business performance with specific strategic initiatives, but even this literature does not offer *methodological support* to the strategy *practitioner*. The practice of strategic alignment involves senior managers within organizations, as well as management consultants and other providers of advisory services. For such practitioners, the key questions to answer

include the following: *Are our strategies aligned? What must we do if they are not?* The existing literature arguably does offer some guidance, but at a level so abstract that the actual practice of strategic alignment remains something of an “art”, and largely the domain of experienced practitioners. Effective strategic management requires the ability to discuss and deliberate, both within an organization and across organizations, on the strategies adopted, and their mutual alignment. Such discussions cannot occur if the parties involved subscribe to different formulations or nomenclatures. While a diversity of frameworks can, if properly conceived, promote discourse within the research community, it will necessarily impede the practical deployment of frameworks for documenting strategies and analysing strategic alignment. This research is motivated by the need to make these frameworks actionable.

My intent in this dissertation is to address these gaps in the literature. I contribute to the systematization challenge by offering a single coherent formulation of the strategic alignment problem and by offering a systematic means for documenting strategies to make these amenable to the analysis of alignment discussed above. This scheme for documenting strategies does not require a commitment to a particular philosophical position on the true nature of strategy (whether these can only be long-term, whether these can be functional area-specific, whether these must only pertain to market positioning or firm resources, what demarcates strategies from tactics and so on). The view I adopt is agnostic to all of these distinctions, and only obliges us to describe a strategy in terms of a basic set of ontological constructs.

I address the lack of methodological guidelines by offering precisely these, in a manner that leverages the systematic scheme for documenting strategies. These guidelines, I argue, helps make the analysis of alignment less of an “art” and more of a systematic, repeatable procedure.

Discussions of alignment often involve binary comparisons between corporate strategy on the one hand and an internal functional strategy - such as procurement strategy (Knudsen, 2003), human resource management strategy (Shih and Chiang, 2005), advertising strategy (Boudreau and Watson, 2006) or IT strategy on the other.



Several frameworks have been proposed in the literature to explore alignment between IT and business strategy (Henderson and Venkatraman, 1990; Baets, 1996; Henderson and Venkatraman, 1993; MacDonald, 1991; Parker *et al*, 1988; Powell, 1993; Sledgianowski and Luftman, 2005; Luftman, Lewis and Oldach, 1993; Chan *et al*, 1996; Shin, 2001; Tallon *et al*, 2000; Kearns and Lederer, 2003; Prahalad and Krishnan, 2002; Loebbecke and Wareham, 2003; Pollalis, 2003; Bai and Lee, 2003; Eck *et al*, 2000; Maes *et al*, 2000; Burns, 2000; Hirschheim and Saberwal, 2001). The Strategic Alignment Model (SAM) of Henderson and Venkatraman (1993) is arguable the most prominent amongst these proposals.. The model leverages notions terms such as strategic fit, functional integration and linkage between business strategy and information technology strategy. Henderson and Venkatraman's strategic alignment model attempts to explain how business success depends on the harmony of business strategy, information technology strategy, organizational infrastructure and processes, and IT infrastructure and processes. Strategic alignment is to establish harmony between these elements and “*ensure that there is a focus on strategic achievement, not just organizational achievement*” (p. 218).

Strategy maps (Kaplan and Norton, 2003) provide powerful diagrammatic tools for visualizing strategies, but do not directly lend themselves to alignment analyses (although they provide a level of detail that can complement our framework).

The focus of this thesis is on the more general notion of strategic alignment as exemplified by the work of Galbraith (1973), Miles and Snow (1978), Waterman *et al* (1980), Knudsen (2003), Shih and Chiang (2005) and Boudreau and Watson (2006). In the first instance, there is a clear need for systematization. In this research, I will use a very precise formulation of the alignment problem. *I will view alignment as a binary relation relating a strategy to another, or, more generally, as a relation that holds between a set of strategies.* I will argue that this formulation is general enough to subsume much (but not all) of the diversity of definitions in the literature.

The gaps in the literature discussed above can be refined to obtain *six* specific challenges. These, in turn, form the basis for the research questions formulated in the next section. *First*, the literature does not offer crisp, actionable definitions of

strategic alignment. As the literature reviewed in Chapters 2 and 3 suggests, there has been several decades' worth of contributions to theoretical perspectives on the problem, but the time is now ripe for this community to develop *actionable definitions*, which might support answers to the alignment question in practical settings. *Second*, the literature does not offer the conceptual means to determine whether a given strategy is aligned with another, or whether a given set of strategies is mutually aligned. *Third*, the literature does not offer an adequate vocabulary for describing the *extent* of strategic alignment, given that strategic alignment in its absolute form is often difficult to achieve. A vocabulary that enables us to articulate degrees of alignment, in some form, offers a yardstick for progress for an organization engaging in a strategic alignment exercise. *Fourth*, the literature does not offer a conceptual toolkit to help *achieve* strategic alignment. Thus, an organization which finds its strategies misaligned is often obliged to rely on the (hopefully adequate) advisory experience of management consultants to help decide what to do about it. *Fifth*, methodologies have not been developed that might support strategy formulation in a manner that ensures that it is aligned with the over-arching corporate strategy. Finally, there are no guidelines on how to maintain alignment in the face of constant change.

## 1.2 Research objectives and questions

In the rest of this dissertation, I will make reference to the notion of an *adequate vocabulary*, and specifically to an adequate vocabulary for analysing strategic alignment, and an adequate vocabulary for documenting strategies. For my purposes, a vocabulary is adequate if it supports the intended analysis and this can be empirically established. In each case, I will initially present a vocabulary initially from a normative perspective, but will subsequently establish via case study analysis that the vocabulary is indeed adequate for the analysis of interest.

I will also use the term *strategic alignment* to describe both the process to be followed, and the outcome to be achieved.

This thesis addresses the following research questions:

RQ1: What is an adequate framework for describing strategies in their most general form?

RQ2: How can strategic alignment be defined in a manner that supports the *analysis* of alignment, leveraging the framework developed to address RQ1? How can the conceptual framework provide guidance on how to achieve alignment?

RQ3: How can the framework be used as a model to explain (and inform) business performance, and strategic transformation in the face of change?

### **1.3 Methodology and research design**

This research was conducted in three phases: framework building, framework testing and framework refinement. As part of the framework building phase, an initial scheme for documenting strategies, a definition of strategic alignment based on this scheme, and a vocabulary for describing varying degrees of alignment were developed. These are presented in Chapter 5. A case study was then conducted, for the purposes of framework testing. Coal India Limited (CIL), the world's largest coal producer, was the subject of the case study (the study considered the period starting from the inception of CIL and ending in 2008). The case study research method is used in the dissertation is justified in Section 4.3.1. CIL is particularly useful and adequate to understand and explain the established conceptual framework. There are several reasons why a case study of CIL is of particular relevance in validating the conceptual framework for strategic alignment developed in Chapter 5 is discussed in Section 4.4.1. Just to summarised some of the reasons. Firstly, CIL is large enough to make a fairly detailed analysis of alignment. CIL is the world's largest coal mining company (in terms of both output and size of workforce). Its size and structure (CIL is a holding company with 8 coal-producing subsidiaries) provides a rich basis for strategic alignment analysis at various levels across the enterprise meaningful. Second, the company had to respond and adapt to a dramatic transformation in its business context over a relatively short period of time (approximately 10 years). The transformation affected the very core of the company's business model, and its

impact was felt in every aspect of its operations. Third, the company has been in the unique situation of having to align to a high-level strategy that was in part exogenously determined (as a state-owned company, it has to meet high-level objectives determined by the government). Fourthly, any strategic account of the company's fortunes over the last three decades would meet the requirements of an alignment case study – an initially stable mode of operations, a crisis, followed by a resolution. Finally, still more generally, this account is an illustrative instance of organizational response to altered strategic contexts in firms in a range of developing countries (where market liberalization was the common driver for change in the strategic context). CIL has been in the unique situation, the high-level corporate strategy was realigned to the altered business context relatively rapidly that was in part exogenously determined (as a state-owned company, it has to meet high-level objectives determined by the government). However, the rest of the organization (including various functional strategies, both at the level of the holding company and its many operating subsidiaries) did not respond as rapidly. Indeed, in some instances, re-alignment occurred over a decade later. Finally, it is important to note that this case cannot be adequately explained as an instance of organizational (or strategic) response to an altered business context, but is fundamentally an account of strategic re-alignment. Organizational change is not always strategic re-alignment. In many cases, the organization in its entirety realigns itself to an altered business context (Nadler and Tushman, 1980). The reasons above suggest that CIL is a suitable case study for validating the framework for strategic alignment developed in this dissertation.

## **1.4 Research contributions**

### **1.4.1 Contributions to scholarship**

This dissertation contributes to scholarship of strategy and strategic alignment in several important ways. *First*, it systematizes a diversity of distinct conceptions of strategy by offering a simple, yet general, scheme for documenting strategies. *Second*, it systematizes a diversity of alternative conceptions of strategic alignment, by offering a uniform formulation of the problem as one of alignment between a set of strategies. While this formulation does not subsume all of the other conceptions

that exist in the literature, it is general enough to subsume several. *Third*, it offers a specific definition of alignment between a set of strategies. *Fourth*, it offers a mechanism for using this definition to analyse whether a set of strategies are aligned. *Fifth*, it validates the scheme for documenting strategies (the vocabulary), the definition of alignment and the mechanism for analysing alignment using a detailed case study.

### **1.4.2 Contributions from a practitioner perspective**

The research presented here fills several significant gaps in the repertoire of tools available to practitioners engaged in strategic management. Such practitioners are typically managers within firms charged with formulating and implementing the firm's strategies, or consultants engaged in the business of offering advisory services to firms on the best strategies to pursue and the best means of pursuing them.

A key challenge faced by such practitioners is devising a standard means of documenting and describing strategies, both for the purposes of effectively communicating these to key stakeholders and also for enabling the analysis of alignment between strategies. The *first contribution* of this dissertation is in offering a simple, yet practical, vocabulary for documenting strategies. Another challenge for practitioners is being able to analyse alignment using a structured and principled mechanism, as opposed to leveraging experience or largely tacit knowledge, as is often currently the case. A structured alignment analysis technique also makes it easy for practitioners to explain their analysis to other stakeholders. The *second contribution* of this research is to make such a technique available to practitioners. Identifying what needs to be done to "fix" misalignment is another challenge for practitioners (who, once again, typically take recourse to experience and tacit knowledge). The *third contribution* of this research is to support the process of identifying strategic "fixes" – these naturally emerge from the vocabulary for alignment analysis presented here.

### **1.4.3 Limitations**

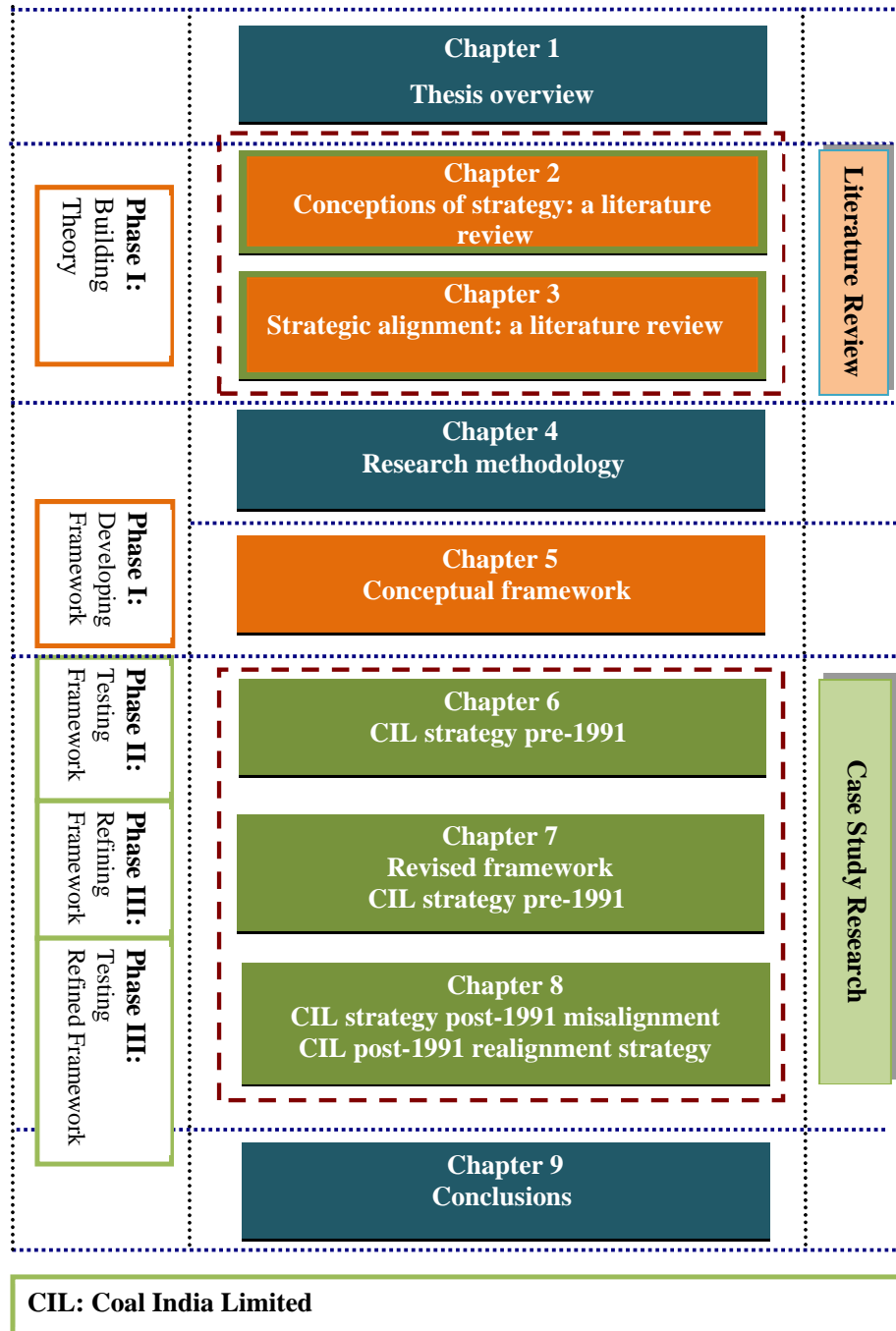
It is important to clearly delineate the boundaries of this research. There are important problems which fall within the ambit of the literature on strategic alignment for which this dissertation *does not* offer solutions. For instance, I do not address the problem of alignment between strategy and organizational structure. I do not offer solutions to the problem of analysing alignment between corporate or business strategy on the one hand and the resource base of an organization, on the other. For instance, I do not offer solutions to the problem of strategic alignment of the human resource base of an organization. However, I do offer solutions to the problem of analysing alignment between corporate and human resource strategy. Ultimately, as discussed earlier, I offer solutions to the problem of analysing alignment between strategies, but not between a strategy and another aspect of an organization that is not easily articulated in terms of a strategy.

## **1.5 Dissertation outline**

This dissertation is organized as follows. Chapter 2 provides a detailed review of the literature on alternative conceptions of management strategy. This provides the basis for the development of a uniform underlying strategy documentation scheme (or vocabulary), and thus sets the stage for addressing the first research question (RQ1). Chapter 3 provides the basis for addressing the second research question (RQ2). It provides a detailed review of the literature on alignment, which sets the stage for the definition of strategic alignment, and the technique for alignment that I will later introduce. Chapter 4 describes the research method used in this dissertation. Chapter 5 provides the key conceptual contributions of this research, in the form of a vocabulary for describing strategies, and for describing alignment between strategies (these contributions are somewhat revised and extended subsequently driven by insights gained from the case study). Chapter 5 also outlines a practical technique for analysing alignment. Chapter 5 thus provides preliminary answers to research questions RQ1 and RQ2. Chapter 6 introduces the major case study used to validate the conceptual contributions of this thesis, and describes how the case study proceeded up to the point where the initial framework was found to be deficient in addressing the full complexity presented by the case. Chapter 7 describes an

extended framework that addresses these deficiencies and its initial application in the case study (and thus provides a deeper answer to research question RQ2). Chapter 8 describes how the alignment analysis framework can be used to offer an effective explanation of the strategies re-alignment exercise undertaken in the organization that provides the basis for the case study – Coal India Limited (CIL). Research question RQ3 is effectively addressed over Chapters 6, 7 and 8. Chapter 9 presents the conclusions of this research and directions for future development. Figure 1.2 illustrates the dissertation outline.

**Figure 1.2: Dissertation Outline**





## **1.6 Chapter summary**

This chapter introduces and motivated the problem addressed in this dissertation. It presents the research questions that I seek to answer. It summarizes the key contributions of this research, both to the scholarly understanding of strategic alignment, and to the analytical toolkit available to practitioners of strategies alignment. The chapter also describes the research method adopted for this dissertation and provides an outline for the structure of this document. In the next chapter, I will provide a detailed literature review of alternative conceptions of strategy, which will inform the development of a unifying vocabulary for documenting strategies.

## **CHAPTER 2: CONCEPTIONS OF STRATEGY: A LITERATURE REVIEW**

This chapter helps address the first research question (RQ1) by presenting a review of the existing body of work on conceptions, definitions and vocabulary for describing strategies that this dissertation builds on. Much of this work appears in the literature on strategic management, addressing issues such as the definitions and alternative conceptions of strategy as well as strategic alignment. Some of this work also appears in the literature on information systems and technology, addressing questions such as business-IT alignment. The objectives of this chapter are twofold. First, I aim to provide the reader with a rigorous review of the existing literature on conceptions of strategy. Second, I aim to highlight a significant gap in the literature, the absence of any agreement on how the notion of strategy should be conceptualized. This gap has significant consequences for the practical deployment of the notion of strategy. Indeed, practical use is impeded by the fact practitioners need to grapple with the wide variety of conceptions of strategy, and expend much energy on first arriving at an agreement on which conception of strategy to use.

The notions of strategy and competitive advantage have been widely discussed in the literature on management and economics. In this chapter, I will discuss a variety of conceptions and definitions of strategy (in Section 2.2), together with a historical overview of the development of strategic thinking (in Section 2.1). Section 2.3 presents the underpinnings of the discipline of strategic management. Section 2.4 describes the hierarchical levels of strategy in detail. Section 2.5 discusses alternative taxonomies of strategy. Section 2.6 describes alternative units of strategic analysis including the market-based view, the resource-based view, the knowledge-based view, the capability-based view and the relational view of strategy. Section 2.7 involves a discussion of taxonomies of strategic choice. Finally, the chapter summary will be presented in Section 2.8. This includes a brief critique of some of the approaches presented, to motivate the novel conception of strategy that I will present later in the dissertation.

## 2.1 The conception of strategy in historical perspective

The discourse on strategy can be traced back to ancient India, Greece and China as early as 500 BCE. Historically, the notion of strategy was developed in the context of military thinking. A decision on where and how to *deploy* military resources has been traditionally viewed as a strategic decision, while decisions on how to *employ* these resources during the course of battle would be viewed as being tactical in nature (Liddell Hart, 1967). The 4<sup>th</sup> century BCE Indian political scientist, economist and technologist Kautiliya discusses military and state strategy in his celebrated treatise “Arthashastra” (Ghose, 1992). In East Asia, around the same time, a discourse on military strategy can be found in the writings in 500 BCE of Sun Tzu, a general employed by the King of Chi (modern Shandong, China) in his book “The Art of War” (Griffith, 1963). This book contains 13 chapters, each of which is devoted to one aspect of warfare. Many strategies suggested by Sun Tzu are just as applicable today as they were in times past. Sun Tzu wrote that winners are those who plan effectively and change decisively. He listed important rules for victory during war, such as the much-quoted injunction to *know the enemy as well as yourself*.

In the west, the first book addressing the fundamental problems of war and strategy was “The Peloponnesian War” by the Athenian writer Thucydides, written around 400 BCE. The word “strategy” derives from the Greek “strategos”, which literally means “generalship”. The Greeks developed the concept of strategy purely in its basic military sense. The roots of ‘strategos’ simply mean ‘army’ and ‘lead’ and the idea of strategy is to “*plan the destruction of one’s enemies through effective use of resources*” (Bracker, 1980, p. 219). Strategy was viewed as the art employed by an army general to plan and conduct warfare in military since then. For example, Carl von Clausewitz (1780-1831), a Prussian general and intellectual and Liddell Hart (1895-1970), a former British captain and noted military scholar are both famous for their writing on military strategy. von Clausewitz defined strategy as “*the employment of the battle to gain the object of the war*” (von Clausewitz, 1968, p. 241). According to von Clausewitz, strategy is concerned with how to achieve the policy or object of the war within the constraints and limited resources (von

Clausewitz, 1968). Liddell Hart (1967) refers to strategy as “*the art of the general*” and “*the art of distributing and applying military means to fulfill the ends of policy*” (Liddell Hart, 1967, p. 335). After World War II, the business environment became relatively more competitive. As a consequence there was the recognition that strategy could be applied to business and management (Bracker, 1980). However, the concept of strategy remained a military one until the 1950s.

### 2.1.1 Four phases of strategy development

Hoskisson, Hitt, Wan and Yiu (1999) classify the historical development of scholarship on strategy into four main phases. The four phases are: early strategy development phase, the industrial organization economics phase, the organizational economics phase and the resource-based view phase. They use the metaphor of swings of a pendulum to represent the shift in focus from internal factors to external factors of the firm (and back again) that characterizes this historical development (Hoskisson *et al*, 1999).

The first phase, in the 1960s, was **early strategy development**. During this phase, the focus was on the internal factors of the firm. Research on strategy in this phase was managerially-oriented, generating normative guidelines rather than analysis (Furrer *et al*, 2008). Researchers such as Ansoff (1965) and Chandler (1962) played important roles in this phase (Hoskisson *et al*, 1999).

The second phase was the **industrial organization economics** phase. During this phase, the focus was on the firm’s environment and external factors. Researchers in this phase observed that the firm’s performance was significantly dependent on the industry environment. They viewed strategy in the context of the industry as a whole and the position of the firm in the market relative to its competitors. Bain’s (1968) *structure-conduct-performance* (SCP) framework and Porter’s (1980) *five forces model* (which is based on the SCP framework) are well-known frameworks for strategic thinking proposed in this phase (Hoskisson *et al*, 1999).

The third phase was the **organizational economics** phase. During this phase, the focus was on both internal and external factors of the firm. Theories used in this phase include the *transaction cost theory* and *agency theory*. Transaction cost theory

(Rumelt *et al*, 1991; Williamson, 1981) is concerned with the costs that are involved in economic exchange and explains the reason why organisations exist. To some extent, it can also explain why firms go overseas or enter international markets. Dyer (1996, 1997) and Hill and Kim (1988) are well-known researchers looking at strategy in an international business context in this phase. Agency theory assumes that humans are self-interested and opportunistic in general (Eisenhart, 1989). Therefore, managers (agents) seek to maximise their own interests, often at the expense of the shareholders (principals) (Hoskisson *et al*, 1999). Some researchers apply this concept to strategy for corporate innovation (Hoskisson and Hitt, 1990) or corporate governance (Hoskisson *et al*, 1999). Both transaction cost theory and agency theory build on the assumption that human (managerial) behaviours and attributes affect strategy outcomes. Yet, agency theory is concerned more with firm-level analysis than transaction cost theory (Hoskisson *et al*, 1999).

The fourth phase was the **resource-based view** (RBV) phase. The focus of strategy returned to what is in the early development phase- the internal factors of the firm. Some of the basic ideas of the resource-based view appeared in the literature of the early development phase. Other ideas address the fundamental question of why firms differ, and how firms achieve and sustain competitive advantage. It has been argued that the resource-based view is better suited to deal with organizational and behavioural processes than industrial organization economics (Hoskisson *et al*, 1999).

Wernerfelt (1984) and Barney (1991) are well-known researchers in this phase (Ramos-Rodríguez and Ruíz-Navarro, 2004). From the 1980s onwards, according to Furrer *et al* (2008), the focus of studies in the unit of analysis of strategic management have changed from the structure of the industry (also known as market-based view (MBV) to the firm's internal structure, with resources and capabilities (also known as resource-based view (RBV)). I will discuss RBV in greater detail in Section 2.6.2.

## 2.2 The definition of strategy

The notion of strategy is broad and admits a range of definitions. Hambrick (1983) points out that strategy is multidimensional and situational and can vary by industry. Scholars such as Drucker (1954), Chandler (1962), Andrews (1971), Ansoff (1965), Hofer and Schendel (1978), Mintzberg (1987a), Rumelt (1991), Hamel and Prahalad (1989), Ohmae (1982), Porter (1985, 1996), among others, have made important contributions to our understanding of strategy and strategic decision-making.

The pioneering management thinker Peter Drucker (1954) argued that the strategy of an organization is its “theory of business”. Drucker was one of the early scholars who viewed management as a separate discipline and brought strategy into a business context. According to Drucker, a strategy is a general view of what sort of ‘business’ a company is or should be in. He offered the following definition: *“strategy is analysing the present situation and changing it if necessary. Incorporated in this is finding out what one’s resources are or what they should be”* (Drucker, 1954, p. 17). This definition is also significant because it reflected the fact that strategy ceased to be confined to the military environment.

Subsequent researchers have viewed strategy as being part of business policy (Bain, 1968; Certo and Peter, 1990; Learned *et al*, 1965; Thompson and Strickland, 1981). Learned *et al* (1965, p. 3) have defined strategy as *“the pattern of objectives, purposes or goals and major policies and plans for achieving these goals, stated in such a way as to define what business the company is in or is to be in and the kind of company it is or is to be.”* Chandler (1962, p. 13) has taken a broader view and provides a more detailed definition of strategy as *“the determination of the basic long-term goals and objectives of the enterprise and the adoption of courses of action and allocation of resources necessary for carrying out these goals.”* Chandler’s main interest is in studying the relationship between the strategies (the way firms grew) and the structure (the pattern of organization devised) to manage such growth (Chandler, 1962).

Both Drucker and Chandler are significant as original thinkers who also played an important role in establishing strategic management as a separate field of study. In

addition, they both have had great influence on the work of other scholars in the field. According to Andrews (1971), “*strategy is the pattern of objectives, purposes, or goals and major policies and plans for achieving these goals, stated in such a way as to define what business the company is in or is to be in and the kind of company it is or is to be*”. Andrews’ approach to strategy formulation has addressed both the internal and external environment of a firm. In Andrews’ (1971) view, managers should conduct an audit of the external environment to identify opportunities and threats, as well as conduct an audit of their internal environment to identify the strengths and weaknesses of the company. This approach has become known as SWOT analysis (the acronym stands for strengths, weaknesses, opportunities and threats). Similarly, Hofer (1973) defines strategy as being “*concerned with the development of a viable match between the opportunities and risks present in the external environment and the organisation’s capabilities and resources for exploiting those opportunities*” (p. 3).

Ansoff (1965) defines strategy as “*the common thread among the organization’s activities and product-market that defines the essential nature of business that the organization was or planned to be in future*”. Ansoff then identifies four components that such a “common thread” would possess. These are: (1) a product/market scope, (2) a growth vector, (3) competitive advantage and (4) synergy. In his view, strategy consists of rules to help make decisions determined by product and market scope. He also has highlighted the importance of corporate strategy for firm growth and expansion. Ansoff discusses two aspects of strategy: formulation and implementation. He argues that strategy and objectives together describe the concept of the firm’s business. In his early work, Ansoff (1965) is primarily concerned with the external environment, such as the selection of the product-mix which the firm would produce and the markets to which it would sell. Twenty years later, Ansoff (1984) argues that “*basically a strategy is a set of decision making rules for the guidance of organizational behaviour.*”

Driven in part by the seminal work of Ansoff (1965) and Andrews (1965, 1971), the discourse on strategy became increasingly popular in the 1970s and the 1980s. According to Furrer *et al* (2008), two major streams of research became popular during this period - the first research stream seeking to understand how strategies are

formulated and implemented and the second addressing the relationship between strategy and performance.

Hofer and Schendel (1978) define strategy via the correspondence between organizational purpose, resources, skills environment opportunities and risks (Hofer and Schendel, 1978). They also propose three hierarchical levels of strategy (I will discuss these in greater detail in Section 2.4).

Glueck (1980, p.9) defines strategy as: *“the unified, comprehensive and integrated plan relating the strategic advantages of the firm to the challenges of the environment. It is designed to ensure that the basic objectives of the enterprise are achieved”*. Glueck emphasizes that all the major aspects of the enterprise need to be covered and joined in the plan and that all parts of the plan should be compatible with one another. Glueck (1980, p. 9) also suggests that *“a strategy begins with a concept of how to use the resources of the firm most effectively in a changing environment”*.

Similarly, Bourgeois (1980) defines strategy in terms of a firm’s relationship with the environment to achieve its objectives. Thompson and Strickland (1983) define strategy as the manner in which an organization accomplishes its objectives by deciding the means, assigning resources, and executing the plans thus obtained to produce results.

Porter, who is widely known for his work on positioning school of strategy (also known as the market-based view, or MBV of strategy), the five-forces model (Porter, 1979), generic strategies (Porter, 1980) and value chains (Porter, 1985), defines strategy as *“defining and communicating the company’s unique position, making trade-offs, and forging fit among activities”* (Porter, 1996, p. 77).

Mintzberg (1987b) defines strategy as *“a pattern in a stream of decisions and actions”*. He argues that strategies are not always the result of careful deliberation and planning but may emerge from what an organization does without any principled deliberation (Mintzberg, 1987b). He proposes a notion of five Ps. In this conception, a strategy can be a plan, a ploy, a pattern of behaviour, a position in respect



customers or competitors, or the perspective of managers in a firm (Mintzberg, 1987b).

Ohmae (1982, p. 92) states that “*strategy is defined as the way in which a corporation endeavors to differentiate itself positively from its competitors, using its relative corporate strengths to better satisfy customer needs*”. Extending his earlier definition, Ohmae notes that “*strategy is really no more than a plan of action for maximising one’s strength against the forces at work in the business environment*” (Ohmae, 1982, p. 248). Certo and Peter (1990, p. 5) define strategy as “*a continuous, iterative process aimed at keeping an organization as a whole appropriately matched to its environment.*” Pearce and Robinson (1988) define strategy as the “*large-scale, future-oriented plans for interacting with the competitive environment to optimise achievement of organization objectives*” (pp. 6-7). According to Pearce and Robinson (1988, p. 6), the dimensions of strategy usually include: (1) requirement of top management decisions (2) allocation of large amounts of resources (3) the likelihood of long-term impact on the organization (4) a future orientation (5) multi-functional or multi-business consequences, and (6) consideration of factors external to the organization.

Since the 1990s, many researchers (e.g., Scott Morton, 1991; Porter, 1996) have stressed the influence of Information Technology (IT) and Electronic Commerce (EC) on organizational strategy and business processes. Morton (1991) defines strategy as “*involving both formulation (decisions pertaining to competitive, product/market choices) and implementation (choices that pertain to the structure and capabilities of the firm to execute its product/market choices)*” (Scott Morton, 1991, p. 472). He argues that the structure and capabilities referred to in the definition above includes IT structure and IT expertise. He also emphasizes the importance of organisational transformation for the sustainability and survival of the enterprise. He has proposed five factors that influence an organisation’s strategic goals: strategy, structure, roles and skills, management processes and technology.

Miles and Snow (1994) suggest that “the process of achieving fit begins, conceptually at least, by aligning the company to its marketplace” (p. 12). This process of achieving alignment defines the company's strategy

Johnson *et al* (2008) define strategy as “*the direction and scope of an organization over the long term, which achieves advantage in a changing environment through its configuration of resources and competencies with the aim of fulfilling stakeholders’ expectations*” (Johnson *et al*, 2008, p. 3).

Chaffee (1985) points out that “*virtually everyone writing on strategy agrees that no consensus on its definition exists*” (p. 89). This is an indication of the complexity of the strategy. Hambrick (1983) suggests that this lack of consensus is due to the fact that strategy is multidimensional, situational and industry-specific.

## **2.3 Strategic management**

Given that the notion of strategy is central to the discipline of strategic management (Schendel and Hofer, 1979), it is useful to briefly discuss the underpinnings of the discipline at this point. Pearce and Robinson (1988, p. 6) define strategic management as “*the set of decisions and actions resulting in formulation and implementation of strategies designed to achieve the objectives of an organization.*” Certo and Peter (1990, p. 5) define strategic management as “*a continuous, iterative process aimed at keeping an organization as a whole appropriately matched to its environment.*”

Strategic management is concerned with defining organisational performance, variables of strategic choice and competitive advantage. Ramos-Rodríguez and Ruíz-Navarro (2004) identify three roots of strategic management: economics, sociology and psychology. In their view, transaction cost theory, agency theory, evolutionary economics and the resource-based view of the firm derive from the economic roots of the discipline, while contingency theory, resource-dependence theory, and organizational ecology derive from the sociological roots. They also argue that organizational behaviour theory and the structural patterns of Mintzberg’s (1978) concepts belong to the psychological roots of the discipline (Ramos-Rodríguez and Ruíz-Navarro, 2004).

Nag *et al* (2007) carry out a large-scale survey of strategic management scholars in an attempt to present a fundamental definition of strategic management. They propose the following definition: “*The field of strategic management deals with (1) the major intended and emergent initiatives (2) taken by general managers on behalf of owners, (3) involving utilization of resources (4) to enhance the performance (5) of firms (6) in their external environments.*” (Nag *et al*, 2007, p. 942). They substantiate their findings by carrying out a second study amongst associated disciplines, such as economics, sociology, marketing and management. Based on this second study, they augment the definition with the concept of internal organization (characterized by notions such as *process, routines, organizing, internal, practices and implementation*). According to Furrer *et al* (2008), strategic management was initially a body of knowledge that would underpin practical advice to managers, but evolved into the endeavour to identify, from a positivist perspective, a theoretical framework with explanatory and predictive power.

## **2.4 The hierarchical levels of strategy**

Organisations can develop strategies at a number of different levels. Many authors have drawn a distinction between “corporate strategy” and “business strategy” (Andrews, 1971; Chaffee, 1985; Hannagan, 2002; Hofer and Schendel, 1978; Stoner *et al*, 1995). In particular, Hofer and Schendel (1978) propose three hierarchical levels of strategy: corporate strategy at the highest level, followed by business strategy and functional strategy, in descending order. Each level of strategy is constrained by the one above it.

In simple terms, corporate-level strategy helps decide what businesses to compete in while business-level strategy helps decide how to compete within a particular business (Chaffee, 1985). Pearce and Robinson (1988) as well as Hill and Jones (1995) distinguish business-level strategy from functional-level strategy by suggesting that business-level strategy focuses more on “doing the right thing” (effectiveness) while the functional-level strategy focuses more on “doing things right” (efficiency).

### **2.4.1 Corporate-level strategy**

Andrews (1971, pp. 18-19) defines corporate strategy as “the pattern of decisions in a company that determines and reveals its objectives, purposes, or goals, produces the principal policies and plans for achieving those goals, and defines the range of business the company is to pursue, the kind of economic and human organization it is or intends to be, and the nature of the economic and non-economic contribution it intends to make to its shareholders, employees, customers, and communities.” In other words, corporate-level strategy is formulated by the top executives to oversee the interests and operations of the organisation as a whole. According to Baets (1992, p. 205), “corporate Strategy is a proposed action or sequence of actions intended to have far-reaching effects on the company’s ability to achieve its business objectives”.

Resource allocation is often a key component of strategy. Resource allocation decisions are typically formulated at the corporate level; once these decisions are made, managers at the business level can then identify the appropriate strategies to meet the objectives laid out by the corporate office (Hofer and Schendel, 1978).

### **2.4.2 Business-level strategy**

Business-level strategy, sometimes also described as “business unit strategy” or “line of business strategy” (Hannagan, 2002; Stoner *et al*, 1995), deals with managing the interests and operations of a particular line of business (Hofer and Schendel, 1978). Many corporations have to manage the complexity of a large number of highly heterogeneous lines of business; creating a range of strategic business units (SBUs) is one way to manage this complexity. Various business activities that produce a particular type of product or service are grouped and treated as a single business unit. The corporate-level strategy defines the available resources, a set of guidelines and objectives for the SBUs, based on which each SBU formulates its business-level strategies (Stoner *et al*, 1995). Business-level strategies may be viewed as identifying ways in which a company would seek to attain competitive advantage through effective positioning (Porter, 1979) (a detailed discussion of this view can be

found in Section 2.6). Business-level strategies are specific to particular industry settings (Hill and Jones, 1995).

### **2.4.3 Functional–level strategy**

Functional-level strategy relates to a specific functionality within the enterprise. Examples of functional-level strategies include human resource management (HRM) strategy, operational strategy, technology strategy, pricing strategy, marketing strategy, technology strategy etc. A functional strategy defines the operational planning of functional procedures within an organization to support the business strategy (Hofer and Schendel, 1978). Decisions involving functional-level strategy are often guided and constrained by strategic considerations accruing from strategies higher in the hierarchy (e.g., corporate-level or business-level strategies). The objective of functional-level strategies is to achieve competitive advantage through “*strategies directed at improving the effectiveness of functional operations within a company.*” (Hill and Jones, 1995, p. 12) The allocations of resources among different operations within the functional area are also constrained by business-level and corporate-level strategies. Functional-level strategies help determine the optimisation of the functionalities as required to achieve business and corporate-level objectives (Hofer and Schendel, 1978).

### **2.4.4 Societal strategy**

It has been argued that a distinct category of strategy, *societal strategy*, sits at a level higher than corporate-level strategy. Porter and Kramer (2006) discuss the interdependence between corporations and society and observe that corporate decisions and activities sometimes have a direct and large impact on communities and society as a whole. Therefore, strategists and executives should take into account societal expectations and decisions, not only for the business itself, but also for the broader group of stakeholders that implicitly have a stake in the enterprise, extending to society in general. Societal strategy is thus a generalized view of how the corporation relates itself to society in terms of a particular need or a set of needs that it strives to fulfil (Porter and Kramer, 2006).

## 2.5 Alternative taxonomies

A number of authors have offered alternative taxonomies of strategy (Chaffee, 1985; Furrer *et al*, 2008; Hoskisson *et al*, 1999; Mintzberg, 1987b; Mintzberg, 1994; Mintzberg and Lampel, 1990; Mintzberg and Walters, 1985; Nag *et al*, 2007; Whittington, 1993), which will be discussed in detail in this section.

### 2.5.1 Strategy formulation

Some authors have identified alternative models of how strategies are formed in organizations (Chaffee, 1985; Quinn, 1980; Mintzberg and Waters, 1985). Mintzberg and Waters (1985) introduce the distinction between deliberate and emergent strategy. **Deliberate strategy**, sometimes called planned, intended, espoused or prescriptive strategy, refers to the plans that managers develop; they can be regarded as statements of intent. On the other hand, **emergent strategy** is implicit in the actions that actually take place over a period of time. Although an emergent strategy has no specific objective, it might be as effective as a deliberate strategy (Mintzberg, 1987a).

Porter (1980) also suggests that strategy is deliberate. Several authors (Chandler, 1962; Andrews, 1965; Ansoff, 1965; Porter, 1979; Henderson, 1989) have argued that strategy formulation involves deliberation to obtain a plan of action that will develop a competitive advantage for the firm.

The view that strategy is emergent is shared by contingency theorists (Lawrence and Lorsch, 1967; Donaldson, 1996) who believe that organisations operate in a dynamic environment which may potentially make it impossible to lay out a strategy in advance (Mintzberg, 1987b). Mintzberg (1987a) also notes that some successful companies do not start out with detailed strategic plans. Instead, they have an explicit goal of what the firm want to be in the future. In such firms, strategy emerges from the pattern of decisions they take in order to achieve their desired goals.

Some authors emphasize the interdependence of strategy, structure and the industry environment in which the organisation competes which impacts the formulation of

strategy (Bain, 1968; Caves, 1980; Chandler, 1962; Porter, 1980). Some authors also argue that strategy formulation involves complex social and political processes within an organization (Miles and Snow, 1978; Quinn, 1980; Pettigrew, 1988; Hamel and Prahalad, 1989). Pascale (1984) argues that formulating a single strategy may sometimes prove to be inadequate, and that multiple strategies from multiple perspectives might be necessary. Mintzberg and Waters (1985) argue that, in practice, strategies are rarely purely emergent or perfectly deliberate, but are typically somewhere in between those two extremes. According to them, “...*strategy formulation walks on two feet, one the deliberate, the other the emergent*” (p. 271).

### **2.5.2 Chaffee's (1985) taxonomy**

Chaffee (1985) identifies three models of strategy, based on a survey of the published literature over a period of twenty years (1965-1985).

**Linear strategy** focuses mainly on planning. The steps involved in the planning process are systematic, directed and chronological. Linear strategy consists of actions that, via a process of deliberation, are determined to be appropriate to achieve the main goals of the organisation. Both goals and means are generated by the strategic decision-making process. The linear model incorporates strategic planning, strategy formulation and strategy implementation (Chaffee, 1985). Chaffee identifies Andrews (1971), Chandler (1962), Drucker (1974), Glueck (1980), Learned *et al* (1965) and Steiner and Miner (1977) as examples of “linear strategists”, i.e., authors whose conception of strategy conforms to the linear model of strategy.

**Adaptive strategy** emphasizes the development of a relationship between the opportunities and risks present in the external environment (such as the social or political environment), on the one hand, and the resources and capabilities to utilise these opportunities and reduce risks, on the other (Mintzberg, 1978). Under this model, the firm continuously assesses both internal and external conditions in order to identify the appropriate point in the spectrum of trade-offs between the opportunities and risks relative to the firm's capabilities and resources (Chaffee, 1985). The organisation is able to enact and co-shape the environment with appropriate strategic choice (Chakravarthy, 1982). Chaffee identifies Bourgeois

(1980), Hambrick (1980), Hofer and Schendel (1978), Miles and Snow (1978), Mintzberg (1978), Rumelt (1979) and Quinn (1980) as examples of “adaptive strategists”.

**Interpretive strategy** deals with the development of the social, cultural and the interactive dimensions of strategy. The interpretive strategy mode of strategic thinking is based on the notion of social obligations and the improvement of an organization’s relationship with its environment. For example, the motivations of employees, the centrality of teamwork, and corporate culture are important elements of an interpretive strategy to fulfil corporate objective of an organisation. Chaffee identifies Chaffee (1984), Pettigrew (1977) and van Cauwenbergh and Cool (1982) as examples of authors who might be viewed as “interpretive strategists”.

These three models of strategy are similar to Boulding’s (1956) hierarchical levels of the system, specifically, the mechanistic, biological and cultural levels.

### **2.5.3 Whittington (1993): four generic approaches to strategy**

Whittington (1993) extended the concepts of Mintzberg’s strategy process (Mintzberg and Lampel, 1990). This extension identifies four generic approaches to strategy according to the intent of strategy and the process by which strategy is formed. Whittington conceives of two kinds of objectives: the first category involves only profit-maximisation objectives while second includes other objectives in addition to profit maximisation. The process of strategy formulation relies on Mintzberg and Waters (1985) distinction between deliberate and emergent processes. The two categories coupled with the two dimensions leads to four-fold classification of perspectives on strategy - classical, evolutionary, processual and systemic.

**The classical approach** involves profit-maximisation objectives and deliberate strategy formulation. It relies on principled planning methods. Whittington (1993, p. 3) points out that “strategy is a rational process of deliberate calculation and analysis, designed to maximise long-term advantage.” Ansoff (1965) Chandler (1962), Porter (1980, 1985) and Sloan (1963) are examples of authors whose work conforms the



classical approach (Whittington, 1993). This approach is probably the best known of the four approaches, and most commonly found in practice.

**The evolutionary approach** involves profit-maximisation objectives and emergent strategy formulation. It leverages the metaphor of biological evolution, using economic competition in place of the Darwinian “law of the jungle”. Businesses are viewed in a manner akin to species undergoing biological evolution. Only those that are capable of identifying the “optimal” profit-maximising strategies are deemed the fittest to survive. Since long-term survival cannot be planned in the context of biological evolution, therefore strategy in the classical sense of deliberative planning is irrelevant in many dynamic contexts (Whittington, 1993). Whittington (1993) identifies Hannan and Freeman (1988) and Williamson (1991) and Henderson (1989) as “evolutionists”.

**The processual approach** involves pluralistic objectives (a mix of objectives in addition to strategy formulation) and emergent strategy formulation. Processualists emphasize the imperfect nature of all human life and the non-existence (or impossibility of identifying) an optimal strategy (Whittington, 1993). In their view, the processes of both organizations and markets are rarely perfect enough for either the careful strategizing of the adherents of classical theory or the Darwinian perspective of the adherents of the evolutionary approach. In this view, strategy emerges and is not deliberated on (Mintzberg, 1987a). This approach includes within its ambit the work of Cyert and March (1963), March and Simon (1958), and Nelson and Winter (1982) among others.

**The systemic approach** involves a plurality of objectives and deliberate strategy formulation. This approach views the ends and means of strategy as situated in the socio-cultural context in which strategies are conceived and executed. According to Whittington (1993), the systemic approach highlights the social “embeddedness” of economic activity proposed by Granovetter's (1985) and supported by Whitley (1990, 1991).

## 2.6 Alternative units of strategic analysis

Porter (1985) argues that competitive advantage is a key determinant of superior performance. The superior performance of a firm arises from sustainable competitive advantages that are the result of either monopoly rents, Ricardian rents or Schumpeterian rents (Peteraf, 1993; Powell, 2001). The pursuit of competitive advantage is arguably the central theme of the academic field of strategic management (Furrer *et al*, 2008; Hoskisson *et al*, 1999; Porter, 1996).

The prominent role of competitive advantage may derive from the economic and militaristic origins of the strategy literature (Whittington, 1993). Competitive advantage is obtained when an organisation develops or acquires a set of attributes that allow it to outperform its competitors. Various theories, concepts, and models have been developed to identify the sources of performance differences amongst firms. There are two dominant theories of competitive advantage currently discussed in the strategic management literature: the market-based view (MBV) and the resources-based view (RBV). Both approaches explain why some firms perform better than the others and are associated with higher value. The notion of *core competencies* (Prahalad and Hamel, 1990) is closely related to the resource-based view of strategy. The knowledge-based view (Murray, 2000; Tiwana, 2002) and capability-based view (Amit and Shoemaker, 1993; Grant, 1991; Haas and Hansen, 2005; Teece *et al*, 1997) of strategy have been derived from the resource-based view. The relational view (Ahuja, 2000; Dyer and Singh, 1998; Gulati, 1998; Seidmann and Sundararajan, 1997; Wang, 2004) suggests that business networks and relationships can be sources of competitive advantage.

### 2.6.1 The market-based view (MBV)

The market-based view (MBV) of strategy argues that industry factors and external market orientation are the primary determinants of firm performance (Bain, 1968; Caves and Porter, 1977; Peteraf and Bergen, 2003; Porter, 1980, 1985, 1996). The **strategic position** is a firm's unique set of activities that are different from their rivals. Alternatively, the strategic position of a firm is defined by how it performs

similar activities to other firms, but potentially in different ways. In this perspective, a firm's profitability or performance are determined solely by the structure and competitive dynamics of the industry within which it operates (Schendel, 1994).

The market-based view (MBV) includes the positioning school of theories of strategy and theories developed in the industrial organization economics phase of Hoskisson's account of the development of strategic thinking (of which Porter's is one example) (Hoskisson *et al*, 1999; Mintzberg *et al*, 1998; Porter, 1980). Bain (1968) originates The Industrial Organization paradigm is also known as the **structure-conduct-performance** (SCP) paradigm. It describes how industry structure causally impacts firm behaviour (conduct) and ultimately firm performance. Bain (1968) studies a firm with monopolistic structures and found barriers to entry, product differentiation, number of competitors and the level of demand that effect firm's behaviour.

The SCP paradigm was extended (Caves and Porter, 1977; Caves, 1980; Porter, 1980) and used to explain why organizations need to develop strategy in response to the structure of the industry in which the organization competes in order to gain competitive advantage.

In formulating strategy, firms commonly make an overall assessment of their own competitive advantage via an assessment of the external environment based on the five forces model (Porter, 1979, 1985). The five forces under consideration consist of the following: barriers to entry, threat of substitutes, bargaining power of suppliers, bargaining power of buyers and rivalry among competitors (Porter, 1985). In this perspective, a firm's sources of market power explain its relative performance. Three sources of market power are frequently highlighted: monopoly, barriers to entry, and bargaining power (Grant, 1991). When a firm has a monopoly, it has a strong market position and therefore performs better (Peteraf, 1993). High barriers to entry for new competitors in an industry lead to reduced competition and hence better performance. Higher bargaining power within the industry relative to suppliers and customers can also lead to better performance (Grant, 1991).

The five-force model enables organisations to analyse the current situation of their industry in a structured way. However, the model has limitations. Porter's model assumes a classic perfect market as well as static market structure; these are unlikely to be found in present-day dynamic markets. In addition, some industries are complex, with multiple inter-relationships which make it difficult to comprehend and analyse using the five force model (Wang, 2004). Moreover, as Rumelt (1991) points out, the critical determinants of profitability are often firm-specific rather than industry-specific. Prahalad and Hamel (1990) suggest that competitive advantage based on resources and capabilities is more important than just solely based on products and market positioning in term of contributing to sustainable competitive advantages.

Contrary to Porter's focus on industry, Penrose (1959) and others (e.g., Prahalad and Hamel, 1990; Rumelt, 1991) have emphasized the importance of the (heterogeneous) resources that firms use, as the primary source of competitive advantage. Furrer *et al* (2008) suggest that since the 1980s onwards, the focus of studies in strategic management have changed from the structure of the industry (MBV) to the firm's internal structure, with resources and capabilities. This approach to strategy is known as the resource-based view (RBV).

### **2.6.2 The resource-based view (RBV)**

The resource-based view of the firm (RBV) has drawn attention to the firm's internal environment as a driver for competitive advantage and emphasizes the resources that firms have developed to compete in the environment (Barney *et al*, 2001; Hoopes *et al*, 2003). Since the 1980s, the resource-based view of strategy (RBV) has emerged as a popular theory of competitive advantage (Furrer *et al*, 2008; Hoskisson *et al*, 1999). According to Ramos-Rodríguez and Ruíz-Navarro's (2004) bibliometric study of the Strategic Management Journal over the years 1980 - 2000, the most prominent contribution to the discipline of strategic management was the resource-based view of strategy. In addition, the papers written by Wernerfelt (1984) and Barney (1991) are the two most influential articles in strategic management research (Ramos-Rodríguez and Ruíz-Navarro, 2004).

The RBV was pioneered by Penrose (1959) who suggests that the resources possessed, deployed and used by the organization are really more important than industry structure. The term was coined much later by Wernerfelt (1984), who views the firm as a bundle of assets or resources which are tied semi-permanently to the firm (Wernerfelt, 1984). Prahalad and Hamel (1990) establish the notion of **core competencies**, which focus attention on a critical category of resource - a firm's capabilities. Barney (1991) also argues that the resources of a firm are its primary source of competitive advantage.

Early researchers simply classified firm resources into three categories: physical, monetary, and human (Ansoff, 1965). These evolved into more detailed descriptions of organizational resources (skills and knowledge) and technology (technical know-how) (Hofer and Schendel, 1978). Amit and Shoemaker (1993) propose an alternative taxonomy involving physical, human and technological resources and capabilities. Lee *et al* (2001) argue for a distinction between individual-level and firm-level resources. Miller and Shamsie (1996) classify resources in two categories: property-based and knowledge-based. Barney (1991) suggests that other than the general resources of a firm, there are additional resources such as physical capital resources, human capital resource and organizational capital resources. Later, Barney and Wright (1998) add human resource management-related resources to this list of additional resources of a firm. These resources can be tangible or intangible (Ray *et al*, 2004). According to Teece, Pisano and Shuen (1997), we might also be interested in flexible resources. Wernerfelt (1984) also discusses resources that might be tied semi-permanently to the firm. Barney (1991, p. 101) draws attention to “*all assets, capabilities, organizational processes, firm attributes, information, knowledge etc., controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness.*” Ultimately, firms that are able to leverage resources to implement a “*value creating strategy not simultaneously being implemented by any current or potential competitor*” (Barney, 1991, p. 102) can achieve competitive advantage.

Researchers subscribing to the RBV argue that only strategically important and useful resources and competencies should be viewed as sources of competitive advantage (Barney, 1991, 1999, 2001). They have used terms like core competencies

(Barney, 1991; Prahalad and Hamel, 1994), distinctive competencies (Papp and Luftman, 1995) and strategic assets (Amit and Shoemaker, 1993; Markides and Williamson, 1994) to indicate the strategically important resources and competencies which provide a firm with a potential competitive edge. **Core competencies** are distinctive, rare, valuable firm-level resources that competitors are unable to imitate, substitute or reproduce (Barney, 1991; Prahalad and Hamel, 1994). **Distinctive competencies** refer to all the things that make the business a success in the marketplace (Papp and Luftman, 1995). **Strategic assets** are “*the set of difficult to trade and imitate, scarce, appropriable and specialized resources and capabilities that bestow the firm’s competitive advantage*” (Amit and Shoemaker, 1993, p. 36). Powell (2001) suggests that business strategy can be viewed as a tool to manipulate such resources to create competitive advantage.

Wang (2004) outlines an approach to firm-level analysis which requires stocktaking of a firm’s internal assets and capabilities. The assets in question could be physical assets, knowledge assets (intellectual capital) as well as human resources, which in turn determine the capabilities of a firm. Maier and Remus (2002, p. 110) use the term **resource strategy** and define three steps in a firm’s resource strategy - competence creation, competence realization, competence transaction.

Some researchers (Del Canto and Gonzalez, 1999; Lockett and Thompson, 2001; Ray *et al*, 2004) distinguish between tangible and intangible resources and conclude that intangible resources are often the most important ones from a strategic point of view. They argue that intangible resources are more likely to be a source of sustained competitive advantage rather than tangible ones. Other researchers (Barney and Wright, 1998; Prahalad and Hamel, 1990) treat human resources as the most valuable type of resource. Prahalad and Hamel (1990) argue that these should not be “locked” inside a business unit but should be available for reuse by other parts of firm wherever a potential use yielding higher returns can be identified. Ray, Barney and Muhanna (2004) understand the difficulties for a firm to change its resources. They suggest that redesigning firm’s processes, activities and routines can enable efficient and effective usage of resources and capabilities can achieve sustainable competitive advantage.

It has been argued that the RBV ignores the nature of market demand and only focuses on internal resources (Hooley *et al*, 1996). Some authors (Andrews, 1971; Chandler, 1962; among others) argue that external and internal elements cannot be separated. Maier and Remus (2002, p.107) define the concept of fit as a balancing act between the external oriented MBV and the internal oriented RBV. Amit and Schoemnaker (1993) point out the important link between the firm's internal resources and its external market conditions. Dyer and Singh (1998) as well as Wang (2004) suggest that the link between the individual firm and the network of relationship in which the firm is embedded is important for competitive advantage.

Wang (2004) suggests that an **inter-organisational level** view is useful to analyse business relationships, since neither the RBV nor the MBV address this specific aspect. Dyer and Singh (1998, p. 675) point out, in relation to the RBV and MBV, that *“the fact that there are clear contradictions between these views suggests that existing theories of advantage are not adequate to explain inter-organizational competitive advantage.”*

In the next 2 subsections, I will discuss two additional views of strategy (the knowledge-based view and the capability-based view) which may be regarded as special cases of the resource-based view.

### **2.6.3 The knowledge-based view**

While most researchers subscribing to the RBV regard knowledge as a generic resource, some researchers (Murray, 2000; Teece *et al*, 1997; Tiwana, 2002) suggest that knowledge has special characteristics that make it the most important and valuable resource. Hamel and Prahalad (1994) argue that knowledge, know-how, intellectual assets and competencies are the main drivers of superior performance in the information age. Evans (2003) and Tiwana (2002) also suggest that knowledge is the most important resource of a firm. Evans (2003) points out that material resources decrease when used in the firm, while knowledge assets increase with use. Tiwana (2002) argues that technology, capital, market share or product sources are easier to copy by other firms while knowledge is the only resource that is difficult to imitate.

Grant (1996) argues that there are two types of knowledge: information and know-how. Beckmann (1999) proposes a five-level knowledge hierarchy comprising of data, information, knowledge, expertise and capabilities. Zack (1999) divides organisational knowledge into three categories: core knowledge, advanced knowledge, and innovative knowledge.

#### **2.6.4 The capability-based view**

Grant (1991) argues that capabilities are the source of competitive advantage while resources are the source of capabilities. Amit and Shoemaker (1993) adopt a similar position and suggest that resources do not contribute to sustained competitive advantages for a firm, but its capabilities do. Haas and Hansen (2005) and Long and Vickers-Koch (1995) also support the importance of capabilities and suggest that a firm can gain competitive advantage from its ability to apply its capabilities to perform important activities within the firm.

The capability-based view was pioneered by Chamberlin (1933) who identified some of the key capabilities of firms including technical know-how, reputation, brand awareness and the ability of managers to work together. Capabilities have also been used to provide an account of organizational change (Brown and Eisenhardt, 1997) and learning (Zack, 1999). Amit and Shoemaker (1993, p. 35) define capabilities in contrast to resources, as *“a firm’s capacity to deploy resources, usually in combination using organizational processes, and effect a desired end. They are information-based, tangible or intangible processes that are firm-specific and developed over time through complex interactions among the firm’s resources.”* Teece *et al* (1997, p. 516) define dynamic capabilities as *“the firm’s ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments”*. Grant (1996, p. 377) defines organisational capability as *“a firm’s ability to perform repeatedly a productive task which relates either directly or indirectly to a firm’s capacity for creating value through effecting the transformation of inputs to outputs.”* Grant (1996) also divides capability into four categories: cross-functional capabilities, broad-functional capabilities, activity-related capabilities and specialized capabilities.



Zack (1999) argues that the ability to learn and create new knowledge is essential for gaining competitive advantage. Lee *et al* (2001) discuss the influence of internal capabilities and external networks on firm performance.

### **2.6.5 The relational view of strategy**

Dyer and Singh (1998) have offered a relational view of competitive advantage that argues that strategic value often accrues from business networks and inter-firm relationships. The relational view critiques the RBV's assumption that resources are owned by a single firm. It has been argued (Dyer and Singh, 1998) that a firm's critical resources may extend beyond firm boundaries. Dyer and Singh (1998) suggest that inter-firm linkages may be a source of relational rents and competitive advantage. They define a relational rent as *"a supernormal profit jointly generated in an exchange relationship that cannot be generated by either firm in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners"* (Dyer and Singh, 1998, p. 662). They identify four relational rents as sources of competitive advantage: (1) relation-specific assets, (2) knowledge-sharing routines, (3) complementary resources and capabilities and (4) effective governance. Dyer and Singh (1998) state that *"... at a fundamental level, relational rents are possible when alliance partners combine exchange or invest in idiosyncratic assets, knowledge, and resources/capabilities, and/or they employ effective governance mechanisms that lower transaction costs or permit the realization of rents through the synergistic combination of assets, knowledge or capabilities"* (p. 662).

The relational view of strategy has become increasingly popular (Ahuja, 2000; Dyer and Singh, 1998; Gulati, 1998; Gulati *et al*, 2000; Ring and Van de Venn, 1992a, 1992b; Seidmann and Sundararajan, 1997; Wang, 2004). A number of authors discuss inter-firm collaboration (Easton, 1992; Easton and Araujo, 1997; Ebers 1999; Oliver, 1990), business interactions (Wang, 2004), relationships (Perrow, 1986; Walter *et al*, 2001) and networks (Ahuja, 2000; Gulati and Gargiulo, 1999; Gulati *et al*, 2000). An inter-organisational network involves relationships between two or more firms both in the micro-level and macro-level contexts (Ebers, 1997). The micro-level context involves resources flows, information flows and flows of mutual

expectations between firms. The macro-level context includes institutional, relational, PESTEL factors (political, economic, social, technological, ecological and legal) and regional contingencies (Ebers, 1997). Miles and Snow (1992) discuss the cause of failure in network organisations.

Wang (2004) presents a framework for analysing a business context in terms of business relationship. The three forms of analysis are market-level, firm-level and interaction-level. Both market-level and firm-level analysis are fundamentally inter-organizational, in that they analyse a firm from the perspective of its peers and the external market environment. Thus, market-level analysis views a firm in the context of its market environment, while firm-level analysis looks at resources, strengths and capabilities of the firm, but only in the context of those of its peers.

Wang (2004) propose the notion of a business arrangement as the fundamental unit of analysis for business relationships. A **business arrangement** is “*any formal or informal business contract between different business partners for the purposes of buying, selling, collaboration or related business activity. These activities could include sharing business information, buying or selling goods, receiving or providing services, participating in buy-side or sell-side coalitions, or collaborating on community projects*” (Wang, 2004). The interaction-level analysis refers to the analysis of the distinct business arrangements of a specific firm. It provides a new and important intra-organizational unit of analysis that is critical in structuring, analyzing and understanding business relationships. Wang (2004) notes that relational view of strategy is also inter-organizational, and the unit of analysis is, if anything, even more coarse-grained for the purposes of interaction-level analysis.

While the MBV of strategy suggests that the primary source of high returns is the bargaining power of a firm in the market, and the RBV suggests that this (source of high returns) is the set of unique resources, capabilities and knowledge of a firm, the relational view suggests that high returns accrue from are the shared knowledge and complementary resources of the network. Similarly, profit preservation mechanisms in the MBV are market barriers to entry, while in the RBV these are firm-level barriers to imitation of unique resources. In the relational view, these mechanisms involve barriers that leverage the unique capabilities that accrue from business

networks (that are hard to imitate) and the scarcity of potential partners (that might prevent such a network from being replicated).

Many scholars (Hofer and Schendel, 1978; Miles and Snow, 1978; Porter, 1980; Snow and Hambrick, 1980) also developed different generic strategies for organisations to adopt in certain situation. The different typologies of strategy will be discussed in the Section 2.7.

## 2.7 Taxonomies of strategic choice

It is essential to identify the right set of strategies for a firm to achieve competitive advantage (Kotha and Vadlami, 1995). **Strategic choice** determines the market in which to participate and where to position the organisation within those markets. Several authors (Hofer and Schendel, 1978; Miles and Snow, 1978; Porter, 1980; Snow and Hambrick, 1980) propose alternative taxonomies of strategic choice. Some have also evaluated some of these types of strategic choice (Pecotich *et al*, 2003).

Hofer and Schendel (1978) define different types of business strategy: share-increasing strategies, growth strategies, profit strategies, turnaround strategies, liquidation strategies, market concentration and assets reduction strategies (Hofer and Schendel, 1978, p. 103). Miles and Snow (1978), and later, Snow and Hambrick (1980) identify four generic types organizational strategic behaviour: prospectors, defenders, analysers and reactors.

Glueck (1980) as well as Jauch and Glueck (1988) suggest that there are four grand strategic alternatives for firms: stability, internal growth, external growth and retrenchment. Later, Jauch and Glueck (1988) extend their work to broadly classify strategic choice into four categories: stability strategies, expansion strategies, retrenchment strategies and combination strategies.

Porter (1980) proposes three generic business-level strategies: (1) cost leadership, (2) product differentiation and (3) specialisation by focusing on its products, service or markets. Porter suggests that the firm can achieve superior performance only when the firm is able to decide a clear strategy. He also points out that “middle-of-the-roaders” perform the worst, because they attempt a mix of these three types of strategies. His argument is that there are different requirements for each of the three generic strategies which are often inconsistent and “*middle-of-the-roaders*” are unable to meet all of these requirements. As a result, “*the firm stuck in the middle has almost guaranteed low profitability*” (Porter, 1980, p. 41).

However, Dess and Davis (1984) argue that a combination of Porter's generic strategies can be successfully deployed. Their empirical study suggests that some firms are able to implement both a cost-leadership and a differentiation strategy successfully at the same time. Thompson and Strickland (1983) suggest that Porter's generic strategies can be applied to both the corporate and business levels.

Pecotich, Purdie and Hattie (2003) criticize Porter's work for lacking empirical evaluation or comparison.

## **2.8 Chapter summary**

In this chapter, I present a broad literature review of strategy from its pre-history to the present day. It is clear from this literature review that there is a wide variety of views how strategy might be conceptualized, and what its units of analysis, or building blocks might be. In other words, there is considerable diversity in the *vocabularies* for describing strategies. There is no clear consensus that any one of the many views is the correct one.

One of the important lessons that emerge from this literature review is that strategy is intimately related to the idea of "doing". Obtaining a certain market position involves action on the part of the firm, as does appropriately using one of its internal, or relational, resources. One of the contributions of this dissertation (as I shall illustrate in the following chapters) is a holistic, integrative view of strategy that focuses attention on the actions of the firm.

Another interesting observation from this literature review is the absence of any account of the attributes of a strategy, or of a structured means of documenting strategy. This too is a gap that this dissertation addresses in the subsequent chapters, as a stepping stone to obtaining a framework for analysing strategic alignment.

In Chapter 5, I will bring these observations to bear in formulating a novel vocabulary for describing strategies - in the form of *strategy description templates*.

## **CHAPTER 3: EXISTING APPROACHES TO STRATEGIC ALIGNMENT: A LITERATURE REVIEW**

There is widespread acknowledgement of the importance of strategic alignment both in the fields of strategic management and information systems (IS). In this chapter, I will review the substantial literature on strategic alignment and a set of related concepts. The intent of this literature review is to provide the reader with an understanding of the landscape in which I will position my contribution to the literature. In particular, this review will set the stage for addressing the second research question (RQ2). The literature review draws on research from a range of disciplines, including strategic management and information systems. The literature review will also highlight a significant gap in the literature: the absence of any agreement on a definition of strategic alignment.

This chapter is organized as follows. In Section 3.1, I will present a variety of definitions of strategic alignment. In Section 3.2, I will discuss the concept of alignment as discussed in the strategic management literature. In Section 3.3, I will review arguments for the importance of alignment that have been put forward in the literature. In Section 3.4, I will discuss alternative taxonomies of strategic alignment. In Section 3.5, I will discuss the evolution of thinking in strategic IS alignment, mainly based on the work of Peppard and Breu (2003). In Section 3.6, I will describe several distinct frameworks for strategic alignment that have been reported in the literature. Finally, I will present a chapter summary in Section 3.7.

### **3.1 Definitions of strategic alignment**

The concept of alignment is a central theme both in the fields of strategic management (Andrews, 1971; Chandler, 1962; Venkatraman and Camillus, 1984; Venkatraman, 1989) and IS (Chan and Reich, 2007; Luftman, 2000). The literature reviewed in the remainder of this chapter suggests that the notion of strategic alignment has been described and studied in many different forms. Common to all of

these is the idea that strategic alignment involves identifying, establishing and maintaining some form of relationship between corporate/business/functional strategies on the one hand, and strategies, organizational structure, resources etc. on the other. For example, the notion of “*strategic fit*” (Venkatraman, 1989b) is viewed as a relation between a strategy and firm’s resource base (Bourgeois, 1980; Hambrick, 1982). The notion of “*matching*” is used to describe the relation between a strategy and a business context (Miller, 1991). Early discussions on the idea of matching or aligning corporate resources with opportunities and threats can be found in the work of Chandler (1962) and Andrews (1971). Thus, the idea of *alignment* manifests itself in many different forms.

The remainder of this section is structured as follows. In Section 3.1.1, I will briefly describe the basic notion of alignment. In Section 3.1.2, I will discuss the conception of strategic alignment adopted within the IS community. In Section 3.1.3, I will discuss several alternative manifestations of the notion of strategic alignment (under different names).

### **3.1.1 The notion of alignment**

Common dictionary definitions of the notion of alignment refer to “*the proper positioning or state of adjustment of parts in relation to each other*” (Merriam-Webster.com). Nadler and Tushman (1980) define alignment as “*the degree to which the needs, demands, goals, objectives, and/or structure of one component are consistent with the needs, demands, goals, objectives, and/or structure of another component*” (p. 40). Thompson (1967) suggests that alignment is just like a “*moving target*” (p. 234) at which organisations must shoot. Abraham (2006) describes alignment using a rowing analogy, suggesting that alignment can be thought to exist when all parties row in the same direction. Lawrence *et al* (1998) suggest that the alignment of two strategies is that state in which both strategies should have equal weight within an organization.

The notion of alignment seems important I will discuss this in detail later in this chapter), yet much of the discourse on “*alignment*” involves relatively vague geometric metaphors of “*lining-up*” or “*rowing together*” (Abraham, 2006), or

relatively informally defined and open-ended notions such as “*linkage*” (Reich and Benbasat, 1996), “*integration*” (Henderson and Venkatraman, 1993; Weill and Broadbent, 1988), “*fit*” ( Chan, 1999; Henderson and Venkatraman, 1993), “*harmony*” (Luftman and Brier, 1999; Woolfe, 1993), “*balance*” (Rockart and Scott Morton , 1984), “*bridge*” (Ciborra, 1997), “*fusion*” (Smaczny, 2001), “*congruence*” (Edwards, 1994; Jauch and Osborn, 1981), “*covariation*” (Bergeron *et al*, 2004; Venkatraman, 1989b) and “*co-evolution*” (Agarwal and Sambamurthy, 2002; Baker and Jones, 2008). Chan and Reich (2007) point out that “alignment” is now the dominant term in the IS literature, yet some of the other terms listed above are also extensively used. Although, these terms are sometimes used interchangeably with “alignment”, subtle differences exist. As a consequence, discussions on alignment are almost always *ad hoc*. These terms will be discussed in detail in Section 3.1.3.

### 3.1.2 Definitions of strategic alignment in IS

The literature on Information Systems is central to this dissertation since a significant proportion of the published literature on strategic alignment addresses the problem in the Information Systems setting. Much of the work on alignment in IS involves the use of the term “strategic alignment” (Boynton and Zmud, 1987, Henderson & Venkatraman, 1993; Pyburn, 1983; Reich and Benbasat, 1996; Sabherwal and Chan, 2001). Chan *et al* (1997) and Sabherwal *et al* (2001) define this IS notion of strategic alignment as the alignment between business and IS strategies. In this dissertation, I will use the term “strategic alignment” in a far more general sense, in a manner applicable to all aspects of strategic management and not limited to IS strategies.

Luftman and Brier (1999) suggest that strategic alignment (in IS) is “*applying IT in an appropriate and timely way and in harmony with business strategy*” (p. 109). Chan, Huff, Barclay and Copeland (1997) state that alignment is “*the fit between business strategic orientation and information systems orientation*” (p. 125), that contributes to the value accrued from using IT/IS effectively (in the rest of this dissertation, I will use the terms “IT” and “IS” interchangeably). Baets (1996) suggests that strategic alignment is “*a collaborative process between the business strategy, the business organization, the IS infrastructure, and IT strategy*” (p. 156). Venkatraman (1989b) uses the concept of “*fit*” and “*covariation*” to explain the IS



notion of strategic alignment “*as a pattern of covariation or internal consistency among a set of underlying theoretically related variables*” (Venkatraman, 1989b, p. 435). He assumes the existence of a pattern of covariation among business strategy, organizational structure, IT strategy and IT structure that will be positively related to business performance (Venkatraman, 1989b). Reich and Benbasat (1996) use the concept of “*linkage*” between IT and business, which they define as “*the degree to which the IT mission, objectives, and plans support and are supported by the business mission, objectives and plans*” (Reich and Benbasat, 1996, p. 56).

### **3.1.3 Alternative conceptions of strategic alignment**

The literature on strategic alignment is large, and in parts, not systematized. Thus, multiple alternative terms are used almost synonymously with the concept of alignment. This list includes terms such as “strategic fit”, “matching”, “integration”, “linkage”, “congruence”, “harmony”, “balance”, “fusion”, “bridge” and “co-evolution”. Baker and Jones (2008) point out that no single definition of alignment can apply in all business setting due to differences in business contexts. I will review this space of alternative conceptions of strategic alignment, both in the strategic management literature and the IS literature, below.

#### ***3.1.3.1 Strategic Fit***

The term “fit” is not only used in the strategic management literature (Andrews, 1971; Chandler, 1962; Porter, 1996), but is also used extensively in organizational theory (Thompson, 1967; Lawrence and Lorsch, 1967), and IS (Chan, 1999; Henderson and Venkatraman, 1993; Venkatraman and Camillus, 1984; Yetton and Johnston, 1995).

Adaptive strategy perspectives in strategic management (see Chapter 2, Section 2.5.2) extensively use “strategic fit” to interpret strategy. Chakravarthy (1982) argues that the firm continuously assesses both internal and external conditions and allows it to interact with the environment. According to Chaffee (1985), Bourgeois (1980), Hambrick (1982), Hofer and Schendel (1978), Miles and Snow (1978), Mintzberg (1978), Rumelt (1979) and Quinn (1980) are *adaptive theorists* who discuss co-alignment of strategy with the environment (Chaffee, 1985).

The notion of “fit” in strategic management emphasizes strategy-structure relationships (Chandler, 1962). Chandler (1962) concludes that “strategy drives structure” and argues that there must be a “strategic fit” between strategy and structure. According to Chandler (1962), firms need to adjust their organizational structure according to their business environment and argues for the need for aligning their organizational structure with strategy. When strategy and structure are aligned, the firm is less vulnerable to external changes and internal inefficiencies and is consequently positioned to achieve better performance (Habib and Victor, 1991). Habib and Victor (1991) also connect the firm’s strategy and structure by suggesting that *“the structure provides the necessary systems and processes essential for successful strategy implementation”* (p. 589).

The concept of “fit” can also be explained in the positioning school of strategy (Bain, 1968; Caves, 1980; Porter, 1980, 1996). They view strategy as a response to the structure of the industry in which the firm competes and the position of the firm in the market relative to its competitors (see Chapter 2, Section 2.6.1).

The concept of “fit” has theoretical roots in the contingency perspectives found in both the literature on strategy and on organizational theory (Ginsberg and Venkatraman, 1985). Contingency theorists (Bergeron and Raymond, 1995; Drazin and Van de Ven, 1985; Van de Ven and Drazin, 1985; Weill and Olson, 1989) suggest that there is no one best way to manage an organization. The organisation has to configure its organizational contingencies according to its external environment. Contingency theory posits that there is no universal strategy or structure (Venkatraman, 1989a). The firm needs to adjust itself to its business context or environment. The formation of organisational structure must depend on the business context (Drazin and Van de Ven, 1985; Van de Ven and Drazin, 1985). Thus, environmental variability is treated as a critical contextual factor in organizational structure design (Pollalis, 2003).

Venkatraman (1989b) suggests that the notion of “fit” is a central theme to both theoretical discussions and empirical research in strategic management. Venkatraman and Camillus (1984) propose a conceptual scheme to distinguish the

different perspectives on this notion of fit (this will be discussed in detail in Section 3.3.5). Venkatraman and Prescott (1990) use empirical research on the fit between environment and strategy to suggest that firms need to align their internal organizational contingencies with opportunities and threats arising from the external environment.

Burns and Stalker (1961) suggest that organizational performance is the consequence of “fit” between factors such as strategy, structure, technology, culture and environment. Miles and Snow (1994) conflate the notions of alignment and fit when they suggest that “*the process of achieving fit begins, conceptually at least, by aligning the company to its marketplace*” (p. 12) and that this process of achieving alignment defines the company's strategy. According to them, “*successful organizations achieve strategic fit with their market environment and support their strategies with appropriately designed structures and management processes*” (Miles and Snow, 1984, p.10). They also suggest that the firm must engage in a process of “*dynamic search that seeks to align the organization with its environment and to arrange resources internally in support of that alignment*” (Miles and Snow, 1984, p. 11). They propose a conceptual framework for fit with a range of sub-categories: minimal fit, tight fit, early fit and fragile fit. **Minimal fit** refers to the fit between strategy, structure and process essential for a firm to operate in competitive environments. **Tight fit** refers to the internal and external fit that “*produces sustained, excellent performance and strong corporate culture*” (Miles and Snow, 1984, p.10). **Early fit** refers to “*the discovery and articulation of a new pattern of strategy, structure and process*” (Miles and Snow, 1984, p. 11) which contributes to organisational success. **Fragile fit** refers to the situation of an organisation with a deteriorating level of fit due to vulnerability to both shifting external conditions and to inadvertent internal breakdown (Miles and Snow, 1984).

The discourse on “fit” in the IS literature can be traced back to King (1978) who specifically mentions the link between IT and business strategy in the process of organisational strategic planning. Henderson and Venkatraman (1993) define “strategic fit” as the “concordance” between external and internal components of both business and IT. Other researchers (Chan, 1999; King, 1978; Venkatraman, 1989b; Zajac *et al*, 2000) also discuss “fit” in an IS context.

### **3.1.3.2 Matching**

In the strategic management literature, the term “matching” has been used in a very similar fashion to fit. Miller (1991) uses the notion of “*matching*” to describe the relation between a strategy and a business context.

The principle of “matching” organizational internal resources with external environmental opportunities or threats is central to the approach towards alignment adopted by Venkatraman and Camillus (1984). In fact, “matching” is one of earliest used terms to explain the concept of alignment.

The concept of “match” has its theoretical origins in adaptive strategy perspectives (see Chapter 2, Section 2.5.2). Adaptive strategy theorists emphasise the importance of “matching” and “relationship” between the opportunities and risks present in the external environment and the resources and capabilities to utilise these opportunities and reduce risks (Chaffee, 1985).

The early strategy development theorists Andrews (1971) and Chandler (1962), as well as Hofer (1973), Hofer and Schendel (1978) and Thompson and Strickland (1983), have used the elements of “matching” in their definitions of strategy. The concept of “matching” can be seen in Andrews’s (1971) SWOT analysis (the acronym stands for Strengths, Weaknesses, Opportunities and Threats). Hofer (1973) suggests that the matching between the external environment and the organisation’s capabilities and resources is important.

### **3.1.3.3 Integration**

The concept of “integration” has been associated with linear perspectives on strategy (see Chapter 2, Section 2.5.2). Linear strategy consists of integrated decisions, actions and plans to achieve the main goals of the organisation (Chaffee, 1985). Lawrence and Lorsch (1967) define “integration” in complex organizations as “*the process of achieving unity of effort among the various subsystems in the accomplishment of the organization’s task*” (p. 4).

Lingle and Schiemann (1996) state that “*effective organizations are organic, integrated entities in which different units, functions and levels support the company strategy, and one another*” (p. 59). Their argument is that the various levels of strategy and strategic priorities must be consistent, linked, and mutually supporting. Glueck (1980) and Teece *et al* (1997) have used the notion of integration in their definition of strategy. Pearce and Robinson (1988, p. 326) observe that “*the actual implementation of an overall business strategy requires objectives which are integrated and coordinated*”. Figge *et al* (2002) argue that the integration between the economic, environmental and social perspective within the firm is important.

Integration has been used to describe the connection between business and IS strategies (Henderson and Venkatraman, 1993; Teo and King, 1996; Weill and Broadbent, 1988). Weill and Broadbent (1988) discuss the “integration” between business strategy and information strategy. They argue that business strategy should be enabled, supported, and stimulated by information strategy. Teo and King (1996) discuss the common patterns of integration between business planning and I/S planning. They describe how these patterns tend to evolve over time, and identify contingency factors that influence them.

Pollalis (2003) examines three types of integration that impacts planning processes and the overall performance of a firm. These are *technical integration*, *cross-functional integration* and *strategic planning integration*. **Technical integration** refers to the integration of the various components of the IT architecture of a firm. **Cross-functional integration** refers to the organizational process and output of integration. **Strategic planning integration** refers to the planning process and output of integration. Henderson and Venkatraman (1993) define functional integration as the integration between the business and IT domains. According to them, there are two kinds of functional integration: strategic integration and operational integration. **Strategic integration** involves the maintenance of the links between business strategy and IT strategy. **Operational integration** involves the maintenance of the links between organizational infrastructures and processes on the one hand and IS infrastructure and processes on the other (Henderson and Venkatraman, 1993). Their Strategic Alignment Model (SAM) will be discussed in detail in Section 3.5.3.

### 3.1.3.4 Linkage

The general meaning of “linkage” is a connection or relation between two objects. Dyer and Singh (1998) suggest that inter-firm linkages may be a source of competitive advantage for the firm. A number of authors (Broadbent and Kitzis, 2005; Fiegenger and Coakley, 2002; Lederer and Mendelow, 1989; Reich and Benbasat, 1996, 2000) use the concept of “linkage” between IT and business in their research. Reich and Benbasat (1996) identify the linkages between the business domain and the IT domain. Similarly, Fiegenger and Coakley (2002) use the notion of linkages between business and IS strategies to propose three types of alignment mechanisms: content linkage, process linkage and context linkage. According to them, **content linkage** refers to coordinating the documented statements of business and IS strategy. It comprises strategic plans, mission statements, goals and objectives, budgets, corporate policies etc. **Process linkage** addresses how to achieve alignment between business and IS strategy. **Context linkage** refers to coordinating the norms and values of the managers responsible for making strategic business and IS decisions.

Reich and Benbasat (1996) define linkage as “*the degree to which the information technology mission, objectives and plans support and are supported by the business mission, objectives and plans*” (p. 4). They differentiate between the social and intellectual dimensions of linkages. **The intellectual dimension of linkage** relates to the consistency of business and IS/IT plans, objectives, mission and goals, as well as validity of external business environments (Reich and Benbasat, 1996). In contrast, they argue that the **social dimension of linkage** is the process of the strategic alignment. Lederer and Mendelow (1989) propose three mechanisms of linkage: content linkage, timing linkage, and personnel linkage in coordination of information systems plans with business plans. A **content linkage** involves the consistency between business plans and IS plans. A **timing linkage** involves situations where the IS plan is developed with business plan, either before, after or simultaneously. A **personnel linkage** addresses the participants involved in the IS planning process and the strategic business process.

In the strategic management literature, Figge *et al* (2002), Lawrence *et al* (1998), and Miller (1991, 1992) discuss the links between business strategy and environmental sustainability. Figge *et al* (2002) link business strategy and sustainability management by using the Balanced Scorecard model (Kaplan and Norton, 1992). Lawrence *et al* (1998) link business strategy and environmental strategy by using Total Quality Management (TQM) as a tool. They suggest that business strategy and environmental strategy have equal weight within an organization.

The notion of “linking” IT strategy with other strategies in an organisation has been discussed in IS (Broadbent and Kitzis, 2005; Gupta *et al*, 1997; Henderson and Venkatraman, 1991; Papp, 2001; Vitale *et al*, 1986). For example, Papp (2001) discusses the linkages between the four domains of the strategic alignment proposed by Henderson and Venkatraman (1991) (this will be discussed in detail in Section 3.5.3). Broadbent and Kitzis (2005) link IT to business strategy, Vitale *et al* (1986) link IT to corporate strategy and Gupta *et al* (1997) link IT to competitive strategy. Pyburn (1983) as well as Teo and Ang (1999) discuss linking the management information systems (MIS) plan with corporate strategy. Tavakolian (1989) discusses the linking of IT structure with organizational competitive strategy. Scarbrough (1998) addresses the importance of the “management of expertise” in the linking of IT-based innovation with strategy. Parker *et al* (1988) as well as Santhanam and Hartono (2003) are examples of authors who also discuss the linking of IT capability with the firm’s performance. Likert (1961) regards objectives and goals as “*linking pins*” that connect the corporate, business and functional priorities and strategies of the firm.

### **3.1.3.5 Congruence**

“Congruence” is another notion that is closely related to IS alignment. According to Edwards (1994, p. 51), “*congruence refers to the fit, match, agreement, or similarity between two conceptually distinct constructs*”. The concept of congruence has been used in the field of organisational behaviour, particularly in studying in the relationships between employees and the organisation (Adkins *et al*, 1996; Edwards, 1994; Nadler and Tushman, 1980). The congruence between co-workers and its relationship to work outcomes (Adkins *et al*, 1996) has also been explored. In these

studies, congruence is viewed as a good predictor of employee and organizational performance (Edwards, 1994). Jauch and Osborn (1981) suggest that “*the probability of organisational survival increases as the congruity of environmental, contextual, and structural complexity increases*” (p. 492).

### **3.1.3.6 Harmony**

Another view of IS alignment is that it helps establish “harmony” (in an intuitive reading of that term) between the firm’s goals, activities and information systems in order to “*ensure that there is a focus on strategic achievement, not just organizational achievement*” (Luftman *et al*, 1993, p. 218). Luftman and Brier (1999, p. 109) suggest that good alignment means that the organisation is “*applying Information Technology (IT) in an appropriate and timely way and in harmony with business strategies, goals and needs.*” McKeen and Smith (2003) support Luftman and Brier’s argument.

Much attention has been paid in the IS literature to the importance of “harmony” within the firm (Luftman and Brier, 1999; Luftman *et al*, 1993; McKeen and Smith, 2003). Woolfe (1993) is another author who relates alignment with harmony. Luftman, Lewis and Oldach (1993) emphasize how business success depends on the harmony between business strategy, information technology strategy, organizational infrastructure and processes, and IT infrastructure and processes.

### **3.1.3.7 Balance**

Pollalis (2003) suggests that all the key elements of an organization must be kept in “balance”. According to Burn (1997), enterprises variously follow a strategy of IT leading change (a lead strategy) and IT catching up with changes (a lag strategy). He argues that “*alignment is not a one-time activity but a constant balancing act between a lead or lag strategy*” (Burn, 1997, p. 85). Rockart and Scott Morton (1984) identify five elements of corporate functioning that must be kept in balance within organizations during change processes: strategy, structure, technology, management processes as well as individuals and roles. (Their MIT model will be



discussed in detail in Section 3.5.2). The balanced scorecard framework proposed by Kaplan and Norton (1992) is a combination of objectives, measures, targets and initiatives that represent the strategy of an organisation. They argue that the four internal factors, customer, financial, internal business processes, and learning and growth need to be balanced. (Their model will be discussed in detail in Section 3.5.3).

#### **3.1.3.8 Fusion**

The notion of “fusion” describes the process by which the elements of the IT function and the rest of the business work together to achieve a common goal (Smaczny, 2001). Some authors (Smaczny, 2001; Sauer and Yetton, 1997) use the term “fusion” to describe IS alignment rather than the notion of “alignment” itself. They argue that a focus on the alignment of IS with business strategy is unnecessary since IS is pervasive in business and should be part of business strategy (in effect the firm would have a single “fused”, integrated strategy as opposed to differentiated IS and business strategies) (Smaczny, 2001). Thus, since “alignment” describes the problem rather than the solution (Sauer and Yetton, 1997), authors such as Smaczny (2001) and Sauer and Yetton (1997) prefer to use the term “fusion” to describe the solution.

#### **3.1.3.9 Bridge**

Ciborra (1997) uses the notion of “bridge” to address IS alignment, describing the process of establishing alignment as being similar to that of constructing a bridge between two constantly moving shores, with technology on one side and business on the other. In Ciborra’s words, “*alignment as a conceptual bridge, urges us to reflect on the true nature of its shores: management strategy and technology*” (Ciborra, 1997, pp.70).

Ciborra (1997) also argues that the idea of formulating an alignment model in terms of “boxes” and “linear relationships” is at best an impractical theoretical abstraction. Ciborra (1994) concludes from empirical research on a number of organizations that firms might benefit from leveraging “serendipity” instead of formal planning when

deploying IS. The argument, therefore, is for ad-hoc improvisation as opposed to principled processes to achieve alignment.

Ciborra (2000) suggests that alignment should be modelled as a “bridge” between business strategy and IT infrastructure. IT infrastructure and business strategy are extremely unstable variables with the IT infrastructure tending to “drift” due to frequent shifts/advances in technology. In this account, IS alignment resembles a process of “*bricolage*” (i.e., a construction made from a wide variety of available objects), “improvisation” and “tinkering”, rather than the execution of a predetermined strategy (Ciborra, 1997, p. 69).

#### ***3.1.3.10 Co-evolution***

The term “co-evolution” (Agarwal and Sambamurthy, 2002; Baker and Jones, 2008; Benbya and McKelvey, 2006) has also been used to explain IS alignment. Benbya and McKelvey (2006) argue that it is not sufficient to just have a detailed strategic plan to achieve alignment, as achieving alignment is an emergent process and not a “one-off” event. They therefore argue for the use of the term “co-evolution” instead of “alignment”. Similarly, Baker and Jones (2008) argue that “alignment” may be too static a concept for today’s rapidly-changing business context. Instead, they suggest that a better conception of IS alignment is the “co-evolution” of IT and business strategy. Benbya and McKelvey (2006) view IS and business strategies as two interdependent domains which require continual adaptation and change. Changes in one domain require adjustments in the other for alignment to be maintained (Baker and Jones, 2008; Benbya and McKelvey, 2006).

### **3.2 Conceptions of alignment in the strategic management literature**

We have seen the use of a variety of terms including “fit”, “matching”, “aligning” and “integration” to denote “alignment” in the preceding sections. I will consistently use the term of “alignment” in the following.

Venkatraman and Camillus (1984) argue that alignment is fundamental to strategic management. They also argue that the concept of alignment is rooted in the field of business policy. Ansoff (1965), Certo and Peter (1990), Glueck (1980), Jauch and Glueck (1988), Learned *et al* (1965), Schendel and Hofer (1979), as well as Thompson and Strickland (1981) view strategy as being part of business policy. Most of their discussion on strategy has highlighted the importance of alignment. For example, Glueck (1980) recommends that an organisation needs a plan (i.e., policy) to cover all aspects of the firm to ensure the basic objective is achieved. It is important that all parts of the plan are compatible with one another. I will leverage both these notions (a strategy as a plan, and compatibility between plans) in the framework I will develop in Chapter 5.

Ansoff (1965) suggests that strategy is the “common thread” running through an organization’s activities, guiding decisions on things such as market scope, growth vector, competitive advantage and synergy. Although Ansoff does not explicitly address alignment, he implicitly suggests that strategy is key to connecting all activities together. Schendel and Hofer (1979) address the alignment between organizational purpose, resources, skills environment opportunities and risks within the hierarchically structured levels of strategy in a firm (see Chapter 2, Section 2.4).

Chandler (1962) suggests that the firm needs to align its organisational structure with strategy (as in *strategic fit*, discussed earlier). Baker and Jones (2008) argue that structure is the capability to support business decisions and that structure should be viewed as being part of an organisation’s resources.

Andrews’ (1971) discussion on SWOT analysis plays a very important role in conceptions of alignment. The SWOT analysis framework is also regarded as one of the early models of strategic alignment to support the firm in aligning its resources with the internal and external environment. Andrews (1971) points out that “*the ability to identify four components of strategy; market opportunity, corporate competences and resources, personal values and aspirations, and acknowledge obligations to segments of society other than stockholders is nothing compared to the art of reconciling their implications in a final choice of purpose*” (p. 38). This statement points to the importance of the integration (or alignment) of factors in the

external environments (market opportunity) and internal environment (resources, competences, culture and so on).

Venkatraman and Camillus (1984) highlight the importance of the concept of “fit” in the Industrial Organization (IO) paradigm. Bain’s (1968) structure-conduct-performance paradigm (SCP) and Porter’s (1985) five forces model also utilize “strategic fit” in some form.

Learned *et al* (1965) propose four dimensions in the LCAG framework that need to be interrelated with each other in an organisation. Leavitt (1965) proposes a conceptual model that incorporates relationships between strategy, structure, technology and individual participants in an organisation. The LCAG framework and Leavitt’s model are regarded as two of the earliest models in the strategic management literature that address something akin to alignment. Galbraith (2000) proposes the Star Model that views an organisation as five sets of forces (strategy, structure, processes, rewards and people) in dynamic equilibrium among themselves.

More recent proposals from Kaplan and Norton, specifically *Balanced Scorecards* (Kaplan and Norton, 1992) and *Strategy Maps* (Kaplan and Norton, 2003), provide a powerful and diagrammatic tool for visualizing strategy. They clarify the vision and strategy of a business unit through objectives and measures in four different areas: financial, customer, internal business process, as well as learning and growth.

Miles and Snow’s work (1984) can also be viewed as a contribution to developing a notion akin to alignment in strategic management.

Venkatraman and Camillus (1984) offer a range of different perspectives on the concept of *fit* in strategic management. One of these dimensions is “*the domain of fit*” which refers to different aspects of the business environment (such as the alignment between strategy and organisational internal contingencies, the alignment between strategy and the external business environment or both internal and external alignments) (Venkatraman and Camillus, 1984). Another dimension is “*the conceptualization of fit*” which refers to the different views on the concept of strategy. Some authors focus on the content view of strategy (see Section 3.3.3.1)

whiles other authors focus on the process view of strategy (see Section 3.3.3.2). According to Venkatraman and Camillus (1984), *the content of fit* refers to the elements to be aligned with strategy. It focuses on the specific strategic decisions to align internal with external contingencies. According to them, *the process of fit* refers to fit as a composition of interacting decisions taken to align external and internal contingencies.

Venkatraman and Camillus (1984) also propose six different schools of thought in relation to the concept of fit.

The first three schools focus on content: the strategy formulation school, the strategy implementation school and the integrated formulation-implementation school. The remaining schools of thought – the inter-organizational network (strategy) school, strategy choice school and the overarching “gestalt” school - seek to conceptualize fit as a pattern of interaction (Venkatraman and Camillus, 1984). **The strategy formulation school** addresses alignment between strategy and environmental conditions. **The strategy implementation school** addresses alignment between strategy and organizational internal contingencies. **The integrated formulation-implementation school** involves (as the names suggests) elements of both formulation and implementation. Since the resources available to an enterprise may span firm boundaries (Dyer and Singh, 1998), Venkatraman and Camillus (1984) define **the inter-organizational network (strategy) school** which addresses the interdependence of strategies of multiple interoperating organizations. **The strategic choice school** addresses managerial decisions that determine organisational mechanisms in a manner independent of external environment contingency. **The overarching gestalt school** addresses the firm in the context of both its internal organizational contingencies and external environment contingencies.

Venkatraman (1989b) proposes another conceptual framework for strategic fit in the strategic management literature. It includes six distinct perspectives of the concept fit which has been identified and described to map fit as (a) moderation, (b) mediation, (c) matching, (d) gestalts, (e) profile deviation, and (f) covariation.

### 3.3 The importance of strategic alignment

The notion of strategic alignment (both in the sense of strategic management and IS) has assumed considerable importance in the discourse on business strategy. Much of the discussion in this space pertains to strategic IS alignment, with a few exceptions.

Miles and Snow (1984) suggest that organisational success or failure depends on alignment. Venkatraman and Camillus (1984) stress the importance of alignment to improve organisational performance. However, almost all of the authors (both in IS and strategic management) mentioned in this chapter who address strategic alignment in the broader sense argue for its importance and centrality in managerial decision making. According to Avison *et al* (2004), IS alignment supports firms in three ways: (1) maximising return on IT investment, (2) achieving competitive advantage through IS, and (3) providing direction and flexibility to react to new opportunities.

The importance of strategic IS alignment has been cited frequently (Chan and Reich, 2007; Earl, 1996). Strategic IS alignment enhances IS effectiveness (Chan *et al*, 1993; Galliers, 1993; Ciborra, 1997) and business performance (Henderson and Vendkatraman, 1993; Chan and Huff, 1993a, 1993b).

Strategic IS alignment influences IS effectiveness (Chan *et al*, 1997; Galliers, 1993; Ciborra, 1997). The widespread adoption of IT can help firms streamline complex business processes as well as the strategic activities of an organization (Brynjolfsson and Hitt, 2000; Loebbecke and Wareham, 2003; Luftman *et al*, 1993). Chan *et al* (1997) argue that a key prerequisite for leveraging business value from IT is ensuring that the IS/IT function supports organisational goals and activities at every level.

Strategic IS alignment enhances business performance (Henderson and Vendkatraman, 1993; Chan and Huff, 1993a, 1993b; Venkatraman 1989), leading to greater profitability (Luftman *et al*, 1996) and achieving competitive advantage (Avison *et al*, 2004; Das *et al*, 1991; Kearns and Lederer, 2003; Luftman *et al*, 1993; Mata *et al*, 1995; Papp, 2001; Powell, 1992; Venkatraman *et al*, 1993).

According to Chan, Huff, Barclay, and Copeland (1997), strategic IS alignment is a much stronger forecaster of perceived business performance than either business strategy or IS strategy alone. Weill and Broadbent (1998) argue that failure to leverage IT may seriously obstruct a firm's performance and viability. Porter and Millar (1985) also suggest that the IT contributes to a firm's competitive position. Lederer and Mendelow (1989) and Luftman (2000) find that organizations benefit most by adopting strategic alignment as an optimized process. It has also been argued that "*alignment grows in importance as companies strive to link business and technology in light of dynamic business strategies and continuously evolving technologies*" (Luftman and Brier, 1999, p. 110). A number of authors (Avison *et al*, 2004; Chan and Reich, 2007; Luftman *et al*, 1999; Tallon and Kraemer, 1998) acknowledge that strategic IS alignment is one of the most challenging issues in an organisation. Some point out that turning good theoretical frameworks into practical tools is difficult (Hirschheim and Sabherwal, 2001; Peppard and Breu, 2003). It is no surprise then, that strategic IS alignment has consistently appeared as a top concern for business executives for the last two decades (Luftman *et al*, 2005). According to Lederer and Mendelow (1989), there are four common reasons why strategic alignment is difficult to achieve and sustain: (1) unclear or unstable business mission, objectives, and priorities, (2) lack of communication, (3) absence of IS management from business planning process, and (4) unrealistic expectations and lack of sophistication of user managers.

Despite the fact that some of these issues can still not be resolved by organisations, the high level of interest from practitioners has translated into research on strategic alignment becoming one of the most-frequently examined topics in IS research (Chan and Reich, 2007; Baker and Jones, 2008; Lee and Bai, 2003; Reich and Benbasat, 2000, Sabherwal and Chan, 2001).

### **3.4 Taxonomies of strategic alignment**

A number of authors have offered alternative taxonomies of strategic alignment. This section is organized as follows. In Section 3.4.1, I will discuss different types of

alignment including strategic, structural, business, IS and functional alignment. In Section 3.4.2, I will present the different levels of alignment suggested by various authors.

### **3.4.1 Types of alignment**

Baker and Jones (2008) point out that the diversity in definitions of alignment is due to the diversity of business contexts and types of alignment. There is great debate in the literature about what exactly strategic alignment is (Avison *et al*, 2004) given that alignment can be viewed from different dimensions (Regev and Wegmann, 2004). Baker and Jones (2008), Lederer and Mendelow (1989), Reich and Benbasat (1996), Regev and Wegmann (2004), and Sabherwal *et al* (2001) have proposed various classifications for alignment according to the components that are being aligned. In this section, I will present a comprehensive discussion of the different types of alignment reported in the literature.

#### ***3.3.1.1 Strategic IS alignment***

*Strategic IS alignment* examines the link between IS strategy and organizational strategy (Sabherwal *et al*, 2001). There are different levels of organizational strategy (see Chapter 2, Section 2.4) from the perspective of strategic management, but most work in IS does not distinguish between business strategy and corporate strategy in terms of alignment. However, there are some exceptions. Strategic IS alignment is the most commonly used term to describe the alignment between IS strategy and business strategy (Chan *et al*, 1997). Several frameworks have been proposed in the literature to study and explore alignment between business strategy and IS strategy (Bergeron and Raymond, 1995; Chan *et al*, 1997; Teo and King, 1996). Pyburn (1983) points out that much of the focus of strategic IS alignment in IS has been between corporate strategy and IT/IS strategy. Many authors (Luftman, 2000; Henderson and Venkatraman, 1993; Sabherwal and Chan, 2001; Tallon, 2007) propose conceptual models to understand the alignment between corporate strategy and IS strategy (Baets, 1992; Baets, 1996; Henderson and Venkatraman, 1993; MacDonald, 1991; Parker *et al*, 1988; Powell, 1993; Sledgianowski and Luftman, 2005). Some authors examine alignment between the functional level of strategy and



IS/IT strategy, for example, between advertising strategy and IT strategy (Boudreau and Watson, 2006), HRM strategy and IT strategy (Shih and Chiang, 2005), marketing and IT strategy (Hooper and Van Erkom Schurinck, 2002).

Another definition suggests that strategic IS alignment refers to the degree of correspondence between business strategic choices and strategic choices concerning IT deployed (Regev and Wegmann, 2004). A range of other perspectives on the definition of strategic alignment from both the IS literature and the strategic management literature have been discussed earlier in Section 3.1.

Several strategic IS alignment models (e.g., MIT, SAM, SAMM, the co-alignment model etc.) will be discussed in Section 3.5. Other authors focus on validating these models or exploring the factors that affect these models (e.g., Avison, *et al*, 2004; Burn and Szeto, 2000; Chan and Huff, 1993a; Silvius, 2007). Still, others measure or examine the impact of strategic alignment on business performance (Bergeron *et al*, 2004; Papp, 1999; Pollalis, 2003; Sabherwal and Chan, 2001).

### **3.3.1.2 Structural IS alignment**

*Structural IS alignment* refers to the alignment between business structures and IS/IT structure (Sabherwal *et al*, 2001), focusing on decision-making rights, reporting relationships, provision of IS services and infrastructure, and the deployment of IS personnel (Peppard and Breu, 2003). Structural IS alignment has been investigated by Ein-Dor and Segev (1982), Brown and Eisenhardt (1997), Croteau *et al* (2001), Fiedler, *et al* (1996), Henderson and Venkatraman (1993), Sauer and Willcocks (2004) and van Eck *et al* (2004).

There are five types of organisational structure according to Mintzberg (1979): simple structure, machine bureaucracy, professional bureaucracy, divisional form, and adhocracy. The relationships between organisational structure and business strategy can be seen in Chapter 2. Business structure can be examined in terms of decision making in the firm (Sabherwal *et al*, 2001). The decision making process can be organic, mechanistic (Burns and Stalker, 1961), semi-structured (Brown and Eisenhardt, 1997), centralised, decentralised (Daft, 1983) or hybrid (Sabherwal *et al*,

2001). According to Leifer (1988), more complex structures lead to more elaborate coordination, control and communication mechanisms within the firm.

There are three dimensions of IS structure according to Bergeron *et al* (2004): IS organizational structure dimension, technological architecture dimension and the process and skills dimension. Organizational structure dimension includes the responsibility of the IS function and the degree of decentralization of the IS organizational structure (Bergeron *et al*, 2004). Technological architecture dimension includes the deployment of hardware, standardisation of the technology, as well as the integration between the application and infrastructure (Bergeron, 2002). According to van Eck *et al* (2004), the technological architecture can be seen in two levels: infrastructure level and application level. The two levels of IT structure should be designed and managed in a different way. IT infrastructure is designed according to the IT strategy of the organisation because at a time its users are usually unknown. On the other hand, the application level is motivated both by end user needs and by features of the currently available infrastructure (van Eck *et al*, 2004). The process and skills dimension includes the skills need for planning mechanisms and implementation approaches, as well as the standardized processes of application development (Bergeron, 2002). The issue of IT investment has also been discussed in the context of IS alignment (Byrd *et al*, 2006; Sauer and Willcocks, 2004).

### **3.3.1.3 Business IS alignment**

*Business IS alignment* refers to the alignment between business strategy and IS/IT structure (Sabherwal *et al*, 2001). Hirschheim and Sabherwal (2001) emphasise that the firm's success depends on organisational structures and capabilities that support the strategic decisions. Baker and Jones (2008) suggest that business IS alignment is the alignment between organisational strategy and organisational resources. They also argue that IS/IT structure is part of organisational structure and develop an approach to business IS alignment that builds upon Andrews and Chandler's original ideas that "*an organization's structure and resources should evolve to support the strategic mission of the organization*" (Baker and Jones, 2008, p. 5).

As mentioned in Chapter 2, there are different levels of strategy in an organisation: functional strategy, business strategy, corporate strategy, and societal strategy (see Chapter 2, Section 2.4). Organisational resources (see Chapter 2, Section 2.6.2) can be tangible or intangible (Ray *et al*, 2004), individual-level or firm-level (Lee *et al*, 2001), skills and knowledge or technical know-how (Hofer and Schendel, 1978). Basically “*all assets, capabilities, organizational processes, firm attributes, information, knowledge etc.*” (Barney, 1991, p. 101) are resources controlled by a firm. Hence, organisational structure can be viewed as being included in organisational resources, supporting the views discussed above.

Fuchs *et al* (2000) discuss the correlation between performance and the alignment between firm’s internal resources with its product and market position. Schwartz and Davis (1981) explore the effects of alignment between corporate culture and business strategy. Other studies address the effects on performance of alignment between technology resources and organisational strategy (Gupta *et al*, 1997; Henderson and Venkatraman, 1999; Luftman and Brier, 1999). According to Habib and Victor (1991), when strategy and structure are aligned, the organization is well-positioned to execute its strategy and achieve a better performance.

#### ***3.3.1.4 IS alignment***

*IS alignment* refers to the alignment between IS strategy and IT structure (Sabherwal *et al*, 2001). Baker and Jones (2008) provide a slightly different definition of IS alignment as the alignment between IS strategy and IT resources.

According to Sabherwal *et al* (2001), an effective IS strategy can have the following kinds of impact on the organisation: low cost, differentiation, growth, alliance, innovation, and so on. The successful execution of IS strategy with suitable IT resources enables the organization to achieve its goals (Baker and Jones, 2008; Brown and Eisenhardt, 1997). There is a substantial literature on other aspects of IS strategy, such as alignment with IT managers (Kerr and Jackofsky, 1989) or leadership and shared vision (Hilgers *et al*, 2004).

### 3.3.1.5 Functional alignment

*Functional alignment* refers to the alignment between business strategy and a specific functional strategy or sub-component of that function. Functional alignment can also be the alignment between any of its internal components, such as human resources, marketing strategy, procurement strategy etc.

Although much of the work on alignment addresses *strategic alignment* (Pyburn, 1983), a certain amount of research has focused on functional alignment. Edwards (1994) has proposed the P-E fit to match managers with strategy. Knudsen (2003) explores the alignment between corporate strategy and procurement strategy. Schroeder *et al* (1986) and Skinner (1969) discuss the alignment between corporate strategy and operations strategy.

Table 3.1 below summarizes the general types of strategic alignment discussed thus far.

**Table 3.1: The General Types of Strategic Alignment**

| Types of alignment                      |                        | Strategies that are related   |
|---|------------------------|---|
| Internal alignment                      | Strategic IS alignment | <ul style="list-style-type: none"> <li>business strategy and IS/IT strategy</li> <li>corporate strategy and IS/IT strategy</li> <li>functional strategy and IS/IT strategy</li> </ul>                         |
|   | Structural alignment   | <ul style="list-style-type: none"> <li>business structures and IS/IT structure</li> <li>organisational structures and IS/IT structure</li> </ul>  |
|   | Business alignment     | <ul style="list-style-type: none"> <li>business strategy and IS/IT structure</li> <li>business strategy and organizational resources</li> <li>organizational strategy and organizational resources</li> </ul> |
|   | IT/IS alignment        | <ul style="list-style-type: none"> <li>IT resources and IT strategy</li> </ul>  |
|   | Functional alignment   | <ul style="list-style-type: none"> <li>business strategy and functional strategy</li> <li>business strategy and sub-component of the function</li> </ul>  |
| External alignment contextual alignment |                        | industry context, the macroeconomic context, and other national and cultural factors  |

### 3.4.2 Internal and external alignment

Alignment can be divided into “internal alignment” and “external alignment” (Camponovo *et al*, 2003). **Internal alignment** can be defined as the requirement for consistency among the firm’s internal strategic orientations. **External alignment** can be defined as the requirement for consistency among the firm’s external strategic orientations. Venkatraman and Camillus (1984) suggest that Andrews’ (1971) concept of the “matching” internal resources with external environmental opportunities or threats (see Section 3.1.3.2) is a key building block for the concept of alignment from the strategic management perspective.

Extensive studies on the external alignment between business strategy and its external environment have been conducted (Bourgeois, 1980; Daft *et al*, 1988; Hambrick, 1982). Baker and Jones (2008), amongst others, refer to it as “*contextual alignment*”. They suggest that the concept of contextual alignment can be traced back to the Industrial Organization paradigm (Bain, 1968; Porter, 1979) (discussed in Chapter 2, Section 2.1.1). Burn (1996, 1997) provides similar views on internal and external alignment. Burn suggests that functional level of alignment is internal alignment, while the external level of alignment refers to situations in which industry, technology and organizational strategies need to be aligned.

Organizations develop strategy in response to the competitive context of the organisation to gain competitive advantages. Strategies can be conceptualized using different approaches, such as the market-based view (MBV), the resources-based view (RBV) and the relational view of strategy, (see Chapter 2, Section 2.6). No matter which approach is adopted, the firm needs to align its organizational resources with their competitive context (Drazin and Van de Ven, 1985). The competitive context includes as components the industry context, the macroeconomic context, and other national and cultural factors etc. (Chan and Reich, 2007). Baker and Jones (2008) argue that the degree of strategic alignment is contingent upon both internal and external factors. Huff, Huff and Thomas (1992) address a combination of both internal and external demands. Henderson and Venkatraman (1993) highlight the importance of aligning the external and internal business domains with the external and internal IT domains.

Bergeron *et al* (2004) and Camponovo *et al* (2003) discuss internal alignment from IS perspective. Bergeron, Raymond and Rivard (2004) present a conceptual framework for *co-alignment*. They suggest that both internal alignment and external alignment must be inter-linked and assessed in response to changes in the business context. In other words, strategic alignment is a process of continuous adaption to the environment.

Miller (1992) argues that organizations may find it difficult to adjust their internal alignment configuration to accommodate a continually changing external business context. Interestingly, he concludes that the requirements for external and internal fit are incompatible in highly uncertain and dynamic environments. He reports empirical results that show that firms with the poorest external fit exhibit the greatest internal fit (Miller, 1992). By contrast, firms showing the best external fit had poor consistency in their organizational structure and process variables (Miller, 1992).

### **3.5 Evolution of strategic IS alignment thinking**

Peppard and Breu (2003) provide an account of the historical development of strategic IS strategic alignment thinking that is of interest in the current context. They divide them into four stages. Stage 1 addressed business strategy and IS alignment, Stage 2 addressed business and IS structural alignment, Stage 3 addressed strategic IS alignment while Stage 4 addressed alignment mechanisms.

#### **3.5.1 Stage one: Business Strategy and IS Alignment**

According to Peppard and Breu (2003), information technology was viewed in the 1960s as an operational utility for most firms (Bakos and Treacy, 1986) with the potential to improve operational efficiencies. As the need to incorporate IT into other components of business strategy grew (Ward and Peppard, 2002), the strategic use of information technology became a critical challenge.

Since the late 1970s, we have witnessed a substantial growth in research and innovation on both the theory and practice of alignment between business strategy

and IS (Peppard and Breu, 2003). The IT function is increasingly viewed as not just a means for achieving automation, but a competitive weapon (Bakos and Treacy, 1986; Kearns and Lederer, 2000; Luftman *et al*, 1993; Pollalis, 2003).

During Stage 1 in this account, the process of IS strategy formulation and of aligning IS and business strategies (Earl, 1989) mostly relied on top-down strategic planning models (Peppard and Breu, 2003). According to Peters *et al* (2002), such top-down strategic planning models are “*based on the assumption that an IS strategy can be planned and is often closely associated with the business strategy*” (p. 25).

### **3.5.2 Stage two: Business and IS Structural Alignment**

A number of authors (Ein-Dor and Segev, 1982; Brown and Eisenhardt, 1997; Fiedler *et al*, 1996; Henderson and Venkatraman, 1993; Sauer and Willcocks, 2004; van Eck *et al*; 2004) recognize the need for structural alignment (in Section 3.3.1.2) between IS and the organizational structures within the firm. This was Stage 2 is the historical account of Peppard and Breu (2003).

### **3.5.3 Stage three: Strategic IS Alignment**

Researchers in Stages 1 and 2 took the position that strategy alignment was an event – a condition to be achieved and then to be not revisited. Their research focus was on the relationships between business strategy and IS strategy, or between business structure and IS structure.

Bergeron, Raymond and Rivard (2004) argue that the firm need to take a holistic approach, as opposed to only analysing the alignments between the business strategy and IT strategy, or the business infrastructure and IT infrastructure. Other scholars agree with them and suggest that alignment is a dynamic process offering “dynamic alignment” as an alternative, and more appropriate notion (Broadbent and Weill, 1993; Henderson and Venkatraman, 1991, 1993). Dynamic alignment is the alignment between the business strategic context and the IT strategic context, and incorporating both strategy *and* structural alignment (Henderson and Venkatraman, 1993).

### 3.5.4 Stage four: Alignment Mechanisms

Sauer and Burn (1997) argue that Henderson and Venkatraman's SAM model (to be discussed in detail later) as well as other related strategic alignment models rely on the assumption that business and IS strategies are separate and distinct. They argue that this might be the underlying reason for the inability of (or difficulty faced by) firms that seek to align business and IS strategies in the first place (Peppard and Breu, 2003).

In Stage 4, the emphasis shifted to the challenge of how to *sustain* the dynamic and continuous process of adaptation between business and IS strategy (Peppard and Breu, 2003). Peppard and Breu (2003) provide examples of factors that support sustainable competitive advantage through achieving *alignment over time*. (Luftman and Brier, 1999) identify the enablers of alignment in this context. Peppard *et al* (2000) address the mobilization of resources through IS competencies. Weill and Woodham (2002) identify effective IT governance as a key determinant of our ability to leverage value from IT. Ross and Weill (2002) address management leadership's role in key IT decisions. Mata *et al* (1995) recommend the development of superior IT management skills to achieve these outcomes. Sabherwal *et al* (2001) uses the *Punctuated Equilibrium Model* (Gersick, 1991) to examine the dynamics of alignment. Peppard and Breu (2003) offer a *coevolutionary* theory to advance our understanding of the business-IS strategy relationship.

## 3.6 Strategic Alignment Models

This section presents a number of mature strategic alignment models. As discussed earlier, some of the earliest models of alignment in the strategic management literature were those of Leavitt (1965) and the LCAG framework (Learned *et al*, 1965). Some of these alignment models have been particularly influential. The most frequently discussed models are the MIT 90 model by Scott Morton (1991) and the *Strategic Alignment Model* (SAM) by Henderson & Venkatraman (1993). Instruments to measure strategic alignment have also been developed and evaluated (Avison *et al*, 1994; Chan *et al*, 1997).



### **3.6.1 Alignment models in the management literature**

Leavitt (1965) views an organisation as a system of components such as strategies, structure, technology and individual participants and highlights the dynamic equilibrium between these components. To understand this dynamic equilibrium, Leavitt focuses on the relationships between the components which document how they impact each other and develops a conceptual model that addresses these relationships. Leavitt (1965) makes special provision for goals and tasks to be defined in strategies and argues that all components must work in coordination with one another. Leavitt's notion of coordination and dynamic equilibrium is clearly a version of strategic alignment in the sense discussed in this dissertation.

Learned, Christensen, Andrews and Guth (1965) propose the LCAG framework (names after their initials) which argues that the following four dimensions need to be interrelated: (1) the firm's strengths and weaknesses (2) the external industry, economic and technical opportunities and threats (3) the personal values and (4) broader social expectation. It stresses the fit between the personal values of management with the firms' internal skills and resources, as well as with the firms' external environment.

Many authors have focused on some parts of the LCAG framework. For example, the work of Andrews (1971) on SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis emphasises the internal and external factors. Andrews (1971) views organisational strategy as the correlation of internal resources and strengths with the opportunities existing in the environment. The widely-known work of Porter (1980), building on the prior work of Bain (1968) on industrial organisation (IO), emphasises industry factors. Porter (1980) extends Bain's traditional structure-conduct-performance paradigm to develop the celebrated *five forces model* (see Chapter 2, Section 2.6.1). According to this model, firms could optimise performance by how they positioned themselves vis-à-vis these forces.

Galbraith (2000, 2005) developed the Star Model initially as an organisational design framework. The model is used to design policies that guide organisational decision making. The model views an organisation as consisting of five sets of forces in

dynamic equilibrium among themselves: strategy, structure, processes, people and rewards. According to Galbraith (2000), the model is intrinsically about strategy. Strategy determines the basic direction of the company through goals, objectives, values and or missions. Organisational structure can be viewed as a map of the locations of decision-making capabilities. The third force involves processes, which describe the flow of activities, information and decisions through an organisation. The fourth force involves rewards which incentivize people to perform and achieve organisational goals. The fifth force involves people. It defines employees' mindsets and skills through recruitment, promotion, rotation, training and development (Galbraith, 2000). Galbraith argues that the five forces must be internally consistent to enable effective behaviour. The idea of *alignment* is thus fundamental to the Star Model. Galbraith defines a design sequence whose starting point is the strategy definition. Strategies drive organisational structure. Processes are based on organisational structure. These in turn define the implementation of reward systems and people policies (Galbraith, 2000).

### **3.6.2 The MIT 90 model (Scott Morton, 1991)**

This model was developed by a team led by Michael S. Scott Morton at the Massachusetts Institute of Technology (MIT) and popularly referred to as the MIT 90 Model. Baets (1992), Galbraith (2000), Henderson and Venkatraman (1991) and MacDonald (1991) have developed a range of different models that were all influenced by this influential model.

Rockart and Scott Morton (1984) developed the original conceptual model consisting of five sets of forces in dynamic equilibrium among themselves (much like the Star Model): strategy, structure, technology, management processes and individuals and roles. They suggest that *“IT is a key enabler of strategic direction and that an important problem is to find the link between strategic ideas and the application of IT”* (Rockart and Scott Morton, 1984, p. 91). The model represents the IT impact on the firm and how the various forces are involved in alignment. The model suggests that superior performance is driven by the *“the ability of management to create a strategic fit between the position of the organisation in the competitive product market arena and the design of an appropriate administrative structure to support its*

*execution*” (Scott Morton, 1991, p. 473). The MIT 90 model shows that a successful organization needs to achieve a balance or alignment among the five forces of its internal business environment and its external business environment.

MacDonald (1991) builds on the MIT 90 Framework and develops a model that (like MIT 90) considers both internal and external factors. Similar to MIT model, MacDonald examines inter-relationships between business and IT strategy, infrastructure and processes. In addition, external impacts on customers, suppliers, and markets are also considered.

### 3.6.3 The Strategic Alignment Model (SAM)

Henderson and Venkatraman (1991) present a general model of business-IT strategic alignment -the “Strategic Alignment Model”, also known as SAM. It was also influenced by the MIT 90 mode. SAM is arguably currently the most widely used conceptual model to understand strategic IT alignment (Chan and Reich, 2007).

The *Strategic Alignment Model* is composed of two main concepts: **strategic fit** and **functional integration**. On one dimension, it depicts the organisational domains between the business strategic context and the IT strategic context. On the other dimension, it divides the dynamic environment into internal infrastructure and the external positioning (Henderson and Venkatatram, 1993).

According to Henderson and Venkatatram (1993), the model illustrates strategic alignment as interrelationships of the four fundamental domains of strategic choices: business strategy, IT strategy, organizational infrastructure and processes, and IT infrastructure and processes. The notion of “cross-dimension alignment” suggests that neither *strategic fit* nor *functional integration* alone is adequate. The model suggests that in order to achieve organisational-level alignment, it is essential to have all of the components across domains work together and attain a balance.

SAM is widely regarded as a significant step in the conceptualisation of strategic IT alignment. The SAM model has received empirical support and has conceptual and practical value (Avison *et al*, 2004).

There has been considerable research since this model was published, extending and refining the original model (Chan and Reich, 2007). Luftman (2000) developed the *Strategic Alignment Maturity Model* (SAMM) to assess the maturity level of alignment which leverages components of SAM. Avison *et al* (2004) evaluate and validate the SAM model and find evidence that alignment improves the efficiency and effectiveness of administration processes. They suggest some implementation steps for managers and researchers with additional practical ways to attain alignment. They suggest that every function, unit and person need to focus on the organization's competitiveness in order to create an integrated organisation. Maes (1999) proposes a generic framework for information management by extend SAM by supplementing it with additional strategic and functional layers. Maes *et al* (2000) enhance the SAM model and propose a unified framework for investigating and interrelating the different components of information management. Burn and Szeto (2000) identify significant differences in the perspectives of IT and business managers as well as factors that contribute to successful strategic alignment using SAM. Goedvolk *et al* (1997) extend the SAM model by focusing on technical and architectural requirements. Ho (1996) develops a similar framework that focuses on the manufacturing side of the SAM model.

SAM is widely acknowledged for its contribution of combining descriptive and prescriptive aspects of alignment (Chan and Reich, 2007). However, it has been criticized for relying on a mechanistic view of the company (Smaczny, 2001). Smaczny (2001) challenges the responsiveness and flexibility of such a model to react to a fast changing business environment. According to Smaczny (2001), "*the reaction time allowed between a business decision made and the IT decision is too short for the IT organisation to respond*" (p. 799).

### **3.6.4 The Strategic Alignment Maturity Model (SAMM)**

Luftman, Papp and Brier (1999) suggest that the SAM model has certain limitations, specifically that Henderson and Venkatraman (1993) did not provide adequate descriptions of their twelve components. To address this, they keep the actual components unaltered, but provide a more in-depth description for each. They

expand the descriptions of the twelve components of the SAM model and identify six enablers and six inhibitors of business and IT alignment within organisations.

Luftman (2000) develops a model to assess the maturity level of alignment called the *Strategic Alignment Maturity Model* (SAMM) which based on the Henderson and Venkatraman's (1993) twelve components, together with the enablers and inhibitors of alignment (Luftman *et al*, 1999). The SAMM model offers a range of relationship that exist between these twelve components, including business scope, distinctive competencies, business governance, technology scope, system competencies, IT governance, administrative infrastructure, business process, business skill, architectures, IT processes, and IT skills. The model suggests that these relationships define strategic alignment. Luftman (2000) argues that the key for organisational success depends on these components of alignment working in harmony. Further, he suggests that these twelve components are impacted by six criteria (against which the maturity of a firm's strategic alignment might be evaluated): communications, value, governance, partnership, scope and architecture, and skills (Luftman, 2000). For each of these criteria, he defines the attributes that determine the level of maturity in each one. He defines five levels of strategic alignment maturity. These are: (1) initial/*ad hoc* process, (2) committed process, (3) established focused process, (4) improved/managed process and (5) optimised process (Luftman, 2000). Luftman (2000) proposes that the overall strategic IT alignment level be calculated as an average evaluation by using a Likert scale rating for the six criteria of the Strategic Alignment Maturity assessment.

Luftman (2003) extends his previous research (Luftman *et al*, 1999; Luftman, 2000) by breaking down each of the six alignment criteria (communications, value, governance, partnership, scope and architecture, and skills) into an additional thirty-eight sub-attributes. The *Strategic Alignment Maturity Model* (SAMM) enables the firm to assess these thirty-eight sub-attributes and identify the maturity level of alignment within an organisation (Luftman, 2003). It helps the firm to minimise the alignment gap and make sure that the IT and business components of the firm are able to work well together (Luftman, 2003).

Luftman (2000) argues that it is difficult to achieve and sustain a synergistic relationship between business and IT as business strategies and technologies continuously evolve (and often independently). As the strategic alignment process is dynamic, the ability of the firm to identify its alignment maturity is extremely important (Luftman, 2000). Luftman (2003) suggests that firms that obtain a higher level of alignment than its competitors have a better overall business performance.

### 3.6.5 The Unified Framework for Alignment

Maes (1999) enhances the SAM model (Henderson and Venkatraman, 1993) by incorporating additional functional and strategic layers. Maes (1999) argues that information is just as important as technology and that information is the source of competitive advantage for a firm. Maes' **generic framework for information management** offered another extension by adding a column of "information" between business and IT in the SAM model.

Maes *et al* (2000) extend Maes' (1999) previous research and propose a *Unified Framework for Alignment* to investigate the interrelationships between business, information/communication and technology at the strategic, structural and operations levels. The unified framework contains three dimensions: management domain, areas of concern and specific sub-architecture designs.

The first dimension - the management domain - is derived from Maes' (1999) earlier proposal. This dimension includes: strategy, structure and operations.

The second dimension reflects the area of concerns which are also derived from Maes' (1999) earlier proposal. This dimension includes: business, information/communication and technology. They divide the area of technology into two sub-areas which are information systems and technology infrastructure (Maes *et al*, 2000). They identify information/communication as a new domain (in addition to information systems and technology infrastructure) (Maes *et al*, 2000). Maes *et al* (2000) argue that information sharing can be a buffer between business and technology. In fact, they argue, it helps translate, in a common language, between technology and business. As technology evolves and becomes more integrated with

business, information and communication become more apparent (and critical) to the business.

Maes *et al* (2000) add a third dimension that contains specific sub-architecture designs, including, for example, contextual design, conceptual design, logical design, physical design and transformational design.

### **3.6.6 The Strategic Alignment Process Model**

According to Chan and Reich (2007), Baets (1992) builds upon MacDonald's (1991) Alignment Model as well as Parker, Benson and Trainor's (1988) Enterprise-wide Information Model and Rockart and Scott Morton's (1984) MIT90 model to develop the *Strategic Alignment Process Model*.

The Baets model of strategic alignment process is composed of two domains: business domain and technology domain. It describes the interactions between business strategy, IT strategy, organizational infrastructure and processes, as well as IS infrastructure and processes. These alignment constructs are similar to the SAM model (Henderson & Venkatraman, 1993) because both models build upon the MIT 90 model.

Baets (1992) recognizes that alignment takes place in a broader context. Therefore, he proposes that the both internal and external environmental factors should be considered in order to integrate the IS strategy in practical settings. These factors are: the global IT platform, organizational change, human resource issues, and IS implementation processes.

Baets (1992) argues that the SAM model assumes that all participants and organizational members are aware of the corporate strategy but Baets' (1996) study found out that there is a lack of knowledge among managers about different aspects of the corporate strategy.

### 3.6.7 Strategic Information Systems Alignment

Chan (1999) empirically investigates the relationships among business strategy, information systems, strategic alignment, IS effectiveness and business performance. The foundation for her study is an extension of Venkatraman's conceptualizations of fit. Chan (1999) includes IS in her model but acknowledges a limitation of her model in its inability to distinguish between the dimensions of IS strategy and IS infrastructure. Chan (1999) concludes that IS strategic alignment matters more to companies than IS structural alignment as most companies are interested more in the ends, rather than the means.

Chan and Huff (1993a) propose the *strategic information systems alignment model*. This model highlights the strategic IS alignment between business strategic orientation and IS strategic orientation as impacting on IS effectiveness and on business performance. The model is based on a comparative approach to assess the realized information strategy of the organization. They use identical dimensions for assessing the strategic orientation of the business and the strategic orientation of IS. On the one hand, they use Venkatraman's (1985) *Strategic Orientation of Business Enterprise* (StrOBE) as an instrument to assess the strategic orientation of the business. On the other hand, they use Chan's *Strategic Orientation of Information Systems* (StrOIS) as an instrument to assess the strategic orientation of IS

Venkatraman (1985; 1989a) develops valid measurements of key dimensions of a strategy using a construct called the strategic Orientation of business enterprises (StrOBE). These key dimensions are aggressive, analytical, defensive (internal and external), future oriented, proactive, risk averse and innovative as instruments to assess the firm's business. Note that Venkatraman (1989b) later excluded the dimension of innovativeness from his model.

Chan's (1999) uses similar dimensions to those used originally by Venkatraman (1985) to assess the strategic orientation of a business enterprise and name it as "*the strategic orientation of information systems*" also known as "StrOIS". The StrOIS instrument assesses and conceptualizes IS strategy by determining whether IT in the



business enabled that firm to be aggressive, analytical, internally and externally defensive, future oriented proactive, risk-averse and innovative (Chan, 1999).

Chan, Huff, Barclay and Copeland (1997) report further research on the empirical exploration of the model to determine the extent to which information systems complement business strategy. They focus on the fit between the firm's application portfolio and its strategic orientation. They modify some components of Chan and Huff's (1993a) instruments for assessing the strategic orientation of business and the strategic orientation of IS. For example, they alter the original 'riskiness' to 'risk aversion'. In addition, they reintroduce the dimension of innovativeness. Chan *et al* (1997) also report evidence of a positive impact of the business strategic orientation, IS strategic orientation and IS effectiveness on business performance which also reported by Chan and Huff (1993b). In addition, Chan *et al* (1997) suggest that IS strategic alignment is a better predictor of IS effectiveness than IS strategic orientation (Chan *et al*, 1997).

Sabherwal and Chan (2001) also examine the impact of alignment on business performance and success. They combine two approaches to measuring business strategy: the Miles and Snow (1978) typology and StrOBE (Venkatraman, 1989). The Miles and Snow (1978) typology includes the three different types business strategic behaviour: prospectors, analysers and defenders (see Chapter 2, Section 2.7). Business leadership plays an important role in prospectors. Analysers will seek alliances, perhaps by strategic sourcing (Hirschheim and Sabherwal, 2001). According to Sabherwal and Chan (2001), for both prospector and analyzer types of business strategies, an alignment among business and IS strategies led to improved performance. Defenders are often outsource IS or achieved performance through low cost delivery (Hirschheim and Sabherwal, 2001). Sabherwal and Chan (2001) suggest that senior managers in defenders should not argue strongly for alignment. Sabherwal and Chan (2001) conclude that "*The processes by which alignment is accomplished (i.e., practically and effectively worked out) in organisations need to be better understood*" (Sabherwal and Chan, 2001, p. 27).

The StrOIS instrument proposed by Chan has been used by authors (Chan and Huff, 1993a; Chan *et al*, 1997; Cragg *et al*, 2002; Hale and Cragg, 1996) to assess the

strategic alignment. The StrOBE instrument proposed by Venkatraman has been used by many authors (Bergeron *et al*, 2001; Byrd *et al*, 2006; Chan *et al*, 1997; Croteau and Bergeron, 1999) in their strategic alignment models to assess the strategic alignment.

### **3.6.8 The Punctuated Equilibrium Model**

Sabherwal *et al* (2001) use the “punctuated equilibrium” model to explain how alignment evolves over time. They argue that alignment is best viewed as a dynamic process and not as a static “end state”. Therefore, they argue, the general static contingent models are not suitable for alignment researchers; instead, a “punctuated equilibrium” framework offers a better approach to examine alignment. The “punctuated equilibrium” model posits, for an enterprise, long periods of stability called a *deep structure* followed by *relatively* long periods of *evolutionary change* and relatively short periods of *revolutionary change*. Sabherwal *et al* (2001) subsequently came up with *post-revolutionary change* as another component of their taxonomy, based on empirical study.

In the context of the dynamic process of alignment, Sabherwal *et al* (2001) suggest that the strategic IS management profile represents the “deep structure” that undergoes changes over time in the Punctuated Equilibrium Model. The strategic IS management profile represents “*the basic choices made by the organization in terms of the strategies to be pursued, and the structural arrangements to be deployed, in business and IS*” (Sabherwal *et al*, 2001, p. 10).

In the context of dynamic alignment, Sabherwal *et al* (2001) suggest that strategic alignment may experience relatively long periods of minor modifications, also known as evolutionary change. In general, evolutionary changes would not have much impact on the strategic IS management profile. However, Sabherwal *et al* (2001) discover (via case studies) that some firms had low levels of alignment or even misalignment during evolutionary periods. They suggest that the conflict that is found in a low level of alignment may be resolved in the long run by redesigning the contingency variables.

They offer some possible reasons that might lead to relatively short periods of sweeping, revolutionary changes including overemphasis, complacency and inertia (Sabherwal *et al*, 2001). Additionally, “*all the revolutions to require some combination of five strong triggers - environmental shifts, sustained low performance, influential outsiders, new leadership, and perception transformation*” (Sabherwal *et al*, 2001, p. 33). Further, they suggest that the IS strategic management profile must include business and IS strategy and structure to avoid failed redesign work during revolutions. Their study makes an important contribution by providing an account of the ways in which alignment evolves, but has been criticized for not including factors that may influence or promote alignment (Baker and Jones, 2008).

### **3.6.9 The Balanced Scorecard and Strategy Map**

Kaplan and Norton (1992) develop the *Balanced Scorecard* (BSC) from a study of twelve companies. According to them, a *Balanced Scorecard* is “*a set of measures that gives top managers a fast but comprehensive view of the business. The Balanced Scorecard includes financial measures that tell the results of actions already taken. And it complements the financial measures with operational measures on customer satisfaction, internal processes, and the organisation’s innovation and improvement activities-operational measures that are the drivers of future financial performance*” (Kaplan and Norton, 1992, p. 71).

A balanced scorecard provides a specification of the vision and strategy of a business unit in terms objectives and measures in four different areas/perspectives: (1) the financial, (2) customer, (3) internal business process and (4) learning and growth perspectives (Kaplan and Norton, 1992, 1996a, 1996b).

Kaplan and Norton (1996a) suggest that the different views on strategy (i.e., market-based view or resource-based view) are orthogonal to the use of balanced scorecards but acknowledge that their approach builds on Porter’s (1980; 1985) conception of strategy (See Chapter 2, Section 2.6.1).

The Balanced Scorecard has grown from a strategic *measurement* system to a comprehensive strategic *management* system (Hasan and Tibbits, 2000). Kaplan and

Norton (1996a) suggest that the *Balanced Scorecard* is not just a strategic measurement system but also a strategic control system which can help organisations in the following ways: (1) It helps clarify and gain consensus about strategy, (2) it helps align departmental and personal goals to overall strategy (3) it helps link strategic objectives to long-term targets and annual budgets, (4) it helps identify and align strategic initiatives that constitute the actual change as described by strategic objectives and (5) it helps obtain feedback to learn about and improve strategy (Kaplan and Norton, 1996a, p. 19).

Kaplan and Norton (1996a, p. 11) also offer four processes to implement a BSC. These are: (1) translating the vision and strategy into operational goals, (2) communicating the vision and linking it to individual performance, (3) planning and target setting and (4) strategic feedback and learning.

Kaplan and Norton (1996a) suggest that the “people challenges” that determine financial outcomes are just as important as the definition and acquisition of financial measures. In their words: “... *an organisation’s measurement system affects the behaviour of people inside and outside the organisation.*” An organisation’s vision is usually created by the top managers and a shared understanding of the business strategy is communicated to the organisation as a whole (Hasan and Tibbits, 2000). This process may start at the top of the organisation, but all employees in different business units and groups contribute to organisational success in an integrated fashion. Hasan and Tibbits (2000) suggest that the firm can use personal scorecards which allow all employees to contribute to the firm’s success. A combination of personal scorecards and corporate-level balanced scorecards can thus be viewed as an alternative approach to achieving alignment.

Kaplan and Norton (1996a) suggest that it is vital to have a “balanced” view of performance measures of the four perspectives. According to Hasan and Tibbits (2000), “*managers are attracted by the intent of the Balance Scorecard, which is to choose measures that maintain a balance between short-term and long-term strategic goals objectives, between financial and non-financial measures, between lagging and leading indicators, and between internal and external performance perspectives*” (p. 440).

Martinson *et al* (1999) suggest that the *Balanced Scorecard* can be the foundation for the strategic management of information systems in organisations. They present an *IS scorecard* based on “*the premise that IT is essentially an internal support function within an organisation in contrast to the original framework, which focused on the impact of the business on the external market*” (Hasan and Tibbits , 2000, p.440). The IS scorecard uses the end-user perspective instead of the customer perspective, and also replaces the financial perspective with IT value for business operation (Martinsons *et al*, 1999). The four perspectives of the *Balanced IS Scorecard* proposed by Martinsons *et al* (1999) are business value (management view), user-orientation (end-user view), internal process (operations-based view) and future-readiness (organisational view).

Hasan and Tibbits (2000) apply the *Balanced Scorecard* to e-commerce. Although there is evidence (Schwartz, 1997; Silk, 1998) of successful BSC implementations in a range of organisations, Hasan and Tibbits (2000) argue that there is a need for a modified BSC model that is appropriate for e-commerce. They extend Martinsons *et al*'s (1999) IS scorecard to obtain an *e-commerce scorecard*.

Kaplan and Norton (2003) extend their work on the BSC to propose Strategy Maps which offer a structured means of documenting organisational objectives (articulated as measures or KPIs) along multiple organisational perspectives. In subsequent work, Kaplan and Norton (2006) offer managerial guidelines for instituting organisation-wide processes to achieve alignment (in the informal sense of the term used by almost all authors reviewed in this chapter). All of Kaplan and Norton's work, including Balanced Scorecards and Strategy Maps, has been highly influential, both within the research community and among practitioners.

### **3.6.10 Other alignment models**

I have discussed some alignment models from both strategic management and IS perspectives above. A few additional studies, discussed below, are also of interest.

Olsen, West and Tse (1998) develop a *co-alignment model* which conceptualizes the relationship between four key constructs, the environment, strategic choice, firm structure and firm performance. Olsen *et al* (1998) test the relationship between these constructs in order to validate the conceptual underpinnings of the co-alignment model. They conclude (as many of the other authors discussed above have done) that these four constructs need to be in alignment to achieve the superior performance. Olsen *et al* (1998) suggest that “*if the firm is able to identify the opportunities that exist in the forces driving change, invest in competitive methods that take advantage of these opportunities, and allocate resources to those that create the greatest value, the financial results desired by owners and investors have a much better chance of being achieved*” (p. 2).

Maes *et al* (2000) extend Maes’ (1999) framework to propose the *architecture framework* which focuses on the architectural side of SAM model.

van Eck, Blanken, and Wieringa (2004) present a framework called GRAAL (*Guidelines Regarding Architecture Alignment*) for architectural alignment that can be positioned between approaches for software architecture and strategic alignment. They argue that the absence of an *operationalization* of Henderson and Venkatraman’s (1991) model renders its application in practical contexts difficult. They also critique the *Strategic Alignment Model* for not providing any guidelines on how to reach a specific goal. Alignment in other settings has been considered by Rai *et al* (2010) and Unhelkar (2010).

### **3.7 Chapter summary**

As discussed in Section 3.0, this chapter seeks to provide the reader with a broad overview of the state-of-the-art in strategic alignment. This provides a critical element of the background against which the contributions of this dissertation can be positioned.

The critical review presented in this chapter reveals several important gaps in the literature on strategic alignment.

The first gap is the wide diversity of formulations of the notion of strategic alignment. While all of these seem to address the same underlying intuitions, they differ in detail. This diversity in formulations and nomenclature is clearly an impediment to effective discourse in this space.

The second gap is the absence of a crisp, actionable definition of alignment. We do not have the means to posit whether a given strategy is aligned with another.

The third gap, and one that is critical from the perspective of management professionals, is the absence of a methodological basis for analysing whether a given set of strategies are mutually aligned. The proposal that comes nearest to doing this is the Punctuated Equilibrium Model (Sabherwal *et al*, 2001) by being able to leverage a richer framework than many of the others, but even this approach relies on the judgment of the analyst to determine if alignment exists.

This chapter sets the stage for addressing the second research question (RQ2). I will describe the research methodology followed in this dissertation in Chapter 4. Chapter 5 will offer a novel means of documenting strategies and an alternative conceptualization of strategic alignment that will address the gaps identified in this chapter and in Chapter 2.

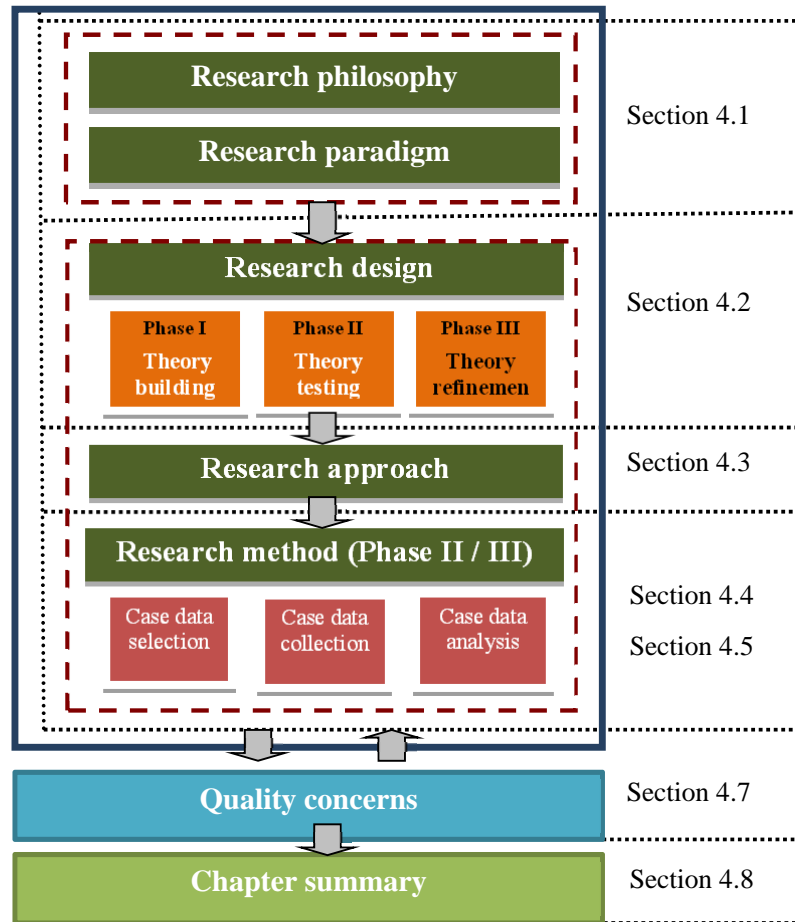
## CHAPTER 4: RESEARCH METHODOLOGY

A research methodology, according to Guba and Lincoln (1994a), determines the key steps in the research process, including the determination of the research questions, the development of the research instruments, the process of interpreting the results, and the means to control the causal variables (Guba and Lincoln, 1994a). This chapter describes the research methodology and research design used in this dissertation. This research aims to develop a conceptual framework for strategic alignment. This research was conducted over three phases: framework building, framework testing and framework refining. I will argue that the case study approach is justified as the research method to be used in framework testing and framework refining phases.

Figure 4.1 shows the research methodology for this dissertation and provides an outline of this chapter. The philosophical perspective discussed in Section 4.1 includes the research philosophy and research paradigm. Section 4.2 discusses the three key phases of this research, specifically framework building, testing and refinement. Section 4.3 provides a discussion on the research approach and its justification, in particular, the reasons for using a qualitative case study approach in Phase II and Phase III of the overall research project. Section 4.4 discusses the framework testing and refinement phases. It includes a discussion of the criteria that guided the selection of the target organization for the case study. This section also provides a justification of the choice of a holistic single-case study as an appropriate research method for this work. In addition, this section discusses the data gathering methods, documentation analysis techniques and interview techniques used in this research. Section 4.5 outlines the principles and techniques used to analyse the case data. Section 4.7 focuses on the reliability, validity and confirmability of the results. Finally, Section 4.7 presents a summary for the chapter.



**Figure 4.1: Research Methodology for the Dissertation**



## 4.1 Philosophical paradigms

Research has been described by Hair *et al* (2003, p.4) as the “*discerning pursuit of truth*”. It is a journey that investigators undertake in order to increase their knowledge by finding answers for their questions (Saunders *et al*, 2003). However, the way we engage in the pursuit the truth is influenced hugely by our philosophical beliefs and principles (Collis and Hussey, 2003). Our philosophical perspectives affect the assumptions we make, the problem we see, the investigation we undertake, the solutions we find, as well as the manner in which we interpret our results (Collis and Hussey, 2003). It is important to understand the implications of philosophical perspectives on the research undertaking, amongst others, to ensure that researcher

biases are made explicit and minimised. In this section, I will briefly discuss a variety of research philosophies and paradigms and conclude that the *realist paradigm* is most suitable to the research questions and context in this dissertation.

#### 4.1.1 Research philosophies

Research methodology is concerned with the questions of how knowledge is acquired (Guba and Lincoln, 1994b). It must be underpinned by the ontological and epistemological assumptions of the study. According to Collis and Hussey (2003), Denzin and Lincoln (2000), as well as many others, philosophical perspectives determine what we accept as existing in our world (*ontology*), the way in which unique knowledge about it can be acquired (*epistemology*), what techniques the researcher brings to bear in the process of inquiry (*methodology*) and the role of values in research (*axiology*). A researcher's ontological positions or assumptions influence the epistemological choices and conclusions drawn. The methodological stance, coupled with these considerations, determines the key principles of the research process and research methods (Collis and Hussey, 2003). **Ontology** is defined as “*a branch of philosophy concerned with articulating the nature and structure of the world*” (Wand and Weber, 1993, p. 220). Many authors (Blaikie, 1993; Collis and Hussey, 2003; Guba, 1990) suggest that ontology is concerned with answering questions about what exists, how these relate to each other and the true nature of reality. In effect, an ontological stance determines the vocabulary of concepts and their inter-relationships that will be used in describing the domain of inquiry. **Epistemology** involves the study of knowledge, the nature of human knowledge and understanding that can possibly be acquired through different types of inquiry and alternative methods of investigation. Easterby-Smith *et al* (2002) suggest that epistemology concerns questions related to the relationship between the “knower” (the researcher) and reality (the “known” or “knowable”). **Axiology** is the branch of philosophy engaged in the study of value and is closely related to the study of ethics. Collis and Hussey (2003) discuss how research might be of two types: value-free or value-laden. **Value-free** research refers to situations where the researcher is able to conduct the investigation in a manner that is entirely free from the influences of values or value systems. On the other hand, **value-laden** research

refers to situations where the researcher is in fact influenced by values, which help determine how the researcher interprets observations (Collis and Hussey, 2003).

#### 4.1.2 Research paradigms

Different philosophical beliefs influence our understanding of the world. Guba and Lincoln (1994) define paradigm as “the *basic belief system or world view that guides the investigator*” (p. 105). Evered and Louis (1981) define paradigm as “the *entire constellation of beliefs, values, techniques and so on, shared by the members of a given (scientific) community*” (p. 385). Patton (1990) suggests that a paradigm is a world view, a general perspective and a way of breaking down the complexity of the real world. The key paradigms that have been discussed are: (1) positivist, (2) interpretivist, (3) critical theory, (4) realist and (5) post-positivist. Each of these paradigms has its associated ontological, epistemological and axiological assumptions (Cavana *et al*, 2001; Godfrey and Hill, 1995; Sobh and Perry, 2006).

Morgan and Smircich (1980) describe the positivist position and the interpretivist position as the two extremes in a continuum of research paradigms. The **positivistic paradigm** seeks the facts or causes of social phenomena, with little regard to the subjective state of the individual (Collis and Hussy, 2003). The positivist paradigm is rooted in the natural sciences and seeks to uncover the truth about the world. It involves objective analysis and views reality as a concrete structure (Morgan and Smircich, 1980). Positivists believe that “*reality is objectively given and can be described by measureable properties, which are independent of the observer (researcher) and his or her instrument*” (Myers and Avison, 2002, p. 6). It assumes that theories developed on the basis of strict scientific procedures are universally applicable and can be replicated (Cavana *et al*, 2001; Collis and Hussey, 2003). On the other hand, the **interpretivist paradigm** admits that there might be multiple realities (Denzin and Lincoln, 2003) and more diverse perceptions (Collis and Hussey, 2003). In the interpretivist paradigm, the world is largely viewed as what people perceive it to be, so that reality is subjectively structured (Cavana *et al*, 2001). It can be argued that different experiences and expectations from individuals and groups construct different interpretations over time in the social world. This approach attempts to understand phenomena through the multiple interpretations that

create a social reality. It begins with the assumption that social constructs (i.e., language, preferences, experiences, consciousness and shared beliefs and meanings) are the only way to access reality (given or socially constructed). Under this assumption, it is important to discover and understand these meanings and the contextual factors that influence the interpretations reached by different individuals (Cavana *et al*, 2001; Guba and Lincoln, 1994a, 1994b). The **critical theory paradigm** views society through the lens of social, political, economic, ethnic, culture, and gender circumstances (Orlikowski and Baroudi, 2002). Critical studies aim to challenge the *status quo* and critically investigate key relationships (which are sometimes relationships of domination) within society (Lincoln and Guba, 2000; Orlikowski and Baroudi, 2002). Critical studies in management examine social, power, culture, economic and political circumstances from organisational and managerial perspectives. The **realist paradigm** combines aspects of both the positivist and the interpretivist positions. On the one hand, realists are consistent with the positivist position that social objects may be empirically-based and amenable to rational and objective study in a manner similar to the natural sciences (Tsoukas, 1989). On the other hand, realists are in agreement with the interpretivist position that the natural and social sciences are different, and recognize that the unique aspects of social reality must be acknowledged. Finally, Guba and Lincoln (1994) suggest that a reality does exist but it is an “imperfect reality” **because** of the limitations of researchers. The **post-positivist paradigm** refines the positivist paradigm (Denzin and Lincoln, 2003; Bryman and Bell, 2003) and posits that the human mind cannot fully apprehend reality (Blaikie, 1993).

#### 4.1.3 Positioning this study

Among the different philosophical paradigms discussed above, **the realist paradigm** was found to be most appropriate for this research. As with the realist paradigm, this research sits between the positivist and interpretivist positions of the research paradigm continuum (Collis and Hussey, 2003; Morgan and Smircich, 1980). The positivist paradigm is generally regarded as inadequate for the needs of social science research. This research is not amenable to replication as in the natural sciences (mainly because validation must involve specific business contexts, for which by definition, duplicates can never exist). In other words, an organization

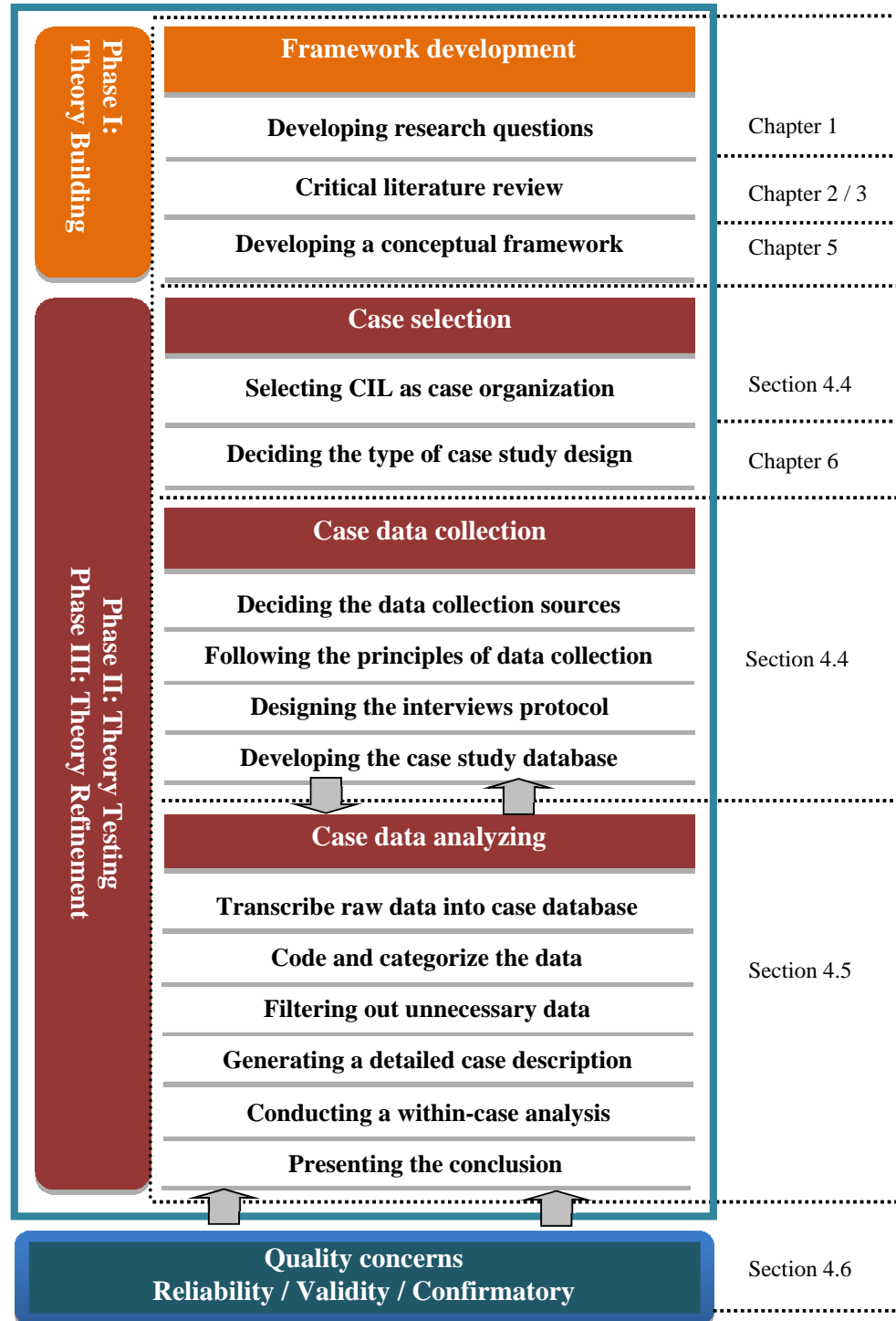
identical to CIL in every respect is unlikely to exist; hence, a replication of this study (in the sense of the natural sciences) is infeasible. This research is also not amenable to the precision of measurement found in the natural sciences. Hence, this research clearly does not conform to the positivist paradigm. On the other hand, the strategies documented and the correlations with business performance identified in the empirical studies conducted in this research are not subjective interpretations (but instead represent statements of historical fact). Hence, this research also does not conform to the interpretivist paradigm. The middle ground between these two extremes represented by the realist paradigm is where this research is appropriately positioned. Thus, this study does not concern itself with purely subjective interpretations of a social reality (as interpretivist research often does), but also does not subscribe to the requirements for replication and rigorous measurement that is often associated with positivist research. It is useful to note that the realist paradigm has provided the basis for several important results in management science (Mir and Watson, 2000) and IS (Tsoukas, 1989). According to Mir and Watson (2000), strategic business typologies developed by Miles and Snow (1978), the five forces model (Porter, 1979), generic strategies (Porter, 1980), value chains (Porter, 1985), as well as the resource-based theory are the result of research based on the realist paradigm.

As with all studies of its kind, this dissertation will make certain *ontological assumptions*. It will posit the existence of a set of concepts that will be used to describe the social reality that is the object of this study. In the spirit of (Saunders et al, 2003), it is also important to acknowledge that this understanding of reality is socially conditioned. In the spirit of (Blaikie, 1993), this research makes the *epistemological assumption* that events can occur independently (i.e., the underlying generative mechanisms can act independently of their being experienced). This research makes the *axiological assumption* (or, takes the *axiological position*) that the study has been conducted in a value-free manner (Collis and Hussey, 2003).

## 4.2 Research Design

A successful research project depends upon good **research design** (Yin, 1984). According to Yin (1984, p. 27), “*a research design is the logic that links the data to be collected (and the conclusions to be drawn) to the initial questions of a study*”. This research relies on a well-structured research design comprising of three key phases: framework building, testing and refinement. The research design for this dissertation is shown in Figure 4.2. A **research method** describes the techniques used for gathering and analysing data, addressing questions relating to data selection, collection and analysis (Collis and Hussey, 2003).

**Figure 4.2: Research Design for the Dissertation**



#### **4.2.1 Phase I: Framework building**

The first phase in the research design for this dissertation involves framework building. The aim in this phase is to develop a conceptual strategic alignment framework that constitutes a key contribution of this dissertation. The steps followed in the framework building phase are: (1) research question identification, (2) critical literature review, and (3) conceptual framework development.

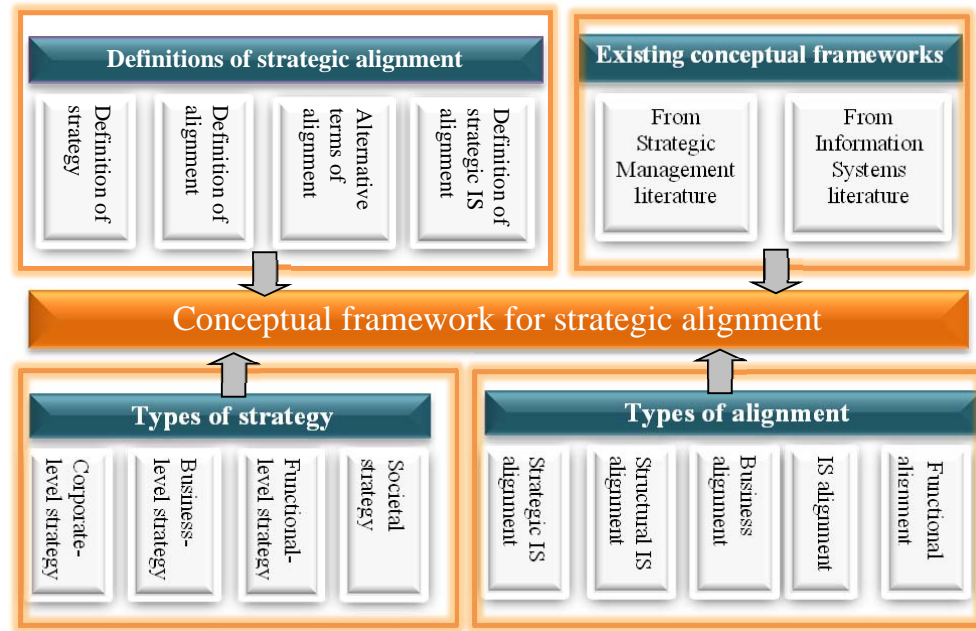
The first step in this phase involves the formulation of the research questions addressed in this thesis. These have been discussed in Chapter 1. These research questions have, as one would expect, informed the subsequent steps. The literature review presented in Chapters 2 and 3, for instance, seeks to determine the extent to which these questions have been answered in the literature.

The second step of this phase is a critical literature review encompassing the notions of strategy and alignment as well as strategic alignment models from both the literature in IS and in strategic management. In addition to helping understand the state of the art in relation to the research questions, this step enabled the researcher to develop a holistic understanding of current viewpoints on strategic alignment.

The third step in this phase was the development of the conceptual framework. Figure 4.3 illustrates the intellectual inputs that contributed to the development of the conceptual framework. There were four key categories of inputs. The first category consisted of definitions of strategic alignment in the existing literature. The second category involved the conceptual frameworks for strategic alignment from the existing literature in both strategic management and IS. The third category of input involved taxonomies for strategies (see Chapter 2) and for strategic alignment (see Chapter 3). The final category of input involved the limitations and gaps in current conceptions of strategy and strategic alignment. The conceptual framework that I have developed is discussed in greater detail in Chapter 5.



**Figure 4.3: Conceptual Framework Development**



#### 4.2.2 Phase II: Framework testing

The second phase of the research design was framework testing. The case study approach to framework testing was adopted. The justification for a case study is discussed in Section 4.3. The method used for conducting the case study is discussed in Section 4.4. The procedures used for analysing the data are discussed in Section 4.5.

The case study was conducted in a large emerging-economy mining company, Coal India Limited (CIL). A detailed exposition of the motivations and appropriateness of CIL as the case study for framework testing can be found in Section 4.4.1.

The data collection method used during the framework testing and framework refinement phases involved extensive interviews and document analysis to achieve triangulation. A long series of interviews with senior management at CIL was conducted and a range of CIL strategies were documented using the *strategy description templates* developed in this thesis. Document analysis involved official

documents and records from both public and organisational sources as well as published journals and news articles related to the selected case company.

The principles and techniques used to analyse case data and verify the theory are discussed in Section 4.5.

#### **4.2.3 Phase III: Theory refinement**

*Theory refinement* (also known as *theory extension*) involves developing a more elaborate theory and providing a more complete theoretical picture (Eisenhardt, 1991). After an initial verification of my theoretical framework, the research plan involved refinement of the theoretical framework in the light of the initial findings of the case study.

### **4.3 Qualitative research approaches**

This section lists the various research approaches commonly used and the justification for adopting the case study research method for verifying the developed conceptual framework in the second and third phases of the research design for this dissertation.

Using a qualitative approach for this study was more suitable than using a quantitative approach due to the nature of the research questions posed in Chapter 1. In addition, the research takes *realist studies* as research paradigm to understand the research questions (see Section 4.1.3) which provides further justification for the use of a qualitative approach.

**A qualitative approach** is usually based on the subjectivist paradigm and tries to describe and understand the phenomenon by interpreting and comprehending the complex nature of phenomenon, socially constructed and related to human action (Cavana, Delahaye and Sekaran, 2001). On the other hand, **a quantitative approach**, such as theorem proofs, laboratory experiments, field experiments (and more generally, evidence based research), simulation, and evaluation research is more suitable for natural science studies and medical research. This research is not

natural science oriented and a strict adherence to scientific procedures is difficult. This dissertation attempts to understand a complex collection of organisational and business phenomena. Therefore, the previously listed methods are not suitable.

As a qualitative approach for this study is most appropriate, there are a range of qualitative research methods to consider for this study. These are action research, hermeneutics, ethnography, grounded theory, participative inquiry and the case study approach (Collis and Hussey, 2003; Denzin and Lincoln, 2000). **Action research** usually engages with research participants and develops a collaborative process to fully comprehend the phenomena of interest (Clark, 1972). **Hermeneutics** refers to the interpretation of historical texts. **Ethnography** focuses on the meaning of socio-cultural phenomena and assumes it can only be accurately understood if assessed in its entirety. **Grounded theory** is suitable in developing context-based, process-oriented descriptions and explanations of the phenomenon. It usually seeks to develop theory that is grounded in data systematically gathered and analysed. **Participative inquiry research** requires research participants to be actively engaged in the research. Action research and participative inquiry in qualitative research are not suitable for this research as this research does not seek to actively conduct research with people nor require individual participant's opinion on the issues discussed. Hermeneutics study is not appropriate research method for this dissertation as this research does not seek the historical meaning by the interpretation of historical texts or past events. Ethnography, grounded theory and the case study method are taken into considerations for this research. However, ethnography and grounded theory mostly focus on investigating human behaviour from a psychological, social or cultural point of view. My research does not attempt to promote social action nor does my study intend to focus on process-oriented descriptions and explanations of socio-cultural phenomena. Therefore, ethnography and grounded theory are also not suitable for this research.

**A case study** is a commonly accepted research method that allows the researcher to gather rich contextual data about phenomena of interest. According to Eisenhardt (1989), case study research can be very useful in developing theory. Yin (1984) also suggests that a case study is suitable to describe, understand and explain complex phenomena in a real-life context (Yin, 1984). The preliminary conceptual base for

the research is based upon a fusion of concepts from a variety of different discipline areas. The early stage of this research involved the development of strategy description templates as a strategy documentation device and a conceptual framework for strategic alignment that builds on the literature review presented Chapter 2 and Chapter 3. A case study represents an empirical investigation of a contemporary phenomenon within its natural setting to test the developed framework in the second phase and to refine the framework in the final phase of the research design for this dissertation (see Section 4.2.2). The justification for the use of the case study method as the most suitable method for this study is discussed in the following section.

### **4.3.1 Justifying the use of the case study method**

A case study is “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident” (Yin, 1984, p. 13). The purpose of doing case study research is “to produce detailed descriptions of a phenomenon, to develop possible explanations of it, or to evaluate the phenomenon” (Gall, Borg and Gall, 1996, p. 549). The case study technique typically “uses multiple methods and tools for data collection from a number of entities by a direct observer(s) in a single, natural setting that considers temporal and contextual aspects of the contemporary phenomenon under study, but without experimental controls or manipulations” (Meredith, 1998, p. 442-443).

Yin (1984) suggests that the proper research method is determined by certain conditions: “(a) the type of research question posed, (b) the extent of control an investigator has over actual behavioural events, and (c) the degree of focus on contemporary as opposed to historical events” (Yin, 1984, p. 16). According to Yin (1984), the case study approach has a distinct advantage when a “how” or “why” question is being asked about a contemporary set of events over which the investigator has little or no control. According to Eisenhardt (1989), a case study generates insightful stories to permit a better understanding of organizational complexity from an insider’s point of view. It allows the researcher to formulate a more holistic perspective on the studied phenomenon. Similarly, Bonoma (1985)

emphasizes that the case study method is useful where “a phenomenon is broad and complex, where the existing body of knowledge is insufficient to permit the posing of causal questions and when a phenomenon cannot be studied outside the context in which it occurs” (p. 207). In addition, Benbasat, Goldstein and Mead (1987) emphasise that a case study is useful in areas where only a few previous studies have been carried out. They suggest that areas most amenable to the case study method are “those in which research and theory are at their early, formative stages; and sticky, practice-based problems where the experiences of the actors are important and the context of action is critical” (Benbasat et al, 1987, p. 369). They list eleven characteristics of the nature of the research problem to determine whether the case study is an appropriate method: (1) Where the intent is to address “why” and “how” questions, (2) where the focus on contemporary events, (3) where the phenomenon is examined in a natural setting (4) where no experimental controls or manipulation are involved, (5) where the results derived depend on the integrative powers of the investigator, (6) where the investigator may not specify the set of independent and dependent variables in advance, (7) where the data are collected by multiple means, (8) where one or few entities (persons, groups, or organizations) are examined, (9) where changes in site selection and data collection methods could take place as the investigator develops new hypotheses, (10) where the complexity of the unit is studied intensively and (11) where the research involves the exploration, classification and hypothesis development stages of the knowledge building process.

In the following, the rationale for why the case study method is particularly well suited to this research project is listed. In relation to (1) above, this research seeks to explore how strategic alignment can be achieved in a real organisation and how proposed the conceptual framework might provide guidance on achieving alignment or explanations for instances of misalignment. It also explores how strategic alignment predicts and explains business performance. In relation to (2) above, the case study of CIL does focus on contemporary events. In relation to (3) above, the intent is to generate valuable insights within a real organization in its natural setting to formulate a more holistic perspective. In a similar vein, one might consider the following arguments for the suitability of the case study method for this program of research, in the light of the criteria for suitability discussed above.

The notion of alignment has been discussed both in IS and management literature (see Section 3.1.1), but the concept of strategic alignment is relatively new. This research focuses on a conceptual framework of strategic alignment at an early formative stage. The research aims to provide useful solutions to this contemporary phenomenon. The data collected for this research are from a variety of sources, both primary and secondary (see Chapters 6, 7 and 8). The data collection process was flexible, with the data collection site varying based on contextual factors. It would be also correct to state in this instance that the researcher had no capability for experiment control or manipulation during the course of the research (Yin, 1984), but the results derived were contingent on the integrative powers of the investigator (Benbasat et al, 1987).

This research project benefits from several well-known advantages of the case study method. As discussed earlier, case studies generate insightful stories in their natural setting (Benbassat et al, 1987), and permit a better understanding of organizational complexity from an insider's viewpoint (Yin, 1984). The case study method examines the more meaningful questions of why, rather than just what and how (Benbassat et al, 1987; Yin, 1984). It allows the researcher to formulate a more holistic perspective with a relatively full understanding of the dynamics and complexity of the complete phenomenon (Benbassat et al, 1987; Eisenhardt, 1989). Case studies are best for generating meaningful, relevant knowledge, aiding the formulation of new theories, and testing theories in well-described, specific situations (Benbassat et al, 1987; Meredith, 1998).

The case study method has also been criticized in the literature. One critique is the lack of sampling controls and inability to generalize to a larger population (Bonoma, 1985). Yin (1984) presents three potential drawbacks of this method: (1) A case study lacks rigor, (2) a case study provides little basis for scientific generalization, and (3) a case study may take too long and generate voluminous (and hence difficult to manage) results. Nevertheless, Yin (1984) has identified several ways to make case study research rigorous. For instance, a proper research design and the use of detailed case study protocols can minimize these problems. I will discuss the use of reliability, validity and confirmability as quality controls for this research in Section 4.7. Ultimately, leveraging the case study method provides an opportunity for the

intensive analysis of many specific details often overlooked by other methods (Kumar, 1998).

#### **4.4 Conducting the case study**

The case study research method used in the framework testing and refinement phases of the study in the dissertation is justified in Section 4.3.1. This section focuses on the procedure for conducting the case study. It includes a discussion of the criteria that guided the selection of the target organization for the case study. It also provides a justification for the choice of a holistic single-case study as an appropriate research method for this study. In addition, data gathering methods, documentation analysis techniques, interview techniques and strategy are discussed in this section. Finally, the strategy of recording data in a case study database is also examined in depth.

Yin (1984) suggests that a case study design must have five components; “(1) *a study’s questions*; (2) *its propositions, if any*; (3) *its unit(s) of analysis*; (4) *the logic linking the data to the propositions*; and (5) *the criteria for interpreting the findings*” (p. 29). Similarly, Stake (1995) suggests a series of necessary steps for completing a case study, including posing research question(s), gathering data, analysing and interpreting data. This research combines both Stake (1995) and Yin (1984) and is executed through the following steps: (1) Defining the research questions, (2) establishing the theoretical propositions and research model, (3) deciding on a unit of analysis for the study, (4) gathering the data, (5) interpreting the data and conducting data analysis of the findings and (6) generating meaningful conclusions from the data.

The above steps used in this research are discussed in various sections in this dissertation. In relation to step 1, the research questions are addressed in Chapter 1. This research focuses on developing and validating a conceptual framework based on a substantive review and critique of the literature on strategic alignment. The research model addressed in Step 2 is discussed in Section 4.2.1. Coal India Limited, a large mining company, and its various strategies (both corporate and functional) are

the units of analysis. Detailed criteria for case selection are discussed in Section 4.4.1. The type of case study design is discussed in Section 4.4.2.

In relation to Step 4 data was gathered through structured interviews and document analysis. The techniques used to gather data are discussed in Section 4.4.3. Multiple sources of data (including published material and interviews) are used for triangulation purposes in this study. This is discussed in Section 4.4.4. The design of the interview instruments is discussed in Section 4.4.5. A completed case study database is maintained for this study. The recording of data for this dissertation is discussed in Section 4.4.6.

After gathering relevant data, the next step is to interpret the collected data. The process for analysing the data is discussed in Section 4.5. The concerns of achieving rigour in the overall research design are discussed in Section 4.7. Eisenhardt (1989) suggests that data collection and data analysis should be done simultaneously. The collected data link back to the research questions, as well as the components of the developed conceptual framework. Data analysis is discussed in Chapter 6, 7 and 8. The final step is to generate meaningful conclusions from the analysed data. This is discussed in Chapters 6, 7, 8 and 9.

#### **4.4.1 Case selection**

This research applies the conceptual framework for strategic alignment to explain a firm's strategic activities. A large mining company, Coal India Limited (CIL) was selected to explain strategic alignment and misalignment and re-alignment activities within its organizational transformation. The mining company (CIL) is a state-owned enterprise in a country that underwent a dramatic transformation in the latter part of the 20<sup>th</sup> century from a centrally-planned, "command-and-control" economy to one with significant free market characteristics (although some elements of government control and regulation of the economy remain). The organization in question was particularly well suited for evaluating the utility of this framework, for several reasons.



First, the company in question was large enough to make a fairly detailed analysis of alignment at various levels across the enterprise meaningful.

Second, the company had to respond and adapt to a dramatic transformation in its business context over a relatively short period of time (approximately 10 years). The transformation affected the very core of the company's business model, and its impact was felt in every aspect of its operations.

Third, the company has been in the unique situation of having to align to a high-level strategy that was in part exogenously determined (as a state-owned company, it has to meet high-level objectives determined by the government).

Finally, any strategic account of the company's fortunes over the last three decades would meet the requirements of an alignment case study – an initially stable mode of operations, a crisis, followed by a resolution.

#### **4.4.2 Deciding the type of case study design**

Coal India Limited (CIL) is the focus of a critical single-case study. The four types of case study design suggested by Yin (1984) are: single-case (holistic) design, single-case (embedded) design, multiple-case (holistic) design, and multiple-case (embedded) design. A single-case study means that the study is restricted to a single setting, sometimes also known as the 'classic' case study method. On the other hand, multiple-case studies encompass more than one setting and represent the 'comparative' study method (Yin, 1984). The difference between holistic and embedded case studies is that embedded case studies involve more than one unit of analysis which are often sub-units of the primary entity under consideration (Yin, 1984).

The **holistic single-case study** is selected to be the most suitable case study design for this research. Yin (1984) suggests that "*the single-case design is eminently justifiable under certain conditions- where the case represents a critical test of existing theory, where the case is a rare or unique event, or where the case serves a revelatory purpose*" (p. 47). The holistic single-case design adopted in this research clearly meets these criteria. The CIL case study serves as a critical test of the conceptual framework developed in this dissertation. As discussed in the previous

section, CIL offers a unique opportunity to validate the framework (although it does not represent a rare or unique “event”). The case study clearly serves a revelatory purpose, insofar as it generates deep insights into CIL’s business performance over a period of 3 decades. The holistic view on CIL provides excellent opportunity to analyse constructs of strategy in different periods of time at corporate level and the functional levels within the organization.

This research focuses on using a novel vocabulary to describe the strategic alignment between two strategies. It intends to apply the conceptual framework developed to a real organisation and be able to test and refine the framework. Galliers (1992) suggests that *"single case studies are useful when developing or refining generalisable concepts and frames of reference"* (p. 155). The findings of the CIL case study clearly lead to the concepts embedded in the strategic alignment framework developed through a process of generalisation.

#### **4.4.3 Data collection sources**

This research involves a holistic single-case study of CIL to test and refine the framework developed. A case study is ideally able to leverage rich sources of data in the context of a real-life setting and permits synthesis of theoretical perspectives (Bonoma, 1985; Eisenhardt, 1989; Yin, 1984). The critical component of this research is the collection of an appropriate volume of useful data concerning CIL and its application to the validation of conceptual framework. Bonoma (1985) suggests that *“the goal of data collection in case research is not quantification or even enumeration, but rather: (1) description, (2) classification (typology development), (3) theory development, and (4) limited theory testing. In a word, the goal is understanding”* (p. 206). This section outlines a description of procedures, protocols and methods of data collection for this study.

Data can be collected from a primary or a secondary source (Collis and Hussey, 2003). Primary data is original data that has been gathered by the researcher himself/herself to examine a phenomenon. On the other hand, secondary data is gathered previously by others for potentially distinct purposes. Yin (1984) suggests six sources of data collection in case study research. These are *“documents, archival*

*records, interviews, direct observation, participant-observation, and physical artefacts*” (p. 78). Similarly, Burgess (1984) points out that the most commonly used methods are “*participant observation, unstructured interviews and conversations and the use of documentary evidence*” (Burgess, 1984, p. 214). According to Collis and Hussey (2003), interviews and surveys are the two most commonly approved primary data collection methods. This research will use interviews, specialist documents and archival records as its primary data.

Secondary data can be collected from published documents, news articles, books, films, or a website. There is a wide range of documents that can be used in such research in general, such as stories, life histories, diaries, letters, essay, newspaper and magazines, reports generated by consultants, as well as other forms of publicly available official documents and records (Collis and Hussey, 2003; Jupp, 1996; McCulloch, 2004). The usefulness of the official documents are particularly emphasised by both Jupp (1996) and McCulloch (2004). Official documents at the institutional level are usually organisational records on certain decisions and actions (Jupp, 1996). Jarvenpaa (1991) suggests that the secondary data can be used either as a complement or a substitute for primary data. Saunders, Lewis and Thornhill (2003) offer similar views, and emphasise that secondary sources can help to triangulate findings based on the primary data collected when conducting a study of a company.

For this research project, both primary and secondary sources are used as the data collection methods (although the primary sources mainly served the purpose of confirming facts obtained from analysing secondary sources). The principles and procedures of data collection are discussed in Section 4.4.4. Primary data was collected from consultation sessions with CIL experts. The interview protocol is discussed in Section 4.4.5. Official documents and records from both public and organizational sources are used, such as the CIL website and publications from the Ministry of Coal, Government of India, World Bank reports and white papers from related consulting firms.

The data collection method for this case study was configured as follows: (1) Information gathering from the publicly available sources, (2) Initial consultations with CIL contacts, (3) Development of initial strategy descriptions, (4) Obtaining

additional detail for strategy description templates from published material, (5) Obtaining feedback on initial strategy descriptions from CIL contacts, (6) Development of revised strategy descriptions, (7) Second (third, or fourth) round of validation by CIL contacts and finally (8) Approval of final strategy descriptions. The data collection method for this case study is detailed describe in Chapter 6, Section 6.2.

#### **4.4.4 The principles of data collection**

This research project follows the three principles for data collection proposed by Yin (1984) (1) using multiple sources of evidence, (2) maintaining a chain of evidence, and (3) creating a case study data base.

Using **multiple sources of evidence** implies using “*evidence from two or more sources but converging on the same set of facts or findings*” (Yin, 1984, p. 78). The primary data for this research is mainly collected by consulting a number of contacts in CIL (see Appendix A for details). Some of the corporate decisions at CIL are widely reported in the press and in the published literature. This additional material was used as secondary data in this study. By using the secondary data to complement the primary data improved the reliability of the findings. It enhances the richness of the findings as well as ensures validity (see Section 4.7) through the process of triangulation. Triangulation refers to the process of using different research approaches, multiple data collection methods, data sources, analysts, or theories to check the validity of the findings (Buchanan, 1999; Collis and Hussey, 2003; Patton, 1990; Stake, 1995) with the intent of ensuring that the findings are confirmed by these multiple sources and techniques. There are two types of triangulation: triangulation within methods and triangulation between methods (Denzin, 1978). Triangulation between methods refers to the use of several distinct research methods. On the other hand, triangulation within methods refers to the use of multiple techniques to collect and interpret data within a given method (Denzin, 1978). Triangulation is a useful technique for minimizing the bias that exists between the researcher and the participant (Remenyi and Williams, 1996). The use of multiple sources of evidence for this research project involves triangulation within methods.

**Maintaining a chain of evidence** is the second principle followed by this research. According to Yin (1984), the principle of a chain of evidence should be “*based on a notion similar to that used in criminological investigations*” (p. 96). It establishes explicit links “*between the questions asked, the data collected, and the conclusions drawn*” (Yin, 1984, p. 78). The research problem and questions are stated in Chapter 1. This research provides a detailed literature review (see Chapter 2 and 3), careful selection of the target case (see Section 4.4.1), a semi-structured protocol to provide a systematic process in the consultation sessions (see Section 4.4.5). In addition, a structured process for recording (see Section 4.4.6), transcribing and analysing the data (see Section 4.5, Section 4.6 and Chapter 5) before conducting the case study. Finally, the detailed case study is discussed in Chapter 6, 7 and 8. The conclusions are presented in Chapter 9. It is clear from this approach that an explicit and logical chain of connections between the questions asked, data collected and findings obtained was maintained.

**Creating a case study database** is the final principle for data collection followed by this research is discussed in Section 4.4.6.

#### **4.4.5 Designing the consultation protocol**

CIL is chosen as the object of a holistic single-case study. This research involved a large number of consultation sessions with CIL contacts to collect primary data. An protocol was developed to guide the conduct of these sessions. It aimed to ensure that the conversation remained focused and to ensure that all relevant questions were asked.

According to Bingham and Moore (1959), an interview refers to a purposeful discussion between the researcher and interviewee in order to discover the relevant information from the interviewee (this also conforms to the popular conception of the notion of an interview). The process involves asking questions intended to focus on the issues under investigation and to obtain feedback from the respondents. Interviews may be conducted face-to-face, voice-to-voice (as in phone conversations), or screen-to-screen and can be documented in written notes, tape recorded, or videotaped (Collis and Hussey, 2003). Interviews can be performed in a

structured, unstructured or semi-structured manner (Collis and Hussey, 2003). A structured interview is carried out by posing a pre-determined set of standardized questions in a pre-defined order while responses are usually also limited in scope. An unstructured interview allows interviewees to talk freely and without hindrance about the phenomena of interest (Saunders *et al*, 2003). A semi-structured interview combines elements of both structured and unstructured interviews. This research used semi-structured consultations. For accurate results, some of the main interviewees are interviewed multiple times to confirm the interview data (Eisenhardt, 1989; Yin, 1984).

#### ***4.4.5.1 Stage 1: The initial semi-structured consultations***

The early stage of data collection involved a set of initial meetings with CIL contacts and secondary data collection. This period lasted for about two years that included numerous meetings over three visits to India. Making the initial consultations semi-structured was useful for the following reasons. It helped establish preliminary issues and allowed in-depth discussions and the sharing of insights on the issues to be addressed.

A number of preliminary questions were identified from a review of secondary sources before conducting these interviews. These predetermined questions included both closed and open-ended questions that were considered relevant to the research. These questions had been carefully articulated to avoid the possibility of influencing the responses. Some questions only required brief and precise answers, while others allowed the individuals consulted to describe the events freely and also allowed them to address and discuss the key issues and themes of relevance to the research project.

The semi-structured sessions conducted in this research sought to stimulate interaction with the individuals consulted by creating a free flow of dialogue. This study followed Fowler and Mangione's (1990) suggestion that the discovery of relevant information is far more essential than merely asking questions in the interview. Therefore, the researcher had flexibility to improvise during these sessions when deemed necessary. The protocol provided sufficient flexibility to adjust the structure of the session in case new themes related to the study emerged.

#### **4.4.5.2 Stage 2: Conducting semi-structured consultations**

These consultations sought to gather more relevant data by using the *strategy description template* (see Chapter 5) as the basic instrument. These sessions involved an initial exposition on the terminology and concepts underpinning the strategy description template (for example, the terms of objectives, pre-requisites, resource requirements and strategy outcomes). These sessions provided an opportunity to verifying data collected from other secondary sources

The data gathered was recorded and stored in the case study database (see Section 4.4.6). The process of analysing the data is discussed in Section 4.5.

#### **4.4.6 Developing a case study database: recording the data**

A complete case study database was maintained in conformance to the main principles of data collection for this research (see Section 4.4.4). Yin (1984) defines a case study database as a “*a formal assembly of evidence distinct from the final case study report*” (Yin, 1984, p. 78).

The case database created for this research contained a complete set of research project related material, including the field notes (Eisenhardt, 1989) that recorded data gathered from interviews and verified data obtained from other sources. According to Eisenhardt (1989), field notes are a running commentary about what might be happening during case research, involving both observation and analysis. They document the ideas and insights that emerge during or subsequent to a field visit. All the files in the case database were indexed and recorded.

A tape-recorder was utilized during some of the sessions (whenever there was consent from the individual in question). A detailed case narrative was also immediately written up after each session (Eisenhardt, 1989; Yin, 1984) before transcribing from the tape-recording. This helped maximize recall and facilitated follow-up and the filling of gaps in the data. In the interests of obtaining accurate results, some of the key individuals were consulted multiple times to confirm the populated strategy description templates (Eisenhardt, 1989; Yin, 1984). Finally,

recorded cassette tapes, transcriptions, meeting notes, secondary sources and other relevant data were carefully stored for future reference.

Miles and Huberman (1994) suggest that documenting the techniques used in case study research help demonstrate reliability, validity and robustness (see Section 4.7.1). This view is shared with many other authors (Eisenhardt, 1989; Patton, 1990). Keeping detailed and accurate field notes during data collection is an important part of case study research because by doing this confirmability of the study (see Section 4.7.3) can be ensured.

## 4.5 The process of analysing the data

The strength of the case study is dependent on the quality of the data analysis (Miles and Huberman, 1994). Data analysis “*consists of examining, categorizing, tabulating, or otherwise recombining the evidence, to address the initial propositions of a study*” (Yin, 1984, p. 99). The ultimate goal of data analysis is to “*treat the evidence fairly, to produce compelling analytic conclusion, and to rule out alternative interpretations*” (Yin, 1984, p. 100). Miles and Huberman (1994) suggest some general strategies to generate meaning from qualitative data. Kohlbacher (2006) offers a systematic rule-based and carefully documented step-by-step procedure to reduce data complexity using coding and category system. This section discusses the data analysis strategies used in this research by combining Kohlbacher (2006), Miles and Huberman (1994), Ryan and Bernard (2000), as well as Yin’s (1984) discussion of data analysis strategies.

**An additional note on data analysis:** This dissertation offers a novel data analysis technique, in the form of: (1) a structured template for documenting information about an organization’s strategies and (2) a framework that can be used to draw conclusions about whether an organization’s strategies are aligned (or not), as well as conclusions about the extent of alignment. Both are presented in detail in Chapter 5. The data collected was in the form of factual assertions about CIL’s strategies. These were collected from the published literature as well as from initial consultations with several contacts in the organization. Subsequently, populated strategy description



templates (containing these assertions about CIL's strategies) were presented to these individuals (the full list appears in Appendix A) for confirmation. There were no disagreements in the accounts provided by these individuals (barring a small number of instances where different terms were used to denote the same concept), and these accounts also coincided entirely with what appeared in the public record. This is not surprising given that CIL was a public-sector undertaking (a PSU), and a very large one (with about half a million employees at one point) whose strategies were expected to be transparent (and frequently written about in a variety of publications). A detailed account of how this data was collected appears in Section 4.6 below. Given that the bulk of this dissertation concerns a novel data analysis method (described in Chapter 5) and an illustration of its use in the context (over Chapters 6, 7 and 8), details of the data analysis method are not addressed in this chapter.

#### **4.5.1 Transcribing raw data into field notes and the case database**

The company information and documentation was obtained from both primary and secondary data in this research. Information was gathered initially from publicly available sources before engaging in field work. Relevant documentation was collected both internally and externally. Semi-structured consultations were conducted with CIL contacts and recorded in the field notes.

Note that many authors (Buchanan, 1999; Eisenhardt, 1989; Leedy, 1997) emphasise that data collection and data analysis should be done simultaneously. This occurs as an iterative process, which supports the researcher's ability to move between the literature and field data and back. According to Leedy (1997, p. 158), "*It is important that a case study researcher analyse data while also collecting it because what is learned from data collected at one point in time often is used to determine subsequent data collection activities*".

Where data collection and data analysis are done simultaneously, data analysis needs to be performed in a well-planned manner (Saunders *et al*, 2003) and the data collected needs to be stored carefully in order to achieve rigour in research (see Section 4.7). All of the data acquired and used in this research was coded and stored in a computer database.

### **4.5.2 Coding and categorizing the data**

Both Kohlbacher (2006) as well as Miles and Huberman (1994) suggest that a coding and categorizing process for qualitative data would reduce complexity. Similarly, Ryan and Bernard (2000) recommend the use of predefined codes for case studies. Miles and Huberman (1994) have described 13 tactics for generating meaning from qualitative data. The first three tactics tell us “*what goes with what*”. The next two tell us “*what’s there*”. The next two help “*sharpen our understanding*.” The next four help us “*see things and their relationships more abstractly*.” Finally the last two help us to “*assemble a coherent understanding of the data*” (pp. 245-246).

This research adopts these tactics to generate meaning from the data collected. There were three categories primarily considered for this research. These are: (1) the general CIL corporate business environment, (2) CIL’s corporate and functional strategies, (3) the components of each strategy (see Chapter 5). Each category had sub-categories. The sub-categories of the general CIL business environment were: CIL in general, CIL in the pre-1991 period of stability, the period of business upheaval in CIL, and the period of re-alignment in CIL. The sub-categories of CIL corporate strategies and functional strategies were: the high-level corporate strategy, HRM strategy, pricing strategy, production strategy, technology strategy, logistic strategy, CRM strategy and finance strategy. The sub-categories of constructs for each strategy were: pre-requisites, resources, outcomes and objectives.

### **4.5.3 Filtering out unnecessary data**

The process of eliminating extraneous data helps focus attention on the data relevant to research questions, as well as framework building and testing (Miles and Huberman, 1994). The eliminated extraneous data was retained in a repository for referencing and checking in separate files.

### **4.5.4 Generating a detailed case description**

A case description - also known as a *case narrative* (Yin, 1984) - is one of the basic data analysis strategies that highlight the relevant and emergent themes from the collected data. It is essential to describe the case as accurately as possible (avoiding

any temptation to introduce subjective analysis) and to present the fullest and the most complete description of the case.

Following this principle, the background of the CIL case is written up and described in detail in Chapter 6. The case description focuses on the history of the company, the company's general profile, its organisational structure and subsidiaries. An overview of strategic transformation at CIL is also presented in Chapter 6. The strategic re-alignment story at CIL is told in three parts – a period of stability, a period of business upheaval and a period of re-alignment, over Chapters 6, 7 and 8.

#### **4.5.5 Conducting a within-case analysis**

Eisenhardt (1989) suggests two methods in case study analysis, which are *analysis within case data* and *searching for cross-case patterns*. Within-case analysis involves analysing data with an in-depth study of each individual case (Eisenhardt, 1989). There are several techniques to conduct within-case analysis. Miles and Huberman (1994) suggest the use of a *case dynamics matrix* which displays a set of factors for change and helps discover the processes and outcomes that follow. The within-case analysis is conducted based on the description of the CIL case and the empirical data presented in Chapters 6, 7 and 8.

#### **4.5.6 Presenting the conclusions obtained from data analysis**

Finally, the results of the case analysis and the implication of these results are discussed at various points in Chapters 6, 7 and 8.

### **4.6 Data collection for this case study**

The strategy description template (see Table 5.1) described in the Chapter 5, Section 5.2 was the primary data collection instrument for this study. It is important to note that most elements of each populated strategy description template refer to matters of historical record in relation corporate decisions at CIL, which were widely reported in the press and widely referred to in the published literature. In the course of this study, I also found a remarkable degree of consensus amongst the sources consulted

in terms of how they chose to populate each strategy description template. In a small handful of instances, some sources provided additional information to what had been provided by sources previously consulted. However, in each case, the previous sources confirmed this information when I consulted them a second time. In other words, there were no instances of contradictory information emerging from the sources consulted. This was primarily because CIL's strategy, given its status as a government-owned enterprise, was largely a matter of public record, with little room for subjective interpretation. It is important to note that this may not always be the case, particularly with private-sector enterprises. The information presented in this chapter was collected over 5 visits to India at the following times:

1. April, 2006
2. November-December, 2006
3. November-December, 2007
4. March-April, 2010
5. September-October, 2011

The data collection process for this case study is outlined in the figure below, and involved the following steps:

### **Step 1: Information gathering from the publicly available sources**

The first step in the exercise was the collection of background information about CIL, in terms of its history, the specific strategies it pursued at various points in time, the constraints imposed on the firm by government policies and other aspects of the business context. A range of sources were consulted, including:

- Press coverage of CIL
- Government of India publications
- World Bank reports (several of these are available in relation to loans extended to CIL over the last 3 decades).
- Material available on CIL's website
- Papers published in a variety of journals and conferences. The number of papers addressing the business aspects of CIL's activities turned out to be relatively small, compared to the number of papers addressing the engineering/technological aspects.

This step led to the following outcomes:

1. I developed a broad understanding of the organization, its history and its operations
2. I was able to formulate an initial list of functional strategies which would be used for analysing CIL's strategic landscape.

## **Step 2: Initial consultations with CIL contacts**

A series of data collection sessions were conducted with CIL sources (see Appendix A for details). The intent of these sessions was to gather the information necessary to populate the strategy description templates. These templates provided structure to the data collection sessions and prevented these from turning into open-ended discussions.

The protocol for these meetings was as follows:

1. A brief explanation of strategic alignment framework:
  - The motivations were described.
  - The objectives of this research were explained.
2. An explanation of the strategy description template, including the content required for each heading in the template (Objectives, prerequisites etc.).
3. A set of questions aimed at developing an understanding of strategic outcomes. Some of the questions were specific to particular functional strategies. Several of these questions were formulated based on the analysis conducted in Step 1. These questions provided guidance to the CIL contact on what might be useful information to provide under the heading of “**strategic outcome**”.

Some examples of these questions are provided below:

For the logistics strategy:

- How did CIL transport coal to its customers??
- Did it use road transport or trains?

For the HRM strategy:

- How did CIL recruit its workforce?
- Was it able to fire workers if a mine was shutting down?
- What benefits did it give workers?

For the technology strategy:

- What were the key technologies used by CIL?
  - Was there an emphasis on indigenous technology?
  - Was the impact of technology on employment generation an issue?
4. A set of questions aimed at developing an understanding of **strategic objectives**. The following are some examples of the questions used:
- What was CIL trying to achieve by doing this?
  - What were the key metrics and key performance indicators in relation to this strategy?
  - What was the long-term objective?
5. A set of questions aimed at developing an understanding of **strategic prerequisites**:

- What did CIL need for achieving this?

Offering suggestions such as:

- Did it need large investment for this strategy?
  - Did it need government support?
  - Did it need government regulation or laws to be changed?
6. A set of questions aimed at developing an understanding of **resource requirements**:
- What resources did CIL need for this strategy?
  - What were the human/technological/financial resource requirements?
  - Who provided these resources? Were they internal resources or external inputs?

An additional input was used in discussing the post-1991 strategies: the description of the pre-1991 strategies. In other words, for each post-1991 strategy, the discussion could be initiated with the following question:

- How did the post-1991 strategy in this instance differ from the pre-1991 strategy?

After an initial introduction, the sources were able to populate the strategy description templates on their own.

This step led to the following outcomes:

- The initial body of information that would eventually lead to populated strategy description templates.

- A better understanding on the part of the CIL contacts of the nature of the information being collected, as well as the broader context

### **Step 3: Development of initial strategy descriptions**

An initial set of strategy descriptions were developed based on the information gathered from these sessions. This involved a pen-and-paper exercise in populating each strategy description template during the meetings with CIL contacts. These were further refined and documented in the form of a Microsoft Word document after each meeting.

The outcome of this step was:

- An initial set of populated strategy description templates

### **Step 4: Obtaining additional detail for strategy description templates from published material**

The initial strategy descriptions were extended with additional material obtained from analysing the following sources (this list is essentially identical to the list provided with Step 1):

- Press coverage of CIL
- Government of India publications
- World Bank reports
- Material available on CIL's website
- Papers published in a variety of journals and conferences.

The outcome of this step was:

- Extended versions of the initial strategy descriptions.

### **Step 5: Obtaining feedback on initial strategy descriptions from CIL contacts**

These initial strategy descriptions were then presented to the CIL contacts who checked their correctness. They were asked, in particular, to check the extensions made in Step 4. Each of the contacts was presented with the populated templates obtained via meetings with the other sources (in addition to templates obtained from prior meetings with themselves). In a small handful of instances, some sources

provided additional information to what had been provided by sources previously consulted. However, in each case, the previous sources confirmed this information when I consulted them a second time. In one instance, different wording used by two distinct sources had led to some amount of confusion - this was resolved at this stage.

The outcomes of this step were:

- Feedback obtained on the correctness of the initial strategy description templates.
- Confusion caused by the use of different terms by different sources resolved.

### **Step 6: Development of revised strategy descriptions**

Revised strategy descriptions based on feedback obtained in Step 5 were developed.

The outcome of this step was:

- Additionally refined and revised strategy descriptions.

### **Step 7: Second round of validation by CIL contacts**

The revised strategy descriptions were provided to the CIL contacts for a second round of validation.

The outcome of this step was:

- Validation of revised strategy descriptions

### **Step 8: Approval of final strategy descriptions**

A final set of strategy descriptions were presented to the set of CIL contacts initially consulted. These strategy descriptions were also presented to some additional contacts for additional validation (see Appendix A for details). All of the CIL contacts provided statements indicating that the final set of strategy descriptions were accurate representations of CIL's strategies.

The outcome of this step was:

- Certification of the final strategy descriptions by an expanded set of CIL contacts.

*It is interesting to note that in the instance of CIL, there was nothing by way of subjective assessment or individual opinion that emerged from interviews with key stakeholders. Much of what was asserted in relation to CIL's strategies were known*



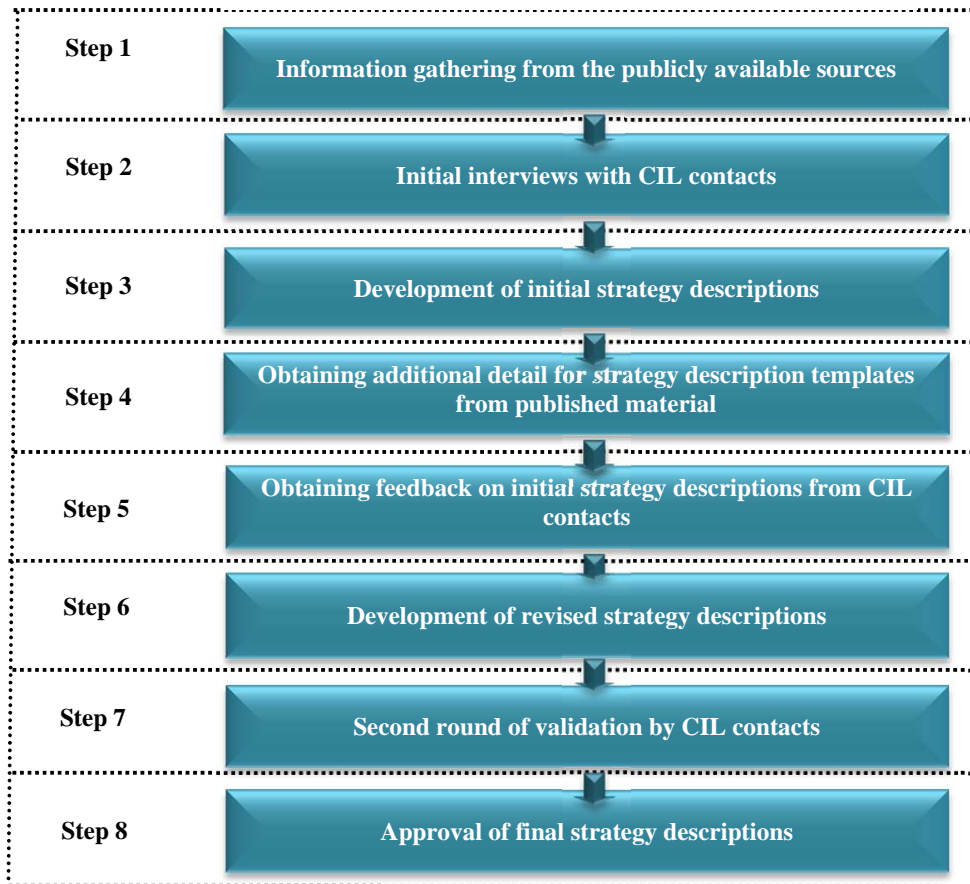
and recorded in the public domain. In the few instances where additional detail (to what was in the public record) emerged from interviews, these details were cross-validated by other key stakeholders. An important caveat here is that these circumstances might be unique to organizations such as CIL, which are large, government-owned and entirely transparent in their operations.

All of the meetings were conducted in English (which was also the language in which all of the secondary data was presented).

Figure 4.4, below, shows the data collection process described above.

**A note on the evolution of the conceptual framework:** Very early in the execution of steps 1 and 2, it became clear to me that the initial conceptual framework was not rich enough to capture several key elements of CIL's strategies. This prompted a revision and extension of the conceptual framework to incorporate constructs to describe objectives. The extension of the conceptual framework was not part of the research plan, but was driven by empirical evidence.

**Figure 4.4: Data Collection Process**



## 4.7 Quality of the research design

This section describes the approach to quality control for this research in terms of reliability, validity and confirmability. Reliability refers to “*the extent to which a measurement procedure yields the same answer however and whenever it is carried out*” (Kirk and Miller, 1986, p. 19). Validity refers to “*the extent to which it gives the correct answer*” (Kirk and Miller, 1986, p. 19). Confirmability refers to the ability to satisfy external observers that the research was carried out in the way it was described by the researcher (Miles and Huberman, 1994). There are a number of different approaches for assuring these qualities, which this research has largely conformed to.

### **4.7.1 Reliability**

Reliability requires that the key steps of the study should be capable of being repeated with similar results when different researchers carry out the same study at different times (Kirk and Miller, 1986; Miles and Huberman 1994). Reliability can be achieved (Yin, 1984) by establishing a case study database and using a case study protocol emphasizing field procedures, case study questions, and a guide for the final write up (which is effectively sound advice for researchers, in any case). This research follows the case study protocol, the data collection procedures (see Section 4.4.4), the execution of a semi-structured consultation protocol (see Section 4.4.5), and finally the establishment of field notes and case database (see Section 4.4.6). The case database is computerized. It records all the information, such as extensive notes, transcripts and documents from all stages of the research effort.

Kirk and Miller (1986) suggest, unsurprisingly, that consistent note taking, immersion in the context, exposure to multiple situations, drawing upon other research (and researchers) for assistance can be useful for achieving reliable results. The consistent note taking technique is extensively used in this research. This research also draws extensively upon other research and researchers. The conceptual framework is developed from the current literature review (see Chapter 2 and Chapter 3). The developed conceptual framework (see Chapter 5) has benefited from the input of anonymous blind reviewers in a variety of publication forums. This research also draws on a range of disciplines outside of management, including computing, IS and operations research. However, immersion in the context and exposure to multiple situations primarily apply to observations which do not apply in the context of this research. This discussion establishes that considerable attention has been paid to achieving reliability of the research outcomes.

### **4.7.2 Validity**

Validity is concerned with generating the correct answer (Yin, 1984) (in other settings, it sometimes referred to as soundness). According to Yin, a program of research can achieve rigor of validity through the following approaches: construct validity, internal validity, and external validity.

#### ***4.7.2.1 Construct validity***

**Construct validity** “*testifies to how well the results obtained from the use of the measure fit the theories around which the test is designed*” (Sekaran, 1992, p. 173). Yin (1984) suggests that construct validity is best controlled during the data collection and composition stages of case study research. To ensure validity, the research should use multiple sources of evidence, establishing a chain of evidence (Lincoln and Guba 1985; Miles and Huberman, 1994; Yin 1984) and having key informants review the draft case study report (Gorman and Clayton, 1997). This research uses multiple sources of evidence for triangulation purposes (see Section 4.4.3) which is strongly recommended as a technique for construct validity (Burgess, 1984; Patton, 1990; Yin, 1984). This also assists with the generalizability of the research findings (Bonoma, 1985). Maintaining a chain of evidence is one of the major principles of data collection followed by this research (See Section 4.4.4.). CIL contacts were required to review the final set of strategy descriptions and to point out mistakes and misinterpretations for validation. This meets the requirement of having key informants review a draft case study report, discussed above.

#### ***4.7.2.2 Internal validity***

**Internal validity** is also known as credibility. Discussion of the results and conclusions with other researchers can add to reliability (Kirk and Miller, 1986), as well as internal validity (Lincoln and Guba, 1985; Yin, 1984). Other activities to demonstrate internal validity include expert peer debriefing suggested by Lincoln and Guba (1985) and Yin (1984). This research in general and the framework in particular have received input from anonymous reviewers and various colleagues to gain reliability (see Section 4.7.1) and internal validity. Another activity to ensure internal validity suggested by Lincoln and Guba (1985) and Yin (1984) involves clarifying the researcher’s assumptions about the theoretical orientation of the research. The research questions and assumptions are discussed in Chapter 1 and the philosophical perspectives of this research (which clearly identify the assumptions made in this research) are discussed in Section 4.1.

Yin (1984) also proposes several specific techniques when analysing the collected data to establish internal validity. Among his suggestions, within-case analysis and

pattern matching, and the assurance of internal coherence of findings are leveraged in this research to ensure the internal validity. The detailed data analysis techniques, including within-case analysis and pattern matching are discussed in Section 4.5.5.

#### ***4.7.2.3 External validity***

**External validity** is associated with the notions of transferability or generalizability. Hedrick, Bickman and Rog (1993) define external validity as the “*extent to which it is possible to generalize from the data and context of the research study to broader populations and settings*” (p. 40). Cook and Campbell (1979) suggest that external validity is irrelevant for single-case study research as a single study cannot be replicated. In contrast, Eisenhardt (1989) and Miles and Huberman (1994) argue that replication in a single-case refers to the ability of an independent investigator to replicate the case study in the same way as the researcher performed it. This is very similar to the discussion on reliability (see Section 4.7.1) by Kirk and Miller (1986) and Miles and Huberman (1994). This research develops a carefully specified conceptual framework which offers some degree of confidence (but no absolute guarantee) that other researchers would be able to replicate the study by using *strategy description templates*. This will be discussed in Chapter 5.

A common critique of the single case study method is that it is not capable of providing a generalizing conclusion (Cook and Campbell, 1979; Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 1984). This research has been carefully designed to overcome this shortcoming. The case study itself involves a form of “replication logic” (as opposed to “sampling logic”). Replication logic involves the conduct of multiple case studies to validate the same result. While this research involves a single case study, it actually provides three distinct accounts of three distinct phases in the history of the organisation in question (CIL). The first phase is presented over Chapters 6 and 7, while the last two phases are presented in Chapter 8. The accounts of each of these phases independently validate the hypothesis that the conceptual framework for strategic alignment developed here is able to explain business performance. I show three separate outcomes: (1) that the initial period of stability coincides with the strategies being in alignment, (2) that the subsequent period of business upheaval coincides with the strategies being misaligned and (3) that the

final period where stability was restored coincides with the strategies being realigned. This is arguable the application of replication logic in support of generalization (that the conceptual framework can explain business performance in the general case).

Yin (1984) suggests two methods, “statistical generalization” and “analytical generalization” to achieve external validity. However, Meredith (1998) critiques this suggestion by arguing that both types of “generalization” do not particularly concern external validity. This research attempts to use “theoretic generalizability” proposed by Meredith (1998) in which particular findings from case or field research are generalized into a broader theory.

Other than construct validity, internal validity and external validity commonly discussed by various researchers (Eisenhardt, 1989; Kirk and Miller, 1986; Lincoln and Guba, 1985; Miles and Huberman, 1994; Sekaran, 1992), Altheide and Johnson (1994) suggest that usefulness, contextual completeness, research positioning, and reporting style as an alternative characterization of validity. Usefulness refers to whether the research report is comprehensible (and of some utility) to those who read it. Contextual completeness refers to the comprehensiveness of the research. Research positioning refers to the awareness of researcher’s own influences (both subtle and direct) in the research setting to avoid bias and achieve credibility of the findings. Finally, a researcher’s choice of reporting style has a noticeable effect on a study’s credibility (this is arguably confirmed by common experience). This research meets these criteria and thus achieves validity. This dissertation addresses the questions asked in Chapter 1 and presents it as clearly as possible. The contributions of the research to theory development, academic value, practitioner value are discussed in Chapter 9. Completeness is achieved by bringing to bear all relevant information. The case data analysis is discussed separately in Chapter 6, 7 and 8. How this study measures up against the final two criteria, research positioning and reporting style, should be self-evident from this dissertation.

### **4.7.3 Confirmability**

Confirmability is defined as ability to satisfy external researchers that the research was carried out in the way it is described by the researcher (Lincoln & Guba, 1985; Miles and Huberman, 1994). The method for ensuring confirmability is to develop a record of data collected in great detail to allow other researchers to observe a chain of evidence in the study. Miles and Huberman (1994) emphasise that detailed and accurate documentation of the methodologies and techniques used in case study research, as well as the field notes during data collection is extremely critical to demonstrate reliability, validity and confirmability of the research. Miles and Huberman (1994) suggest that leveraging an audit trail which provides an external observer the opportunity to understand and trace the whole research project from the evidence presented to the conclusions drawn. This research has made provision for satisfying the confirmability requirement by maintaining a complete case database which contains the data and related information of the whole project (see Section 4.4.6).

## **4.8 Chapter summary**

This chapter provides a detailed description of the research methodology adopted in the program of research reported in this dissertation. It first identifies the philosophical positioning of this research, along with the critical assumptions made. It then identifies (starting with the broad conceptual categories and ending in specific methods) the methodological framework within which this research is situated and offers justifications for the research design choices made, relating to the competing alternatives. It then describes the research process in considerable detail, including measures to ensure the reliability, validity and confirmability of the results.

This sets the stage for presenting a novel conceptual framework (in Chapter 5) and its validation (across Chapters 6, 7 and 8).

## **CHAPTER 5: DEVELOPING A CONCEPTUAL FRAMEWORK**

The literature review of alternative conceptions of strategy that I present in Chapter 2 suggests that strategy is intimately related to the notion of organizational action. Obtaining a certain market position involves action on the part of the firm, as does appropriately using some of its internal, or relational, resources. Ultimately, the alternative conceptions of strategy suggest different analytical bases for choosing between alternative courses of action. In this chapter, I will offer a holistic, integrative view of strategy that focuses attention on the actions of the firm.

Another interesting observation from the literature review in Chapter 2 is the absence of any account of the generic attributes of any strategy. If such attributes were well-understood, we would have access to a structured means of documenting strategy. This too is a gap that I will address in this chapter, as a stepping stone to obtaining a framework for analysing strategic alignment.

The literature review in Chapter 3 also reveals a critical gap in the literature on strategic alignment, namely, the absence of crisp clear, actionable definitions of alignment. In this chapter, I will provide such a definition, which leads to a collection of conceptual tools for evaluating alignment, as well as a rich new vocabulary for discussing varying degrees of alignment between strategies.

Section 5.1 describes the antecedents of the framework developed in this chapter. I develop a conceptual framework to address these issues in three steps. First, I define a conceptual tool-kit that can be used to describe strategies in a domain-independent fashion. I describe the three attributes of strategy in Section 5.2 that I will argue are critical for alignment analysis. In Section 5.3, I introduce additional elements of a vocabulary that I have used in developing this conceptual tool-kit. In Section 5.4, I discuss alignment with the business context.



Second, I address the following problem: *given a set of strategies described using the vocabulary I have developed, how does one determine whether they are aligned?* I propose two definitions of alignment: *basic alignment* and *full-alignment*. I describe basic alignment in Section 5.5.1 and full alignment in Section 5.5.2. I offer some examples of the use of these notions in Section 5.5.3.

Third, I show that these two notions define the end points of a spectrum of varying degrees of alignment in Section 5.6, with the conditions defined in my framework providing a rich vocabulary for describing alternative intuitions on alignment. I also elaborate on the inter-relationships between these conditions in Section 5.7. Then I discuss constrained strategy development and repair in Section 5.8 and transient advantage in Section 5.9. Finally, I present a summary of this chapter in Section 5.10.

A preliminary version of some of the material in this chapter appears in Wang and Ghose (2006).

## **5.1 The antecedents to this framework: Strategy as a course of action**

In this section, I will discuss the antecedents of the framework developed in this chapter. This discussion will be structured as follows. First, I will discuss existing work that views strategy as a *course of action*. This view underpins my conceptual framework. Second, I will discuss existing formulations of strategy in terms of goals, objectives and resources. These also form critical elements of my conceptual framework.

As discussed in Chapter 2, a number of authors have argued in favour of the proposition that a strategy fundamentally represents a course of action. Going back to the pre-history of the discourse on strategy, both Chanakya (Ghose, 1992) and Sun Tzu (Griffith, 1963) wrote that winners are those who *plan* effectively and change decisively. The Greeks also developed the concept of strategy purely in its basic military sense. The roots of ‘strategos’ simply mean ‘army’ and ‘lead’ and the idea of

strategy is to “*plan the destruction of one’s enemies through effective use of resources*” (Bracker, 1980, p. 219). Strategy has also been viewed as the art employed by an army general to *plan* and conduct warfare in military since then. Carl von Clausewitz (1780-1831), a Prussian general and intellectual as well as Liddell Hart (1895-1970), a former British military officer and noted military scholar are well-known for their work on strategy in military settings. Underpinning all of the military conceptions of strategy is a notion of strategy as military action.

More recent work in the field of business management has viewed strategy as being part of business policy (Bain, 1968; Certo and Peter, 1990; Learned *et al*, 1965; Thompson and Strickland, 1981). Learned *et al* (1965, p. 3) define strategy as “*the pattern of objectives, purposes or goals and major policies and plans for achieving these goals, stated in such a way as to define what business the company is in or is to be in and the kind of company it is or is to be.*” The notion of viewing a strategy as a plan also underpins the work of Glueck (1980), who defines strategy as: “*the unified, comprehensive and integrated plan designed to assure that the basic objective of the enterprise are achieved*”. The same conceptual stance underpins Mintzberg (1987b) who defines strategy as “*a pattern in a stream of decisions and actions*”. He proposes a notion of five Ps, whereby a strategy can be a *plan*, a *ploy*, a *pattern of behaviour*, a position in respect customers or competitors, or the perspective of managers in a firm (Mintzberg, 1987b).

This perspective also appears in the work of Ohmae, who notes that “*strategy is really no more than a plan of action for maximising one’s strength against the forces at work in the business environment*” (Ohmae, 1982, p. 248). Pearce and Robinson (1988) define strategy as the “*large-scale, future-oriented plans for interacting with the competitive environment to optimise achievement of organization objectives*” (pp. 6-7). Henderson (1989) has argued that strategy formulation involves deliberation to obtain a *plan of action* that will develop a competitive advantage for the firm. The formalized study of *courses of action* can be found in the literature on computing and IS, in the form of the *planning problem* (Fikes and Nilsson, 1971). The planning problem involves identifying a sequence of actions (drawn from a set of available actions) which would enable one to arrive at a desired goal state from a given initial state. One of the earliest planning systems, STRIPS (Fikes and Nilsson, 1971),

involves defining each operator in terms of its pre-conditions and its post-conditions. The idea is that an operator may be applied if its pre-conditions hold in the current state of its environment. The result of applying the operator is to make its post-conditions true in the resulting state of the environment. The critical insight here is that there is value in modelling the pre-conditions and post-conditions of an action, or a course of action. The notion of pre-conditions also appear in other parts of the literature on IS and computing, such as in the analysis of the meaning of programs (Hoare, 1969), and in web services (McIlraith *et al*, 2001). Indeed, this literature suggests that for several critical kinds of analysis (and, in particular, for analysing the effects of an action or course of action on another), the only things we need to know about an atomic action (i.e., one that is not amenable to analysis at any finer level of granularity) are its pre- and post-conditions.

A number of other authors also start from the proposition that a strategy is best viewed as a course of action, and then extend this premise. Chandler (1962, p. 13) argues that the formulation of strategy involves "*the determination of the basic long-term goals and objectives of the enterprise and the adoption of courses of action and allocation of resources necessary for carrying out these goals.*" The notions of *goals* and *objectives* referred to by Chandler also play a critical role in my conceptual framework. These notions also figure prominently in Andrews' (1971, pp. 18-19) definition of corporate strategy as "*the pattern of decisions in a company that determines and reveals its objectives, purposes, or goals, produces the principal policies and plans for achieving those goals, and defines the range of business the company is to pursue, the kind of economic and human organization it is or intends to be, and the nature of the economic and non-economic contribution it intends to make to its shareholders, employees, customers, and communities.*" Mintzberg and Waters (1985) distinguish between deliberate and emergent strategy, where deliberate strategy, also variously described as *planned*, *intended*, *espoused* or *prescriptive* strategy, refers to the plans that managers develop. The notion of a strategy as a course of action, and the close connections with goals and objectives are also implicit in this view. In the three models of strategy identified by Chaffee (1985), linear strategy focuses mainly on planning. The steps involved in the planning process are systematic, directed and chronological. Linear strategy consists of integrated decisions, actions and plans to achieve the main goals of the

organisation. Both goals and means are generated by the strategic decision-making process. Chafee identifies Andrews (1971), Chandler (1962), Drucker (1974), Glueck (1980), Learned et.al (1965) and Steiner and Miner (1977) as examples of “linear strategists”, i.e., authors whose conception of strategy conforms to the linear model of strategy.

As discussed in detail later in this chapter, my conceptual framework leverages a common thread running through much of the literature on strategy (including the authors discussed above): the view of *strategy as a course of action*. My conceptual framework also leverages the perspective from the literature on IS and computing (discussed above) that characterizes courses of action (or plans) in terms of their pre- and post-conditions. An associated set of *intentional* constructs (i.e., having to do with organisational *intent*) also emerge as common threads running through this literature. These include *goals* and *objectives*. All of these notions will come together in a seamless manner in the framework I will present in this chapter.

## 5.2 Describing strategies in a structured format

In this section, I will directly address my first two research questions:

*RQ1: What is an adequate framework for describing strategies in their most general form?*

*RQ2: How can strategic alignment be defined in a manner that supports the analysis of alignment, leveraging the framework developed to address RQ1? How can the conceptual framework provide guidance on how to achieve alignment?*

Given my overarching objective of defining an actionable basis for analysing alignment between the strategies pursued by an enterprise, and given that alignment fundamentally involves *inter-relationships between strategies*, this vocabulary must focus on the components of a strategy that might interact with, or provide the basis for interaction with, another strategy. As discussed in the previous section, I start from the premise that a strategy is best viewed as a course of action. The discussion

in the previous section also suggests that the following are key descriptors of a strategy: *goals*, *objectives*, *preconditions*, *post-conditions* and *resources*. The framework I will develop leverages precisely this set of descriptors.

In discussing strategy formulation, Glueck (1980) emphasizes that all the major aspects of the enterprise need to be covered and joined in the plan and that *all parts of the plan should be compatible with one another*. As the substantial review of the literature on alignment in Chapter 3 suggests, the common thread running through most formulations of the notion of alignment is precisely this idea of *compatibility of plans*.

In the following, I will suggest that three attributes of a strategy are sufficient for analysing mutual compatibility (or alignment) of strategies: *prerequisites*, *resource requirements* and *strategic outcomes*. I will elaborate on each of these in the following subsections.

### **5.2.1 Prerequisites**

As can be seen from the literature on planning in IS and computing discussed above, and from the work of a range of authors in strategic management, such as (Chandler, 1962) and (Mintzberg and Waters, 1985) amongst several others, the identification of the *conditions necessary for the execution of a strategy* is an important component of strategy formulation. I shall refer to these conditions as the *prerequisites* of a strategy. The prerequisites of a strategy are the conditions that must hold for a strategy to be deployed. For instance, a prerequisite for a high-risk strategy of introducing a new product with an uncertain market response might be a position of market dominance for the firm, so that the potential of financial damage, as well as damage to its brand equity is minimised.

### **5.2.2 Resource requirements**

The substantial literature on the resource-based view of strategy in Chapter 2, and the widespread use of resources in approaches to strategic alignment discussed in Chapter 3 suggests that resources represent an essential component of a strategy description. It is clear that every strategy involves the commitment of resources. In

some instances, the resource requirements for a strategy might be viewed as prerequisites. In general, though, these are not prerequisites which refer to conditions that must be true when an organisation embarks upon (or chooses to deploy) a strategy. However, the required resources might not be available prior to the deployment of the strategy but might instead become available during the course of strategy execution. Hence the notions of *prerequisite* and *resource* cannot be conflated.

### 5.2.3 Strategic outcome

A number of authors, including Chandler (1962), Andrews (1971), Mintzberg and Waters (1985), Pearce and Robinson (1988) as well as Learned *et al* (1965) emphasize the centrality of goals or objectives in strategy formulation. Given that a goal is best viewed as a desired outcome, I will use the notion of *strategic outcome* as another key component of a strategy description. This view is also supported by the literature in computing and IS discussed above, given the emphasis on *post-conditions* (or *effects* or *outcomes*). The main observation is that the execution of a strategy leads to its (hopefully desired) outcomes. These outcomes might involve market positioning or the creation or utilisation of the internal resource base of a firm.

I will use outcomes to document both *desired post-conditions* as well *collateral post-conditions*. For instance, a strategy of expensive new product development leads to the *desired post-condition* of achieving a new product in high demand ready to market, but also leads to the *collateral post-condition* of a significant investment sunk into product development (i.e., the company did not set out with a goal of spending a large amount of money, but this expense was a collateral effect of the product development strategy).

### 5.2.4 Scenario

In addition to inter-strategy comparisons, alignment analysis must also take cognisance of the *context in which a strategy is situated*. In the following, I will use *scenario* as an over-arching term to describe the current state of a firm, both internal and external, including its business environment and its internal resources.

Leveraging these three attributes (and the notion of scenario), one can now conceive of a standardized template for documenting strategies, which I shall henceforth refer to as a *strategy description template*. As discussed in Chapter 1, and elsewhere, a key driver for this program of research is the need for supporting the *actual analysis of strategic alignment* in corporate/enterprise settings. A critical first step for such analysis is the documentation of strategies in a form, and using a vocabulary, that supports alignment analysis.

I have provided an (unpopulated) strategy description template below in Table 5.1. In addition to the three attributes discussed above, the template provides for an additional, unstructured slot for providing a detailed description of strategy as an aid to understanding (which is not explicitly used, however, in alignment analysis).

**Table 5.1: A Strategy Description Template**

|                                      |
|--------------------------------------|
| <b>Strategic Prerequisites</b>       |
| <b>Detailed Strategy Description</b> |
| <b>Resource Requirements</b>         |
| <b>Strategic Outcomes</b>            |

I shall show how this template can provide effective basis for documenting strategies in the case study described in Chapters 6, 7 and 8. As discussed in Chapter 4, this template forms my primary data collection device.

It is useful to contrast this approach to documenting strategies with *Strategy Maps* (Kaplan and Norton, 2003). My approach focuses on documenting the key attributes of a strategy, viewed as a plan or course of action. *Strategy Maps*, on the other hand, support the documentation of organisational objectives along multiple perspectives, but no constructs to document the prerequisites, outcomes or resource requirements of a strategy. None of these appear in Balanced Scorecards (Kaplan and Norton, 1992) either.

### **5.3 Relating strategy attributes for a framework of strategic alignment**

I introduced the key attributes of a strategy in the previous section. In this section, I will discuss two alternative bases for relating/comparing the attributes of a set of strategies, to determine, as Glueck (1980) has argued, whether all parts of the plan are compatible with each other. This, as I have discussed earlier, forms the basis of the *analysis* of strategic alignment. In the following, I will introduce the notions of *consistency*, *resource consistency* and *entailment* in a precise sense.

#### **5.3.1 Consistency**

The notion of *consensus* plays a key role in Kaplan and Norton's (1992) Balanced Scorecard framework as well as their subsequent work on Strategy Maps (Kaplan and Norton, 2003) and strategic alignment (Kaplan and Norton, 2006).

Skinner (1974), Venkatraman and Camillus (1984), Venkatraman (1989) as well as Robinson and Stern (1998) emphasize the need for *strategic consensus*. *Consensus* involves the absence of disagreement, which is closely related to the notion *consistency*, which is typically viewed as the absence of contradictory conditions (the



Merriam Webster dictionary offers “*the ability to be asserted together*” as a definition). Skinner (1974) uses the notion of consistency to define *internal fit*. Venkatraman (1989b) defines the IS notion of strategic alignment “*as a pattern of covariation or internal consistency among a set of underlying theoretically related variables*” (Venkatraman, 1989b, p. 435). Reich and Benbasat (1996) refer to the consistency of business and IS/IT plans, objectives, mission and goals as a key component of linkage. Consistency plays a role in Nadler and Tushman’s (1980) definition of alignment as “*the degree to which the needs, demands, goals, objectives, and/or structure of one component are consistent with the needs, demands, goals, objectives, and/or structure of another component*” (p. 40). Lederer and Mendelow (1989) argue that content linkage involves the consistency between business plans and IS plans. Bergeron *et al* (2004) and Camponovo *et al* (2003) leverage the notion of consistency in various forms in their accounts of alignment. The notion of consistency also plays a role in a number of other accounts of alignment (Baker and Jones, 2008; Hirschheim and Sabherwal, 2001; Luftman and Brier, 1999; Peppard and Breu, 2003; Sabherwal *et al*, 2001; Pollalis, 2003).

The notion of consistency clearly underpins a substantial body of work in this space, but has been used in a very general fashion. In the conceptual framework I develop, the notion of consistency is used in a more precise sense, and provides an important basis for analysing strategy attributes relative to each other. Specifically, I use consistency to compare those strategy attributes that involve *conditions* – in other words, the *scenario* (i.e., the conditions that hold in the current business context), the *prerequisites* (i.e., the conditions that must hold for a strategy to be deployed) and the *outcomes* (i.e., the conditions that strategy seeks to bring about). I view consistency in a precise sense as *the absence of contradiction*. A set of conditions is described as *contradictory* (or *inconsistent*) if the conditions in question cannot co-exist in a given situation (or a given business context).

### 5.3.2 Entailment

The notion of *consistency* can be strengthened further to obtain a notion of *entailment*. Using the notion of consistency as the basis for determining alignment leads to an informal, intuitive reading of alignment as a property that *permits the co-*

*existence* (or *co-deployment*) of a set of strategies. It is also useful to consider a stronger notion of alignment – one which suggests that a strategy (say StrategyA) is aligned to another (say StrategyB) if and only if the deployment of StrategyA *requires* us to deploy StrategyB. The notion of *entailment* helps us achieve this. In mathematical logic, a set of assertions (or conditions) is deemed to have entailed another (set of assertions) if and only if the latter are true in every state of affairs in which the former are true. For our purposes, set of conditions will be described as being *entailed* by another set of conditions if we can determine that in every scenario where the latter hold, the former also hold.

### 5.3.3 Resource consistency

*Resource consistency* is an attribute of a pair of strategies that can be concurrently deployed, given their resource requirements and resource availability in the current scenario. In some settings, this might mean that the sum of the resource requirements of the individual strategies does not exceed the available resources (e.g., if two strategies each require a capital outlay of a million dollars, but the available budget is \$1.5 million, we would flag an instance of resource inconsistency). In general, the answer might require more subtle analysis. In some cases, the resource requirements for a strategy might be included in the resource requirements for another strategy it is related to, while in others the resource requirements for a pair of strategies might partially overlap. Resource consistency simply obliges us to analyse strategies from the perspective of their resource requirements, juxtaposed against available resources, to determine if these strategies can be feasibly resourced. *Resource entailment* is a somewhat stronger condition. A strategy will be viewed as being *resource entailed* by another strategy if and only if the satisfaction of the resource requirements of the former implies the satisfaction of the resource requirements of the latter. For instance, the resource requirements for a strategy for developing a new R&D team would include the resource requirements for a strategy to recruit new members of the team.

## 5.4 Alignment with business context

The business context of a firm can impact strategy in the following ways:

- By influencing the *resource base* that is available for executing a strategy.
- By determining whether the *prerequisites* of a strategy are satisfied. If the prerequisites do not hold in the current business context, then the corresponding strategy would be difficult (or even impossible) to deploy.

The role of the resource base can be dealt with via the notion of *resource consistency*. The notions of *scenario-prerequisite consistency* and *scenario-prerequisite entailment* provide an adequate vocabulary for characterizing the influence of the business context on the prerequisites of a given strategy. *Scenario-prerequisite consistency* holds the prerequisites of the strategy do not contradict the conditions that hold in the business context. This offers some modicum of confidence that nothing in the business context is likely to *obstruct* the deployment of the strategy. *Scenario-prerequisite entailment* holds when the prerequisites of the strategy are *entailed* by conditions that hold in the business context. By ensuring that the conditions required to deploy the strategy actually hold in the business context, this offers a far higher degree of confidence that the deployment of the strategy would be viable. The framework thus provides a basis for discussing the alignment of a strategy with a business context as well.

## 5.5 Strategic alignment

In this section I will define two closely related conceptions of strategic alignment: *basic alignment* and *full alignment*. Both conceptions leverage the relations between strategy attributes discussed in Section 5.3 as well as the notions of alignment with the business context discussed in Section 5.4. *Basic alignment* identifies the essential conditions where one might argue that alignment exists. *Full alignment* involves more stringent conditions that must be satisfied for a much stronger alignment relationship to exist.

In the following discussion, I will simplify the analysis of alignment between multiple strategies by focusing on alignment as a relationship that holds between a pair of strategies. This, however, does not limit us in any manner. Each of these alignment relationships can be generalized in a straightforward manner to address alignment between sets of strategies (i.e., alignment between more than two strategies).

### 5.5.1 A framework for basic alignment

*Basic alignment* between a pair of strategies holds in situations where there are no impediments to the concurrent deployment of both strategies.

A pair of strategies is in basic alignment whenever:

- The prerequisites of each strategy do not contradict the current business context (scenario). This opens up the possibility for each strategy to be individually deployed in the current scenario. I refer to this as checking for *scenario-prerequisite consistency*.
- The prerequisites of each strategy do not contradict each other. This ensures that strategies with contradictory prerequisites (which are thus clearly not intended for deployment in the same scenario) are not concurrently deployed. I refer to this as *prerequisite consistency*.
- The strategy pair is *resource consistent* given the current scenario. This ensures that there are no resource impediments to the concurrent deployment of these strategies.
- The outcomes of each strategy do not contradict each other. This ensures that one of the strategies does not “undo” the outcomes of the other strategy. I refer to this as *outcome consistency*.
- The outcomes of any one of the strategies do not contradict the prerequisites of the other and vice versa. This ensures that the deployment of one of the strategies do not detract from the viability of the other strategy. I shall refer to this as *prerequisite-outcome consistency*. Note that analysing for this property will require two pairs of conditions to be checked: the prerequisites of the

first strategy with the outcomes of the second, as well as the prerequisites of the second strategy with the outcomes of the first.

**Figure 5.1: A Framework of Basic Alignment**

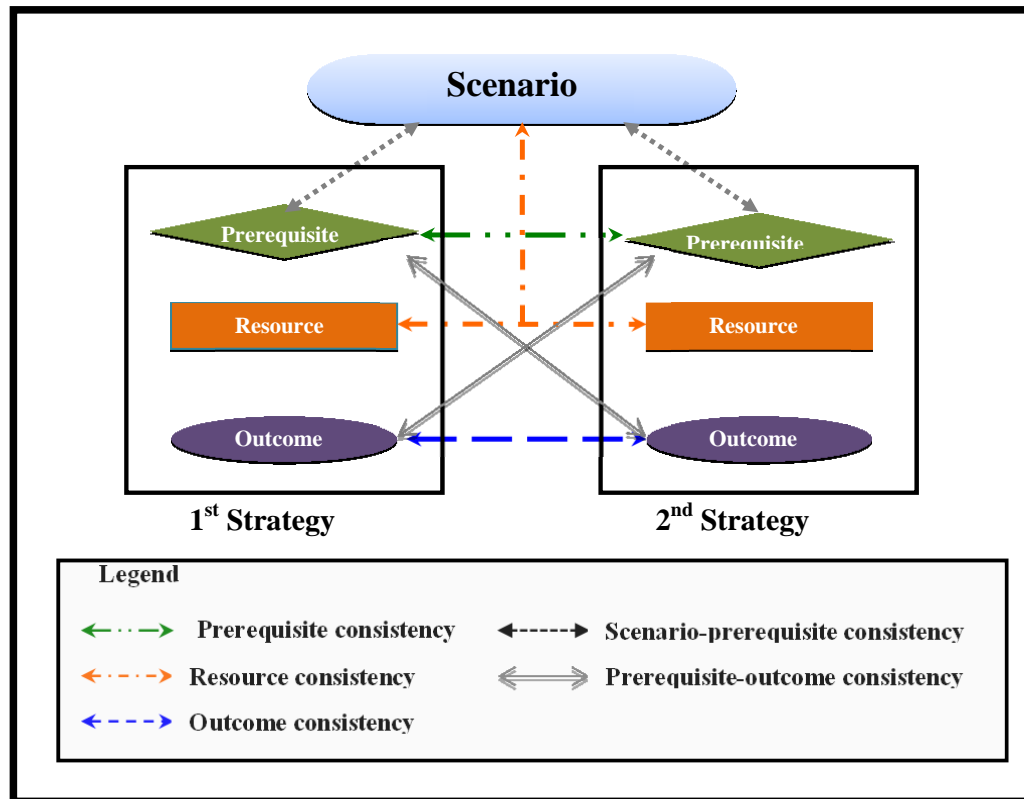


Figure 5.1 illustrates these conditions. Basic alignment establishes a relatively weak relationship between a pair of strategies by defining conditions under which they can actually co-exist or can be co-deployed. However, it identifies an important threshold. Strategies that fall below this threshold (i.e., those that do not meet the requirements of basic alignment) will be deemed to be *misaligned*.

### 5.5.2 A framework for full alignment

Sometimes, we might be interested in determining whether a stronger relationship than basic alignment exists between a pair of strategies. The notion of *full alignment* establishes a stronger relationship between a pair of strategies by ensuring that one of

the strategies *follows from* (or is *entailed by* - in the sense of entailment discussed above) the other strategy. Mathematically speaking, the entailment relation is not reflexive (*A entails B* does not mean that *B entails A*). Thus, the *directionality* of the relation matters. For the purposes of the following discussion, let us simplify matters by referring to the latter strategy as the *parent strategy* and the former strategy as the *sub-strategy*. In other words, we are *obliged* to deploy the sub-strategy whenever we deploy the parent strategy.

I will deem a sub-strategy to be *fully aligned* with a parent strategy whenever all of the following conditions hold:

- The current scenario entails the prerequisites for each strategy. This is referred to as *scenario-prerequisite entailment*. By ensuring that the prerequisites of each strategy actually hold, this ensures that both strategies can be deployed in the current scenario (as opposed to merely ensuring that nothing might obstruct the deployment of these strategies in the case of scenario-prerequisite consistency).
- The prerequisites for the sub-strategy are entailed by the prerequisites for the parent strategy. This is referred to as *prerequisite entailment*. This ensures that whenever the parent strategy can be feasibly deployed, so can the sub-strategy.
- The resource requirements for the sub-strategy are included in the resource requirements for the parent strategy, in the sense that the sub-strategy does not require a distinct set of resources. As discussed above, I refer to this as *resource entailment*.
- The outcomes of the parent strategy entail the outcomes of the sub-strategy. I shall refer to this as *outcome entailment*. This ensures that the sub-strategy behaves as a component of the parent strategy – i.e., when the parent strategy has been executed, the outcomes achieved include the outcomes of the sub-strategy.
- The strategy pair consisting of the parent strategy and sub-strategy satisfies the requirement of *prerequisite-outcome consistency* as defined earlier. In other words, the prerequisites of either strategy must be consistent with the outcomes of the other. It is interesting to note *prerequisite-outcome entailment* (all of the prior conditions involve replacing the corresponding consistency conditions from the definition of basic alignment with entailment). This is because the entailment

relation is arguably overly strong in this instance, given that we only aim to ensure that the outcomes of one strategy do not obstruct the deployment of another strategy. However, *prerequisite-outcome entailment* remains part of the vocabulary of this framework (I will make occasional reference to it in the following chapters), and a variant of the full alignment definition can be conceived that leverages this notion.

**Figure 5.2: A Framework of Full Alignment**

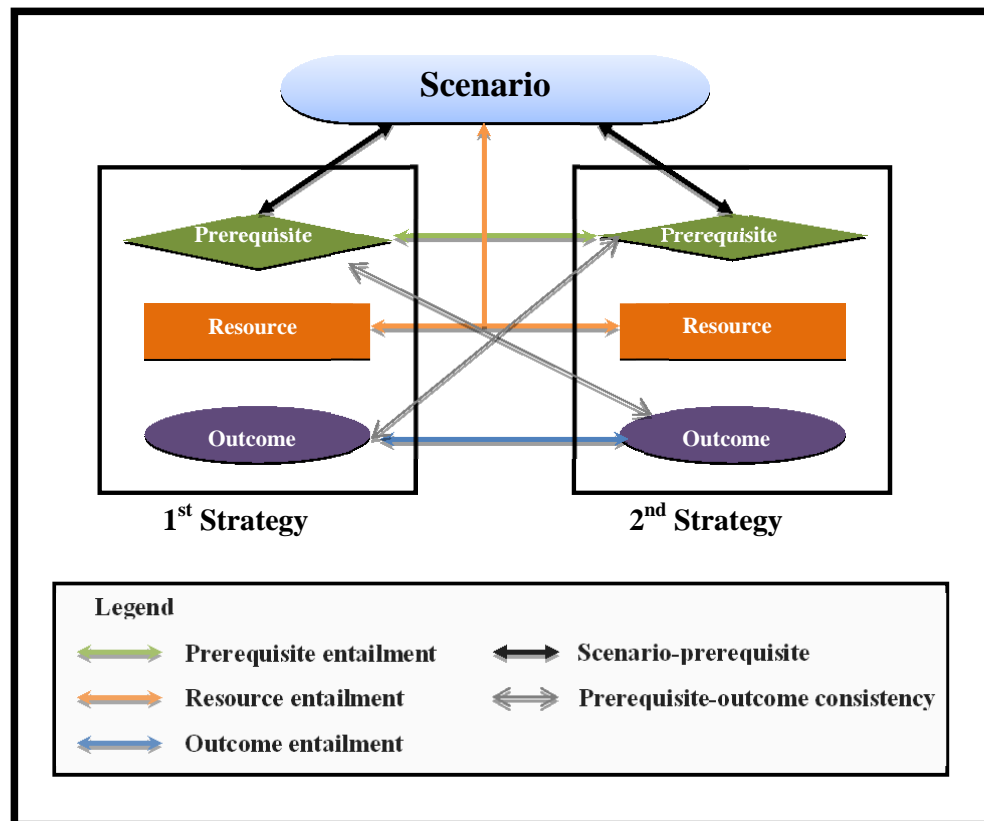


Figure 5.2 illustrates the relationships involved in full alignment.

It is useful to note that Kaplan and Norton's (2006) approach to alignment is entirely orthogonal to the approach presented here. Their focus is on providing managerial guidelines for instituting organisation-wide processes to achieve alignment leveraging Balanced Scorecards (Kaplan and Norton, 2000) and Strategy Maps (Kaplan and Norton, 2003).

### 5.5.3 Some illustrative examples

In this subsection, I will provide three simple examples of hypothetical organisations and their strategies to illustrate some of the concepts developed so far. These examples are not intended to constitute a validation of this framework. That validation will be presented in detail over three chapters (6, 7 and 8) in the context of a major case study.

PhoneCo is a **hypothetical** mobile phone handset manufacturer whose corporate strategy is to provide cost leadership by positioning itself as the lowest cost manufacturer of mobile handsets. A business unit within PhoneCo that seeks to invest massively in new product R&D to establish quality leadership within the market would be embarking on a strategy that is badly misaligned with PhoneCo's overall corporate strategy. It would fail the test of both basic and full alignment, simply because the outcomes of the business unit strategy (heavy investment in product development leading to positioning as the quality leader in its market) contradict the outcomes of the overall corporate strategy (cost leadership – i.e., positioning as the lowest-cost producer)

SoftCo is a **hypothetical** small new entrant into the soft drinks market, with a niche product, SoftFizz, that has started performing well in a limited set of sales regions. SoftCo does not have deep pockets, and has barely enough resources to expand into newer geographical regions. A strategy of investing heavily in risky new product development (which would include a prerequisite that the firm in question have a significant market share to be able to absorb the potential downside of the new product failing, as well as sufficient financial resources) would be misaligned with a strategy of investing heavily in expanding the geographical reach of existing product marketing for SoftFizz (which would include as a prerequisite a limited geographical market for the existing product). It would fail the test of basic alignment (and consequently full alignment) for the following reasons. First, this pair of strategies would suffer from *scenario-prerequisite inconsistency* on account of the fact that a prerequisite for the new product development strategy (SoftCo having significant market share) contradicts the conditions that hold in the business context (specifically its market position as a small new niche player). Second, both strategies



would require heavy investment, which would likely fail the test for *resource inconsistency*.

The corporate strategy of CarCo, a **hypothetical** manufacturer of high-quality (and highly priced) premium cars with significant cash reserves, is to maintain and enhance its position of dominance in this niche market. It therefore follows a strategy of investing heavily in R&D and new product development. Viewing the former (i.e., the corporate strategy) as the parent strategy and the latter (i.e., the R&D and new product development strategy) as the sub-strategy, we find that the two are fully aligned. For instance, the prerequisites for the sub-strategy (a position of market dominance and the availability of substantial financial resources) are entailed by the current scenario. It is also easy to imagine that the conditions of prerequisite entailment, resource entailment, outcome entailment and prerequisite-outcome consistency are all satisfied.

## 5.6 The alignment spectrum

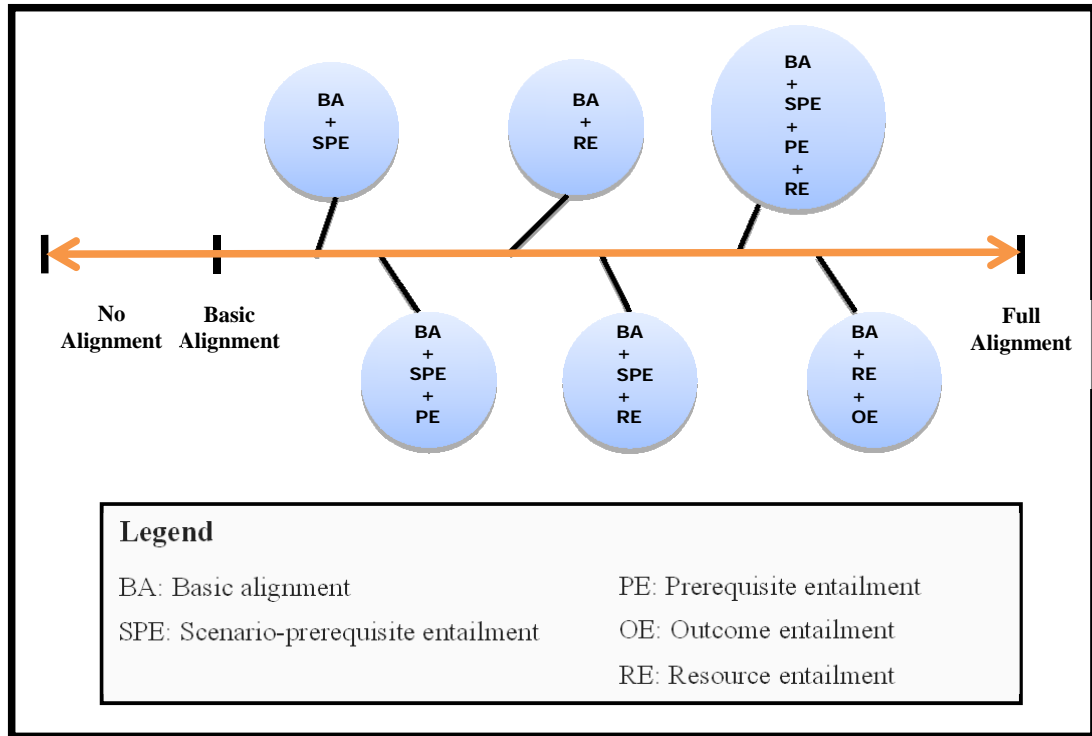
The notions of basic and full alignment represent points on a spectrum (see Figure 5.3). Strategy pairs that do not satisfy the requirements of basic alignment are misaligned. Misaligned strategies can sometimes co-exist and lead to relatively positive outcomes.

On the other extreme, it is difficult to conceive of a stronger notion of alignment than full alignment. The intermediate points in the spectrum are of particular interest. For instance, strategy pairs that violate the outcome entailment requirements but satisfy all of the other requirements of full alignment would probably be deemed to be very closely aligned according to common-sense intuitions on alignment. Similarly, very closely aligned strategies might satisfy the condition of resource consistency as opposed to the stronger condition of resource entailment. Acronyms have been used for basic alignment (BA), full alignment (FA), scenario-prerequisite entailment (SPE), prerequisite entailment (PE), resource entailment (RE), and outcome entailment (OE) to define various points on this spectrum. These are intended only

illustrate how such a spectrum might look like, and do not suggest a unique definition of the spectrum.

For instance, Figure 5.3 suggests that a strategy pair satisfying basic alignment and resource entailment is closer to the full alignment end of the spectrum than a strategy pair satisfying basic alignment, scenario-prerequisite entailment and prerequisite entailment, but the converse could be equally strongly argued for. Ultimately, the value of this framework is in providing a principled vocabulary for discussing varying degrees of alignment in a domain-independent fashion.

**Figure 5.3: The Alignment Spectrum**



## 5.7 Inter-relationships between these concepts

It is useful to consider the following relationships between the various notions of *consistency* and *entailment* defined above. In general, *inconsistency implies that entailment cannot hold*. To understand the intuition underpinning this, consider the

following: if a pair of conditions is inconsistent, then it cannot be the case that one of the conditions is true whenever the other is true (which, as discussed above, is the definition of entailment). Thus:

- *Scenario-prerequisite inconsistency* implies *scenario-prerequisite non-entailment*, but not vice versa.
- *Prerequisite inconsistency* implies *prerequisite non-entailment*, but not vice versa.
- *Resource inconsistency* implies *resource non-entailment*, but not vice versa.
- *Outcome inconsistency* implies *outcome non-entailment*, but not vice versa.
- *Prerequisite-outcome inconsistency* implies *prerequisite-outcome non-entailment*, but not vice versa.

In a similar vein, *entailment implies that consistency holds*. To understand the intuition behind this, consider the following: if a pair of conditions is such that one of these is true whenever the other is true (the definition of *entailment*), then it cannot be the case that the two conditions cannot be conjointly satisfied (the definition of *inconsistency*). Thus:

- Scenario-prerequisite entailment implies scenario-prerequisite consistency, but not vice versa.
- Prerequisite entailment implies prerequisite consistency, but not vice versa.
- Resource entailment implies resource consistency, but not vice versa.
- Outcome entailment implies outcome consistency, but not vice versa.
- Prerequisite-outcome entailment implies prerequisite-outcome consistency, but not vice versa.

What emerges from this discussion is the following result: a set of strategies that satisfies the requirements for full alignment also satisfies the requirements of basic alignment, but not vice versa.

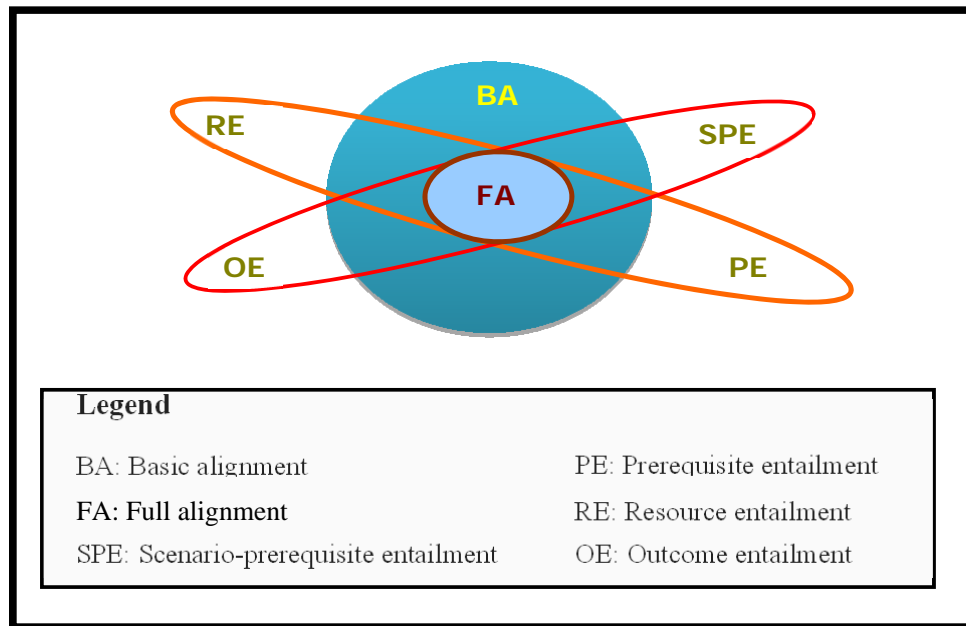
We also observe the following: a set of strategies that violates the requirements for basic alignment also violates the requirements for full alignment, but not vice versa.

The inter-relationships between prerequisite-outcome consistency (and entailment) are also worth noting. Consider a pair of strategies consisting of StrategyA and

StrategyB. If the prerequisites of StrategyA are consistent with the outcomes of StrategyB, that does not necessarily imply that consistency holds in the reverse direction as well. In other words, it is quite feasible to find, in this setting, that the prerequisites of StrategyB are inconsistent with the outcomes of StrategyA.

Figure 5.4 illustrates the inter-relationships between some of these concepts. Each of the conditions above is represented by a set of strategy pairs satisfying the condition. Thus, for instance, the set FA is the set of all strategy pairs satisfying the conditions of full alignment. The figure uses Venn diagram notation for representing the relationships between these sets. It shows that any strategy pair that is fully aligned also satisfies the requirements of basic alignment. It also shows that the set FA is defined by the intersection of the sets SPE, PE, RE, EE and BA.

**Figure 5.4: Inter-relationship between Strategy Pairs**

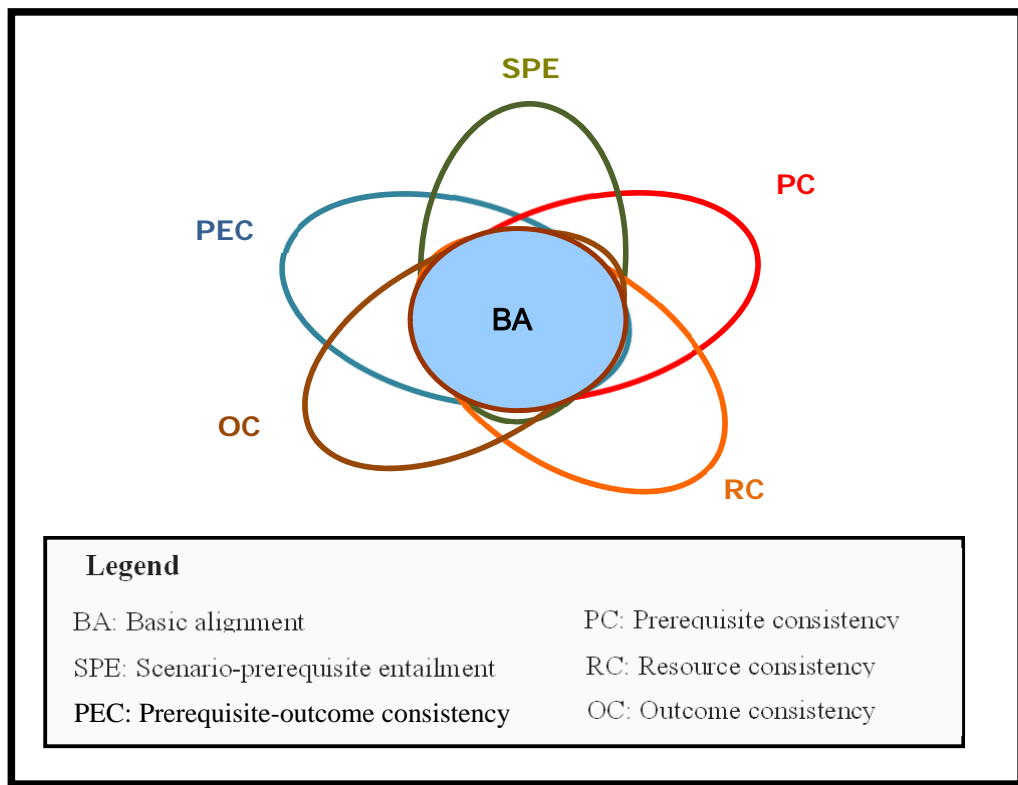


Some of the conditions used to define basic alignment – scenario-prerequisite consistency (SPC), prerequisite consistency (PC), resource consistency (RC), outcome consistency (OC) and prerequisite-outcome consistency (PEC) – also provide a vocabulary for discussing “degrees of misalignment” for strategy pairs that

are fundamentally misaligned (i.e., that do not satisfy the requirements of basic alignment). Thus we might find strategy pairs that satisfy some, but not all of these consistency relations. Such strategy pairs would clearly violate the requirements of basic alignment, but might be arguably viewed as being *partially aligned*.

Figure 5.5 illustrates the inter-relationships between these.

**Figure 5.5: Inter-relationship between Misaligned Strategies Pairs**



## 5.8 Strategy development and repair

The discussion thus far has provided us with a conceptual framework to check for strategic alignment and a vocabulary for discussing various degrees of alignment. The same tool-kit can guide constrained strategy development and repair.

*Constrained strategy development* refers to the process of formulating sub-organizational strategy in a manner that is constrained by the need to align with overall organizational strategy. If an organisation needed to formulate new strategies that were required to be aligned with certain pre-existing ones, this conceptual framework could be leveraged in very effective ways. Each component of the strategy being formulated (prerequisites, resources or outcomes) would be independently evaluated for consistency (or entailment) relative to components of the pre-existing strategies. If a desired relation (say prerequisite consistency) were to be found to have been violated, this would trigger a re-formulation of that component of the strategy under development. The conceptual framework can thus be leveraged to obtain fine-grained guidance to inform the strategy formulation process (a major improvement on the state-of-the-art that, arguably, involves trial-and-error).

*Strategy repair* refers to the process of restoring alignment when strategies become misaligned due to a changing business context and changing organizational priorities. This framework provides a precise and rich enough vocabulary to significantly simplify the strategy repair process. The type of property that is found to have been violated provides precise guidance on what needs to be modified to restore alignment. For instance, if a pair of strategies are found to have violated the requirements for basic alignment on account of prerequisite inconsistency, we would know precisely what to fix (assuming that such “fixes” were feasible) to restore alignment.

## **5.9 Transient advantage**

A recent proposal (McGrath, 2013) makes an important case for overturning traditional assumptions about the temporal scope of the strategy formulation and execution processes. Traditionally, strategies would be formulated with the understanding that these would then guide the firm’s behaviour for prolonged periods of time (months if not years). Strategies would consequently be revised/re-formulated on an infrequent basis. This proposal argues that, given the way the current business environment has evolved, opportunities for leveraging competitive advantage are transient.

This observation has important implications for the manner in which strategies are formulated, executed, monitored, assessed and revised. Importantly, this means that the *strategy life-cycle* will need to be much shorter, and necessitate fast reaction to changing market conditions. This is, arguably, most important for the market-based view, wherein market positioning responses would have to be much faster. While internal firm capabilities and resources have not been dynamic enough in the past to warrant the use of the word “transient”, that too might change in the new business environment. The relational view of strategy is also impacted, given that business networks are also increasingly becoming transient, with virtual enterprises forming and disbanding with great rapidity.

A framework such as this is particularly useful in the context of *transient strategies*. In a fast-changing business setting, we would not have the luxury of assessing alignment in the traditional, more ponderous, ways. This framework supports rapid alignment analysis in a crisp actionable manner, which would be essential in settings where organisations seek to leverage transient advantage.

## **5.10 Chapter summary**

In this chapter, I have developed a novel scheme for documenting strategies, as well as a novel framework for the analysis of strategic alignment. In the following chapters, I will validate this framework via a detailed case study.

It is important to note that while a number of new concepts (such as the various types of relationships between components of a strategy description template) have been introduced in this framework, they represent distinct units of analysis and form components of a single cogent framework. They do not constitute alternative conceptions of strategy or strategic alignment. On the other hand, I have critiqued the literature in Chapters 2 and 3 by pointing out that a wide diversity of definitions and frameworks exist to explain the same underlying concept (strategy or strategic alignment).

## CHAPTER 6: TESTING THE FRAMEWORK DEVELOPED USING A CASE STUDY

This chapter presents a case study to validate the framework for strategic alignment developed in Chapter 5. It aims to establish that the framework provides an adequate basis to understand and explain how a large firm, Coal India Limited (henceforth referred to as CIL), weathered a period of great economic turbulence. The chapter demonstrates how the framework provides a vocabulary for describing strategies, and lays the groundwork for discussing the strategic consequences of shifts in the business context of an organization as well as organizational responses to such shifts.

Given the *explanatory power* of the framework, it is also reasonable to conclude that the framework can be a powerful predictive tool. It is generally understood that a framework *explains* certain phenomena by suggesting relationships between the key variables/factors used to describe these phenomena. If a framework has good *explanatory capability*, these relationships are a reasonably reliable approximation of the actual ones that obtain in the setting/phenomena being studied. When such relationships are known, it is possible to use them to *predict* how certain variables/factors would behave, given information about the other variables/factors. For instance, a framework that, say, explains the correlation between HR practices and business performance will therefore be equally effective in predicting business performance, given information about HR practices.

The complete case study is described over three chapters (this chapter and the following two). Towards the end of this chapter, I will describe how attempting to describe some of CIL's strategies in the conceptual framework presented in the previous chapter revealed the need to extend the framework. The next chapter addresses this extended framework and its detailed application in the analysis of CIL's strategic landscape in the pre-1991 period (I will discuss later in this chapter how 1991 was a critical turning point in the fortunes of CIL). In Chapter 8, I will



discuss shifts in CIL's strategic landscape in the post-1991 period, including a period of strategic misalignment, followed by re-alignment.

This chapter is structured as follows. In Section 6.1, I offer arguments as to why CIL is an appropriate choice for a case study to validate the strategic alignment framework. In Section 6.2, I describe the data collection method used for this case study. In Section 6.3, I provide an outline of CIL and its history. In Section 6.4, I provide an overview of the strategic transformation that CIL went through, particularly as a consequence of the reforms of 1991, and their aftermath. This also serves a summary of the entire case study. In Section 6.5, I describe a part of the pre-1991 strategic landscape at CIL, focusing on the high-level corporate strategy and the human resource management (HRM) strategy, and analyse the alignment of the HRM strategy with the corporate strategy using the conceptual tools of the strategic alignment framework. In Section 6.6, I provide a discussion of the findings of the study up to that point, and motivate the need for an extended framework that is presented in Chapter 7.

## **6.1 Motivations for a case study of CIL**

There are several reasons why a case study of CIL is of particular relevance in validating the conceptual framework for strategic alignment developed in Chapter 5. First, the company in question was large enough to make a fairly detailed analysis of alignment at various levels across the enterprise meaningful. CIL is the world's largest coal mining company (in terms of both output and size of workforce). Its size and structure (CIL is a holding company with 8 coal-producing subsidiaries) provides a rich basis for strategic alignment analysis at various levels across the enterprise. Second, an account of the strategic shifts in CIL over the last three decades is representative of largely similar processes that most Indian public sector units (PSUs) had to go through. Strategic accounts of CIL's fortunes meet the requirements of an alignment case study - an initially stable mode of operations (coinciding with the relevant strategies being aligned), a crisis (coinciding with misalignment), followed by a resolution (coinciding with strategic re-alignment). Third, CIL had to respond to a dramatic transformation in its business context over a

relatively short period of time. The transformation affected the very core of the company's business model, and its impact was felt in every aspect of its operations. The conceptual framework for strategic alignment developed in this dissertation can therefore be applied directly (and in a very similar manner) to explain the transformations that a large class of Indian PSUs went through over this period. Fourth, this account is an illustrative instance of organizational response to altered strategic contexts in firms in a range of developing countries (where market liberalization was the common driver for change in the strategic context). Finally, CIL has been in the unique situation of having to align to a high-level strategy that was in part exogenously determined (as a state-owned company, it has to meet high-level objectives determined by the government). However, the rest of the organization (including various functional strategies, both at the level of the holding company and its many operating subsidiaries) did not respond as rapidly (indeed, in some instances, re-alignment occurred over a decade later). In many ways, this made the consequences of misalignment (as well as the consequences of eventual re-alignment) very explicit.

For these reasons, CIL was a particularly appropriate choice of organization for conducting a case study to validate the framework developed in this thesis. It was clear at the outset that being able to describe and explain CIL's journey of strategic transformation would provide strong support for the wider applicability of this framework.

The rest of this chapter is structured as follows. Section 6.3 describes CIL's history and provides background information. Section 6.4 provides a high-level overview of CIL's strategic landscape over three periods: (1) The pre-1991 period (2) The period immediately after the 1991 economic reforms and (3) The more recent period of strategic re-alignment at CIL. Section 6.5 describes the corporate strategy as well as the human resource management functional strategies in the pre-1991 period in detail, based on primary as well as secondary data. It also contains alignment analysis, based on the framework for strategic alignment presented in Chapter 4.

## **6.3 Coal India Limited (CIL)**

The previous section describes the data collection process I have followed in this case study. This section will provide background information on CIL including CIL's history and company profile.

It is important to clarify at the outset that this case study considers CIL's strategic landscape and business performance from a period starting at its inception and ending around 2007-2008. Many interesting developments have transpired at CIL since that period (including an IPO), but these are outside the ambit of this study.

Coal India Limited is the world's largest coal producer. Coal, a fossil fuel, takes millions of years to form and has been used as an energy source for several millennia. It played an important role in the Industrial Revolution (by powering steam engines) and continues to make a significant contribution to global economic development (CRNIndia, 1998). Coal-fired power plants generate about 41% of electricity worldwide, ahead of the next two largest sources of electricity (natural gas and hydro-electric power) combined (International Energy Agency, 2008). Coking coal (of which CIL is a key producer) is essential for steel production and cement manufacturing, and is used in a variety of other industrial processes (World Coal Institute, 2009). There are over 70 countries with active coal mines and the coal industry directly employs millions of people worldwide (CRNIndia, 1998).

Coal is the primary source of energy in India, providing more than half of the country's requirements (CIL, 2006). CIL contributes 82% of India's coal production (CIL, 2006).

### **6.3.1 The history of CIL**

CIL, in its current form, dates back to 1975, but represents the continuation of a long history of mining in India going back several millennia. The first author known to have written about mining was Chanakya (also known as Kautilya), in his famous text, the "Arthashastra" (literally translated: "Economics") in 200 BCE (Ghose,

1992). There are published references to coal mining in India in 1774 (Gee, 1940, p. 313), when Warren Hastings (the first Governor-General of British-occupied Bengal) initiated commercial coal mining at Raniganj. Around that time, John Sumner and Suetonius Grant Heatly of the British East India Company were granted permission to mine in what eventually became the Raniganj Coalfield along the western bank of the river Damodar (CIL, 2006; Gee, 1940). For a period of 40 years following this, mining operations grew gradually (Gee, 1940) until the monopoly of the British East India Company were revoked in 1813. From then on, coal mining operations were initiated by a large number of Indian private companies. A key market for coal at the time was the iron and steel industry and many of the mines were *captive mines* (i.e., mines owned and operated by the iron and steel producers) (CIL, 2006; Gee, 1940). A new source of demand for coal (to power steam engines) emerged when railways were first introduced in India in 1853 (CIL, 2006; Gee, 1940). Mining activity grew in conjunction with the expansion of the railway network, particularly in the west of the country (CIL, 2006). The railways were originally supplied by private coal companies (Gee, 1940), but subsequently acquired collieries of their own, which were later consolidated to form the National Coal Development Corporation (NCDC) in 1956 (CIL, 2006; Ministry of Coal, Government of India, 2007).

Large-scale coal mining was initiated by Singareni Collieries Company Limited (SCCL) in 1889 (it was known as the Hyderabad Deccan Company at the time) in Singareni village in what is now the state of Andhra Pradesh (CIL, 2006; Gee, 1940; SCCL, 2005). Coal production continued to grow in the subsequent period but received a major boost when the First World War broke out (due to the increased requirements for war materiel). Demand continued to grow during World War II. The Nizams (rulers) of the princely state of Hyderabad bought the company in 1945. SCCL became a government company under the control of the state Government of Andhra Pradesh after Hyderabad joined the Republic of India (SCCL, 2005; Ministry of Coal, Government of India, 2007).

With the end of British occupation of India in 1947, the country embarked upon a socialist-style program of planned development via a series of Five-Year Plans. Rapid growth in the Indian economy led to a huge demand for coal as the major source of power (for thermal power plants and for increased iron and steel production

as well as cement production) (CIL, 2006). The central government recognized the importance of coal in the national economy and made coal production an industrial development priority (CIL, 2006; Ministry of Coal, Government of India, 2007). However, government economic planners were convinced that the private sector would be unable to produce enough coal to meet demand.

During the 1960s, most of India's collieries continued operated by the private sector (except for SCCL and NCDC). Despite some increase in production, the huge demand for coal still exceeded supply. Unscientific mining practices in the private sector were leading to much wastage. The government was also concerned about the sometimes poor (and unsafe) working conditions for labour in some of the private coal mines. There was also a shortfall in private capital investment in coal industry (CIL, 2006; Ministry of Coal, Government of India, 2007). To deal with these problems, the central government embarked on a program of nationalization of the coal industry. The intent was to re-organize and restructure coal mines, inject massive capital investment and achieve systematic exploitation of coal reserves (CIL, 2006; Ministry of Coal, Government of India, 2007).

Nationalisation was done in two phases. The first phase involved coking coal mines in 1971-72 while the second phase involved non-coking coal mines in 1973 (CIL, 2006; Ministry of Coal, Government of India, 2007). All private sector coking coal mines and coke oven plants, with the exception of the captive mines of the Tata Iron & Steel Company Limited (TISCO), the Indian Iron & Steel Company Limited (IISCO) and the Damodar Valley Corporation (DVC) were taken over in 1971, and a new public sector company, the Bharat Coking Coal Limited (BCCL) was established to operate these mines in 1972 (CIL, 2006; Ministry of Coal, Government of India, 2007). Non-coking coal mines were nationalized next and another public sector company, the Coal Mines Authority Limited (CMAL) was formed to manage these non-coking coal mines in 1973 (CIL, 2006; Ministry of Coal, Government of India, 2007).

The Department of Coal was set up in the Ministry of Energy around the same time to oversee these public sector coal mining companies. Further consolidation of these companies led to the formation of Coal India Ltd (CIL) in November 1975 as the

holding company that would operate all nationalised coal mines in the country (CIL, 2006; Ministry of Coal/ Government of India, 2007). Most of the coal production was the responsibility of the six wholly owned subsidiaries, with CIL as the holding company. Outside of CIL, there were 3 other coal producers in the public sector: Singareni Collieries Co Ltd (SCCL), the Steel Authority of India Limited (SAIL) and the Damodar Valley Corporation (DVC) (CIL, 2006; Ministry of Coal, Government of India, 2007). Both SAIL and DVC only operated captive coal mines. In the private sector, the Tata Iron and Steel co Limited (TISCO) operated captive coal mines.

### **6.3.2 The company profile**

The description of Coal India Limited (CIL) provided in the following is based on my research that conducted prior to 2010 (and mainly addresses a pre-2008 snapshot of the company). The company profile and its strategic landscape has since evolved (CIL had an enormously successful IPO in late 2010, for instance). However, for the purpose of illustrating the explanatory capabilities of the framework for strategic alignment, the account of the organization from its inception to 2008 is sufficient.

Prior to 2010, CIL was wholly owned by the Government of India and administered by its *Ministry of Coal*. India is the world's 3<sup>rd</sup> largest coal producer, and Coal India accounts for approximately 85% of that production. The company is the world's largest coal producer. Coal India currently employs around 0.38 million people.

CIL operates as a holding company for 9 wholly owned subsidiaries (many of which were pre-existing or amalgamated private mining companies). Of these subsidiaries, the Central Mine Planning and Design Institute (CMPDI), is not a coal producing entity (the other 8 are).

The underlying logic driving the structuring of the remaining 8 subsidiaries - Eastern Coalfields Ltd. (ECL), Northern Coalfields Ltd. (NCL), Western Coalfields Ltd. (WCL), Central Coalfields Ltd. (CCL), South-Eastern Coalfields Ltd. (SECL), North Eastern Coalfields Ltd. (NECL), Bharat Coking Coal Ltd. (BCCL) and Mahanadi Coalfields Ltd. (MCL) - is geography. Of these, the name of Bharat Coking Coal Ltd. (BCCL) does not reflect its geographical location – BCCL actually spans the

Jharia Coalfield in the eastern state of Jharkhand. Table 6.1, below, lists the 9 subsidiaries of CIL with descriptions.

| Table 6.1: The CIL Subsidiaries with Descriptions              |  |  |
|--|--|--|
| 1. <b>BCCL</b>   | Bharat Coking Coal Limited                         | BCCL is headquartered at Dhanbad, in the state of Jharkhand. It is a major producer of prime coking coal (raw and washed). It has 87 working mines under its control.  |
| 2. <b>CCL</b>  | Central Coalfields Limited                         | CCL is headquartered at Ranchi in the state of Jharkhand. It has seven mines under its control, which produce non-coking coal, soft, and hard coke besides medium coking coal.   |
| 3. <b>WCL</b>  | Western Coalfields Limited                         | WCL is headquartered at Nagpur in the state of Maharashtra. It covers coalfields in Maharashtra and some in Madhya Pradesh through its network of 87 mines. It is a producer of thermal coal.  |
| 4. <b>ECL</b>  | Eastern Coalfields Limited                         | ECL, with headquarters at Sanctoria in West Bengal, covers the Raniganj Coalfields in West Bengal and Mugma, Rajmahal Coalfields in Bihar. It has 122 working mines. ECL has the largest deposits of the highest quality thermal coal in India. ECL also produces some semi-coking and blendable coal. |
| 5. <b>MCL</b>  | Mahanadi Coalfields Limited                        | MCL, headquartered at Sambalpur in the state of Orissa and covers the Talcher and Ib Valley Coalfields in Orissa. It has 22 working mines.   |
| 6. <b>SECL</b>   | South Eastern Coalfields Limited                   | SECL, headquartered at Bilaspur in the state of Madhya Pradesh. It is the leading producer amongst the CIL subsidiaries with 87 mines.   |
| 7. <b>NCL</b>  | Northern Coalfields Limited                        | NCL is headquartered at Singrauli, in the state of Madhya Pradesh.   |
| 8. <b>NECL</b>   | North-Eastern Coalfields Limited                   | NECL is headquartered at Margherita, in the state of Assam. It has 6 mines.  |
| 9. <b>CMPDIL</b>   | Central Mine Planning and Design Institute Limited | CMPDI is headquartered at Ranchi in the state of Jharkhand. It is entrusted with the job of providing total research and consultancy support to the industry.  |
| Source: CIL, 2006; Ministry of Coal/ Government of India, 2007 |  |  |

## 6.4 An overview of strategic transformation at CIL

In the previous section, I described the company profile, structure and history of CIL. In this section, I will provide an overview of the strategic transformation that CIL has gone through. Many of the strategic transformations that I have documented within Coal India are direct outcomes of the liberalization measures launched following the

economic crisis that beset India in 1991. The strategic realignment story at CIL can be told in three parts - a period of stability, a period of business upheaval and a period of re-alignment. The structure of the study is also divided accordingly in the following sections.

#### **6.4.1 First period: a period of stability**

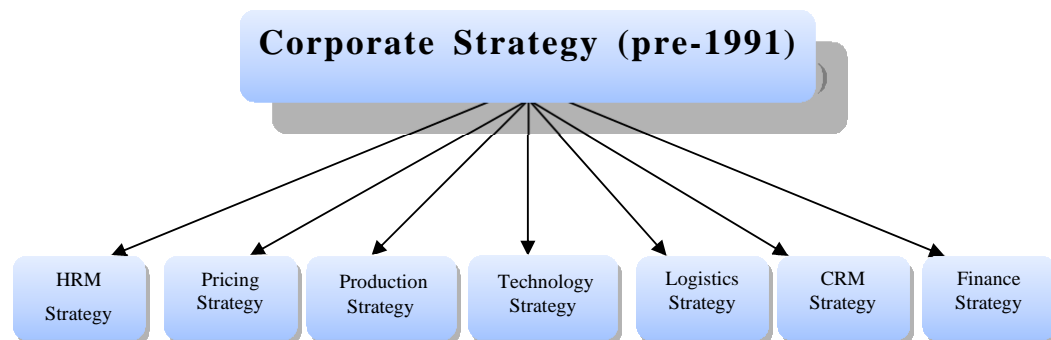
The year 1991 marked a significant turning point for the Indian economy, and had far-reaching implications for Public-Sector Undertakings (PSUs) such as Coal India. Until that time, the Indian economy had grown at a relatively slow pace. The economy was inward-looking and tightly regulated. There was an emphasis on self-reliance that dated back to the end of British occupation in 1947. This led to significant disincentives for foreign investment. The economy was largely socialist in its characteristics, with Soviet-style centralized planning via a series of 5-year plans. In 1991, a series of events, including high oil prices resulting from the First Iraq War led to a crisis in relation to foreign exchange reserves. By mid-1991, the central government found itself with foreign exchange reserves that were too small to even pay for its oil imports. It had to borrow foreign exchange from overseas financial institutions, which insisted on physically holding a portion of India's sovereign gold reserves as collateral. India was also in political turmoil. A prominent politician and former Prime Minister, Rajiv Gandhi, was assassinated in May 1991, at a time when he and his party appeared to be the likely winners of the upcoming national elections. India had spent the previous two decades largely aligned with the Soviet-bloc (although it was technically a member of the Non-Aligned Movement, and never a Soviet client-state). The break-up of the Soviet Union led to a greater understanding of the need to re-orient India's strategic orientation, foreign policy and economic stance to draw it closer to the nations of Western Europe and the United States. A massive round of economic liberalization was initiated after the national elections in June 1991, which, many argue, laid the groundwork for India's present-day economic success.

India's PSUs were artefacts of the pre-1990s economy. The objectives of profit maximisation or cost minimization played a relatively minor role in their operations. Their primary objective was to produce goods required by the planned national



economy, while a secondary objective was to provide certain kinds of social value (e.g., lifetime employment to large numbers of workers and a social safety net, including free healthcare and education, for their families). Almost the entire mining sector in India was government-owned, but PSUs operated in a variety of other sectors (including one that manufactured bicycles). With the government stepping in to cover any financial shortfalls, cost efficiency or market-driven pricing did not play a role in the strategies of these PSUs. As the following sections and chapters will demonstrate, the high-level corporate strategy of CIL pre-1991 was in fact *perfectly aligned* with its various functional strategies (pricing, technology, HR, production etc.). This is illustrated in the following Figure 6.1. This was also true of other Indian PSUs of its ilk.

**Figure 6.1: Pre-1991 Strategic Landscape**

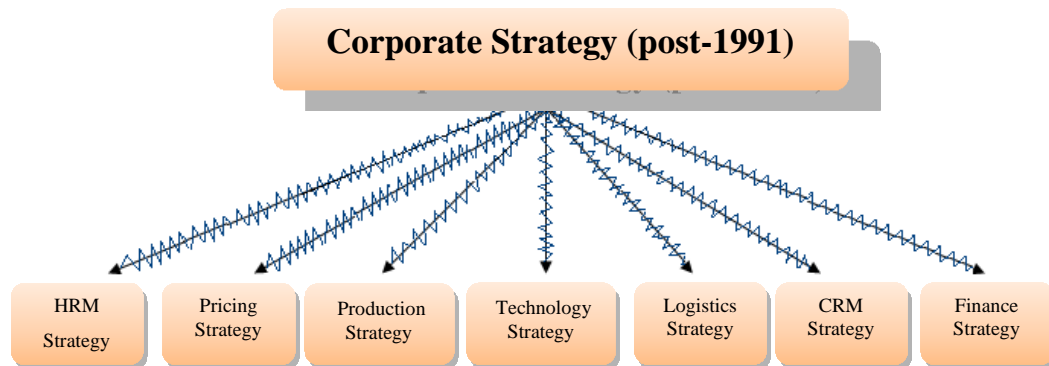


During this period, the strategic landscape was in a state of alignment (as depicted in Figure 6.1, with solid arrows depicting alignment between the corporate strategy and the various functional strategies). The various functional strategies at CIL were aligned with the high-level corporate strategy, and with each other. In addition, all strategies (both corporate and functional) were aligned with the business context. CIL went through such a period of considerable stability from its inception to the early 1990s.

#### 6.4.2 The second period: a period of business upheaval

The economic upheaval in 1991 led to the government withdrawing the guarantee of unlimited financial support from its PSUs. The high-level corporate strategy at CIL was altered relatively rapidly to adapt to this change. However, the various functional strategies (implemented at the level of the 8 coal-producing subsidiaries) remained largely what they were in the pre-1991 period. As the following chapters will show, the functional strategies became *misaligned* as a consequence (with respect to the corporate strategy, the business context and with respect to other functional strategies). This is depicted in the Figure 6.2 below (the uneven links denote misalignment). Not surprisingly, this had negative consequences for the organization. During this period, two CIL subsidiaries, ECL and BCCL, were referred to the Board for Industrial and Financial Reconstruction (BIFR), which is effectively a form of receivership.

**Figure 6.2: Post-1991 Strategic Landscape**



During this period, the strategic landscape at CIL was misaligned. Changes in government policies relating to PSUs led to all of CIL's strategies becoming misaligned with the business context. Eventually, the high-level corporate strategy was updated to align it with the altered business context. However, the various functional strategies remained unchanged for some length of time, and were consequently misaligned to the high-level corporate strategy. One might posit several reasons for this. This was partly due to the relatively uncommon corporate structure of CIL, with a central holding company in charge of implementing the high-level corporate strategy while a range of subsidiaries are charged with implementing the

various functional strategies (and are responsible for actual coal production). One might speculate that this might have been, in part, also due to the kind of inertia that is unsurprising in an organization that had spent its entire history sheltered from market forces, and had consequently not developed the agile decision making processes common in firms situated in more competitive environments. Some functional strategies also were rendered misaligned with the business context. For CIL, this period lasted from the mid-1990s to the early 2000s.

#### **6.4.3 The third period: a period of re-alignment**

The recognition of these problems by management led to a reformulation of the functional strategies. In effect, this was an exercise in *realignment*. There is a general consensus that these interventions were effective. Both BCCL and ECL soon came out of the purview of the BIFR (in effect, they ceased to be classified as “sick” companies).

### **6.5 The pre-1991 strategic landscape at CIL**

The previous section provided an overview of shifts in the strategic landscape of CIL over three decades. This section is the first of several that provide a detailed description of the strategic landscape, and an analysis of strategic alignment. This section describes part of the strategic landscape at CIL from its inception in the mid-1970s to the start of economic liberalization in India in 1991. I will present two populated strategy description templates (identified as Table 6.2, 6.3) in the rest of this section. It is important to note that these correspond precisely to the templates that have been discussed in considerable detail in Chapter 5. Each of the slots (headings) in each template, such as “prerequisites”, “resource requirements” and “strategic outcomes” are used in the same sense as discussed in Chapter 5.

Following several hundred years of unrestricted private sector coal mining, government controls on the production, distribution and pricing of coal were instituted in British-occupied India in 1944 (in the midst of the Second World War) to protect consumers from high prices, to protect relatively scarce reserves from wasteful utilization and to protect labour from being exploited in unsafe working

conditions (Kulkarni, 2000). Coal pricing was deregulated in July 1967, but pricing controls were reinstated with the nationalization of the coal industry in 1973 (Kulkarni, 2000).

CIL in the pre-1991 period operated much as other PSUs in India did in that period – more as a government agency and less as a business driven by market pressures (Mehta, 2006). Common to all strategies was the absence of cost pressures, relatively little concern with profit maximisation and the assumption of substantial government funding to compensate for sometimes inefficient production processes. A useful source of information is Bhar and Bhattacharya (2007) and Mukherjee and Bhar, (2005).

### **6.5.1 High-level corporate strategy (Pre-1991)**

The Indian economy was governed by a rolling series of 5-year plans. Industrial output, power generation etc. was intended to conform to what was planned for the economy in these 5-year plans. Given that coal was a key input for industries such as iron and steel as well as cement, and for thermal power plants, one could work backwards from target production figures to coal requirements. The overarching objective for CIL was to meet these coal requirements (Shankar, 2007). The coal industry in India was effectively a duopoly of two government-owned enterprises (CIL and Singareni Collieries Company Ltd.) with no competition (Kumar, 2007). The only (indirect) form of competitive pressure came from captive mining (where mines owned by possibly private operators produce coal for the exclusive use of the owners and not for public sale). A 1976 amendment of the Coal Mines (Nationalization) Act, 1973 permitted captive mining by private companies in the iron and steel sector and the sub-lease of mining to private operators in isolated and small pockets in areas not easily amenable to economic development and which would not require the use of the public rail infrastructure (Singh, 2007).

The promotion of indigenous mining technology (with a few notable exceptions) was a key national imperative – as a special instance of a more general national thrust for self-reliance in all matters (technology, food, minerals and so on). The exceptions involved imported technology (such as for longwall mining), often with funding

from the nation providing the technology or from multilateral agencies such as the World Bank, which were deployed in limited instances as technology demonstrators.

Like all Indian PSUs, CIL was charged with a range of social obligations that often took precedence over business imperatives. CIL was obliged to generate employment for a large workforce. Generating a larger number of job opportunities was viewed as a positive, even if it led to inefficiencies (Ghosh and Kishore, 2005).

The workforce was guaranteed lifetime employment and provided very generous employee benefit schemes (Mehta, 2006).

There was also an emphasis on promoting state-owned firms, i.e., the avoidance of outsourcing to the private sector where possible. CIL was prevented from outsourcing by the provisions of the Contract Labour (Regulation and Abolition) Act (Mehta, 2006). There was little pressure to be profitable or to minimise costs. It was generally acknowledged that CIL was not structured to operate as a profit-making organization (Mehta, 2006).

CIL's budgetary needs were met entirely by the Government of India, plus internal accruals from CIL (Kulkarni, 2000).

This was also reflected in conversations with CIL sources. According to one of the individuals consulted:

*“CIL's corporate strategy in those days was basically to support the national 5-year plans by meeting the planned coal production targets. The main customers were other public sector units ...mainly in iron and steel, thermal power plants and so on. Very little was sold to the private sector. The government emphasized self-reliance in those days, which meant that foreign technology was used very selectively. The projects that actually used foreign technology – like the longwall face at Monidih – were sponsored by foreign funding sources. The World Bank sponsored several of these projects. But the bulk of mining used home-grown technology, and was often labour-intensive. Being labour-intensive was a good thing, because there was a government mandate to generate employment opportunities. Mind you, there was no*

*shortage of labour in those days. Labour-intensive mining was accepted and encouraged... All of this meant that mining operations were not always very efficient. There was reliance on government financial support. But it was a monopoly, so there were no pressures...*

These were recurrent themes in conversations with CIL sources (see, for instance, the conversation quoted in the section on CIL's HRM strategy).

### **Structured data in the form of a strategy description template**

Table 6.2 below structures and summarizes available information on CIL's high-level corporate strategy in the pre-1991 period obtained from published material and from discussion with CIL sources, and has been confirmed by all of the key sources consulted.

### **6.5.2 Human resource management strategy (pre-1991)**

CIL's human resource strategy was largely an artefact of social imperatives. At the end of British occupation in 1947, the Indian government embarked on a program of nationalized industrialisation, built upon socialist principles. According to one of the sources:

*"HRM in Coal India in those days was like many other PSU's. It was important to generate and maintain a large number of jobs. Workers could not be fired."*

All of the sources consulted referred to the obligation to guarantee lifetime employment, which made layoffs and workforce reductions unheard of. These observations have also been made in the published literature. Some authors have noted that a key operating principle for CIL in that period was the provision of employment opportunities to the greatest number of people (Ghosh and Kishore, 2005).

**Table 6.2: High-level Corporate Strategy (pre-1991)**

**Strategic Prerequisites**

- Significant financial subsidies from the central government
- Acceptance of labour-intensive modes of operation
- Engineering viability of labour-intensive mining techniques
- Economic viability of labour-intensive mining techniques
- Availability of a large workforce
- Absence of competition

**Detailed Strategy Description**

**Resource Requirements**

- Government financial subsidies
- Large base of available labour

**Strategic Outcomes**

- Meeting the cumulative annual coal demand from all sectors of the Indian economy
- Provision of life-time employment for a large workforce
- Provision of a generous government-mediated benefits scheme for its workforce
- Greater use of indigenous technology and infrastructure
- Administrative mechanisms for product pricing
- Meeting corporate social responsibility obligations

Like all PSUs at the time, CIL was obliged to generate substantial employment opportunities from every mining project, especially for the population in the local vicinity of the project. There is a general recognition of the fact that CIL was over-staffed (Mehta, 2006). According to the same source:

*“Workers were given housing, and hospitals and schools for children....Over time, their salaries went up too.”*

This is also discussed in the published literature. Employees were also provided generous benefit schemes, including free healthcare in company hospitals, (almost) free schooling for their children as well as a program of social and community events

(Ghosh and Kishore, 2005). This provides evidence for the following element of Table 6.3:

**“Strategic outcomes:**

- Provision of employment to a massive workforce
- Provision of lifetime employment guarantees to the workforce
- Provision of a generous benefits scheme to the workforce”

The sources interviewed referred to the fact that pay was not linked to performance, as a result of which there was little incentive for the workforce to put in extra effort to improve productivity. This provides evidence for the following element of Table 6.3:

**“Strategic outcome: Wages not linked to performance”.**

Notice that this is an example of an outcome that may not be a priori desirable. Thus, while this was an outcome of the HRM strategy, there might not have been an intent on the part of the enterprise to achieve this outcome.

According to this source:

*“If a worker died on the job, at least one member of his family would be given a job within the company. This meant that labour spending kept going up. Unions were active, and using non-union labour led to political difficulties.”*

The published literature supports this position. Outsourcing of operations was strictly avoided (except in some rare instances) – CIL was constrained by the provisions of the Contract Labour (Regulation and Abolition) Act (Mehta, 2006). This provides evidence for the following element of Table 6.3:

**“Strategic outcomes:**

1. Strict avoidance of temporary contract labour
2. Strict avoidance of outsourcing of services/functions”

This source’s reference to a guarantee of employment for a family member of any worker who died on the job is additional evidence for the following element of Table 6.2:

**“Strategic outcome: Provision of a generous benefits scheme to the workforce”**

When asked about what prerequisites had to be satisfied for CIL to adopt this strategy, this source said:



*“You would need funds to cover the large spending on labour...which often came via government subsidies. You would need the people to employ. That was never a problem in India ... and remember, at one point CIL employed over half a million people. You would need workings, especially in underground mines, that made labour-intensive techniques feasible from an engineering perspective.”*

This provides evidence for each of the strategic prerequisites in Table 6.3.

| Table 6.3: HRM Strategy (pre-1991)   |  |
|--|--|
| Strategic Prerequisites  |  |
| <ul style="list-style-type: none"> <li>• Engineering viability of labour-intensive mining techniques</li> <li>• Economic viability of labour-intensive mining techniques</li> <li>• Availability of a large workforce</li> <li>• Government financial subsidies</li> </ul> |  |
| Detailed Strategy Description  |  |
| Resource Requirements  |  |
| <ul style="list-style-type: none"> <li>• Financial subsidies</li> <li>• Availability of a large workforce</li> </ul>   |  |
| Strategic Outcomes   |  |

### Structured data in the form of a strategy description template

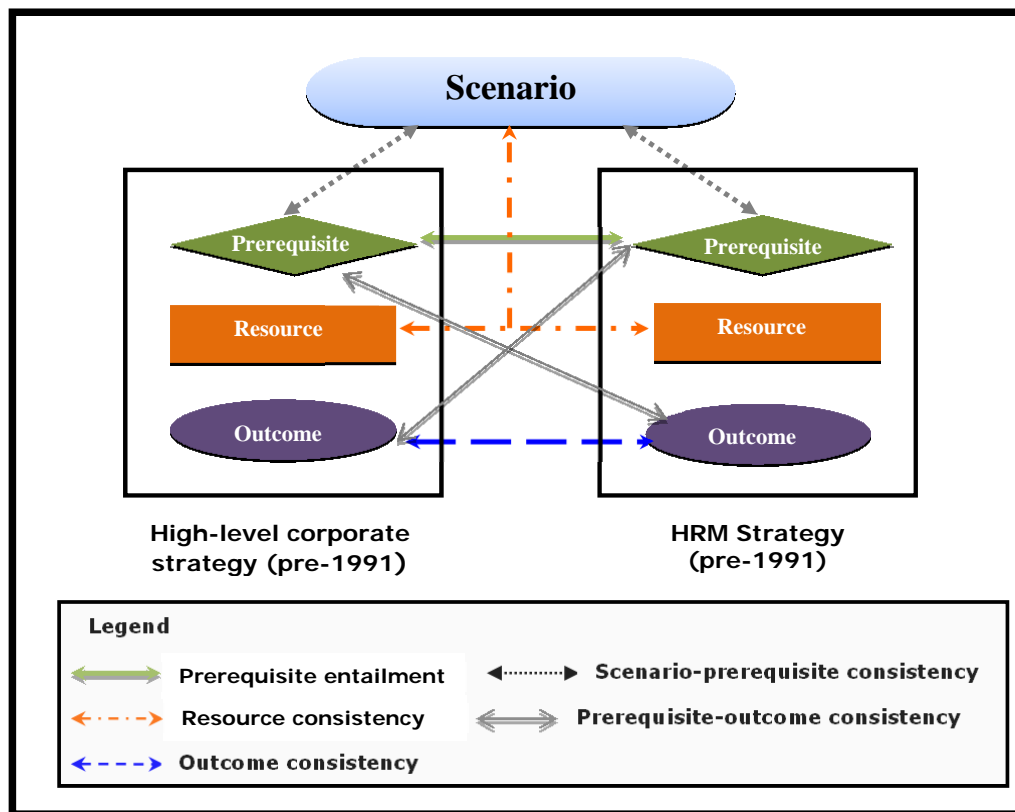
Table 6.3 above structures and summarizes information on CIL's pre-1991 HRM strategy obtained from published material as well as discussions with CIL sources, and has been confirmed by a number of other sources.

I have provided an account of how the strategy description templates were populated in the instance of the corporate and HRM strategies in considerable detail above to illustrate the process followed. For the subsequent strategies that I document, I will abbreviate the account somewhat to avoid repetition and tedious detail.

### 6.5.3 Alignment Analysis - HRM strategy with corporate strategy (pre-1991)

In the following, I will illustrate the analysis of strategic alignment between the pre-1991 corporate strategy and the pre-1991 HRM strategy.

**Figure 6.3: HRM Alignment with pre-1991 Corporate Strategy**



The results are shown in Figure 6.3. It shows that the corporate strategy and HRM strategy satisfy *prerequisite entailment*, *outcome consistency*, *prerequisite-outcome consistency*, *resource entailment* and *scenario-prerequisite consistency*.

In analysing strategic alignment, we will always seek to identify the *strongest* relation possible between strategy components (bearing in mind that prerequisite entailment is stronger than prerequisite consistency, outcome entailment is stronger than outcome consistency and so on).

### ***Analysis: Prerequisite entailment***

I extract below the prerequisites from the pair of strategies in Table 6.2 and Table 6.3

**Strategic prerequisites** of high-level corporate strategy (pre-1991):

- Significant financial subsidies from the central government
- Acceptance of labour-intensive modes of operation
- Engineering viability of labour-intensive mining techniques
- Economic viability of labour-intensive mining techniques
- Availability of a large workforce
- Absence of competition

**Strategic prerequisites** of HRM strategy pre-1991:

- Engineering viability of labour-intensive mining techniques
- Economic viability of labour-intensive mining techniques
- Availability of a large workforce
- Government financial subsidies

In the following, I place these in juxtaposition in Table 6.4. Each prerequisite in the corporate strategy is juxtaposed against a similar prerequisite in the HRM strategy.

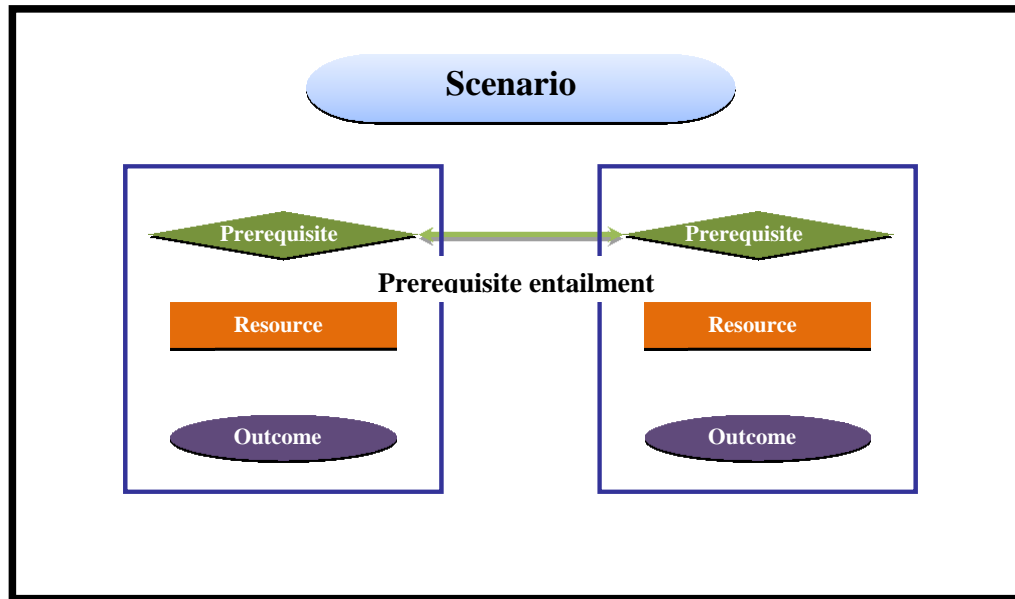
This table shows for every prerequisite of the HRM strategy, there is a corresponding

prerequisite in the corporate strategy which asserts much the same thing (even if the wording is occasionally different). Notice that this is not true in the reverse direction, i.e., some corporate strategy prerequisites do not HRM strategy counterparts.

| <b>Table 6.4: Comparing the Strategic Prerequisites of the Pre-1991 HRM and Corporate Strategies</b>            |   |
|---|---|
| <b>High-level corporate strategy (pre-1991)</b>   | <b>HRM Strategy (pre-1991)</b>  |
| <ul style="list-style-type: none"> <li>• Significant financial subsidies from the central government</li> </ul> | <ul style="list-style-type: none"> <li>• Government financial subsidies</li> </ul>                              |
| <ul style="list-style-type: none"> <li>• Acceptance of labour-intensive modes of operation</li> </ul>           | N/A   |
| <ul style="list-style-type: none"> <li>• Engineering viability of labour-intensive mining techniques</li> </ul> | <ul style="list-style-type: none"> <li>• Engineering viability of labour-intensive mining techniques</li> </ul> |
| <ul style="list-style-type: none"> <li>• Economic viability of labour-intensive mining techniques</li> </ul>    | <ul style="list-style-type: none"> <li>• Economic viability of labour-intensive mining techniques</li> </ul>    |
| <ul style="list-style-type: none"> <li>• Availability of a large workforce</li> </ul>                           | <ul style="list-style-type: none"> <li>• Availability of a large workforce</li> </ul>                           |
| <ul style="list-style-type: none"> <li>• Absence of competition</li> </ul>                                      | N/A   |

The prerequisites of the corporate strategy clearly include each of the prerequisites of the HRM strategy. Thus, the prerequisites of the former *entail* the prerequisites of the latter. Consequently, *prerequisite entailment* also holds (the prerequisites of the HRM strategy *follow* from the prerequisites of the corporate strategy. This is shown in Figure 6.4.

**Figure 6.4: Prerequisite Consistency between  
Corporate and HRM Strategies**



**Analysis: Outcome consistency**

I extract the strategic outcomes from the pair of strategies in Table 6.2 and Table 6.3  
Strategic outcomes of high-level corporate strategy (pre-1991):

- Meeting the cumulative annual coal demand from all sectors of the Indian economy
- Provision of life-time employment for a large workforce
- Provision of a generous government-mediated benefits scheme for its workforce.
- Greater use of indigenous technology and infrastructure
- Administrative mechanisms for product pricing
- Meeting corporate social responsibility obligations

**Strategic outcomes of HRM strategy (pre-1991):**

- Provision of employment to a massive workforce
- Wages not linked to performance.
- Provision of lifetime employment guarantees to the workforce
- Provision of a generous benefits scheme to the workforce

- Strict avoidance of temporary contract labour
- Strict avoidance of outsourcing of services/functions

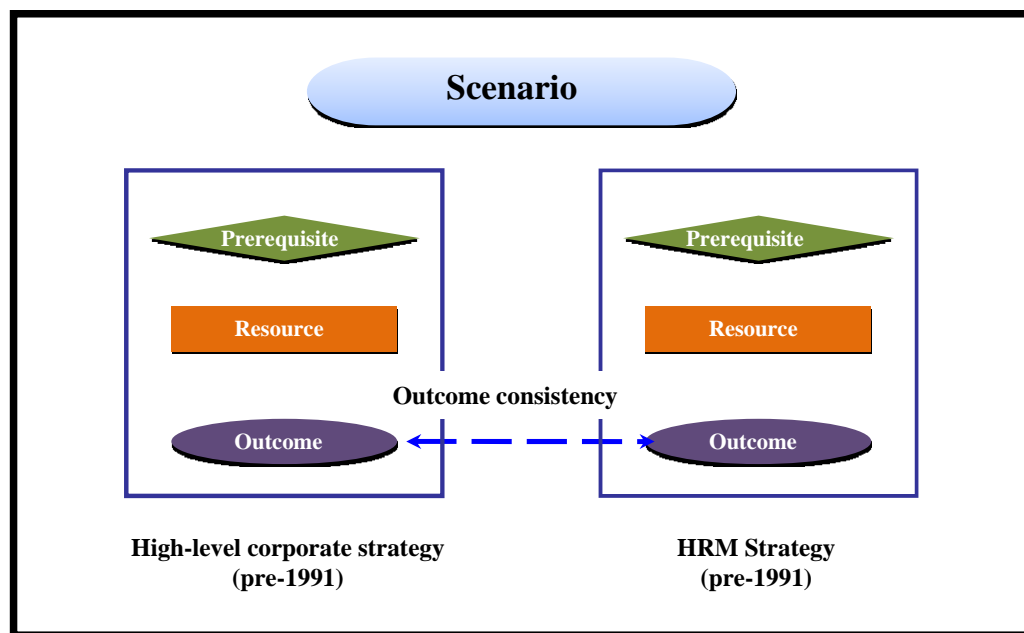
In the following, I extract the **strategic outcomes** from the strategies described above and place these in juxtaposition in Table 6.5

| <b>Table 6.5: Comparing the Strategic Outcomes of the Pre-1991 HRM and Corporate Strategies</b>                                      |  |
|--|--|
| <b>High-level corporate strategy (pre-1991)</b>  | <b>HRM Strategy (pre-1991)</b>   |
| <ul style="list-style-type: none"> <li>• Meeting the cumulative annual coal demand from all sectors of the Indian economy</li> </ul> | N/A  |
| <ul style="list-style-type: none"> <li>• Provision of life-time employment for a large workforce</li> </ul>                          | <ul style="list-style-type: none"> <li>• Provision of employment to a massive workforce</li> <li>• Provision of lifetime employment guarantees to the workforce</li> </ul> |
| <ul style="list-style-type: none"> <li>• Provision of a generous government-mediated benefits scheme for its workforce.</li> </ul>   | <ul style="list-style-type: none"> <li>• Provision of a generous benefits scheme to the workforce</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Greater use of indigenous technology and infrastructure</li> </ul>                          | N/A  |
| <ul style="list-style-type: none"> <li>• Administrative mechanisms for product pricing</li> </ul>                                    | N/A  |
| <ul style="list-style-type: none"> <li>• Meeting corporate social responsibility obligations</li> </ul>                              | N/A  |
| N/A  | <ul style="list-style-type: none"> <li>• Strict avoidance of temporary contract labour</li> </ul>  |
| N/A  | <ul style="list-style-type: none"> <li>• Wages not linked to performance</li> </ul>  |
| N/A  | <ul style="list-style-type: none"> <li>• Strict avoidance of outsourcing of services/functions</li> </ul>  |

From Table 6.5, we can see that *outcome consistency* holds, but not *outcome entailment*. None of the prerequisites of either strategy *contradict* the prerequisites of the other strategy. It is possible to conceive of states of affairs in which the prerequisites of both strategies are satisfied. Note, however, that not all the strategic outcomes of the HRM strategy follow from the outcomes of the corporate strategy.

Specifically, the avoidance of temporary or contract labour, outsourcing of services and wages being not linked to performance are outcomes of the HRM strategy that do not follow in the first instance from the outcomes of the corporate strategy. Thus, the strongest relation between the outcomes of these two strategies is *outcome consistency*. Figure 6.5 illustrates this.

**Figure 6.5: Outcome Consistency between Corporate and HRM Strategies**



***Analysis: Prerequisite-outcome consistency***

The prerequisites of the corporate strategy *do not entail* the outcomes of the HRM strategy, but are *consistent* with them. *Prerequisite-outcome consistency* holds, but not *prerequisite-outcome entailment* (indeed, as the discussion in Chapter 5 suggests, prerequisite-outcome entailment is not of great interest either). Note that the directionality of this relation is important – in other words the precise statement that

applies here is that the prerequisites of the corporate strategy are consistent with the outcomes of the HRM strategy. I summarize and contrast these in Table 6.6.

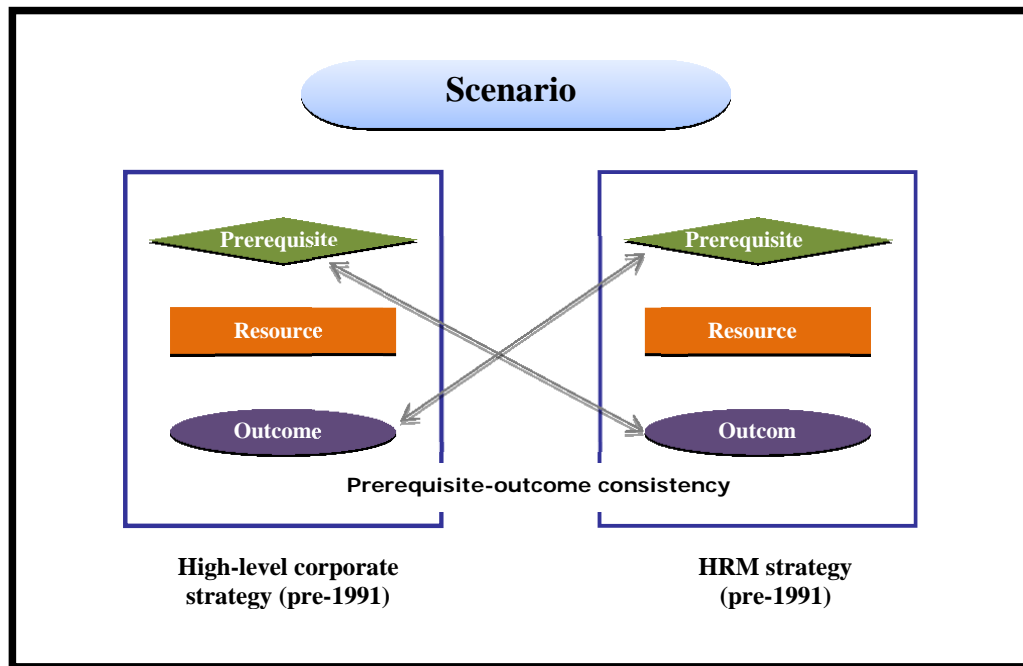
| <b>Table 6.6: Comparing the Prerequisites of the Corporate Strategy and the Outcomes of the HRM Strategy</b>  |  |
|---|--|
| <b>High-level corporate strategy (pre-1991) Prerequisite</b>  | <b>HRM Strategy (pre-1991) Outcome</b>   |
| <ul style="list-style-type: none"> <li>Significant financial subsidies from the central government</li> </ul> | <ul style="list-style-type: none"> <li>Provision of a generous benefits scheme to the workforce</li> </ul>     |
| <ul style="list-style-type: none"> <li>Acceptance of labour-intensive modes of operation</li> </ul>           | <ul style="list-style-type: none"> <li>Provision of employment to a massive workforce</li> </ul>               |
| <ul style="list-style-type: none"> <li>Engineering viability of labour-intensive mining techniques</li> </ul> | <ul style="list-style-type: none"> <li>Provision of lifetime employment guarantees to the workforce</li> </ul> |
| <ul style="list-style-type: none"> <li>Economic viability of labour-intensive mining techniques</li> </ul>    | <ul style="list-style-type: none"> <li>Strict avoidance of temporary contract labour</li> </ul>                |
| <ul style="list-style-type: none"> <li>Availability of a large workforce</li> </ul>                           | <ul style="list-style-type: none"> <li>Wages not linked to performance</li> </ul>                              |
| <ul style="list-style-type: none"> <li>Absence of competition</li> </ul>                                      | <ul style="list-style-type: none"> <li>Strict avoidance of outsourcing of services/functions</li> </ul>        |

To analyse the relationship in the reverse direction, I summarize and contrast the prerequisites of each strategy in Table 6.7.

| <b>Table 6.7: Comparing the Prerequisites of the HRM Strategy and the Outcomes of the Corporate Strategy</b>  |  |
|---|--|
| <b>HRM strategy (pre-1991) Prerequisite</b>   | <b>High-level corporate strategy (pre-1991) Outcome</b>  |
| <ul style="list-style-type: none"> <li>Government financial subsidies</li> </ul>                              | <ul style="list-style-type: none"> <li>Meeting the cumulative annual coal demand from all sectors of the Indian economy</li> </ul> |
| <ul style="list-style-type: none"> <li>Engineering viability of labour-intensive mining techniques</li> </ul> | <ul style="list-style-type: none"> <li>Provision of life-time employment for a large workforce</li> </ul>                          |
| <ul style="list-style-type: none"> <li>Economic viability of labour-intensive mining techniques</li> </ul>    | <ul style="list-style-type: none"> <li>Provision of a generous government-mediated benefits scheme for its workforce.</li> </ul>   |
| <ul style="list-style-type: none"> <li>Availability of a large workforce</li> </ul>                           | <ul style="list-style-type: none"> <li>Greater use of indigenous technology and infrastructure</li> </ul>                          |
| N/A   | <ul style="list-style-type: none"> <li>Administrative mechanisms for product pricing</li> </ul>                                    |
| N/A   | <ul style="list-style-type: none"> <li>Meeting corporate social responsibility obligations</li> </ul>                              |



The prerequisites of the HRM strategy *do not entail* the outcomes of the corporate strategy, but are *consistent* with them. *Prerequisite-outcome consistency* holds, but not *prerequisite-outcome entailment*. This is illustrated in Figure 6.6.

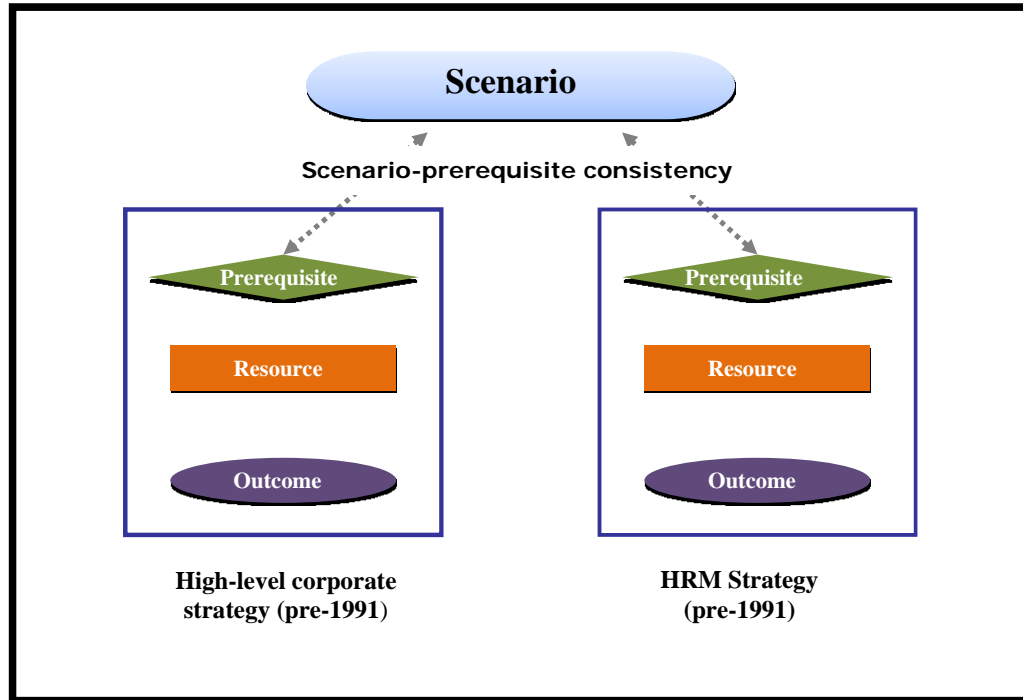


#### Analysis: Scenario-prerequisite consistency

The analysis of scenario-prerequisite entailment (both for the corporate and HRM strategies) can be somewhat contentious in this instance. With the corporate strategy, it is clear that conditions such as the availability of a large workforce, and the absence of competition effectively followed from what was known about the business context of CIL in the pre-1991 period. However, it is not clear if the “engineering viability of labour-intensive mining techniques” was necessarily a consequence of the business context. An analysis of *scenario-prerequisite consistency* (for both strategies) is more readily done, and involves checking to ensure that none of the prerequisites were contradicted by conditions in the prevailing business environment at that time. I will not engage in this analysis in detail as it would require a lengthy recounting of the economic and business

conditions prevailing in India in the pre-1991 period. In summary, that analysis suggests that *scenario-prerequisite consistency* did indeed hold for both strategies. Figure 6.7 shows this in diagrammatic form.

**Figure 6.7: Scenario-prerequisite Consistency  
between Corporate and HRM Strategies**



## 6.6 Discussion

**Representational gaps:** The exercise of documenting these initial two strategies using strategy description templates (see Chapter 5, Table 5.1) revealed some gaps in the representational capabilities of these templates. It turned out that I was able to capture most, but not all of the relevant detail concerning CIL's corporate strategy.

Consider for instance CIL's strategy in relation to the use of indigenous mining technology. The intent was to use indigenous technology wherever possible, but not to totally avoid non-indigenous technology (there were several mining projects

where imported technology was deployed). The outcome of this strategy was “greater use of indigenous technology” as described in the slot for “strategic outcomes” in the populated template above. While outcomes are easily described in these templates, it is harder to describe strategic intent, or objectives. Also, in this example, the intent is best articulated in the nature of a *preference* - given a choice between (equally viable) indigenous and non-indigenous technology, indigenous technology would be preferred.

The idea of maximising the provision of employment opportunities (something that underpinned the strategic thinking of all Indian PSUs at that time) is another example of the same problem. None of the slots in the strategy description template provides an appropriate “home” for this statement. “Provision of employment opportunities for a large workforce” appears in the strategic outcomes, but this presumes that some implicit threshold exists to define what constitutes a “large” workforce. It also presumes that this outcome will be achieved once employment opportunities for the pre-specified size of workforce have been generated. It does not capture the original intent - which was to continually seek opportunities for increasing employment opportunities.

Driven by these observations (apparent very early in the case study), I revised the conceptual framework for documenting strategies. Some of these insights were published in (Wang, 2008). In the next chapter, I will describe the revised framework and then use it as the basis for a detailed strategic analysis of CIL’s changing strategic landscape over a period of three decades.

**Completeness of strategy documentation:** The alignment analysis described above also suggests that the findings are contingent, to some extent, on how carefully and completely the relevant strategies have been documented. The simple act of omitting a particular prerequisite condition might, for example, turn what might have been an instance of prerequisite entailment to an instance of prerequisite. More critically, omitting an assertion in any of the slots of a strategy description template might lead us to overlook an instance of *inconsistency* which clearly flags misalignment. While this is an important caveat, it is also unsurprising. In any form of analysis (and

indeed in any discipline), the quality of the results is always directly contingent on the quality of the inputs.

**Understanding the business context:** The preceding analysis also suggests that while much of it is feasible given carefully documented strategies, the analysis of *scenario-prerequisite consistency* or *scenario-prerequisite entailment* must rely on an understanding of the prevailing business context by the consultant, business executive or analyst engaged in this task. To assume otherwise would require that a documented description of the business context – by definition lengthy and open-ended – be made available.

## 6.7 Chapter summary

In this chapter, I have presented the first part of a detailed account of my journey in analysing the strategic landscape at CIL. The chapter concludes at the point where an early attempt to document CIL's corporate strategy in the strategy description template described in Chapter 5 throws up problems, mainly relating to the representational inadequacy of these templates (thus also revealing gaps in the underlying conceptual framework). These observations led to a redesign of the framework, and the strategy description templates. The revised framework will be presented in the next chapter. The remainder of the detailed case study will be presented over the next two chapters.

## CHAPTER 7: A REFINED FRAMEWORK AND ITS APPLICATION TO THE CIL CASE STUDY

The case study described in the previous chapter led to a refinement of the conceptual framework for strategic alignment. I identified a key component in the description of a strategy that was absent in the earlier formulation – the notion of an *objective*. This chapter presents an extended framework for describing strategies. It then presents the use of the extended framework to the remainder of CIL’s pre-1991 strategies. The following chapter will address the strategic transformation of CIL in the post-1991 period.

In Section 7.1, I discuss the extended conceptual framework for strategic alignment. I resume my discussion of the CIL’s strategic transformation in Section 7.2. Recall the overview in Chapter 5 of CIL’s strategic landscape over three periods: (1) The pre-1991 period (2) The period immediately after the 1991 economic reforms and (3) The more recent period of strategic re-alignment at CIL. In Section 7.2, I discuss and document CIL’s strategies in the first of these periods (pre-1991). Section 7.2 also contains detailed strategic alignment analysis. Section 7.3 contains a discussion of the case study results obtained thus far, and Section 7.4 provides a chapter summary.

### 7.1 An extended framework for strategic alignment

In the previous chapter, I discussed how the strategy description template developed in Chapter 5 captures most, but not all, of the relevant detail that I had sought to document in relation to CIL’s pre-1991 corporate strategy. It became clear that the outcomes of strategy execution were being articulated in actual usage contexts in terms of two very distinct ontological constructs: *outcomes* on the one hand, and *measures, key performance indicators (KPIs) and metrics* on the other. *Outcomes* were described in terms of the state of affairs accruing from strategy execution. In particular, the desired outcomes were not described in terms of complete states of affairs (these might be very large and unwieldy descriptions, with much irrelevant

detail), but in terms of specific *conditions* that had to hold in these desired situations. It might also be interesting to think of how these are *identified*. These might be identified *post facto* in situations obtaining from the execution of a strategy, or these might be articulated in the form of a *statement of intent*. *Metrics* or *key performance indicators (KPIs)* were also used in articulating statements of intent, but the intent related to optimising the value of the measure in question, as opposed to achieving a set of desired conditions. The literature on management science (Churchman *et al*, 1957) lays out a conceptual framework for solving *optimisation problems* where the intent is to identify the *optimal value* for a metric or KPI, subject to a set of *constraints*. This literature also reveals an important distinction between the optimisation of a metric and the achievement of a condition: the latter admits a clear notion of *achievement*, while the former represents *a direction for improvement*. In other words, in a given situation, it is possible to determine whether a condition has been achieved (e.g., does the bank have a presence in Asia?) but impossible to determine whether it is possible to do still better with respect to a KPI (e.g., are the costs the lowest they could be or is the return on investment the highest it could be?). Of course, management science tells us that it is possible to determine the *optimal value* for a KPI given a set of *constraints* (e.g., we can argue that costs are the lowest they could be under the current operating model, and with the current operational processes). In the context of analysing strategic alignment, I will show that the exercise of solving such an optimisation problem is less important, but determining whether these KPIs “pull in the same direction” is critical.

While prerequisites, resource requirements and outcomes are easily described in the strategy description templates developed in Chapter 5, it is harder to describe strategic intent, or objectives. An objective might be articulated as a performance metric (such as order cycle time, customer satisfaction, revenue, profit) or as an optimisation objective function (minimise inventory levels, minimise production costs, maximise market share). It became apparent over the course of the case study that an objective is often the central element in the description of many strategies. This is also apparent from the review of alternative conceptions of strategy in Chapter 2. Indeed, strategies are sometimes articulated in terms of an objective alone.

An objective is clearly distinct from a prerequisite or a resource in the prior formulation of strategy, but may be confused with the outcomes of a strategy. It is possible to conceive of a strategy whose intended outcome is the maximisation of market share. Yet there is a subtle but important distinction in the ontological status of these two notions. An outcome is a condition (or set of conditions) that a strategy seeks to achieve. By associating an outcome with a set of conditions, I am able to determine whether a condition has been achieved or not. On the other hand, an objective provides a yardstick for assessing improvement, but does not admit a Boolean notion of achievement (in the sense of a true/false dichotomy in answering the question: have we achieved this objective?).

Consider the objective to minimise costs. It is not clear if an organization can ever assert with any modicum of confidence that its costs have been minimised. As noted above, the literature on operations management and operations research (Churchman *et al*, 1957) admits the notion of an optimal solution to an optimisation problem, but this involves the identification of a solution or a configuration that represents the best that can be done with respect to a given objective function under a set of operational *constraints*. These constraints are by no mean immutable – indeed the intent of many strategies is to modify the set of operational constraints. In summary then, an objective is a means of assessing improvement on some dimensions, but does not admit a crisp notion of achievement. An outcome, on the other hand is a set of conditions that a strategy seeks to make true.

It is useful to consider the underlying mathematical formulation of an objective. In the language of discrete mathematics, an objective is a *preference relation*, i.e., a set of assertions of the form “*solution1 is preferred to solution2*” or “*scenario3 is preferred to scenario4*”. Mathematically speaking, representing an objective in this form is an *extensional definition*, while representing an objective in the form of something like “minimise production costs” is an *intensional definition*.

The objective to minimise production costs induces an extensional definition in which I prefer scenarios where production costs are lower over those where production costs are higher. I can then define a notion of *objective consistency* – a pair of objectives is inconsistent if I can identify a pair of scenarios (*scenario1* and

*scenario2*) such that *scenario1* is preferred over *scenario2* by the first objective, but *scenario2* is preferred over *scenario1* by the second objective. The notion of objective consistency thus enables us to characterize pairs of objectives that do not “pull in opposite directions”.

I can also define a notion of *objective entailment* – a given objective entails another if the extensional definition of the latter is a subset of the extensional definition of the former. If a given objective entails another, then I know that I will perform better according to the former yardstick whenever I do better according the latter yardstick. This leads to a simple extension of the prior framework for strategic alignment. First, I extended the strategy description template.

**Table 7.1: A Refined Strategy Description**

|                                      |
|--------------------------------------|
| <b>Strategic Objectives</b>          |
| <b>Strategic Prerequisites</b>       |
| <b>Detailed Strategy Description</b> |
| <b>Resource Requirements</b>         |
| <b>Strategic Outcomes</b>            |



Table 7.1 provides the extended version of the strategy description template. In addition to its value in supporting alignment analysis, this turned out to be an extremely useful tool for engaging management in focused discussions to elicit strategies. It also appears to be a useful intra-organizational communication tool that ensures that strategies are articulated and communicated throughout the organization in a standardized format.

Second, I extended the notion of basic alignment is now extended to include *objective consistency*, as shown in Figure 7.1. Third, I extended the notion of full alignment in a similar fashion to include *objective entailment*, as shown in Figure 7.2.

It is useful to compare the extended framework to Balanced Scorecards (Kaplan and Norton, 1992). The measures and KPIs that form a key element of Balanced Scorecards are in fact optimisation objectives, but that perspective is not leveraged in any significant manner by Kaplan and Norton. They do not consider the question of *consistency* among objectives, nor *entailment*, and are thus unable to support the kind of alignment analysis described here. Instead, Kaplan and Norton focus on defining managerial guidelines on *balancing* these scorecards. Casting this in the language of optimisation, balancing a scorecard involves deliberation to decide the weights to assign to each component function that are combined to obtain a *weighted sum* that represents the firm's overall objective function.

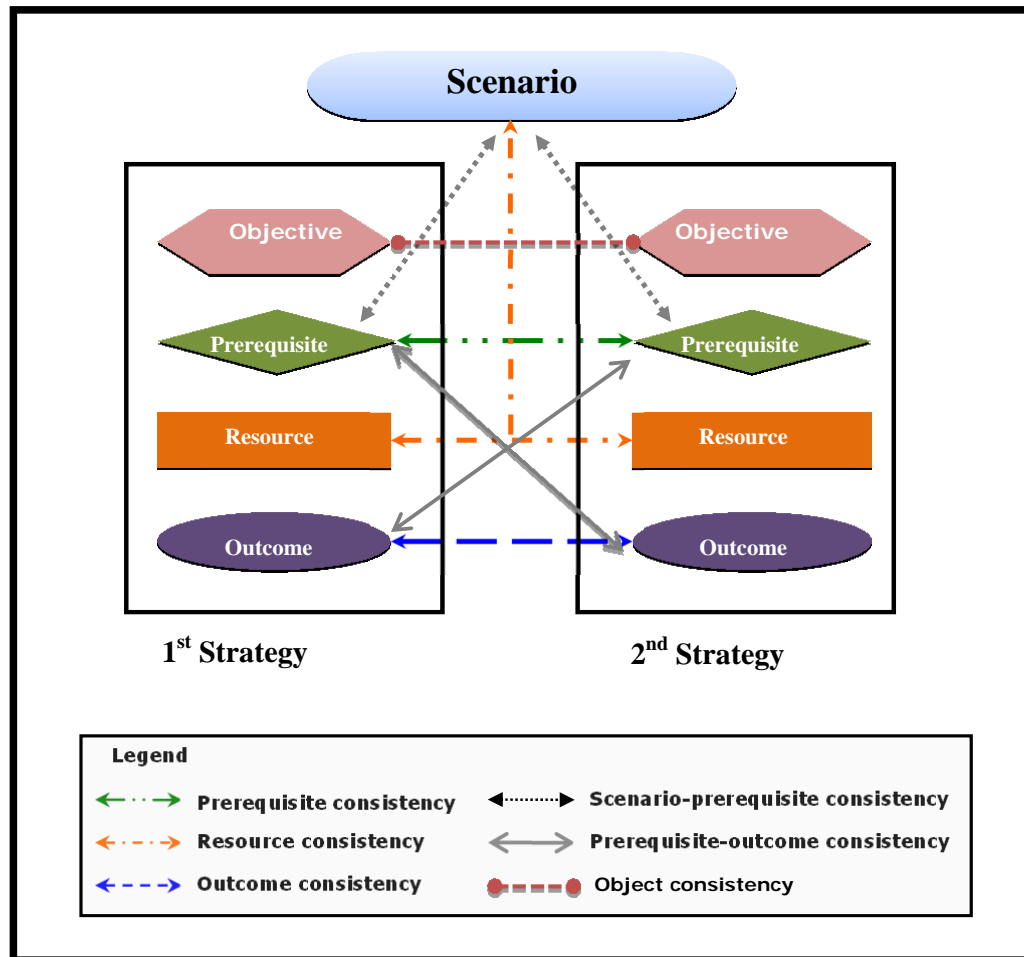
Comparing this framework to *Strategy Maps* (Kaplan and Norton, 2003), the only point of overlap turns out to be the fact that both approaches document objectives (Strategy Maps also emphasize documenting these from various functional perspectives while my framework is more general and domain-agnostic). As pointed out in Chapter 5, Strategy Maps do not support any of the other ontological constructs for describing strategies (prerequisites, outcomes, resources) and are not amenable to the rich repertoire of alignment analysis described in this dissertation.

As noted in Chapter 5, Kaplan and Norton's (2006) approach to alignment is entirely orthogonal to the approach presented here. Their focus is on providing managerial

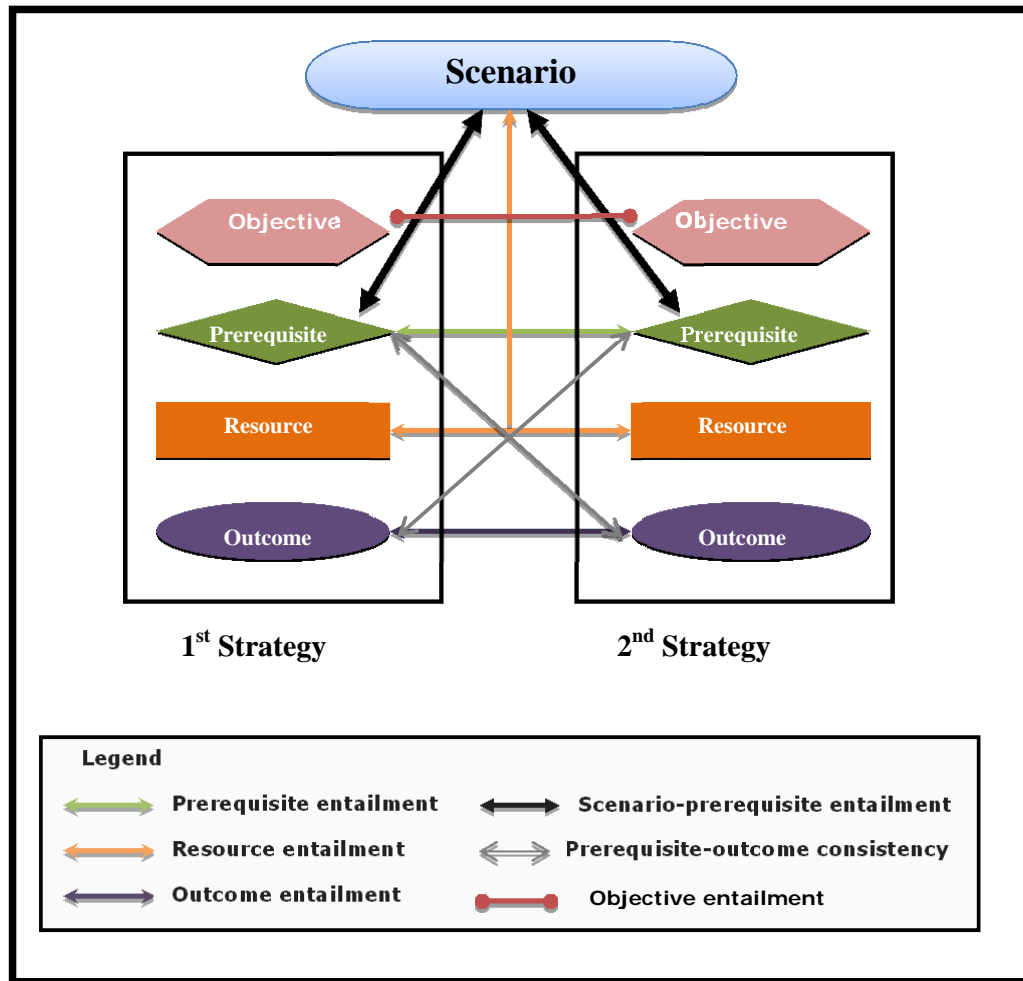
guidelines for instituting organisation-wide processes to achieve alignment leveraging Balanced Scorecards (Kaplan and Norton, 2000) and Strategy Maps (Kaplan and Norton, 2003).

A preliminary version of these results appear in (Wang, 2008).

**Figure 7.1: Extended Basic Alignment**



**Figure 7.2: Extended Full Alignment**



### 7.1.1 Methodological guidelines

When analysing *consistency* between conditions (such as prerequisites or outcomes) contained in various components of a strategy description, one needs to look for obvious instances of conditions that refer to competing outcomes (e.g., increase prices versus conforming to administratively determined - and possibly low - prices, lower costs versus higher costs and so on). In general, consistency (or inconsistency) between conditions is usually easy to detect, and does not require any deeper analysis.

When analysing whether one set of conditions is *entailed* by another set of conditions, one needs to look for one of the following two situations:

- Situations where a condition A is included in a list of conditions B.
- Situations where a condition A is true whenever condition B is true (e.g., when condition A refers to higher costs and condition B refers to higher wage).

As pointed out earlier, the analysis of objective *consistency* and *entailment* is based on the underlying mathematical formulation of an objective. In the language of discrete mathematics, an objective is a *preference relation*, i.e., a set of assertions of the form “*scenario1 is preferred to scenario2*”, “*scenario3 is preferred to scenario4*” etc. Representing an objective in this form is an *extensional definition*, while representing an objective in the form of something like “minimise production costs” is an *intensional definition*. The objective to minimise production costs induces an extensional definition in which we prefer scenarios where production costs are lower over those where production costs are higher. We can then define a notion of *objective consistency* - a pair of objectives is inconsistent if we can identify a pair of scenarios (*scenario1* and *scenario2*) such that *scenario1* is preferred over *scenario2* by the first objective, but *scenario2* is preferred over *scenario1* by the second objective.

The notion of objective consistency thus enables us to characterize pairs of objectives that do not “pull in opposite directions”. For example, other things being the same, the objective of maximising employment opportunities (as was obligatory for CIL pre-1991) is inconsistent with the objective of minimising costs. In general, instances of objective inconsistency will be fairly self-evident to the strategy analyst, and will not require any further structured guidance. To operationalise the notion of *objective entailment*, the following guideline is useful: a given objective entails another if the extensional definition of the latter is a subset of the extensional definition of the former. If a given objective entails another, then we know that we will perform better according to the former yardstick whenever we do better according the latter yardstick. This too is usually self-evident. For example, the objective of minimising labour costs is entailed by the objective of minimising costs.

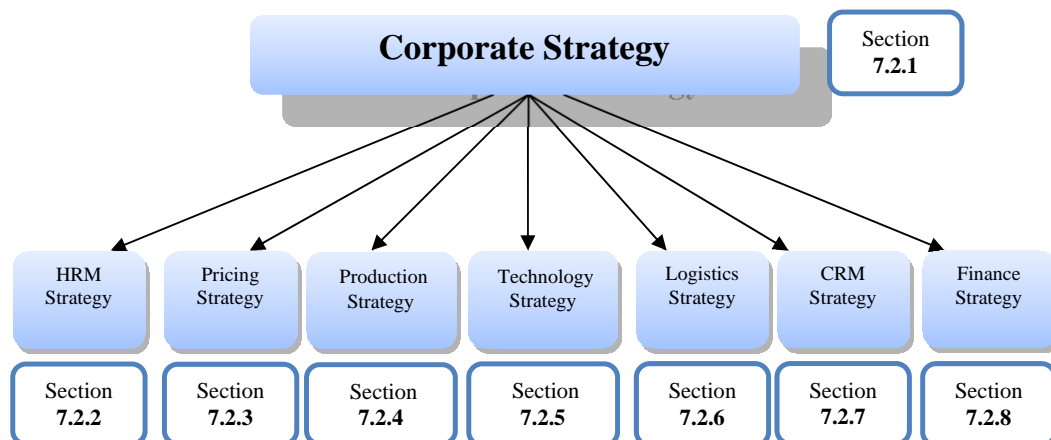
All of the examples of alignment analysis in the rest of this chapter will rely on the guiding principles discussed above. The framework described in the previous chapter provides a structured basis for analysis of strategic alignment that can be executed by consultants and internal strategy analysts. It provides a significant improvement to the current analysis that largely based on appeals to shared intuitions about what strategic alignment should mean (often an overly optimistic assumption).

Equipped with this conceptual toolkit, I will document and analyse CIL's pre-1991 strategies in the following sections.

## 7.2 CIL in the pre-1991 period

The strategic realignment story at CIL can be told in three parts – a period of stability, a period of business upheaval and a period of re-alignment. In the previous chapter, I described CIL in the pre-1991 period of stability in Section 6.4.1. During this period, *all* of CIL's strategies were in a state of alignment. The various functional strategies at CIL were aligned with the high-level corporate strategy, and with each other. In addition, all strategies (both corporate and functional) were aligned with the business context. CIL went through such a period of considerable stability from its inception to the early 1990s. Figure 7.3 shows in diagrammatic form.

**Figure 7.3: Pre-1991 Strategic Landscape**  
(Annotated with section numbers where the relevant strategies are described)



### 7.2.1 High-level corporate strategy (pre-1991)

Recall the discussion from the previous chapter of my first attempt at documenting CIL's corporate strategy which revealed gaps and which prompted an extension of the conceptual framework.

| Table 7.2: High-level Corporate Strategy (pre-1991)<br>with Strategic Objectives  |  |
|---|--|
| Strategic Objectives  |  |
|   |  |
| Strategic Prerequisites   |  |
|   |  |
| Detailed Strategy Description   |  |
| Resource Requirements   |  |
| <ul style="list-style-type: none"><li>• Government financial subsidies</li><li>• Large base of available labour</li></ul> |  |
| Strategic Outcomes  |  |
|   |  |

A revised strategy description template (reflecting the extended framework discussed above) describing CIL’s corporate strategy in the pre-1991 period is provided below.

The detailed discussion of the primary and secondary data which this populated template is based on has not been repeated here (the reader is referred to Chapter 6 for that material). Based on that material, a populated strategy description template (in the extended format) can be obtained as follows.

### 7.2.2 Human resource management strategy (pre-1991)

| Table 7.3: HRM Strategy (pre-1991) with Strategic Objectives   |  |
|--|--|
| Strategic Objectives   |  |
| Maximising employment opportunities for a workforce supported by generous benefits schemes.                          |  |
| Strategic Prerequisites  |  |
| Detailed Strategy Description  |  |
| Resource Requirements  |  |
| <ul style="list-style-type: none"> <li>• Financial subsidies</li> <li>• Availability of a large workforce</li> </ul> |  |
| Strategic Outcomes   |  |

I will present the pre-1991 HRM strategy in the extended strategy description template below. As with the high-level corporate strategy, I have avoided repeating a discussion of the primary and secondary data that this is based on. The reader is referred to Chapter 6 for this material.

### **Alignment Analysis: HRM and corporate strategy (pre-1991)**

Much of the analysis involved in determining whether CIL's pre-1991 HRM was aligned with its pre-1991 corporate strategy is presented in Chapter 5 (Section 5.5.3). That analysis was conducted prior to the framework being extended. In the following, I will only discuss the relationship between the strategic objectives of the two strategies.

#### **Analysis: Objective consistency**

I introduced and discussed the notion of objective consistency in Section 7.1. In the following, I extract the strategic objectives from the strategies described in Table 7.2 and Table 7.3 and place these in juxtaposition in Table 7.4.

| <b>Table 7.4: Comparing the Strategic Objectives of the HRM and Corporate Strategies</b>  |   |
|---|---|
| <b>High-level corporate strategy (pre-1991)</b>   | <b>HRM strategy (pre-1991)</b>  |
| <ul style="list-style-type: none"> <li>• Maximising conformance to the (planned) coal demand profile of the Indian economy</li> </ul>   | N/A   |
| <ul style="list-style-type: none"> <li>• Minimization of coal production costs (i.e., maximise efficiency in mining processes)</li> </ul>   | N/A   |
| <ul style="list-style-type: none"> <li>• Maximisation of indigenisation of equipment manufacturing</li> </ul>   | N/A   |
| <ul style="list-style-type: none"> <li>• Maximisation of the provision of employment opportunities</li> </ul>   | <ul style="list-style-type: none"> <li>• Maximising employment opportunities for a large workforce</li> </ul> |
| <ul style="list-style-type: none"> <li>• Maximisation of services offered to employees, including civic amenities, healthcare and education, as well employee participation in management processes to improve employee morale</li> </ul> | N/A   |
| N/A   | <ul style="list-style-type: none"> <li>• Maximise the provision of employee benefit schemes</li> </ul>        |



The objective of maximising the provision of employment opportunities appears in both strategy descriptions. However, the provision of employee benefit schemes does not automatically follow from the objectives of the high-level corporate strategy. Thus we cannot establish *objective entailment*. However, the two sets of objectives are clearly *consistent*.

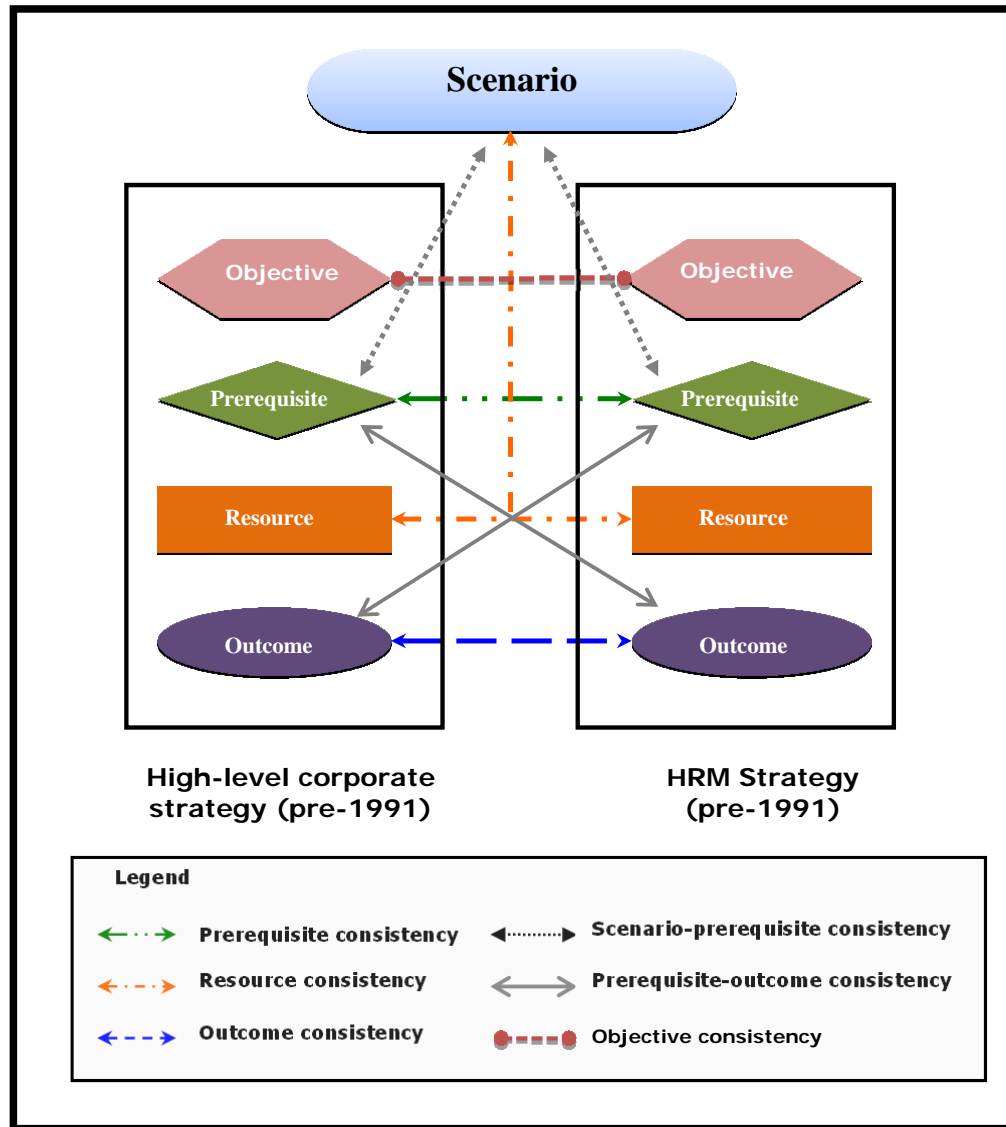


Figure 7.4 illustrates the analysis of the alignment (in the extended framework) of the corporate strategy with the HRM strategy in the pre-1991 period.

### 7.2.3 Pricing strategy (pre-1991)

The following description is based on both primary and secondary data.

CIL's pricing strategy in the pre-1991 period was relatively straightforward – it had to sell coal at prices determined by the government via an administrative pricing mechanism (Kropha, 2006). The Ministry of Coal and the Bureau of Industrial Costs and Prices (BICP) set coal prices based on normative considerations accruing from national economic planning objectives (Aiyar *et al*, 1994). The administrative pricing mechanism operated via a set of “linkages” (which determined the price, source and quantity of coal to be supplied to a specific customer) in the following manner described in detail in (Majumdar, 2006). Three different “linkage” committees operated under the aegis of the Ministry of Coal and the CIL:

- The Standing Linkage Committee (Short Term)
- The Standing Linkage Committee (Long Term)
- The Standing Linkage Committee (Steel)

The customer base of CIL was partitioned into the core, and non-core sectors. The core sector consisted of the following:

- Power: This mainly consisted of thermal power plants, many operated by the public sector National Thermal Power Corporation (NTPC). In some instances manufacturers had “captive” power plants (mainly coal-burning thermal power plants) whose power production was entirely intended for the owning entity (and not for public consumption).
- Steel: In the pre-1991 period, this sector was dominated by the state-owned Steel Authority of India Limited (SAIL), with only one major private sector player (the Tata Iron and Steel Company – TISCO).
- Sponge iron
- Cement
- Fertilizer
- Aluminium
- Paper

- Central Public Sector Undertaking (i.e., PSU's owned by the central government)
- Defence (for border areas with no regular electric supply)
- Railways (this was for coal-powered locomotives which have since been phased out)
- Export to neighbouring countries

The core sector customers were understood to require a regular supply of coal. The linkage mechanism for each sectoral component was as follows (Majumdar, 2006):

- For the power utilities, captive power and cement components of the core sector, pricing, supply sourcing and volume decisions were taken quarterly by the Standing Linkage Committee (Sort Term) in conformance with the Standing Linkage Committee (Long Term) decisions.
- For the steel component of the core sector, pricing, supply sourcing and volume decisions were taken monthly by the Standing Linkage Committee (Sort Term), based on the availability of washed coal (i.e., coal that had been put through a coal beneficiation process) at CIL.
- For the sponge iron component of the core sector a monthly allocation was made by the Standing Linkage Committee (Steel) at CIL.
- For the aluminium, fertilizer, paper and central public sector undertakings, the allocations were made based on "sponsorship" recommendations of the relevant ministry (there were at various points different ministries in charge of these sectoral components, while the central public sector undertakings, of which CIL itself was one, came under the purview of a variety of different ministries).
- Coal supplies for the defence sector were allocated by the Defence Coal Cell, operating under the aegis of the Ministry of Defence.
- For coal meant for export to neighbouring countries, the pricing, supply sourcing and volume decisions were taken based on the recommendation of the Ministry of External Affairs.

A linkage system was also used for the non-core sector, but priority was given to the core sector. There were several inherent problems with the linkage system, including the fact linkages often made allocations far in excess of actual available coal, there

were significant barriers for new players to purchase coal and the fact that it encouraged occasionally unethical practices in the purchase of coal (Majumdar, 2006). The fact that this pricing regime relied heavily of government subsidies is generally acknowledged, and is mentioned in several published reports, including a 2006 article by the Chairman and Managing Director of the CIL subsidiary BCCL providing an account of how a turnaround was achieved in the business performance of BCCL (Bhattacharya, 2006a).

The correlation between competition and pricing pressure is well-known. There was virtually no competition in the pre-1991 period – the Coal Mines (Nationalisation) Act was amended only in 1993 to permit captive mining by private operators (their output could only be used in-house and could not be put up for general sale (Ministry of Coal/ Government of India, 2011)).

Pricing regulation for various grades of coal remained in place throughout the pre-1991 period, and was removed in a phased manner (Ranganath, 2006) in the post-1991 period (a number of different grades of coal are referred to in the following – the technical specifications of these are not germane to the present discussion). Pricing regulation for coking coal and non-coking coal grades A, B and C was removed in 1996, for hard coke, soft coke and non-coking coal grade D in 1997, and for non-coking coal grades D, E and F in 2000 (Ranganath, 2006). Under the Coal Mines (Nationalisation) Amendment Bill (Colliery Control Order 2000), the pricing and distribution of coal was fully deregulated only in 2000.

In general, the administrative pricing mechanism kept prices out of tune with prevailing market prices for coal (Ranganath, 2006; Majumdar, 2006) and in many cases these prices were artificially low. CIL annual reports are not intended for public dissemination, and actual coal price figures are only sketchily available. However, we do have two useful data points:

- The Report of the Expert Committee on the Roadmap for Coal Sector Reforms constituted by the Ministry of Coal, Government of India and published in December 2005 lists average pithead prices for various grades of non-coking coal in 2000.

- The 2010 annual diary of CIL lists pithead prices for these same grades of coal in 2010 itemized for each coal-producing subsidiary. These can be averaged over all subsidiaries to obtain a similar average pithead price.

This analysis reveals the following:

- Grade A non-coking coal: Average pithead price was Rs. 1072/Tonne in 2000, but was Rs. 2007.14/Tonne in 2010.
- Grade B non-coking coal: Average pithead price was Rs. 964/Tonne in 2000, but was Rs. 1802.86/Tonne in 2010.
- Grade C non-coking coal: Average pithead price was Rs. 792/Tonne in 2000, but was Rs. 1550.00/Tonne in 2010.
- Grade D non-coking coal: Average pithead price was Rs. 664/Tonne in 2000, but was Rs. 1340.00/Tonne in 2010 .
- Grade E non-coking coal: Average pithead price was Rs. 527/Tonne in 2000, but was Rs. 1002.00/Tonne in 2010.
- Grade F non-coking coal: Average pithead price was Rs. 420/Tonne in 2000, but was Rs. 760.00/Tonne in 2010.
- Grade G non-coking coal: Average pithead price was Rs. 300/Tonne in 2000, but was Rs. 532.00/Tonne in 2010.

Inflation over that 10 year period was about 25% - the Indian Rupee bought approximately the same amount in US dollars in 2000 and 2010, and US\$1 in 2000 would buy about US\$1.25 in 2010 (according to most online inflation calculators). Prices from 2000 are particularly useful as an indicator of what coal prices were like leading up to full price de-regulation in 2000. Similarly, 2010 coal prices quite closely (but not entirely) approximate market-driven prices. Given that prices more or less doubled over the decade, this provides evidence that far better prices were being achieved post pricing de-regulation (even if we were to factor in the approximately 25% in inflation). These data points, however, cannot tell the full story. Market-driven prices for most minerals fluctuate because of the cyclical nature of the resources industry. An ideal data point would have been the market-driven price of coal in 2000, but such a figure must remain a hypothetical, since such a market for coal did not exist in India prior to 2000.

### Structured data in the form of a strategy description template

Table 7.5 below structures and summarizes information on CIL's pre-1991 pricing strategy, based on publicly available data as well as discussion with CIL sources (this has also been confirmed by each of the sources).

| Table 7.5: Pricing Strategy (pre-1991)   |  |
|--|--|
| Strategic Objectives   |  |
| Strategic Prerequisites  |  |
| <ul style="list-style-type: none"><li>• Substantial financial subsidies from the central government</li><li>• Absence of competition</li></ul> |  |
| Detailed Strategy Description  |  |
| Resource Requirements  |  |
| <ul style="list-style-type: none"><li>• Government financial subsidies</li><li>• Detailed national economic plans</li></ul>                    |  |
| Strategic Outcomes   |  |

### Alignment Analysis: Pricing strategy with corporate strategy (pre-1991)

#### Analysis: Objective entailment

In the following, I extract the strategic objectives from the strategies described in Table 7.2 and Table 7.5 and place these in juxtaposition in Table 7.6.

| Table 7.6: Comparing the Strategic Prerequisites of the Pre-1991 Pricing and Corporate Strategies   |  |
|---|--|
| Strategic objectives of high-level corporate strategy (pre-1991)  | Strategic objectives of pricing strategy (pre-1991)  |
| <ul style="list-style-type: none"> <li>Maximising conformance to the (planned) coal demand profile of the Indian economy</li> </ul>   | N/A  |
| N/A   | <ul style="list-style-type: none"> <li>Maximising conformance to the requirements of national economic plans (Five-Year Plans) and the pricing recommendations that these generated</li> </ul> |
| <ul style="list-style-type: none"> <li>Minimization of coal production costs (i.e., maximise efficiency in mining processes)</li> </ul>   | N/A  |
| <ul style="list-style-type: none"> <li>Maximisation of indigenisation of equipment manufacturing</li> </ul>   | N/A  |
| <ul style="list-style-type: none"> <li>Maximisation of the provision of employment opportunities</li> </ul>   | N/A  |
| <ul style="list-style-type: none"> <li>Maximisation of services offered to employees, including civic amenities, healthcare and education, as well employee participation in management processes to improve employee morale</li> </ul> | N/A  |

The objectives of the pricing strategy do not contradict any of the objectives of the corporate strategy, hence *objective consistency* holds. However, these objectives do not follow from the objectives of the corporate strategy (or vice versa), hence *objective entailment* does not hold.

#### Analysis: Prerequisite entailment

In the following, I extract the prerequisites from the strategies described in Table 7.2 and Table 7.5 and place these in juxtaposition in Table 7.7.

Both prerequisites of the pricing strategy (*substantial financial subsidies* and *absence of competition*) also appear as prerequisites of the corporate strategy, hence *prerequisite entailment* holds.

| <b>Table 7.7: Comparing the Strategic Prerequisites of the Pricing and Corporate Strategies</b>               |   |
|---|---|
| <b>Strategic prerequisites of high-level corporate strategy (pre-1991)</b>                                    | <b>Strategic prerequisites of pricing strategy (pre-1991)</b>   |
| <ul style="list-style-type: none"> <li>Significant financial subsidies from the central government</li> </ul> | <ul style="list-style-type: none"> <li>Substantial financial subsidies from the central government</li> </ul> |
| <ul style="list-style-type: none"> <li>Acceptance of labour-intensive modes of operation</li> </ul>           | N/A   |
| <ul style="list-style-type: none"> <li>Engineering viability of labour-intensive mining techniques</li> </ul> | N/A   |
| <ul style="list-style-type: none"> <li>Economic viability of labour-intensive mining techniques</li> </ul>    | N/A   |
| <ul style="list-style-type: none"> <li>Availability of a large workforce</li> </ul>                           | N/A   |
| <ul style="list-style-type: none"> <li>Absence of competition</li> </ul>                                      | <ul style="list-style-type: none"> <li>Absence of competition</li> </ul>                                      |

### **Analysis: Outcome consistency**

In the following, I extract the strategic outcomes from the strategies described in Table 7.2 and Table 7.5 and place these in juxtaposition in Table 7.8.

The outcomes of the two strategies do not contradict each other, hence *outcome consistency* holds. However, *outcome entailment* does not hold. For example, the subsidization of a class of (mainly public sector) coal customers is documented as an outcome of the pricing strategy, but does not appear as an intended outcome of the corporate strategy.

| <b>Table 7.8: Comparing the Strategic Prerequisites of the Pre-1991 Pricing and Corporate Strategies</b>                           |   |
|--|---|
| <b>Strategic prerequisites of high-level corporate strategy (pre-1991)</b>   | <b>Strategic prerequisites of pricing strategy (pre-1991)</b> |
| <ul style="list-style-type: none"> <li>Meeting the cumulative annual coal demand from all sectors of the Indian economy</li> </ul> | N/A   |
| <ul style="list-style-type: none"> <li>Provision of life-time employment for a large workforce</li> </ul>                          | N/A   |
| <ul style="list-style-type: none"> <li>Provision of a generous government-mediated benefits scheme for its workforce.</li> </ul>   | N/A   |



|   |  |
|---|--|
| <ul style="list-style-type: none"> <li>Greater use of indigenous technology and infrastructure</li> </ul> | N/A  |
| <ul style="list-style-type: none"> <li>Administrative mechanisms for product pricing</li> </ul>           | <ul style="list-style-type: none"> <li>Regulated coal prices aligned with national economic planning objectives</li> </ul> |
| N/A   | <ul style="list-style-type: none"> <li>Potential for financial non-viability (i.e., loss-making operations)</li> </ul>     |
| N/A   | <ul style="list-style-type: none"> <li>Artificial (government) subsidization of a large class of coal consumers</li> </ul> |
| <ul style="list-style-type: none"> <li>Meeting corporate social responsibility obligations</li> </ul>     | N/A  |

### Analysis: Prerequisite-outcome consistency

The prerequisites of the corporate strategy *do not entail* the outcomes of the pricing strategy, but are *consistent* with them. *Prerequisite-outcome consistency* holds, but not *prerequisite-outcome entailment*. Similar considerations hold if we were to analyse the prerequisites of the pricing strategy relative to the outcomes of the corporate strategy. There too, *prerequisite-outcome consistency* holds, but not *prerequisite-outcome entailment*.

### Analysis: Resource consistency

Juxtaposing the resource requirements of the two strategies, we find that *resource consistency* is satisfied, but not *resource entailment*.

Based on this analysis, it can be concluded that the requirements of *basic alignment* are met, but not the stronger requirements of *full alignment*. Effectively, the pre-1991 pricing strategy was *aligned* with the pre-1991 corporate strategy.

#### 7.2.4 Production strategy (pre-1991)

CIL's production strategy was relatively straightforward. It operated both open-pit and underground mines. Most of these were existing workings, but it started a small number of new mines. Most of its coal was mined using "intermediate" technology.

Indian coal contains a higher proportion of ash (relative to coal sourced from elsewhere) (Rao, 2007). *Coal beneficiation*, often also called *coal washing*, is a process that reduces the ash content in coal. Coal beneficiation facilities are called *coal washeries*. Coal that has been put through the beneficiation process reduces the cost of transport (there is more calorific value per unit weight of coal transported, because of the removal of ash), which in turn leads to more efficient power plant operation (Rao, 2007) and fetches higher prices. Most of CIL's output was sold without beneficiation (Rao, 2007).

### **Structured data in the form of a strategy description template**

Table 7.9 below structures and summarizes CIL's pre-1991 production strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).

### **Alignment Analysis: Production strategy with corporate strategy (pre-1991)**

#### **Analysis: Objective consistency**

The objective of maximising production to meet domestic coal needs appears in a slightly different form in the objectives of the corporate strategy. The objective of maximising safety does not explicitly appear in the corporate strategy. Thus, *objective consistency* holds while *objective entailment* does not hold.

#### **Analysis: Prerequisite consistency**

Some prerequisites of the production strategy do not follow from the prerequisites of the corporate strategy but these do not contradict each other. Thus, *prerequisite consistency* holds, but *prerequisite entailment* does not hold.

#### **Analysis: Outcome consistency**

Some of the strategic outcomes of the production strategy (e.g., the production of unwashed coal) do not follow from the outcomes of the corporate strategy. However, all of the *outcomes* of the production strategy are consistent with the *outcomes* of the corporate strategy. Thus, *outcome consistency* holds but not *outcome entailment*.

**Table 7.9: Production Strategy (pre-1991)**

|   |
|---|
| <b>Strategic Objectives</b>   |
| <ul style="list-style-type: none"><li>• Maximising production to meet domestic coal needs</li><li>• Maximising safety in mine operation</li></ul>         |
| <b>Strategic Prerequisites</b>  |
|   |
| <b>Detailed Strategy Description</b>  |
|   |
| <b>Resource Requirements</b>  |
| <ul style="list-style-type: none"><li>• Funding to cover costs during periods of zero or negative profits</li><li>• Human resource availability</li></ul> |
| <b>Strategic Outcomes</b>   |
|   |

**Analysis: Prerequisite-outcome consistency**

Some of the outcomes of the production strategy (e.g., the production of unwashed coal) do not follow from the prerequisites of the corporate strategy. However, all of the outcomes of the production strategy are consistent with the prerequisites of the corporate strategy. Thus, *prerequisite-outcome consistency* holds, but not *prerequisite-outcome entailment*. The same results hold if the direction of analysis is reversed (i.e., the prerequisites of the production strategy are compared with the outcomes of the corporate strategy).

### **Analysis: Resource entailment**

Juxtaposing the resource requirements of these two strategies, we find that the resource requirements of the production strategy follow from those of the corporate strategy (and the reverse as well). Thus *resource entailment* holds (in both directions).

Based on this analysis, it can be concluded that the requirements of *basic alignment* are met, but not the stronger requirements of *full alignment*. Effectively, the pre-1991 production strategy was *aligned* with the pre-1991 corporate strategy.

### **7.2.5 Technology strategy (pre-1991)**

Most of CIL's mines used a mix of manual and semi-manual mining methods (India Business Insight 2005-10-25) – techniques broadly described as “intermediate technologies” (Dikshit, 2006). There was an emphasis on indigenous technologies (in line with the national thrust on “self-reliance”). CIL's only non-coal producing subsidiary Central Mine Planning and Design Institute Limited (CMPDIL) provided specialist engineering and technological services.

In line with worldwide mining practice, CIL's mining operations were of two types:

**Surface mining:** This is also referred to as open-pit or open-cast mining. This form of mining involves excavating a large pit and approaching the coal deposit from the surface. The material (soil and rock) that needs to be removed from the surface is referred to as “over-burden”. The removal of both the over-burden and coal proceeds by dislodging rock using explosive blasts, following which heavy earth-moving equipment such as excavators, shovels and draglines move this rock, often by loading the rock on large dump-trucks. Economies of scale are important in such operations. In CIL's surface mining (open cast mine) operations, the choice of equipment sizes was highly conservative, which had an impact on productivity. Much of CIL's open-cast production involved use of the Shovel-Dumper system (Singh, 2007).

**Underground mining:** This form of mining involves approaching (typically deeper) coal deposits via tunnels. CIL's underground coal production mostly came from the conventional *Bord and Pillar* method of mining where drilling plays an important role. In Bord and Pillar mining, miners first extracted coal along roadways or bords, while the coal in between the bords act as pillars holding up the roof. Afterwards, the outer/farther pillars are mined, leaving the roof to collapse in a controlled way. Drilling and the insertion of explosives is critical in underground operations, but this was done manually. There were a small handful of technology demonstrator/trials of the more modern Longwall technology for underground coal mining, but many of these were not particularly successful (Singh, 2007).

### **Structured data in the form of a strategy description template**

Table 7.10 below structures and summarizes CIL's pre-1991 technology strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).

### **Alignment Analysis: Technology strategy with corporate strategy (pre-1991)**

#### **Analysis: Objective consistency**

The objectives of the technology strategy do not directly follow from the objectives of the corporate strategy, but are consistent with them. Thus, *objective consistency* holds but not *objective entailment*.

#### **Analysis: Prerequisite consistency**

Not all of the prerequisites of the pre-1991 technology strategy follow from the prerequisites of the corporate strategy, but all of the prerequisites are mutually consistent. Thus *prerequisite entailment* does not hold, but *prerequisite consistency* holds.

#### **Analysis: Outcome consistency**

*Outcome entailment* does not hold since outcomes of the technology strategy such as *lower outlay on capital equipment* do not follow from the outcomes of the corporate strategy. However, there is no contradiction between the outcomes of the two strategies, hence *outcome consistency* holds.

**Table 7.10: Technology Strategy (pre-1991)**

|   |
|---|
| <b>Strategic Objectives</b>   |
|   |
| <b>Strategic Prerequisites</b>  |
| <ul style="list-style-type: none"><li>• Existence of appropriate indigenous technologies</li><li>• Engineering viability of “intermediate technology” mining techniques</li><li>• Economic viability of “intermediate technology” mining techniques</li></ul> |
| <b>Detailed Strategy Description</b>  |
|   |
| <b>Resource Requirements</b>  |
|   |
| <b>Strategic Outcomes</b>   |
|   |

**Analysis: Prerequisite-outcome consistency**

None of the prerequisites of pre-1991 corporate strategy contradict the outcomes of the technology strategy - hence *prerequisite-outcome consistency* holds. However, none of the outcomes of the technology strategy follow from the prerequisites of the pre-1991 corporate strategy - hence *prerequisite-outcome entailment* does not hold.

### **Analysis: Resource consistency**

Juxtaposing the resource requirements of these two strategies, we find that the resource requirements of the technology strategy are consistent with those of the corporate strategy (and two of the three are identical to those of the corporate strategy). Thus *resource consistency holds* (in both directions) but not *resource entailment*.

Based on the analysis above, we can see that the requirements of *basic alignment* are met (but not those of *full alignment*). Effectively, we can conclude that the pre-1991 technology strategy was *aligned* with the pre-1991 corporate strategy.

### **7.2.6 Logistics strategy (pre-1991)**

The key logistics function at CIL was the transportation of coal. There were two modes of coal transport: road and rail. In the case of rail transport, CIL was responsible was transporting coal to railheads – from there on, the transportation function was the responsibility of Indian Railways. Open-pit mines also required the transportation of “over-burden”, i.e., the rock that needs to be removed to be able to get to the coal seams. According to one of the sources consulted:

*“In open-pit mines, both the removal of over-burden and the removal of coal were done by a fleet of dump-trucks. All of these were kept in-house in CIL’s open-pit mines.”*

Underground mines require large quantities of sand for an operation called “sand-stowing”. Sand-stowing is required for old workings (i.e., tunnels that will have no further mining operations conducted in them). Sand-stowing involves filling up these old workings with sand to ensure the stability of surface structures in the vicinity. According to a CIL source:

*“The transportation of sand was one aspect of CIL’s logistics that was outsourced to private providers.”*

### **Structured data in the form of a strategy description template**

Table 7.11 below structures and summarizes CIL’s pre-1991 logistics strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources). Notice that in this strategy description template (unlike the preceding ones), I have populated the “detailed strategy description” slot to illustrate how this might be used.

| <b>Table 7.11: Logistics Strategy (pre-1991)</b>  |  |
|---|--|
| <div>Strategic Objectives</div> <ul style="list-style-type: none"> <li>Minimise logistics delays</li> </ul>   |  |
| <div>Strategic Prerequisites</div> <ul style="list-style-type: none"> <li>Availability of in-house logistics infrastructure</li> </ul>  |  |
| <div>Detailed Strategy Description</div>  |  |
| <div>Resource Requirements</div> <ul style="list-style-type: none"> <li>Funding to cover potential cost inefficiencies accruing from the use of in-house logistics</li> </ul> |  |
| <div>Strategic Outcomes</div>   |  |

### **Alignment Analysis: Logistics strategy with corporate strategy (pre-1991)**

**Analysis: Objective consistency**



The objective of the logistics strategy (minimising logistics delays) does not directly follow from the objectives of the corporate strategy, but is consistent with them. Thus, *objective consistency* holds but not *objective entailment*.

**Analysis: Prerequisite consistency**

The prerequisite of the logistics strategy (availability of an in-house logistics infrastructure) does not directly follow from the prerequisites of the corporate strategy, but is consistent with them. Thus, *prerequisite consistency* holds, but *prerequisite entailment* does not hold.

**Analysis: Outcome consistency**

The strategic outcomes of the logistics strategy do not directly follow from the outcomes of the corporate strategy, but are consistent with them. Thus, *outcome consistency* holds, but not *outcome entailment*.

**Analysis: Prerequisite-outcome consistency**

The strategic outcomes of the logistics strategy do not directly follow from the prerequisites of the corporate strategy, but are consistent with them. Thus, *prerequisite-outcome consistency* holds, but not *prerequisite-outcome entailment*. This also holds when we perform this analysis in the reverse direction, i.e., the outcomes of the corporate strategy are consistent with the prerequisites of the logistics strategy.

**Analysis: Resource entailment**

Juxtaposing the resource requirements of these two strategies, we find that the resource requirements of the logistics strategy follow from those of the corporate strategy. Thus *resource entailment* holds – the resource requirements of the corporate strategy entail those of the logistics strategy.

Based on the analysis above, we can see that the requirements of *basic alignment* are met (but not those of *full alignment*). Effectively, we can conclude that the pre-1991 logistics strategy was *aligned* with the pre-1991 corporate strategy.

### 7.2.7 CRM strategy (pre-1991)

In the pre-1991 period, CIL's customer relationship management (CRM) strategy was also straightforward – it did not do anything more than was mandated by the administratively-imposed Fuel Supply and Transport Agreements with most of its customers. These agreements mandated the quantity, price and timing of coal deliveries to customers in the power, cement and iron and steel sectors. An effective CRM strategy usually helps (Anton and Petouhoff, 1996) by:

- Retaining existing customers.
- Expanding the customer base.
- Achieving higher prices.

CIL had a captive customer base, which was also relatively static (Kulkarni, 2000). CIL did not have the authority to deviate from administratively determined prices. Consequently, there was little incentive for CIL to invest in anything more than basic CRM.

Contractual arrangements with major customers were often absent, with negative repercussions. According to the World Bank Staff Appraisal Report, "India Coal Sector Rehabilitation Project", (in the following, SEB stands for a State Electricity Board, of which there is more or less one for each state of the Indian Union):

*"Government regulation of coal price and distribution without contractual arrangements between Coal India and its consumers allowed the Ministry of Coal to order Coal India to supply coal to some of the SEBs, even if there was every indication that they could not pay. Lacking a way to measure objectively and precisely the quality of coal delivered, Coal India and its consumers have engaged in frequent disputes that often allowed SEBs to withhold or reduce payment for deliveries of supposedly lower quality coal. For its part, Coal India operates without the incentive that precise quality measurement rules and the possibility of penalties or bonuses would give it to improve coal quality by reducing the content of foreign materials"* (p. 17).

**Structured data in the form of a strategy description template**

Table 7.12 below structures and summarizes CIL’s pre-1991 CRM strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).

| Table 7.12: CRM Strategy (pre-1991)   |  |
|---|--|
| Strategic Objectives  |  |
| Nil   |  |
| Strategic Prerequisites   |  |
| <ul style="list-style-type: none"> <li>• Substantial financial subsidies from the central government</li> <li>• Absence of competition</li> </ul> |  |
| Detailed Strategy Description   |  |
| CIL engaged to the minimal extent necessary with its customer base. No special CRM measures were deployed.  |  |
| Resource Requirements   |  |
| <ul style="list-style-type: none"> <li>• Substantial financial subsidies from the central government</li> </ul>                                   |  |
| Strategic Outcomes  |  |
| <ul style="list-style-type: none"> <li>• A largely static captive customer base</li> </ul>  |  |

### Alignment Analysis: CRM strategy with corporate strategy (pre-1991)

#### Analysis: Objective consistency

Since no objectives have been stated for the CRM strategy the objectives are *consistent*. Mathematically speaking, *entailment* holds as well, since the empty set of preferences (the objectives of the logistics strategy) is by definition included in the set of preferences of the corporate strategy (which is non-empty).

#### Analysis: Prerequisite consistency

*Prerequisite entailment* (and consequently *prerequisite consistency*) holds, simply because both prerequisites of the CRM strategy also appear as prerequisites of the corporate strategy.

**Analysis: Outcome consistency**

*Outcome consistency* holds (but not *outcome entailment*).

**Analysis: Prerequisite-outcome consistency**

*Prerequisite-outcome consistency* holds between the prerequisites of the corporate strategy and the outcomes of the CRM strategy (as well as in the reverse direction), but not *prerequisite-outcome entailment*.

**Analysis: Resource entailment**

Juxtaposing the resource requirements of these two strategies, we find that the resource requirements of the CRM strategy follow from those of the corporate strategy. Thus *resource entailment* holds – the resource requirements of the corporate strategy entail those of the CRM strategy.

Based on the analysis above, we can see that the requirements of *basic alignment* are met (but not those of *full alignment*). Effectively, we can conclude that the pre-1991 logistics strategy was *aligned* with the pre-1991 corporate strategy.

### **7.2.8 Finance strategy (pre-1991)**

CIL's budgetary needs were met entirely by the Government of India (via the Ministry of Coal) plus internal accruals from CIL (Kulkarni, 2000). None of the usual strategies for financing (borrowing, equity markets, IPOs, bonds, asset sales etc.) played a role in CIL's strategic thinking.

**Structured data in the form of a strategy description template**

Table 7.13 below structures and summarizes CIL's pre-1991 finance strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).

## **Alignment Analysis: Finance strategy with corporate strategy (pre-1991)**

### **Analysis: Objective consistency**

*Objective consistency* holds but not *objective entailment*.

### **Analysis: Prerequisite consistency**

*Prerequisite entailment* (and consequently *prerequisite consistency*) holds, simply because the sole documented prerequisite of the finance strategy also appears as a prerequisite of the corporate strategy.

### **Analysis: Outcome consistency**

*Outcome consistency* holds (but not *outcome entailment*).

### **Analysis: Prerequisite-outcome consistency**

*Prerequisite-outcome consistency* holds between the prerequisites of the corporate strategy and the outcomes of the finance strategy (as well as in the reverse direction), but not *prerequisite-outcome entailment*.

**Table 7.13: Finance Strategy (pre-1991)**

|   |
|---|
| <b>Strategic Objectives</b>   |
|   |
| <b>Strategic Prerequisites</b>  |
| <ul style="list-style-type: none"><li>• Substantial financial subsidies from the central government</li></ul> |
| <b>Detailed Strategy Description</b>  |
|   |
| <b>Resource Requirements</b>  |
|   |
| <b>Strategic Outcomes</b>   |
| <ul style="list-style-type: none"><li>• Finance requirements met entirely via government funding</li></ul>    |

### **Analysis: Resource entailment**

Juxtaposing the resource requirements of these two strategies, we find that the resource requirements of the finance strategy follow from those of the corporate strategy. Thus *resource entailment* holds - the resource requirements of the corporate strategy entail those of the finance strategy.

Based on the analysis above, we can see that the requirements of *basic alignment* are met (but not those of *full alignment*). Effectively, we can conclude that the pre-1991 finance strategy was *aligned* with the pre-1991 corporate strategy.

## **7.2.9 Mutual alignment between functional strategies**

The analysis of alignment between each of the functional strategies is also critical. In general, these might work at cross purposes (for instance, by requiring contradictory prerequisites, or generating contradictory outcomes) despite being individually aligned with the corporate strategy. A quick perusal of the strategy description templates of each of the functional strategies suggests that most of the strategy components satisfy *consistency* while some satisfy *entailment*. Overall, this means that the functional strategies satisfy the requirement of *basic alignment* with respect to each other. I do not provide detail here, since much of it would be repetitious given the previous analysis presented in this chapter.

### **7.2.10 Scenario-prerequisite consistency**

In the preceding discussion, I did not analyse for scenario-prerequisite consistency/entailment. This can be summarized simply by noting that, in much the same spirit as the discussion on scenario-prerequisite consistency in Chapter 6, the prerequisites of each of the strategies discussed above satisfy *scenario-prerequisite consistency* and in most cases *scenario-prerequisite entailment* as well.

### 7.3 Discussion

The pre-1991 period - lasting almost 16 years since its inception – was marked by business stability for CIL. The organisation operated as it was intended to. It executed its strategies effectively, meeting its strategic objectives and achieving its strategic outcomes. One might question if some of these outcomes, such as high labour costs, or support for loss-making operations, were actually intended. The published literature suggests that these were actually deemed to be more or less acceptable (if not exactly desirable) in the social milieu of India at the time (especially given the fact the fact the nation was engaged in rapid industrialization in a socialist-style planned economy, emerging from some centuries of foreign occupation). Note also that the *outcomes* slot in strategy description templates can be used to document both *desired and expected outcomes*. We can thus see a combination of both types of outcomes in the strategies documented thus far (e.g., *meeting the coal needs of the Indian economy* is a *desired outcome*, while *higher production costs* is an *expected outcome* but not necessarily a *desired* one).

The framework for strategic alignment developed in this thesis turns out to be quite effective in both describing the strategic landscape at CIL at that time, and explaining why this period was one of business stability. As shown above, all of the functional strategies were aligned (in the sense of basic alignment) with the high-level corporate strategy. They were also mutually aligned, and aligned with the business context. It is also interesting to note that the *alignment spectrum* described in Fig. 5.3 turns out to be useful. CIL's strategies in this period sat at some point between basic alignment and full alignment in the alignment spectrum – they satisfied the requirements of basic alignment, and in some instances they also satisfied the requirements of full alignment. Full alignment, as discussed in Chapter 5, represents the ideal case in relation to alignment, while basic alignment represents the threshold below which alignment arguably does not hold any more. In most practical settings where the strategies are, in the common-sense use of the term, aligned, alignment analysis will likely lead to a point in-between these two ends of the spectrum, much as it did with CIL in the pre-1991 period.



## **7.4 Chapter summary**

This chapter has presented an extended conceptual framework for strategic alignment, as well as its application in documenting a range of CIL strategies in the pre-1991 period and analysing strategic alignment. It is important to observe that this framework has offered us a comprehensive and coherent vocabulary for a discourse on the strategic transformation at CIL over several decades. Absent this framework, such a discussion would have been confusing, and would have had to make frequent appeals to intuition (as much of the existing literature on strategic alignment often does).

## **CHAPTER 8: STRATEGIC TRANSFORMATION AT CIL IN THE POST-1991 PERIOD**

This chapter completes the CIL case study. It describes how the business context and strategic landscape changed for CIL in the aftermath of the 1991 economic reforms in India. It provides an explanation for the ensuing period of business upheaval by presenting strategic alignment analysis that reveals that CIL's strategies were significantly misaligned in this period. It then describes how CIL realigned its corporate and functional strategies, leading to a significant improvement in the performance of the organisation.

The rest of this chapter is organised as follows. In Section 8.1, I present an analysis of alignment in the strategic landscape of CIL in the immediate aftermath of the 1991 reforms. Section 8.2 presents a discussion of these findings. In Section 8.3, I address the more recent phase of strategic realignment at CIL. I discuss the revised functional strategies and present alignment analysis of each of these. Section 8.4 discusses these findings while Section 8.5 provides a chapter summary.

### **8.1 CIL in the post-1991 period: period of business upheaval**

The economic reforms instituted in 1991 led to a gradual re-conceptualization of the PSU (public-sector unit) model. The government realized that it would make poor economic sense to financially subsidize fully-owned companies such as Coal India. The financial subsidies coupled with a set of strategic objectives that entirely under-emphasized the need for generating profits (and arguably placed undue emphasis on corporate social responsibility) had led to significant inefficiencies in the operations of several PSUs. The new model for PSUs was a re-calibration of the earlier mode in the following ways:

- PSUs were to be gradually weaned off subsidies to make them financially self-sustaining.

- PSUs were to be provided incentives to generate profits as a means of financing their own expansion/growth.

While the corporate social responsibility aspect of their strategic objectives remained significant (generation of large-scale employment, full employment guarantees, generous employee benefits schemes etc.) there was to be a slight shift in emphasis away from these.

For many PSUs, and certainly for CIL, these changes led to a reformulation of the overall corporate strategy. The business context had also evolved. However, these changes were slow to percolate through the organization. As we shall see later, these changes took (in most instances) over a decade to propagate through the various business units and subsidiaries. In part, this might have been due to the fact that the enterprise was large and complex, with the corporate structure consisting of a large number of wholly-owned subsidiaries leading to some level of separation between the management processes and decisions in the subsidiaries and those in the parent holding company. In part, this might have also been due to inertia, which is unsurprising in an enterprise that had previously not been obliged to operate in an agile fashion to meet the demands of a dynamic business environment.

The net outcome was that different parts of the organization were operating at ‘cross-purposes’. By the early 2000s, Bharat Coking Coal Limited (BCCL) – the coking coal producing subsidiary headquartered in the city of Dhanbad in the state of Jharkhand in eastern India and operating mines in the Jharia Coalfield – had been placed under the purview of the Bureau of Industrial Finance and Reconstruction (BIFR) (Bhattacharya, 2006a). In the Indian context, this is a form of bankruptcy protection. The Eastern Coalfields Limited (ECL) was also in considerable difficulty (Chakraborty, 2006). The performance of the other coal-producing subsidiaries also suffered.

The *period of instability* referred to earlier in this chapter will be explained in terms of *strategic misalignment* in this section, using the vocabulary developed in the previous chapters. It turns out that during this period, the CIL subsidiaries continued to follow the pre-1991 functional strategies discussed in the previous section, even

after the high-level corporate strategy had been re-calibrated to meet the requirements of the central government economic liberalization agenda. Alignment analysis presented in this section reveals that *all* of CIL's functional strategies were misaligned with the corporate strategy during this period. It is not difficult, therefore, to establish a tentative correlation between misalignment (as assessed by this framework) and poor business performance (the same kind of analysis in the previous chapter suggests a correlation between alignment and business stability).

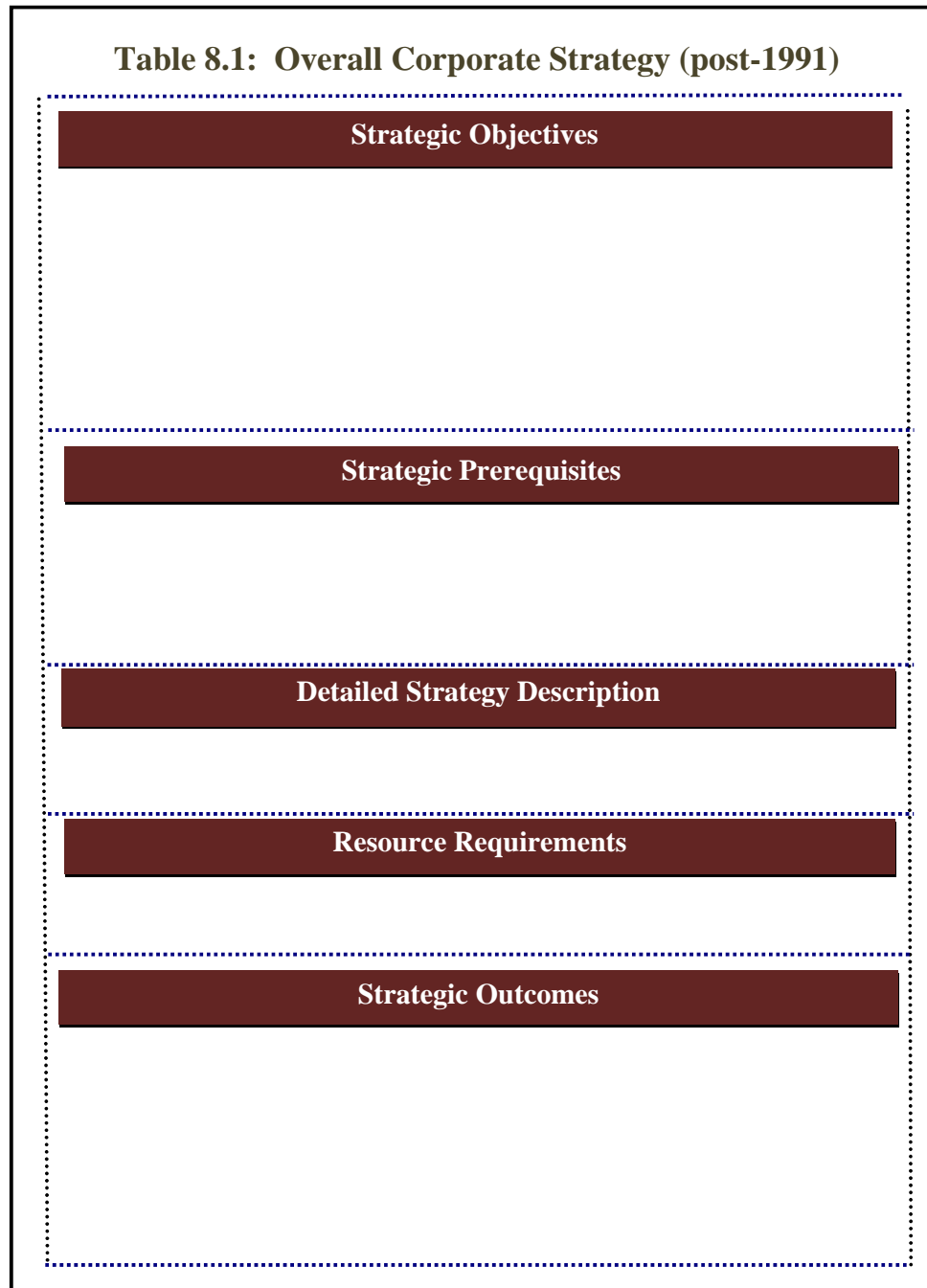
The revised, post-1991, high-level strategy is presented first. The biggest shift that this strategy had to deal with was the complete removal of government budgetary support for the coal sector (Sarkar, 2002; Ghosh and Kishore, 2005) – the level of budgetary support started getting reduced from 1991, and was completely removed in 1996 (Mehta, 2006).

The other major shift was the emergence of competition. An amendment to the Coal Mines (Nationalization) Act, 1973 (recall that this was amended in 1976 to permit captive mining by companies in the iron and steel sector) in June 1993 permitted captive coal mining by private companies engaged in power generation, private sector activity in coal beneficiation as well other uses to be identified by the Government of India in future notifications (Sahay, 2007). Further government notifications in this vein in 1996 permitted captive mining for cement production, and in 2007 permitted captive mining for coal gasification and coal liquefaction (Singh, 2007).

The net outcome of these shifts was making CIL far more commercially oriented (Kulkarni, 2000). This was manifested in CIL's decision to not open new mines that did not meet a threshold on rate-of-return (unlike the pre-1991 era when such commercial concerns did not play a role) (Bhattacharya, 2006b; Kulkarni, 2000). The emergence of competitive pressures increased the need for more efficient operations (Prasad, 2000).

### 8.1.1 High-level corporate strategy (post-1991)

Table 8.1 below structures and summarizes CIL's post-1991 corporate strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).



Note that at this point, each of the functional strategies largely remained the same as the pre-1991 strategies discussed in Chapter 7. The corresponding strategy templates

and descriptions will not be repeated in this section. *I will refer to these as pre-1991 functional strategies in the following discussion even though these continued to serve as the operative functional strategies for a period of several years in the post-1991 period.* I will discuss how these functional strategies were subsequently transformed later in this chapter. Those transformations led to alignment being restored, with the concomitant restoration of business stability.

In the following, the alignment of each functional strategy with the high-level corporate strategy will be discussed in turn. The mutual alignment of the individual functional strategies has already been discussed in detail in the previous section.

### **8.1.2 Alignment analysis: HRM strategy with post-1991 corporate strategy**

#### **Analysis: Objective inconsistency**

*Objective consistency* does not hold. The objective of minimising the need for government subsidies conflicts with the objective of maximising employment opportunities for a workforce supported by generous benefits schemes.. Since objective consistency does not hold, *objective entailment* does not hold either.

#### **Analysis: Prerequisite inconsistency**

*Prerequisite consistency* does not hold (consequently, *prerequisite entailment* does not hold either). The HRM strategy prerequisite of availability of government subsidies conflicts with the high-level corporate strategic prerequisite of being able to deploy operational efficiency-enhancing, cost-cutting measures. The economic viability of labour-intensive mining techniques, another HRM strategy prerequisite, also conflicts with the latter prerequisite of the high-level corporate strategy.

#### **Analysis: Outcome inconsistency**

*Outcome consistency* does not hold (consequently, *outcome entailment* does not hold either). The corporate strategy outcome of generating revenue/profits to meet all costs and fund expansion conflicts with the HRM strategy outcomes of providing guaranteed lifetime employment to a large workforce with generous benefits etc.

#### **Analysis: Prerequisite-outcome consistency**

*Prerequisite-outcome consistency* between the prerequisites of the post-1991 corporate strategy and the outcomes of the pre-1991 HRM strategy does not hold (consequently, *prerequisite-outcome entailment* does not hold either). The corporate strategy prerequisite of having the flexibility to institute operational efficiency enhancing and cost-cutting measures conflicts the following strategic outcomes of the HRM strategy:

- Provision of employment to a massive workforce (over 0.5 million employees)
- Wages not linked to performance.
- Strict avoidance of temporary or non-unionized labour
- Strict avoidance of outsourcing of services/functions

Arguably, the other strategic outcomes of the HRM strategy are also in conflict with these prerequisites of the corporate strategy. For very similar reasons, it is easy to see that *prerequisite-outcome consistency* between the prerequisites of the pre-1991 HRM strategy and the outcomes of the post-1991 corporate strategy does not hold (consequently, *prerequisite-outcome entailment* does not hold either).

### **Analysis: Resource consistency**

The resource requirements of the two strategies are *consistent*, but *entailment* does not hold. Clearly, this pair of strategies does not satisfy the requirements of basic alignment and are categorically *misaligned*.

### **8.1.3 Alignment analysis: Pricing strategy alignment with post-1991 corporate strategy**

#### **Analysis: Objective entailment**

*Objective entailment* holds (and hence also *objective entailment*). The objective of Maximising conformance to the coal demand profile of the Indian economy appears in both strategies.

#### **Analysis: Prerequisite consistency**

*Prerequisite consistency* holds. The prerequisites of the corporate strategy make no statement about the absence of competition (a prerequisite of the pricing strategy). The prerequisites of the corporate strategy also make no explicit statement about the

availability of government financial subsidies (a prerequisite of the pricing strategy). However, *prerequisite entailment* does not hold.

**Analysis: Outcome inconsistency**

*Outcome consistency* does not hold (consequently, *outcome entailment* does not hold either). The corporate strategy outcome of generating revenue/profits to meet all costs and fund expansion conflicts with the pricing strategy outcome of supporting loss-making operations.

**Analysis: Prerequisite-outcome inconsistency**

*Prerequisite-outcome consistency* does not hold between the prerequisites of the post-1991 corporate strategy and the outcomes of the pricing strategy. The operational flexibility (including flexible pricing) prerequisite of the corporate strategy contradicts the regulated pricing outcome of the pricing strategy. Thus *prerequisite-outcome entailment* also does not hold. In the reverse direction, the availability of government financial subsidies (a prerequisite of the pricing strategy) conflicts with the need to generate revenue/profits (an outcome of the corporate strategy). Thus here too, we have *prerequisite-outcome inconsistency* (as well as *prerequisite-outcome non-entailment*).

**Analysis: Resource consistency**

The resource requirements of the two strategies are *consistent*, but *entailment* does not hold.

Clearly, this pair of strategies does not satisfy the requirements of basic alignment and are categorically *misaligned*.

#### **8.1.4 Alignment analysis: Production strategy with post-1991 corporate strategy**

**Analysis: Objective consistency**

*Objective consistency* holds (optimising these objectives do not lead to conflicting preferences) but *objective entailment* does not hold.

**Analysis: Prerequisite consistency**



The prerequisites of both strategies are *consistent* (but *entailment* does not hold in either direction).

**Analysis: Outcome inconsistency**

The selling of coal at relatively, government-determined prices (an outcome of the production strategy) contradicts the need to generate revenue/profits (outcomes of the corporate strategy). Thus *outcome consistency* does not hold (consequently, *outcome entailment* does not hold either). Interestingly, the analysis generates mixed results. Parts of the outcomes of both strategies are entailed by the outcomes of the other, simply because meeting domestic coal demand in India is an outcome of both strategies.

**Analysis: Prerequisite-outcome inconsistency**

Pricing flexibility (a prerequisite of the corporate strategy) conflicts with the need to sell unwashed coal at lower, government-mediated prices. *Prerequisite-outcome consistency* does not hold. In the reverse direction, *prerequisite-outcome consistency* does hold (but not *entailment*).

**Analysis: Resource consistency**

The resource requirements of the two strategies are *consistent*, but *entailment* does not hold.

Clearly, this pair of strategies does not satisfy the requirements of basic alignment and are categorically *misaligned*.

### **8.1.5 Alignment analysis: Technology strategy alignment with post-1991 corporate strategy**

**Analysis: Objective consistency**

The objectives of both strategies are not in conflict, but do not *entail* each other.

**Analysis: Prerequisite consistency**

The prerequisites are *consistent*, but they not *entail* each other.

**Analysis: Outcome consistency**

The outcomes of both strategies are *consistent*, but *entailment* does not hold.

**Analysis: Prerequisite-outcome inconsistency**

The *prerequisites* of the corporate strategy are *inconsistent* with the *outcomes* of the technology strategy (the ability to deploy efficiency and cost-cutting measures contradict the need to generate employment opportunities for a large workforce). The inconsistency holds in the reverse direction as well. The economic viability of intermediate-technology mining techniques potentially conflicts with the need to generate profits.

**Analysis: Resource consistency**

The resource requirements of the two strategies are *consistent*, but *entailment* does not hold.

Clearly, this pair of strategies does not satisfy the requirements of basic alignment and are categorically *misaligned*.

**8.1.6 Alignment analysis: Logistics strategy with post-1991 corporate strategy****Analysis: Objective consistency**

The objectives of both strategies are not in conflict, but do not entail each other.

**Analysis: Prerequisite inconsistency**

The prerequisites of both strategies are *inconsistent*. The need for maintaining an in-house logistics infrastructure can, in some instances, conflict with the need for being able to institute efficiency-enhancing and cost-cutting measures.

**Analysis: Outcome consistency**

The outcomes of the logistics strategy are consistent with the outcomes of the corporate strategy (but entailment does not hold).

**Analysis: Prerequisite-outcome consistency**

The *prerequisites* and *outcomes* of the two corresponding strategies are *consistent*, but they do not *entail* each other.

**Analysis: Resource consistency**

The resource requirements of the two strategies are *consistent*, but *entailment* does not hold.

Clearly, this pair of strategies does not satisfy the requirements of basic alignment and are categorically *misaligned*. Notice that in this instance, the requirement for basic alignment only because the prerequisites of the two strategies are in conflict - all the other strategy components are in fact consistent.

### **8.1.7 Alignment analysis: CRM strategy with post-1991 corporate strategy**

#### **Analysis: Objective consistency**

Given that there are no objectives specified for the CRM strategy, *objective consistency* holds. Mathematically speaking, *entailment* holds as well, since the empty set of preferences (the objectives of the logistics strategy) is by definition included in the set of preferences of the corporate strategy (which is non-empty).

#### **Analysis: Prerequisite consistency**

The prerequisites of both strategies are *consistent*.

#### **Analysis: Outcome inconsistency**

Maintaining a largely static (and captive) customer bases, an outcome of the CRM strategy, conflicts with the need to generate revenue and profit (an outcome of the corporate strategy).

#### **Analysis: Prerequisite-outcome inconsistency**

The availability of government financial subsidies (a prerequisite of the CRM strategy) conflicts the need to generate profits/revenue to cover all costs. In the reverse direction, however, the corresponding prerequisites and outcomes are arguably consistent.

#### **Analysis: Resource consistency**

The resource requirements of the two strategies are *consistent*, but *entailment* does not hold.

Clearly, this pair of strategies does not satisfy the requirements of basic alignment and are categorically *misaligned*.

#### **8.1.8 Alignment analysis: Finance strategy with post-1991 corporate strategy**

##### **Analysis: Objective consistency**

The objectives of the two strategies are consistent but do not entail each other.

##### **Analysis: Prerequisite consistency**

The prerequisites of the two strategies are consistent but do not entail each other.

##### **Analysis: Outcome inconsistency**

The outcomes of the finance strategy require that all finance requirements are met by government subsidies, but the outcomes of the corporate strategy require that these be met from revenue generation.

##### **Analysis: Prerequisite-outcome inconsistency**

The prerequisites of the finance strategy (government subsidies) conflict with the outcomes of the corporate strategy (costs and funds for expansion covered from revenue and profits generated). In the reverse direction, the prerequisites and outcomes are consistent.

##### **Analysis: Resource consistency**

The resource requirements of the two strategies are *consistent*, but *entailment* does not hold.

Clearly, this pair of strategies does not satisfy the requirements of basic alignment and are categorically *misaligned*.

#### **8.1.9 Mutual alignment between functional strategies**

We have seen how the pre-1991 functional strategies were mutually aligned in Chapter 7. That relationship of alignment continued to hold in the aftermath of the 1991 reforms, since the functional strategies themselves remained identical to their

pre-1991 versions. This was not the case with scenario-prerequisite alignment, as we shall see in the next subsection.

#### **8.1.10 Scenario-prerequisite consistency**

The aftermath of the 1991 economic reforms in India involved a dramatic shift in the business context (*scenario*) for CIL. This led to a number of pre-1991 functional strategies being rendered “out of synch” with this transformed scenario. In the vocabulary of the strategic alignment framework, this translates to *scenario-prerequisite inconsistency*. In the following, I will analyse each of the pre-1991 strategies (as well as the post-1991 corporate strategy) for scenario-prerequisite consistency.

**Post-1991 corporate strategy:** This satisfied scenario-prerequisite consistency. This is unsurprising, since it was formulated in the light of the transformed business context.

**Pre-1991 HRM strategy:** The scenario and prerequisites were inconsistent. Specifically, the availability of government subsidies was no longer true in the new business context.

**Pre-1991 pricing strategy:** The scenario and prerequisites were inconsistent. Specifically, the availability of government subsidies and the absence of competition were no longer true in the new business context.

**Pre-1991 production strategy:** The scenario and prerequisites were consistent.

**Pre-1991 technology strategy:** The scenario and prerequisites were inconsistent. Specifically, the economic viability of intermediate-technology mining techniques (conducive to inefficiencies and high labour costs) was no longer true in the new business context.

**Pre-1991 logistics strategy:** The scenario and prerequisites were consistent.

**Pre-1991 CRM strategy:** The scenario and prerequisites were inconsistent. Specifically, the availability of government subsidies and the absence of competition were no longer true in the new business context.

**Pre-1991 finance strategy:** The scenario and prerequisites were inconsistent. Specifically, the availability of government subsidies was no longer true in the new business context.

## **8.2 Discussion on alignment analysis : Additional observations**

It is useful to pause again and reflect on the alignment analysis achieved thus far. Three interesting observations emerge:

There are instances where alignment analysis reveals parts that are inconsistent and parts that satisfy entailment. For instance, while analysing the alignment between the post-1991 corporate strategy and the production strategy, we find that the outcomes of the two strategies are inconsistent (the corporate strategy outcome of generating revenue/profits to meet all costs and fund expansion conflicts with the production strategy outcome of selling coal at low, government-mediated prices). However, parts of the outcomes of both strategies are entailed by the outcomes of the other, simply because meeting domestic coal demand in India is an outcome of both strategies.

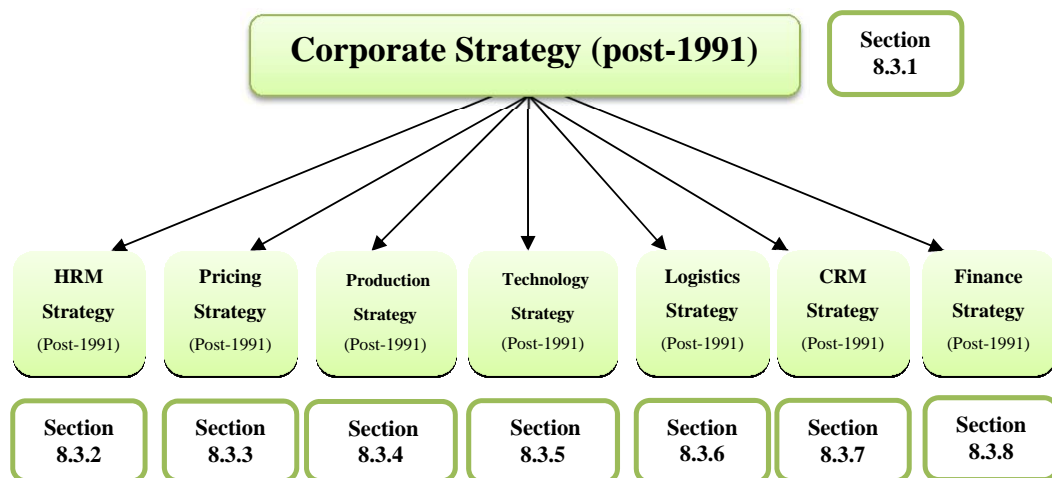
The analysis above suggests that in real-life enterprise contexts, alignment rarely finds a perfect fit within the conceptual constructs of *basic alignment* or *full alignment*. Many instances of alignment analyses presented in this chapter and the previous one lead to points in-between these two extremes of the alignment spectrum. Nevertheless, it is clear that these concepts form important elements of a comprehensive vocabulary for discussing the *extent of alignment*. *Full alignment* corresponds to an ideal *best-case* while anything worse than *basic alignment* is a clear indicator of *misalignment*.

The “detailed strategy description” component of the strategy description template is used on occasion to list the particular steps/interventions involved in the execution of the strategy - these might sometimes (but not always) be also listed in the strategic outcomes.

### 8.3 CIL in the recent period: Strategic Re-alignment at CIL

In this section, a strategic account is provided of the process that led CIL out of the period of instability. This was a period during which the various functional strategies were modified, in a manner that led to the resolution of many of the problems that had plagued the organization during its period of instability. There is no precise date to associate with this transformation – a series of changes were implemented in the early 2000s, and their impact felt soon after. The net upshot of these changes was that many of the business challenges facing CIL and its subsidiaries were resolved. BCCL and ECL came out of “receivership” (i.e., referral to the Board for Industrial and Financial Reconstruction). The business performance of CIL as a whole improved. This section will demonstrate that underpinning this business transformation was an exercise in strategic realignment. Through this exercise, the instances of misalignment highlighted in the preceding section were, by and large, resolved and the strategies restored to a state of alignment. Note that the transformations were at the level of functional strategies – the high-level corporate strategy (in part, mandated by the Ministry of Coal of the Government of India, and already modified to reflect the post-1991 economic context) was left intact.

Figure 8.1 provides a diagrammatic description of CIL’s recent strategic landscape.



### **8.3.1 High-level corporate strategy (post-1991)**

The remainder of this section will present the realigned functional strategies – the corporate strategy remains the one described in the previous section. This section will also present a detailed alignment analysis of the functional strategies, relative to the corporate strategy, and with respect to each other.

### **8.3.2 Human Resource Management strategy (post-1991)**

The current HRM strategy involves three key components. First, driven by an appreciation of the fact that CIL is over-staffed (Mehta, 2006), the goal is to achieve workforce reduction via attrition (Kumar and Singh, 2007). Thus, fresh recruitment has been reduced, so that natural attrition (retirements etc.) can lead to a reduction in the number of employees. The size of CIL's workforce fell from a peak of 700,000 in the pre-1991 period to about 450,000 around 2005 (Mehta, 2006). In 2005, the workforce attrition rate in CIL was 4.48% (Ghosh and Kishore, 2005). According to CIL's Draft Vision 2025 document, the workforce requirement for underground mining in CIL will be reduced to 153,492 by 2017 (note that this figure does not include open-pit mining). A key prerequisite for this is the availability of efficiency-enhancing technologies, and the funds to acquire these. According to the same Draft Vision 2025 document, this workforce reduction will coincide with 100% mechanization of underground mining operations, with the goal of reducing the total workforce across both underground and coal mining to about 340,000 by 2025 (Ghosh and Kishore, 2005).

CIL continues to invest heavily in employee welfare and its corporate social responsibility obligations. As of 2005, CIL offered housing to 409,340 employees, potable water to a population of 2,280,000, education to the children of its employees through 671 financially-supported educational institutions, healthcare through 87 hospitals (with a total of 5894 beds) as well as about 431 medical dispensaries (Ghosh and Kishore, 2005).



| Table 8.2: HRM Strategy (post-1991)  |  |
|--|--|
| Strategic Objectives   |  |
| Strategic Prerequisites  |  |
| Detailed Strategy Description  |  |
| Resource Requirements  |  |
| <ul style="list-style-type: none"> <li>Funds for technology acquisition</li> </ul> |  |
| Strategic Outcomes   |  |

Table 8.2 above structures and summarizes CIL’s post-1991 HRM strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).

**Alignment analysis: Post-1991 HRM strategy with post-1991 corporate strategy**

**Analysis: Objective entailment**

*Objective consistency* holds (the respective objectives do not conflict). Arguably, *objective entailment* holds as well. Maximising employee welfare (an objective of the HRM strategy) follows from the objective of maximising conformance to

national imperatives such as maximisation of employee benefits and employment opportunity generation (objectives of the corporate strategy). As well, minimising labour costs (an objective of the HRM strategy) follows from minimising the need for government subsidies (an objective of the corporate strategy)

**Analysis: Prerequisite consistency**

*Prerequisite consistency* holds, but *prerequisite entailment* does not hold.

**Analysis: Outcome entailment**

Lowering labour costs and employing a smaller workforce (outcomes of the HRM strategy) follow from the need to generate sufficient revenue to meet all costs (an outcome of the corporate strategy). As well, spending on employee benefit schemes (an outcome of the HRM strategy) follows from meeting corporate social responsibility obligations (an outcome of the corporate strategy). Thus, *prerequisite entailment* holds.

**Analysis: Prerequisite-outcome entailment**

*Prerequisite-outcome consistency* holds (both between the prerequisites of the corporate strategy and the outcomes of the HRM strategy and vice versa), but not *prerequisite-outcome entailment*.

**Analysis: Resource consistency**

The resource requirements of both strategies are consistent.

Given the above analysis, it is clear that these strategies satisfy the requirements of *basic alignment*.

### **8.3.3 Pricing strategy (post-1991)**

As discussed in the pre-1991 pricing strategy, the old model of administrative pricing for coal was entirely dismantled in 2000.

Since then, CIL's pricing strategy has reflected a mix of planned, government-mediated (but not government-determined) pricing and market-driven pricing. Coal sales to the core sector continue through the earlier linkage system – while CIL has the right to set prices (particularly to adjust for market conditions), there is

government oversight of the process (Ranganath, 2006). For the non-core sector, all coal sales occur through the e-auction mechanism (Majumdar, 2006).

Table 8.3 below structures and summarizes CIL’s post-1991 pricing strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).

| Table 8.3: Pricing Strategy (post-1991)   |  |
|---|--|
| Strategic Objectives  |  |
|   |  |
| <ul style="list-style-type: none"> <li>Government-approved market-based pricing mechanisms</li> </ul> |  |
| Detailed Strategy Description   |  |
|   |  |
| Resource Requirements   |  |
|   |  |
| Strategic Outcomes  |  |
|   |  |

## **Alignment analysis: Post-1991 pricing strategy with post-1991 corporate strategy**

### **Analysis: Objective consistency**

*Objective consistency* holds but not *objective entailment*. The (pricing strategy) objective of maximising revenue from coal sales follows from the (corporate strategy) objective of minimising the need for government subsidies. However, the (pricing strategy) objective of minimising exposure to market price volatility for the core sector does not follow from any corporate strategy objective.

### **Analysis: Prerequisite consistency**

*Prerequisite consistency* holds, but *prerequisite entailment* does not hold.

### **Analysis: Outcome consistency**

*Outcome consistency* holds, but not *outcome entailment*.

### **Analysis: Prerequisite-outcome consistency**

The prerequisites of each strategy are consistent with the outcomes of the other. Entailment does not hold.

### **Analysis: Resource consistency**

The resource requirements of both strategies are consistent.

Given the above analysis, it is clear that these strategies satisfy the requirements of *basic alignment*.

## **8.3.4 Production strategy (post-1991)**

Until the late 1990s, CIL's production strategy was able to meet its coal production requirements in full (Mehta, 2006). A key element of CIL's production strategy has been the improvement of workforce productivity, via a range of technology and mining process innovations (Mathur 2000). This has been quite effective. Workforce productivity in CIL, measured in terms of output in tonnes per manshift (OMS) rose from 0.58 tonnes in 1973 to 3.54 tonnes during 2005-2006 (Ranganath, 2007).

Outsourcing of mining activities has been introduced with considerable success, and has contributed to cost efficiency and an increase in absolute production levels

(Ranganath, 2007). Outsourcing has been identified as a key contributing factor in the turnaround in the business performance of CIL subsidiaries BCCL and ECL (Mehta, 2006). One aspect of this is the outsourcing of maintenance and repair contracts for Heavy Earth Moving Machinery (HEMM) in open-cast mines to the vendors of such equipment (Dhar and Sen, 2008). In subsidiaries such as BCCL, hired HEMM was deployed for coal production from isolated patches (Bhattacharya, 2006a). In BCCL, coal production from hired HEMM was 0.17 million tons in 2003-2004, but jumped to 2.39 million tons in 2005-2006 (Bhattacharya, 2006a). In ECL, mining on 17 patches was outsourced from 2003-2004 onwards (Chakraborty, 2006). 3.43 MT of coal was produced from outsourced patches in ECL during 2005-2006, leading to profits of Rs.3270 million (Chakraborty, 2006). The outsourcing of a range of other activities are under consideration, including underground mining operations (shaft sinking, incline drivage, construction of ventilation and isolation stoppings, laying and maintenance of conveyor belts and track lines, material transport from the surface to underground workfaces, drilling and blasting, spraying, cleaning, dusting and pumping) as well as support operations (operation of canteens, water supply, maintenance of workers housing, vehicle fleet management and security) (Debnath, 2008).

A key component of CIL's production strategy has been to put a larger proportion of its output through the coal beneficiation process. As of 2006, CIL had 19 coal washeries with a combined throughput capacity of 40 MT per year (with 12 washeries with aggregate throughput capacity of 20 MT per year for coking coal and the remainder for non-coking coal) (Kumar, 2007). CIL's strategy is to put all of its metallurgical coal output, plus all thermal coal not being used in pit-head power plants through the coal beneficiation process (Kumar, 2007).

CIL also adopted a strategy of only investing in new mines/projects which guaranteed an internal rate of return of 16% when operated at 85% capacity (Kulkarni, 2000) (Bhattacharya, 2006b).

In some instances, CIL chose to shut down unviable mines. For instance, the turnaround at CIL subsidiary ECL has been attributed in part to the suspension of mining operations in 26 mines (Chakraborty, 2006) either due to:

- Unviable costs, or
- Depletion of reserves, or
- Unacceptable safety conditions.

CIL has also placed a greater emphasis on open-cast mining, which is in general more cost effective than underground mining (Sharma, 2006). This applies to most CIL coal-producing subsidiaries except ECL and BCCL, which are obliged to rely mainly on underground mining because of the nature of their reserves.

The deployment of better technologies has also contributed to improved productivity and lower costs, but these will be dealt with separately in the discussion on CIL's technology strategy.

Table 8.4 above structures and summarizes CIL's post-1991 production strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).

### **Alignment analysis: Post-1991 production strategy with post-1991 corporate strategy**

Having presented alignment in some detail over the previous chapters and sections, I will abbreviate my presentation of this analysis on occasion in the following, when the results are relatively obvious.

#### **Analysis: Objective consistency**

*Objective consistency* holds but not *objective entailment*.

#### **Analysis: Prerequisite consistency**

*Prerequisite consistency* holds, but *prerequisite entailment* does not hold.

#### **Analysis: Outcome consistency**

*Outcome consistency* holds, but not *outcome entailment*.

#### **Analysis: Prerequisite-outcome consistency**

*Prerequisite-outcome consistency* holds, but not *prerequisite-outcome entailment*.

#### **Analysis: Resource consistency**

The resource requirements of both strategies are consistent.

Given the above analysis, it is clear that these strategies satisfy the requirements of *basic alignment*.

**Table 8.4: Production Strategy (post-1991)**

|                               |
|-------------------------------|
| Strategic Objectives          |
| Strategic Prerequisites       |
| Detailed Strategy Description |
| Resource Requirements         |
| Strategic Outcomes            |

### 8.3.5 Technology strategy (post-1991)

The deployment of innovative technologies is generally regarded as key to cost-effective production in CIL (Bhattacharya, 2006b). In the following, we will outline briefly some of the technological innovations that were introduced in CIL during the *period of realignment*. This discussion is necessarily brief since a detailed discussion of mining technology innovations is outside the scope of this dissertation. The discussion will address the two major categories of mining operations, open-cast mining and underground mining, separately.

**Open-cast mining:** A range of open-cast mining equipment (mainly HEMM), that represent the next generation of technology from the earlier mainstay of Shovel-Dumper systems, have been deployed in CIL in the post-1991 period. As of 2008, the following types of next-generation open-cast mining equipment were deployed in CIL mines (Singh, 2007) (the numbers in brackets represent the actual numbers of each equipment type deployed):

- Draglines (40)
- Hydraulic excavators (365)
- Surface miners (34)

Data is also available on the size of this equipment which shows a trend towards using larger sizes, which is generally recognized as leading to better cost efficiencies (Jha, 2009) (this data has been omitted here because of the technical complexity of the material, which also does not contribute to the main discussion).

**Underground mining:** The pre-1991 mainstay of underground mining technology was the Bord and Pillar method with Side-Discharge Loaders (SDLs) and Load Haul Dumpers (LHDs) (Dikshit, 2006). A small number of trials of Longwall mining technology were carried out in the pre-1991 period. Some modicum of new underground mining technology deployment took place in CIL in the period of realignment. In 2008-2009, of a total production of 43.96 MT from underground mining in CIL, 1.12 MT was mined using continuous miner technology and 0.58 MT was mined using mechanized Longwall technology (Singh, 2007). In the same year, the bulk of CIL's underground coal production was generated using the older mainstay – mechanized bord and pillar (with SDLs/LHDs) (Singh, 2007).



There has been a major shift in Coal India's technology strategy, where the focus earlier was largely on intermediate technology. This was primarily reflected in the underground mining sector where use of side-discharge loaders (SDL) was dominant. CIL used to insert explosives for blasting. Earlier this tough task was performed manually, but with better technology, this difficult process is executed by employing drilling and mining equipment. At present, nearly 60% of the country's total underground coal production comes from mechanised mining operations and nearly 78% of that production comes from SDL-based systems.

| Table 8.5: Technology Strategy (post-1991)   |  |
|--|--|
| Strategic Objectives   |  |
| Strategic Prerequisites  |  |
| <ul style="list-style-type: none"> <li>• Availability of funds for acquiring technologies</li> </ul> |  |
| Detailed Strategy Description  |  |
| Resource Requirements  |  |
| <ul style="list-style-type: none"> <li>• Availability of funds for acquiring technologies</li> </ul> |  |
| Strategic Outcomes   |  |

Table 8.5 above structures and summarizes CIL's post-1991 technology strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).

## **Alignment analysis: Post-1991 technology strategy with post-1991 corporate strategy**

### **Analysis: Objective consistency**

*Objective consistency* holds but not *objective entailment*.

### **Analysis: Prerequisite consistency**

*Prerequisite consistency* holds, but *prerequisite entailment* does not hold.

### **Analysis: Outcome consistency**

*Outcome consistency* holds, but not *outcome entailment*.

### **Analysis: Prerequisite-outcome consistency**

*Prerequisite-outcome consistency* holds (in both directions), but not *prerequisite-outcome entailment*.

### **Analysis: Resource consistency**

The resource requirements of both strategies are consistent.

Given the above analysis, it is clear that these strategies satisfy the requirements of *basic alignment*.

## **8.3.6 Logistics strategy (post-1991)**

In the following, I will refer to the notion of *over-burden* – this consists of the layers of soil and rock that must be removed in open-cast mines before the actual coal deposits can be accessed. Coal logistics for CIL involves the removal of coal and over-burden (over-burden is usually stowed in the immediate vicinity of the mine), the transportation of coal to railheads for subsequent transportation to client sites by Indian Railways as well direct transportation of coal by road to client sites (in some instances).

Much of the function of coal and over-burden removal has been outsourced (Jha, 2009).

As of 2006, nearly 60% of India's coal output was transported by Indian Railways (Sharma, 2006). Measures taken by Indian Railways, as well as coordination between CIL and Indian Railways therefore hold the potential to achieve a significant impact on the effectiveness of coal logistics. While some areas of concern remain in relation to rail-based coal logistics (Arora, 2006), Indian Railways have adopted several measures to improve coal logistics, including increasing train sizes, reduction of block distances for signalling, increasing speeds and throughput etc. (Sharma, 2006).

Table 8.6 below structures and summarizes CIL's post-1991 logistics strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).

| <b>Table 8.6: Logistics Strategy (post-1991)</b>  |  |
|---|--|
| <b>Strategic Objectives</b>   |  |
|   |  |
| <ul style="list-style-type: none"> <li>• Availability of appropriate logistics providers</li> </ul> |  |
| <b>Detailed Strategy Description</b>  |  |
|   |  |
| <b>Resource Requirements</b>  |  |
|   |  |
| <b>Strategic Outcomes</b>   |  |
|   |  |

## **Alignment analysis: Post-1991 logistics strategy with post-1991 corporate strategy**

### **Analysis: Objective consistency**

*Objective consistency* holds but not *objective entailment*.

### **Analysis: Prerequisite consistency**

*Prerequisite consistency* holds, but *prerequisite entailment* does not hold.

### **Analysis: Outcome consistency**

*Outcome consistency* holds, but not *outcome entailment*.

### **Analysis: Prerequisite-outcome consistency**

*Prerequisite-outcome consistency* holds (in both directions), but not *prerequisite-outcome entailment*.

### **Analysis: Resource consistency**

The resource requirements of both strategies are consistent.

Given the above analysis, it is clear that these strategies satisfy the requirements of *basic alignment*.

## **8.3.7 CRM strategy (post-1991)**

According to the World Bank Staff Appraisal Report, India Coal Sector Rehabilitation Project (p. 17): “Entering into contractual agreements with all its major consumers by September 30, 1998, Coal India will need to obtain contract provisions clearly specifying: (i) that payments for coal sales will be secured by commercially acceptable financial settlement measures including advance payment in cash or Letter of Credit (‘cash and carry policy’) and as per credit terms; and (ii) a precise description of the quality of coal to be supplied and the arrangement for independent analysis of deliveries, together with penalty and bonus clauses.”

In 2004, CIL subsidiaries sought to recover outstanding dues of Rs 40.86 billion (US\$882 million) from state electricity boards (SEBs) and other state-owned units which had accumulated over the previous decade. (2004-1-31 India Business Insight)

In pursuit of improved consumer satisfaction, CIL institutionalised its grievance redress mechanism and set up a “grievance cell” (2003-08-03 Financial Times, Business Line). This was an effort to ensure transparency, to improve customer relationship management and reap marketing dividends. The representations received at the cell are registered and acknowledged within three working days. The cell obtains comments/reports from the officer/company concerned and takes the necessary action to redress the complaint under the supervision of CIL management. Information about the grievance cell is provided on the CIL website. The position of receipt and disposal of grievance is reported at meetings of the Board of Directors of CIL on a regular basis. (2003-08-03 Financial Times, Business Line)

|  |
|--|
|  |
|  |
|  |
|  |
|  |

Table 8.7 above structures and summarizes CIL’s post-1991 CRM strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).

## **Alignment analysis: Post-1991 CRM strategy with post-1991 corporate strategy**

### **Analysis: Objective consistency**

*Objective consistency* holds but not *objective entailment*.

### **Analysis: Prerequisite consistency**

*Prerequisite consistency* holds, but *prerequisite entailment* does not hold.

### **Analysis: Outcome consistency**

*Outcome consistency* holds, but not *outcome entailment*.

### **Analysis: Prerequisite-outcome consistency**

*Prerequisite-outcome consistency* holds (in both directions), but not *prerequisite-outcome entailment*.

### **Analysis: Resource consistency**

The resource requirements of both strategies are consistent.

Given the above analysis, it is clear that these strategies satisfy the requirements of *basic alignment*.

## **8.3.8 Finance strategy (post-1991)**

In the pre-1991 period, CIL's budgetary needs were met entirely by the Government of India (via the Ministry of Coal) plus internal accruals from CIL (Kulkarni, 2000). A small proportion of CIL's finances were raised via borrowings from the World Bank and commercial lenders.

In 2008, CIL achieved “*Navratna*” status (2008-10-23 PTI). The word “*Navratna*” translates to “nine jewels” in Sanskrit, and is used in the context of Indian PSUs to confer elite status. Earlier, CIL had “mini-ratna” status, which was one step below “*Navratna*” status. CIL was the 18<sup>th</sup> PSU to become a member of that elite club.

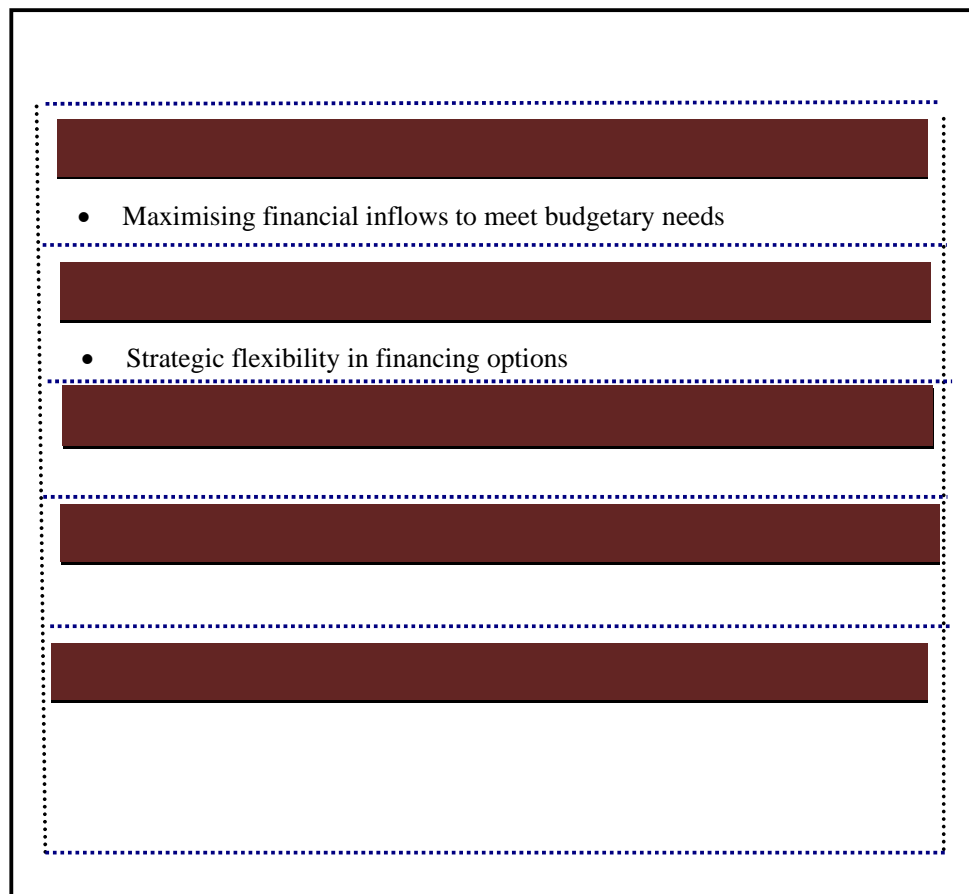
Navratna status enables a PSU to:

- Enjoy better financial and administrative autonomy.
- Enjoy more freedom in making investment on its own

- Be able to approve capital expenditure projects entailing an investment of up to RS 1000 crore against RS 500 crore now.
- Have the authority to form joint ventures without going through the long-drawn process of ministerial approval, which earlier resulted in loss of many overseas min acquisition opportunities.

A range of funding sources therefore became available for CIL to craft into a dynamic financing strategy, including (Kulkarni, 2000):

- Central and state government budgets
- Development financial institutions within India, including State Industrial Development Corporations (almost every state in the Indian Union has one), State Finance Corporations, sector-specific funding agencies etc.
- Multi-lateral lending agencies
- Equity from Indian capital markets
- Debt from Indian capital markets



In 2008, CIL announced that it would come out with an IPO (Initial Public Offer) within 3 years (2008-10-27 Money Matter). The eventual IPO in 2010 was generally regarded as very successful.

Table 8.8 above structures and summarizes CIL's post-1991 finance strategy (as with earlier strategy descriptions, this was obtained from a combination of published material and consultation of CIL sources).

### **Alignment analysis: Post-1991 finance strategy with post-1991 corporate strategy**

#### **Analysis: Objective consistency**

*Objective consistency* holds but not *objective entailment*.

#### **Analysis: Prerequisite consistency**

*Prerequisite consistency* holds, but *prerequisite entailment* does not hold.

#### **Analysis: Outcome consistency**

*Outcome consistency* holds, but not *outcome entailment*.

#### **Analysis: Prerequisite-outcome consistency**

*Prerequisite-outcome consistency* holds (in both directions), but not *prerequisite-outcome entailment*.

#### **Analysis: Resource consistency**

The resource requirements of both strategies are consistent.

Given the above analysis, it is clear that these strategies satisfy the requirements of *basic alignment*.

### **8.3.9 Mutual alignment between functional strategies**

Juxtaposing the strategy description templates of each of the functional strategies suggests that most of the strategy components satisfy *consistency* while some satisfy *entailment*. Overall, this means that the functional strategies satisfy the requirement of *basic alignment* with respect to each other. I do not provide detail here, since much of it would be repetitious given the previous analysis presented in this chapter.



### 8.3.10 Scenario-prerequisite consistency

This can be summarized simply by noting that, in much the same spirit as the discussion on scenario-prerequisite consistency in the preceding chapters and sections, the prerequisites of each of the strategies discussed above satisfy *scenario-prerequisite consistency* and in most cases *scenario-prerequisite entailment* as well. This is unsurprising, given that these revised (post-1991) functional strategies as well as the post-1991 corporate strategy were formulated with the modified business context in mind. As discussed earlier, unlimited financial support for PSUs was no longer possible. PSUs were to be driven by market forces. Market-driven pricing became possible. Competitive pressures emerged and gradually increased. Workforce reductions (via attrition) became more acceptable. The purchase of higher-end and non-indigenous technology was more freely permitted. CIL's recent strategies align well with this business context.

Figure 8.2 provides a diagrammatic description of CIL's post-1991 strategic landscape after re-alignment.

## 8.4 Discussion

This chapter and the preceding two represent a detailed validation of the conceptual framework developed in Chapter 5 and extended in Chapter 7. The utility of the conceptual framework has, I believe, been conclusively established. None of the approaches to strategic alignment reviewed in Chapter 3 offer a vocabulary that permits us to explain via structured documentation and a clear analysis methodology: (1) why an organisation such as CIL might under-perform at certain times and (2) why an organisation such as CIL might perform well at certain other times. These two questions go to the heart of the strategic alignment challenge that the management community has grappled with for longer than half a century. None of the conceptions of strategy reviewed in Chapter 2 support a means for documenting strategies in a structured but domain-independent (and industry vertical-independent) fashion that would enable analysis of this kind. My findings clearly point to the fact that my framework is able to explain organisational performance by using this precise and actionable conception of strategic alignment. I have been able to establish, in the instance of the case study of CIL, that poor business performance and business instability correlates with periods where the strategies are misaligned (with respect to each other and with respect to the business context) while business stability and superior performance correlate with periods when the strategies are aligned. By being able to *explain* business performance using this framework, it is reasonable to expect that this framework will be effective in also *predicting* business performance using a vocabulary of strategic alignment.

## 8.5 Chapter summary

This chapter has been an exercise in establishing the utility of the conceptual framework for strategic alignment presented in the previous chapter. It is important to observe that this framework has offered us a comprehensive and coherent vocabulary for a discourse on the strategic transformation at CIL over the last 3 decades. Absent this framework, such a discussion would have been confusing, and would have had to make frequent appeals to intuition (as much of the existing literature on strategic alignment often does).

It is important to observe that our preceding analysis suggests that this case cannot be adequately explained as being merely an instance of organizational (or strategic) response to an altered business context, but is fundamentally an account of strategic re-alignment.

This chapter and the preceding two offer answers to the final research question posed in this dissertation, RQ3 which was formulated as follows: *How can the framework be used as a model to explain (and inform) business performance, and strategic transformation in the face of change?*.

The stage is now set for making concluding remarks in the next chapter.

## **CHAPTER 9: CONCLUSIONS**

This chapter summarizes the contributions of this dissertation, as well as its limitations. It also offers some pointers to further development of this framework, and directions for future research.

### **9.1 Overview of the research**

This dissertation addresses several clearly identified gaps in the literature. First, the literature suffers from a lack of systematization. The general problem of alignment has been formulated in a variety of different ways. In some instances, alignment is viewed as a relation between a strategy and firm's resource base (sometimes described as fit) and in some others, alignment is used to describe the relation between a strategy and a business context. Second, the literature offers little by way of conceptual underpinnings or methodological support for the analysis of alignment. The bulk of the literature on strategic alignment (including its many variations and manifestations, referred to above, and discussed in detail later) offers a range of alternative conceptualizations of the notion of alignment, but stops short of extending these to obtain actionable guidelines on how to look at a given organizational setting and determine whether the strategies in question are aligned.

This dissertation addresses these gaps in the literature. I contribute to the systematization challenge by offering a single coherent formulation of the strategic alignment problem and by offering a systematic means for documenting strategies to make these amenable to the analysis of alignment discussed above. This scheme for documenting strategies does not require a commitment to a particular philosophical position on the true nature of strategy (whether these can only be long-term, whether these can be functional area-specific, whether these must only pertain to market positioning or firm resources, what demarcates strategies from tactics and so on). The view I adopt is agnostic to all of these distinctions, and only obliges us to describe a strategy in terms of a basic set of ontological constructs.

I address the lack of methodological guidelines by offering precisely these, in a manner that leverages the systematic scheme for documenting strategies. These guidelines, I argue, helps make the analysis of alignment less of an “art” and more of a systematic, repeatable procedure.

Specifically, this thesis addresses the following research questions:

RQ1: What is an adequate vocabulary for describing strategies in their most general form?

RQ2: How can strategic alignment be defined in a manner that supports the analysis of alignment, leveraging vocabulary developed to address RQ1? How can the conceptual framework provide guidance on how to achieve alignment?

RQ3: How can the framework be used as a model to explain (and inform) business performance, and strategic transformation in the face of change?

This research was conducted over three phases: framework building, framework testing and framework refinement. As part of the framework building phase, an initial scheme for documenting strategies, a definition of strategic alignment based on this scheme, and a vocabulary for describing varying degrees of alignment were developed. These are presented in Chapter 5. A case study was then conducted, for the purposes of framework testing. Coal India Limited (CIL), the world’s largest coal producer, was the subject of the case study.

## **9.2 Research contributions**

As has been noted in Chapters 1 and 2, there is a wide diversity of conceptions of strategy. The work of Drucker (1954), Chandler (1962), Andrews ( 1971), Ansoff (1965), Hofer and Schendel (1978), Mintzberg (1987a), Rumelt (1991), Hamel and Prahalad (1989), Ohmae (1982), Porter (1985, 1996) provide representative examples. In a similar vein (as discussed in Chapters 1 and 3), there is also a wide variety of conceptions of strategic alignment. The work of strategy (Henderson and Venkatraman, 1990; Baets, 1996; Henderson and Venkatraman, 1993; MacDonald, 1991; Parker *et al*, 1988; Powell, 1993; Sledgianowski and Luftman, 2005; Luftman,

Lewis and Oldach, 1993; Chan *et al*, 1996; Shin, 2001; Tallon *et al*, 2000; Kearns and Lederer, 2003; Prahalad and Krishnan, 2002; Loebbecke and Wareham, 2003; Pollalis, 2003; Bai and Lee, 2003; Eck *et al*, 2000; Maes *et al*, 2000; Burns, 2000; Hirschheim and Saberwal, 2001) constitute representative examples.

This dissertation contributes to scholarship of strategy and strategic alignment in several important ways. *First*, it systematizes a diversity of distinct conceptions of strategy by offering a simple, yet general, scheme for documenting strategies. *Second*, it systematizes a diversity of alternative conceptions of strategic alignment, by offering a uniform formulation of the problem as one of alignment between a set of strategies. While this formulation does not subsume all of the other conceptions that exist in the literature, it is general enough to subsume several. *Third*, it offers a specific definition of alignment between a set of strategies. *Fourth*, it offers a mechanism for using this definition to analyse whether a set of strategies are aligned. *Fifth*, it validates the scheme for documenting strategies (the vocabulary), the definition of alignment and the mechanism for analysing alignment using a detailed case study.

The research presented here fills several significant gaps in the repertoire of tools available to practitioners engaged in strategic management. Such practitioners are typically managers within firms charged with formulating and implementing the firm's strategies, or consultants engaged in the business of offering advisory services to firms on the best strategies to pursue and the best means of pursuing them.

A key challenge faced by such practitioners is devising a standard means of documenting and describing strategies, both for the purposes of effectively communicating these to key stakeholders and also for enabling the analysis of alignment between strategies. The *first contribution* of this dissertation is in offering a simple, yet practical, vocabulary for documenting strategies. Another challenge for practitioners is being able to analyse alignment using a structured and principled mechanism, as opposed to leveraging experience or largely tacit knowledge, as is often currently the case. A structured alignment analysis technique also makes it easy for practitioners to explain their analysis to other stakeholders. The *second contribution* of this research is to make such a technique available to practitioners.

Identifying what needs to be done to “fix” misalignment is another challenge for practitioners (who, once again, typically take recourse to experience and tacit knowledge). The *third contribution* of this research is to support the process of identifying strategic “fixes” – these naturally emerge from the vocabulary for alignment analysis presented here.

### **9.3 Limitations of the research**

There are important problems which fall within the ambit of the literature on strategic alignment for which this dissertation *does not* offer solutions. For instance, I do not address the problem of alignment between strategy and organizational structure. I do not offer solutions to the problem of analysing alignment between corporate or business strategy on the one hand and the resource base of an organization, on the other. For instance, I do not offer solutions to the problem of strategic alignment of the human resource base of an organization. However, I do offer solutions to the problem of analysing alignment between corporate and human resource strategy. Ultimately, as discussed earlier, I offer solutions to the problem of analysing alignment between strategies, but not between a strategy and another aspect of an organization that is not easily articulated in terms of a strategy.

### **9.4 Directions for future research**

There are several important ways in which this research might be extended. Additional case studies might generate deeper insights about the conceptual framework. A recent proposal (McGrath, 2013) makes an important case for overturning traditional assumptions about the temporal scope of the strategy formulation and execution processes. Traditionally, strategies would be formulated with the understanding that these would then guide the firm’s behaviour for prolonged periods of time (months if not years). Strategies would consequently be revised/re-formulated on an infrequent basis. This proposal argues that, given the way the current business environment has evolved, opportunities for leveraging competitive advantage are transient.

This observation has important implications for the manner in which strategies are formulated, executed, monitored, assessed and revised. Importantly, this means that the *strategy life-cycle* will need to be much shorter, and necessitate fast reaction to changing market conditions. This is, arguably, most important for the market-based view, wherein market positioning responses would have to be much faster. While internal firm capabilities and resources have not been dynamic enough in the past to warrant the use of the word “transient”, that too might change in the new business environment. The relational view of strategy is also impacted, given that business networks are also increasingly becoming transient, with virtual enterprises forming and disbanding with great rapidity. Most importantly, it will be interesting to explore whether the conceptual framework presented in this dissertation will require further refinement in the light of these observation.



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## **Appendix A**

A total of six individuals from CIL were consulted as part of this research.

They were from the following levels of the organization:

- [1]: Director-level at CIL Headquarters
- [2]: Director-level at a CIL subsidiary
- [3]: Director-level at a CIL subsidiary
- [4]: Senior Manager-level at CIL Headquarters
- [5]: General Manager-level at CIL Headquarters
- [6]: Senior Engineering Executive-level at CIL Headquarters

Each of these individuals was selected for their length of association with CIL. Each of them had experience in CIL spanning the entire temporal scope of this study. Each of these individuals also had the seniority to be able to confirm my analysis of CIL's strategies based on published sources.

All of these individuals verbally agreed to assist with this research.

The specific timelines of these consultations were as follows:

- [1]: One meeting lasting an hour in December 2007.
- [2]: Multiple meetings, each lasting about 2 hours, over April and December 2006, December 2007, April 2010 and October 2011.
- [3]: Multiple meetings, each lasting about 2 hours, over April and December 2006, December 2007, April 2010 and October 2011.
- [4]: Several meetings, lasting about an hour each, in December 2007 and October 2011.

All of these consultations took place in Kolkata, India, which is also the location of CIL's Headquarters.



[5] and [6] were not met face-to-face, but provided written confirmation that the final populated strategy templates were a correct representation of the historical record. [2], [3] and [4] also provided written confirmation along similar lines.