An Exploration of External Environmental Scanning and the Strategy Process

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Abstract

This thesis is concerned with ways in which organisations scan their external environments and how this scanning is related to the process by which they make and implement strategy. The aim of this thesis is to use a qualitative approach to elaborate on existing theory relating to external environmental scanning and to consider its relationship with the strategy process.

Prior academic literature bases for strategy process and for environmental scanning were reviewed and synthesised. From this an integrated conceptual framework incorporating strategy process, environmental scanning and the external environment was proposed.

Seven case studies, encompassing small, medium and large businesses, were selected for empirical study using a theoretical sampling approach. Qualitative data from interviews and secondary sources were collected and in-case analyses conducted for each organisation, the final outcome of which was a causal network of factors that resulted in scanning of the environment in each organisation. A validation exercise that involved feeding back parts of the analysis to selected respondents suggested that the analysis was robust.

The cross-case analysis revealed that size of organisation had a significant impact on various aspects of scanning activity, including scope, mode and formality of scanning. The impact of perceived environmental uncertainty on scanning was affected by both company size and type of uncertainty. The research uncovered six drivers of scanning activity that were present in different ways depending on the strategic approach of the organisation. Finally, with the integrated conceptual framework as a foundation, a model of environmental scanning and the strategy process was developed using empirical evidence from the seven causal networks.

This research contributes an understanding of how and why environmental scanning activity relates to the strategy process in organisations. In addition, this research contributes to knowledge of environmental scanning through its qualitative, multiple-case study approach and its perspective on scanning as an organisational rather than an individual activity.

Dedication

I would like to dedicate this thesis to my grandmother, Jess Vincent, who has always been sure of my abilities, even when I have not.

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There are a number of people to whom I owe my thanks, for their input, support and perseverance at various stages in the research process. I am not able to list them all here.

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List of Abbreviations

IO	Industrial organisation
KBV	Knowledge-based view of the firm
PEU	Perceived environmental uncertainty
RBV	Resource-based view of the firm
SBU	Strategic business unit
TCE	Transaction cost economics

Glossary of Terms

Strategic management	The academic field that studies how firms gain and sustain competitive advantage over time.
Strategic planning	The formulation of objectives, and strategies to achieve them, through examination of both the external environment of the firm and the internal resources and capabilities available. Referred to as 'strategy formulation' by some scholars.
Strategy process	The process, whether formal or informal, through which strategic management occurs. An organisational process in which a small or large number of individuals may be involved.
Strategic decision	A single decision undertaken individually or collectively as part of the strategy process.
Strategic activity	An activity undertaken by an individual or a group of individuals that contributes to the strategy process of the organisation. Five areas of strategic activity are developed in Section 2.6.
External environment *or* Environment	Factors outside the organisation that have some bearing on its operations.
Environmental scanning *or* Scanning	The gathering of information concerned with the external environment. Involves both passive observation and active gathering of information by employees. Not confined to information sought for decision-making purposes, nor to information that is reported formally. Information gathered through scanning may or may not be analysed.

Environment sector	A part of the organisation's environment. Six sectors are used in the present research, developed in Section 3.4.2.
Scanning scope	An assessment of the breadth (narrow versus wide) of an organisation's environmental scanning activities.
Scanning mode	The medium through which information on the environment is gathered. Four scanning modes are discussed in Section 3.4.2.
Scanning driver	Motivation for, or a reason for, scanning the environment, developed in section 7.5.1.
Perceived environmental uncertainty	Uncertainty, experienced by a manager or a group of managers, about some aspect of the external environment. Divided into three uncertainty types in Section 3.3.1.
Causal network	A display of the most important independent and dependent variables in a case and the relationships among them. Relationships depicted are causal, in that X causes Y or exerts some influence on Y (Miles and Huberman, 1994).

Chapter 1:   Introduction

1.1   Research motivation

This thesis is concerned with ways in which organisations scan their external environments and how this scanning is related to the process by which they make and implement strategy.

The research is motivated by observations made by the researcher during the development of a postgraduate executive programme for managers in a large oilfield services company. It was noted during some investigatory discussions with senior executives in the company that managers gathered information from a variety of sources on a number of different aspects of their external environments. This is consistent with the picture presented by a large body of research conducted on environmental scanning.

It was also noted that it was not always clear to the researcher, nor indeed to managers in that company, why the information was being gathered or for what purpose. Thus the present research was motivated by an empirically observed yet anecdotal phenomenon: that scanning of the environment was sometimes an unstructured exercise, and that the link between scanning and the strategy process in an organisation was not always immediately apparent.

1.2   Research aim and design

The aim of this research is to examine how and why organisations scan their environments and how this relates to their strategy processes. This is broken down into a number of sub-questions as follows.

- How do organisations scan their environments?
- What motivates organisations to scan their environments?
- What is the impact of perceived environmental uncertainty on scanning?
- How is scanning activity linked with the rest of the strategy process?

At this point in the thesis it is sufficient to say that the intention is to explore the relationship between environmental scanning and the strategy process and that the approach taken is qualitative in nature. Developing and answering these research questions was accomplished in three stages: the theoretical foundation, the empirical stage and the research outcomes. This is summarised in Figure 1.1.
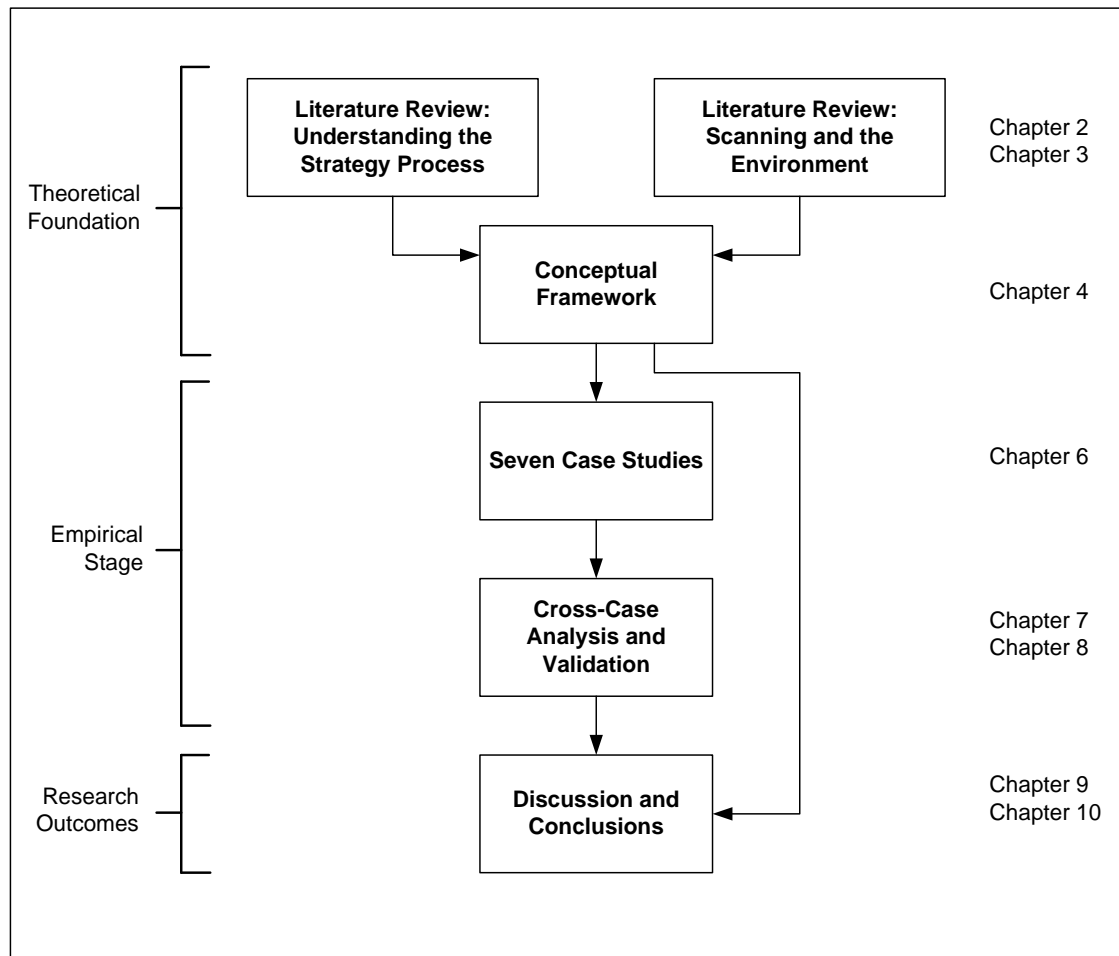
Figure 1.1: Research design

The theoretical foundation consists of a review of literature on strategy process and a review of literature on environmental scanning and the external environment. The outcome of these reviews is the development of a conceptual framework that integrates ideas from the two bodies of research. This conceptual framework has been used to structure data collection for the empirical stage of the research.

The empirical stage of the research involved collection of qualitative data from seven organisations. These cases were analysed individually and then examined as a whole. The empirical work was validated by re-approaching some of these organisations as the cross-case analysis was nearing completion. The outcome of the analysis was a model of environmental scanning and the strategy process that showed the strength and nature of links between environmental scanning and various aspects of the strategy process.

Finally, outcomes of the analysis were discussed and examined in relation to the existing literature. This allowed the development of seven propositions that summarise

the stance of the present research with regard to environmental scanning and strategy process issues.

1.3   Research contribution

While a significant body of knowledge exists with regard to both strategy process and environmental scanning, there is no overarching paradigm concerning the strategy process and there is a lack of clarity about the way in which environmental scanning is related to the strategy process within organisations.

Furthermore, much of the existing research is quantitative in nature and proposes general relationships between environmental scanning and a number of variables internal and external to the organisation. The quantitative survey-based approach has contributed much to knowledge of environmental scanning and some of the influences on scanning activity, but what it contributes in generalisability it may lose in detail and explanatory power.

The opportunity exists for a qualitative exploration of environmental scanning activity and the relationship this has with an organisation's strategy process. The present research is designed to take advantage of that opportunity. It is of note that a recent editorial in the *Strategic Management Journal* (Bettis, Gambardella, Helfat and Mitchell, 2015) advocated such an approach to theory development in the field of strategic management, thus providing support for the research design.

This research contributes to knowledge of how and why environmental scanning is conducted in organisations and its relationship with the strategy process. While findings are broadly consistent with existing literature, the qualitative approach has allowed the researcher to identify a number of areas where prevailing logic does not hold or requires qualification.

The strength of the qualitative approach is that it has enabled the researcher to take existing theory and examine how things work in practice. Thus the approach is one of *theory elaboration*.

1.4   Thesis structure

This thesis is presented in ten chapters, the first being this introductory chapter in which the motivations, aim, research design and contribution have been discussed.

Chapters 2, 3 and 4 cover the theoretical foundation of the research. The first of these chapters reviews literature in the field of strategic management with the intention of developing a conceptual framework of strategy process elements that acknowledges the diverse nature of this field. Chapter 3 reviews literature on environmental scanning and the external environment, developing a framework of scanning and the external environment. Chapter 4 brings together the ideas developed in Chapters 2 and 3, proposing the research aim and the questions that need to be answered to achieve that aim and developing an integrated conceptual framework to guide the empirical stages of the research.

Chapter 5 acts as a bridge between the theoretical and empirical stages of the research, detailing the research design and the methods used to answer the research questions. Issues such as sampling, data collection and data analysis techniques are also addressed.

Chapters 6, 7 and 8 are concerned with the empirical stage of the research. Chapter 6 contains the in-case analyses for each of the seven case studies conducted. Chapter 7 consists of a cross-case analysis, in which a number of new ideas and models are presented. Chapter 8 briefly discusses findings from the validation exercise carried out as the cross-case analysis was being completed.

Chapter 9 contains a discussion of the empirical findings in light of the literature reviewed in earlier chapters, ending with a set of seven propositions that represent the final outcome of the research. Chapter 10 provides the final conclusions, considering in more detail the contribution made by the present research. Issues such as limitations and ideas for future research are also examined.

1.5   Conclusion

This first chapter has provided some insight into the motivation for and the aim of the present research. Everything mentioned above is explored in greater detail in the following chapters.

Chapter 2: Understanding the Strategy Process

2.1 Introduction

The field of strategic management has grown from small origins in the early 1960s to a major component of management research in recent decades. Research in the field seeks to identify how firms gain and sustain competitive advantage over time. There are different approaches to addressing this question, and the field is diverse in nature, drawing on a number of other disciplines, such as economics, psychology and sociology (Hoskisson, Hitt, Wan and Yiu, 1999; Hambrick, 2004). However, after 50 years of research the field has no single unifying paradigm.

A number of researchers have tried to define and classify the field through comprehensive literature reviews (Hoskisson *et al.*, 1999; Mintzberg, Ahlstrand and Lampel, 2009), through qualitative or quantitative analysis of published works (Nag, Hambrick and Chen, 2007; Furrer, Thomas and Goussevskaia, 2008; Nerur, Rasheed and Natarajan, 2008), or through surveys of strategic management scholars' views (Nag *et al.*, 2007). None of these works have managed to provide a universally accepted definition of strategic management. It is of note at the time of writing in early 2015 that the *Strategic Management Journal* is calling for reviews of the field and proposals for future directions of research, suggesting that some consolidation and re-examination may be required.

While some would argue that a single unifying paradigm is undesirable (Pettigrew, Thomas and Whittington, 2002), the lack of such a definition poses a problem for a researcher seeking to investigate a particular organisation or industry, given the range of models available.

The intention in this chapter is to use a review of literature to better understand the strategy process, the outcome of which is a framework that identifies five key areas of strategic activity. This can be used in conjunction with the review of scanning and environment literature in Chapter 3 as a basis for the integrated conceptual framework developed in Chapter 4. The conceptual framework guides the empirical stages of the present research.

This chapter takes a historical approach to the field of strategic management, which has evolved from the contingency approach of early researchers, through an influx of

industrial and organisational economics-based research, to the resource-based view of the firm and the dynamic capabilities framework. Major contributions have also come from sociology and have spawned the debate on strategy process versus strategy as practice (e.g. Whittington, 2007). Each of these contributions to the field is examined in the following sections.

2.2 Early research and definitions of terms

The early works in the field of strategic management were developed in the 1960s, principally through the research of a small number of American academics. Previous work in this area was known as 'business policy'. Researchers in the field tended not to see themselves as policy specialists and saw the task of management as one of providing and implementing policies for best achieving some predefined objectives; they took the determination of these objectives as given, as observed by Schendel and Hofer (1979).

Chandler (1962) was the first to publish a large-scale study of the management of organisations. The work was structured around an in-depth longitudinal analysis of four large US-based firms. In his definition of strategy he took an important step by including the formulation of objectives as part of the strategic problem:

> *'the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals.' (1962, p13)*

Chandler's research established that strategy and structure were inherently related. Changes in a firm's strategy, which may arise from a new opportunity or some other change in the organisation's external environment, create new management issues, and new structures are then put in place to deal with these issues. These structures may also constrain future strategies. Chandler placed heavy emphasis on the role of the manager in finding and driving strategy.

Two other texts published in the same period complement the work of Chandler. Ansoff (1965) contributed a number of additional themes to the field of strategy, including synergy, scope, competitive advantage and the growth vector. The growth vector model takes into account not just the internal workings of the firm but also the

external economic environment. These ideas developed by Ansoff remain central issues in strategy today.

Ansoff defined the strategic problem as comprising a number of questions to be addressed by managers, specifically:

> *'what are the firm's objectives and goals; should the firm seek to diversify, in what areas, how vigorously; and how should the firm develop and exploit its present product market position?' (1965, p24)*

This contrasts with Chandler's definition in that it focuses on the interaction of the firm with its external environment. Chandler (1962) was more concerned with the internal resources of the firm and how they could best be allocated. The two definitions are in fact complementary as it is not possible to examine strategy satisfactorily purely from an external or internal viewpoint, given that the two are inextricably linked. One of the issues with later research in the field is that it often focuses on the external at the expense of the internal or vice versa. This will be seen below as more recent bodies of research are examined.

The third and final work that formed the base of the strategic management field is that of Andrews (in Learned, Christensen, Andrews and Guth, 1965), which drew together a set of cases from Harvard Business School. Andrews made a number of further contributions to the field, including the distinction between corporate strategy and business strategy, the former defining the business in which the firm should be, and the latter being concerned with how the firm should behave once present in a given business. Andrews also provided a useful definition of a strategic decision:

> *'one that is effective over long periods of time, affects the company in many different ways, and focuses and commits a significant portion of its resources to expected outcomes.' (1965, p105)*

It is the pattern of these decisions over time that makes up the firm's strategy, and it is the process within which these decisions are taken that makes up the firm's strategic management process. Finally, Andrews made the important distinction between strategy formulation and implementation but characterised the two activities as part of a greater continuous process of strategic management. The recognition of strategy as a

continuous process is an important part of later research in the field. The nature of the strategy process itself is a core part of the present research.

There are some significant limitations to the early research in the field. Examination of the early work on strategy, for example, reveals that the distinction between positive and normative statements is sometimes blurred. Positive statements are concerned with what is (i.e. facts) and are descriptive in nature. Normative statements tell us what ought to be, are based in values rather than facts, and are prescriptive rather than descriptive in nature.

Chandler (1962) observed what happened in some large organisations and looked for similarities and differences between them. No propositions of best practice were made, perhaps due to his background as an historian. Andrews (in Learned *et al.*, 1965) and Ansoff (1965), on the other hand, attempted to identify what managers actually did, implying that what was observed was best practice for dissemination to other managers and academics alike.

This blurring of positive and normative research crosses what has become known as Hume's guillotine (in Blaug, 1992), and it is a philosophical issue to decide if it is possible to deduce what ought to be from what is. The current research approaches strategy as it is, and seeks to investigate what actually happens inside the organisations studied. It does not attempt to disseminate 'best practice' or propose an ideal approach for an organisation.

Two other early works of note are that of Rumelt (1974) and that of Miles and Snow (1978). Rumelt's work consciously built on the earlier work of Chandler (1962), investigating the relationship between strategy, structure and performance in organisations. His methods were quantitative and took in a much larger number of organisations over a 20-year period. The results of this exercise were more easily generalisable due to the wider scale of the research. This was part of a first step towards a more quantitative approach to strategic management research, as observed by Hoskisson *et al.* (1999).

Miles and Snow (1978) conducted an empirical study of organisations and how they adapt to changes in the external environment. They proposed what they termed a three-step 'adaptive cycle' comprising the managerial solution to three central problems.

First comes the entrepreneurial problem, which represents the question of which markets to be in and what products to offer. Second, the engineering problem, or how to operationalise the solution developed in response to the entrepreneurial problem. Third, the administrative problem, which is concerned with processes within the organisation. The empirical observations of Miles and Snow led to the development of four categories of firm based on how the firm dealt with the adaptive cycle: defender, prospector, analyser or reactor. Their work approached the organisation as an entity that adapted to its external environment in a number of different ways. The work of Porter (1980), which is discussed below, built on this idea.

Despite limitations the early works provide us with a number of working definitions that will be used consistently through the rest of this thesis, and the following terms can now be defined. *Strategic management* is understood to describe the activity or set of activities through which the organisation is managed, and refers to a number of distinct activities as follows:

- *Strategic planning* refers to the formulation of objectives, and strategies to achieve them, through examination of both the external environment of the firm and the internal resources and capabilities available. This may also be referred to as 'strategy formulation' by some scholars.
- *Strategy implementation* refers to the process of putting into practice those strategies that have been chosen through the strategic planning process.
- The *strategic decision-making process* or *strategic management process* is the process, whether formal or informal, through which strategy formulation and implementation occur. While some scholars distinguish between individual and organisational decision-making processes (e.g. Nutt, 2011), the intention of this research is to treat strategy as an organisational process in which a small or large number of individuals may be involved. The term used to describe this process will be the *strategy process*.
- A *strategic decision* refers to a single decision undertaken, either individually or collectively, as part of the strategy process.
- A *strategic activity* refers to any activity undertaken by an individual or a group of individuals, either formally or informally, that contributes to the strategy process of the organisation.

The idea of the strategy process is core to the present research, and the intention in this chapter is to develop a framework to be used for the empirical study of the strategy process. To accomplish this an early model of the process is examined and then adapted in light of more recent research in the field.

2.3   Strategy as a process

This section examines an early model of the strategy process along with some alternative views. At the end of this section some initial changes to the original model are proposed. These are developed further later in the chapter.

2.3.1   Outlining the strategy process

A significant advance in strategy research was made by Schendel and Hofer (1979), who proposed a more detailed model of the strategy process. While the work of early scholars had moved the field on from the business policy area, no one had at that point explicitly examined and categorised the activities that make up the strategy process.
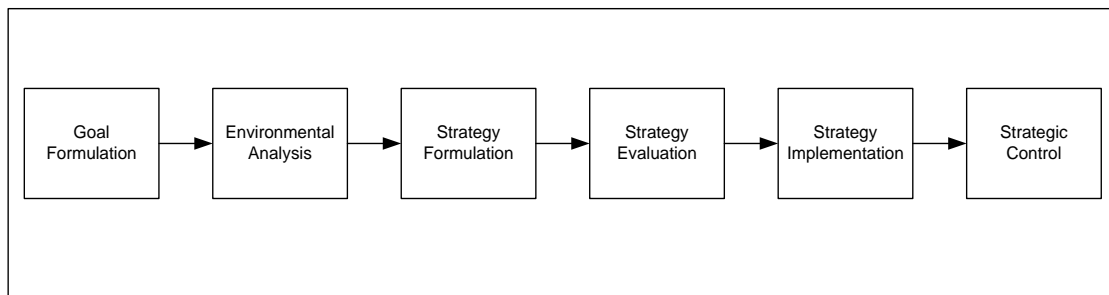
Figure 2.1: A representation of the Schendel and Hofer (1979) process

A sequential six-step model of the strategy process was proposed, a representation of which is shown in Figure 2.1. The activities at each stage are discussed in more detail below.

1. *Goal formulation* is the stage at which the objectives of the firm are decided. Which individuals have influence at this stage depends on the relationships and dynamics between the various stakeholders involved in the firm.

2. *Environmental analysis* is the stage at which external economic and non-economic factors are identified and forecast into the future.

3. *Strategy formulation* is the stage at which the firm chooses the strategy to be undertaken. Schendel and Hofer use the term to mean a specific stage of the process, while some others (e.g. Andrews, in Learned *et al.*, 1965; Ansoff, 1965) use the term to encompass all stages of activity before strategy is implemented.

> For the purposes of this thesis we will use the term 'strategy formulation' to mean a single stage in the strategy process, and the term 'strategic planning' to encompass all stages of the strategy process prior to implementation.

4. *Strategy evaluation* is the final stage of the planning element of the process. At this point the chosen strategy is assessed in terms of the fit with the objectives, the resources available and the environment. In terms of the definitions specified above, these first four stages can be taken to encompass strategic planning.

5. The final two stages of the process encompass what was defined in Section 2.2 as 'strategy implementation'. The first of the two stages is termed *strategy implementation* by Schendel and Hofer, and was seen as an administrative task that was behavioural in nature. This is a limited perspective that fails to recognise fully the role of implementation in the strategy process. In fact some of the earlier work by Chandler (1962) on the importance of structures may well fit into the implementation stage of the process. Chandler's findings were that strategies were determined and then structures put in place to implement them, and this surely represents more than an administrative task.

6. The final stage, *strategic control*, forms a vital part of the implementation stage and is the point at which implemented strategy is reviewed and the results compared with the intended outcome. Despite their simplistic view of strategy implementation, Schendel and Hofer made an important contribution by recognising that the implementation stage of the process actually encompassed two activities.

Thus the Schendel and Hofer (1979) model provided a generic process that until that point had been broken down only into broad areas of strategy formulation and implementation. However, the model's sequential nature, its age relative to more recent ideas in the field of strategic management, and its intention to distil best practice mean that it is not suitable in its original form for the purposes of the present research.

What the model does provide is a set of six separate activities that contribute towards strategy. It is possible to develop these activities into a set of categories that fit any organisation, and that is the purpose of this chapter. While the Schendel and Hofer (1979) model is used as a starting point, various changes are proposed in light of later research, the outcome of which is a set of strategic activities that together form part of

the conceptual framework used in the present research. Two further perspectives on the strategy process are now examined and then initial changes to the process are proposed.

2.3.2   *The strategy process: planned or emergent?*

A review of strategic management literature would be incomplete without examining work on the emergent view of the strategy process. Mintzberg (1978; 1990) proposed that strategic decisions were in actual fact not planned and were often made reactively or outside a given process of planning. Mintzberg is the best-known proponent of the emergent view of strategy and has repeatedly criticised the early researchers for their apparently rigid view of the strategic management process (Mintzberg and Waters, 1985; Mintzberg, 1978; 1990; 1994).

Such criticism may not in fact be warranted. The debate over strategy formulation as a rational versus emergent process exists, but the issue is one that in practice can be reconciled. Mintzberg presents the emergent and planning schools as a dichotomy, and while in extreme form they exist at opposite ends of a continuum, in practice a mixture of the two approaches is often found.

More recent research into the nature of the strategy process has indicated that in practice strategic decisions are made both within and outside formal structures (Brews and Hunt, 1999; Grant, 2003; King, 2008). For the purposes of this research the debate can be reconciled within the strategy process framework. Even if an activity occurs or a decision is made outside a rigid planning system, it is still part of the strategy process and will be considered as such in the present research.

2.3.3   *Strategy process or strategy practice?*

Strategy-as-practice research has been proposed as an alternative to process-based research and is defined by Jarzabkowski and Spee (2009) in the following manner:

> *'Strategy-as-practice as a research topic is concerned with the doing of strategy; who does it, what they do, how they do it, what they use and what implications this has for shaping strategy.' (2009, p69)*

Strategy-as-practice is not concerned with the process by which strategy is planned and implemented. Whittington (2006; 2007) criticises the process approach whereby participants are examined only in the context of their impact on organisational

performance, stating that by linking strategy research to organisational performance process-based research is somewhat limited. The strategy-as-practice approach takes a broad perspective, examining the activities of strategy making (e.g. meetings, individual decision making) and the practice of strategy (e.g. management team away days, the use of software).

While the literature proposes that strategy as practice is an alternative to process-based research, it is in fact reconcilable within the framework proposed here. The practice of strategy is an integral part of the strategy process in any organisation. The activities that occur within each stage of the strategy process are of interest to the researcher here in the specific context of the external environment. Therefore, the strategy-as-practice approach can be seen as a building block of each stage of the strategy process model developed here to capture the wider field of strategic management.

2.3.4   *Understanding the strategy process: first steps*

In this section the foundations of the conceptual framework for studying strategy process are considered. In later sections other strands of research in the field need to be examined, resulting in further adaptation of the framework. Here the six discrete stages proposed by Schendel and Hofer (1979) are adjusted and renamed as required to take account of the wider perspective in which the strategy process is viewed. The idea and meaning of the term 'process' is also examined and defined for the purposes of the present research.

In light of the debate on emergent versus planned strategy, the term *goal formulation* may not be appropriate for the first stage of the strategy process model. Objectives may emerge over time from some combination of rational and emergent development. The first stage of the process is better termed *strategic intent* as this expression captures the idea that goals can emerge over time as well as be determined beforehand.

The activity of *strategy evaluation* is unavoidably linked to *strategy formulation*, both being required in order to choose a particular strategy. Therefore, strategy formulation and evaluation can be seen as conjoined parts of the process rather than as two separate activities and together will be referred to as *strategy choice*. In a similar fashion *strategic control* can be seen as inseparable from *strategy implementation*. Any organisation that implements strategy must also monitor outcomes and use monitoring

information to adapt its activities accordingly as part of the implementation. These two stages can now be considered together as one stage of the process that will be termed *implementation*.

It must also be recognised that continuous monitoring of outcomes is not limited to implementation tasks and that information fed back to the organisation can influence the intentions of the organisation and the strategies chosen. Thus the traditional view of a process as having both beginning and end states (Van de Ven, 1992) may not be appropriate for the present research. The arrows can be removed from the model because they suggest linear and sequential stages rather than continuous activities that interact and occur alongside each other. The strategy process considered in the present research consists of discrete but continuous activities rather than sequential steps.

Given the non-sequential nature of the process, the use of the term 'stage' may also be inappropriate, because it implies a level of linearity that is not intended. This research will treat each step as a discrete area of strategic activity rather than as a stage in a sequential process. Figure 2.2 shows the first iteration of the framework, which consists of four areas of strategic activity. These areas of strategic activity, which may be sequential, concurrent or iterative, together make up the strategy process.
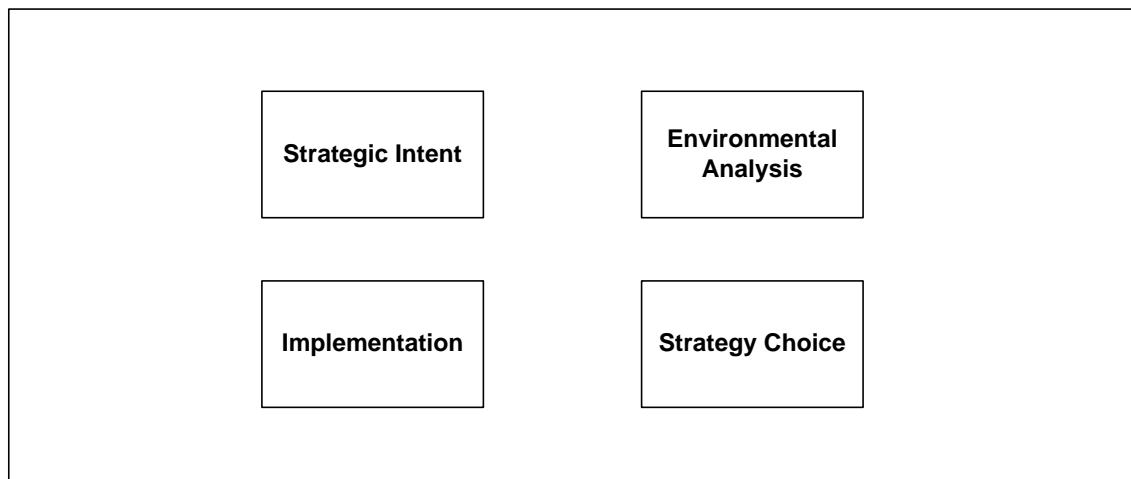
Figure 2.2: Areas of strategic activity: initial changes

The framework is developed further in the rest of this chapter through an examination of later literature. A number of different approaches are apparent, starting with a move towards industrial organisation (IO) economics, followed by the resource-based view of the firm, and more recently developed concepts, such as the knowledge-based view and

dynamic capabilities, which take a more internal focus on firm resources and competences.

These diverse approaches, however, do not remove the need for researchers to take as comprehensive a view of the strategy process as possible. While the internal resources and capabilities of the firm are indeed important, so are factors in the external environment such as industry structure and life cycles. Internal and external factors are inextricably linked, and to examine one area in isolation would provide only a limited view of the strategy process. Research in the field can often be regarded as examining one or more area of the process, and subsequent research strands can be used to enrich the first iteration of the framework provided here.

In the rest of this chapter the framework is developed at the end of each section in light of newer research. The intention is to fully develop the part of the conceptual framework concerned with strategy process before considering literature on environmental scanning and the external environment in Chapter 3.

2.4   Strategic management and economics

Hofer and Schendel (1978) advocated an approach to strategic management research that used statistical tools and techniques typically drawn from the discipline of economics to provide data from which generalisations could more easily be made. From the late 1970s onwards the focus in strategic management literature moved away from the workings of the firm itself and towards external influences on the firm and the competitive interaction between firms. Various strands of research using economic analysis of some description can be identified, including IO economics, game theory, transaction cost economics and agency theory. These are examined below.

2.4.1   Industrial organisation economics and strategic groups

The first research strand to emerge used the theoretical foundations of IO economics and large-scale quantitative surveys of the firm and its environment. The most influential work here is that of Porter (1980; 1985; 1990), who can be credited with starting the trend towards examining an organisation's competitive strategy (Hoskisson *et al.*, 1999).

Porter's early work (1980) provided a model for the analysis of industry structure (the five forces) and a typology for different ways in which firms could compete (the generic

strategies), both of which had their roots in microeconomic theory. Porter's work is examined in more detail in the next chapter, which focuses on the external environment, but briefly his argument was as follows:

> *'industry structure has a strong influence in determining the competitive rules of the game as well as the strategies potentially available to the firm […] the key is found in the differing abilities of firms to deal with them.' (1980, p3)*

Porter's second contribution to the field was the value chain model (1985), which examined the firm from an internal perspective and was designed to complement the five forces model in analysing the internal characteristics of the firm. The assertion, then, by various scholars that Porter's work is concerned only with the external environment (Hoskisson *et al.*, 1999; Furrer *et al.*, 2008; Mintzberg *et al.*, 2009) is perhaps unfair. The value chain is concerned with the internal workings and linkages in the firm and how they can be used to gain competitive advantage. This can be viewed as related to the resource-based view of the firm, which is examined in Section 2.5.

Porter recognised the role of the external environment in strategic management but also acknowledged the role of the firm itself in dealing with the competitive forces that exist in the industry. However, the early works of Porter do have one major restriction: the firm was treated as a black box, the nature and performance of which were entirely dependent on industry structure and competitive dynamics. This was to some extent addressed by later work (1985) on the value chain.

Alongside Porter's contributions sits a body of work on strategic groups that again followed the IO economics tradition. Researchers such as Newman (1978) and McGee and Thomas (1986) examined groupings of similar firms within industries, going deeper than Porter's early work, which took the whole industry as the unit of analysis. Newman (1978) criticised statistical analyses of industry structure on the basis that they failed to take account of the differences between firms apart from their market share. More recent work by Desarbo and Grewal (2008) proposed the idea of a hybrid strategic group, acknowledging that strategic groups often overlap with each other and that some firms in a particular strategic group may also belong to another discrete strategic group.

The strategic groups literature, by recognising that analysing the industry as a whole was not always appropriate, added depth to earlier work on industry structure and

competition. That said, there is little agreement between researchers on how strategic groups should be defined: whether by the level of vertical integration, by strategy followed or by entry/mobility barriers present. Research on strategic groups has also been criticised because groupings apply only to specific industries and cannot therefore be generalised to other industries (Ketchen and Shook, 1996).

2.4.2   New approaches to organisational economics

Neoclassical economics assumes that perfect information is available and that individuals make rational decisions that optimise their returns in terms of either profit or utility. Two challenges to the neoclassical view had an impact on strategic management research in the 1970s and 1980s.

The idea of 'bounded rationality' put forward by Cyert and March (1963) challenged the optimising rational foundation of the neoclassical model of the firm. The idea that humans exhibit bounded rationality means that an individual's ability to make decisions is limited by their cognitive function, the available information and the time available to process information. So individuals do make rational decisions that are limited by these factors, which are said to be boundedly rational rather than optimal. This move towards a more realistic model of human behaviour meant that organisational economics became more readily applicable to management issues and the strategic management field in particular. The idea of boundedly rational behaviour has been used in strategy research in a number of ways, most notably in work on decision-making processes (e.g. Eisenhardt and Zbaracki, 1992) and in wider studies looking at the firm from both an internal and an external perspective (e.g. Amit and Schoemaker, 1993).

The second strand of microeconomic research that contributed to the strategic management literature base was the body of work on the contractual view of the firm. The costs of using the price mechanism (search costs, cost of uncertainty and contracting costs) were first examined by Coase (1937). He proposed that a firm's boundaries exist at the point at which the cost of using the price mechanism outweighs the benefits. This led to the idea that a hierarchical organisation founded on a network of contracts was in many cases the most efficient way of organising economic activity and that this was why firms existed.

It was not until the later work by Williamson (1975) that the costs of using the price mechanism were formally labelled as 'transaction costs' and the idea began to be used as a management construct. Williamson (1975; 1991) built on Coase's proposal that the reason for firms existing, and existing in particular forms, was to minimise the existence of transaction costs. He argued that strategic moves and competitive positioning were relevant only to firms that already possessed market power, and that for most firms the best strategy was economising; that is to say, organising themselves so that transaction costs were minimised.

Transaction cost economics (TCE) has been used to analyse the boundaries of firms, most notably in relation to vertical and horizontal integration (e.g. Acemoglu, Johnson and Mitton, 2009; Teece, 2010; Bucheli, Mahoney and Vaaler, 2010). The idea of bounded rationality, while separate, is an integral part of the TCE approach. Both theoretical frameworks purport to provide a more complete view than the neoclassical model. While the work on bounded rationality has been praised for being useful as a cross-disciplinary framework (Moe, 1984), the TCE framework has been criticised for its narrow approach to firm behaviour and existence (Ghoshal and Moran, 1996). In fact the TCE approach is useful because it attempts to determine reasons for firm boundaries existing in the way they do. It sits between theories of competitive advantage that examine only environmental factors (e.g. Porter and the IO economics approach) and later theories that examine firm resources as a source of competitive advantage (e.g. the resource-based view of the firm, discussed below).

2.4.3 *Understanding the strategy process: external versus internal*

While much of the research identified above deals with the external environment, some, most notably the value chain model and the TCE framework, is also concerned with the internal workings of the firm. Research examined later in Section 2.5 focuses almost exclusively on the internal workings of the firm. The framework needs to acknowledge the split in the field between internally and externally focused research. This means that the *environmental analysis* area of strategic activity proposed in Section 2.3.4 requires further development in light of the preceding discussion.

The first step in development is to propose that the environment consists of both external and internal factors. Research already identified falls into one or both of these

categories, either looking at industry, society, competitors and strategic groupings, or at internal factors that contribute towards a firm's success or failure.

The second step is to recognise that the word 'analysis' has normative connotations that are better avoided in this context, and that the term 'interaction' may better capture strategic activity concerned with the external environment. *Environmental analysis* is therefore divided into two areas, *external interaction* and *internal environment*, one concerned with the external environment and the other with the internal environment. This is shown graphically in Figure 2.3. While the idea of the 'internal environment' may at first seem strange, the term is adequate at this point in the model's development and will be further developed through examination of later research on the resource-based view of the firm in Section 2.5.
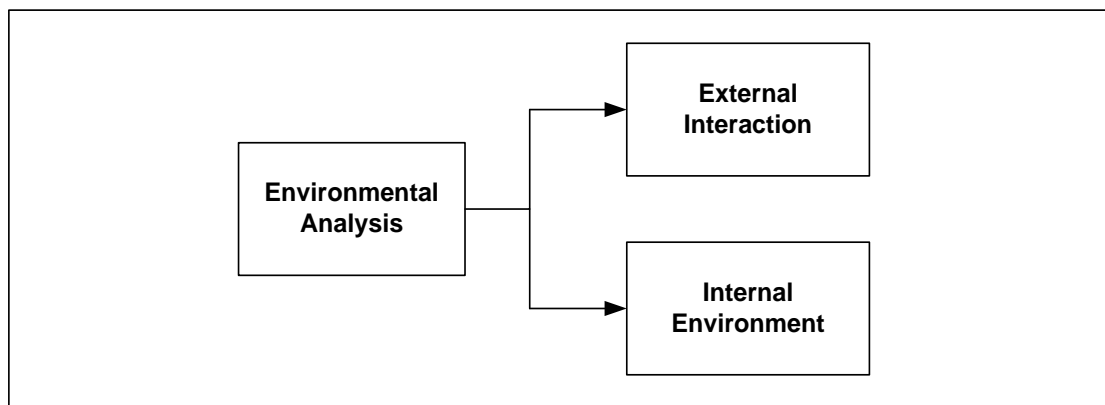
Figure 2.3: Adapting the environmental analysis stage of the process

The IO economics research and the complementary work on strategic groups shed some light on the nature of the external interaction (the five forces, strategic groups), the internal environment (the value chain) and the strategy choice (the generic strategies) areas of activity.

The new approaches to organisational economics assist in explaining the strategy choice area of the model. Strategic moves such as vertical integration and the formation of alliances can be examined using the TCE approach. The existence of bounded rationality can better explain the behaviour of decision makers with regard to both strategic intent and strategy choice. The consideration of transaction costs is also important with regard to strategy choice because their existence or otherwise is likely to influence the intentions and direction of the organisation.

2.5   The resource-based view and dynamic capabilities

While the IO economics approach to strategic management placed emphasis on external models of competitive advantage, a newer stream of research looked at the firm from an internal perspective and attempted to find resources that bestowed sustained competitive advantage on its owners. The *resource-based view of the firm* (RBV), the *knowledge-based view of the firm* (KBV) and *dynamic capabilities* all examine the firm from a mostly internal perspective. These three research streams are often treated separately, but in fact they all contribute to an understanding of competitive advantage from an internal perspective and can be seen as complementary.

2.5.1   The resource-based view of the firm

This strand of research again has its roots in economics with the work of Penrose (1959), but it was not until the work of Wernerfelt (1984) that the RBV began to gain momentum. The RBV is useful when considering aspects of the strategy process; it can be viewed as complementary to the market and environment-based frameworks developed from IO economics.

While earlier strategy research looked at how firms can compete in particular circumstances (e.g. Porter, 1980; 1985; 1990) or at why firms take on particular forms or exist in the first place (e.g. Williamson, 1975; 1991), the RBV research attempted to find sources of sustained competitive advantage within organisations. Firms were viewed as seekers of unique resources that could be a source of economic rent (Conner, 1991).

Barney (1991) defined firm resources as:

> *'all assets, capabilities, organisational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable a firm to conceive of and implement strategies that improve its efficiency and effectiveness.' (1991, p101)*

In order to confer competitive advantage, a resource has to be valuable, rare, imperfectly imitable and non-substitutable, known as the VRIN condition, and resources can be divided into physical, human and organisational resource types (Barney, 1991; Barney, Wright and Ketchen, 2001). Given this brief outline it is clear that the RBV encompasses more factors than does organisational economics. It

includes tangible and intangible factors that affect firm performance and can be much more readily applied to real firms and used as a tool for analysis.

These intangible resources were discussed using an alternative perspective by Prahalad and Hamel (1990), who stated that organisations had core products that were supported by competencies:

> *'competitiveness derives from an ability to build, at lower cost and more speedily than competitors, the core competencies that spawn unanticipated products. The real sources of advantage are to be found in management's ability to consolidate corporate-wide technologies and production skills into competencies that empower individual businesses to adapt quickly to changing opportunities.' (1990, p81)*

While Barney (1991; 2001) took resources to be both physical assets and intangible resources such as tacit knowledge, Prahalad and Hamel looked exclusively at the intangible resources that form the core competences of the firm. They defined core competence as providing access to a wide range of markets, making a significant difference to perceived customer benefits, and being difficult for competitors to imitate.

The RBV provides an assessment of the internal factors that affect firm performance, and by assessing firm activity from a resource-based perspective it is possible to gain insight into reasons for the success or failure of the firm. The problem with the RBV is that it ignores entirely the external environment and interaction with competitors and other stakeholders. Just like models of strategy that examine only the environmental factors facing a firm, the RBV does not give us a complete picture of strategy.

Indeed a number of authors (Barney, 1991; Conner, 1991; Barney *et al.*, 2001; Priem and Butler, 2001) identify that the strengths, weaknesses, opportunities and threats approach advocated by early authors (Andrews, in Learned *et al.*, 1965; Ansoff, 1965) addresses both internal and external aspects of the firm's environment, while later research appeared to address only one side of the equation. The RBV took an internal approach to the firm and paid little or no attention to the environment the firm was operating in. The broad approaches of the various research strands examined in this chapter are summarised in Table 2.1.

The work of Peteraf (1993) to some extent addressed the one-sided nature of the RBV by taking a wider view of firm resources. Peteraf developed a model based on four principles known as the 'cornerstones' of competitive advantage. These were the existence of heterogeneous resources, imperfect mobility of resources, ex-post limits to competition, and ex-ante limits to competition. Peteraf's framework is useful as it integrates some of the ideas from IO economics into RBV theory.

Table 2.1: Summary of approaches to strategic management

Internal Focus	External Focus	Other
RBV, KBV	*IO and strategic groups*	*Balance of internal and external*
Barney	Porter	Ansoff
Peteraf	McGee and Thomas	Andrews
Kogut and Zander		
Dynamic capabilities	*TCE*	*Strategy processes*
Teece	Williamson	Schendel and Hofer
Eisenhardt and Martin	Acemoglu *et al.*	Mintzberg
	Teece	Grant
Structure and strategy		(Whittington)
Chandler		
Rumelt		

Despite Peteraf's recognition of external as well as internal factors, the RBV is limited by its static nature and addresses neither the ability of the firm to adapt to new situations nor firm efficiency in resource deployment, apart from the rather limited view that these capabilities are considered part of the firm's resource bundle. This limitation is addressed in part by research on knowledge resources within organisations.

2.5.2   *The knowledge-based view of the firm*

The knowledge-based view (KBV) focuses in on a particular aspect of the RBV. Rather than view firms as collections of heterogeneous assets from which they derive some competitive advantage, the KBV considers firms as knowledge-bearing entities, as noted by Hoskisson *et al.* (1999). While the RBV recognises management and employee knowledge as one type of resource that can confer competitive advantage, the KBV focuses solely on embedded knowledge within the firm as the source of such advantage.

Kogut and Zander (1992) posited that if knowledge was purely individual-based then firms would change simply as the workforce turned over:

> *'firms are a repository of capabilities, as determined by the social knowledge embedded in enduring individual relationships structured by organizing principles. Switching to new capabilities is difficult, as neither the knowledge embedded in the current relationships and principles is well understood, nor the social fabric required to support the new learning known.' (1992, p396)*

This definition of the firm explains competitive advantage in terms of the tacit knowledge embedded within it, a more narrowly focused approach than that taken by the RBV. Later work by Zander and Kogut (1995) stated that:

> *'The capabilities of a firm, or any organization, lie primarily in the organizing principles by which individual and functional expertise is structured, coordinated, and communicated.' (1995, p76)*

Thus it was the *capabilities* of the firm, rather than its resources, that were important. Capabilities were proposed to be substantial in size, comprising diverse activities that produce outputs that contribute towards competitive advantage (Winter, 2000). Other work that can be seen as taking a knowledge-based view looks at firm capabilities in terms of the organisational learning process (e.g. Pisano, 1994) and determines that it is the capabilities, here termed 'routines', that a firm develops in this area that confer competitive advantage. The KBV sees the firm as a bundle of capabilities, while the RBV sees the firm as a bundle of resources.

The problem with the KBV is that, similarly to the RBV, it is static in nature and uses the capabilities approach to explain the path dependence of many firms (Zander and Kogut, 1995; Kogut and Zander, 1996). From this it can be concluded that the KBV fails to address the dynamic nature of industries and firms over longer periods of time.

2.5.3 *Dynamic capabilities*

A more recent approach to strategic management research has examined resources and capabilities through a dynamic rather than a static lens. This is termed the *dynamic capabilities* approach, and looks at the firm's ability to redeploy and reorganise its resources in response to opportunities and threats.

A number of authors agree that the emergence of dynamic capabilities was a response to increased technological innovation and the failure of the RBV and related KBV to

address strategy in a dynamic manner (Teece, Pisano and Shuen, 1997; Eisenhardt and Martin, 2000; Ambrosini and Bowman, 2009; Di Stefano, Peteraf and Verona, 2010). Research concerned with dynamic capabilities can be seen as completing the circle that started with the RBV.

Teece *et al.* noted that:

> *'Strategic theory is replete with analyses of firm-level strategies for sustaining and safeguarding extant competitive advantage, but has performed less well with respect to assisting in the understanding of how and why certain firms build competitive advantage in regimes of rapid change.' (1997, p509)*

They proposed that following a strategy of resource accumulation was in itself not enough to confer competitive advantage on the firm. Timely responses to external events, the ability to innovate and the ability to co-ordinate and deploy competences were as important as the resource endowment of the firm. It is the ability to act and deploy resources that is referred to as 'dynamic capabilities'. The importance of organisational capabilities was first highlighted by research in the KBV tradition, and the dynamic capabilities framework builds on this.

Eisenhardt and Martin (2000) proposed the following definition of dynamic capabilities:

> *'Dynamic capabilities are the antecedent organisational and strategic routines by which managers alter their resource base – acquire and shed resources, integrate them together, and recombine them – to generate new value-creating strategies.' (2000, p1107)*

In addition to this definition some fundamental characteristics were proposed to help define dynamic capabilities more narrowly:

1. They are specific organisational processes that create value by deploying and redeploying resources in a dynamic market to create and sustain competitive advantage.
2. Unlike the RBV, which emphasises the heterogeneity of resources, dynamic capabilities are in some respects common across effective firms in similar situations.

3. The nature of effective dynamic capabilities varies according to the firm's external environment:

   a. Where the industry is relatively stable, dynamic capabilities are detailed processes that rely on existing knowledge.

   b. Where the industry is volatile, dynamic capabilities are unstable processes that rely on new knowledge and quick execution.

4. Well-known learning mechanisms guide the development of dynamic capabilities and cause path dependence.

Eisenhardt (2000) identified three broad categories of dynamic capability: the capability to integrate resources (for example, product development processes), the capability to reconfigure resources, and the capability to gain and lose resources.

Dynamic capabilities were defined above as being readily identifiable, in marked contrast to the intangible nature of the RBV and KBV. This represented a step forward in terms of the applicability and specificity of strategic management research. The RBV and KBV have both been criticised in the dynamic capabilities literature as being rather vague (Eisenhardt and Martin, 2000; Di Stefano *et al.*, 2010), and the research on dynamic capabilities to some extent addresses this shortcoming. It has been noted, however, that the distinction between an operational and a dynamic capability is blurred and not always clear (Helfat and Winter, 2011).

Alternative definitions of dynamic capabilities have also been proposed by other authors. Zahra, Sapienza and Davidsson (2006) defined dynamic capabilities as:

> *'the abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision-maker(s)' (2006, p918)*

This is a more narrow definition than that provided by Eisenhardt (2000), which included the ability to acquire and shed resources. Research concerned with the microfoundations of strategy has provided perhaps the most intuitively attractive conceptualisation of dynamic capabilities as the ability of the organisation to sense, seize and reconfigure as required (Teece, 2007; Helfat and Peteraf, 2014).

No matter the definition, research on dynamic capabilities can be viewed as part of an organisation's strategy process, through which information on strategy outcomes is disseminated and incorporated into the decision-making process. Dynamic capabilities also provide an organisation with the ability to redeploy resources in a dynamic fashion in response to internal or external issues.

2.5.4   *Understanding the strategy process: resources, capabilities and dynamics*

It has already been identified that much of the work in IO economics and TCE contributes to the *external interaction* area of the strategy process. The RBV is complementary because it is concerned with events inside the firm. The RBV and KBV provide a deeper picture of what goes on inside the organisation and how this contributes to strategy. The name given in Section 2.4.3 to the area concerned with the internal workings of the organisation was *internal environment*, but in light of the preceding discussion this area is better termed *resource management*.

The ideas of Peteraf (1993) contribute to understanding of the *strategy choice* and *implementation* areas of strategic activity and how these might interact with internal and external factors. The work on dynamic capabilities is wider in scope and lends weight to the earlier argument that strategy is continuous by nature and is better seen as a set of continuous areas of strategic activity than as a linear process. The sensing, seizing and reconfiguring aspects of dynamic capabilities are connected with different areas of strategic activity, those being *strategic intent*, *strategy choice* and *implementation* respectively.

2.6   **Synthesis: understanding the strategy process**

Research in strategic management over the past 50 years has taken various approaches. Some authors work on the assumption that it is the firm's resource endowment that confers competitive advantage; others argue that the firm derives competitive advantage from the competitive nature or otherwise of its external environment, or from how well it is set up to counter this competition. Still others argue that it is a firm's ability to adapt and change its setup in a dynamic fashion that confers competitive advantage, and some argue that a firm's structure will confer competitive advantage only in the correct setting.

The present research does not take an IO economics or RBV approach to strategy. These individual approaches look only at parts of the strategy process and are acknowledged on both their merits and limitations. The outcome of this chapter is a framework consisting of five areas of strategic activity that applies to any organisation, recognising the various activities that together affect and drive the strategy of an organisation. The original model proposed by Schendel and Hofer (1979) provided a basis for the framework shown in Figure 2.4, consisting of five discrete areas of strategic activity that together make up the strategy process.
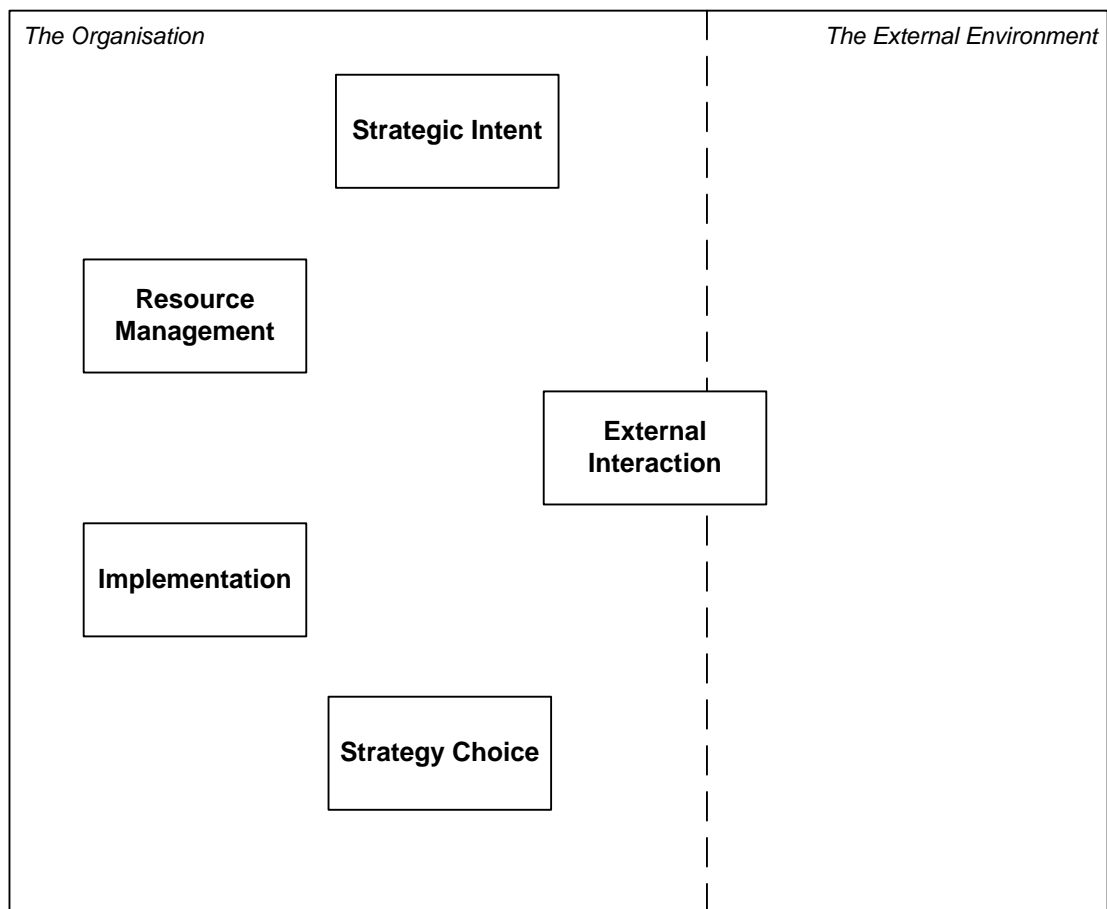
Figure 2.4: Conceptual framework: areas of strategic activity

Given that the focus of the present research is environmental scanning and its relationship with the strategy process, the external environment has been added to the conceptual framework at this point. The *external interaction* area of activity, which is developed further in Chapter 3, is placed closest to the external environment. The placement of the other areas of activity is not intended to imply any kind of priority or sequence; rather *resource management* and *implementation* are placed further from the

external environment because they are thought to be mainly concerned with factors internal to the organisation.

Each area of strategic activity is discussed in more detail below. It is important to note at this point, however, that Figure 2.4 contains only that part of the conceptual framework that is concerned with the strategy process. The framework concerned with scanning and the external environment is developed through the literature review in Chapter 3. The integrated conceptual framework used to guide the empirical stages of the present research is then provided in Chapter 4.

2.6.1 *Strategic intent*

The *strategic intent* area of activity deals with the setting of organisational objectives in a formal or informal context. There are two areas of research that shed light on this area of strategic activity.

The first is research concerned with the characteristics of the decision maker or decision-making team. The work of Cyert and March (1963) on bounded rationality and other research on decision making in general (e.g. Nutt, 2011) provides significant detail on how decisions are made in practice.

The second strand is research addressing the objectives set by the organisation. Strategic objectives and scope were identified by Andrews (in Learned *et al.*, 1965). The work of Mintzberg (1994) provides an important recognition that both formal and informal decisions contribute to the direction of the organisation. Thus the way in which organisational objectives are cascaded through the organisation relates to the work of Chandler (1962) and Rumelt (1974) on strategy and structure.

2.6.2 *External interaction*

The *external interaction* area captures the activities of the organisation that are explicitly concerned with the external environment. Literature relevant to this stage of the process includes the IO economics work on the competitive environment (Porter, 1980; 1985) and on strategic groups (e.g. McGee and Thomas, 1986). Given that the intention of this research is to examine environmental scanning and its links with the wider strategy process, literature concerned with this area is examined in more detail in Chapter 3.

2.6.3   Resource management

The *resource management* area of activity is concerned with the internal workings of the organisation. Porter's value chain (1985) is a useful contribution here because it is concerned with how different parts of the organisation may work together and add value. The work of Barney (1991; 2001) on the RBV provides insight into how the resources under an organisation's command can confer competitive advantage if the VRIN conditions are met. The work of Kogut and Zander (1992; 1995; 1996) adds depth to this by recognising that knowledge built up within the firm and its intangible nature also contribute to competitive advantage.

2.6.4   Strategy choice

The *strategy choice* area of the process represents the choice of particular courses of action to realise goals defined under *strategic intent*. The nature and method of these choices have been examined by a number of researchers in different contexts. Strategy choices have been examined at the corporate and business strategy level (Andrews, in Learned *et al.*, 1965) and the trajectory of the organisation categorised according to the growth vector proposed by Ansoff (1965).

Porter's generic strategies (1980; 1985) and the Miles and Snow classifications (1978) provide more depth on the types of strategies that organisations can pursue. Peteraf (1993) sheds light on competitive advantage and the importance of consistency of strategy choices with the resources under the organisation's command. The seizing aspect of dynamic capabilities is also relevant in the choice area.

2.6.5   Implementation

The *implementation* area of activity results in implementation of chosen strategies. The control activity involves monitoring and evaluation of implemented strategy and the feedback of performance information to the strategists. The work of Chandler (1962) and Rumelt (1974) on strategy versus structure shows how structures vary in relation to the chosen strategies.

Research on dynamic capabilities, specifically reconfiguration of resources, is also useful when looking at implementation. For example, the model proposed by Eisenhardt and Martin (2000) provides a useful assessment of how organisational

capabilities, in terms of integrating, reconfiguring, acquiring and shedding resources in response to changes in the environment, are important at this stage of the process.

2.6.6   *Areas of strategic activity: summary*

The model discussed in the preceding section is derived from the review of literature in the strategic management field. Each of the sub-sections above has identified key references from the literature that are relevant to each of these five areas of strategic activity. Viewing the strategy process as five key areas of strategic activity rather than as discrete stages in a process that has both a start and an end point facilitates useful observation of practice, which can then be used as the basis for theory development once empirical work has been conducted. Table 2.2 contains some definitions of activities in each area for the purposes of the present research. The activities are purposely broad, given that the nature of each activity will change according to the organisation in question. The definitions provided here are used later in the thesis for data analysis, through the coding process described in Chapter 5.

Table 2.2: Areas of strategic activity: examples

Process Stage	Activities
Strategic intent	Determination and re-evaluation of long-term objectives
	Communication of objectives to stakeholders
External interaction	Monitoring of external issues
	Analysis of external issues
	Searching for resources
Resource management	Management of internal resources and existing capabilities
	Management of internal relationships and structures
Strategy choice	Decision-making discussions, processes, meetings
	Portfolio decisions
Implementation	Budgeting activities
	Objective setting for teams/individuals/strategic business units
	Performance monitoring

2.7   Conclusion

The review of literature presented in this chapter has demonstrated that different research perspectives on strategic management can be of use to the researcher attempting to examine the strategy process. The outcome is a conceptual framework

detailing five areas of strategic activity. At this point the framework is incomplete, the focus of this research being environmental scanning and its links with the strategy process. Development of a second framework concerned with scanning and the environment is the focus of the next chapter.

Chapter 3: Environmental Scanning and the External Environment

3.1   Introduction

This research is focused on environmental scanning and its relationship with the strategy process in organisations, and the preceding chapter developed a partial conceptual framework concerned with the strategy process. The purpose of this chapter is, through a review of relevant literature, to develop a similar framework concerned with the external environment and environmental scanning. In Chapter 4 this is used, in conjunction with the ideas developed in Chapter 2, to propose an integrated conceptual framework of environmental scanning and the strategy process that can be used to gather data from organisations. Figure 3.1 shows the partial conceptual framework developed in Chapter 2, with the area to be examined in this chapter shaded grey.

Duncan (1972) defined the environment as comprising both internal and external components. The focus of the present research is the external environment, so the term 'environment', while used in different ways in the literature base, will be used here to refer implicitly to the external environment.

Duncan (1972) defined the external environment as the relevant physical and social factors outside the boundaries of the organisation that are taken into consideration for decision-making purposes. The implication of this definition is that for something to be part of an organisation's external environment it must be taken into account when making decisions. This is a rather narrow view because it fails to account for factors that affect the organisation but are not recognised or understood by management. The present research takes a wider view of the external environment in that the potential role of factors outside those considered by managers is acknowledged.
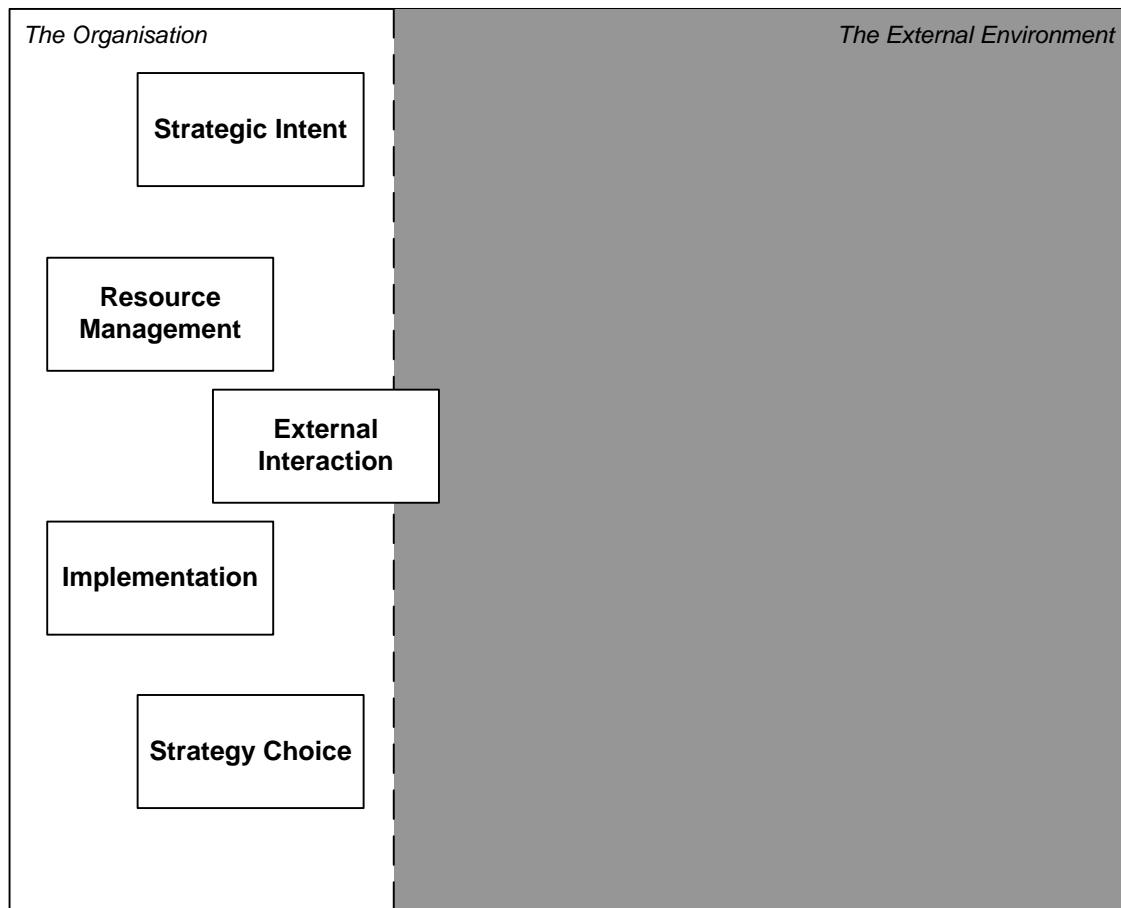
Figure 3.1: Conceptual framework: area for development in Chapter 3

In this chapter, prior research on the external environment and environmental scanning is divided into three categories based on questions that will assist in positioning the present research in the literature base. The first question covers methods of dividing and characterising the environment. The second question is concerned with literature explicitly examining perception of the environment, and the final question is explicitly focused on environmental scanning itself. The three questions are as follows.

1. *How can the environment be subdivided and assessed?*

   This includes literature that attempts to define the external environment and divide influences into various categories, and encompasses both objects- and attributes-based research. Definitions and subdivisions developed in this type of research are often used as the foundation of work in the other categories explored in this chapter (discussed in Section 3.2 and sub-sections).

2. *What role does perception of the environment play?*

   This includes research concerned with uncertainty and how it is perceived, and how this affects the organisation (discussed in Section 3.3 and sub-sections).

3. *How do organisations acquire and use information on the environment?*

   This is the literature on environmental scanning, which is the central focus of this thesis. Characteristics of scanning, behaviour at the individual and organisational level and the impact scanning has on the organisation are covered here (in Section 3.4 and sub-sections).

This chapter is structured around these three questions, moving from the general to the specific. Some research inevitably covers more than one category. Literature concerned with scanning the environment is considered last because it is the focus of the present research. At the end of each section relevant additions and adjustments to the conceptual framework on scanning and the environment are made. This is finalised at the end of this chapter and, in Chapter 4, combined with the ideas developed in Chapter 2 to provide the integrated conceptual framework that forms the basis of the empirical stage of the present research.

3.2 Division and assessment of the environment

Early strategy texts recognised that the environment was an important factor in relation to organisations and their strategies (e.g. Andrews, in Learned *et al.*, 1965; Ansoff, 1965). Later, in the 1970s and 1980s, the link between a firm's strategy and its environment came to be examined in more detail. Bourgeois (1980), in a review of previously published works on strategy and the environment, noted a division between research that took an objects-based approach, categorising elements of the environment according to their characteristics and their position in relation to the organisation, and an attributes-based approach, categorising an environment according to its characteristics. This section examines both of these approaches in turn. At the end of the section division and characterisation of the external environment in the conceptual framework is proposed.

3.2.1 *Objects-based division of the environment*

The earliest recognised classification of environmental factors faced by organisations was put forward by Dill (1958), who proposed a two-tier categorisation. The first tier is the general environment, which relates to broad economic, demographic and sociocultural trends. The second tier is the task environment, based on external groups with which the organisation interacts on a regular basis, for example customers,

competitors, suppliers and regulators. The prevailing state of technology in the industry was proposed as an additional environment sector by Duncan (1972).

Building on this earlier work, Bourgeois (1980) suggested that the general environment was concerned with corporate strategy and the task environment was concerned with strategy at the level of the business unit. Such a simple division seems open to challenge; it is not possible to make corporate-level decisions on the type of business the organisation should be in without some appreciation of task environment-based variables. By that same token it is not possible to make business-level strategic decisions without considering the general environment.

Hambrick (1982) proposed an alternative breakdown of the environment. In this case the elements of the environment suggested were the entrepreneurial, engineering, administrative and regulatory sectors; the first three based on the management activities identified by Miles and Snow (1978). Dividing the environment in this way represents a different approach because the respective sectors cover both external and internal factors. The engineering and administrative sectors are concerned with both external trends and internal processes. Hambrick's breakdown is of less use in the present research because of the focus on the external environment.

Despite the contribution of others, Dill's two-tier split of task environment and general environment has proved to be of enduring value and has been used in some form by numerous researchers (e.g. Daft and Weick, 1984; Dess and Beard, 1984; Milliken, 1987; Daft, Sormunen and Parks, 1988; Sawyerr, 1993; Elenkov, 1997; Rosenbusch, Rauch and Bausch, 2013). The use of such a split with particular reference to scanning the environment is discussed in Section 3.4.2.

3.2.2   *Assessing environmental attributes*

While early objects-based work took the important step of dividing external influences into different categories that could be examined, it did not provide dimensions along which the environment could be assessed. This section deals with attributes-based approaches to the environment: work that assesses the nature of the environment according to various criteria.

Miller and Friesen (1983) proposed classification of a firm's environment along three different dimensions. The first dimension is *dynamism*, the rate of change in the

industry as well as the unpredictability of customers and competitors. The second is *hostility*, which is the degree of threat posed by competition and the volatility of the business cycle. The third is *heterogeneity*, also termed *complexity*, which is concerned with the differences between an organisation's various markets. This was a step forward from earlier works, which had classified environmental attributes according to only two aspects: heterogeneity and volatility (Bourgeois, 1980).

Miller and Friesen's dimensions have been used in some form to assess the type of environment that an organisation faces in various pieces of work looking at relationships between the environment and organisational variables (e.g. Dess and Beard, 1984; Miller, 1988; Sharfman and Dean, 1991; Miller, 1992; Lumpkin and Dess, 1995; Liao, Kickul and Ma, 2009; Wu, 2010; Drnevich and Kriauciunas, 2011; Rosenbusch *et al.*, 2013).

Porter's work on the structural analysis of industries (1980; 2008), which was addressed briefly in Chapter 2, requires further appraisal when looking at environmental attributes. Porter's most important contribution in this regard was the five forces framework, which provided a method of categorising forces in the competitive environment and determining how they affect the competitive position of the organisation. The five forces approach can be seen as both object-based and attributes-based because the environment is not only divided into different groups but also assessed for its impact on the firm.

Porter took a narrower view of the external environment than Duncan (1972), prioritising particular aspects of the task environment over the firm's wider context. He saw an understanding of competitive forces within the industry as the most important factor in an organisation's response to its environment. In an assessment of his early work, conducted in 2008, he said:

> *'understanding the competitive forces, and their underlying causes, reveals that the roots of an industry's current profitability while providing a framework for anticipating and influencing competition (and profitability) over time [...] defending against the competitive forces and shaping them in a company's favour are crucial to strategy.' (Porter, 2008, p26)*

The five forces framework, consisting of (1) the threat of new entrants, (2) power of suppliers, (3) power of buyers, (4) the threat of substitutes, and (5) rivalry among existing competitors, can be used to analyse industry structure, which in turn determines the level of competition and profitability within that industry.

Porter dismissed the potential for inclusion of other environmental factors alongside the five forces. Factors that were dismissed include government, technology and innovation, the industry growth rate and the existence of complementary products (2008). These are described as secondary factors or characteristics that affect the strength or otherwise of the five forces but do not dictate the structure of an industry.

While Porter's position may be appropriate when examining the firm's competitive environment, other factors do deserve attention in their own right as part of the general environment. They can also have a direct influence on aspects of the task environment. Thus Porter's contribution is important but constrained in scope because it looks only at the competitive environment facing the firm and not at a wider set of environmental influences mentioned above.

The five forces deal with parts of the task environment, but divides the environment in a different manner from earlier work and is concerned with the effect of each area on the level of industry competition and on the organisation itself. Therefore, the general and task environment breakdown and the five forces model can be seen as complementary, with Porter's work building on earlier divisions of the environment and taking a combined objects- and attributes-based approach.

3.2.3 *Conceptual framework: division and assessment of the environment*

The different approaches discussed above for dividing up and assessing environmental influences are of use when considering an organisation's environment, and some version of these is used in many later pieces of research. The approach to be used in the present research can at this point be added to the conceptual framework. Figure 3.2 shows the first iteration of the conceptual framework on scanning and the external environment. Only the *external interaction* area of strategic activity is shown at this point, given the focus of this chapter on the external environment. Other areas of strategic activity are reintroduced in Chapter 4.

The present research acknowledges the two-tier split of the environment into task and general factors. Both of these can be further subdivided, and the exact approach to be used in this research is addressed in Section 3.4.2 in light of previous work on scanning.
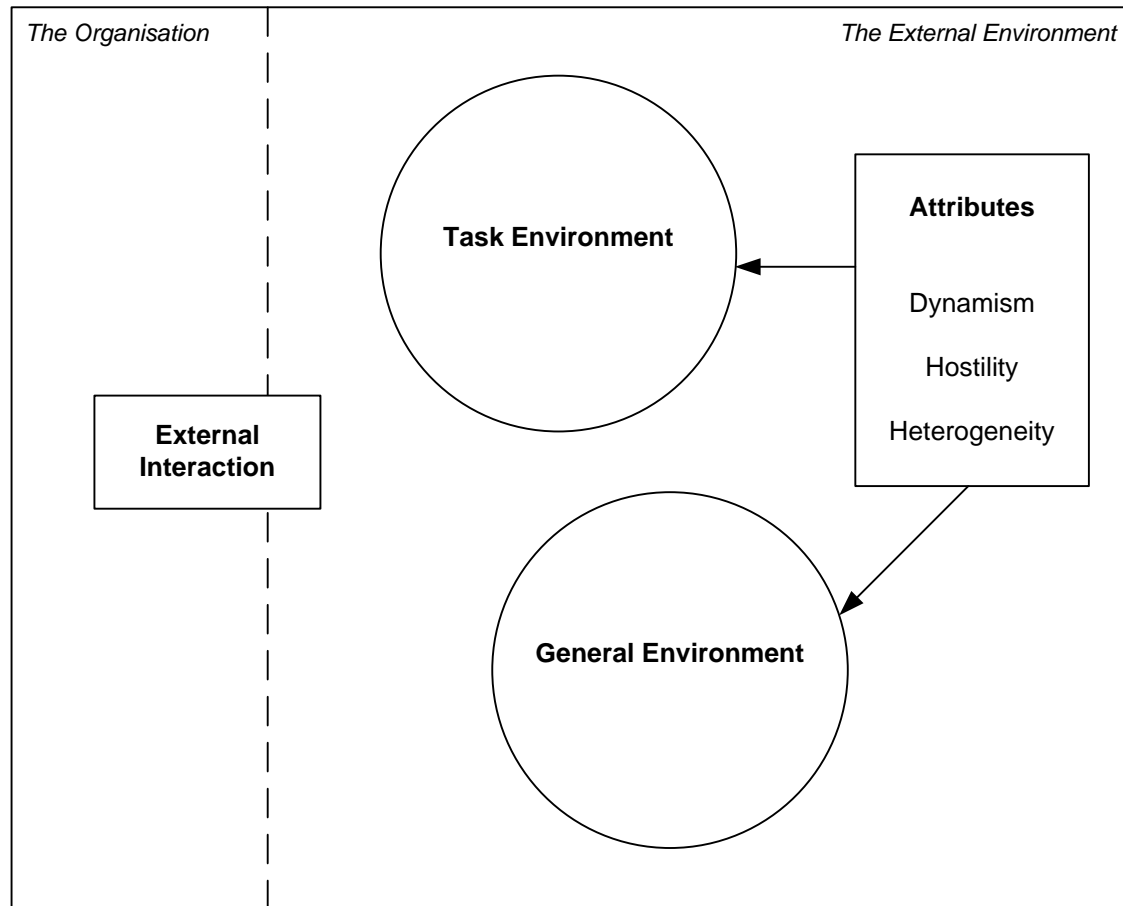
Figure 3.2: Scanning/environment conceptual framework: first iteration

The attributes of various aspects of the task and general environments are also acknowledged as being of some importance and are included in the conceptual framework at this point. There is some debate in existing literature, however, about the relative importance of the perceived and the actual state of the environment, so the next section is devoted to literature concerned with the role of management perception of the environment.

3.3 Perception of the environment

A significant amount of research concerned with organisations and their environments deals implicitly or explicitly with management perceptions. How managers perceive their environment affects strategy choice (Miller, 1988; Auzair, 2011; Parnell, Lester, Long and Koseoglu, 2012) and planning approaches (Javidan, 1984; Grant, 2003; Brews and Purohit, 2007) and can affect performance (Analoui and Karami, 2002). It is

also related to environmental scanning, but this is addressed separately in the final part of this chapter (Daft *et al.*, 1988; Boyd and Fulk, 1996; Elenkov, 1997; May, Stewart and Sweo, 2000; Stewart, May and Kalia, 2008; Jogaratnam and Wong, 2009).

Given the prominence of perceived uncertainty in existing literature, it is not possible to examine environmental scanning and its role in the strategy process without taking into account the way managers in the organisation perceive their environment. This section first looks at the concept of perceived environmental uncertainty (PEU) and then examines the relationship between the perceived and the objective environment. At the end of the section a second iteration of the scanning/environment conceptual framework is proposed, taking account of existing research on perception of the environment.

3.3.1   *Perceived environmental uncertainty*

Just as Duncan (1972) was one of the first to articulate the components of the task environment, so he was one of the first to investigate PEU in organisations. Using a quantitative survey the level of PEU in a sample of decision-making units was examined, measuring environmental attributes that contribute to perceived uncertainty along two different continua: dynamic–static and simple–complex. It was found that the level of perceived uncertainty was related positively to the dynamic nature of the environment but not to its level of complexity, unless the environment was also dynamic. However, it has already been noted (in Section 3.2.2) that a three-way classification of environmental attributes, first used by Miller (1983), provides more detail and has been preferred by more recent researchers.

An early review of literature on uncertainty by Jauch and Kraft (1986) proposed a model of environmental uncertainty that took PEU to be the moderating force through which the objective environment impacted the organisation; in other words executive perceptions of the environment mattered more than the objective characteristics of the environment.

Milliken (1987) criticised earlier research because it failed to break down the concept of PEU. Three types of PEU were proposed by Milliken, each affecting the organisation in different ways. *State uncertainty* is the inability to predict the behaviour of a particular component of the environment. This is what most closely resembles PEU as used by previous researchers and is concerned with environmental attributes. *Effect*

uncertainty is the inability to predict the impact on the organisation of an environmental event or change, and stems from the characteristics of the executive. *Response uncertainty* is lack of knowledge concerning the options available to respond to a particular change or event and is experienced when there is a perceived need for immediate action.

The substantial contribution of Milliken's work is to open up PEU as a concept and define types of uncertainty that can affect the organisation in different ways. Its limitation is the fact that it was theoretical in nature and not tested empirically.

Later empirical work by Milliken (1990), through a quantitative survey of colleges in the US, aligned the three types of uncertainty with three activities: scanning, interpreting and learning (Daft and Weick, 1984; see section 3.4.4 for more detail). This lent empirical support to the existence of the three types of PEU. It is the intention of the present research to use the three types of PEU proposed by Milliken (1987) as a basis for investigating the effect of perception on scanning activity.

Vecchiato and Roveda (2010), through a qualitative examination of a number of cases in the literature, proposed that organisations needed not only to develop systems for detecting state uncertainty, but also to solve the effect uncertainty that was generated before deciding on appropriate responses. Thus the three types of PEU can be considered as a temporal phenomenon, state uncertainty arising first, followed by effect uncertainty; finally response uncertainty arises once the state and effect uncertainties have been resolved.

Studies concerned with PEU tend to use the environmental attributes discussed in Section 3.2.2, as perceived by managers, to assess uncertainty levels (e.g. Tan and Litsschert, 1994; Jogaratnam and Wong, 2009). This brings into question whether it is the actual environmental attributes or the perceptions of managers that are more important. The next section examines research concerned with differences between the real and the perceived environment.

3.3.2   *The objective and the perceived environment*

Bourgeois (1985), through a survey of 20 single-business US firms, found using statistical methods that when the perception of the environment was 'correct' – that is to say the level of perceived uncertainty was in line with an objective measure of volatility

in the environment – the economic performance of the firm was better. This was supported by exploratory work by Dess and Keats (1987) that found, using various measures of objective and subjective environment, that both accuracy of perception and consensus of perception among senior managers had some influence on performance of the organisation.

Boyd, Dess and Rasheed (1993), through a review of literature, proposed that divergence between the perceived and objective environments was the result of an error on the part of the organisation. Four potential relationships between the perceived and objective environments were postulated, shown in Figure 3.3.

	Perceived Environment	
	Certain	**Uncertain**
Certain	(1) A placid, randomized environment. Firm recognizes stable environmental conditions and plans accordingly.	(2) Firm misperceives the environment. Develops unnecessary resources to monitor environment and develop strategy. Type I ERROR
Objective Environment **Uncertain**	(3) Firm misperceives the environment. Firm survival is threatened by competitive, technological, and regulatory change. Type II ERROR	(4) Firm recognizes uncertainty and develops appropriate information and planning capabilities.

Figure 3.3: The perceived and objective environments (taken from Boyd et al., 1993)

It was also proposed that the two error types identified above were likely to arise because of four filters between the objective and perceived environments, these filters acting at a number of different levels: the individual level, the workgroup level, the organisation level and the strategic focus level. The consequences of either type of error arising would be a breakdown in the relationship between strategy, environment and performance (Boyd *et al.*, 1993).

While these propositions are intuitively appealing, it was noted by Doty, Bhattacharya, Wheatley and Sutcliffe (2006), using both in-industry and cross-industry data sets, that there was more to divergence between perception and reality than simple perceptual error. There is a difference between environmental uncertainty and environmental

variability, with the former concerned with managers being unable to predict certain things (in common with Milliken, 1987; 1990) and the latter with change in general that in some cases could be predicted. Doty *et al.* found that in some cases divergence from perceived and actual environments was due to the characteristics of the tools used to measure the two constructs while in other cases the type I and type II errors identified by Boyd *et al.* (1993) were the reason for divergence.

While various researchers have investigated the role of the perceived and actual environments, there appears to be some disagreement on the types of divergence that can arise. The work of Boyd *et al.* (1993) provides the most coherent framework, identifying the types of divergence between perceived and actual states. However, the qualifications noted by Doty *et al.* (2006) must also be taken into account.

3.3.3   *Conceptual framework: perception of the environment*

Overall, the perceptions of managers can be seen as the lens through which the environment is examined, interpreted and acted upon, and as the filter through which information on the environment is viewed. The breakdown of uncertainty types proposed by Milliken (1987) and later empirical work by Vecchiato and Roveda (2010) provide an important contribution to knowledge, as does the work of Boyd *et al.* (1993) on the differences between real and perceived states of the environment and their effects on the organisation.

The concept of PEU is central to the literature concerned with environmental scanning. While there is no definitive agreement among researchers on the relative importance of the real and perceived environments, the prominence of PEU in existing literature on scanning suggests that it needs to be included in the scanning/environment conceptual framework developed in this chapter.

The first iteration of the framework proposed in Section 3.2.3 included the environmental attributes first used by Miller and Friesen (1983), but these are of limited use if the role of PEU is to be examined. Therefore, the present research does not propose to examine objective attributes of the environment. Rather the intention is to look for instances of the three PEU types proposed by Milliken (1987) to assist in examining various aspects of environmental scanning and the strategy process.

Figure 3.4 shows the second iteration of the scanning/environment conceptual framework. The attributes of the environment that were added in Section 3.2.3 have been removed. Instead the three PEU types proposed by Milliken (1987) have been added. These PEU types represent a filter through which the external environment is perceived.
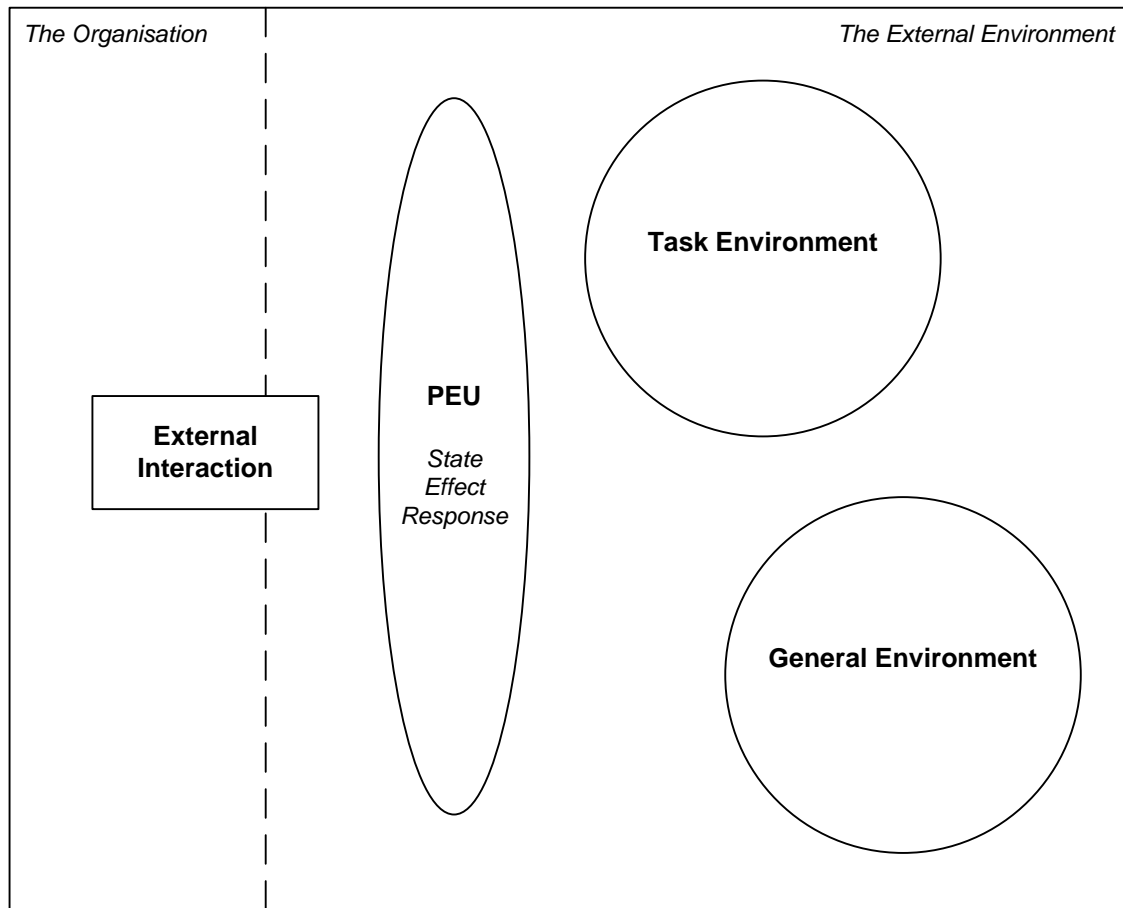
Figure 3.4: Scanning/environment conceptual framework: second iteration

The scanning/environment framework in Figure 3.4 is still not complete. Items concerned with the environment have been added, but a detailed review of existing research on scanning of the environment is required to provide the final piece of the framework. That is the purpose of the final section of this chapter.

3.4   Scanning the environment

The preceding sections have examined existing research concerned with aspects of the organisation and its external environment. They provide an important foundation to the present study, the focus of which is environmental scanning. This section seeks to examine existing knowledge about environmental scanning. The present research will then be positioned within that body of knowledge at the start of Chapter 4.

In the following sub-sections, definitions of environmental scanning are examined. Characteristics of scanning are discussed and some key definitions for the present research are adopted. Next two strands of research that seek to understand influences on scanning are examined; the first treats the individual and the second the organisation as the unit of analysis. Finally, research that has examined the relationship between scanning and competitive advantage is discussed. Some of the literature on scanning also deals with PEU, which was discussed in Section 3.3. At the end of this section the part of the conceptual framework that is concerned with environmental scanning is developed.

3.4.1 Defining environmental scanning

Environmental scanning involves gathering information on the external environment. A number of definitions exist in the literature and broadly convey similar messages. An early definition contributed by Aguilar (1967) is as follows:

> *'scanning for information about events and relationships in a company's outside environment, the knowledge of which would assist top management in its task of charting the company's future course of action.'* *(1967, pvii)*

Elenkov (1997), on the other hand, defined scanning as:

> *'the means through which managers perceive external events and trends.'* *(1997, p288)*

The difference between the two definitions is that the first seeks to include only information actively gathered for assisting senior management in making strategic decisions, while the second is broader, using 'managers' rather than 'top management', and includes, implicitly at least, both proactive and more passive collection of information. In addition the second definition does not explicitly link scanning to decision making. For the purposes of this research, the second definition is preferable to the first because it has a broader scope and does not exclude information that is not gathered specifically for decision-making purposes.

The unit of analysis in the present research is the organisation. It is therefore proposed that the working definition of external environmental scanning should involve both passive observation and active gathering of information on the environment by

employees. It should not be confined to information sought for decision-making purposes, nor to information that is reported formally. Information gathered through scanning may or may not be analysed. The terms 'scanning', 'environmental scanning' and 'external environmental scanning' are taken to be synonymous.

3.4.2 *Scanning characteristics*

Early work by Aguilar in the US chemicals industry (1967) suggested scanning activity by individual executives was ad hoc and bore no relation to the hierarchical level and only a moderate relation to functional background of the individual involved. Similar findings were reflected in other early research in the US meat-packing and farm machinery industries by Kefalas and Schoderbek (1973). While these perspectives may be of limited use given the changes in organisations' internal and external environments since publication, the works represent the first contributions on scanning in explicit terms and provided foundations for later research.

Hambrick (1981; 1982) saw scanning as a fundamental part of strategy making and proposed that differences in performance could be a result of *'unequal mastery of environmental trends'* (Hambrick, 1982, p 159). Through a quantitative survey of senior managers across three different industries, he found no consistent link between scanning and strategy, and concluded that executives tended to scan according to their own interests. His most important contribution was to propose some criteria by which scanning activity could be measured. The first was *frequency*, or how often a particular sector of the environment was examined; the second was *interest*, or how much executives kept themselves informed of particular sectors of the environment; and the third was *hours*, or how much time was devoted to looking at various sectors of the environment. These criteria are of less use in the present research because it does not involve counting observations or collecting quantitative data.

Beal (2000), in a later quantitative study of small businesses, termed measurement of the number of sectors scanned by the firm as *scope*. It is proposed in the present research to use *scope* to examine scanning activities with an objects-based division of the environment similar to that discussed in Section 3.2.1.

A six-part division of the environment, with three general sectors and three task sectors, based on the relatively straightforward sector breakdown used by Daft *et al.* (1988) is

proposed. The preferred term for each sector and the definition for the purposes of the present research are given in Table 3.1. It is acknowledged that some scanning studies have used increasingly complex breakdowns of the environment, with seven-sector (e.g. Sawyerr, 1993), nine-sector (e.g. Jogaratnam and Law, 2006) or ten-sector breakdowns (e.g. Bhardwaj and Kumar, 2014) sometimes being used. These more complex approaches are appropriate for collecting quantitative data on specific objects in the environment that are scanned. The open-ended and qualitative approach of the present research, however, would be constrained by such a detailed breakdown, so the six-sector breakdown in Table 3.1 is sufficient.

Table 3.1: General and task environment sectors used in the present research (adapted from Daft et al., 1988)

Sector		Content	Examples
General Environment	Economic	Macroeconomic indicators	Interest rates, inflation rates
		Financial indicators	Stock markets, bond markets
		Price/cost trends	Cost of outputs, cost of inputs
	Sociocultural	Demographic trends	Population growth, median ages
		Societal perceptions	Attitudes to large companies
	Regulatory	Legal issues	Direct and indirect regulation
		Political considerations	Government activity, political issues
Task Environment	Customer	Customers	Individuals, companies, other groups
		Potential customers	As above
	Competitive	Competitors	Resource and customer competition
		Indirect competitors	Possible substitutes
		Suppliers	Competition for resources
	Technological	Technological development	New technologies
		Technological opportunities	Technically viable opportunities

Along with scanning scope, another important factor in scanning activity is the medium through which information is gathered. Early work by Keegan (1974) used interviews with senior managers to establish the information sources used to scan the environment. These were categorised as either internal or external sources, and as either human or documentary types of information.

A similar breakdown was used by Daft *et al.* (1988) and Elenkov (1997) but different terminology was used and the expression *scanning mode* introduced. The word 'mode' is used in a number of different senses in strategic management literature. For the sake

of clarity the present research uses scanning mode, in the same way as Daft *et al.* (1988) and Elenkov (1997), to mean the source or medium through which the organisation learns about the environment. A breakdown of four scanning modes, *internal personal*, *internal impersonal*, *external personal* and *external impersonal*, is provided in figure 3.5, along with source examples.

	Internal	External
Personal	Colleague or Subordinate	Contact in another company
Impersonal	Internal reports	News report Industry intelligence report

Figure 3.5: Four scanning modes, with source examples (author's own, based on ideas in Daft et al., 1988, Elenkov, 1997 and others)

Empirical research on modes of scanning has been restricted mostly to the behaviour of individuals. Findings suggest that managers prefer information received directly from individuals (Daft *et al.*, 1988; Sawyerr, 1993; Jogaratnam and Law, 2006). The quality and reliability of information have been found to be related to frequency of source use (Auster and Choo, 1994), as has source accessibility (Culnan, 1983). Auster and Choo (1994) noted that quality was more of an issue for managers than accessibility.

Findings on preference for external or internal sources are mixed. Keegan (1974) found that US multinationals preferred external sources at home and internal sources abroad, while Daft *et al.* (1988) and Elenkov (1997) found that the existence of PEU in a sector of the environment resulted in a preference for external, personal sources. Despite these varying preferences, multiple sources were usually used to scan the environment:

> *'Managers use multiple media, and media may complement one another. A weak*
> *signal detected from a personal source may be supplemented with objective*

> *data. Scanning information through one medium may trigger the use of a complementary medium' (Daft et al., 1988, p136)*

The existing literature provides a number of useful definitions and breakdowns that are used in the present research. The ideas of *scope* and *mode* of scanning, as defined here, will be used to assess the characteristics of scanning in the empirical stages of the research. Both are added to the conceptual framework at the end of this section.

3.4.3   Scanning at the individual level

The studies addressed in this sub-section examine scanning at the individual level. Prior empirical research has attempted to identify relationships between scanning and various other internal and external factors.

Beal (2000), through a quantitative survey of senior managers in small manufacturing companies, examined the relationship between environment, strategic fit and the frequency and scope of scanning. By measuring the environment using industry life cycles, and by measuring strategy using Porter's generic strategies, he found that there was little association between scanning frequency and the fit between strategy and environment. In addition there was mixed support for a positive relationship between scanning scope and the fit between environment and strategy. Beal's study is constrained by the assessment of the environment using only industry growth rates and life cycles, and also by its empirical grounding in a single sector. It does suggest, however, that the relationship between scanning and strategy is not a simple one.

Daft *et al.* (1988), through a survey of managers in medium-sized manufacturing firms in the US, found that perceived uncertainty did influence the nature of scanning but that uncertainty in general did not. Rather sectors of the environment that were seen as important were more likely to generate uncertainty. It was found that PEU was greater in the customer, competitive and economic sectors than in the technological or regulatory sectors. This was termed 'strategic uncertainty' and has become a widely accepted term in later research (e.g. Sawyerr, 1993; Elenkov, 1997).

Boyd and Fulk (1996) referred to 'strategic uncertainty' as 'strategic variability', meaning that the perceived importance of a sector in conjunction with its perceived variability affects the level of scanning directed towards that area. In addition, they found that elements of the environment that were seen as unanalysable or extremely

volatile were scanned less often. A statistical survey of decision maker scanning behaviour in Canada (Auster and Choo, 1994) found PEU to be positively related to the level of scanning and also found that source of information was affected by perceived quality of that source.

Elenkov (1997) proposed a model of scanning, presented in Figure 3.6, adapted from the work of Daft *et al.* (1988), after conducting a quantitative survey of managers in recently post-communist Bulgaria. Elenkov looked at the relationship between strategic uncertainty and scanning frequency and scope and found that there was a different balance of perceived uncertainty in such a country, the regulatory environment being prone to rapid and destabilising change. At the same time Elenkov found that the relationship between uncertainty and scanning was similar to that found by Daft *et al.* but with more emphasis on the regulatory environment, given the volatile nature of the country examined after the fall of communism. More recent research in Russia (May *et al.*, 2000) and in Hong Kong (Jogaratnam and Wong, 2009) produced similar results.
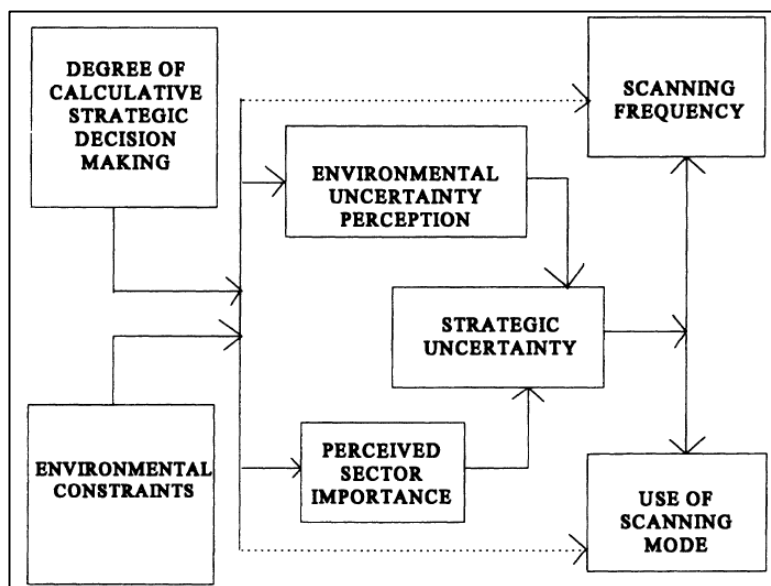
Figure 3.6: Model of scanning behaviour (taken from Elenkov, 1997)

Stewart, May and Kalia (2008) used data from the US and India. They found that scanning behaviour was similar in the two countries, but in line with the findings of Elenkov, it was noted that the culture and context in terms of economic development affected the sectors perceived to be most important.

Jennings and Lumpkin (1992), through quantitative surveys of managers in the savings and loan industry in the southern US, found that choice of generic strategy influenced

the sectors of the environment that were scanned most frequently. They found that firms pursuing a differentiation strategy were more likely to be concerned with customers, technology and new opportunities, while those pursuing a cost leadership strategy were more likely to be concerned with competitors and potential threats. This takes the opposite perspective from the earlier work of Hambrick (1982), which looked at scanning as a driver of strategy rather than at strategy as a driver of scanning.

A more passive approach to the environment was found by Lang, Calantone and Gudmundson (1997) to be prevalent among small entrepreneurial organisations. Here information on the environment was sought only when an external threat or opportunity arose. These findings may imply that both cost and bounded rationality play some role in the scanning process.

Hough and White (2003), using a behavioural simulation across a sample of executive teams in the US, found that scanning was related to functional position and exposure to environmental dynamism. This is of note as it contradicts the early findings of Aguilar (1967) and Kefalas and Schoderbek (1973). The findings must, however, be treated with some caution because of the simulated environment in which the empirical work was conducted. A qualitative study conducted around the same time as the work of Hough and White, using discussion panels with managers in the technology and telecommunications industries, found that managers were positively disposed towards the idea of scanning the environment (Nastanski, 2004). The limitation of the latter work was that it focused only on active scanning and took no account of passive scanning.

Very recent work on individual scanning behaviour in India has compared private and publicly owned banks (Bhardwaj and Kumar, 2014). Findings, while generally consistent with earlier work on scanning scope, noted that managers working in publicly owned institutions were more likely than those in private banks to look at international events. Other recent work, looking at managers in Kuwait, found little awareness of formal scanning terminology and an unstructured approach to information gathering (Rouibah, 2014).

While a number of potential influences on scanning behaviour are identified in the literature reviewed in this section, there appears to be little agreement on their relative importance. The concept of PEU, which was added to the conceptual framework at the

end of Section 3.3, has emerged here as being of some prominence; as such it was added to the conceptual framework in Section 3.3.3. The intention is to also add *scope* and *mode* of scanning to the conceptual framework at the end of this sub-section.

Research examined so far has dealt exclusively with the individual as the unit of analysis, and the term 'scanning behaviour' has been used to refer to how scanning happens. However, the unit of analysis in the present research is the organisation. This means that the term 'scanning behaviour' may not be fit for purpose because the word 'behaviour' tends to imply individual action. The term 'scanning activity' will be used from this point onwards to refer to both individual and collective scanning actions. The next sub-section is devoted to research that has dealt with scanning as an organisational rather than individual issue.

3.4.4   *Scanning at the organisational level*

With the development of increasingly complex systems of environmental analysis and corporate strategy in large organisations, some researchers turned towards the organisation as the preferred unit of analysis.

Early empirical research on formal environmental scanning units or systems in organisations found that such units were limited in their existence and often ineffective (Fahey and King, 1977; Fahey, King and Narayanan, 1981; Jain, 1984). Fahey and King (1977) proposed three categories of scanning approach: irregular, regular and continuous. Stubbart (1982), through a longitudinal study of organisational scanning systems, noted that poor performance of the organisation overall could result in rapid and unsettling changes in scanning approaches and the role of the unit. This contrasts with earlier research (Thomas, 1980) that found structured and effective scanning systems in place in selected US corporations. The findings of Thomas were, however, based exclusively on analysis of publicly available secondary data and so should be treated with caution.

Daft and Weick (1984), based on a review of prior research, proposed that scanning was actually a three-part process consisting of scanning, interpretation and learning. The recognition that organisational learning, knowledge and interpretation is about more than just the behaviour and perceptions of individuals is important because it sees organisations as complex systems, in which the environment plays an integral part.

Daft and Weick also proposed that exact approaches to the environment in organisations depended on two dimensions: the extent to which an organisation saw its environment as analysable and the extent to which the organisation intruded on the environment.

Lenz and Engledow (1986), using a qualitative study of ten US firms chosen for their well-developed administrative structures and a commitment to environmental analysis, looked at the various roles environmental analysis units played. Three broad categories of unit characteristics were found, shown in Table 3.2. It was also proposed that some environmental analysis unit types served the organisation better than others – it was proposed that the strategic planning integrated style of analysis unit was most effective.

Table 3.2: Environmental analysis unit types (adapted from Lenz and Engledow, 1986)

Type	Public Policy	Strategic Planning	Function-Oriented
Environment focus	General	Task and general	Task (specific areas)
Relationship to planning	Some access to management, not integrated into planning process	Integrated into process and prepare forecasts for top management	Outside strategy process, no access to management
Overall role	Stimulate thinking among top management; prevent 'surprises'	Influence decision making at corporate and business level	Placed in functional departments to monitor areas specific to that function

The effectiveness of scanning units is a theme picked up by later research. Yasai-Ardekani and Nystrom (1996) examined the effectiveness of environmental scanning systems through a quantitative study of North American firms that looked at scope, frequency and involvement of top management with scanning. They found that the requirements for an effective scanning system related to the nature of the environment itself.

In organisations that saw infrequent change in their task or general environments the scope of an effective scanning system would be narrow, with a low frequency of scanning and limited top management involvement. Organisations that saw frequent change in their environments would have to scan more frequently, more widely and with more top management involvement. In addition, a mixed relationship was found between the size of organisation and scanning, the effectiveness or otherwise of the

scanning function being of more importance overall. This adds some depth to the propositions made by Lenz and Engledow (1986).

Costa, in a doctoral thesis (Costa, 1997) using a sample of organisations in the Portuguese hotel industry, proposed a normative model of formal scanning systems that were integrated with the organisation's strategic planning system. While providing some insight into possible links between planning and scanning activity, the perspective is constrained by its normative approach and focus on planning activities. In a related journal paper, Cost and Teare (2000) found that the attitudes of individual managers to scanning activity were unrelated to the strategic approach of the organisation in question, suggesting that individual scanning may be unrelated to the strategic priorities of the organisation.

More recent work by Mayer (2011) has proposed guidelines for designing environmental scanning systems in the wake of the 2008/9 economic crisis, through in-depth examination of a single case in the German chemicals industry. It was noted that the demands created in the regulatory environment in the early 2000s for more stringent risk management approaches after various cases of corporate fraud resulted in an increased emphasis on forward outlook in company reports and systems, and this required better environmental scanning systems. It was proposed that such systems should be an integrated part of an organisation's business intelligence system: an electronic means of collecting, storing and organising internal and external data that can be used in decision making (Negash, 2004; Watson and Wixom, 2007). The guidelines developed by Mayer (2011), while limited in terms of generalisability, generate a deeper understanding of how such a system might be developed and integrated.

Research on scanning at the organisational level has identified a number of approaches to, limitations of and issues with scanning systems and their relationship with strategic planning. Earlier work is likely to be rather dated and later works, such as Costa (2000) and Mayer (2011), tend to have normative goals.

The intention of the present research is not to propose what should be done; rather it is to examine how and why the environment is scanned from the organisational perspective. That said, it is acknowledged at this point, and implicitly in the definition of scanning provided in Section 3.4.1, that both informal individual scanning and more formal systems-based scanning may contribute towards scanning at the organisational

level. Therefore, while the unit of analysis is the organisation, the *formality* of scanning activity, assessed by the balance between organisational and individual scanning in the organisation, will be added to the conceptual framework at the end of this sub-section.

3.4.5 *Scanning and competitive advantage*

The final strand of research on scanning is concerned with its relationship with competitive advantage, performance or some other organisational outcome. A number of more recent studies have taken a resource-based or dynamic capabilities approach to examining the relationship between environmental scanning and competitive advantage. Some of these studies take the individual and others the organisation as their unit of analysis.

West and Anthony (1990) looked at scanning from the strategic group perspective, finding that higher levels of scanning resulted in higher performance within strategic groups, and that performance differed significantly between strategic groups.

Garg, Walters and Priem (2003) found a statistical relationship between the level of task environment scanning on the part of the CEO and performance, where the organisation had a dynamic environment. On the other hand organisations with relatively stable environments performed better when the CEO spent time scanning the general environment. The limitation of this finding is that the outcome suggests that it could be the environment itself, rather than the scanning activity, that is related to performance.

Zahra and George (2002), through a review of previous literature, built on the concept of absorptive capacity, which is the ability of the organisation to recognise the value of new information, assimilate it and use it for commercial ends, earlier identified by Cohen and Levinthal (1990) in the context of innovation processes. Zahra and George (2002) identified absorptive capacity as a dynamic capability that influences the creation of other assets from which competitive advantage can be derived.

Absorptive capacity was broken down into four individual capabilities: acquisition, assimilation, transformation and exploitation. It was also noted that there was a difference between an organisation's potential absorptive capacity and its realised absorptive capacity. Potential capacity was said to be determined by the ability to acquire and assimilate information, and realised capacity by the ability to transform and exploit such information. The work of Zahra and George supports the work on

scanning systems by Lenz and Engledow (1986), which proposed that scanning systems integrated into strategic decision-making systems were preferable to those that were not.

The contribution of Zahra and George (2002) is constrained by its lack of empirical grounding, but later work by Danneels (2008) took an empirical approach to the idea of scanning as a dynamic capability. Using a quantitative survey of US manufacturing firms, it was found that the better placed an organisation was to explore new markets, the more able it was to detect and take advantage of new opportunities .

Similar efforts using the dynamic capabilities construct have also found that the activity of scanning the environment can be considered as a means of adapting and redeploying resources and deriving competitive advantage (Liao *et al.*, 2009; Bérard and Delerue, 2010; Wu, 2010). In fact, scanning activity can be seen as a core part of the process of sensing, seizing and reconfiguring identified at the organisational level by Teece (2007) and by Helfat and Peteraf (2014) as part of the microfoundations of dynamic capabilities.

Related research has argued that membership of professional networks or industry bodies contributes towards competitive advantage, allowing the organisation to see potential opportunities more clearly and earlier than it would otherwise (Damanpour, 1991; Lee, Lee and Pennings, 2001). While this is related to the present research because of its interest in scanning mode as defined in Section 3.4.2, the intention here is not to search for relationships between scanning and competitive advantage. In the context of scanning and strategy, the intention is to examine the links between scanning and the areas of strategic activity developed in Chapter 2.

3.4.6   Conceptual framework: scanning the environment

It has been demonstrated in this section that the literature on environmental scanning is diverse and that there are a number of important constructs that can be used to understand scanning activity in organisations. The characteristics of environmental scanning can be assessed according to numerous criteria. The concepts of scope and mode have been identified and defined for the purposes of the thesis. The formality or otherwise of scanning has also been identified as an important way of examining scanning activity. The idea of PEU, which was examined in its own right in Section

3.3, has again emerged as an important influence on scanning. The part of the conceptual framework concerned with environmental scanning is shown in Figure 3.7.

Scanning of the environment involves actors on the inside of the organisation looking outwards. Scanning activity can be assessed in terms of scope, mode and formality. PEU is included here because of its potential influence on scanning. The complete scanning/environment conceptual framework is developed in the final section of this chapter. As the focus of this thesis, the scanning literature as a whole will be revisited at the start of Chapter 4 in order to position the present study in the wider knowledge base. Once that has been accomplished, the integrated conceptual framework, containing ideas from both Chapters 2 and 3, will be proposed.
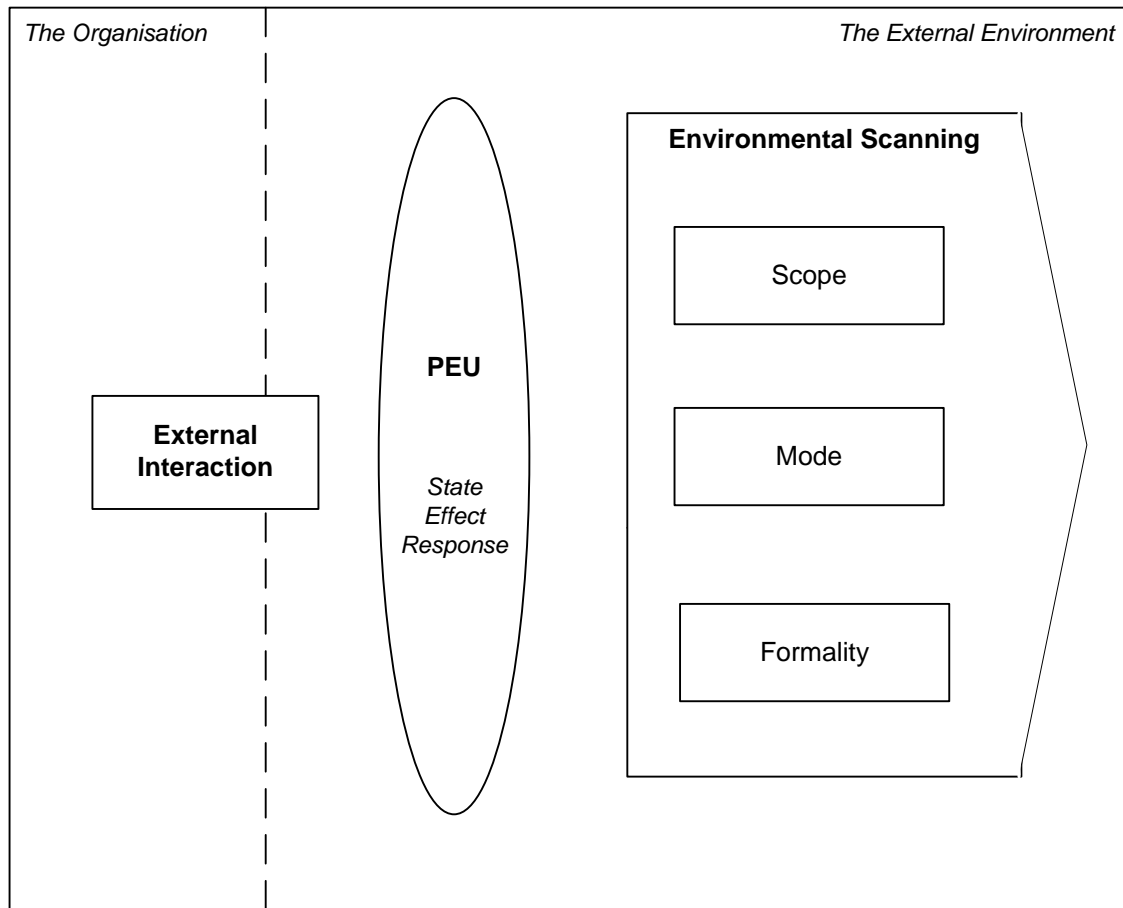
Figure 3.7: Partial framework: scanning characteristics

3.5   Synthesis: environmental scanning and the external environment

At the start of this chapter three questions were posed in order to structure the review of literature. A useful exercise at this point is to re-examine each question in light of the preceding discussion. The questions were:

1. How can the environment be subdivided and assessed?
2. What role does perception of the environment play?
3. How do organisations acquire and use information on the environment?

Question 1 has been addressed in various ways by existing research. The two principal categories of general and task environment (Dill, 1958) are generally accepted in the literature base, although there are a variety of approaches to their further subdivision (e.g. Duncan, 1972; Daft *et al.*, 1988; Sawyerr, 1993).   The characteristics of the environment can be assessed along dimensions such as dynamism, heterogeneity and hostility, as used by Miller and Friesen (1983), although it was noted in Section 3.3 that a perceptions-based approach is preferable to an objective examination of environmental attributes for the purposes of the present research. The approach to the industry proposed by Porter (1980; 2008) has been noted as an alternative approach to the task/general division of the environment.

Question 2 does not appear to have been answered definitively, but the concept of individual perceptions permeates research that addresses the other two questions here. Perception as a concept has been researched in terms of PEU (Duncan, 1972; Milliken, 1987; 1990) and in terms of the deviation between real and perceived environments (Boyd *et al.*, 1993). The concept of PEU has been studied extensively in the scanning literature (Daft *et al.*, 1988; Sawyerr, 1993; Elenkov, 1997; May *et al.*, 2000; Stewart *et al*., 2008; Jogaratnam and Wong, 2009) and is of central importance when looking at how the environment itself affects scanning activity. It is through this lens that the present research examines the relationship between the environment and scanning.

While question 3 has also been examined in some depth by researchers, the picture presented by existing research is mixed. The activity of environmental scanning can be examined in terms of scope, mode and other parameters, and appears to be driven by the level of PEU in strategically important sectors of the environment at the individual level (Boyd and Fulk, 1996; Elenkov, 1997; Stewart *et al.*, 2008). There is a relationship

between scanning and strategy, but researchers have emphasised different aspects of strategy as being important (Hambrick, 1982; Jennings and Lumpkin, 1992; Beal, 2000; Bérard and Delerue, 2010).

Scanning can be viewed as part of a wider process of scanning, interpretation and learning (Daft and Weick, 1984), fitting with later work on the dynamic capabilities approach of sensing, seizing and reconfiguring (Teece, 2007; Helfat and Peteraf, 2014). The scanning process is an integral part of the sensing and seizing capabilities. Systems for scanning the environment have been examined for their effectiveness and, while early results on their preponderance and usefulness were mixed (e.g. Fahey and King, 1977; Thomas, 1980; Jain, 1984), there is general agreement that more effective systems are integrated into the planning and decision-making process in the organisation (e.g. Lenz and Engledow, 1986; Yasai-Ardekani and Nystrom, 1996; Mayer, 2011).

Overall, the review of literature has provided various aspects of the scanning/environment conceptual framework developed throughout this chapter. The complete framework covering aspects of the environment and environmental scanning is provided in Figure 3.8.
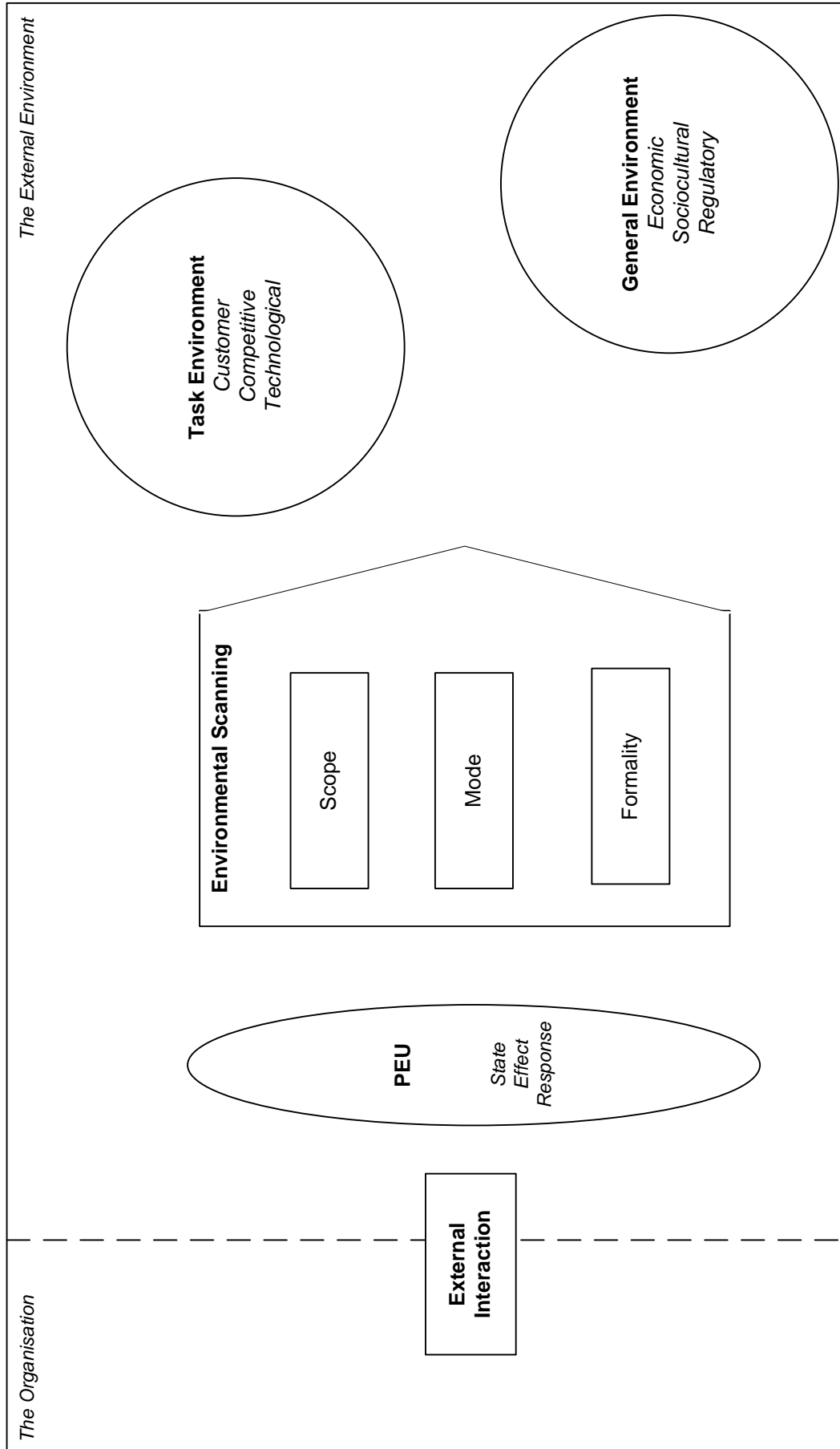
Figure 3.8: Scanning/environment conceptual framework

The diagram (rotated) contains the following labelled elements:

The External Environment

The Organisation

Task Environment
Customer
Competitive
Technological

General Environment
Economic
Sociocultural
Regulatory

Environmental Scanning
- Scope
- Mode
- Formality

PEU
State
Effect
Response

External Interaction

The framework above will be used to guide the aspect of the empirical stage of the research that is concerned with scanning and the environment. The 'missing' part of the framework, developed in Chapter 2, is reintroduced in the next chapter to provide an integrated conceptual framework to be used for the empirical work.

3.6 Conclusion

At this point a significant body of existing research has been examined and the key themes of environmental scanning and strategy process have been identified. A number of models and perspectives for the purposes of the present research have been defined. Given the variety of findings on environmental scanning and its relationship with aspects of strategy, there exists an opportunity for further research in this area. The next stage is to look at literature on environmental scanning at a forensic level and to position the present research within the field. Once that has been accomplished, it is possible to propose a number of guiding questions and put forward the integrated conceptual framework for the empirical stages of the research.

Chapter 4: Research Questions and Conceptual Framework

4.1   Introduction

This chapter contains the final part of the theoretical foundation of the present research. Literature reviewed in the preceding two chapters is considered and the place of the present research within the wider body of knowledge is identified. Next the research aim and a number of guiding questions are proposed. These questions direct the empirical stage of the research. With these questions in place, a conceptual framework that can be used to collect and analyse data is proposed. The research design and methods used to address these questions are then discussed in Chapter 5.

4.2   Assessing the research opportunity

The domain of the present research is strategic management, specifically environmental scanning and the strategy process, so the intention is to frame the research within the body of knowledge on environmental scanning addressed in Chapter 3. The 37 empirical works on environmental scanning that were reviewed in Chapter 3 are summarised in Table 4.1. These are shown in chronological order by unit of analysis: individual or organisational. Columns are provided for the elements of scanning that were the focus of the research and for the type of data used. Columns on *scope* and *mode* cover research that looks at how scanning is conducted. The *influences* column covers research looking at internal and external influences on scanning. *PEU*, given its prominence in the literature, is treated separately. Columns on scanning *systems* and the *link with elements of strategy* are also provided.

Table 4.1: Breakdown of empirical studies of environmental scanning

		Research Focus						Data Used	
Author	Scope	Mode	Influences	PEU	Systems	Strategy Link	Quantitative	Qualitative
Focus on the Individual								
Aguilar (1967)	X		X					X
Kefalas & Schoder. (1973)	X		X					X
Keegan (1974)		X	X				X	X
Hambrick (1981)	X		X				X	
Hambrick (1982)						X	X	
Culnan (1983)	X	X					X	
Daft et al. (1988)			X	X			X	
Jennings & Lumpkin (1992)							X	
Sawyerr (1993)			X	X			X	
Auster & Choo (1994)		X					X	
Boyd & Fulk (1996)	X		X				X	
Elenkov (1997)		X		X			X	
Lang et al. (1997)							X	
Beal (2000)	X					X	X	
May et al. (2000)	X			X			X	
Garg et al. (2003)		X	X				X	
Hough & White (2003)		X	X		X		X	
Nastanski (2004)				X		X		X
Jogaratnam & Law (2006)	X						X	
Stewart et al. (2008)			X				X	
Jogaratnam & Wong (2009)				X			X	
Bhardwaj & Kumar (2014)	X						X	
Rouibah (2014)	X						X	
Focus on the Organisation								
Fahey & King (1977)					X	X		X
Thomas (1980)					X		X	
Fahey et al. (1981)					X			X
Stubbart (1982)					X	X	X	
Jain (1984)					X			X
Lenz & Engledow (1986)					X		X	
West & Anthony (1990)						X	X	
Yasai & Nystrom (1996)	X						X	
Costa & Teare (2000)						X		X
Lee et al. (2001)							X	
Liao et al. (2009)							X	
Berard & Delerue (2010)							X	
Wu (2010)					X		X	
Mayer (2011)								X

When the scanning literature is visualised in such a way, a number of issues become immediately apparent. The emphasis in the field is clearly in favour of individual scanning, with 23 of the 37 empirical studies taking the individual as the unit of analysis. Of these 23 studies, the earliest took a mixed methods approach and only 2 (Keegan, 1974; Nastanski, 2004) took a purely qualitative approach. It is also clear from the table that ideas such as scope, mode, influences on scanning and the role of PEU are widely researched at the individual level. The links with aspects of strategic activity are addressed in only four of these studies (Hambrick, 1982; Jennings and Lumpkin, 1992; Beal, 2000; Garg *et al.*, 2003).

The 14 studies looking at the organisation, on the other hand, can be split more or less evenly into qualitative and quantitative approaches. The emphasis in these studies appears to be scanning systems and their integration or otherwise with the firm's planning process. Some of these studies have attempted to address links between organisational scanning and some element of strategy, but there has been little investigation of scanning at the organisational level in terms of scope, mode or PEU. While scope and mode are often treated as individual-level issues in the literature, they could be investigated at the organisational level.

Another issue with scanning research to date is that the implicit split between individual and organisational scanning fails to address properly the nature of the scanning activity as it may occur in organisations. In Section 3.4.1, scanning was defined for the purposes of the present research. Key features noted were as follows.

- It involves both passive observation and active gathering of information by employees.
- It is not confined to information sought for decision-making purposes.
- It is not confined to information that is reported formally.
- Information gathered through scanning may or may not be analysed in some way.

The definition provided above first acknowledges that many employees, not just senior managers, scan their environments. It also acknowledges that in practice there may be an undefined boundary between organisational and individual scanning, in that scanning by individuals conducted passively or in an undirected manner may or may not contribute to organisational scanning systems. The definition used in the present

research therefore allows a more holistic view of scanning and its links with the strategy process.

The predominantly quantitative approach to scanning in the field as a whole means that, while various relationships have been determined, a lack of in-depth explanation of scanning activity exists. Add to this the fact that much of the qualitative work of note in the field was conducted in the last century and the opportunity arises for an in-depth qualitative study of environmental scanning. This will involve examining how scanning is conducted in organisations, what drives scanning activity and what role PEU plays in the process. The relationship between scanning and elements of the strategy process also warrants deeper investigation.

4.3   Research questions

The previous section has positioned the present research within the wider literature base, so the next step is to define the research aim and questions. Given the exploratory nature of the research, the intention is not to provide a set of hypotheses that can be tested but rather to provide a research aim around which a number of guiding questions can be proposed.

The aim of this research is to examine how and for what reasons organisations scan their environments and how this scanning relates to their strategy processes. This can be broken down into a number of questions that will guide the empirical stage of the present research.

These questions are as follows.

- How do organisations scan their environments?
- What motivates organisations to scan their environments?
- What is the impact of perceived environmental uncertainty on scanning?
- How is scanning activity linked with the rest of the strategy process?

In order to answer these questions it is necessary to develop an integrated conceptual framework from the literature review already conducted. This framework can then be used to guide the collection of empirical data concerned with scanning and the wider strategy process.

4.4 The conceptual framework

The conceptual framework proposed in this section integrates the two frameworks developed through reviews of literature in Chapters 2 and 3. Some models that sit within the framework, to be used during the data analysis process, are then examined.

4.4.1 The integrated conceptual framework

In Chapter 2 (Section 2.6) a framework consisting of five areas of strategic activity was proposed. Each of the five areas of strategic activity can be viewed as separate strategic variables that interact with each other in a number of different ways, but the interaction between these areas is not the primary concern of the present research. This research is interested in how and for what reasons environmental scanning is conducted and how it relates to these areas of the strategy process. To investigate this, a framework consisting of the external environment and relevant aspects of environmental scanning was developed in Chapter 3 (Section 3.5).

Here the two frameworks are put together to provide the integrated conceptual framework to be used in the present research, shown in Figure 4.1. The five areas of strategic activity are represented on the left-hand side within the organisation. The activity of environmental scanning effectively bridges the external environment and the external interaction area of the strategy process. A number of characteristics of and influences on scanning are noted, including scope, mode, formality and PEU.

The conceptual framework is a graphical representation of the areas of interest to the present research: the events, issues and activities within the organisation that require examination in order to answer the research questions. The framework is the basis for development of data collection instruments, addressed in detail in the next chapter. Prior to that, a number of concepts within the framework require some operationalisation so they can be used in the analysis of the empirical stage of the research.
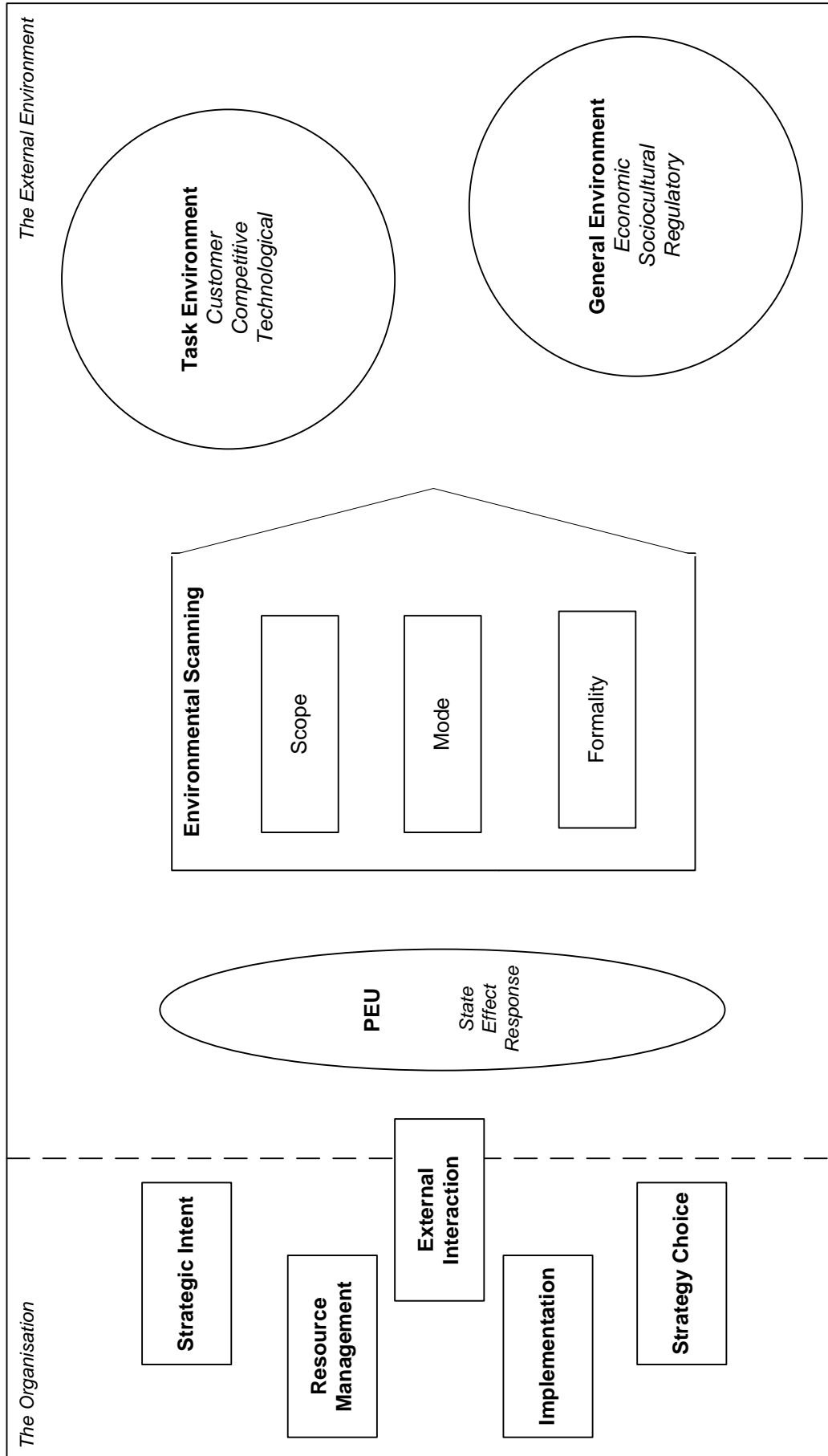
Figure 4.1: Integrated conceptual framework: environmental scanning and the strategy process

4.4.2   Concepts required for data analysis

Scope and mode of scanning were identified in Section 3.4.2 as ways in which scanning activity can be characterised. The six environment sectors (in Table 3.1) and four modes (in Figure 3.5) will be used to analyse scanning activity in the empirical stage of the research. The balance between organisational and individual approaches to scanning will also be examined. Together the ideas of scope, mode and formality provide a useful starting point for discussing and assessing scanning activity.

The drivers of scanning activity will be examined, searching for common issues and activities that drive the organisations under study to scan their environments. Any evidence of PEU will be assessed in terms of the three types identified by Milliken (1987), as discussed in Section 3.3.1. Again this will be related to the six environment sectors discussed in Section 3.4.2.

The drivers identified from the data, along with evidence of PEU, will serve as the foundation of a causal network analysis, discussed in more detail in the next chapter. Activities that result in scanning of the environment will be categorised according to the five areas of strategic activity proposed and defined in Section 2.6. The intention is to attempt to relate the different types of scanning activity to areas of strategic activity, thus providing a deeper picture of the relationship between scanning activity and the strategy process.

4.5   Proposed contribution of the present research

It is clear from preceding discussions that an opportunity exists to contribute to the knowledge base concerned with environmental scanning. Through a qualitative exploration of environmental scanning activity and its relationship with an organisation's strategy process, this work will add depth to existing knowledge of environmental scanning and provide an opportunity to elaborate on existing theories by seeing how things work in practice. The approach can be categorised as one of *theory elaboration*, discussed in more depth in the next chapter.

The quantitative survey-based approach used by the majority of previous studies has contributed much to knowledge of environmental scanning and some of the influences on scanning activity, but what it contributes in generalisability it perhaps loses in detail and explanatory power. In addition, the focus of prior research has tended to be

individual scanning activities rather than organisational ones, and ideas such as scope, mode and PEU have rarely been examined at the organisational level. While statistical relationships between scanning and some aspects of strategy have been found, a detailed examination of the links between scanning and specific areas of the strategy process can shed light on which aspects of strategy are related to scanning of the external environment.

4.6   Conclusion

At this point in the thesis, relevant literature has been reviewed, synthesised and examined. The limitations of existing knowledge have been identified and a research aim and a set of guiding questions have been developed in light of these limitations. This marks the end of the theoretical foundation of the research programme. The next chapter proposes methods for addressing the research questions developed from the literature base.

Chapter 5:   Research Design and Methods

5.1   Introduction

This chapter acts as a bridge between the theoretical and empirical stages of the thesis. The objective is to provide justification for and elaborate on the research design, methods and specific analytical techniques to be used in the empirical stage of the research.

5.2   Research paradigm and approach

A interpretivist approach is taken, as described, for example, in Bryman and Bell (2011). This is appropriate given the exploratory nature of the research. The research is not intended to measure performance or count specific variables in the organisation. Rather the intention is to explore environmental scanning as a phenomenon undertaken by individuals as part of a wider construct: the organisation. The objective is not just to see how environmental scanning is conducted but also to attempt to understand why it is conducted and how it relates to the wider strategy process.

It was noted in Chapters 3 and 4 that existing research on environmental scanning, while substantial, has tended towards a quantitative approach to determining relationships between aspects of scanning activities and other variables both inside and outside the firm. While this represents a useful starting point, the aim of the current research is to provide greater depth to the existing knowledge base.

Bluhm *et al.* (2011), in a review of recent qualitative research in management subjects, noted that such research tends towards one of three purposes. The first is *theory generation*, which involves exploring new fields in which there is little or no existing research. The second is *theory elaboration*: using existing theory as a basis for research that adds depth to existing theory. The third is *theory testing*, which takes an existing theory and attempts to test it using empirical evidence.

Arguably, a major shortcoming of qualitative research is that it is often not explicit about what it is trying to do (Lee, Mitchell and Sablynski, 1999; Bluhm *et al.*, 2011). In the present research the intention is to use existing knowledge on strategy process and environmental scanning as a basis for looking deeper at how these phenomena work in practice, and therefore this research can be clearly categorised as *theory elaboration*.

5.3   Research design

The research design is case study-based, examining a number of different organisations to develop a deeper understanding of how they scan the environment and how this scanning relates to the strategy process. The research was divided into three discrete stages, each with various components, as shown in Figure 5.1, which is a repeat of Figure 1.1 in the introduction to this thesis.
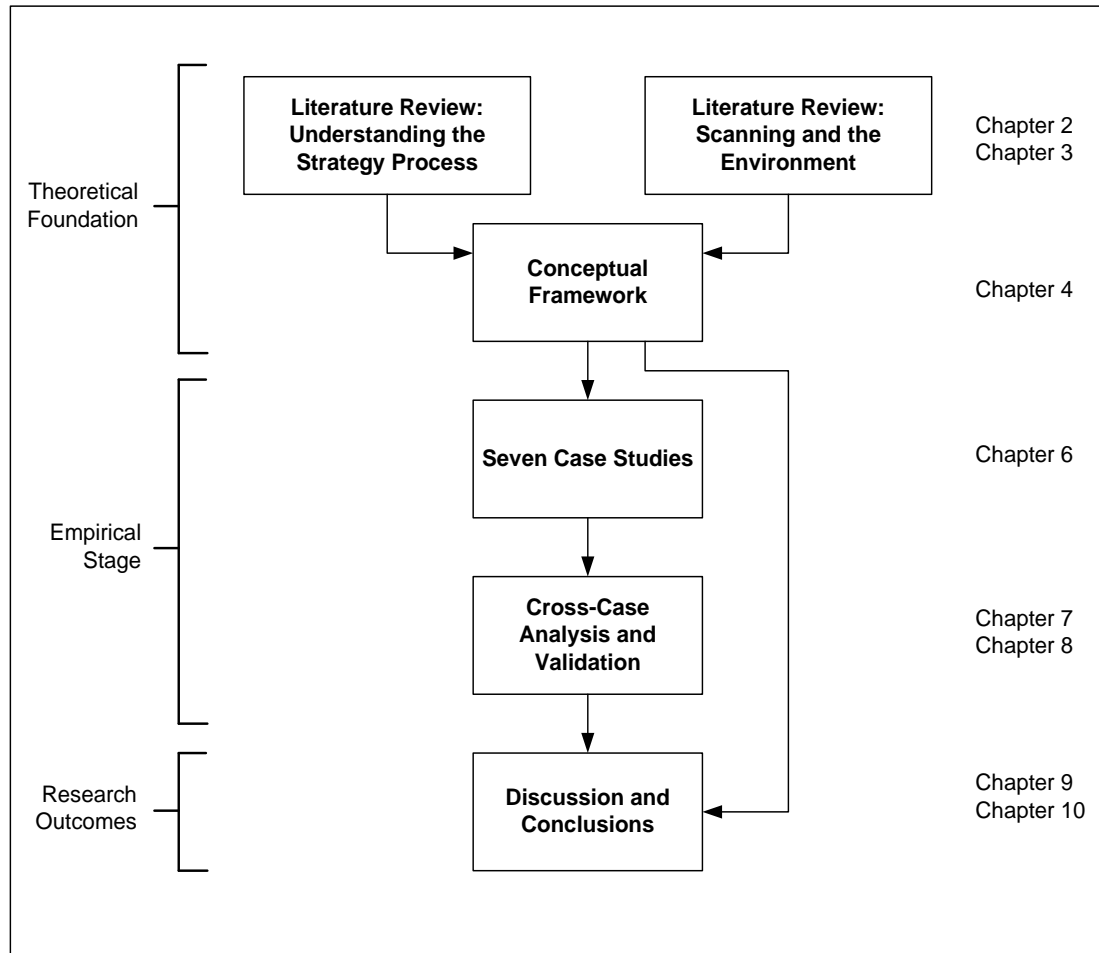
Figure 5.1: Research design (same as Figure 1.1)

Building the theoretical foundation involved a review of literature in relevant fields. The approach taken was two-pronged, first examining research on strategy process issues and second looking in detail at research concerned with environmental scanning and the external environment. Literature was collected and categorised using EndNote reference management software, which aided the process considerably. The literature has been used to propose research questions and underpin the development of a conceptual framework. This framework, finalised in Chapter 4, was used as the basis for the empirical stage of the research.

The empirical stage had two parts. The first involved collection and analysis of data from seven case studies of radically different organisations in various industries to gain a wide view of how businesses scan their environments and how this scanning relates to their strategy processes. The second part involved a systematic cross-case analysis of the seven cases. This was followed by a validation exercise, which involved re-engaging with respondents in three of the seven organisations to confirm the results of the respective in-case analysis.

The outcomes of the research involved answering the research questions in light of the empirical findings and literature reviewed as part of the theoretical foundation. Contributions to both theory and practice are discussed, and limitations, implications for practice and suggestions for further research are proposed.

The case-based design is appropriate for answering research questions that focus on 'how' and 'why' issues (Yin, 2013), such as those posed in Section 4.3. A similar approach to the present research was used by Grant (2003) in his study of strategy process in major oil and gas companies and by Chandler (1962) in his historical examination of major US corporations. Porter (1991) advocated increased use of in-depth empirical case studies to inform theory development. Later, Hoskisson *et al.* (1999) noted an increasing move towards case study research in their review of the strategic management field.

Eisenhardt (1989) advocates an eight-stage framework for inducting theory from case study research. A comparison of the present research with Eisenhardt's framework provides some support for the research design being used. The framework's eight stages are shown below, with their relation to the present research given in brackets.

1. Getting started: involves defining the research question and possible theoretical constructs (addressed here through the literature review and the questions developed in Chapter 4).

2. Selecting cases: using theoretical sampling to find useful cases and allowing flexibility (the use of theoretical sampling is discussed in Sections 5.4.1 and 5.4.2).

3. Crafting instruments and protocols: use multiple data collection methods and both qualitative and quantitative data (instrumentation choice and design are

addressed in Sections 5.4.4 and 5.4.5; the use of secondary data to support the analysis is discussed in Section 5.4.7).

4. Entering the field: overlap collection and analysis, and allow flexible and opportunistic data collection (data analysis commenced before fieldwork was completed and the approach taken to individual organisations is described in Section 5.4.3).

5. Analysing data: analyse each case individually and then perform systematic cross-case analysis (data analysis approach is discussed in Section 5.5 and supported by examples in Appendix F; the in-case analyses are provided in Chapter 6, and the cross-case analysis in Chapter 7; outcomes of the analysis are validated in Chapter 8).

6. Shaping hypotheses: tabulation of evidence for each construct, seeking replication of logic across cases, seek evidence for 'why' behind relationships (causal network analysis was used in each case, as described in Section 5.5.2 and Appendix F; cross-case analysis allowed pattern-matching and theory development, also discussed in Section 5.5.2; a number of measures, including data verification and a post-analysis validation exercise, were used to ensure rigour, as described in Section 5.5.4).

7. Enfolding literature: comparison with conflicting and similar literature to build internal validity and sharpen generalisability (the discussion in Chapter 9 relates the findings from the empirical work to literature reviewed in Chapters 2 and 3).

8. Reaching closure: theoretical saturation, ending the process when the marginal improvement becomes small (sampling and saturation are addressed in Section 5.4.2).

A very recent editorial published in the *Strategic Management Journal* (Bettis *et al.*, 2015), intended to encourage qualitative empirical research in strategic management, lends further support to the design of the present research:

> *'Qualitative methods can [...] begin inductively with more open-ended questions concerning unexplored issues and phenomena with the goal of providing insights that inform scholarship in strategic management more generally. In parallel, qualitative work can provide rich nuance about empirical phenomena, whether by extending prior research or exploring new contexts.' (Bettis et al., 2015, p637)*

The intention of the present research, concerned with elaborating on existing theory, is consistent with the outcomes identified above. Overall the research design is appropriate for answering the research questions posed in Section 4.3.

5.4 Data collection

This section describes the data collection process in detail. The sampling approaches to cases, within-case sampling, instrumentation, recording and preparation of the data are taken in turn below.

5.4.1 Company sample

A theoretical sampling approach was taken to selecting the companies involved in the study. This involves choosing an initial sample to take into account as many factors as possible that might affect variability of behaviour. The sample is then expanded as necessary (Mays and Pope, 2000). As noted in Section 5.3, a theoretical sample results in the researcher having a population of cases likely to be adequate for the research focus (Eisenhardt, 1989; Eisenhardt and Graebner, 2007). Random sampling, as used in quantitative studies, is not normally appropriate for qualitative work because it is not the most effective way of understanding complex human behaviour (Marshall, 1996). The theoretical sampling approach allowed the researcher to examine a variety of approaches to strategy and environmental scanning in a number of different settings. In the following text companies are referred to as companies A, B, C, D, E, F and G respectively.

Regarding sample frame, the original intention at an early stage was to collect data from one small company, one medium company and one large company in the oil and gas industry. It rapidly became apparent, however, after accessing two medium companies (A and B) and one large company (C) in the industry, that the oil and gas industry was too restrictive an empirical domain.

The sample was then expanded to include companies of varying sizes operating in other industries (companies D, E and F) to ensure that there were at least two companies in each size group. One further large company (G) was added to the sample at the end because of the size difference between the two large companies collected up to that point (C and E). Table 5.1 contains a breakdown of the seven companies studied with details on industry, company type, number of employees and size group.

Table 5.1: Sample companies, industry and size

Co.	Industry	Company Type	Employees	Size Group
A	Oil and gas	Development and production	130	Medium
B	Oil and gas	Exploration and development	1,100	Medium
C	Oil and gas	Vertically integrated	90,000	Large
D	Offshore services	Offshore oil services	20	Small
E	Financial services	Investments and pensions	12,000	Large
F	Oil and gas	Asset purchase and disposal	15	Small
G	Defence	Products and services	80,000	Large

Company size was determined by the number of employees, with small being decided to be fewer than 100, medium between 101 and 2,000, and large greater than 2,000. Despite the preponderance of organisations from the oil and gas industry in the sample, each represents a different type of company focusing on quite different activities. As will be discussed in Chapter 7, the degree of replication across case studies and the similarities and differences between the organisations based on several criteria that emerged during the cross-case analysis suggest that company idiosyncrasy was not an issue.

At an early stage in the research, preliminary interviews were conducted in two other companies, one interview in each, but results were not included in the study. In one case this was because the quality and quantity of data were not sufficient. In the other case the manager had agreed to participate on the condition that his contribution was not used for anything other than preliminary testing of interview questions by the researcher. While data from these interviews were not included in the main study, the process was useful in assisting the researcher in developing confidence in his interview approach.

5.4.2 *Sample size and theoretical saturation*

Of sampling in qualitative research, it has been said that:

> *'Determining adequate sample size in qualitative research is ultimately a matter of judgment and experience in evaluating the quality of the information collected against the uses to which it will be put.' (Sandelowski, 1995, p179)*

Given its qualitative nature, the present research is not intended to be generalisable; rather the intention is to produce findings that may be indicative of wider practice. The

sampling approach was such that enough cases were included and enough data collected in each case to provide the researcher with a meaningful set of empirical data that could then be used to achieve the research aims.

The idea of *saturation* is important here, meaning that the data collected must adequate for the purposes of addressing the research question (Bowen, 2008). Eisenhardt (1989) noted that the process of data collection should end once improvements become marginal.

Once the researcher had seven case studies in hand, there was sufficient replication of activity and approaches between cases to suggest that theoretical saturation had been reached. It was therefore concluded after the seventh company had been studied that a sufficiently heterogeneous and rich set of data had been collected for the purposes of addressing the research questions. The in-case analyses are presented in Chapter 6 in alphabetical order, which is the order in which the analyses were finalised.

5.4.3   *Entering the field and within-case sampling*

Accessing and collecting primary interview data proved to be one of the most challenging parts of the research process. Companies were approached via informal contact with a senior manager or the chief executive's office. If the initial response was positive the research aims and the required level of participation were discussed. Following this, respondents were selected in conjunction with the initial contact person using a judgement sampling approach. Those most likely to be able to make a useful contribution were asked to participate and were contacted by the researcher to set up an interview.

Respondents within cases had to meet the following criteria to be approached for interview.

- Be in a role that required some involvement in corporate or strategic business unit (SBU) strategy. In the larger companies respondents at corporate level were prioritised.
- Operate at a level sufficiently high to have a view of the organisation as a whole.
- Have some engagement with the external environment, either as a decision maker or in a role that required examination of the external environment.

The respondents included chief executives, directors of corporate strategy, heads of SBUs and members of environment teams. The possibility of functional bias in the cases was minimised by using multiple respondents where access allowed and secondary data to support the analysis. The majority of individuals who were asked to participate did so, but three proposed participants did not respond to requests for interview, one each in companies B, E and G, despite being followed up a number of times.

The number of available respondents in each company was limited by the level of access that the researcher was able to negotiate. In companies A and B a single senior manager was interviewed. In all other cases at least two senior managers were interviewed. A full schedule of interviews, respondents and their positions within the company is provided in Appendix A.

As noted in Section 5.4.1, one company was excluded from the research because of insufficient quality and quantity of data. This was in part due to the fact that only one person was interviewed. In the case of companies A and B, however, the focus of the interview questions on the organisation as the unit of analysis, as described in Section 5.4.5, combined with the position of the respondent in each case (the CEO for company A and a senior executive at the corporate level for company B), allowed for collection of sufficient data for case study development. It is recognised that the case report for these two companies is based on the personal judgement of the individual. Attempts were made during the data analysis process to verify as much information as possible using secondary data sources, as discussed in Section 5.4.7.

5.4.4 Instrumentation choice

Interviews were semi-structured, with the researcher prompting with questions and directing the flow of conversation. The semi-structured approach allowed respondents to talk freely about their experiences and how things were done and meant that the data collected were not restricted by the researcher's preconceived ideas.

The original intention was to conduct all interviews in person at the company's offices. While the majority were conducted in this manner, six interviews were conducted by telephone when diaries could not be synchronised or geographic distance made face-to-face interviewing impractical. In a similar situation, Sturges and Hanrahan (2004)

suggested that little difference could be found between the quality of data collected face-to-face and that of data collected by telephone. While telephone interviews do not allow the researcher to pick up on visual cues and body language, they do allow respondents to relax more in their own familiar surroundings and thus may make them more inclined to discuss sensitive issues (Novick, 2008).

The experience in the present research was that there was little difference in practice between the face-to-face interviews and the telephone interviews in terms of quality of discussion. The way in which interviews were conducted, either face-to-face or by telephone, is also provided in Appendix A.

5.4.5 *Instrumentation design*

When contacting respondents the researcher would propose an interview lasting an hour. All respondents agreed to give up an hour of their time to be interviewed, but in practice there was some variance in the length of interviews. The longest interview lasted 2 hours, while the shortest lasted only 45 minutes. The length of interview depended on the level of engagement of the respondent and the point in the process at which they were being interviewed. For example, the CEO of company A was interviewed for two hours because of his ability and willingness to engage with the questions. On the other hand, the final respondent in company F was interviewed for 45 minutes because most of the salient points had been covered through interviewing the other respondents in his company.

The interviews were structured around six guiding questions, drawn from the conceptual framework developed in Section 4.4.1. The questions, their relationships with the conceptual framework and their links to the literature review are shown in Table 5.2. Each of the six guiding questions was accompanied by a number of related sub-questions, used as a prompt by the researcher during the discussion. The full prompt sheet is provided in Appendix B. It was the experience of this researcher that asking one of the six guiding questions yielded data that would also relate to other questions because of the relatively open nature of the discussion. In this way the prompt sheet acted as a useful mental checklist to ensure that relevant points were covered in the time given, but in practice not every question on the sheet was asked or needed to be asked.

Table 5.2: Interview questions and their relationship with the conceptual framework

Question	Conceptual Framework Area	Lit. Review Section
1 How is the strategic direction of the company decided upon?	Strategic intent Strategy choice	2.6 2.6
2 What are the main external influences on the company?	External environment characteristics Scanning scope PEU	3.2 3.4 3.3
3 What media do you use to acquire information on the environment?	Scanning mode Scanning formality Scanning and strategy choice	3.4 3.4 2.6, 3.4
4 What approaches do you take to planning and forecasting?	Strategic intent Strategy choice External environment characteristics Scanning scope/mode	2.6 2.6 3.2 3.4
5 What are the key areas of the company?	Resource management Scanning formality	2.6 3.4
6 How is performance measured?	Implementation Strategy choice	2.6 2.6

The questions broadly followed the outline of the conceptual framework, but because of their open-ended nature an element of overlap was expected and was found in practice. The first question in particular acted as an icebreaker, with the respondent able to talk relatively broadly about the strategy process in the organisation and the areas of strategy with which they were most comfortable. The task of the researcher at that point was to steer the rest of the interview through the other required areas using the prompt sheet and relevant sub-questions as a guide.

5.4.6   *Data preparation*

All interviews were recorded and then transcribed. Subsequently all respondents were sent a copy of the transcript and invited to make comments or changes before the transcript was used. In most cases no changes were made, but four respondents provided additional data to clarify or enlarge particular issues that had arisen in the conversation.

The process of transcription evolved as the research progressed. In the earlier stages of the research the interviews were transcribed by the researcher. This proved to be a time-consuming exercise, often resulting in respondents not receiving transcripts for a number of weeks after interviews were conducted. Despite this, the process of transcription was beneficial because it allowed the researcher to become very familiar with the data that had been collected.

Later a professional transcription company was used. To ensure quality of transcription was maintained, the researcher requested that the interviews were transcribed at the strict verbatim level, including all verbal fillers, pauses and repetitions. Once these raw transcriptions were received, the researcher then listened to the recording again and edited the transcription into a readable format before sending it to the respondent for comment and approval. The benefit of this process was two-fold: it replicated the immersion found from transcribing earlier interviews, and it allowed the researcher to be confident in the quality of the outsourced transcription. While still being a lengthy and detailed process, it did allow the researcher to go back to respondents much more quickly after the interviews had been conducted. An example of raw and edited transcript data is provided in Appendix C.

5.4.7   *Use of secondary data*

Each case was supplemented with secondary data. In some cases (companies B, C, D and F) these data consisted of publicly available documents and information collected from the relevant company website. The other companies (A, E and G) provided internal presentations and documents relating to environmental scanning and the strategy process.

Because of their secondary nature, the various documents were of limited use on their own, but they did allow the researcher to develop a useful background understanding in which the primary data collected at interview could be set. A complete inventory of secondary data sources by case is provided in Appendix D.

5.5   Data analysis

After the transcription process was complete, more than 100,000 words of interview data and at least twice that amount again in secondary data had been gathered. A rigorous process was required to analyse the data. Such a process tends to involve three

stages: reduction, display and conclusion (Miles and Huberman, 1994). Data were coded using NVivo software to extract information relevant to the research questions. Next a second-level analysis of the coding reports was conducted using manual methods. Results were then displayed in a number of formats on a case-by-case basis. This was followed by a systematic cross-case analysis from which a number of conclusions could be drawn.

5.5.1 The coding process

The use of codes allowed the researcher to organise the data into logical and manageable groups. A code can be defined as:

> *'a word or short phrase that symbolically assigns a summative, salient, essence-capturing and/or evocative attribute for a portion of language-based or visual data.' (Saldaña, 2012, p3)*

Initially a small set of codes linked to the research questions in Section 4.3 was applied to the interview transcripts and secondary sources from companies A, B and C. Saldaña (2012) notes that coding may need to be conducted a number of times before the coding set is adequate for the purposes of analysis, and the coding set went through a number of iterations before the final set of codes emerged. The initial set of codes is provided in Table 5.3 and the final set is provided in Table 5.4.

The approach of incrementally adjusting the coding system in the early stages allowed the researcher to better link the literature base from which the research questions were developed to the empirical data for which the final set of codes was designed. Codes 1–15 in Table 5.4 are a set of structural codes with broad definitions based around the concepts and themes relevant to the research questions. Codes 16–18 were used to collect background information.

Table 5.3: Initial coding set

No.	Short Form	Code Description	Research Question
1	IND	Individual scanning activity	1
2	ORG	Organisational scanning activity	1
3	WHY	Causes of scanning activity	2
4	PER	Perception	3
5	PRO	Strategy process	4
6	EXT	External environment statement	Background
7	CON	Strategy content statement	Background

Table 5.4: Final coding set

No.	Short Form	Code Description	Research Question
1	INDS	Individual scanning scope	1
2	ORGS	Organisational scanning scope	1
3	PERM	Personal scanning mode	1
4	IMPM	Impersonal scanning mode	1
5	FORM	Scanning formality	1
6	ISD	Individual scanning driver	2
7	OSD	Organisational scanning driver	2
8	STA	State PEU	3
9	EFF	Effect PEU	3
10	RES	Response PEU	3
11	INT	Strategic intent	4
12	EXI	External interaction	4
13	RES	Resource management	4
14	CHO	Strategy choice	4
15	IMP	Implementation	4
16	PLA	Planning approach and horizons	Background
17	EXT	External environment statement	Background
18	CON	Strategy content statement	Background

When the coding set was finalised and the early and redundant codes removed from the sources that had been used to assist in code development, the process of coding proper could begin. This was undertaken on a case-by-case basis. All primary and secondary sources relating to a case were read through and codes applied to relevant data. The result was a coding report for each case. The report was useful because it rearranged salient data for a case into a logical order that was more easily digested. However, the analysis was still not of sufficient depth, so further analysis of the coding reports was conducted.

The further analysis involved a number of steps. First the reports were read repeatedly by the researcher to gain a deeper understanding of what was happening in the case. Next the content of each code was broken down by relevant concept, depending on what the researcher was trying to accomplish. Table 5.5 shows the categories used to break the content of the various codes down further. This was effectively a second stage of coding but was done manually with reports on paper rather than using NVivo. Various marginal notes were made at this point and useful quotes highlighted for use as part of the in-case analysis to illustrate salient points and provide some interest for the reader. Some detailed examples of data analysis, from coding report to in-case analysis, are provided in Appendix F.

Table 5.5: Further breakdown of coding reports: categories used

Code (from Table 5.4)		Content breakdown
1	Individual scanning scope	Six environment sectors
2	Organisational scanning scope	
5	Scanning formality	
3	Personal scanning mode	Internal or external
4	Impersonal scanning mode	Six environment sectors
6	Individual scanning driver	Six environment sectors
7	Organisational scanning driver	
8	State PEU	Six environment sectors
9	Effect PEU	
10	Response PEU	
11	Strategic intent	Links with drivers highlighted
12	External interaction	to identify mediating variables
13	Resource management	
14	Strategy choice	
15	Implementation	
-	All code contents	Causal and time-ordered statements highlighted

In addition to the code-specific breakdowns, all code content was examined for statements that were of a causal or time-ordered nature. These statements assisted with the development of the drivers of scanning activity and resulting causal networks for each organisation.

5.5.2   *Presenting the analysis*

For each case study a report was written, structured around the four research questions proposed in Section 4.3. These are presented in Chapter 6 in the order in which they were finalised. Each report consists of a combination of discussion, quotes and vignettes taken directly from the primary data, and displays in both matrix and network format.

Matrices were developed for scope and mode of scanning using the relevant broken-down coding reports. Drivers of scanning activity and evidence of PEU were extracted from the reports, assigned to relevant environment sectors and discussed for each company. Causal network analysis was used to explore possible links between environmental scanning activity and the strategy process in each case.

Once each case had been analysed in its own right, a systematic cross-case analysis was conducted using a variety of techniques to compare cases according to different criteria. This is contained in Chapter 7 and was structured in a similar way to the in-case analyses. Because of the variety of techniques used, the process of compiling the cross-case analysis is discussed at relevant points in Chapter 7.

5.5.3   *Ensuring rigour: verification and reliability issues*

Rigour in qualitative research requires a process of verification throughout the data collection and analysis (Morse, Barrett, Mayan, Olson and Spiers, 2008). A number of actions were taken during the research to ensure rigour. An audit trail was kept. Recordings of interviews and the raw and edited transcripts were retained. The coding process was conducted using NVivo, meaning that all coding reports were stored electronically and could be reproduced easily. The manually analysed coding reports were kept as long as they were still in use. Both primary and secondary data were used in analysis, and in most cases multiple respondents were interviewed.

To increase the reliability of the codes used, the final codes were both referenced back to the literature review and discussed in detail with the supervisor. The reliability of the coding to particular categories was also checked. When the cross-case analysis had been completed, a second user profile in NVivo was created and a single interview transcript re-coded. The resulting coding comparison report between the two user profiles showed that there was a very high level of agreement between the two coding exercises. A report on this exercise is provided in Appendix G.

5.5.4   *The validation exercise*

When the cross-case analysis was nearing completion, the researcher re-entered the field to conduct a validation exercise. The purpose of the exercise was to validate the outcomes of the in-case analyses and provide respondents with a picture of their place in the wider sample. The process also assisted the researcher in considering the implications for practice discussed in Section 10.3. Chapter 8 is devoted to findings from the validation exercise.

Companies B, D, E and G were asked to participate in this final stage of fieldwork. Companies A, C and F were not approached because primary contacts had either moved to roles in other organisations (A and F) or been clear that, while happy to contribute to

the main study, they did not wish to be contacted for further interviews (C). Of the four companies contacted, three (B, D and E) agreed to participate in the validation study. This resulted in validation of one small, one medium and one large company being carried out. Details of the validation interviews are included alongside the schedule of interviews for the main study in Appendix A.

For validation purposes a single respondent was interviewed in each case, chosen for their position and ability to take a wide view of the case as a whole. The respondent in all three cases was the original contact who had assisted in identifying further respondents in that organisation. Validation respondents were provided with two simple diagrams covering scope and mode of scanning and a copy of the causal network developed for their organisation. These were then discussed, along with emergent findings from the cross-case analysis, in a semi-structured interview. The diagrams and questions used for validation are provided in Appendix E. Interviews were recorded and transcribed in the same way as for the main study, as described in Section 5.4.6.

5.6 Research ethics

It was agreed with all companies and respondents that all data would be used in an anonymous manner. Therefore, the thesis does not identify companies studied, nor does it identify the individual respondents. It was stressed to all respondents that the interest of the researcher was the process of how things were done rather than the content of strategy or any commercially sensitive information.

Respondents agreed to being recorded at the time of interview and were provided with transcripts after the event. All respondents were happy to be recorded. As noted in Section 5.4.6, respondents were given the opportunity to edit their transcripts before they were analysed. Four respondents took advantage of the opportunity to add clarification. No respondents asked for anything to be removed from the transcripts.

5.7 Conclusion

This chapter has provided support for the research design and a detailed account of the practical aspects of conducting the empirical stage of the research, to which this thesis now turns.

Chapter 6:   Findings: In-Case Analyses

6.1   Introduction

This chapter is the first of three covering the empirical stage of the research. The chapter starts with an outline of how the case report is structured, and then the analysis of each case is presented. This chapter is substantial in size because it forms the basis of the findings of the present research. Building on the foundation presented here, Chapter 7 contains the cross-case analysis, and a discussion of the validation exercise follows in Chapter 8. The reader may wish, on a first pass, to examine one or two case reports only before moving on to the cross-case analysis in Chapter 7.

Each case report is divided into a number of sub-sections as follows.

- A brief overview of the company and its activities.
- Scanning scope, mode and formality: how scanning actually happens in the organisation. Scanning scope and mode are categorised according to the dimensions developed in Section 3.4.2. The emphasis on individual scanning (scanning conducted informally by an individual manager) versus organisational scanning (scanning conducted as an explicit part of a manager's assigned role) is also discussed.
- Scanning drivers: why scanning happens in the organisation. Drivers of behaviours and preferences identified in the preceding section are discussed and examined.
- Evidence of perceived uncertainty: PEU is examined using the three types proposed in Section 3.3.1.
- Scanning and the strategy process: causal links between scanning and various strategic activities are explored, using evidence on drivers and PEU presented in preceding sections as the starting point.
- Conclusion: to conclude each report the four research questions proposed in Section 4.3 are addressed with reference to that specific case.

All cases have been developed using the same approach, but to avoid repetition guidance on the presentation of the analysis is provided in greater detail in company A only. As discussed in Section 5.5, the process of data analysis is shown in detail in Appendix F.

6.2   Company A

Company A is an upstream[1] oil and gas company with around 130 employees and operations limited to a single geographic area. Company A made use of both individual and organisational scanning when gathering information on the external environment.

6.2.1   Scanning scope, mode and formality

This section examines scope and mode of scanning along with the general formal and informal processes used in the company to gather information about the external environment.

Scanning activity was in some cases informal and ad hoc. In other cases responsibility was formally assigned to an individual member of the management team who performed what was referred to as the 'economics' function. The role, the title of which was 'corporate development manager', was described as a mix between scanning the environment and preparing analyses for management and board meetings. This role is the closest approximation in company A to a formal scanning department. The emphasis on formal versus informal scanning was judged after the compilation of a matrix covering scanning scope in company A, shown in Table 6.1. Details of activities undertaken both informally by individuals and formally by the organisation are broken down by environment sector. Examples of information sought are given in each cell.

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[1] While there is no universally accepted definition, the term 'upstream' here refers to the part of the oil and gas industry that is concerned with exploration for and extraction of oil and gas. The term 'downstream' is generally used to refer to refining, processing and marketing to the end user.

Table 6.1: Company A scanning scope

Environment Sector	Individual	Organisational
General: Economic	Equipment and rig availability Labour market trends	Financial indicators: oil and gas pricing and cost trends, exchange rates
General: Sociocultural	-	-
General: Regulatory	Taxation issues	-
Task: Competitive	General awareness of what competitors are doing, skewed towards acquisition opportunities	Detailed competitor analysis, reports produced for board meetings
Task: Customer	-	-
Task: Technological	Other companies' drilling results in technically similar areas	-

The role of the employee assigned to scan and analyse the environment was restricted to particular sectors – the economic sector and the competitive sector – and the aim of the role was to produce reports for management and board meetings at which strategy was discussed.

Individual scanning was spread across the organisation. This was linked to the functional setup of the organisation, which was divided into production, development, subsurface and commercial/legal departments. Individual scanning covered the economic, regulatory, competitive and technological sectors. The customer and sociocultural sectors were not addressed.

The following was noted in response to a question about outside influences on the organisation:

> *'This is more when we are looking at strategy actually. […] it is a bit linked to how you have your team. I have my team based around development, production and what I call "subsurface". […] I also have a function called "finance and commercial", which is just enabling the other three things.'*

The first sentence above refers to the annual strategy review meeting with the board, the implication being that scanning was linked to the annual planning event rather than being a continuous process. The following was said after discussing the various influences on development, production and subsurface:

> *'All the others come into the financial/commercial side, which is oil price and all the other things we have talked about. […] All the rest are coming at me from different parts of my organisation. And we merge all of that at the management committee level.'*

The implication was that individual scanning took place in an informal manner within the various business functions and salient events were reported back to the management team where necessary. There did not appear to be a formal system for gathering this information.

Scanning mode is summarised in Table 6.2, divided into personal and impersonal modes by environment sector. Source examples, which might be internal or external, are provided in each cell. It appears that a number of different sources were relied upon for information on the external environment. The two sources of information discussed most were the external contacts of various managers and free reporting services provided by banks and other institutions.

Table 6.2: Company A scanning modes with source examples

Environment Sector	Scanning Mode	
	Personal	**Impersonal**
General: Economic	Personal understanding of industry Own 'feel' for labour market conditions External contacts	News sources Free bank reports Internal reports
General: Sociocultural	-	-
General: Regulatory	-	News reports
Task: Competitive	External contacts	Published company reports Internal reports
Task: Customer	-	-
Task: Technological	External contacts	Published sector reports

With regard to the impersonal sources of information, the following was said:

> *'We get a lot of free information, not necessarily from banks we are involved with but banks constantly pumping out their own views on the external market.*

> *Barclays will give you a view on everything, and HSBC as well. We tend to gather as much of this as possible and that is where we get our financial information from.'*

Contacts in other companies in the industry were seen as an important personal source of information:

> *'Everyone thinks this is a cut-throat industry but there is a huge amount of cooperation. For the things that we are getting in terms of rigs and people and other companies' results, there is a huge amount of free information. In any industry this is going on but people outside that industry don't, can't, access it because they are not in the club so to speak, and there are huge exchanges that go on all the time and we are always exchanging well information with others.'*

A pool of industry knowledge inaccessible to those outside the industry was identified as being available at zero cost. Another industry practice was described whereby two competitors would trade information when it was in both their interests to do so. This was referred to as 'well-trading', as follows:

> *'I can send one of my geoscientists round to a competitor tomorrow and well-trade. That's "I have this information on this well and you are in the next plot; let's trade."'*

While impersonal sources were of use, the preference in company A appeared to be for personal sources of information, with impersonal sources being used mostly to gather background information.

6.2.2 Scanning drivers

In this section factors identified as driving the scanning activity of the organisation are explored. The impact of PEU is treated separately in the following section.

Organisational scanning focused on the economic sector was conducted to assist in making strategic decisions. Also, the economic sector was scanned to develop forecasts that were used to decide whether or not to lock in future costs and revenue streams, which in turn assisted with budgeting decisions:

> *'We don't take the approach that we know where the oil price is going next. We look at where the oil price breaks even, look at [possible payback periods] and*

> *look for something that can pay back projects much quicker and underpin future*
> *investment. When times are good we will hedge.'*

A role of the organisational scanning function was to collect information from various sources and consolidate these into reports for board meetings. These could then be used to assist in making strategic decisions and producing budgets and forecasts. The specifics of the planning and budgeting system are discussed in Section 6.2.4.

Scanning of the competitive environment is usually associated with maintaining awareness of competitive threats, but company A's approach was different. The competitive sector was examined intensively to find potential takeover targets, and there was no discussion of competitive threat:

> *'To be honest, and this is the difficult confession, we are looking not to change*
> *our model – perhaps fine-tune but not change – but we look at this, perhaps*
> *wrongly, as acquisition opportunities. We are looking to see what people are*
> *doing and how vulnerable they are. Unashamedly we are looking at the ones*
> *who pursue the exploration model but do not have the finance to develop their*
> *assets. These fit well into our model of "appraise, develop and produce".'*

Thus the competitive environment was scanned to find opportunities for acquisition as opposed to monitoring for competitive threats. It is interesting to note that at the time of interview company A had itself become a target for acquisition.

Individual scanning activities appeared to be driven by perceived influences on the organisation and were focused on the regulatory and technological sectors. When individual scanning was discussed, it was in terms of the functional structure of the company and the factors in the external environment that were thought to influence the company.

6.2.3   Evidence of perceived uncertainty

Examples of both state and effect uncertainty were found in company A. The following was said with regard to the economic sector:

> *'The one thing about predicting the oil price is that you will always be wrong.'*

The oil price was identified as a significant driver of both profitability and activity in the industry and as a significant source of state uncertainty. This drove a number of

actions identified in the previous sections. Organisational scanning of the economic environment and collation of forecasts for hedging purposes were conducted as a direct result of perceived state uncertainty surrounding the oil price:

> *'We regard a higher than $100 oil price as good times. We hedge when times are good and we have been doing so a lot in recent times. Our current hedge is around $120 on forward sale. This means we will look idiots when it goes to $140 but heroes when it goes to $80.'*

The hedging approach was an attempt to reduce state uncertainty and allow easier project planning. It was also directly linked to the main role of the organisational scanning activity: the collection and analysis of financial forecasts and historical data.

Effect uncertainty was in evidence with regard to the technological sector. For example, various statements were made regarding the appraisal of development opportunities:

> *'If you think about it, we are making decisions based on a hole in the ground 10,000ft deep the diameter of a dinner plate. We make investment decisions worth hundreds of millions of pounds based on that and it is easy to get them wrong.'*

> *'The other thing we do is that we don't use any unproven technology – why take these risks?'*

The outcomes of new projects and the impact they could have on the organisation represented effect uncertainty. This drove individual scanning activity scanning of the technological sector in order to reduce effect uncertainty, specifically the 'well-trading' activity identified above. During discussions no evidence of response uncertainty was uncovered.

Thus the existence of perceived state and effect uncertainty also drove scanning activity in company A and contributed to a number of activities being carried out. These are examined in the next section.

6.2.4   Scanning and the strategy process

During the coding process statements relating to the areas of the process model were identified, as were causal statements and time-ordered statements. This identified a

number of areas of strategic activity and suggested some possible relationships between them and other variables.

In this section the areas of strategic activity in company A are identified and a network of factors that cause the external environment to be scanned is constructed. This is accomplished using the drivers and uncertainty types mentioned in preceding sections as antecedent variables and using a number of strategic activities within the company as mediating variables. The outcome variable in each causal network is scanning of the external environment. Finally the mediating variables are related back to the areas of strategic activity identified in the model presented in Chapter 2. A similar process is followed in all case reports.

An annual cycle of strategy activities was identified to include both strategy and budgeting meetings. The strategy meeting was described as follows:

> *'In the middle of each year we have a "strategic direction review". […] it takes in the internal/external environments and [asks] "Is there a need for change? Is there a need for corporate action?" I would describe corporate action as "merge, sell, buy". We do that mid-year with the board.'*

Strategic decisions regarding the company portfolio formed part of the mid-year meeting, as did a review of the company's general strategic direction. The general direction of the company appeared to be a given and not something to be adjusted lightly:

> *'What does the company do? [It has] a well-advertised strategy which has remained the same throughout its entire history. Since the company was floated […] there has been the same strategic intent.'*

The second part of the cycle was the budgeting meeting conducted at the end of each year. Overall the cycle was described as follows:

> *'We call this the "strategic direction review" because we are trying to capture the four-year view. We call the December meeting the "budgeting meeting" as we are looking at the two-year view but we are also trying to capture any lessons learned – the "lessons learned review". Since the middle of the year*

> *this is what we tried, this is what worked, what didn't work and do we want to*
>
> *make any adjustments to the plan or to the pursuit of objectives?'*

Table 6.3 contains antecedent and mediating variables for causal network development. As noted at the start of this section, the antecedent variables are the drivers and PEU types identified in earlier stages of the analysis. The mediating variables are company-specific activities that occur as a result of the drivers of scanning activity. The section of the in-case analysis in which each variable was discussed is noted in brackets.

These variables all appear in the causal network of factors resulting in scanning of the external environment for company A, shown in Figure 6.1. Each of the drivers can be linked to one or more mediating variables in Table 6.3, which are then linked to scanning of the external environment.

Table 6.3: Antecedent and mediating variables for external environmental scanning in company A

Antecedent Variables	
Support strategic decisions (6.2.2)	Search for opportunities (6.2.2)
Produce budgets and forecasts (6.2.2)	Monitor outside influences (6.2.2)
State PEU (6.2.3)	Effect PEU (6.2.3)

Mediating Variables	
Economic analysis gathering (6.2.1)	Informal observation by functional specialists (6.2.1)
Technical data trading (6.2.1)	Frequent hedging decisions (6.2.2)
Periodic strategy review (6.2.4)	Competitor monitoring (6.2.1)
Short-term planning and objective-setting (6.2.4)	
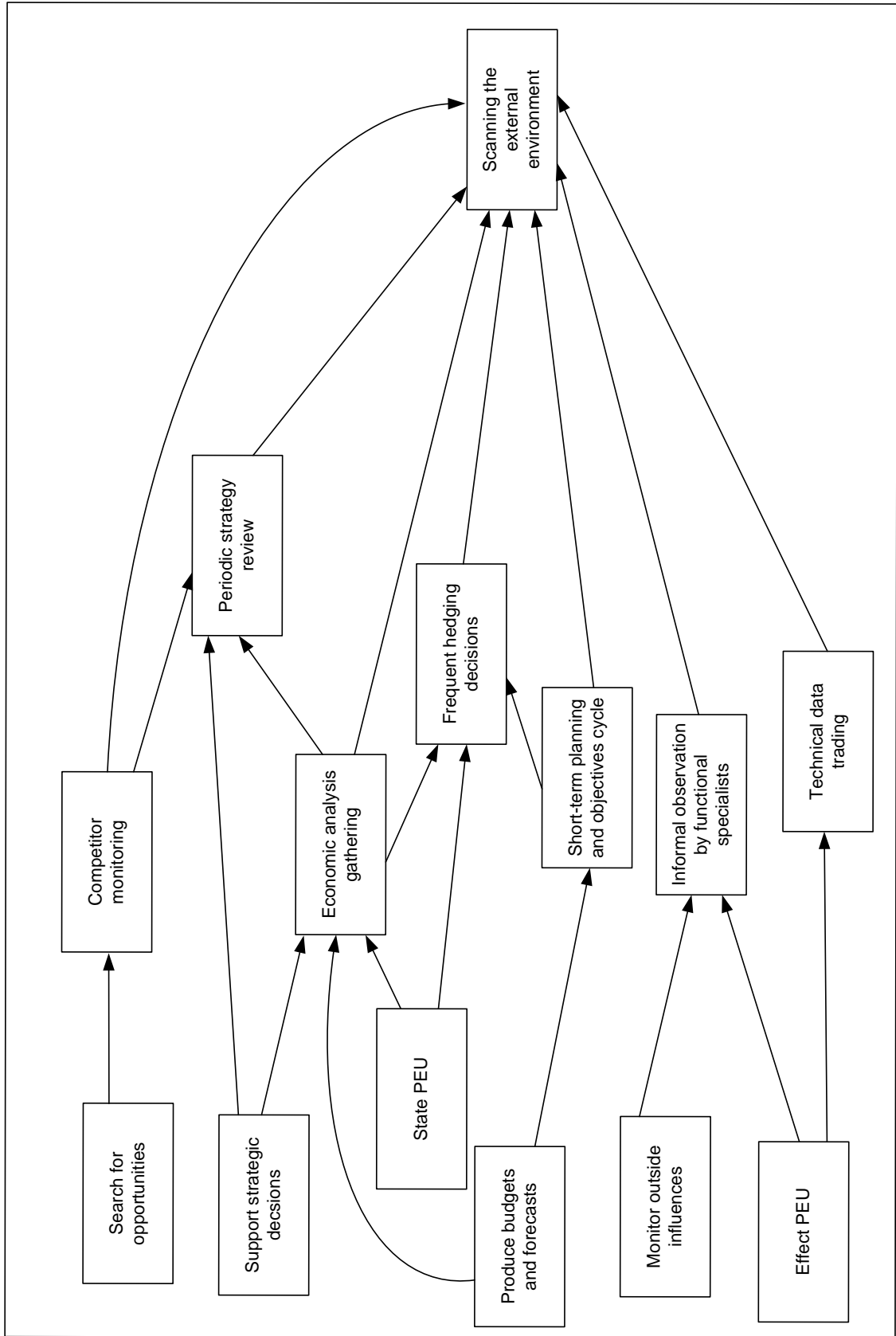
Figure 6.1: Causal network: factors resulting in scanning of the external environment in company A

Causality is not a straightforward thing to derive, and the links in Figure 6.1 have been developed by visualising the process from driver through the mediating variables to the outcome: scanning the external environment for information. The drivers of scanning activity identified in Section 6.2.2, along with the two PEU types discussed in Section 6.2.3, and their resulting causal chains are discussed below.

The *search for opportunities* (in this instance the search for a company to acquire) resulted in competitor monitoring activities, which resulted in the environment being scanned. Competitor monitoring also fed into periodic strategy reviews that in turn resulted in the environment being scanned.

The need to *support strategic decisions* caused the gathering of economic analyses that resulted in the environment being scanned. It also caused periodic reviews of strategy to be carried out and frequent hedging decisions to be made, which resulted in further scanning of the environment.

Monitoring of outside influences resulted in informal observations by functional specialists, which resulted in the environment being scanned.

The *production of budgets and forecasts* resulted in gathering of economic analyses that in turn required the external environment to be scanned. It also resulted in the short-term planning and objectives cycle, which resulted in the environment being scanned and frequent hedging decisions being made. The frequent hedging also resulted in the environment being scanned.

The existence of *state PEU* surrounding the price of oil resulted in the forecasting of economic variables and in frequent hedging decisions being taken. These in turn caused the environment to be scanned for information.

The *effect PEU* around the technological nature of the company's activities resulted in both informal observation by functional specialists and the trading of technical data with other companies. These both resulted in the environment being scanned for information.

The final stage of the analysis is to relate the mediating variables identified in the causal network back to the areas of the strategy process model developed in Chapter 2. This is shown in Table 6.4. The mediating variables provide the various links between

scanning and the strategy process for company A. The contents of Table 6.4 will be used as the starting point of the causal network development in Section 7.6 of the cross-case analysis.

Table 6.4: Areas of strategic activity for company A

Strategy Process Area	Activity
Strategic intent	Periodic strategy review
External interaction	Competitor monitoring
	Informal observation by functional specialists
	Technical data trading
Resource management	-
Strategy choice	Economic analysis gathering
	Frequent hedging decisions
Implementation	Short-term planning and objectives cycle

6.2.5 Company A conclusion

The conclusion of each in-case report is structured around the four research questions. These are answered in turn for company A below.

- *How does company A scan its environment?*

  Company A used a combination of organisational and individual scanning approaches. Interest in four sectors of the environment was noted, and both personal and impersonal modes were used to gather information on the environment.

- *What motivates company A to scan its environment?*

  Company A was driven to scan the environment to search for acquisition opportunities, support managers in making decisions, produce forecasts and budgets, and informally monitor external influences. The gathering of second-hand economic analyses to facilitate decisions on price and cost hedging was of note here.

- *What is the impact of perceived environmental uncertainty on scanning?*

  Both state and effect uncertainty were present and appeared to have an impact on the level and nature of scanning. The hedging decisions mentioned with reference to

drivers of scanning activity were in part related to state uncertainty surrounding the oil price.

- *How is scanning activity in company A linked with the rest of the strategy process?* Most scanning in company A was related to the external interaction area of activity. That said, the environment was also scanned to some degree with reference to strategy choice, strategic intent and implementation.

Overall company A scanned the environment for a number of reasons and in various different ways. The issues identified here are picked up in the cross-case analysis in Chapter 7, which follows a similar format and structure to the in-case analysis reports.

6.3   Company B

Company B is a mid-sized upstream oil and gas company with around 1,100 employees and operations spread around the globe. The emphasis in company B was on individual scanning at various levels of the organisation, with information being fed to senior management as appropriate.

6.3.1   *Scanning scope, mode and formality*

Scanning activity was spread throughout the organisation, with an emphasis on individual scanning rather than on an organisational system of information collection. An external relations team at the corporate level dealt with external reporting and a limited amount of information collection, while individuals in specific geographic markets and functional roles were understood to monitor their immediate environments. It was acknowledged that all managers were responsible for scanning the environment to some degree and that all managers had some awareness of what was going on outside the organisation.

Scanning scope is covered in Table 6.5. As noted above, a diverse group of individuals were involved in scanning the environment. The senior executive team was identified as having some responsibility for scanning:

> *'The executive team: two-thirds or more of their job is external-facing. So that is to governments, shareholders and potential shareholders, potential partners; it's to senior members of key supply companies. So a lot of information would come from them.'*

It was then said that an external relations group existed to filter information flowing in and out of the organisation:

> *'Then we have an external relations group who have two roles. One is to make sure that information is coming in and the other is to make sure that the company's messages are conveyed externally as well.'*

The external relations group appeared to be focused on general environment issues, with an element of relationship management included.

Table 6.5: Company B scanning scope

Environment Sector	Individual	Organisational
General: Economic	Macro trends Financial markets information Cost forecasts	General price and cost trends
General: Sociocultural	-	-
General: Regulatory	Possible tax changes	Relationship management at corporate level
Task: Competitive	Similar companies' financial results	-
Task: Customer	Active monitoring of customer preferences and relationships by in-country staff	Relationship management at corporate level
Task: Technological	Other companies' technical results in geologically similar areas	-

Company B's environment was geographically diverse, and each country manager faced a different set of environmental conditions. They were responsible for feeding information on their specific environments back to the corporate centre:

> *'I guess the organisational responsibility for information on our activities ultimately falls on the asset manager. In each area we have an accountable manager who will cover everything in that area. If you take [country x] as an example, there is one chap who is tasked to know and manage relationships and all the external issues.'*

Overall there was no systematic coverage of environment sectors, and scanning was related to specific activities as they occurred. The impression given was one of an informal system whereby individuals scanned the external environment that they happened to be in contact with on a day-to-day basis, with the external relations team sitting at the top of the organisation.

It was felt that scanning the environment was an organic process that occurred naturally as part of various individuals' day-to-day work:

> *'It's not a science; it is an art. All of us, as you said, have got lots of information connected. We have one group tasked to monitor that on a purposeful basis and the rest of us rely on a variety of sources. There is a whole industry of media amalgamators, so we get [that information] sent to us, and there are supply companies such as Wood Mackenzie [and] RHS, who are consultancies who add a bit more analysis to the media as well.'*

Scanning mode is summarised in Table 6.6. Impersonal sources of information were used to gather various sectors of the environment, as mentioned in the quote above. Some of these sources were subscription-based services while others were freely available information. In-country staff were concerned primarily with task environment sectors, but the nature of company B's business, which was exploring for oil after making agreements with host governments, meant that there was some overlap between the regulatory and customer environments:

> *'We have company staff in-country. Generally we have a representative office in the countries in which we operate. So that again acts as a bidirectional opportunity for information to flow, and it means that you are not relying on second-hand or indirect feedback.'*

Impersonal sources such as subscription services for technical data were not thought to be useful enough on their own:

> *'If you go to something like Wood Mackenzie, which we do subscribe to, you can then start to have a forward projection where it starts to say, "This oilfield – here is historical information of what has been discovered/produced or whatever; here is our outlook for that oilfield." You would never use that – it is*

> *a bit like a home report[2]; it is a good start but if you really want to buy that house you would do your own work and get your own survey.'*

Table 6.6: Company B Scanning modes with source examples

Environment Sector	Scanning Mode	
	Personal	**Impersonal**
General: Economic	-	Subscription services for financial information
General: Sociocultural	-	-
General: Regulatory	Internal contacts	News reports
Task: Competitive	Internal and external contacts	News and company reports
Task: Customer	Internal contacts	-
Task: Technological	Internal and external contacts	Industry publications Subscription services

This approach of using a source just for initial investigation appeared to apply not only to intelligence databases but to all impersonal external sources. Such sources were not sufficient for decision-making purposes, but could be used as justification for further exploration of an opportunity or for a course of action already committed:

> *'So in terms of decisions, for example, let's think, someone's had a discovery, I forget the name, in North Norway, which could be a juxtaposition of the geology in [one of our current projects], so that's very useful pertinent information which gives us confidence in our exploration model [in that project], but it's not something you would decide anything on. It's an extra piece of information you can use to back up your discussions.'*

A flow from impersonal data sources to personal data sources is implied above. Impersonal data sources identified areas of interest that were then further investigated through the acquisition of primary information from internal or external sources. This issue is addressed in more detail in Section 7.4.3 of the cross-case analysis.

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[2] The 'home report' referred to here is the legally required single survey produced by anyone wishing to sell a property in Scotland.

6.3.2   Scanning drivers

Relationship management was seen as a core issue when scanning the environment, stemming from the fact that the company's customer was usually the government in the area of operation.   This drove scanning activity because the relationship with the customer, usually a government, was seen as very important to continuing business:

> *'The way that we try to behave – indeed we talk about respect, relationship and responsibility – [is that] we have a responsibility to, in this case, the government in a political sense, and we respect them, earn their respect, and you do that through establishing very straightforward and transparent relationships, saying, "This is who we are, this is what we do, let us do it."'*

The competitive environment was seen as relatively benign, and interest in this sector appeared to be confined to the stock market, where there was competition with similar companies for equity funding. This sector was monitored for potential influences rather than explicit threats:

> *'The industry is big enough for all of us. [...] In one area we are competing and in the other area we are partners. [...] Because we are small but global, competitor behaviour is less of an issue for us. [...] Where it does make a difference is competitor results, but that is a very visible measure of which company is run or is being run in a more sustainable and successful way.'*

Searching for opportunities resulted in scanning of the technological environment. Screening potential opportunities also resulted in scanning the regulatory, economic and technological environments for various pieces of information:

> *'We look at things in a basic sense as technical issues, commercial issues and political issues. That is one way of doing it so you can look at a country or an opportunity in that sense.'*

Overall a number of different requirements drove both individual and organisational scanning in company B.

6.3.3   *Evidence of perceived uncertainty*

Because of the sometimes speculative nature of company B's business, various sectors of the environment were subject to some level of uncertainty. State uncertainty surrounding the oil price was in evidence, but this was qualified as follows:

> *'There is a natural self-correcting band in which the oil price will work. So it does not have much of an effect for us. That volatility within that range creates a lot of thought and emotion and comment, but because we are making long-term investments it doesn't make that much of a difference. We have to show that it is robust at a low price and we are going to have to show the impact for governments if it is going to be a higher price, and as long as it works in that range then we are fine.'*

Effect uncertainty was also evident in that the effect of the oil price on costs and the consequent impact on the company's investments was thought to be unclear:

> *'We have a fairly straightforward approach now where we say the costs will be what they will be and the oil price and the gas price will work with it. Because we are so front-end you can get a little bit too intricate in trying to model costs and prices. Until you have a tangible project and you say, "Now we are going to commit the capital for that project," I think it is right to look at it the way we do. [For] the sort of things we are doing at the moment we don't vary our costs with prices.'*

Thus evidence of both state and effect uncertainty was found. It appears that there was a link between areas of perceived uncertainty and scanning activity. While state uncertainty encouraged more frequent scanning of the economic environment, effect uncertainty appeared to discourage scanning of the same environment to interpret the impact of changes.

6.3.4   *Scanning and the strategy process*

The planning system in the organisation was relatively fluid. This made for a more continuous and incremental adjustment of strategy choices within a predefined strategic intent:

> *'It is not that formal, so we would have a three- to five-year business plan, we have a one-year firm budget and a one- to two-year firm and contingent budget. So the one-year is pretty firm, one to two years is contingent and we have a five-year outlook, but we run valuations on a life cycle basis. So we would extract data or make scenarios using exchange rates, oil prices, gas prices for the next 30 years or so. That allows us to do valuations. Because the industry is so capital intensive you need long-life assets to fund it, so you can't just do it on a three- to five-year window.'*

The valuation activity mentioned above resulted in periodic scanning of the environment and scenario production. Strategy adjustments were seen to be incremental in nature and not reactive to the external environment:

> *'You would have a series of presentations or management discussions around what our plan and our strategy is. It doesn't change much year to year, so it is iterations.'*

In other words the company's direction remained the same and was adjusted on an incremental basis. Strategic decisions were seen as portfolio decisions:

> *'We are nimble, small, but we have to do that as part of a balanced portfolio. That balance is something we have started to talk about more publicly as our strategic plans are maturing, so [there's] this idea that you have got to balance things which are relatively low risk with some growth potential versus, as you said, the higher-risk areas.'*

It was for the individual decisions, rather than the adjustment of overall direction, that information on the external environment was collected.

Table 6.7 contains antecedent and mediating variables for the causal network, which is presented in Figure 6.2. The section of the in-case analysis in which each variable was discussed is noted in brackets.

Table 6.7: Antecedent and mediating variables for external environmental scanning in company B

Antecedent Variables	
Search for opportunities (6.3.2)	Monitor outside influences (6.3.2)
Evaluate opportunities (6.3.2)	State PEU (6.3.3)
Manage external relationships (6.3.2)	Effect PEU (6.3.3)

Mediating Variables	
Screening on political, commercial and technical criteria (6.3.2)	In-country operations management (6.3.1)
Periodic strategy review and valuation exercise (6.3.4)	Corporate-level information gathering (6.3.1)
Portfolio decisions (6.3.4)	Competitor results monitoring (6.3.2)
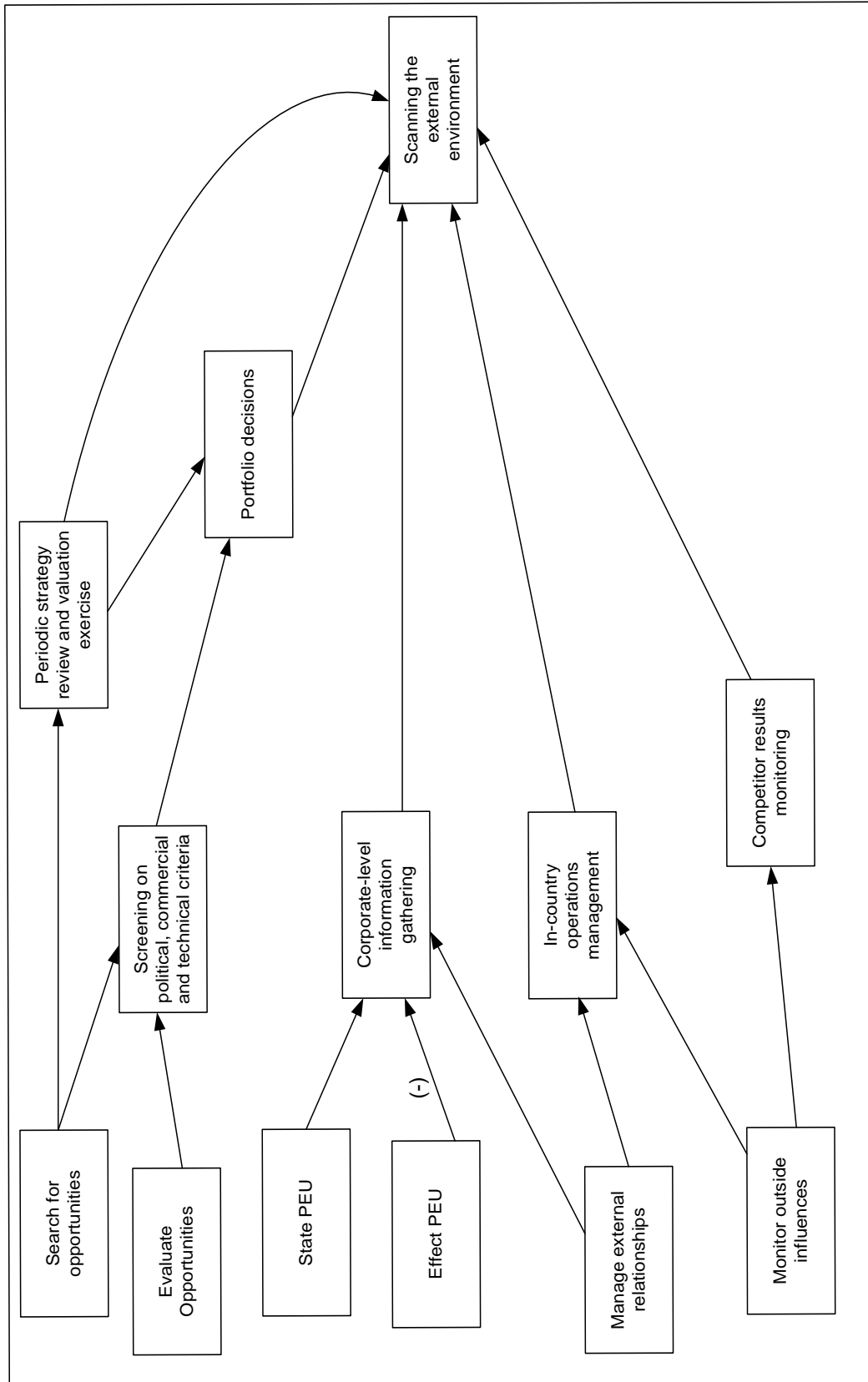
Figure 6.2: Causal network: factors resulting in scanning of the external environment in company B

Each of the drivers identified in Section 6.3.2, along with the two types of PEU discussed in Section 6.3.3, is taken in turn below.

The *search for opportunities* caused screening activities to be carried out based on political, technical and commercial criteria. It also contributed to periodic strategy reviews and valuation exercises in the organisation, which required scanning of the environment to be carried out. Both the strategy reviews and the screening activity caused portfolio decisions to be made. This in turn required further scanning of the environment.

The need to *evaluate opportunities* – that is, investigate something in more depth once it has passed the screening process – followed a similar causal chain.

The need to *manage external relationships* resulted in information being gathered at the corporate level of the organisation, both formally by the external relations team and informally by the executive management team. It also led to in-country management of operations. Both of these activities caused the environment to be scanned.

The need to *monitor outside influences* on the organisation caused both in-country operations management and examination of competitor financial results. These both required the environment to be scanned.

Both *state PEU* and *effect PEU* were discussed in Section 6.3.3, but the two had different effects. The state PEU surrounding the price of oil resulted in information gathering at the corporate level and analysis of future trends. However, effect uncertainty from the economic environment appeared to have a negative effect on the amount of information gathered and processed formally regarding the effect of oil prices on costs and the potential impact on the organisation.

The final stage of the analysis is to relate the mediating variables identified in the causal network back to the strategy process model. This is shown in Table 6.8. As noted in the previous case, the contents of Table 6.8 will form the basis of the cross-case analysis of causal networks in Section 7.6.

Table 6.8: Areas of strategic activity for company B

Strategy Process Area	Activity
Strategic intent	Periodic strategy review and valuation exercise
External interaction	Screening on political, commercial and technical criteria Corporate-level information gathering Competitor results monitoring
Resource management	-
Strategy choice	Portfolio decisions
Implementation	In-country operations management

6.3.5   Company B conclusion

The four research questions will be addressed at this point for company B to provide a conclusion for the in-case report.

- *How does company B scan its environment?*

  An organic process of individuals scanning the environment closest to them was found in company B. The system was relatively informal, with a group at the corporate level scanning the general environment and other managers scanning the environment as their roles required.

  Internally, scanning modes were limited to personal sources, while externally both personal and impersonal sources were used.

- *What motivates company B to scan its environment?*

  The main drivers of scanning activity in company B were the need to search for and evaluate opportunities, the need to monitor potential outside influences on the organisation and the need to manage various stakeholder relationships. These drove the collection of information on the external environment by various individuals for diverse purposes in different parts of the organisation.

- *What is the impact of perceived environmental uncertainty on scanning?*

State PEU was observed with respect to the economic sector, and this appeared to drive further engagement with that part of the environment. Effect PEU with regard to cost levels, on the other hand, resulted in less scanning of that particular variable.

- *How is scanning activity in company B linked with the rest of the strategy process?* Scanning was conducted most in relation to external interaction. Some scanning was conducted to make strategic choices and review strategic intent, and some scanning was also conducted to assist in performance management activities, part of implementation in the strategy process model.

Overall the approach in company B was more reliant on individuals scanning their own immediate environments than on a formal system of scanning with assigned roles.

6.4 Company C

Company C is a large integrated oil and gas company with around 90,000 employees and global operations. Company C scanned the environment in a continuous and systematic manner, using the periodic external publication of reports on the environment as a means of gathering and analysing data on the external environment.

6.4.1 Scanning scope, mode and formality

Company C had a business environment team of 15 people at the corporate level whose role it was to manage scanning of the external environment. This made up one-third of the corporate strategy unit, which consisted of the business environment team, the competitive intelligence team and the planning team. The business environment team itself consisted of four pillars as follows:

> *'If I look at the team which I have the privilege of being responsible for, developing and using, there are four pillars of expertise. There's the energy team [...]; there is an economics team, headed up by our chief economist, generally a world-leading economist who we have brought in from the outside for a period. [...] We also have our chief political analyst and a sociocultural team.'*

Therefore, the focus of the business environment team was the economic, sociocultural, technological and regulatory environments, with another team within the corporate strategy unit looking at the competitive environment. Strategy teams in the SBUs

scanned the task environment relevant to them. Overall scanning scope is summarised in Table 6.9.

Personal sources of information both internal and external to the company were the preferred mode of scanning. The business environment team itself used a network of contacts to gather information on the external environment:

> *'The full-time team is about 15 people, and then there is the wider network that is called on. We manage the network in as structured and systematic a way as we can. So we have people who are within the company that are almost co-opted into the team through to where the subject-matter experts are within the company and outside.'*

Table 6.9: Company C scanning scope

Environment Sector	Individual	Organisational
General: Economic	-	Economic trends Pricing and costing
General: Sociocultural	-	Attitudes to climate change
General: Regulatory	-	Political situation in various areas of the world Regulatory changes
Task: Competitive	-	Competitor behaviour Relevant information in SBU
Task: Customer	-	SBU-specific information
Task: Technological	-	SBU-relevant information Substitute products: biofuels, electric cars, etc.

Scanning mode is covered in Table 6.10. Significant effort was invested in developing and maintaining the network, which was managed as a formal system:

> *'When we think about our contacts, we think about them in terms of Platinum, Gold and Silver contacts. Platinum would be people and organisations, but mostly people within organisations, that we would make sure that one of our senior team members speaks with three times per year – that would include face-to-face time – through to Silver contacts who we will engage on a subject basis as and when that is required.'*

Impersonal sources were eschewed in favour of documents and reports produced by the business environment team. With reference to the way in which individual contacts were used to produce these internal documents, the following was said:

> *'I estimate that about 150 subject-matter experts in [the company] and 250 outside [the company] are engaged in some way. That can be either very deeply engaged, for example commissioned to do a particular piece of work, through to sitting around a table for a few hours as a sounding board.'*

Table 6.10: Company C scanning modes with source examples

Environment Sector	Scanning Mode	
	Personal	**Impersonal**
General: Economic	Internal and external economists	Internally produced reports and documents based on information gathered through personal channels
General: Sociocultural	Subject-matter experts	
General: Regulatory	Internal and external political analysts	
Task: Competitive	Internal contacts	
Task: Customer	Internal and external contacts	
Task: Technological	Energy experts Technology experts	

Strategy teams at SBU level mirrored the structure of the corporate strategy unit, being split into business environment, competitive intelligence and planning. These teams, while separate, were an integral part of the organisational scanning network and contributed significantly to the output of the business environment team at the corporate level and vice versa:

> *'The business strategy units are embedded in the businesses. […] There is no deep business environment capability that is separate from ourselves that is in those units. […] So, for instance, our energy team has its energy network, so if they are looking at supply and demand and pricing, that will include the experts on supply and demand and pricing in the different businesses who are looking specifically at their own particular area of supply, demand and pricing.'*

Overall, scanning in company C was conducted by a complex network of teams and individuals inside the organisation interacting at regular intervals with those outside the organisation. The knowledge built up in different parts of the organisation was gathered and filtered by business environment teams at the corporate and business levels into reports used by senior managers to make decisions. No mention was made of impersonal external sources such as intelligence databases or external analyses.

6.4.2   Scanning drivers

A significant driver of scanning activity was the need to support strategic decisions, which resulted in examination of the competitive and technological sectors. It was noted above that the preferred scanning mode was personal sources of information and that such information was processed through the corporate strategy unit and passed to decision makers at the appropriate time, which assisted in providing decision makers with an objective view of the world:

> *'In the end they are the leaders and they have to make their decisions. They have to develop their own vision and their own goals. [...] it certainly would help them to challenge their mindset and make the risk profile very clear in portfolios.'*

The fact that the company developed and produced detailed forecasts of economic and technological variables also drove scanning activity. This was accomplished through the development and use of complex proprietary modelling systems:

> *'For the very long term we have our own world energy model where we can model supply and demand and prices for all energy, so not only oil and gas but coal, renewables and all the way from demand sectors – end consumer prices, taxation, CO_2 prices, etc. – all the way down to the primary energy inputs required for delivering an energy service. Our model can also deal very well with substitution on the consumer level as well as on the producer level, and it can handle behavioural change induced by policy changes. I think we are pretty unique in that.'*

This modelling was a significant part of the activity within the business environment team and was seen as valuable in strategic terms for the company. The following example was given:

> *'Is the electric car indeed imminent; will it destroy our markets; if so, how fast;*
> *what would be the alternatives; do people really want it; and can it be built?*
> *Can utilities provide so much electricity, and if they can is it coming from*
> *renewables or gas or coal or nuclear? These changes in markets and*
> *preferences also open up new markets again. It is that insight that helps the*
> *business developers looking for a new project.'*

Another driver of scanning activity was the need to engage with external stakeholders and manage various external relationships. The company published periodic reports on the business environment externally, using some of the information that was gathered and developed for decision-making purposes. The periodic external publication of such reports was seen as a good public relations exercise and a means of engaging with stakeholders, such as customers and regulators, and also with the wider world:

> *'The work is deliberately as objective as we can make it. Our exec committee*
> *want the most objective view of the world that they can [get] and that's what we*
> *share with others around the conversation. It's not created as a piece of public*
> *relations, although it's a very helpful part of public relations, as we seek to be*
> *seen as thought leaders in particular areas.'*

Thus the external publication of reports on the environment was seen as a way not only of managing external relationships but also of increasing the quality of the organisational scanning output.

6.4.3   Evidence of perceived uncertainty

It was recognised that various events could be a source of uncertainty for senior executives. The perspective of the business environment team was that their role was to reduce the level of uncertainty surrounding the environment. Of the unrest in the Middle East in early 2011 it was stated:

> *'When Tunisia happened – the Arab Spring – and the spark flew to Egypt, that*
> *was the time we [produced reports] for the MENA[3] region, because obviously*
> *that would not be contained to these countries; it would spread through the*
> *region. We analysed the main drivers and the impact on Libya and Syria, Saudi*

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[3] MENA = Middle East and North Africa.

> *Arabia and so on. It is making sense of a volatile situation and we do that to make [sure] our decision makers neither underreact nor overreact.'*

This short vignette contains examples of state, effect and response uncertainty. Initial state uncertainty encouraged deeper scanning of the region, designed to reduce state, effect and response uncertainty. The price of oil was also a source of uncertainty. Of the large fluctuations of the oil price between 2008 and 2009 it was said:

> *'When it went to $50 people became uncomfortable and said that was the bottom of the range we screen things against. When it dropped to $40, or even $32 very briefly, that is when people really started saying, "Hang on." We had to say, "Calm down – it cannot last for this or that reason." On the other hand when the oil price goes to $148, like in August 2008, you also have to say, "Hang on, this is a windfall but that's not sustainable either. Stay calm and don't calculate yourself rich."'*

This implies that significant fluctuations in the oil price had resulted in a high level of uncertainty. State uncertainty arose when executives did not know what would happen next with the price of oil. Response uncertainty was moderated by the scanning activity of the business environment team, who were able to stop senior executives from reacting in the wrong way to very high or very low prices.

Overall, various types of PEU were observed in the regulatory and economic sectors. These instances of PEU appeared to encourage further scanning of the specific sector in which PEU had arisen. The role of the organisational scanning function in these cases was seen to be preventing poor decisions being made by reducing the level of uncertainty through increased scanning.

6.4.4 *Scanning and the strategy process*

The company's annual strategy process, and its relationship with the business environment team's outputs, was described as follows:

> *'There is an annual strategy process with the board and executive committee which has an integrated external environment review as part of that.'*

While the annual process represented periodic engagement between the business environment team and decision makers, continuous engagement was also evident:

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> *'There is an ongoing conversation at formal and informal levels with the senior executives [...] so that what is in their foreground is understood by us and we bring from the background things into their foreground all the time. The way I think about it is helping people on a journey that enriches their decision-making capabilities.'*

The annual board review was the point at which the overarching strategic direction was examined and discussed with input from the environment team. Strategic decisions were made at both corporate level and business level. The role of the planning and monitoring team, part of the wider strategy group, was focused on budgeting and operational planning:

> *'If you like, there is a sort of flow that goes from understanding the external environment through to [...] portfolio decision through to the financial playing out of those decisions, and also ultimately the planning team will be part of the appraisal of performance against planned.'*

Information from the external environment was used across the organisation at the operational level as part of investment appraisal activity:

> *'All the overarching economic assumptions being applied in all the projects that are considered across the company are derived from and underpinned by our work, whether that's the macroeconomic assumptions or price outlooks, cost inflation outlooks, exchange rates, etc.'*

Thus the work of the environment team in scanning and analysing the environment was used around the organisation at various different stages of strategy development and implementation.

Table 6.11 contains antecedent and mediating variables for causal network analysis. The section of the in-case analysis in which each variable was discussed is noted in brackets. As in preceding analyses, the antecedent variables are the drivers of scanning activity and the mediating variables are the company-specific activities that occur as a result of these drivers.

Table 6.11: Antecedent and mediating variables for external environmental scanning in company C

Antecedent Variables	
Support strategic decisions (6.4.2)	State PEU (6.4.3)
Produce budgets and forecasts (6.4.2)	Effect PEU (6.4.3)
Manage external relationships (6.4.2)	Response PEU (6.4.3)

Mediating Variables	
Complex contact networking (6.4.1)	Annual strategy review (6.4.4)
Ongoing strategic discussions (6.4.4)	Technological and economic modelling (6.4.2)
External publication of environmental analyses (6.4.3)	Detailed financial planning (6.4.4)
Detailed internal reporting on external environment (6.4.4)	

A causal network of factors resulting in scanning of the external environment for company C is shown in Figure 6.3. All the drivers identified in Section 6.4.2, along with the three types of PEU discussed in Section 6.4.3, are discussed with reference to their causal chains below.
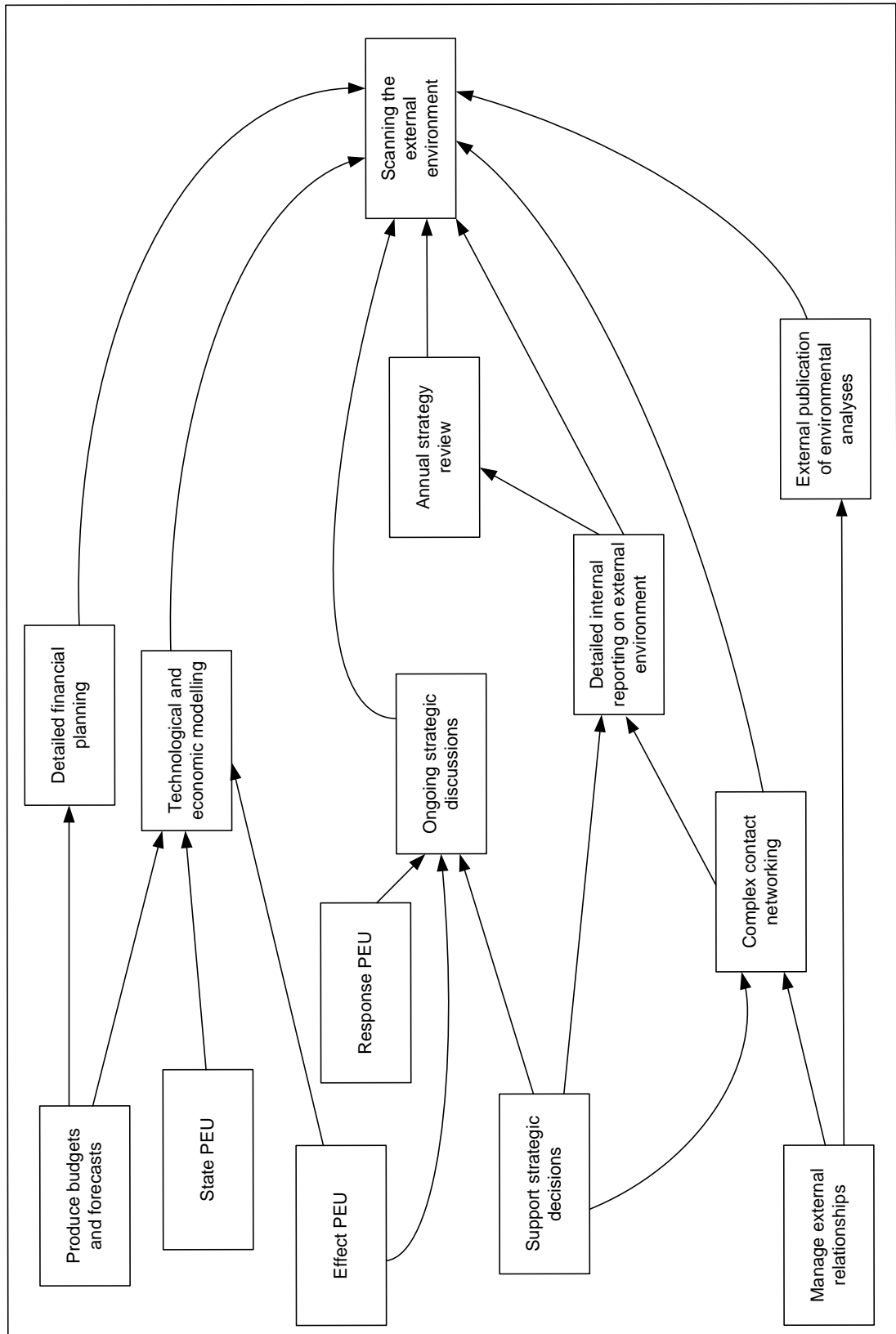
Figure 6.3: Causal network: factors resulting in scanning of the external environment in company C

The need to *produce budgets and forecasts* resulted in detailed financial planning being carried out, which required the environment to be scanned. It also resulted in significant levels of technological (energy systems) and economic (oil prices) modelling, which in turn caused the environment to be scanned.

Supporting strategic decisions caused detailed reporting on the external environment, which caused the environment to be scanned. The detailed reporting also fed into the annual strategic review, which resulted in the environment being scanned further. Supporting strategic decisions also caused ongoing strategic discussions, which again resulted in the environment being scanned. Finally, supporting strategic decisions resulted in complex contact networking being undertaken, which again resulted in the environment being scanned both directly, and indirectly through the compilation of detailed internal reporting.

The need to *manage external relationships* resulted in complex contact networking, which caused the environment to be scanned. It also resulted in external publication of environmental analyses, which caused further scanning of the environment.

The existence of *state PEU* around a number of variables resulted in complex modelling of different environmental variables to try to predict their behaviour. *Effect PEU* from senior executives again contributed to the modelling of different environmental variables and also to ongoing discussions on strategy between business environment team members and senior executives. Both modelling and the ongoing discussions themselves caused the environment to be scanned. *Response PEU* contributed to the ongoing discussions with senior executives about the environment.

The final stage is to relate the mediating variables identified in the causal analysis back to the strategy process model. This is shown in Table 6.12, the contents of which will inform the causal network section of the cross-case analysis in Section 7.6.

Table 6.12: Areas of strategic activity for company C

Strategy Process Area	Activity
Strategic intent	Annual strategy review
External interaction	Detailed internal reporting on external environment Complex contact networking External publication of environmental analyses Technological and economic modelling
Resource management	-
Strategy choice	Ongoing strategic discussions
Implementation	Detailed financial planning

6.4.5   Company C conclusion

To conclude, the four research questions will be addressed in light of the outcomes of the analysis of company C.

- *How does company C scan its environment?*

  Scanning in company C happened through a complex organisational system that used a network of subject experts both inside and outside the organisation to gather information and compile it into detailed reports on the environment. All sectors of the environment were of interest, but personal modes were the preferred method of acquiring information.

- *What motivates company C to scan its environment?*

  Company C scanned its environment to support the strategic decisions being made by senior executives, to produce forecasts and budgets, and to manage external relationships. The periodic publication of reports on the environment is of note because it was thought to facilitate both relationship management in the macro sense and also more robust scanning and reporting on the environment in that an outside view of the company's perspective could be gathered.

- *What is the impact of perceived environmental uncertainty on scanning?*

State, effect and response uncertainty appeared to both exist within the company and have an impact on scanning activity. Much of the scanning and associated reporting was intended to reduce effect and response uncertainty. State uncertainty resulted in complex modelling of a number of environmental variables.

- *How is scanning activity in company C linked with the rest of the strategy process?* Again many of the strategic activities associated with environmental scanning were related to the external interaction area of activity. Other variables were related to strategic intent, strategy choice and implementation. These links are explored in further detail in the cross-case analysis of scanning activity and the strategy process, contained in Section 7.6.

In conclusion, company C's systems for scanning the environment were complex and comprehensive. Their engagement with the environment was the greatest out of all the companies involved in the present research in terms of interest in sectors and numbers of employees specifically dedicated to scanning and analysing the environment.

6.5   Company D

Company D is a division of a large offshore services company. The division is an autonomous unit dealing with specific technical offshore services. The SBU itself was relatively new at the time of data collection (2 years old) and had around 20 employees. The number of employees may be misleading regarding the size of the business because significant numbers of personnel were outsourced for basic operations. A detailed organisational scanning system was found.

6.5.1   Scanning scope, mode and formality

Scanning in company D was conducted through formal organisational processes, despite its small size. Various sectors of the environment were of interest to the organisation, with a particular emphasis on the customer and technological sectors of the task environment. Some scanning of the general environment, specifically the economic and regulatory sectors, was also noted.

The division took a clearly structured approach to scanning:

> *'We try and scan the environment through our PESTEL analysis, so one of the things we look at is risk. So what might be the political risk of entering the Ivory*

Coast versus the political risk of entering the UK continental shelf? [...] That's the sort of thing that we are looking at from a real holistic level.'

A significant amount of effort was devoted to scanning the customer environment:

'The other thing we are looking at is the actual clients and their preferences. You know, [which] clients have invested heavily in the current supply chain, [which] clients are holding [cash], so we understand them and their drivers, we are engaging with them, we are spending as much time as we can to understand their needs, values and expectations to see if it marries up and aligns with what we are doing.'

Scanning scope for company D is summarised in Table 6.13 and scanning mode in Table 6.14.

Table 6.13: Company D scanning scope

Environment Sector	Individual	Organisational
General: Economic	General awareness of factor market conditions	-
General: Sociocultural	-	-
General: Regulatory	Awareness of political situations in operated and potential areas	Articulate and quantify political risk – not treated as a barrier
Task: Competitive	-	Formal competitor analysis reports
Task: Customer	-	Customer behaviour Tendering requirements
Task: Technological	Searching for potential acquisition to fill 'competence gap'	Collection and collation of well data in particular geographic regions

The other sector of particular interest to the organisation was the competitive sector:

'We're also doing a lot of competitor analysis. Not that difficult in our business: there aren't that many players; it's not a huge segment. This is one of the big appeals of it. [...] we continue to discover weaknesses in some of our competitors and strengths in some competitors we did know about, and new competitors we didn't know about.'

With regard to scanning mode, both personal and impersonal sources of information were used. Typically, publicly available impersonal sources were supplemented with personal sources before being used to make decisions. Scanning of the customer environment was conducted through personal contacts and often face-to-face meetings with representatives of the customer or potential customer, while public sources were used as initial background to investigating particular customers.

Table 6.14: Company D scanning modes with source examples

	Scanning Mode	
Environment Sector	**Personal**	**Impersonal**
General: Economic	Internal contacts in other divisions	Subscription services for financial data
General: Sociocultural	-	-
General: Regulatory	Junior employees Face-to-face meetings with government representatives	Public sources
Task: Competitive	Junior employees External contacts	Public sources
Task: Customer	External contacts Face-to-face meetings	Public sources
Task: Technological	Junior employees Professional networks	Subscription services for technical data

Impersonal sources were examined by young graduate trainee engineers. This was seen as part of the process of staff development and kept more junior employees informed about the strategic direction of the SBU. It also provided a focus for where personal sources of information were required:

> *'The secondary research is very much around the desk, sitting and scanning reports, scanning websites. So right now, [customer x]: you can get a lot of good information on them. I don't have the time to do it but the graduates are being encouraged to do that, and actually at this stage in their development they are loving it.'*

A variety of personal sources from both inside and outside the organisation were mentioned. Two examples of external personal sources were as follows:

> *'I do a lot of stuff with the Society of Petroleum Engineers – as much as I can. It's a great way of keeping your hand [in with] what is going on in the industry. […] They do a lot of small events in each of the regions. […] They are very valuable indeed. It's a good way of seeing who needs what, why, when [and] what is the technological advance going on at the moment, etc.'*

> *'We were in the UK for a couple of weeks and had 21 appointments. Of those 21 we tried to make a mix. […] the main focus was getting some face time with the potential clients.'*

In the same way as company B, there was a flow from impersonal sources to personal sources. Publications and databases were analysed and synthesised by junior members of staff and used as a basis for directing face-to-face meetings, at which more detailed information was gathered. The outcomes of the meetings were written up into 'call reports' that were used for decision-making purposes. A clear preference for personal sources was expressed, and the information gathered from face-to-face meetings was seen as very valuable.

6.5.2   Scanning drivers

The main driver of scanning activity appeared to be the search for opportunities and the need to understand better the requirements of customers and potential customers. An element of relationship management was also apparent:

> *'We have worked very hard in better understanding client drivers and trying to build relationships.'*

This was in part due to the relatively early stage of development of the SBU and the large-scale growth in the global market for offshore services.

Collecting information on the competitive, customer and technological environments was seen as a requirement for winning current or future business and instrumental in differentiating the company's services from those of competitors. A specific 'call report' was discussed as follows:

> *'Here we've been speaking to a senior employee who I know and have worked with and played football with. This is by no means the best customer we have. So I have the information on the contracts they have and the budget they have.*

> *[We're] really beginning to get an understanding of his drivers, the budget he*
> *manages, of his preferences. […] He also talks about problems they have been*
> *having. This is an opportunity for us because if we can competently engineer*
> *out the client's problems we can then be on a level playing field with our*
> *competition. Perhaps we can have one up on them because we are the company*
> *that engineered them out.'*

Thus the management of relationships with customers and potential customers was a significant factor in encouraging scanning of the environment, as was the search for potential opportunities.

6.5.3   Evidence of perceived uncertainty

The customer sector of the environment was subject to state uncertainty as follows:

> *'Will the client base accept a new entrant? From the primary research we've*
> *done in Latin America and the UK, to sum it up in one sentence, "[You're] very*
> *welcome, but you've got to prove yourself to be reputable […], but you need to*
> *also prove yourself competent, which will only come in time."'*

The relatively new nature of the SBU meant that its services were not well known outside its current customer base. This meant that the behaviour of potential customers was a significant source of state uncertainty, driving emphasis on the customer sector of the task environment identified in preceding sections.

Internal factors were a source of effect uncertainty for the SBU. The commitment of corporate management to the expansion programme was identified as a source of uncertainty that could have an impact on the organisation:

> *'The uncertainty is that senior management are committed but are they*
> *committed enough? […] So my biggest concern, six months in, is: show us the*
> *money.'*

Another example of effect uncertainty was found in the regulatory sector of the general environment and expressed in terms of political risk:

> *'India [is] probably the most tear-your-hair-out place to try and get a contract;*
> *there is nothing like it. […] Indonesia is another one that's like it but we don't*
> *put political instability as a risk on our analyses because it's everywhere.'*

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Here both state and effect uncertainty are apparent. The behaviour of governments in particular areas is uncertain but at the same time the effect that will have on the company is not known. In this example it appeared that perceived uncertainty discouraged scanning and detailed analysis of that sector of the environment.

6.5.4   Scanning and the strategy process

The planning approach in company D was detailed and involved meetings and reviews at regular intervals. A structured system was used to link various plans and meetings together:

> *'[There's] a strategic 5-year business plan supported by a very clear 3-year tactical plan, and that's being delivered in terms of roles and objectives for 18 months out under the key result areas of our business. [...] And then there are 90-day focused plans, so under each of the key result areas it's specified this is who is doing what in the next 3 months.'*

The purpose of each plan was different and it was recognised that an element of flexibility was required. The 90-day focused plans and the tactical plan provided the opportunity for incremental adjustments to strategy:

> *'Any plan is of no value if it is cast in stone, [but] strategically that will always be our intent and our direction. But I think things change, so we need systems in place whereby we are recognising that change and we are changing the plan. Maybe not the strategic plan [...] but at an operational level, so maybe 90 days to one year out and a [at] tactical level, one to three years, that's where we can really introduce the change and manage the change.'*

The main reason for adjustment of strategy would be in response to changes in the external environment. A geographic market that the company had just entered was given as an example:

> *'We've got a loose process that every three months we revisit this and ask, [...] "Bearing in mind what's been going on in the last month in [country x], are these assumptions that we've made correct?"'*

The system that was in place was in part shaped by the need to be accountable to senior management for strategic choices:

> *'We came up with a little bit of a model about how we, as we try to internationalise, go through quite a rigorous process to look at preliminary opportunities right down to probable targets and how we reject them and how we can explain to [corporate] management why we have done that. […] so once we know which countries are really needing our services, what do we know about the clients.'*

The next step is to define the antecedent and mediating variables for causal network development. These are provided in Table 6.15. The section of the in-case analysis in which each variable was discussed is noted in brackets. An element unique to company D is the existence of internal effect PEU surrounding the commitment of corporate-level management to funding the planned expansion of the business unit. This features in the causal network and has an impact on scanning of the external environment.

Table 6.15: Antecedent and mediating variables for external environmental scanning in company D

Antecedent Variables	
Search for opportunities (6.5.2)	State PEU (6.5.3)
Evaluate opportunities (6.5.2)	Effect PEU (internal) (6.5.3)
Manage external relationships (6.5.2)	Effect PEU (external) (6.5.3)
Mediating Variables	
Detailed geographic screening activity (6.5.1)	Involvement with professional societies (6.5.1)
Country visits (6.5.1)	Decision discussions with corporate management (6.5.4)
Short operational planning cycle (6.5.4)	Frequent checking of assumptions (6.5.4)

The causal network of factors resulting in scanning of the external environment for company D is shown in Figure 6.4. As the antecedent variables, all the drivers covered in Section 6.5.2 and the three types of PEU discussed in Section 6.5.3 are taken in turn below.
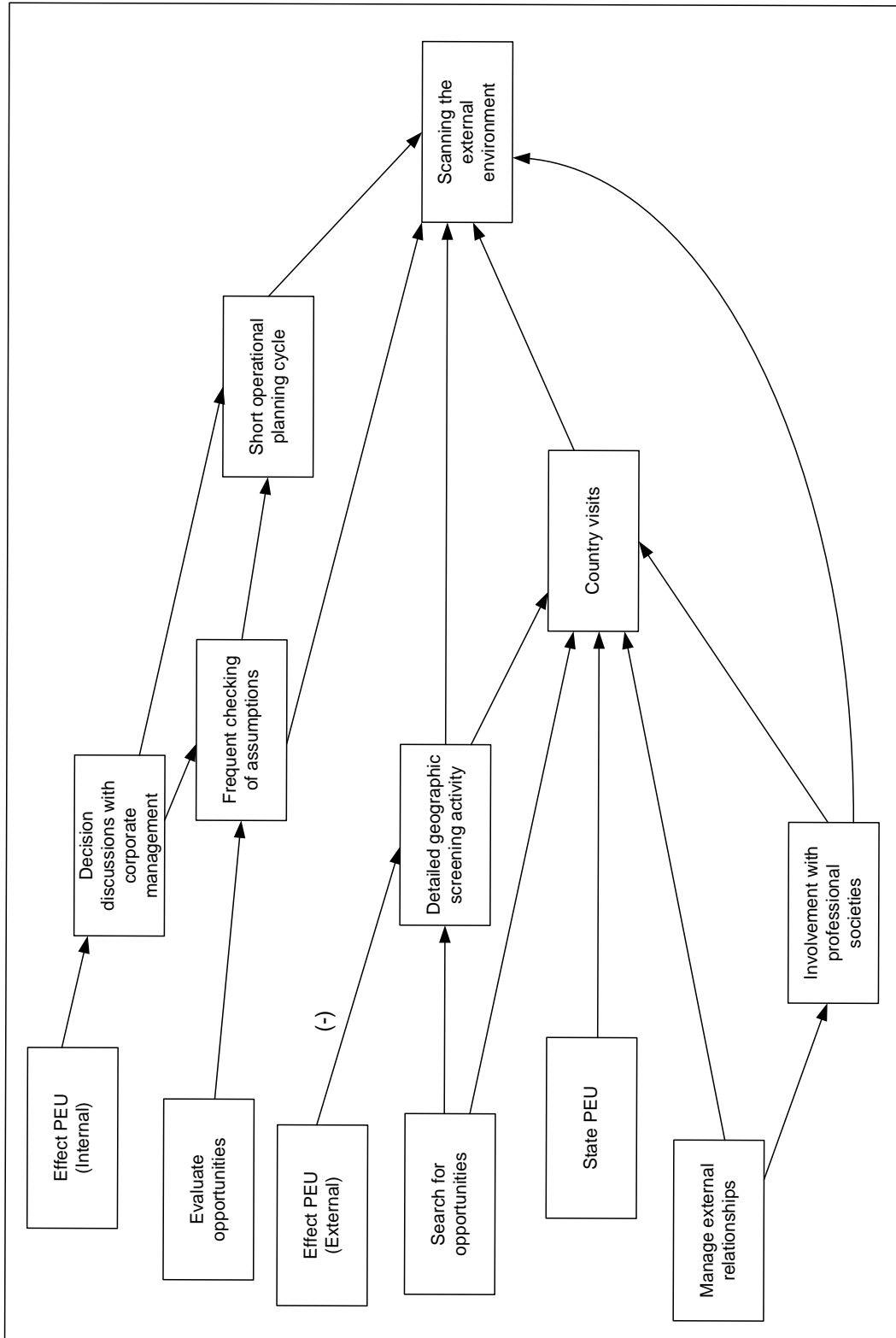
Figure 6.4: Causal network: factors resulting in scanning of the external environment in company D

The need to *evaluate opportunities* resulted in frequent checking of assumptions about the environment. This resulted in the environment being scanned. It also resulted in a relatively short operational planning cycle, which resulted in further scanning of the environment.

The *search for opportunities* was the focus of the organisation's activity at the time interviews were carried out. This resulted in detailed geographic screening activity carried out by junior employees and various country visits by senior executives. Both of these activities resulted in the environment being scanned. There was also a causal link between the geographic screening and the country visits, meaning that geographic screening had to be carried out before the country visits were conducted.

The need to *manage external relationships* resulted in country visits being carried out to engage with various stakeholders. This resulted in scanning of the external environment. It also resulted in a significant level of involvement with professional societies, which caused further scanning to be carried out.

Internal *effect PEU* surrounding the commitment of corporate-level management to the expansion plans that the SBU had produced resulted in the need to discuss decisions with the corporate centre at regular intervals. This caused a frequent checking of assumptions about the environment, which in turn resulted in the environment being scanned. It also resulted in a short operational planning cycle, which resulted in further scanning being carried out.

The existence of *state PEU* surrounding the willingness of customers to accept a new entrant to the market resulted in various country visits to meet with stakeholders, the most common being potential and existing customers. This caused the environment to be scanned.

External *effect PEU* surrounding political volatility and risk was seen to affect scanning of the environment in a negative way. Uncertainty surrounding political risk was explicitly stated as being unimportant in analysis of potential areas to enter and so resulted in less scanning on political grounds being carried out. The focus of the geographic screening exercise was seen to be technological and economic in nature.

The final stage in the analysis is to relate the mediating variables to the areas of the strategy process model. This is shown in Table 6.16, which will form the basis of the cross-case causal analysis in Section 7.6.

Table 6.16: Areas of strategic activity for company D

Strategy Process Area	Activity
Strategic intent	Frequent checking of assumptions
External interaction	Detailed geographic screening activity Country visits Involvement with professional societies
Resource management	-
Strategy choice	Decision discussions with corporate management
Implementation	Short operational planning cycle

6.5.5 *Company D conclusion*

The answers to the four research questions in the context of company D are as follows.

- *How does company D scan its environment?*

  The scanning approach in company D was relatively formal, with various organisational processes in place to manage information gathered about the environment and both junior and senior employees involved in the process. A mix of sources, both impersonal and personal, was used to gather information. Professional bodies were noted to be of use in scanning the environment.

- *What motivates company D to scan its environment?*

  The search for opportunities was a major guiding factor in scanning the environment in company D, as was the need to build and manage relationships. The need to evaluate opportunities once target areas had been identified also played a role.

- *What is the impact of perceived environmental uncertainty on scanning?*

State uncertainty about the willingness of potential customers to engage with a new entrant to the marketplace, along with effect uncertainty about the willingness of corporate-level management to commit to expansion plans that had been proposed, influenced the level of environmental scanning. Effect uncertainty surrounding political risk seemed to reduce the level of uncertainty in that specific area.

- *How is scanning activity in company D linked with the rest of the strategy process?* Scanning was conducted in relation to external interaction, to review strategic intentions and facilitate strategic decisions. It also had a role to play in implementation through the operational planning system.

Company D's scanning activities were affected by the fact that it was a relatively young organisation that was still in the process of growing rapidly and establishing itself in the market, and this is clear in the analysis of drivers and causal factors in later sections of the case report. Overall the company used relatively formal approaches for its size. These issues are addressed more fully in the cross-case analysis and validation exercise chapters.

6.6 Company E

Company E is a large financial services firm with a number of SBUs in different parts of the world. Despite that, around 80% of the company's business was conducted in the UK. The company had around 12,000 employees. A complex system of both individual and organisational scanning was apparent, in this case focusing on particular sectors of the environment.

6.6.1 Scanning scope, mode and formality

Company E was structured as a corporate centre with a number of geographic SBUs. Organisational scanning was conducted through two formal systems. First, 'insight' teams in each SBU monitored environment sectors relevant to their business unit. This was supplemented by further scanning at the corporate level. Second, a comprehensive risk management infrastructure scanned certain sectors of the environment independently of the other teams. The risk management system was managed at the corporate level with a network throughout the wider organisation.

Both continuous and ad hoc scanning activities were mentioned during interviews:

> *'If we're "doing" strategy, if we're coming up with a new strategy, by definition we'll do a detailed deep dive and do that market. What happens on an ongoing basis is we have competitor intelligence, market people, "insight" people broadly, whose job it is to monitor things that are going on. They tend to be business unit specific.'*

The SBUs tended towards a focus on task environment sectors. Continuous scanning at the corporate level tended to focus on general environment sectors:

> *'Where the group does do things is [that] our investor relations team looks at what people are saying about our shares and company relative to what other people are doing and what's happening at the stock market level. We've got a corporate affairs team that look at government and regulation stuff.'*

The risk management approach was described as the second line of defence and was effectively another scanning system. The network of risk managers at corporate and SBU level was responsible for identifying and monitoring risks using a formal process:

> *'All risks are loaded into a central system, which then has to be monitored and signed off every quarter at least. If at any point something happens, so an event happens that would trigger an action of any form, because it's not just strategic also but it's financial risk and operation risk and other risk as well. It doesn't automatically do it. Somebody in the risk world would effectively flag it and say, "This risk has happened." This needs to be signed out to that person who needs to do something about it, and it would just depend what the risk is and who the person [is].'*

A summary of scanning scope is provided in Table 6.17. The dual-system approach resulted in a significant level of organisational scanning effort. Mechanisms were also in place to feed scanning conducted by individual managers back into the organisational system. A manager who was not associated with either of the scanning systems, when talking about the SBU-level competitive intelligence unit, noted:

> *'It often happens that we fall on something that we receive – a study or an article – [...] that wasn't filtered by them. So we feed their database.'*

The role of risk managers throughout the organisation was seen as creating the right conversations with decision makers:

> *'Scan your environment, create conversations at the right committees [...].*
> *Don't slavishly have a reporting pack that just talks people through all the risk*
> *types. You know, it's about getting those people with experience to talk about*
> *what's happening, so that you can spot things that are going to go wrong.'*

Table 6.17: Company E scanning scope

Environment Sector	Individual	Organisational
General: Economic	General economic indicators	Periodic risk analysis Risk monitoring system
General: Sociocultural	Interest in long-term demographic trends	-
General: Regulatory	General interest in regulatory behaviour	Formal sessions with regulatory bodies around strategy Individual SBU regulatory environments
Task: Competitive	Passive scanning of information, fed into organisational system if required	Competitor results Reports on market share Gathering of sales employee insights into competitor behaviour
Task: Customer	Passive scanning of information, fed into organisational system if required	Gathering of sales employee insights into customer needs
Task: Technological	Seen as a cost only	-

The two systems operated independently but were linked at the corporate level, the role of the risk function being to monitor and evaluate the potential impact of emerging issues in the environment:

> *'So each of the business units will have a monitoring function for their*
> *respective businesses, geography, regulatory, and we have this emerging*
> *process at group level that's about environmental screening. And we've got one*
> *person full-time whose role it is to – maybe in a broad sense around the risk*

> *environment – see what's happening, see what trends are out there, see what [the] emerging risks might be.'*

Focus at the corporate level was on the regulatory environment, and business-level scanning was focused on the customer and competitive environments. Risk managers tended to take a more holistic view of the environment and did not focus on particular sectors.

At the corporate level scanning was linked to periodic reviews of strategy. At each review the organisation's assumptions were tested. Continuous scanning of the regulatory and sociocultural environments was noted:

> *'An ageing and growing-wealthier population is a good thing in our business. It's not the only thing but it's historically a very good thing. So we'd look for socioeconomic trends and demographics and how things are going. Things like technology are interesting, but they're not any more core to us than to most businesses. […] but legislation and regulation is the thing that can just change overnight. That creates or destroys markets.'*

The SBU teams were focused on task environment sectors and worked alongside the SBU strategy teams. The role of competitive intelligence in relation to the strategy team was described by a member of the strategy team as follows:

> *'Their role is really to scan the industry, the market, any competitors; and the majority of articles or news releases or analyses that we look at come from them. […] So it's really the whole market and competitors, and preparing analyses that are linked to this. […] we work really hard to try to filter the most relevant pieces of information and try to make links between different elements, so that we could tell a more focused story to our CEO and the top management.'*

The SBUs were structured around geographic areas. This meant that not only the task environment but also the regulatory environment was different for each unit. Scanning of the regulatory environment was conducted at both corporate and SBU level:

> *'The group has no customer; the group doesn't directly operate in any markets. The group owns businesses that do that. So the things that will make the UK*

successful or not are about the UK market. But the group has nothing much to add about [country x] that the [managers in country x] don't already know.'

In terms of scanning mode, a mix of information sources were used at all levels of the organisation. Scanning mode for company E is summarised in Table 6.18.

Table 6.18: Company E scanning modes with source examples

Environment Sector	Scanning Mode	
	Personal	**Impersonal**
General: Economic	-	News reports
General: Sociocultural	-	News reports
General: Regulatory	Internal relationship managers with regulators and industry bodies	-
Task: Competitive	Internal contacts	Market intelligence reports Internal Reports
Task: Customer	Internal contacts	Market intelligence reports Internal reports
Task: Technological	-	-

Impersonal sources were viewed as inferior to personal sources. For example, market intelligence reports were seen as being of limited use on their own. This meant that reports produced by the competitive intelligence team relied on information from personal sources:

> *'Everyone will have these but we think, because everyone gets them, they don't really generate any competitive advantage for you, so it's really flavouring them with the stuff that we gather from across the company [that is important].'*

An informal network of contacts throughout the company was used to gather information on the customer and competitive environments. While these individuals were not tasked with monitoring the environment, their roles meant that they had an awareness of specific parts of the environment:

> *'We've over 100 people, effectively, who are facing off to the market here [with reference to diagram detailing internal network]. They all individually will hear things that are useful. Some of them will be very low level, some will be very high-level-type stuff, and it really gives you an insight to where our competitors*

> *are going in the market. That's the bit that effectively makes a difference when you understand what the competitors' plans are.'*

A specific example was given of how internal, personal contacts could be of use:

> *'By telling us how they've won a deal or who they lost to and why they lost, it gives us a lot of insight into what the competitors are doing.'*

The role of the intelligence unit was to harness this tacit knowledge for decision-making purposes. The network was formally defined and mapped but was occasionally a source of difficulty:

> *'Most of them are external-facing, so they are sales people with targets. Yes, that's what matters to them first; everything else is a secondary thing. So that's where the hard work is, effectively is: in maintaining the relationships.'*

Personal sources outside the organisation were seen as less valuable. The role of industry bodies and associations was secondary compared to that of the internal networks:

> *'It's a more informal networking thing where we go along and speak to peers within the industry who do a similar role to ourselves. [...] it's just sharing best practice, common problems and that type of stuff. Strict rules about what you can talk about in terms of how you operate in the market, pricing and all these types of things as well.'*

Impersonal sources of information were also viewed as being of limited use in the risk management activity:

> *'Maybe I'm being too harsh on it. As an input to strategic thinking, yes, it's great, but I think we've got to recognise that it's [...] one guy having a look around and seeing what's on the news and seeing what's been published and seeing what the latest thinking is [and] doing some Google alerts around it.'*

Overall a clear preference for internal personal sources of information was observed throughout the organisation, and a significant amount of effort was put into augmenting information from impersonal sources with information from personal sources before it was used in decision making.

6.6.2   Scanning drivers

The need for information to support strategic decision making had a large impact on scanning activity. The organisational system was driven by both the need to provide information to support decision makers and the need to monitor outside influences. This involved transferring knowledge that already existed in one part of the organisation to another part where it could be useful:

> *'If you can [...] gather that stuff from these 100 people that don't speak to each other all the time because they are scattered about, but if we can collate that, then it means that the outputs that we produce, which effectively will go to the decision-making forums, [...] that generates a competitive advantage for us, because in theory we understand the market better than anyone else; we know what's going on, etc.'*

The organisational scanning system filtered information from the various sources identified above into a useful format for decision makers at regular intervals and also in response to ad hoc demands for tailored reports. This meant that organisational scanning was driven by both a need for continuous engagement with the environment and specific requirements of decision makers. Individual scanning was driven by the actions of individual external-facing employees, whose knowledge was gathered by the competitive intelligence teams for relationship management and external monitoring purposes.

A feedback loop from decision makers back to those involved in the scanning system was apparent, so decision makers were able to influence the content of the periodic reports on the external environment that were received:

> *'We don't just send stuff; effectively we go and present it and you get feedback from these people about, "Can we see more of this, can we add in more of that?" [...] So these change organically, if you like, pretty much every quarter.'*

The demand for information was managed both upwards by those involved in the system and downwards by the decision makers themselves.

Another driver of scanning was the regulatory requirement to satisfy regulators that risks were being managed effectively. This shaped the risk management function in the

organisation. Recent changes in regulation had driven changes in the risk management approach:

> *'One of the things we were asked quite often by the ratings agencies that come to assess our risk management is, "How can you demonstrate strategic risks that are influencing your business planning and your business decisions?" and before we couldn't.'*

The system of SBU risk managers, managed at the corporate level, was designed to encourage SBU managers to think explicitly about risk:

> *'I'm not sure you would expect your strategic risks to change very much, unless something significant was happening. But, you know, we do want our business unit executives to stand back and think about them every time, not just feel tick, tick, tick [mimes ticking of boxes], and I think one of the benefits of doing it in this integrated way has [been to stop] that happening.'*

Reservations were expressed regarding the value of some risk management activity. The perception was that regulatory requirements had pushed scanning activity beyond what was useful, and that some outputs were produced to satisfy regulators rather than to be of use in strategic terms:

> *'We might happen upon something that nobody else has thought [of], but [some risks we identify] can feel sometimes so strange and so not useful, like, I don't know, solar flares, yes we might want to think about whether we have capability, which we'll convince ourselves that we do, or write a paper about it and then we can file it away.'*

Another driver of scanning activity was operational planning work done by teams that worked alongside the various strategy teams. This was described as follows:

> *'It's effectively business planning but we call it budgeting, to try and give a stronger sense of it. It's a commitment to deliver something rather than just to set plans. And that we do every year with a two-year time horizon.'*

The operational planning activity also involved an element of forecasting and scanning the environment for information.

In summary, scanning in the strategy and competitive intelligence systems was driven by decision-making requirements. Scanning through the risk management system was driven by both regulatory requirements and the need to manage risks across the various SBUs.

6.6.3   *Evidence of perceived uncertainty*

More than one respondent identified the regulatory environment as a source of uncertainty:

> *'Regulation is the thing that can just change overnight. That creates or destroys markets.' (respondent 1)*

> *'...regulatory expectation [does] change [over time], so what might have been fine at the time seems no longer to be fine...' (respondent 3)*

> *'There's always been change of some description, regulatory driven...' (respondent 4)*

There is evidence here of both state uncertainty (respondents 1 and 4) and effect uncertainty (respondent 3). This state and effect uncertainty appeared to influence scanning activities. It was acknowledged that the regulatory environment was scanned on a regular basis but that this did not reduce the level of uncertainty:

> *'We spend a lot of time managing our regulators in terms of expectation. We do spend a lot of time with industry bodies, and yet there is something that can come along in a mature economy like ours that can really potentially undermine a corporate business model.'*

Such unexpected changes were seen as a fairly regular occurrence, and it was acknowledged that such change had to be managed in a reactive way:

> *'It could theoretically throw our strategy out the window but tends not to. It happens at any time. Depending on the scale of it, it may involve business unit and group discussion; it may not. [It] just depends on the size of the thing that we need to do.'*

Thus perceived uncertainty resulted in increased scanning of the regulatory environment, but scanning did not necessarily reduce the level of uncertainty.

6.6.4   *Scanning and the strategy process*

The planning process in company E was based around periodic interaction between the corporate centre (referred to as 'the group') and the SBUs. The process was seen as incremental and was concerned with checking assumptions that underpinned the organisation's strategic intent:

> *'What we do every year, [...] March/April time, is to do a few weeks' worth of work [...] to basically kick the tyres of that strategy and make sure that it's still right, and we call that "strategy validation".'*

The process started in the SBUs and fed back up to the corporate centre, which was responsible for setting and monitoring overall direction:

> *'The chief executive of each of the businesses plus their team have a conversation to convince themselves that either they do or don't need to change the strategy. Those come together into a group. Overall, that goes to the board, and again the board have a conversation about "Are we happy that the strategy remains the right one?"'*

Changes in the external environment of a single SBU could be taken into account in a number of ways:

> *'It could happen during that annual validation process [but] the reality is most things that are strategically important don't tend to happen at the time we're thinking about them; they tend to happen at the time that suits those things. So what we do is we also have our strategic risks: they get managed on a quarterly basis, at least quarterly basis [...]. Effectively at any moment something can happen that would change our strategy.'*

The strategy validation process was put in place to monitor and evaluate the strategic direction of the various parts of the organisation, but its periodic nature meant that it was of limited use in taking into account new information from the external environment. The risk management infrastructure was used to link strategy to emerging opportunities and threats in the external environment.

Strategic direction was set at the corporate level by the CEO, with input and validation from the board:

> *' At a very high level, we set the overall theme and it evolves over time, but the latest expression [was] probably firmed up maybe about [four years ago]. That talks about the key things that we're in the market of and that pretty much runs all the time. Now what the process looks like is making sure, on an ongoing basis, that the strategy is still valid.'*

Decisions on overall direction and individual choices were for the most part separated between the corporate and business levels. The SBUs had significant autonomy up to a certain level:

> *'Providing they are going to deliver to the broad strategy and to the results expected, the day-to-day detail of how they do that is less of an issue. [...] Depending on the change, if it was "We need to move some people from that team to that team," we don't care. "We need to stop that product development and start that one": we probably don't care. "We need to get out of that market and get into that one": yes, probably more of an issue. "We need to shut down and buy that": obviously a group issue. So it just depends…'*

The risk management system served to facilitate discussion of issues identified at group level in the individual SBUs:

> *'One of the roles [of corporate risk managers] is looking at the business units and bringing out some group themes and [...] if [business unit A] is not talking about [an important external issue], but everybody else is, then asking, "Where have you discussed that? How have you talked about how that will influence your business unit planning process and your strategy?"'*

A detailed budgeting and financial planning system was in place, with teams working alongside strategy teams at both corporate and business unit level producing budgets and financial plans:

> *'On an annual basis [we] take the strategy and drop it down into an operational planning phase. [We] just say, "The strategy is all well and good but it is high level, five years out, thematic, directional focus. What specifically are we going to do?" We call that budgeting.'*

Performance was measured using a scorecard system. The scorecard system started at the corporate level and cascaded down through the SBUs and into individual teams:

> *'For the group and for each business there's a scorecard that says, "Are we delivering on that thing that we said?" [...] On a monthly basis that goes back up to the executive committees and to the board. They monitor that through the year and then at the end of the year they look back and say, "How was the year?" and you decide on bonuses, group and individual bonuses, on the back of it as well.'*

Just as the SBU strategy teams conducted a certain amount of external monitoring, they also conducted internal monitoring and reporting:

> *'Part of our role is to [...] make sure that the strategy and strategic direction, and in a more detailed manner the tactical plan, is performed and is well understood by everyone. And once this is done, on a regular basis, we monitor the execution of the strategy – how things are going in different functions, different markets – [and] raise red flags when necessary.'*

Table 6.19 contains a list of variables used in the development of the causal network, which is shown in Figure 6.5. The antecedent variables are the drivers of scanning activity identified in the preceding sections and the mediating variables are the company-specific elements identified in the preceding sections. The section of the in-case analysis in which each variable was discussed is noted in brackets underneath.

Table 6.19: Antecedent and mediating variables for external environmental scanning in company E

Antecedent Variables	
Produce budgets and forecasts (6.6.2)	Support strategic decisions (6.6.2)
Satisfy regulatory requirements (6.6.2)	State PEU (6.6.3)
Manage external relationships (6.6.2)	Effect PEU (6.6.3)
Monitor outside influences (6.6.2)	

Mediating Variables	
Detailed financial planning (6.6.4)	Regulator engagement (6.6.1)
Management of performance through scorecard system (6.6.4)	Competitive intelligence gathering (6.6.1)
Periodic strategy review (6.6.4)	Management of risk (6.6.1, 6.6.4)
Ad hoc strategy exercises (6.6.1, 6.6.4)	
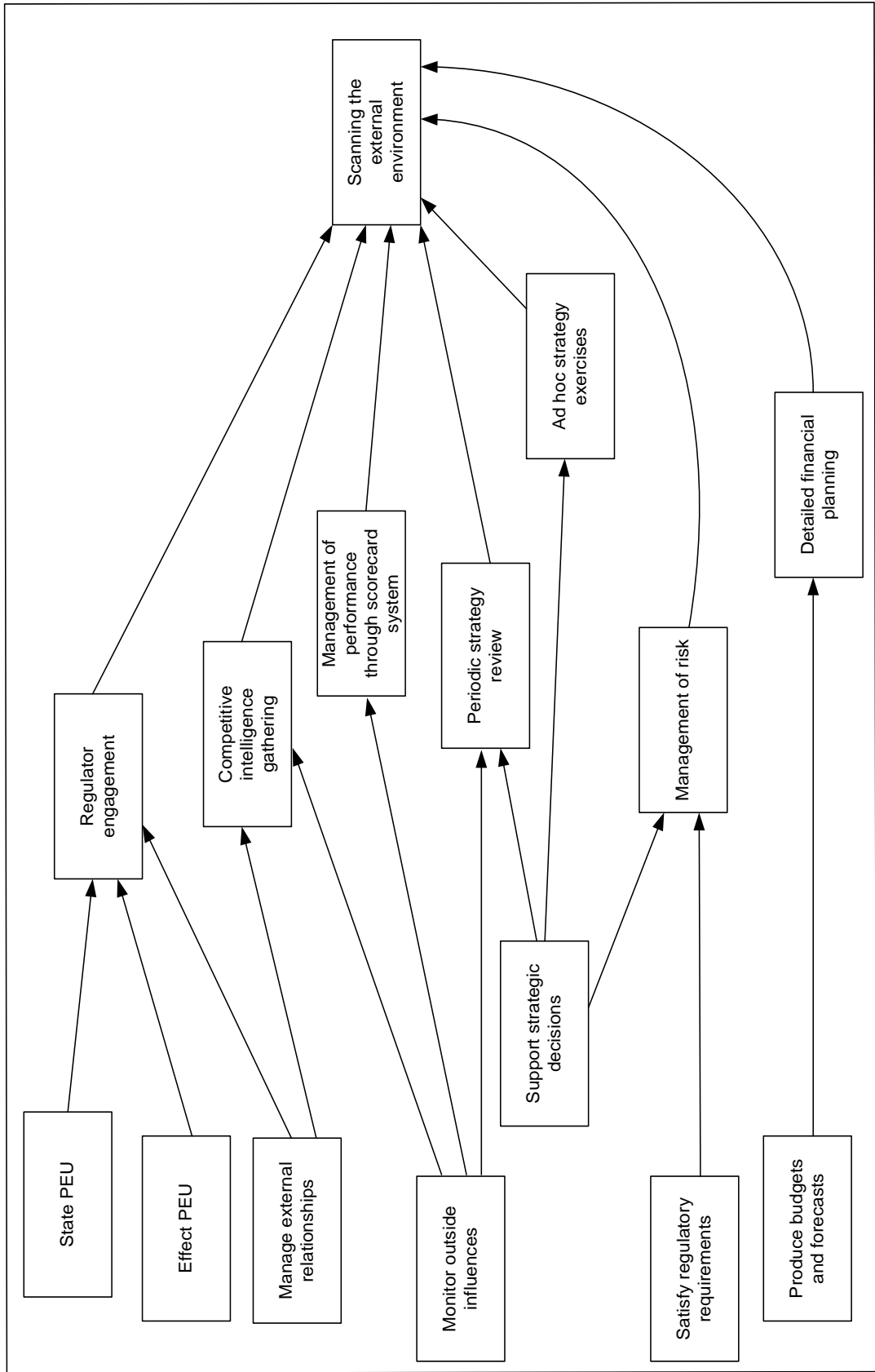
Figure 6.5: Causal network: factors resulting in scanning of the external environment for company E

The need to *manage external relationships* resulted in active management of relationships at both corporate and business level. At the corporate level the relationship with regulators was actively managed, while business-level relationships with customers and competitors were managed through competitive intelligence gathering activities. The management of various external relationships meant that the external environment had to be scanned.

The requirement to *monitor outside influences* also resulted in competitive intelligence gathering, along with management of performance using a scorecard system and periodic strategy reviews at business and corporate level. All three of these activities resulted in the external environment being scanned.

The need to *support strategic decisions* resulted in periodic strategy reviews, ad hoc strategy exercises being undertaken, and risk management activity being carried out, all of which resulted in the environment being scanned.

Strict *regulatory requirements* in the industry meant that the organisation had to devote significant effort to managing risks. The large risk management function is evidence of this. The management of risk meant that scanning of the environment was required.

The need to *produce budgets and forecasts* resulted in detailed financial planning occurring in each business unit, conducted by dedicated operational teams. For the financial planning to be conducted properly the environment had to be scanned for information.

As observed in Section 6.6.3, both *state PEU* and *effect PEU* were apparent in the regulatory sector of the environment. This further reinforced the need for management of relationships with regulators and resulted in more frequent scanning of the environment.

The final stage is to relate the company-specific mediating variables from the causal analysis back to the strategy process model. This is contained in Table 6.20, the contents of which are used as the starting point of the cross-case analysis of causal networks in Section 7.6.

Table 6.20: Areas of strategic activity for company E

Strategy Process Area	Activity
Strategic intent	Periodic strategy review
	Ad hoc strategy exercises
External interaction	Regulator engagement
	Competitive intelligence gathering
Resource management	-
Strategy choice	Management of risk
Implementation	Management of performance through scorecard system
	Financial planning

6.6.5   Company E conclusion

To conclude, the four research questions will be addressed for company E in light of the preceding analysis.

- *How does company E scan its environment?*

  A complex process of organisational and individual scanning was noted in company E using various groups of individuals to scan different sectors of the environment. For example, the corporate relations team focused on the regulatory environment while the competitive intelligence team focused on customer and competitive sectors of the environment in their own SBU.

  The risk management approach resulted in further scanning of the environment by both dedicated risk managers and senior management, who were encouraged to think about the environment in periodic risk management exercises.

  A mix of scanning modes, impersonal and personal, internal and external, was noted in various parts of the organisation.

- *What motivates company E to scan its environment?*

  The main drivers of scanning activity in company E were the need to produce budgets and forecasts, the need to monitor potential outside influences on the organisation, the need to support senior management decisions and the need to manage various stakeholder relationships. The approach of using knowledge about

the environment built up passively by various employees appeared to capitalise on the company's existing knowledge assets.

- *What is the impact of perceived environmental uncertainty on scanning?*
  PEU was observed from more than one respondent with respect to the regulatory sector, and this appeared to drive further engagement with that part of the environment.

- *How is scanning activity in company E linked with the rest of the strategy process?*
  Various parts of the strategy process drive scanning activity, as noted in Table 6.20, but scanning was conducted most often as part of external interaction and strategy choice. Some scanning was conducted to validate strategic intentions that developed slowly over time, and some scanning was also conducted to assist in performance management activities, part of implementation in the strategy process model.

A point of particular interest is the regulatory pressure that resulted in a detailed risk management system being established. As noted above, this in some cases resulted in more scanning of the environment being conducted than was seen as necessary by employees.

6.7 Company F

Company F is a small upstream oil and gas company with operations around the globe. The company itself has 15 employees and outsources in-country and operations work to third parties. Its business model involves the acquisition of exploration licences from various governments with a view to acquiring more information and selling the prospects on at a profit to companies that want to develop them. The model was described as follows:

> *'The skills we have in-house have been selected and focused on selecting the right transaction, doing the right transaction, and then watching the operator and trying to be [...] in a position of influence, even if you don't have a large stake.'*

Thus company F is an asset management company rather than a traditional oil and gas company and is treated as such in this analysis.

6.7.1   *Scanning scope, mode and formality*

Scanning of the environment was informally conducted by individual members of the management team. There were no organisational processes in place for gathering and using information on the external environment. Each member of the team would scan the environment relevant to their functional role. For example the technical director would scan the technological environment while the legal and commercial manager would scan the regulatory environment and the economic environment.

Formal scanning of the environment was not looked upon favourably. With regard to a large organisation that was a joint venture partner of company F, the following was said:

> *'If you ask a question that's dying to be asked – the elephant in the room, nobody's mentioned it – but it's not on their checklist and they don't have a department of people to deal with it, it throws them. That's what we don't suffer from here…'*

The technological environment was scanned in-depth because it provided the company with new opportunities:

> *'We look at the geological basins of the world, and we try and pick, "Where do we think the best prospectivity is?" Every time someone drills a well, a basin may go up or go down in the rankings. Then you look to see which countries overlap it because geology doesn't understand the difference between [country X] and [country Y].'*

The technical team made up the largest part of the organisation and the manager in charge sat on the board alongside the CEO. A significant amount of the company's scanning activity was conducted by the technical team and involved searching for possible opportunities.

The other sector that was scanned frequently was the regulatory environment, but the approach taken was more reactive. Company F had assets in four different countries, and political events in these areas were scanned on an ongoing basis:

> *'We're not Exxon Mobil. We don't have the ability to influence politics at any significant degree, but we need to be aware of what's happening.'*

The regulatory environment was not seen as a source of difficulty; rather it was something that needed to be monitored. When asked if the regulatory environment was unpredictable in the countries of operation, the following was said:

> *'Compare [recent changes in the UK oil taxes regime] to the stabilisation clauses that we have in many of our PSAs[4] from the countries that we're in, and I think [the region] probably suffers detrimentally from an image point of view rather than a reality on the ground.'*

Overall scanning scope for company F is summarised in Table 6.21.

Table 6.21: Company F scanning scope

Environment Sector	Individual	Organisational
General: Economic	Oil prices and economic indicators	-
General: Sociocultural	-	-
General: Regulatory	Political activity in prospective areas Political activity in current areas	-
Task: Competitive	'Keeping an eye on the competition'	-
Task: Customer	-	-
Task: Technological	Drilling data in prospective areas	-

Political events were also of interest when a new venture was being discussed, but this would occur after the technical team had found and analysed an opportunity and deemed it to be technically viable:

> *'So [the technical team] will guide us about what frontier basins [...] they consider to be prospective. And we can't second-guess that. That is what it is. So that's the first test. [The] second test is a commercial/financial one. So, you know, [...] what are the terms of the PSC[5] or the licence or whatever it is that you're bidding on?'*

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[4] PSA = Production Sharing Agreement.
[5] PSC = Production Sharing Contract.

While competitor analysis was mentioned, little detail was provided on how this was accomplished. The impression was that this was conducted in an unstructured and ad hoc fashion and, in a similar way to company A, was also viewed in terms of potential acquisitions:

> *'[When we are bidding for a licence,] we're up against different outfits, whoever sees it as attractive. We keep an eye on the competition; we like to know what they're up to. Occasionally we think about, 'Shall we make a bid for the competition?''*

With regard to scanning mode, a variety of approaches were evident. These are summarised in Table 6.22.

Table 6.22: Company F scanning modes with source examples

Environment Sector	Scanning Mode	
	Personal	**Impersonal**
General: Economic	Industry networks	External company reports
General: Sociocultural	-	-
General: Regulatory	Joint venture partners	Foreign and Commonwealth Office Press
Task: Competitive	-	External company reports
Task: Customer	-	-
Task: Technological	Personal external contacts	Satellite imagery Drilling data External company reports

A preference for personal sources of information was noted. While impersonal sources were used, they were supplemented with personal sources for verification and enhancement purposes. Sources of both an impersonal and personal nature were used to scan the regulatory environment:

> *'We use the Foreign and Commonwealth Office. It's very useful. You know, [we also use] the press, like anybody else. [And] joint venture partners. So [our joint venture partner] has a country manager in [country X]. We would ask them for information. And one of our joint venture partners in [country Y] is from there, so we would ask him for his advice.'*

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The joint venture partner was seen as a particularly important source of information on the regulatory environment in specific areas despite the possibility of competition in other geographic areas:

> *'You are competitors in a macro sense, in terms of new business, but you'd be a fool not to use your joint venture, and you always have disputes within your joint venture, but you'd be a fool not to use your full joint venture information to promote your joint interests in a licence.'*

Company F's focus on new and frontier areas of the industry presented a challenge in finding some types of information. It was noted that timely information on the economic and technological environments in specific areas of the world was difficult to source:

> *'If you're in areas where there isn't a lot of companies operating and all the companies that are around you aren't public companies, they keep their information very close to their chests; it's very difficult [...]. So what we have to do is take a less formal approach.'*

The informal approach to scanning meant that different sources were used on an ad hoc basis, depending on the requirements of an individual piece of work. The difficulty in finding useful second-hand information, noted by all of the respondents, resulted in reliance on impersonal sources of information:

> *'If people have produced in an area that's, say, within 500 miles of you, you can make an assumption [...] from the public information they publish what the prices may be, [...] how they're transporting it, whether it's by pipeline or by truck, or by rail. You know, is that analogous to what you would hope to do? So we kind of get by with what's out there.'*

Subscription market intelligence systems were seen as poor sources of reliable information, to be treated with suspicion. One manager said the following of their past experience with such systems:

> *'The information we were getting [...] was way off what we were actually experiencing on the ground. I mean, it wasn't just that we were or weren't receiving a good price. It was other stuff as well, for example rig rates, drilling*

> *rig rates, workover rig rates. It was a whole host of stuff that you just… if you relied upon it, you're really foolish, based on the experience on the ground. So I've, personally, shied away from those sorts of things.'*

Personal sources of information were seen as valuable but some were noted to be difficult to access. The following was said with reference to the regulatory and economic environments:

> *'I go to industry seminars and forums, where there is opportunity to speak to people from different countries. If you're lucky you get to speak to somebody and get their card. And [if] you find yourself looking at something in that particular region at some point in the future you can actually call upon that.'*

A similar approach was taken to scanning the technological environment, where a lack of information could mean that extrapolation was required:

> *'We looked at something in Mongolia recently, and you would have thought that Mongolia would be pretty difficult. But actually there are analogous basins that work all around the outside, and there's some data in there, and there's some wells. So you can build up quite a good picture.'*

The basis of this extrapolation was impersonal sources, namely the results of other public companies. The increase in competition mentioned above was seen as one driver of information availability:

> *'It has definitely got more difficult, so it is becoming more high-tech, and more competitive, and more difficult. If you look at success rates, they're not great at the moment. Which is telling you that it's getting more risky. So the thing that I always look for in a company that's been successful is, "Okay, well, what is it they've done differently?"'*

The impersonal information was recognised as being of limited use for decision-making purposes:

> *'You look at as much data as you can, but you are in the end making an assessment on "Is this low risk? Is this medium risk? Is that high risk?" And that's not done by anything other than gut feel.'*

Personal sources of information were seen as a useful method of finding potential opportunities in the technological environment in the first instance but were not used for further investigation. Regarding one member of the board of directors, the following was noted:

> *'He's the one with the best contacts into the City, and into the broader industry. […] sometimes he's had a business function or whatever and he'll say, "What about such and such?" because a lot of business is done one on one like that. Or, at least, not business, but discussion of possibilities.'*

A combination of personal and impersonal sources, both internal and external to the organisation, was used. The issue of information accessibility was mentioned a number of times in different contexts by different respondents.

6.7.2 Scanning drivers

The need to search for and analyse new opportunities and the need to provide management information on current activities were seen to drive scanning activity:

> *'We're looking to do one or two new ventures that will deliver significant value to shareholders somewhere in the world.'* (respondent 3)

> *'We've got a new venture list that's probably – I don't know – 12 or 15 deals. But those vary from something that's on the back [burner] and we are just waiting to see what happens with something, to things that are very active.'* (respondent 4)

The broad scope of the search for opportunities resulted in wide scanning of the technological and regulatory environments. When looking at new opportunities the regulatory sector could rule out a technologically viable venture:

> *'There are certainly characteristics that wouldn't attract us, the obvious one being political unrest, […] and then you've got countries like, for example, Russia and Nigeria, where, rightly or wrongly, the world thinks that it isn't particularly easy to do business […] and corruption is rife and it's very difficult to play a shot with a straight bat and actually get anywhere.'*

The monitoring of outside influences was another motivation for scanning the environment. This occurred through a periodic risk assessment exercise at board level.

This exercise was set up by the CEO and seen as a useful way of defending the company against external threats:

> *'We've just completed a very thorough risk review. We have a risk register, we debate it, we quantify it: both the consequence and the risk. We look to see where it sits on the ladder, how can we mitigate the high and the medium? Is the mitigation effective or are we just fooling ourselves?'*

A final driver of scanning activity was the need to produce budgets and forecasts. When talking of their contribution to gathering information on the environment, the finance manager said the following:

> *'The main area would be providing timely, useful management information. That flows through all the way through from agreeing work programme budgets with operators or even setting them ourselves. [From] reporting actuals against them all the way through to the management reporting.'*

The company did not have the expertise to conduct physical activities in the areas in which it was operating. As noted at the start of Section 6.7, the approach was one of asset management rather than traditional operations. This outsourcing approach may have resulted in looser planning and lower levels of scanning activity:

> *'We're not geared up to drill. [...] We're not geared up for detailed, subsurface engineering, in the event of a discovery. Those sort of skills we can buy in. I'd say that the skills we have in-house have been selected and focused on selecting the right transaction, doing the right transaction, and then watching the operator and trying to remain in a position of influence, even if you don't have a large stake.'*

In summary drivers of scanning activity were concerned with finding and evaluating opportunities, monitoring outside influences and producing forecasts and budgets. The outsourcing approach also appeared to influence negatively the level of scanning activity.

6.7.3   Evidence of perceived uncertainty

State uncertainty was observed surrounding the company's exploration activities:

> *'I think as an exploration company [...] the message I have to get through to the shareholders fairly regularly is that we could disappear. Five dry holes [and] we'll disappear.' (respondent 1)*

> *'People can talk about financial [risk]; they can talk about political instability. You can talk about oil price risk, but unless the world's changed in the last 5 minutes, you're still way below 50/50 when you drill a well. It doesn't matter what the geologists tell you. You know the stats say that one in five is a success. And therefore you have an 80% chance of failure.' (respondent 3)*

Prevailing environmental conditions meant that the company was facing increased levels of competition for resources. This was noted to be causing a number of difficulties:

> *'I think it's a very competitive landscape out there at the moment. There are not many opportunities available. Good opportunities, I should say. The good opportunities that are available are very difficult to find [...] from a logistical point of view: just actually finding out about them. Let alone the competitive point of view: [...] once people find out about them, who's bidding against them.'*

This statement contains tacit acknowledgement that the technological environment was a source of state uncertainty. This encouraged detailed scanning of the technological environment. It was acknowledged by all respondents that this uncertainty could not be eliminated, and that scanning the technological environment was difficult to accomplish effectively.

The price of oil itself was a source of state uncertainty. The impact of the oil price on the organisation was not seen to be an issue, so it was not subjected to detailed scanning or analysis:

> *'Developments are still going ahead. Oil, as long as it sits above $90 a barrel, [...] can be a very lucrative place to do business, [but] if oil was sitting at $60 a barrel, it would be a very different market-place. [...] I don't think it has a major impact on us at the moment.'*

Another respondent viewed the price of oil as a source of effect uncertainty, high oil prices creating higher levels of demand for services and increased costs:

> *'You have to remember we're in a higher oil price, but we're also getting into an increasingly higher cost environment too. So costs have really gone up significantly in the last ten years. So at what point do you get to a point when things get too costly? There are several instances now of offshore wells costing more than $200 million. And that's an expensive shot.'*

The competitive environment was a source of both state and effect uncertainty. It was noted that levels of competition had been increasing and that it was difficult to find new opportunities:

> *'It's becoming harder and harder; there isn't a proliferation of untapped reserves in the world. It is actually quite difficult to find something.'*

Thus state and effect uncertainty were both in evidence but had different impacts on scanning activity in the organisation.

6.7.4   Scanning and the strategy process

Forward planning was not seen as a priority, and the approach to strategy was relatively fluid with little formal activity:

> *'We're not cash flow constrained, so I don't think we've had to take too much of a detailed view, so long as we can meet our commitments for the next two or three years.'*

An outline operational plan was in place but the focus of day-to-day activity was on finding new ventures:

> *'We have a chart that shows you what activities are happening where. [...] I think that's your loose plan. [...] Given that we're looking for growth, everything's got to be driven around trying to find new opportunities to fill in that timeline. We're not a big company. We don't need a five-year plan.'*

The overall vision of the chief executive guided the strategic direction of the company with some oversight from the board of directors. The CEO said:

> *'I'm an opportunist. I'm not constrained by subsurface. [...] I quite enjoy taking something in distress and turning it around. From the more sort of conventional corporate side, I can keep a view on where the business is going. Where do we see the low spots? Where are our risks?'*

The company's published strategy was focused on growth, so much of the activity was concerned with appraisal of new ventures. Strategic decisions were made at management team level:

> *'Most of the decisions are made at an executive level around the finance team, the legal–commercial team, the subsurface team and the two directors that we have. One representative from each of those teams plus the two executive directors are the ones who I think push the direction and the strategy of the company.'*

Day-to-day operations were managed informally with low levels of formal reporting. Informal oversight of ongoing activities was possible because of the small size of the company:

> *'I don't believe in reporting for reporting's sake. So when we get to the point where I think we need to start to make some longer-term commitments, beyond what we have in the bank, we will then take a much more detailed and rigorous view of our spend.'*

Table 6.23 contains a list of variables used in development of the causal network, which is shown in Figure 6.6. The antecedent variables are the drivers of scanning activity identified in the preceding sections, and the mediating variables are the company-specific elements identified in preceding sections. The section of the in-case analysis in which each variable was discussed is noted in brackets underneath.

Table 6.23: Antecedent and mediating variables for external environmental scanning in company F

Antecedent Variables	
Produce budgets and forecasts (6.7.2)	Monitor outside influences (6.7.2)
Evaluate opportunities (6.7.2)	State PEU (6.7.3)
Search for opportunities (6.7.2)	Effect PEU (6.7.3)
Outsourcing approach to activities (6.7.2)	

Mediating Variables	
Informal observation of functional environments (6.7.1)	Technical screening of geographic areas (6.7.1)
Informal observation of competitor behaviour (6.7.1)	Determination of political and financial risk (6.7.1)
Periodic risk review (6.7.2)	Ad hoc budgeting exercises (6.7.2)
Loose approach to planning (6.7.4)	

The causal network for company F is rather complex, and contains a larger number of negative causal relationships than networks for the other companies. Each of the drivers and PEU types identified in the preceding sections is taken in turn below.
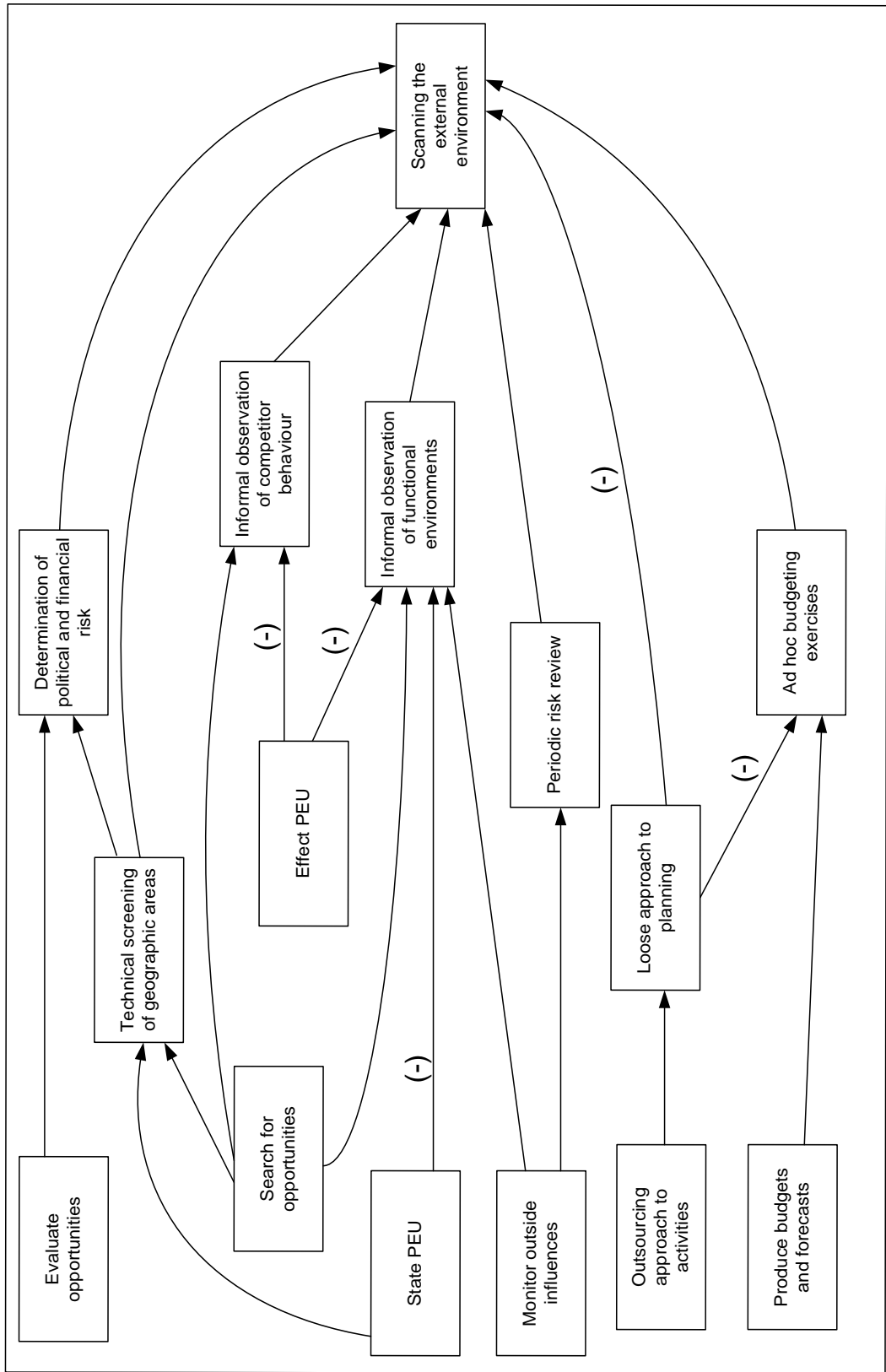
Figure 6.6: Causal network: factors resulting in scanning of the external environment in company F

The *evaluation of opportunities* resulted in determinations of political and financial risk being made, which resulted in scanning of the environment.

The *search for opportunities* resulted in technical screening of geographic areas, which resulted in the environment being scanned. The technical screening activity also resulted in determination of political and financial risk being made, which again resulted in scanning of the environment. The search for opportunities also resulted in informal observation of competitors, for acquisition purposes, and informal monitoring of functional environments by the various managers in the company, both of which resulted in the environment being scanned.

The need to *monitor outside influences* resulted in both informal observation of functional environments and the periodic risk review exercise at board level. Both of these activities caused the environment to be scanned for information.

The need to *produce budgets and forecasts* resulted in ad hoc planning and budgeting exercises being conducted, which required the environment to be scanned. However, the *outsourcing approach to activities* resulted in a loose approach to planning. This in turn caused a lower level of planning and budgeting than would otherwise have been the case, and caused less environmental scanning to be carried out.

The existence of *state PEU* in the technological environment resulted in technical screening of geographic areas, which caused the environment to be scanned. Conversely, the existence of state PEU regarding the oil price resulted in a lower level of informal observation of the functional environments and caused less environmental scanning to be conducted in this area.

Effect PEU regarding the competitive environment discouraged scanning of the environment through lower levels of informal observation of competitor behaviour and also through lower levels of informal observation of the functional environments with regard to rising cost levels in the industry.

The final stage is to relate the mediating variables identified in the causal analysis back to the strategy process model, because they provide the links between scanning and the strategy process for company F. Table 6.24 shows the seven mediating variables against the five areas of strategic activity identified in Chapter 2.

Table 6.24: Areas of strategic activity for company F

Strategy Process Area	Activity
Strategic intent	Loose approach to planning (-)
External interaction	Informal observation of functional environments Informal observation of competitor behaviour Periodic risk review Technical screening of geographic areas
Resource management	-
Strategy choice	Determination of political and financial risk
Implementation	Ad hoc budgeting exercises

As noted in other analyses, the contents of Table 6.24 will form the basis of the cross-case analysis of causal networks in Section 7.6.

6.7.5   Company F conclusion

The conclusion of the in-case report is structured around the four research questions. These are answered in turn for company F below.

- *How does company F scan its environment?*

  Company F scanned its environment in a relatively informal and unstructured manner. No organisational system was apparent. Scope was limited to sectors of immediate relevance to these activities.   Personal modes were preferred to impersonal modes when sourcing information on the environment, but difficulty was noted in sourcing good-quality information in various sectors.

- *What motivates company F to scan its environment?*

  The focus of scanning was on finding and evaluating opportunities, with an element of monitoring potential influences. While some scanning was conducted in order to produce budgets and forecasts, the outsourcing approach to activities noted at the start of Section 6.7 acted as a negative driver, resulting in lower levels of scanning than might otherwise have been the case.

- *What is the impact of perceived environmental uncertainty on scanning?*

  State uncertainty in the technological sector appeared to encourage further scanning for information. State uncertainty surrounding the oil price, along with effect uncertainty regarding competitor behaviour and effect uncertainty regarding cost levels in the industry, appeared to have a negative impact on the level of scanning activity regarding those environmental variables.

- *How is scanning activity in company F linked with the rest of the strategy process?*

  The loose approach to planning seemed to result in lower levels of scanning regarding strategic intent. Scanning was mainly conducted as part of external interaction, with limited scanning conducted with regard to strategy choice and implementation activities.

Company F's approach to scanning the environment was the least structured of the sample organisations, with scanning being focused on particular sectors, mainly to find and evaluate opportunities. A number of negative influences on scanning were found, including the outsourcing approach to operations that the company used, and two PEU types in different environmental sectors.

6.8   Company G

Company G is a large defence company with global operations and around 80,000 employees worldwide. The company is divided into a number of product SBUs and an additional four geographic SBUs in the areas where activities are concentrated. The strategy team at the corporate level managed the annual planning and implementation process and each SBU had its own strategy team and competitive intelligence team.

6.8.1   *Scanning scope, mode and formality*

Scanning was conducted through formal organisational systems and units. Strategy teams existed at the corporate and SBU levels to facilitate periodic and ad hoc strategy events within the company. A business development function existed alongside the strategy function, the role of which was to scan certain sectors of the environment and facilitate new business ventures. A competitive intelligence team existed as part of the business development group.

Individual SBUs were responsible for scanning their own environments and had dedicated teams to assist in this process, which were structured in the same way:

> *'Each of the businesses [has] a degree of independence, so the businesses are responsible for their own markets. So if we were to look at [business A], they have got their own strategy team, they've got their own [business development] team, they've got their own competitor intelligence, market intelligence, specific to the demands of their market.'*

Business development at the corporate level was focused on finding and developing new ventures for the company, with teams for different geographic areas. The result was that business development executives became experts on the environment in particular regions of the world:

> *'The way that I describe it is [that] I'm a country and a regional expert, not a product expert. So I couldn't have a very in-depth conversation, say, about [product A], but I know all there is to know about [country X, Y or Z].'*

Scanning by business development teams was focused on the economic, sociocultural, regulatory and technological environments:

> *'We tend to look at the defence and security budgets in those countries, the growth associated with the spend in those countries, their GDP profile as to whether it's sustainable to deliver their ambitions. We look at the level of the industrial base, industrial readiness in those countries and [...] then we've looked at the reputational aspects of doing business in those countries, in terms of transparency, procurement processes, corruption, those sorts of things.'*

The role of business development was external-facing, gathering information for analysis by the strategy team:

> *'The strategy function is a staff function and it serves the executive and the board with analysis. Business development is actually out there in the marketplace, positioning the company and the goods and services that the company wish to sell with buyers and clients.'*

Overall scope of scanning activity for company G is summarised in Table 6.25. A similar structure of strategy teams and business development teams existed at the business unit level. These were connected through dedicated project teams convened to examine specific opportunities:

> *'We run what we call ICTs, which are integrated capture teams. They would involve people from the business unit, include business development, and the corporate intelligence team, all sharing information to make sure that the company is best informed around any given prospect in any given country.'*

Table 6.25: Company G scanning scope

Environment Sector	Individual	Organisational
General: Economic	Megatrends	GDP levels and growth Industrial base Level of development Defence budgets
General: Sociocultural	Megatrends	Corruption levels, transparency
General: Regulatory	-	Procurement regulations
Task: Competitive	-	Performance level Major projects and programmes undertaken
Task: Customer	Country plans	GDP levels and growth Industrial base Level of development Defence budgets
Task: Technological	Megatrends	-

Information gathered informally by senior executives was captured in a series of periodic strategy meetings. Meetings that involved discussion of specific external issues, referred to as 'megatrends', were convened on an ad hoc basis. The megatrends were related to the economic, sociocultural and technological environments:

> *'We have informed our strategic thinking on a less frequent basis by looking at megatrends, just saying, "Well, look, let's just step back from this, let's have a look at the megatrends, let's have an understanding of which of these trends may or may not impact on our business as we see it today and what should we be doing to advantage ourselves and what should we be doing to mitigate any risks?" [...] So that's less formal.'*

Regarding scanning mode choices, a preference for personal sources of information was noted. The quality of reports from market intelligence companies was called into question, and they were not used to gather information on the external environment:

'[They are] produced by people who are absolutely fresh out of university, […] who trawl the internet, and phone the odd person up that they can find on LinkedIn, who might want to tell them something interesting about the market. [That is] synthesised together and you get charged ten thousand [pounds] for it!'

Personal sources of information, particularly individuals working for customers or potential customers, were seen as valuable for inputs into decision making. The role of business development was to establish and maintain a network of personal external contacts:

'We have some quality interaction with the political, the military and the civil service communities in our markets to understand their prospects and their needs.'

Table 6.26: Company G scanning modes with source examples

Environment Sector	Scanning Mode	
	Personal	**Impersonal**
General: Economic	-	Press
General: Sociocultural	Perception	Press
General: Regulatory	Civil service contacts Government contacts	-
Task: Competitive	-	Published reports Internal reports
Task: Customer	Government contacts Military contacts	Industry shows
Task: Technological	-	Published reports

Scanning modes are summarised in Table 6.26. Large exhibitions and events held in various markets were seen as useful sources of contacts, but not necessarily of business opportunities:

'You need to be there, particularly in overseas exhibitions. It's a great, cost-effective [way of] meeting a lot of customers. At the same time it shows that you're committed to that country by turning up to support their events, but the days when deals are done in air shows, and even announced in air shows, are largely behind us now.'

Difficulty was noted in acquiring good-quality information on the competitive sector of the environment:

> *'It becomes challenging because you can only then rely on how other businesses report in their annual reports or 10-Ks, so getting under the skin of our peers is challenging.' (respondent 1)*

> *'They seek to understand the competition as best they can from experiences on other campaigns and information that's in the public domain.' (respondent 2)*

Overall company G had a structured system for gathering information on the external environment involving both senior managers and dedicated strategy and business development teams.

6.8.2   Scanning drivers

Continuous scanning of the competitive, customer and economic sectors was conducted to support strategic decision making. The sociocultural and technological sectors were scanned, using the megatrends approach, to monitor external influences. It was felt that this was a valid approach that stopped the process becoming formulaic:

> *'I think we've got to be careful that we don't over-proceduralise the strategy process, so it becomes just a rollout [of] what we've done before. It needs to be cognisant of changes in the marketplace; it needs to be cognisant of changes within the business and business priorities. But [it] needs to be informed by the longer-wavelength megatrends which are changing very slowly, and if you try and observe them you won't see the changes. Whereas if you come back a few years later and reflect on what you saw three years ago and then look forward, I think now that's much more useful.'*

The need to find opportunities resulted in scanning of the regulatory, economic and customer environments. Recent shifts in customer behaviour had resulted in increased scanning of the customer environment:

> *'[We] build international partnerships to win international business from foreign customers. If you'd gone back five years, you'd have called this export, sales and marketing, but [now] most international companies don't want to buy something that's made in the UK or the US, and sales are flown, or driven, to*

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> *their country. They actually want a local partnership with industrialisation and equipment coming out of a facility in an industrial base in their country.'*

This had resulted in increased resource allocation to business development at the corporate level to establish closer working relationships with stakeholders in foreign countries. An element of relationship management was apparent with regard to the regulatory and customer sectors of the environment, which often overlapped due to the nature of company G's activities:

> *'It's all about getting the technology transfer relationships right; it's all about getting the right industrial partners, all about positioning the corporation with the governments of those countries. And helping them to deliver on some of their industrialisation, GDP growth [targets] as well as providing them with the defence and security capability they need.'*

Overall scanning of the environment in company G was conducted to support strategic decisions, to search for new opportunities, to monitor outside influences and to manage external relationships.

6.8.3   Evidence of perceived uncertainty

Perceived state uncertainty was noted in the customer and competitive environments. This resulted in increased levels of scanning in these sectors:

> *'I think you've seen a global increase in competitive intensity largely driven by flattening budgets in established markets, with everybody chasing growth in the same parts of the world.'*

The regulatory environment was a source of both state and effect uncertainty, given its potential influence over the company's activities. Regulatory factors were noted to be a significant driver of the company's activities:

> *'It's policy in the main, yes. So it's procurement policy, foreign versus domestic suppliers, competition versus source, partnering versus fixed price. Every procurement, even with the same customer, is a little bit different, so it's just understanding as much as you absolutely can across the range, the broad range, of stakeholders, and that varies by country by country.'*

The regulatory sector was a source of state uncertainty in that changes could occur rapidly and were not easy to predict, but also a source of effect uncertainty because it was not clear from project to project how regulatory changes would affect the company.

6.8.4   *Scanning and the strategy process*

The annual planning process involved a series of meetings at both corporate and SBU level, during which incremental changes were made to plans with a five-year time horizon. One role of the strategy function at corporate level was to facilitate the process within the SBUs, each of which had its own vision and set of strategic objectives. A significant level of autonomy was allowed within the SBUs:

> *'The first phase is purely about the vision, the strategic objectives and the actions associated with those strategic objectives. So we have a formal review of that. We then have a second phase where the first phase of the business plan is reviewed. That's set against the context of the market within which they operate, and a strategy which they're offering up in response to that market.'*

One motivation for significant levels of SBU autonomy appeared to be the diverse nature of the external environment:

> *'Even though it's operating within the global defence market, the local market's quite different. […] there's a geographic spread and then there is the spread in terms of the level within which the market that we are operating […] certainly a spread to the markets we operate in both in terms of product and geography.'*

Strategic decisions were made at SBU level with the corporate centre maintaining oversight and an element of portfolio management:

> *'At group level we establish a group-level strategic framework which provides a framework and strategic direction for the businesses, and then the businesses develop their strategies within that framework to meet the needs of the specific markets that they're in. And those markets are quite varied for us, so it's very much a portfolio activity at group level.'*

The group strategy function was also involved in setting performance targets for specific SBUs. This was accomplished by benchmarking against competitors:

> *'We set the group benchmark and peer group benchmarks, so we look at the business and say, "How do we think it's performing? What do we think the critical issues are with respect to this business?"'*

Table 6.27 contains a list of variables used in development of the causal network, which is shown in Figure 6.7. The section of the in-case analysis in which each variable was discussed is noted in brackets underneath. Each of the antecedent variables is taken in turn below.

Table 6.27: Antecedent and mediating variables for external environmental scanning in company G

Antecedent Variables	
Support strategic decisions (6.8.2)	Search for opportunities (6.8.2)
Monitor outside influences (6.8.2)	State PEU (6.8.3)
Manage external relationships (6.8.2)	Effect PEU (6.8.3)
Mediating Variables	
Competitive intelligence gathering (6.8.1)	Ad hoc strategy meetings (6.8.1)
Opportunity screening through project teams (6.8.1)	Benchmarking for performance management (6.8.4)
Annual strategy review (6.8.4)	Government stakeholder engagement (6.8.4)
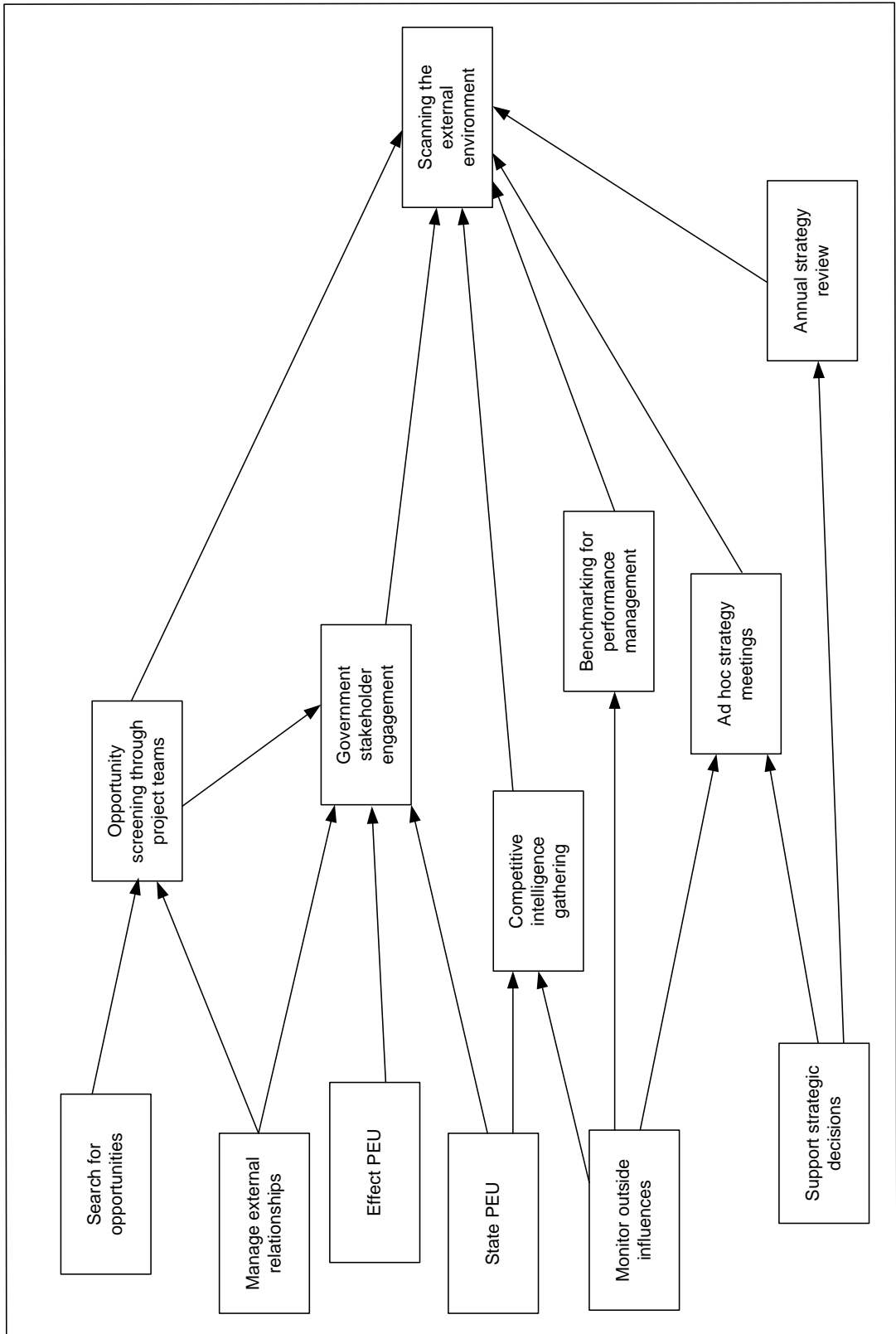
Figure 6.7: Causal network: factors resulting in scanning of the external environment in company G

The *search for opportunities* resulted in dedicated project teams being formed to screen opportunities and engagement with various government stakeholders, both of which caused the environment to be scanned.

The need to *manage external relationships* resulted in both opportunity screening through project teams and active engagement with government stakeholders. Both of these activities resulted in the environment being scanned.

The *monitoring of outside influences* resulted in competitive intelligence gathering activities, which caused the environment to be scanned. It also resulted in benchmarking against competitors for performance management purposes, which again caused the environment to be scanned. Another result of the need to monitor outside influences was the convening of ad hoc strategy meetings during which senior executives were asked to reflect on the external environment. These meetings resulted in further scanning of the environment.

The need to *support strategic decisions* resulted in an annual process of strategy meetings at corporate and SBU level, which resulted in the environment being scanned. Another result was ad hoc strategy meetings with senior executives, which resulted in further scanning of the environment being conducted.

The existence of *state PEU* in the customer and competitive environments resulted in competitive intelligence gathering and engagement with government stakeholders, both of which caused the environment to be scanned. The existence of *effect PEU* in the regulatory sector resulted in engagement with government stakeholders, which resulted in the environment being scanned.

The final stage is to relate the mediating variables identified in the causal analysis back to the strategy process model. This is shown in Table 6.28. The mediating variables provide the various links between scanning and the strategy process for company G. As noted in other analyses, the contents of Table 6.28 will form the basis of the cross-case analysis of causal networks in Section 7.6.

Table 6.28: Areas of strategic activity for company G

Strategy Process Area	Activity
Strategic intent	Annual strategy review
	Ad hoc strategy meetings
External interaction	Opportunity screening through project teams
	Government stakeholder engagement
	Competitive intelligence gathering
Resource management	-
Strategy choice	-
Implementation	Benchmarking for performance management

6.8.5   Company G conclusion

The conclusion of the in-case report is structured around the four research questions. These are answered in turn for company G below.

- *How does company G scan its environment?*

  Company G used a structured system of strategy teams and business development teams to scan its environment. The business development team engaged with the customer and regulatory sectors of the environment and a sub-team was concerned with competitive intelligence activities. Personal sources of information were preferred to impersonal sources and industry intelligence reports were looked upon with suspicion and not used.

- *What motivates company G to scan its environment?*

  Company G scanned its environment to monitor outside influences, manage external relationships, support strategic decisions and search for new opportunities. The fact that the business development team had primary responsibility for scanning the environment suggests that searching for new opportunities was a priority for the company when scanning the environment.

- *What is the impact of perceived environmental uncertainty on scanning?*

  Both state and effect PEU appeared to exist with respect to the customer, competitive and regulatory sectors of the environment. These seemed to influence the scanning activities in the company.

- *How is scanning activity in company G linked with the rest of the strategy process?*

Scanning was conducted mainly in relation to external interaction, but some scanning activity was related to strategic intent and implementation activities.

Company G, like the other large companies in the sample, had a structured approach to scanning the environment. Unlike the other large companies, however, it did not use internal networks of employees to collate information that had been gathered passively. Rather it used a network of business development teams at corporate and SBU level to gather information on the external environment.

6.9 Conclusion

The analysis of each case presented in this chapter forms the foundation of later analyses and discussions. On their own the cases are of interest in that they demonstrate how an organisation might scan its environment, what drives an organisation to scan its environment and how this environmental scanning relates to an organisation's strategy process. They are, however, of limited use when viewed alone. Only a systematic cross-case analysis, looking for similarities, differences and explanations yields conclusions that can be used to fully address the research questions. The cross-case analysis is the subject of the next chapter.

Chapter 7:   Findings: Cross-Case Analysis

7.1   Introduction

This chapter contains a cross-case analysis of the seven organisations examined in Chapter 6. The chapter is similar in structure to the in-case reports, broadly following the four research questions set out in Section 4.3.

A comparative outline of the characteristics of the seven organisations is provided first, followed by an examination of scanning scope across the seven cases. Next formality or otherwise of scanning activity in the seven organisations is discussed. Various ideas related to scanning mode are then explored, including mode choice, popularity and flow over time. Common drivers of scanning activity found across the cases are discussed in relation to strategy types, and PEU types and their effects are examined. Following this, using the causal networks produced for each organisation in Chapter 6 as the starting point, links between the areas of strategic activity and aspects of scanning activity identified in the integrated conceptual framework in Section 4.4 are examined. Finally a model of strategy process areas and environmental scanning is proposed.

7.2   Company characteristics

The intention of the cross-case analysis is to examine the data as a whole, taking the organisation as the unit of analysis. Similarities and differences between cases are identified, and a number of different approaches to environmental scanning are discussed. As noted in Section 5.2, the intention is not to see whether some companies scan the environment 'better' than others; rather the intention is to examine the different approaches and attempt to explain why they are different.

An outline of the characteristics of the seven organisations is provided in Table 7.1. This was prepared by the researcher at the start of the cross-case analysis to provide some possible bases for comparison and categorisation. Characteristics identified below may or may not have an impact on scanning activity and strategy process but provide a useful background on each organisation studied. The characteristics were determined by examination of the secondary data sources gathered for each case.

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Table 7.1: Summary of organisational characteristics

	A	B	C	D	E	F	G
Size	Medium	Medium	Large	Small	Large	Small	Large
Market Focus	Narrow	Narrow	Wide	Narrow	Narrow	Narrow	Wide
Geographic Spread	Narrow	Wide	Wide	Wide	Medium	Medium	Wide
Strategic Approach	Analyser	Prospector	Defender	Prospector	Defender	Prospector	Analyser
Business Environments	One	Multiple	Many	Multiple	Many	Multiple	Many

The dimensions used in Table 7.1 are defined as follows:

- *Size:* the number of employees in the company (as discussed in Section 5.4.1). Small companies have fewer than 100 employees, medium companies between 100 and 1,200 employees, and large companies more than 2,000.

- *Market focus:* the number of different product or service markets the company is competing in. A 'narrow' focus means only one product or service market, while a 'wide' focus implies more than one.

- *Geographic spread:* the number of countries the company operates in. A 'narrow' geographic spread is stated where a company operates in only one country. A 'medium' geographic spread is given where the company operates in fewer than five countries, or where a significant percentage (more than 50%) of the company's business is focused in one country but it operates in more than five other countries. A 'wide' geographic spread is given for companies that operate in more than five countries.

- *Strategic approach:* the Miles and Snow (1978) category of prospector, defender, analyser or reactor. This was determined through examination of company reports and strategy presentations where available.

- *Business environments*: the number of different environments the company has to deal with at any given time. This is categorised as 'multiple' when the company operates in fewer than ten distinct product or geographic markets, and 'many' when the company operates in more than ten distinct markets.

The characteristics in Table 7.1 were not explored as part of the in-case analysis because they were not of central importance in answering the research questions on a

case-by-case basis. However, they are of use in the cross-case analysis because they may assist in explaining variability in scanning activity between cases.

7.3   Scanning scope and formality

The scope of scanning activity varied across the seven cases and can be characterised as 'wide', 'narrow' or somewhere between the two extremes. In all cases the external environment was a source of interest, but some companies put more effort proportionally into scanning the environment than others. The following sub-sections examine the level of interest in different sectors of the environment and then the formality or otherwise of scanning activity.

7.3.1   Interest by sector

A summary of scanning scope across the seven cases is provided in Table 7.2. The level of interest in a particular sector of the environment has been assessed as 'strong interest', 'some interest', 'weak interest' or 'no interest'. These categories were assigned using the analysis of scanning scope[6] in Chapter 6 for each of the seven cases.

Table 7.2: Scanning scope across the seven organisations

Sector		A	B	C	D	E	F	G	Total
General Environment	**Economic**	✓✓✓	✓✓✓	✓✓✓	✓	✓✓✓	✓✓	✓✓	**17**
	Sociocultural	✗	✗	✓✓	✗	✓	✗	✓	**4**
	Regulatory	✓	✓✓	✓✓✓	✓✓	✓✓	✓✓	✓✓	**14**
Task Environment	**Competitive**	✓✓✓	✓	✓✓	✓✓✓	✓✓✓	✓	✓✓✓	**16**
	Customer	✗	✓✓✓	✓✓	✓✓✓	✓✓	✗	✓✓✓	**13**
	Technological	✓✓	✓	✓✓✓	✓✓	✗	✓✓✓	✓	**12**
	Total	**9**	**10**	**15**	**11**	**11**	**8**	**12**	

Key   ✓✓✓= Strong interest   ✓✓ = Some interest   ✓ = Weak interest   ✗ = No interest

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[6] As shown in Tables 6.1, 6.5, 6.9, 6.13, 6.17, 6.21, 6.25.

A strong interest has been noted where the sector in question was examined for multiple items of information using multiple pathways, either organisational and individual or a number of different information sources. Some interest has been noted where the sector was examined for specific pieces of information using particular pathways or a limited number of information sources. Weak interest has been assigned where information on the sector was followed on a passive basis or mentioned in passing by respondents without providing specific detail on the types of information required. No interest was recorded when the sector had not been mentioned in discussions or the sector had been described as unimportant or of no consequence to the organisation. Row and column totals are a simple sum of the number of points for each environment sector or case.

The economic environment was of most interest overall, closely followed by the competitive and regulatory environments. The sociocultural environment was of significantly less interest across the seven companies than any of the other environment sectors. This was limited to the three large organisations and even the interest in these companies was not strong.

The breadth of scanning scope varied among the organisations, with company F having the narrowest scope and level of engagement and companies C and G having the widest interest in the external environment. This appears to be broadly related to size of company, with interest in the external environment growing as the size of company increases. This is demonstrated in Table 7.3, which is a simple re-ordering of Table 7.2 with companies presented in increasing order of size rather than alphabetically.

The exception is company D, which showed a relatively strong interest in the external environment despite being the second-smallest organisation in the sample. There are multiple reasons this might be the case. In the introduction to Section 6.5 it was noted that company D is an autonomous part of a larger company and was relatively recently formed. This could influence its approach to scanning the environment, resulting in behaviour that is more consistent with that of medium or large companies. The apparent outlier status of company D was discussed with one of the respondents in the validation exercise, and is explored further in Chapter 8.

There is a limited amount that can be said about scanning scope at this stage in the cross-case analysis, but the findings in Table 7.3 will be referred back to later in the chapter with reference to other scanning and strategy process variables. Company size

emerges as an important factor through the rest of this chapter, so all tables from this point on are presented with companies in increasing order of size (F, D, A, B, E, G, C), rather than in alphabetical order.

Table 7.3: Scanning scope across the seven organisations with companies ordered by size

Sector		F	D	A	B	E	G	C	Total
General Environment	**Economic**	✓✓	✓	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	**17**
	Sociocultural	✗	✗	✗	✗	✓	✓	✓✓	**4**
	Regulatory	✓✓	✓✓	✓	✓✓	✓✓	✓✓	✓✓✓	**14**
Task Environment	**Competitive**	✓	✓✓✓	✓✓✓	✓	✓✓✓	✓✓✓	✓✓	**16**
	Customer	✗	✓✓✓	✗	✓✓✓	✓✓	✓✓✓	✓✓	**13**
	Technological	✓✓✓	✓✓	✓✓	✓	✗	✓	✓✓✓	**12**
	Total	**8**	**11**	**9**	**10**	**11**	**12**	**15**	

Key ✓✓✓ = Strong interest ✓✓ = Some interest ✓ = Weak interest ✗ = No interest

7.3.2 *Scanning formality*

Scanning activity was divided into organisational and individual types during the in-case analysis. The distinction between the two was discussed briefly in Section 6.1 but is defined here in more detail.

Organisational scanning is defined as any point at which an individual or a team had to monitor a particular sector or sub-sector of the environment as part of their job. Individual scanning, on the other hand, covers scanning activity not assigned as part of an individual's job role. Individual scanning is more organic than organisational scanning, in that it is likely to involve an individual interacting with a certain sector of the environment on a day-to-day basis, picking up pieces of information without actively trying to do so and reporting them back as they become relevant to the organisation.

Organisational versus individual scanning by sector is summarised in Table 7.4, which was compiled using the coding reports for each case. A count of data fragments coded under *organisational scanning scope* and under *individual scanning scope,* along with a qualitative assessment of the *scanning formality* code was used to arrive at the assessment of whether emphasis on a particular sector was individual, organisational, or balanced.

Table 7.4: Organisational versus individual scanning emphasis by sector

Sector		F	D	A	B	E	G	C
General Environment	**Economic**	I	I	O	I	O	O	O
	Sociocultural	✕	✕	✕	✕	I	O	O
	Regulatory	I	O	I	I	O	O	O
Task Environment	**Competitive**	I	O	O	I	B	O	O
	Customer	✕	O	✕	I	B	O	O
	Technological	I	B	I	I	✕	I	O

Key	O = Organisational emphasis	I = Individual emphasis
	B = Balance of organisational and individual	✕ = Not scanned

Across the sample the organisational versus individual emphasis varied. Some organisations were systematic in their collection and reporting of information on the external environment and some scanned the environment only in response to specific demands from inside the company. Size of organisation appeared to be an important factor in the approach. The large organisations all placed more emphasis on formal scanning effort than on individual scanning effort, while the smaller organisations tended towards a less formal, individual-based scanning effort.

Some evidence of more a balanced approach in particular sectors was also apparent. In company A, for example, the regulatory and technological sectors were scanned on an individual basis and reported as required at management committee level, while the competitive and economic environments were scanned on an organisational basis with a

manager appointed and specifically assigned to monitor and report formally on that sectors of the environment.

The large companies (C, E and G) tended towards organisational scanning in most sectors, particularly the economic, regulatory, competitive and customer environments. Results for the medium and small companies were more mixed.

The two medium companies took different approaches. Company A chose an organisational approach to some sectors and an individual approach to others, while company B took an informal approach to all sectors, relying on individuals closest to particular sectors of the environment to relay information they thought to be of importance up through the organisation.

The small companies also differed in their approach, with company F taking an exclusively individual approach to the environment based on functional role and company D taking a formal structured approach to most sectors. Again company D appears to be the exception to the rule when looking at the changes in scanning approach as size increases, relying on a more formal approach than all of the other small and medium companies. As noted in Section 7.3.1, this is explored further in Chapter 8.

While most of the organisations used both individual and organisational scanning in at least one sector, a balanced approach within a given sector was found in only two of the cases. The balanced approach involved using individual and organisational scanning to a similar extent to scan a particular sector. Motivations for the balanced approach appeared to be different in each instance.

In company E the competitive environment was scanned through organisational channels with a manager assigned to monitor that sector of the environment at the business unit level. However, this manager was able to exploit the individual scanning that was occurring by having an informal network of senior and junior sales people throughout the organisation. The motivation for this approach seemed to be a strong interest in the sector, as categorised in Table 7.2, and the use of combined approaches yielded more useful information, as noted in Section 6.6.1.

Company D, notwithstanding its small size, used a formal system of screening performed by junior employees to determine where senior managers should direct their

individual efforts. The reason for this approach appeared to be to maximise productivity of senior management scanning effort. The work of the junior employees was used to determine whether or not a particular area was worth further investigation, and if it was then senior managers would actively scan the environment through a number of different modes.

Overall a mixed picture of scanning formality approaches emerges from the data. While different organisations choose to set themselves up in different ways, most organisations studied had some kind of organisational scanning system, even if it was not named as such. In addition, two organisations (D and E) successfully used both organisational and individual scanning effort to gain a deeper understanding of certain sectors of the environment. Motivations for these combined approaches appeared to be different in the two companies in which they were observed.

7.3.3   *Scanning scope and formality: summary*

Variation in interest levels and the difference in formal versus informal approaches to scanning of particular sectors have been examined across all cases. It appears from the data that size of organisation has an impact on how scanning is carried out, either formally or informally, and appears to have an impact on the amount of scanning that occurs. Size of organisation is also an important variable when it comes to scanning mode, which is examined in the following section.

7.4   Scanning mode

In this section a number of perspectives on scanning mode are discussed. Mode choice by environment sector is examined, as is the popularity of specific sources of information across the seven case studies. Next relationships between scanning modes are discussed in relation to small, medium and large organisations. Following on from this the idea of changes in mode over time is explored.

7.4.1   *Mode choice*

In Chapter 6, modes were split into personal and impersonal by sector. Table 7.5 contains a further breakdown of impersonal modes and Table 7.6 a breakdown of personal modes in terms of being internal and external to the organisation. The tables have been compiled by referring back to the in-case analyses in Chapter 6 and represent a synthesis of the findings on scanning mode choice.

Notice that all organisations chose various impersonal sources of information to scan their environments with an overall emphasis on external sources, such as news reports, industry publications and market intelligence databases. The exception was company C, the largest in the sample by some margin, which chose to rely solely on internal sources of impersonal information, specifically internal reports and documents relating to the environment.

Table 7.5: Impersonal modes: internal versus external

Sector		F	D	A	B	E	G	C
General Environment	**Economic**	E	E	B	E	E	E	I
	Sociocultural	✕	✕	✕	✕	E	E	I
	Regulatory	E	E	E	E	✕	✕	I
Task Environment	**Competitive**	E	E	B	E	B	B	I
	Customer	✕	E	✕	✕	B	E	I
	Technological	E	E	E	E	✕	E	I

Key   I = Reliance on sources internal to the organisation   E = Reliance on sources external to the organisation
      ✕ = Impersonal sources ignored/sector not scanned   B = Both internal and external sources used

The most common example of an impersonal internal source of information was internal company intelligence reports prepared for specific initiatives or for periodic strategy meetings with senior managers and board members. Frequency of specific source types is explored in Section 7.4.2.

The distinction between information sources used to scan the environment and those used to make strategic decisions is more obvious in the larger organisations (C, E and G). This was due to the separation of responsibility for scanning the environment and decision-making authority. In these organisations compilation of reports on the external environment formed a significant amount of the activity of the strategy and/or

environment teams. Senior executives would rely heavily on these reports when making decisions.

For large companies the break between scanning responsibility and decision-making responsibility resulted in substantial levels of reporting on the external environment. This meant that decision makers were provided with environmental analyses covering either single sectors (the business development function reporting on the customer environment in company G), a small number of sectors (the competitive intelligence reports provided to decision makers in company E covering the competitive and customer sectors) or the entire external environment (the wide-ranging reports provided by the business environment team in company C used to underpin many decisions at both operational and strategic levels).

In the small and medium organisations (D and F, A and B) detailed reports on the environment were not complied; decision makers were broadly responsible for scanning the environment themselves.

The use of personal modes, shown in Table 7.6, was more mixed than the use of impersonal modes.

Table 7.6: Personal modes: internal versus external

Sector		F	D	A	B	E	G	C
General Environment	**Economic**	E	I	B	✖	✖	✖	B
	Sociocultural	✖	✖	✖	✖	✖	I	B
	Regulatory	E	B	✖	I	E	E	B
Task Environment	**Competitive**	✖	B	E	B	I	✖	I
	Customer	✖	E	✖	I	I	E	B
	Technological	E	B	E	B	✖	✖	B

Key   I = Reliance on sources internal to the organisation   E = Reliance on sources external to the organisation

       ✖ = Impersonal sources ignored/sector not scanned   B = Both internal and external sources used

At one extreme company F used only external personal sources to scan the environment. At the other extreme company C, the largest in the sample, had the widest and most developed network of personal contacts both within and outside the organisation for scanning most sectors of the environment. This may be because company C's motivation was not purely related to strategy. One can speculate that the periodic publication of reports on the external environment drove scanning activity beyond what was required by company C to understand its environment and may also explain the fact that company C showed most interest in the environment overall, and the most interest in the sociocultural environment.

Personal internal sources were usually employees whose role involved engagement with some sector of the external environment. Their knowledge and understanding of regulators (B and C) or customers and competitors (B, C and E) was seen as a valuable asset that could be used to gather intelligence. In company D, junior employees would gather information on regulatory, competitive and technological sectors and discuss these with senior managers before further investigation was carried out.

7.4.2   *Source popularity*

This section considers popularity of different information sources across the seven cases. Table 7.7 contains a list of favourite sources by incidence across the seven cases. The data have been compiled using a cross-case coding report that was examined for specific information sources. The frequency represents the number of ways in which a different source of information was mentioned as being used by respondents.

Table 7.7: Most popular information sources by observed frequency

Source Description	Frequency
Individual inside company	11
Individual working at customer or partner	11
Industry networks, professional bodies and events	10
Industry intelligence reports/databases	9
Representative of public body	5
Individual subject expert	5
Internally produced reports on environment	5
Individual working at competitor	4
Industry publications	4
Public news sources	4
Competitor press releases	4
Competitor annual reports	3
Private news sources	3

The most popular sources overall were personal, with individuals inside the company and individuals working at a customer or partner organisation being most common. The next most popular source was impersonal, being industry intelligence reports and databases provided by a third party. A point of interest is that a number of respondents in different organisations made it clear that they did not trust the information provided by or place heavy reliance on these industry intelligence systems, yet they were still used.

In company A industry reports and intelligence systems were noted to be of some use in decision making, but were used with caution because they were seen as the work and view of one particular individual. Companies B, D and E used these reports as the starting point for deeper scanning of particular sectors of the environment. It was noted that the reports brought no competitive advantage on their own because all companies in the industry could access the information they contained. Respondents from companies F and G did not use such reports, feeling they were of poor quality and not useful for gathering information on the environment. It is of interest that these two companies are not related in terms of size, industry or strategic approach. It is possible that the personal preference or previous negative experience of managers in each of the organisations resulted in such reports and databases being disregarded.

Personal sources of information were seen as more valuable than impersonal sources of information in the case of the customer environment. In larger organisations the network of strategy professionals invested time and effort getting face-to-face time with customer-facing employees who were seen as a valuable source of intelligence. By contrast, in smaller organisations face-to-face time with customers was sought directly.

Generally, it appears that where the company is particularly interested in a certain sector of the environment it uses more sources to look at that sector and uses both impersonal sources, which are readily available if the company is willing to pay for them, and personal sources, the availability of which depends on the individuals involved in the scanning network.

7.4.3 *Relationships between modes*

While Table 7.6 provides an interesting insight into the popularity of information sources across the seven case studies, frequency is not the only way to measure the worth or otherwise of a particular source of information. As noted above, various perspectives on the value of market intelligence reports were observed. The reason for these perspectives did not appear to be related to company size, industry or strategic approach. Rather they seemed to stem from the perception of the individual respondent.

When looking at the large companies in the study, a number of relationships between modes emerged. In the large organisations the complicated network of individuals and departments with external-facing and reporting responsibility meant that different scanning modes were apparent in different groups in the organisation.

Mode relationship networks were developed by examining the in-case reports and connecting the various modes used. After developing the network for one of the large organisations (E) the researcher then mapped the other two large companies (C and G) onto the same network. The degree of similarity was striking, and the process was repeated for the medium companies (A and B) and the small companies (D and F). The result is three different mode relationship networks for the different size groups.

Figure 7.1 depicts the mode relationship network for the large organisations in the study. The nodes down the right-hand side represent external sources of information and the nodes down the left-hand side represent three groups of employees within the organisation. The letters on each arrow represent the companies in which each of these

relationships was observed. An arrow from one node to another represents a mode of scanning. For example, the arrow from 'customers' to 'external-facing employees' represents the fact that these employees scanned their environment using personal contact with the customers, representing scanning through external personal media and was observed in companies C, E and G.
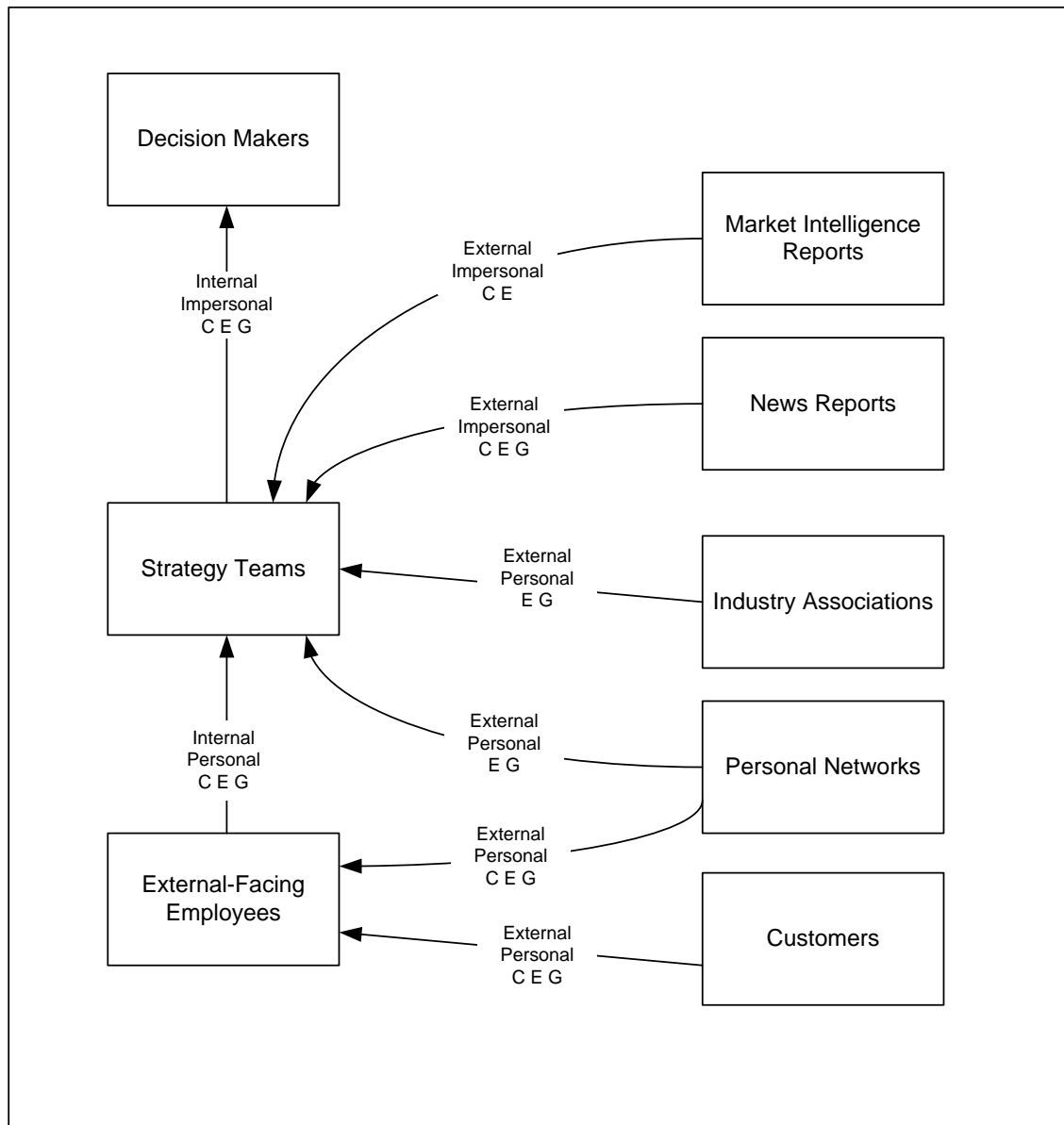
Figure 7.1: Mode relationship network for large organisations (C, E and G)

Employees whose main role it was to face certain parts of the external environment used external personal sources of information to understand the external environment relevant to their own particular role. This could be in terms of product (company E), in terms of geography (company G) or in terms of a combination of the two (company C). The understanding of the environment at this level was personal and not comprehensive.

The strategy teams, comprising business environment units (company C), competitive intelligence units (company E), or business development and strategy units (company G), built and used an internal network to gather and synthesise the knowledge gathered by external-facing employees. This internal personal source was used in conjunction with various others to develop a synthesised picture of the external environment that was passed up to executives with decision-making authority in the form of an internal report. This process turned various external and internal personal sources and external impersonal sources into one comprehensive internal impersonal source of information.

Figure 7.2 shows the mode relationship network for the two medium-sized companies in the study (A and B), in which a more compact network of relationships was found to exist. In company A the corporate development manager was responsible for some of the functions that a strategy team would perform in the larger organisations. The difference between company A and the large organisations was that the manager in question was part of the management team of the organisation. Hence much of the scanning activity conducted was linked directly to the team responsible for making decisions.
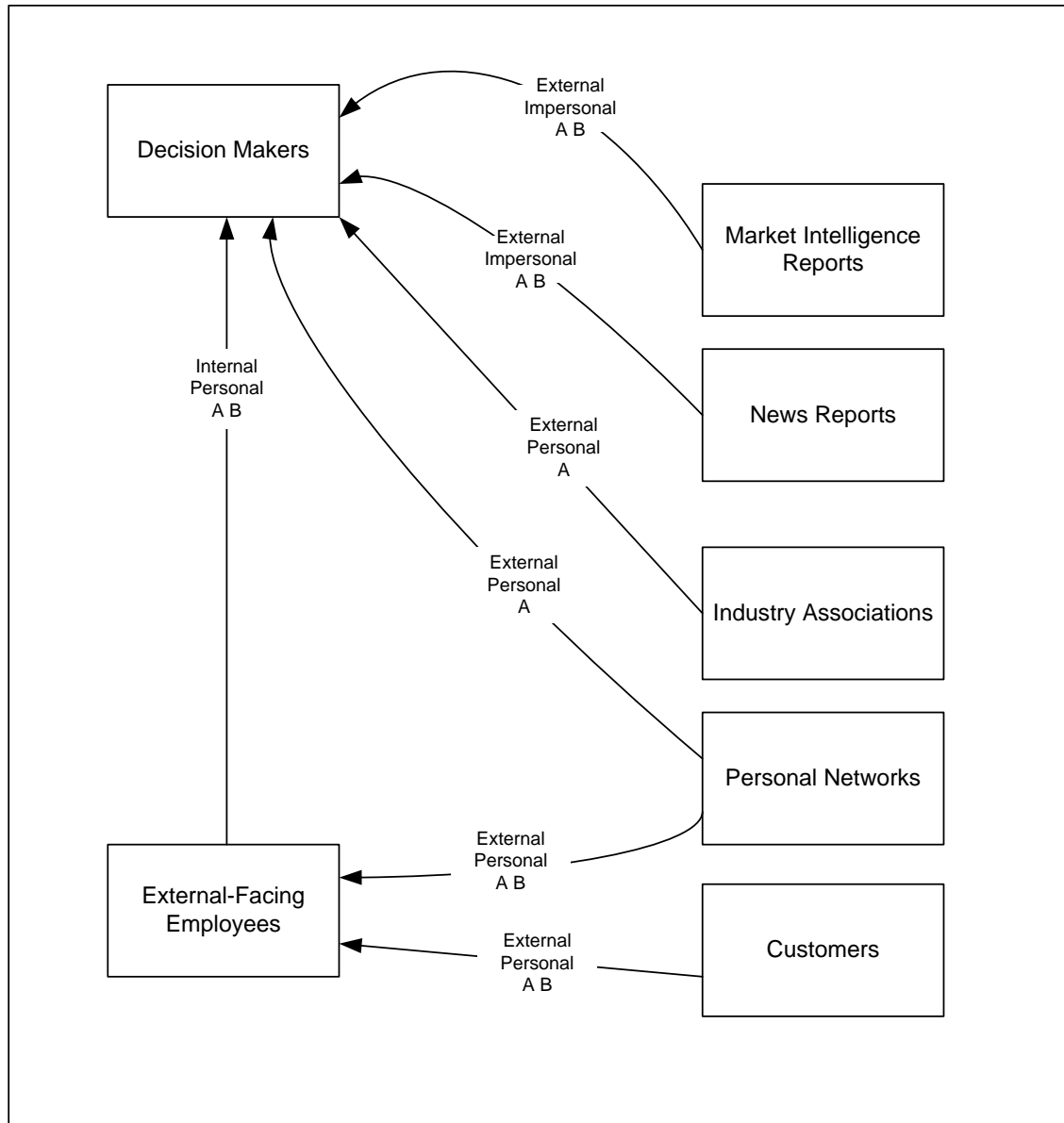
Figure 7.2: Mode relationship network for medium organisations (A and B)

In both companies external-facing employees were seen as valuable sources of information on their individual environments, but there was little in the way of formal processes for compiling and synthesising such information. In company A it was noted that such information was collated at management team level, with each functional head of department being responsible for their own area of the environment. In company B the managers in specific geographic areas were noted to be responsible for understanding their own individual environments, but a formal reporting system of external factors did not appear exist.

Both companies A and B made use of intelligence reports and public news sources. Both companies noted that external-facing employees would develop and maintain a

network that could be used to scan the environment, but only company A mentioned the use of industry bodies and personal networks for decision makers.

The mode relationship network for the two small companies (D and F), shown in Figure 7.3, is even less complex. This is to be expected from organisations with so few employees.
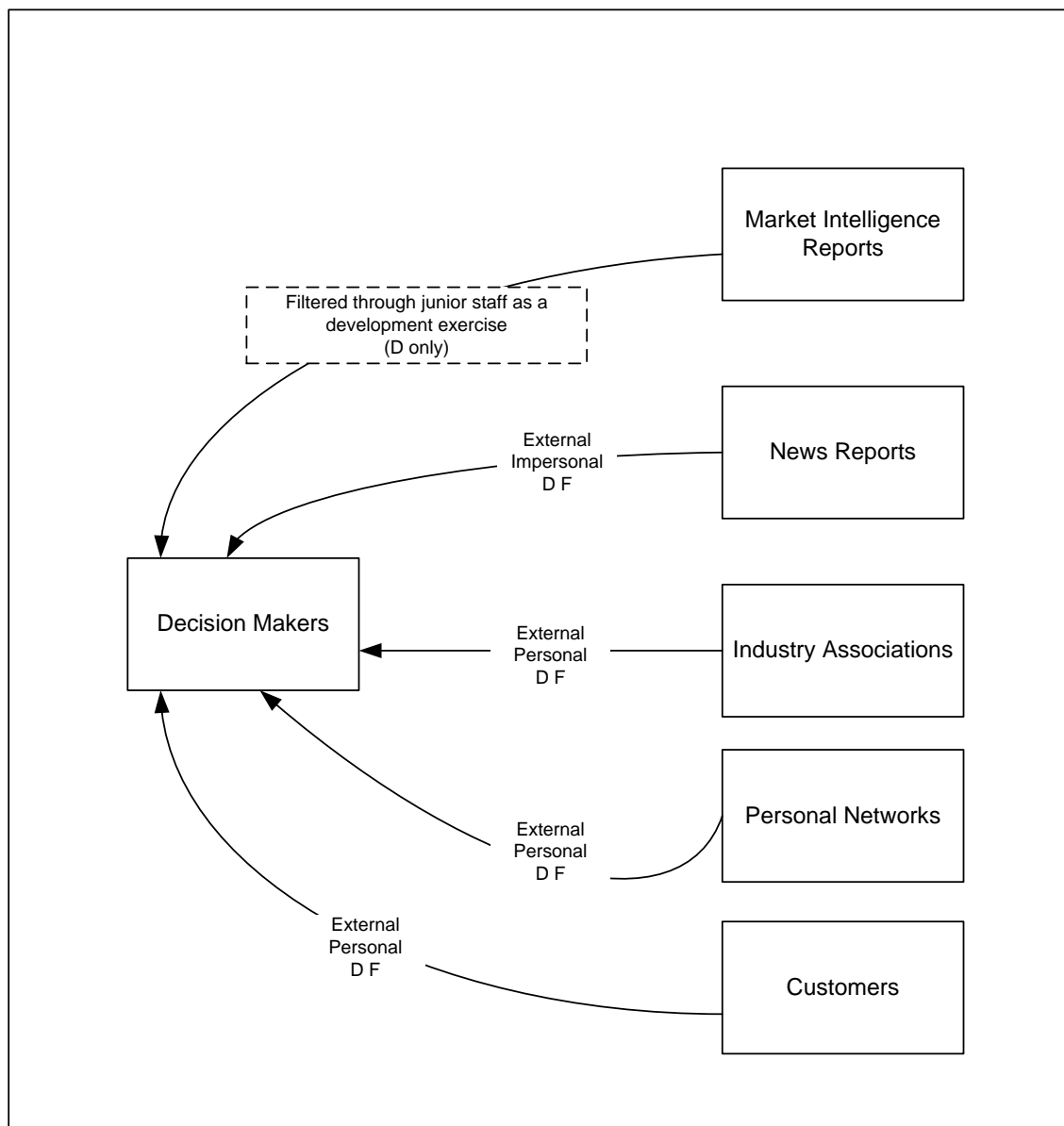
Figure 7.3: Mode relationship network for small organisations (D and F)

The small size of the companies resulted in decision makers carrying out a number of different functions within the organisation that included environmental scanning and analysis. While company F eschewed the use of industry intelligence systems and databases, company D invested significant effort in using this specific source of information. Company D's technique of assigning particular geographic areas to

graduate trainee engineers was seen as useful in terms of both development of junior staff and provision of a first pass of various sectors of the environment in a specific area.

Overall, three distinct relationship networks emerged from the data, and these are related to the size of the organisation. The similarities between different organisations within the three size groups are striking. The degree of replication over a number of cases suggests a consistent pattern of relationships between companies and sources of information on the external environment that changes according to the size of the company in question.

7.4.4   Changes in scanning mode over time

The examination of relationships between modes brought to light a number of instances where one scanning mode gave way to another over time. The initial coding of the data grouped all statements on mode together. A second pass through the data on mode using the time-ordered statements code revealed a number of instances where modes of scanning changed over time.

The flow from one mode to another is represented in Figure 7.4. Cases are again presented in ascending order of company size. Nodes represent a particular mode of scanning and arrows represent a shift from one mode to another over time. Impersonal modes are white and personal are grey. Three distinct groupings emerge.
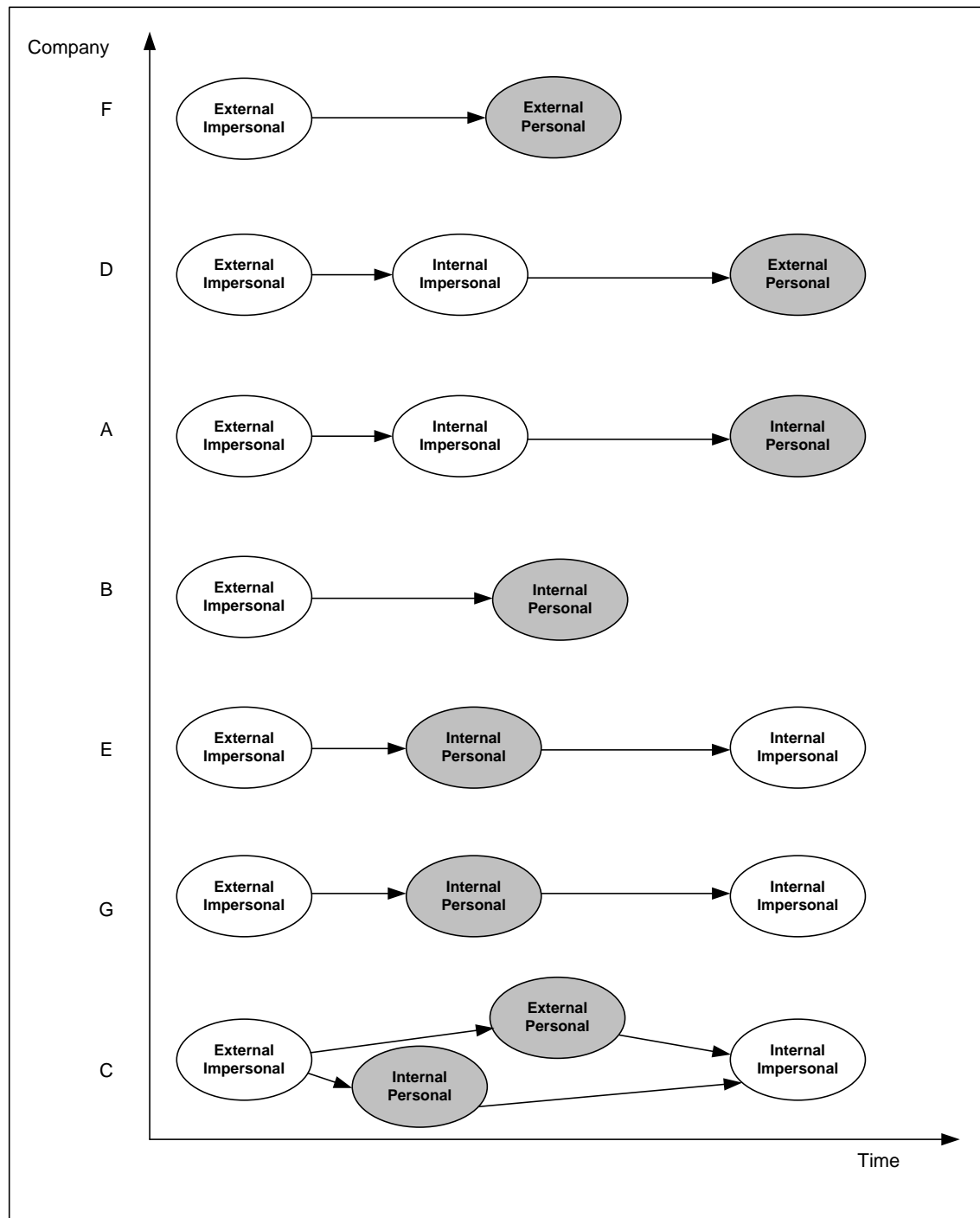
Figure 7.4: Mode flow over time

The first group contains companies A and D. In company A scanning of the economic environment was discussed in terms of moving from one mode to another over time. First external impersonal sources, in this case news reports and free industry reports published by banks, were examined. These were then synthesised into a report, an internal impersonal source, for use in management meetings. The outcome of such meetings formed the basis for further investigation using individuals in external-facing parts of the organisation.

A similar process was observed in company D, but external personal sources were used in the final step. Industry databases and market reports were scanned, an internal report created and then external personal contacts used.

Companies B and F comprise the second group. Both companies first scanned external impersonal sources: databases in company B and news and company reports in company F. The companies then moved on to using personal sources to verify and deepen understanding of the issue that was being investigated. Company B used internal personal sources while company F used external personal sources. This difference is perhaps accounted for by the difference in size of the two companies.

The third group comprises companies C, E and G, the large companies in the sample. In all these companies news reports, databases and other external impersonal sources were used to scan a sector of the environment initially. This was then followed up using internal, and in the case of company C external as well as internal, personal sources. Information gathered was then compiled into internal impersonal sources that were then passed to decision makers.

These findings on scanning mode over time add depth to the relationships between different modes of scanning discussed in Section 7.4.3. The findings are, however, tentative because they are based on what was said by respondents during interview rather than on direct observation of changes in activities over time. Because of their described rather than observed nature, an element of post hoc rationalisation may exist, and the process, if it were to be observed longitudinally, may be more of an iterative one.

7.4.5 Scanning mode: summary

A number of patterns and relationships have been found in the sample organisations. Popular sources of information have been identified, as have various relationships between scanning modes. The idea of modes changing over time has also been introduced and size of organisation has been identified as an important variable with regard to scanning mode. The three mode relationship networks in Section 7.4.3 provide insight into the different relationships between modes depending on size of company.

7.5   Scanning drivers and the effect of uncertainty

In this section motivations for scanning the external environment are considered. A variety of drivers were found across the sample organisations, but after examining the seven case reports six common scanning drivers were identified. These are discussed first, followed by an examination of frequency of drivers by sector and by organisation. The logical time order of drivers is then addressed. Given that perceived environmental uncertainty (PEU) is treated as a significant driver of scanning activity in existing literature, a discussion of its effect across the seven organisations is included towards the end of this section.

7.5.1   The emergence of six drivers of scanning

During the in-case analyses of Chapter 6, drivers of scanning activity for each organisation were discussed. An initial review of the reports in Chapter 6 led to Table 7.8, which was intended to collect the drivers discussed in Chapter 6 on a case-by-case basis.   While drivers differed between organisations and between sectors, some common themes emerged, resulting in six frequently observed drivers of scanning activity across the seven cases.

Table 7.8: Initial gathering of scanning drivers by organisation

Sector	F	D	A	B	E	G	C
				Case Study			
Economic	Budgeting and Forecasting	Budgeting and Forecasting	Budgeting and Forecasting/ Decision Support	Opportunity Evaluation	Budgeting and Forecasting/ Influence Monitoring	Decision Support/ Opportunity Search	Budgeting and Forecasting
Sociocultural	✗	✗	✗	✗	Influence Monitoring	Influence Monitoring	Relationship Management
Regulatory	Opportunity Evaluation/ Influence Monitoring	Opportunity Evaluation/ Relationship Management	Influence Monitoring	Opportunity Evaluation/ Relationship Management	Relationship Management	Opportunity Search/ Relationship Management	Relationship Management
Competitive	Opportunity Search	Opportunity Search	Opportunity Search	Influence Monitoring	Decision Support	Decision Support	Decision Support
Customer	✗	Opportunity Search/ Relationship Management	✗	Relationship Management	Decision Support/ Relationship Management	Opportunity Search/ Decision Support/ Relationship Management	Relationship Management
Technological	Opportunity Search	Opportunity Search	Influence Monitoring	Opportunity Search/ Opportunity Evaluation	✗	Influence Monitoring	Budgeting and Forecasting/ Decision Support

The following discussion provides a definition of the six scanning drivers along with examples of each.

Opportunity search is scanning to find potential opportunities in terms of new products, markets, services, acquisitions or joint ventures. One example of opportunity search driving scanning activity is company A's scanning of the competitive environment to look for companies to acquire. Another example is company D's and company F's scanning of the technological environment to find areas of the world that were technically viable for market entry.

Opportunity evaluation involves scanning the environment to find detailed information on an opportunity that has already been identified as an attractive prospect. Examples include company B's gathering of economic information to conduct investment appraisals and company D's and company F's examinations of the regulatory environments in areas that were being considered for market entry.

Relationship management is scanning to monitor and in some cases to sustain a relationship with an external stakeholder of some description. One example of relationship management driving scanning activity is company B's concern with the regulatory and customer sectors of the environment because of the need to manage and maintain relationships with host governments and customers. Another example is company G's need to maintain open communication and dialogue with governments with whom they were working. Company E's regular meetings with regulators also fall into the relationship management category.

Decision support involves scanning the external environment to gather information to be used to make strategic choices. Examples of this include company G's scanning of the economic environment to provide environmental analysis reports for executive meetings and company E's scanning to produce periodic reports for senior management about competition that were tailored to their requests.

Budgeting and forecasting is scanning the environment to gather information to develop periodic forecasts using models and produce budgets for future periods. Examples include company A's scanning of the economic environment for information to be used in the six-monthly budgeting meeting, company C's gathering of economic information

for input into various forecasting models, and company E's gathering of economic information to compile divisional and team budgets.

Influence monitoring involves scanning the external environment to monitor something that is understood or expected to influence the activities and in some case the performance of the organisation. An example of this is company A's and company F's monitoring of the regulatory environment in which their operations were based in order to understand and better anticipate forthcoming changes in regulation and tax structures. Another example is the monitoring of the technological environment by companies A and G for changes in technology that might affect their business.

Because of their lack of replication across cases, drivers that appeared in only one organisation, such as the regulatory requirements in company E and outsourcing approach to activities in company F, have been omitted from the cross-case analysis.

Some drivers of scanning were found in all the organisations and some were found only in certain cases. For example decision support was almost exclusive to the large companies in the sample. Different drivers related to different environment sectors, and different organisations appeared to be driven for different reasons to scan the environment. In the next section the scanning drivers identified above are examined first by environment sector and second by organisation type. After that the idea of different drivers occurring over time is discussed.

7.5.2   Drivers by environment sector

Table 7.9 contains a frequency count of drivers across the six sectors of the environment, and yields some interesting results.

Table 7.9: Scanning drivers by environment sector

Sector	Driver					
	Opportunity Search	Opportunity Evaluation	Relationship Management	Decision Support	Budgeting and Forecasting	Influence Monitoring
Economic	1	1		2	5	1
Sociocultural			1			2
Regulatory	1	3	5			2
Competitive	3			3		1
Customer	2		5	2		
Technological	3	1		1	1	2
Total Observations	**10**	**5**	**11**	**8**	**6**	**8**

Across the seven case studies relationship management appeared to be the most common driver of scanning activity, closely followed by opportunity search. Decision support and influence monitoring were also relatively common, each being observed in eight separate situations.

Budgeting and forecasting, and opportunity evaluation, were seen to be less common. All drivers were replicated across multiple cases with opportunity search, budgeting and forecasting, relationship management and influence monitoring occurring in five cases, decision support in four and opportunity evaluation in three.

The lower occurrence of opportunity evaluation may be because most of the organisations in the sample had already collected a significant amount of information when searching for opportunities, so the evaluation of a specific opportunity did not require gathering of further information on the environment.

The concentration of drivers in various sectors of the environment suggests that the organisations scanned different sectors of the environment for different reasons. The driver most strongly associated with the economic sector was budgeting and forecasting. Other drivers were observed much less frequently in the economic sector. Companies A, C, D, E and F all noted that budgeting and forecasting required gathering of information on the economic environment.

It was noted in Section 7.3.1 that the sociocultural environment was of little interest to most of the organisations in the sample. It is of interest that the drivers associated with this sector were influence monitoring and relationship management. Relationship management was the driver of company C's scanning of that sector because it wished to be seen as a good corporate citizen and engage with external stakeholders about societal issues. Companies E and G noted that the sector could influence their activities and so monitored general trends in a more passive way.

Regarding the regulatory environment, scanning was most often conducted because of the requirement to manage relationships. Three companies (B, D and F) scanned the regulatory environment for opportunity evaluation purposes. Once a potential venture had been found, regulatory conditions were examined to ascertain its viability. For example in company F the legal and commercial manager would investigate details of

regulation and tax structure after the technical team had noted that a particular area was technically viable.

Only company G scanned the regulatory environment for opportunity search purposes. This could be due to the company having to partner with governments when entering a new market, making the regulatory environment of particular importance.

The competitive environment was scanned most often for opportunity search and decision support purposes. Companies A, D and F all noted that they were looking to make an acquisition at some point in the future and so were particularly interested in the competitive sector of the environment. Other instances of competitive environment scanning were driven by the need to support strategic decisions where competitive conditions in a particular area could impact on the success or otherwise of a particular venture.

With regard to the customer environment, this was scanned most often for relationship management purposes. Companies B, C, D, E and G all noted the need to monitor customer relationships in order to ensure continuing relationships and future business. Relationship management was also a significant driver of scanning the regulatory sector.

The technological environment was scanned mainly for opportunity search purposes and to monitor influences. Three companies, B, D and F, scanned the technological environment when searching for opportunities. Companies A and G scanned the technological environment to monitor outside influences.

7.5.3   *Drivers by organisation type*

Scanning of the various environment sectors is driven by different things in different types of organisation. Table 7.10 contains an exposition of drivers by both organisation type and environment sector. The table, which reveals some further interesting outcomes, was created in an Excel spreadsheet and the organisations filtered in a number of ways to look for patterns.

Companies were categorised along a number of dimensions in Table 7.1, and company size has already been found to affect scanning mode and the relationships between scanning modes. Drivers were examined according to company size, but the results

were mixed. The three large companies were driven more by relationship management and decision support needs than the other companies, but the two medium companies had little in common. The two small companies were driven by similar factors, but this may be because they were similar in terms of strategy type.

In the case of scanning drivers the occurrence and importance of different drivers appears to depend upon the strategy the company is pursuing. Miles and Snow (1978) strategy classifications for each company were given in Table 7.1, and the sample contained three prospectors (B, D, F), two analysers (A, G) and two defenders (C, E). Table 7.10 presents the companies grouped by strategic type.

Table 7.10: Scanning drivers by case in order of strategic type

Case	Strategy Type	Opportunity Search	Opportunity Evaluation	Relationship Management	Decision Support	Budgeting and Forecasting	Influence Monitoring
				Driver			
F	Prospector	Comp/Tech	Reg			Econ	Reg
D	Prospector	Comp/Cust/Tech	Reg	Reg/Cust		Econ	
B	Prospector	Tech	Econ/Reg/Tech	Reg/Cust			Comp
A	Analyser	Comp			Econ	Econ	Reg/Tech
G	Analyser	Econ/Reg/Cust		Reg/Cust	Econ/Comp/Cust		Soc/Tech
E	Defender			Reg/Cust	Comp/Cust	Econ	Econ/Soc
C	Defender			Soc/Reg/Cust	Comp/Tech	Econ/Tech	

Key		
Econ = Economic sector	Reg = Regulatory sector	Cust = Customer sector
Soc = Sociocultural sector	Como = Competitive sector	Tech = Technological sector

Prospectors were driven to scan the environment most for opportunity search and opportunity evaluation purposes. Opportunity search appeared to drive all three organisations to scan the technological environment in particular. Scanning of the regulatory environment seemed to be driven by opportunity evaluation needs. Two of the prospectors were looking to enter new markets via acquisition, which meant that they were also driven to scan the competitive environment when searching for opportunities.

The most common drivers of scanning found in the two analyser companies were opportunity search, decision support, and influence monitoring. These drivers resulted in scanning of various sectors of the environment. The technological environment was scanned to monitor influences rather than to find opportunities, in contrast to the prospectors. Information from the economic environment was used to support decisions.

The two defender companies were not driven to scan the environment by opportunity search or opportunity evaluation at all. Rather, scanning of the regulatory and customer sectors of the environment was driven by the need to manage relationships in both cases. The need to support decisions drove scanning of the competitive, customer and technological sectors, and the need to prepare budgets and forecasts drove scanning of the economic and technological sectors.

Overall it appears that there is a relationship between strategy type and the drivers of scanning activity that were observed. The next stage in analysis is to look at how drivers interact with each other over time.

7.5.4 Drivers over time

The data collected from the seven organisations were of a cross-sectional rather than longitudinal nature, but some tentative conclusions can be drawn about strategy drivers over time. Looking at the six drivers, a logical time flow between them can be observed. This is shown graphically in Figure 7.5.

Opportunity search must drive scanning activity before opportunity evaluation begins to drive activity: an opportunity must be found before it is appraised. There is likely to be some overlap between the two drivers because it is possible to use information collected for opportunity search purposes to appraise an opportunity as well. After an

opportunity has been appraised a decision must be made, and that decision must be made before budgets and forecasts are prepared and influences on current activities are monitored. The need to manage relationships is ever-present and is likely to drive scanning activity from the point at which an opportunity is evaluated.
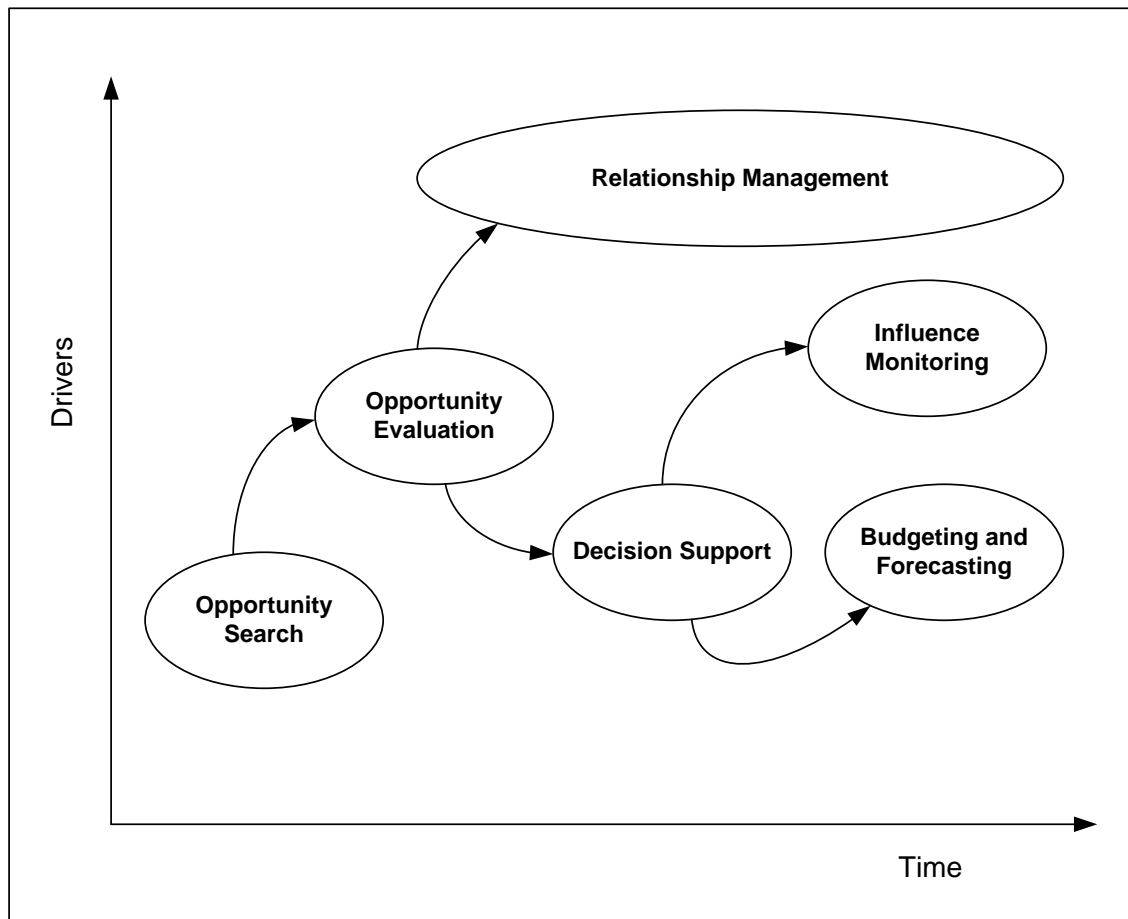
Figure 7.5: Drivers of scanning activity over time

Using the information on environment sectors in Table 7.10 and the surrounding discussion of drivers according to strategy type, the time-ordering of scanning drivers in Figure 7.5 can be used to propose a model of environment sector scanning over time depending on strategy type.

Figure 7.6 shows the sectors scanned by prospector companies because of different drivers directly inserted into the model of drivers over time. Some sectors appear in more than one driver category and one driver category was not observed in the three prospector organisations.
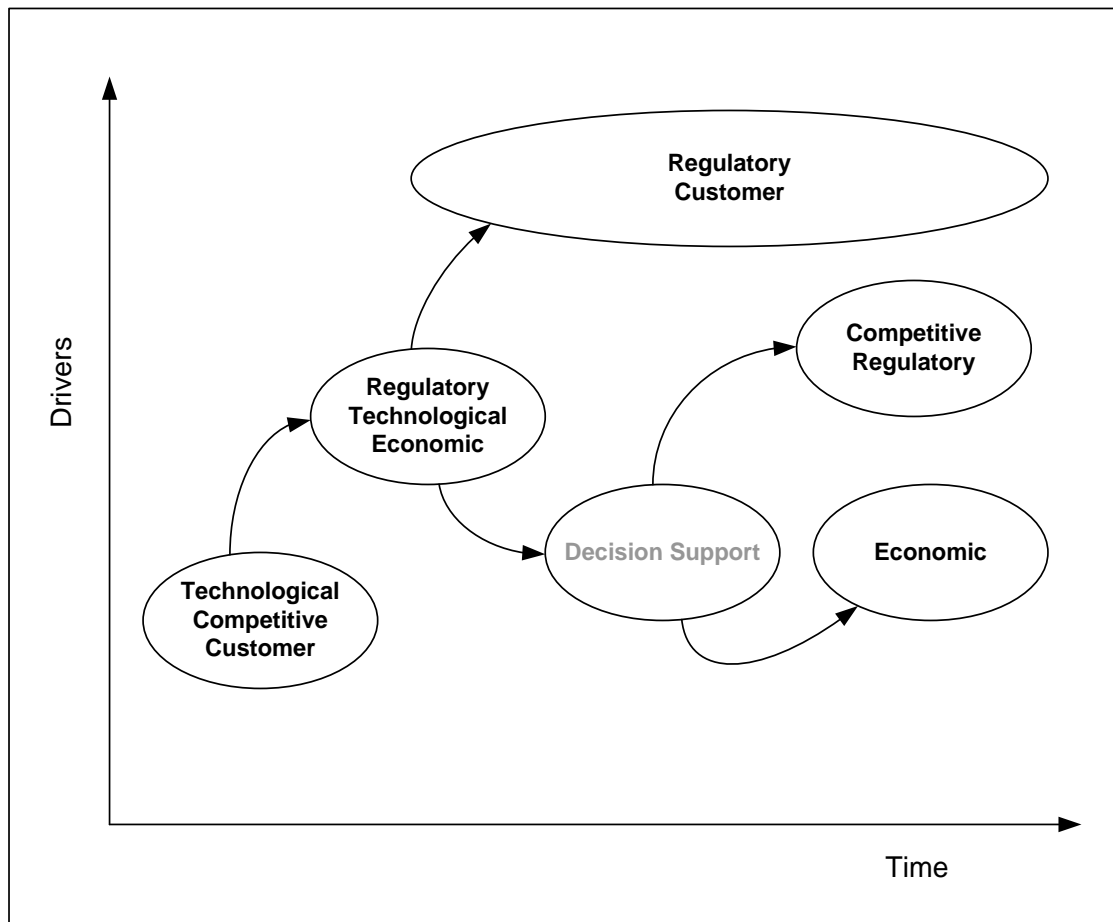
Figure 7.6: Prospector (companies B, D and F) environment sectors by drivers over time

This diagram is then converted in the first part of Figure 7.7 to show environment sectors individually rather than in the same position as the drivers, and the result is a model of sector scanning evolving over time. This same process was followed with the defender and analyser companies, and the result is also shown in Figure 7.7. The sociocultural environment has not been included in the model because of the low level of interest shown in this sector, as discussed in Section 7.3.1.

Prospector (B, D, F)

Sectors

	Economic		Economic	
		Regulatory		
Customer			Customer	
Competitive				Competitive
	Technological			

Time

Analyser (A, G)

Sectors

Economic	
Regulatory	
Customer	
Competitive	
	Technological

Time

Defender (C, E)

Sectors

Economic	
Regulatory	
Customer	
Competitive	
Technological	
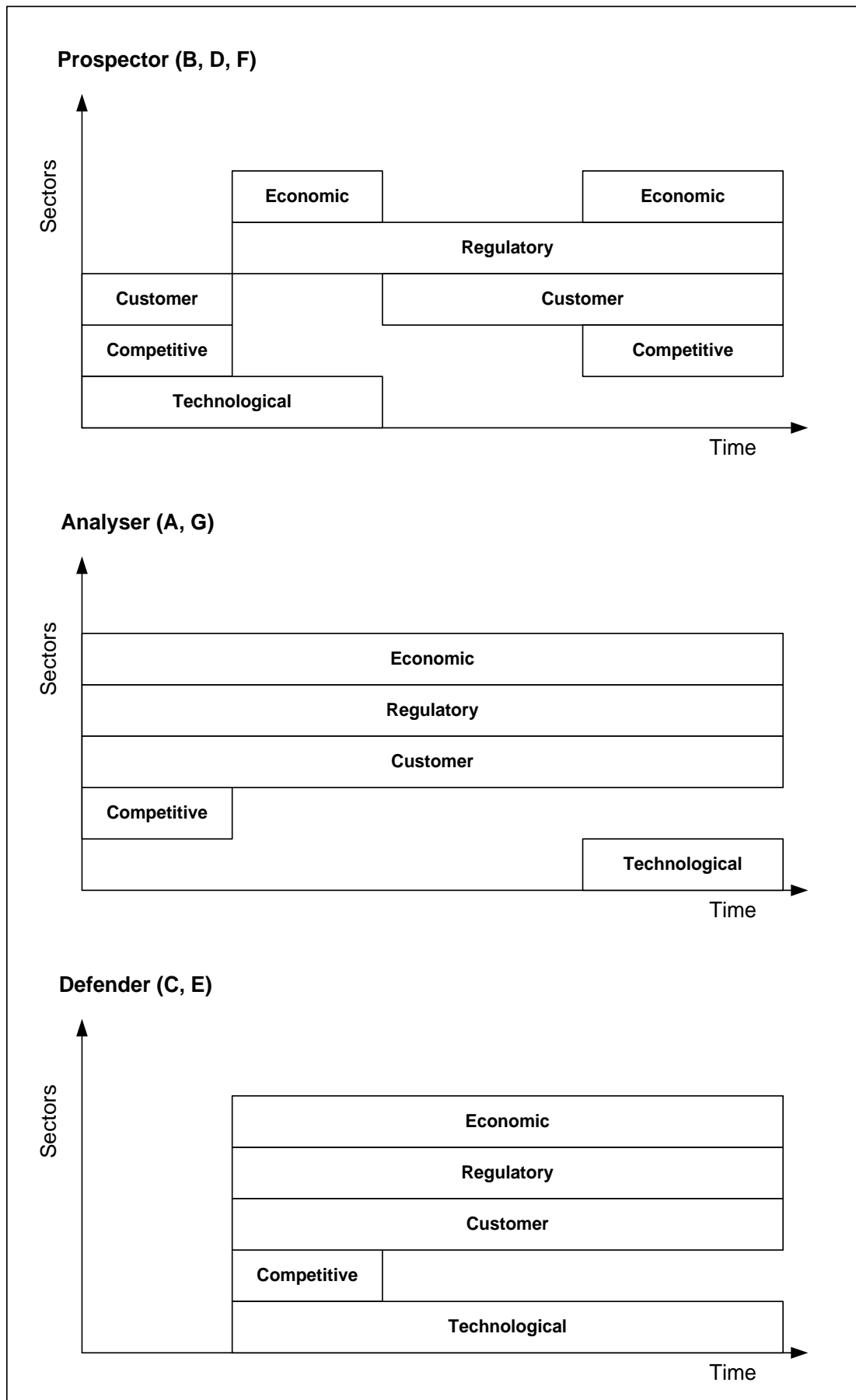
Time

Figure 7.7: Sector scanning over time by strategy type

The differences in approach are quite striking, with sectors being scanned by prospectors changing at a number of points in time. Sectors scanned by analysers are more stable over time, and sectors scanned by defenders are more constant than in the case of either prospectors or analysers. These different profiles for different strategy types may suggest that the six drivers identified in Section 7.5.1 provide the link between strategy and external environment scanning. Different strategies result in different sectors being scanned for different reasons.

In the same way as the time-ordered work in Section 7.4.4, these models are rather tentative given that events were described to the researcher rather than directly observed. Post hoc rationalisation by participants may have occurred, and the process, if observed longitudinally, may again have been more of an iterative one.

7.5.5   *Perceived environmental uncertainty*

It is of note that PEU was observed in all seven cases. The nature of the data collected means that the instances of PEU observed during fieldwork are unlikely to be comprehensive. Nevertheless, the instances revealed in the data may give an indication of the types of PEU experienced by the organisations in the sample and the effect of PEU on scanning activity. Table 7.11 contains a breakdown of PEU types by sector and organisation compiled from the case reports in Chapter 6.

Referring back to the data on interest by sector in Section 7.3.1, in all sectors where PEU was experienced the level of interest was categorised as 'some interest' or 'strong interest'. The only exception to this is the competitive environment for company F, where only a weak interest was noted.

Perhaps surprisingly, the regulatory environment appeared to generate the most uncertainty, closely followed by the economic environment. All three types of PEU were observed in these two sectors in one or more organisation, with state uncertainty being most common in the economic sector and effect uncertainty most common in the regulatory sector. State uncertainty was related to economic factors such as the oil price for companies in that industry, the availability of funding and the rate of economic growth. Effect uncertainty in the regulatory sector was related to changes in regulation that would impact the organisation in some way.

Table 7.11: PEU by organisation and environment sector

Sector		Case Study						
	A	B	C	D	E	F	G
Economic	State +	State + Effect -	State + Response +	✗	✗	State - Effect -	✗
Sociocultural	✗	✗	✗	✗	✗	✗	✗
Regulatory	✗	✗	State + Effect + Response +	Effect -	State + Effect +	✗	State + Effect +
Competitive	✗	✗	✗	✗	✗	State - Effect -	State +
Customer	✗	✗	✗	State +	✗	✗	State +
Technological	Effect +	✗	✗	✗	✗	State +	✗

+ = Encourages scanning   - = Discourages scanning

Scanning of the economic environment did not always reduce the level of PEU because of the inherent volatility in the economy at the time the data were collected. Scanning of the regulatory environment, on the other hand, did appear to reduce the level of effect uncertainty. In the case of company C scanning of the regulatory environment was conducted in response to the 'Arab Spring'. This was an example of scanning being conducted explicitly to reduce both effect and response uncertainty.

The competitive, customer and technological environments generated less uncertainty across the seven cases, and the sociocultural environment did not appear to generate PEU. The competitive and technological environments appeared to generate both state and effect uncertainty, while the customer environment generated only state uncertainty.

State uncertainty was observed most frequently, followed by effect uncertainty. Both of these uncertainty types were observed across all seven organisations. Response uncertainty was observed only in company C in relation to the economic and regulatory environments. In general, all PEU types encouraged scanning of the environment sector in which they were observed, but there were exceptions. For example, in company B effect uncertainty appeared to discourage further scanning of the economic environment. In company D effect uncertainty appeared to discourage scanning of the regulatory environment and in company F state and effect uncertainty appeared to discourage scanning of both the economic and competitive environments.

The impact of PEU on scanning appears to depend on uncertainty type and to some degree on company size. Strategy type may also have some impact. Effect uncertainty was seen to discourage scanning on four occasions, while state uncertainty was seen to discourage scanning on only two occasions.

The three organisations in which PEU was seen to discourage scanning of a particular sector (B, D and F) are the three prospector companies in the sample. Two of them (D and F) are small companies and one (B) is a medium company. It is possible that resource constraints in organisations that do not have large strategy teams or budgets hinder scanning of areas that exhibit uncertainty. It is also possible, as noted in Section 7.5.3, that the focus of prospector-type companies is on opportunity search and evaluation rather than on management of ongoing activities that could be affected by changes in the environment.

Overall PEU has been seen to impact on scanning activity to some extent in all organisations and in some ways can be viewed as another driver to be added to the list in Section 7.5.1. The qualification must be made, however, that PEU does not always drive scanning activity and in some cases may actually reduce the level of scanning of a particular sector. This appears to be particularly true of effect uncertainty in medium and small companies.

7.5.6 *Scanning drivers and the effect of uncertainty: summary*

A number of drivers of scanning activity have been identified from the data in this section: seven in total if PEU is included with the caveats above. These drivers were examined by organisation type, and a logical time order of drivers was developed and related to environment sectors and the strategic type of the organisation. Three distinct models of scanning of sectors over time emerged. PEU was found to have mixed effects on scanning activity depending on size of organisation and strategy type. The analysis in this section underpins some of the work in the next section, which looks at relationships between the strategy process and external environment scanning.

7.6 Links between scanning and strategy process elements

This section deals with scanning and the wider strategy process by examining the causal networks developed in the final section of each in-case analysis. The section is structured around the five areas of strategic activity developed in Chapter 2, namely *strategic intent*, *external interaction*, *resource management*, *strategy choice* and *implementation*.

At the end of each in-case analysis a table was produced relating the case-specific mediating variables to different areas of strategic activity. Those tables[7] form the starting point of this section. The drivers related to the mediating variables, both directly and indirectly, were gathered from the causal networks in Figures 6.1 to 6.7. Next the analyses in Sections 7.5.3 and 7.5.5 were used to relate these drivers to sectors of the environment. The outcome of this process is a network for each area of strategic activity that examines the relationship between drivers of scanning activity, that area of strategic activity, and specific environment sectors. Each relevant area of strategic activity is taken in turn below. The links in these networks are used in Section 7.7 to

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[7] Tables 6.4, 6.8, 6.12, 6.16, 6.20, 6.24, 6.28.

propose links between environmental scanning and specific areas of strategic activity, thus developing a model of environmental scanning and the strategy process.

7.6.1   *Strategic intent*

The *strategic intent* area of strategic activity deals with setting the objectives of the organisation, its long-term direction and how this is decided upon.   In every organisation in the sample some causal link with activities concerned with strategic intent and environmental scanning appeared to exist, with a significant amount of common ground among the seven cases as to the specific nature of these activities. Table 7.12 contains mediating variables, associated drivers and environment sectors for each organisation. Drivers were gathered by examining the causal networks in Chapter 6, and information on related environment sectors was taken from Table 7.10.

Table 7.12: Mediating variables and associated drivers for strategic intent

Case	Mediating Variables	Associated Drivers	Environment Sectors
F	Loose approach to planning	Outsourcing approach to activities (d)	-
D	Frequent checking of assumptions	Opportunity Evaluation (d) Effect PEU Internal (i)	Reg -
A	Periodic strategy review	Decision Support (d) Opportunity Search (i) Budgeting and Forecasting (i) State PEU (i)	Econ Comp Econ Econ
B	Periodic strategy review and valuation exercise	Opportunity Search (d)	Tech
E	Periodic strategy reviews	Decision Support (d) Influence Monitoring (d)	Comp/Cust Econ/Soc
	Ad hoc strategy exercises	Decision Support (d)	Comp/Cust
G	Annual strategy review	Decision Support (d)	Econ/Comp/Cust
	Ad hoc strategy meetings	Influence Monitoring (d) Decision Support (d)	Soc/Tech Econ/Comp/Cust
C	Annual strategy review	Decision Support (i) Relationship Management (i)	Comp/Tech Soc/Reg/Cust

(d) = direct link (i) = indirect link

Linking the drivers back to specific environment sectors is revealing and appears to show that, in the main, larger companies in the sample scan more sectors of the environment when considering strategic intent than do the smaller companies. In

addition it appears to show that certain drivers are more clearly related to activities concerned with strategic intent than others. As noted in Section 7.5.1, drivers that appeared in only one organisation are omitted from the cross-case analysis.

Table 7.13 contains a count of the various links between scanning drivers, PEU types, environment sectors and strategic intent. The numbers were obtained by counting direct and indirect links between drivers and the specific variable in the causal networks in Chapter 6. A direct link was counted as two and an indirect link counted as one.

Table 7.13: Example of counting method for strength of links (strategic intent)

Environment Sectors	Direct Link	Indirect Link	Total Score
Economic	4	2	10
Sociocultural	2	1	5
Regulatory	1	1	3
Competitive	4	2	10
Customer	4	1	9
Technological	2	1	5
Drivers	**Direct Link**	**Indirect Link**	**Total Score**
Opportunity Search	1	1	3
Opportunity Evaluation	1	0	2
Decision Support	5	1	11
Relationship Management	0	1	1
Influence Monitoring	2	0	4
Budgeting and Forecasting	0	1	1
PEU Types	**Direct Link**	**Indirect Link**	**Total Score**
State Uncertainty	0	1	1
Effect Uncertainty	0	0^8	0
Response Uncertainty	0	0	0

A similar approach was used to measure the strength of links between the strategy process area and environment sector; again those linked directly by a driver counted as two and those linked indirectly counted as one. From Table 7.13 an estimate of the strength of link between different drivers, environment sectors and PEU types with a particular stage of the strategy process can be derived. Figure 7.8 contains a model of the links between drivers of scanning activity, strategic intent and specific sectors of the environment, with the numbers on each arrow indicating the strength of link.

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[8] The effect uncertainty in company D in this area of the strategy process is not counted because it was concerned with internal rather than external factors
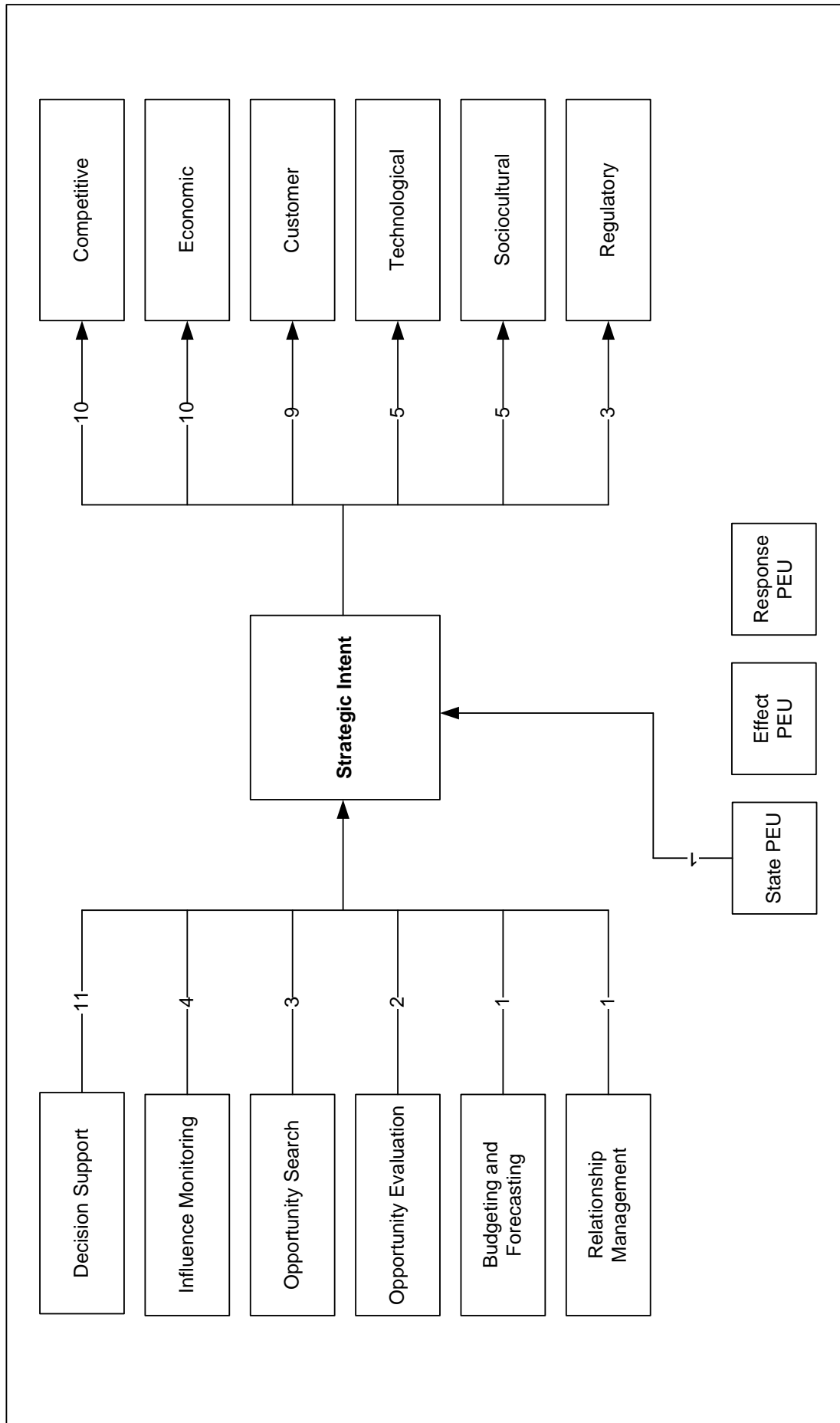
Figure 7.8: Scanning drivers, PEU types and environment sectors scanned in relation to strategic intent

The nature of activity surrounding strategic intent in the organisations was similar, with varying degrees of formality. The five medium and large companies all conducted some kind of formal periodic review of strategy, whereby the long-term direction of the organisation was examined. In the two small organisations, such a structured system was not in place. Company D spoke of frequent checking of assumptions made about the environment. Company F took a more informal approach to strategy, and strategic intent involved no direct scanning of the external environment. Two of the larger companies also conducted occasional ad hoc strategy exercises or meetings to look at specific strategic issues.

It has already been noted that the larger companies appeared to scan more segments of the environment than the smaller companies for strategic intent purposes. This, along with the observation that decision support as a driver of scanning activity was more apparent in larger companies (see Section 7.5.1), means that decision support was strongly linked to strategic intent activities across the organisations. Other drivers of scanning activity had weaker links with strategic intent. In particular, relationship management and budgeting and forecasting seemed to have very little impact on strategic intent. This is to be expected, given that strategic intent is, by definition, a high-level objective-setting activity. Detailed budgeting and operational planning would occur at a different stage in the process. State PEU was observed to affect strategic intent in one case only.

Regarding breakdown of the environment, strategic intent appeared to result most frequently in scanning of the competitive, economic and customer sectors, while the technological, sociocultural and regulatory sectors were of less importance. However, sociocultural issues were not the least important at this stage. This contrasts with the aggregate results in Section 7.3.1, in which sociocultural issues were seen to be a distant last in terms of interest. It is possible that sociocultural issues were seen as background issues that could not be influenced by the organisations in the sample, and thus were consigned to be examined for changes periodically rather than monitored during particular strategic initiatives.

The regulatory environment was of little interest with regard to the strategic intent area of activity, perhaps because of the high level of discussions and decisions at this stage.

Overall, it appears that scanning of the environment occurs to support strategic intent activities in most organisations to varying degrees dependent in part on the size of the organisation. The larger organisations, through their periodic reviews of strategy and similar activities, appeared to take a wide view of the environment in order to ask themselves open questions about the future direction of the organisation. More detailed scanning was required in other areas of the process.

7.6.2 *External interaction*

The *external interaction* area of the strategy process consists of activities that involve interaction with the external environment. It should be of no surprise that many of the mediating variables identified in Chapter 6 specifically involved some kind of external interaction, given the focus of the present research and the outcome variable in the causal networks. A significant amount of scanning activity in every organisation was conducted because strategic activities that were explicitly concerned with the external environment were being undertaken.

Table 7.14 details the mediating variables involving external interaction in each organisation and relates them to drivers, PEU types and environment sectors using the same process as that employed for strategic intent, described in Section 7.6.1. Again a number of common themes emerge when looking at the mediating variables across cases. The number of activities examined in this section is larger than for strategic intent because a significant proportion of environmental scanning activity is concerned explicitly with the external environment.

Table 7.14: Mediating variables and associated drivers for external interaction

Case	Mediating Variables	Associated Drivers	Environment Sectors
F	Informal observation of functional environments	Opportunity Search (d)	Comp/Tech
		Influence Monitoring (d)	Reg
		State PEU (-) (d)	Econ/Comp
		Effect PEU (-) (d)	Econ/Comp
	Informal observation of competitor behaviour	Opportunity Search (d)	Comp/Tech
		Effect PEU (-) (d)	Econ/Comp
	Periodic risk review	Influence Monitoring (d)	Reg
	Technical screening of geographic areas	Opportunity Search (d)	Comp/Tech
		State PEU (d)	Tech
D	Detailed geographic screening activity	Opportunity Search (d)	Comp/Cust/Tech
		Effect PEU External (-) (d)	Reg
	Country visits	Relationship Management (d)	Reg/Cust
		Relationship Management (i)	Reg/Cust
		State PEU (d)	Cust
		Opportunity Search (d)	Comp/Cust/Tech
		Opportunity Search (i)	Comp/Cust/Tech
	Involvement with professional societies	Relationship Management (d)	Reg/Cust
A	Competitor monitoring	Opportunity Search (d)	Comp
	Informal observation by functional specialists	Influence Monitoring (d)	Reg/Tech
		Effect PEU (d)	Tech
	Technical data trading	Effect PEU (d)	Tech
B	Screening on political, commercial and technical criteria	Opportunity Search (d)	Tech
		Opportunity Evaluation (d)	Econ/Reg/Tech
	Corporate-level information gathering	State PEU (d)	Econ
		Effect PEU (-) (d)	Econ
		Relationship Management (d)	Reg/Cust
	Competitor results monitoring	Influence Monitoring (d)	Comp
E	Regulator engagement	Relationship Management (d)	Reg/Cust
		State PEU (d)	Reg
		Effect PEU (d)	Reg
	Competitive intelligence gathering	Relationship Management (d)	Reg/Cust
		Influence Monitoring (d)	Econ/Soc
G	Opportunity screening through project teams	Opportunity Search (d)	Econ/Reg/Cust
		Relationship Management (d)	Reg/Cust
	Government stakeholder engagement	Relationship Management (d)	Reg/Cust
		Relationship Management (i)	Reg/Cust
		Opportunity Search (i)	Econ/Reg/Cust
		State PEU (d)	Reg/Comp/Cust
		Effect PEU (d)	Reg
	Competitive intelligence gathering	Influence Monitoring (d)	Soc/Tech
		State PEU (d)	Reg/Comp/Cust

Table continues on next page

Table 7.14 Continued

Case	Mediating Variables	Associated Drivers	Environment Sectors
C	Detailed internal reporting on external environment	Decision Support (d) Relationship Management (i)	Comp/Tech Soc/Reg/Cust
	Complex contact networking	Decision Support (d) Relationship Management (d)	Comp/Tech Soc/Reg/Cust
	External publication of environmental analyses	Relationship Management (d)	Soc/Reg/Cust
	Technological and economic modelling	Budgeting and Forecasting (d) State PEU (d) Effect PEU (d)	Econ/Tech Econ/Reg Reg
	(-) = negative influence	(d) = direct link	(i) = indirect link

There are again commonalities and differences in the nature of the activities identified at this stage. It is, however, only when looking across the seven cases that it becomes clear that the mediating variables fall into three sub-groups. These are shown in Table 7.15.

Table 7.15: Groups of strategic activities concerned with the external environment

Watching	
B	Corporate-level information gathering
C	Detailed internal reporting on external environment
A	Technical data trading
E	Competitive intelligence gathering
G	Competitive intelligence gathering
A	Competitor monitoring
B	Competitor results monitoring
F	Informal observation of competitor behaviour
A	Informal observation by functional specialists
F	Informal observation of functional environments

Analysing	
C	Technological and economic modelling
G	Opportunity screening through project teams
F	Technical screening of geographic areas
B	Screening on political, commercial and technical criteria
D	Detailed geographic screening activity
F	Periodic risk review

Engaging	
D	Involvement with professional societies
C	Complex contact networking
D	Country visits
E	Regulator engagement
G	Government stakeholder engagement
C	External publication of environmental analyses

The first sub-group is concerned with watching the external environment. This includes activities such as informal observation of competitor behaviour (F), informal observation by functional specialists (A), and competitive intelligence gathering (E and G). The second sub-group is concerned with analysing the external environment. This includes technological and economic modelling (C) and various types of opportunity screening activities (B, D, F and G).

The final group of activities is concerned with actively engaging with the external environment, usually stakeholders of some description. These could be customers (D and G), regulators (E and G) or a wider network of professional contacts (C and D). These three sub-groups are a useful breakdown when analysing links between scanning and this particular area of strategic activity. They will also be used in the model of the scanning and the strategy process proposed at the end of this section.

Figure 7.9 contains a model of the links between drivers of scanning activity, external interaction (broken down into its three constituent parts) and specific sectors of the environment, with the numbers on each arrow indicating the strength of link. The strength of links was derived using the same process as that shown in Table 7.13 and is not shown in detail here. Links with the specific drivers are broken down by the three sub-groups of activity identified above, so the three numbers in brackets following the strength of link represent *watching*, *analysing* and *engaging* respectively.

Unique to this stage of the process, a number of negative drivers were noted. They have been deducted from the total. For example, effect PEU shows (2) as its overall link, because it was found to have five direct positive links (+10) and four direct negative links (-8), giving a combined total of two. A similar approach was used for environment sectors; the economic sector showed six direct positive (+12), one indirect positive (+1), and six direct negative (-12) links, giving a total of (1).
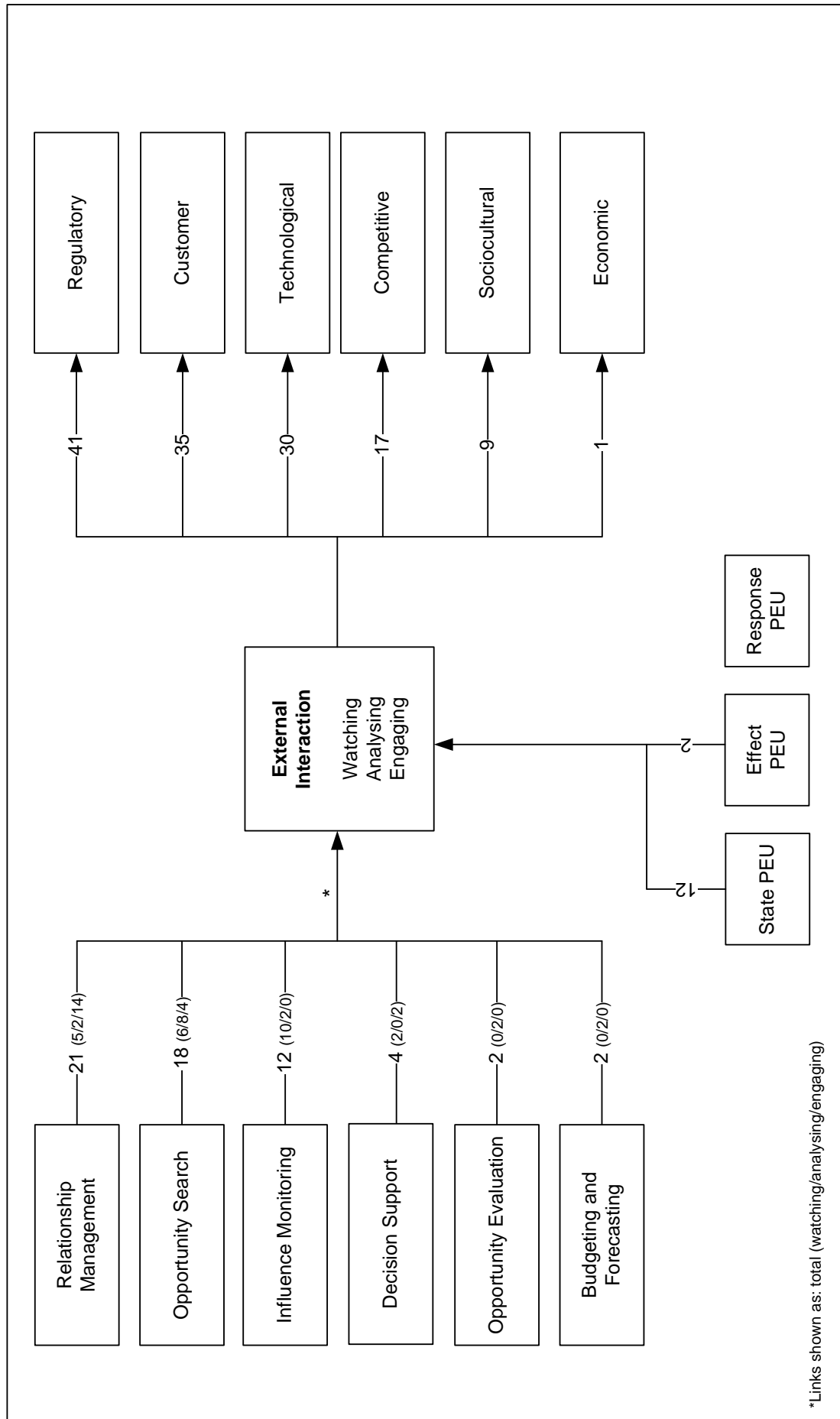
Figure 7.9: Scanning drivers, PEU types and environment sectors scanned in relation to external interaction

*Links shown as: total (watching/analysing/engaging)

Looking at the drivers of scanning activity, the strongest links with this area of the strategy process are relationship management and opportunity search, followed by influence monitoring. This is in line with the preceding discussion that grouped the activities across the seven organisations into three categories. If the environment is watched, analysed and engaged with in this part of the strategy process, then it is unsurprising that the drivers of external environmental scanning most strongly linked with this stage are relationship management (engaging), opportunity search (analysing and watching) and influence monitoring (watching). The other drivers of scanning activity appear to be less related at this stage of the process.

The existence of state PEU has a strong positive link with this area of the of the strategy process, meaning that the greater the level of state PEU, the greater the level of external environmental scanning associated with external interaction. The relationship with effect PEU is more complex. While a number of positive direct links were observed in the different organisations, a larger number of direct negative influences were also found, almost cancelling out the link between effect PEU and external interaction.

With regard to the strength of links with different sectors of the environment, the strongest links were observed between external interaction and the regulatory and customer environments. This was closely followed by the technological environment, in contrast to strategic intent, for which the competitive and economic environments were of most interest. At this stage of the process the competitive environment, while being linked more strongly to external interaction than it was to strategic intent, ranks fourth in terms of overall strength of link. The economic environment shows the weakest link with this stage of the strategy process, in part because of the negative relationship between the economic environment and PEU in the smaller organisations.

The emphasis on regulatory plus the three task environment sectors, along with the intensity of activity concerned with scanning the external environment at this stage of the process, suggests that it is in this particular area of activity that deep, purposeful scanning is carried out for specific ends. It is of note that informal monitoring activities appear only three times in Table 7.15. All other activities represent purposeful watching, analysing or engagement with the external environment.

Overall, the links between this area of the strategy process and external environmental scanning are pervasive. The associated scanning drivers suggest searching for

opportunity, managing relationships and influence monitoring are important at this stage. This is reflected in the breakdown of activities in Table 7.15 into watching, analysing and engaging with the environment. Both the activity breakdown and associated drivers will be included in the model developed at the end of this section.

7.6.3   Resource management

The area of strategic activity known as *resource management*, defined and discussed in Section 2.6.3, did not appear to be linked to environmental scanning activities in any of the organisations studied. While this finding cannot categorically be said to hold for all organisations, it is possible that the relationship between resource management and environmental scanning is at best weak, or exists only under circumstances that were not encountered in the current empirical work. The fact that resource management activities are defined as being exclusively concerned with internal matters, and that the present research is focused on external environmental scanning, may assist in explaining the lack of findings in this area.

7.6.4   Strategy choice

As noted in Section 2.6.4, the *strategy choice* area of activity is where decisions are made about courses of action that are designed to achieve objectives chosen as part of the strategic intent area of the process. Table 7.16 contains a breakdown of the relevant mediating variables in each case, with associated drivers and environment sectors assigned, in the same way as in the two preceding analyses. Figure 7.10 shows the model of links between drivers of scanning activity, strategy choice and specific sectors of the environment.

Table 7.16: Mediating variables and associated drivers for strategy choice

| Case	Mediating Variables	Associated Drivers	Environment Sectors
F	Determination of political and financial risk	Opportunity Evaluation (d)	Reg
		Opportunity Search (i)	Comp/Tech
D	Decision discussions with corporate management	Effect PEU Internal (d)	-
A	Frequent hedging decisions	Decision Support (i)	Econ
		Budgeting and Forecasting (i)	Econ
		State PEU (d)	Econ
	Economic analysis gathering	Decision Support (d)	Econ
		Budgeting and Forecasting (d)	Econ
		State PEU (d)	Econ
B	Portfolio decisions	Opportunity Search (i)	Tech
		Opportunity Evaluation (i)	Econ/Reg/Tech
E	Management of risk	Decision Support (d)	Comp/Cust
		Regulatory Requirement (d)	-
G	-	-	-
C	Ongoing strategic discussions	Decision Support (d)	Comp/Tech
		Effect PEU (d)	Reg
		Response PEU (d)	Econ/Reg

(d) = direct link

(i) = indirect link
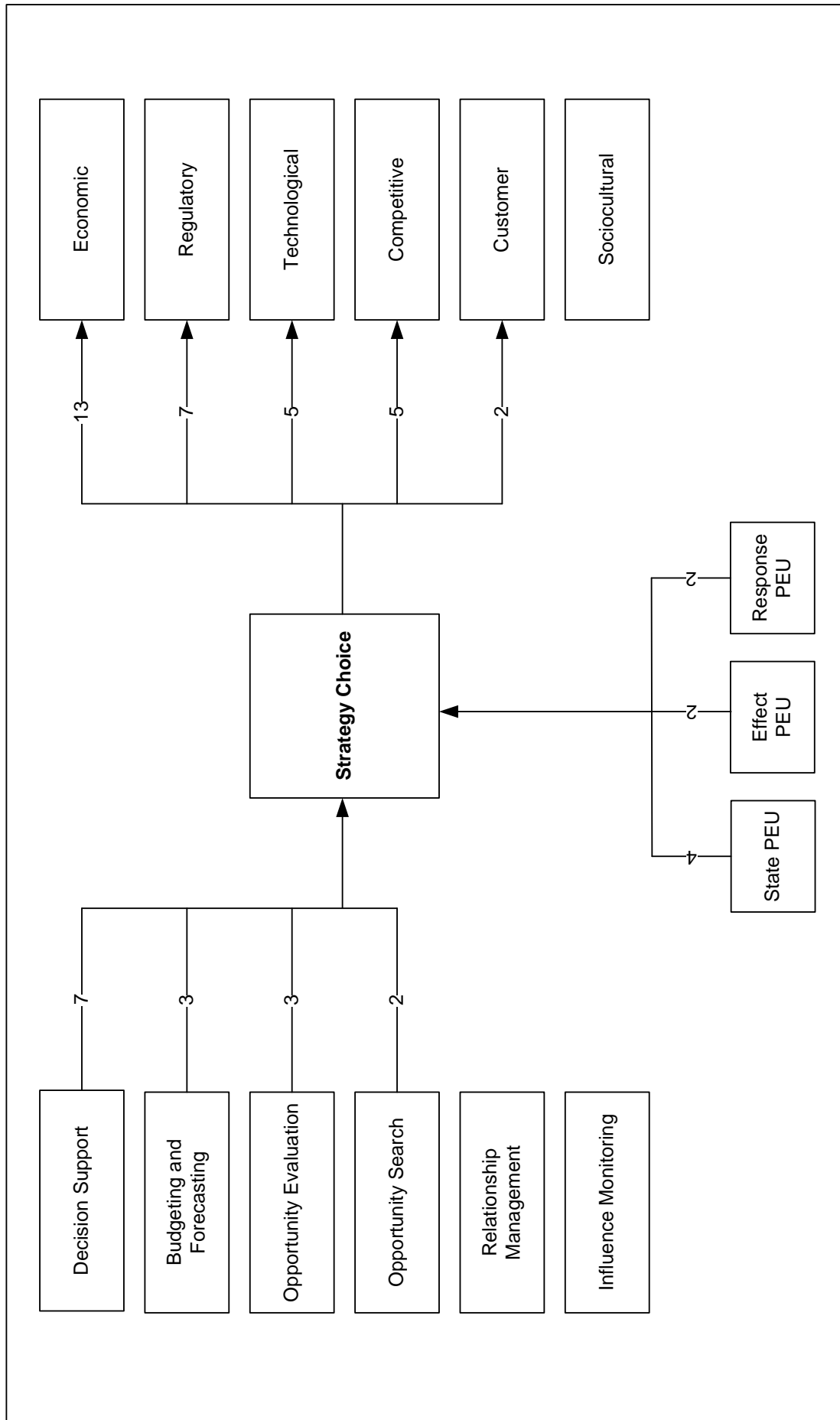
Figure 7.10: Scanning drivers, PEU types and environment sectors scanned in relation to strategy choice

In this area of strategic activity, links with scanning are generally weaker than in the two areas already examined, perhaps due to the nature of the activities themselves. These include portfolio decisions (B), management of risk on existing operations (E), assessment of risk in potential ventures (F), informal discussions surrounding strategic issues (C), and hedging decisions (A). No links between scanning and strategy choice were observed in company G.

The driver of scanning most strongly linked to strategy choice activities was decision support. Weaker links were also observed with budgeting and forecasting and opportunity search/evaluation. Here decisions were being made that resulted in commitment of capital expenditure, so specific information from the external environment was being sought to support these decisions or produce forecasts and budgets that would assist in making these decisions. The relationship management and influence monitoring drivers do not appear to be linked to this area of strategic activity.

This is the only area of activity where response PEU appeared to be linked to scanning. Given that this is the point at which organisations decide on specific courses of action, the existence of response PEU is to be expected. Here companies unsure of their response to a particular situation may scan the environment to reduce uncertainty before making that decision. Therefore, it is to be expected that response PEU is linked only with this area of strategic activity.

The economic environment was most strongly linked to strategy choice, followed by the regulatory environment. It appears that, at this stage of the process, attention on the external environment has turned back towards these two general environment sectors. The competitive and technological environments showed some links, the customer environment showed weak links and the sociocultural environment was not linked at all.

Given the nature of the activities at this point, scanning of the external environment may be more of a fact-checking exercise before a financial commitment is made, as opposed to a detailed analysis of specific issues as was apparent in the environmental interaction area of activity.

7.6.5   *Implementation*

As discussed in Section 2.6.5, *implementation* involves putting strategic decisions into operation, including establishing organisational structures, deploying and redeploying

resources, and monitoring outcomes and performance at various levels. Despite often being viewed as separate from other strategic activities, implementation still involved scanning of the external environment by all seven organisations.

Table 7.17 shows the various activities across the seven organisations that were classified as implementation in Chapter 6. Associated drivers and environment sectors are also included. It appears from the table that there is some tendency for larger organisations to scan more widely than smaller ones, but the limited range of activities at this stage of the process means that this observation may not hold true in practice.

Again there are commonalities among the activities in this area. Some form of budgeting exercise, separate from or alongside operations planning, was apparent in most of the organisations. The other activity of note was performance management, through scorecards (E) or benchmarking against competitors (G).

Table 7.17: Mediating variables and associated drivers for implementation

Case	Mediating Variables	Associated Drivers	Environment Sectors
F	Ad hoc budgeting exercises	Budgeting and Forecasting (d)	Econ
D	Short operational planning cycle	Effect PEU Internal (i)	-
		Opportunity Evaluation (i)	Reg
A	Short-term planning and objectives cycle	Budgeting and Forecasting (d)	Econ
B	In-country operations management	Relationship Management (d)	Reg/Cust
		Influence Monitoring (d)	Comp
E	Management of performance through scorecard system	Influence Monitoring (d)	Econ/Soc
	Financial planning	Budgeting and Forecasting (d)	Econ
G	Benchmarking for performance management	Influence Monitoring (d)	Soc/Tech
C	Detailed financial planning	Budgeting and Forecasting (d)	Econ/Tech

(d) = direct link

(i) = indirect link

Figure 7.11 shows the model of implementation, scanning drivers and environment sectors developed from the information in Table 7.17.
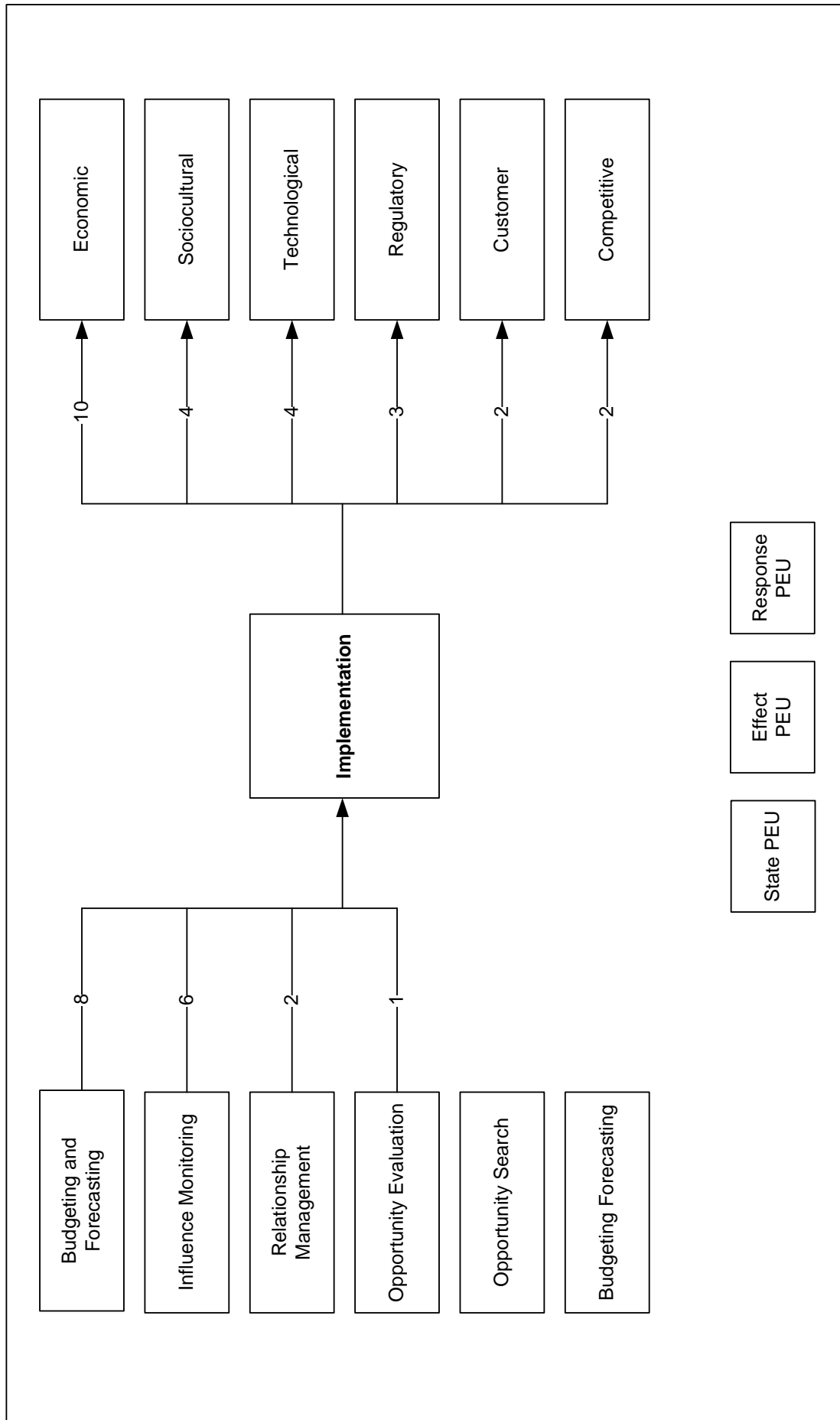
Figure 7.11: Scanning drivers, PEU types and environment sectors scanned in relation to implementation

In general links between scanning and this area of strategic activity were limited. The driver most strongly linked to implementation was budgeting and forecasting, meaning that information was gathered from the environment at this stage of the process to develop budgets and forecasts as part of operational planning activities. The next driver was influence monitoring, which is related to the control and performance management activities. A weak link with relationship management was also observed, suggesting that perhaps this area of strategic activity involves some maintenance rather than establishment of relationships in the external environment. Other drivers showed little or no relation to implementation.

The economic environment was linked most strongly to implementation, perhaps due to the emphasis on budgeting activities at this stage. Other sectors showed relatively weak links to implementation. Overall, implementation was linked less strongly to scanning of the external environment than the other areas of strategic activity identified and defined in Section 2.6. The main focus of activities in this area tended to be internal factors, and information from the external environment was sought out only for budgeting or more passively for the purpose of monitoring external influences.

7.6.6   *Cross-sector discussion*

It appears from the preceding analysis that, in the group of organisations studied, both reasons for scanning the environment and sectors of the environment scanned changed depending on the area of the strategy process to which the scanning activity was related. This sub-section examines the preceding findings across the different areas of strategic activity. Evidence presented in this section is then used, along with evidence from preceding sections, to develop a model of environmental scanning and the strategy process in Section 7.7.

Table 7.18 breaks scanning of the six environment sectors down by the four relevant areas of the strategy process. In the sample organisations it appears that the competitive, economic and customer sectors are more important when activities concerned with strategic intent are being conducted, while the regulatory, customer and technological sectors are of most importance during external interaction. The competitive, economic and sociocultural environments, while still scanned for information, fade into the relative background. The economic environment again comes to the fore when considering choice and implementation activities.

Table 7.18: Environment sectors by strategy process area

Sector	Strategic Intent	External Interaction	Strategy Choice	Implementation
Economic	10	1	13	10
Sociocultural	5	9	0	4
Regulatory	3	41	7	3
Customer	10	35	2	2
Competitive	9	17	5	2
Technological	5	30	5	4
Total	**42**	**133**	**32**	**25**

Table 7.19 shows drivers of scanning activity by strategy process area. The shift in drivers over the different areas suggests that the environment is scanned for different reasons at different stages of the strategy process.

Table 7.19: Scanning drivers by strategy process area

Driver	Strategic Intent	External Interaction	Strategy Choice	Implementation
Opportunity Search	3	18	2	0
Opportunity Evaluation	2	2	3	1
Decision Support	11	4	7	0
Relationship Management	1	21	0	2
Influence Monitoring	4	12	0	6
Budgeting and Forecasting	1	2	3	8
Total	**22**	**59**	**15**	**17**

Decision support appears to be the main reason for scanning the environment when considering strategic intent. With regard to external interaction, it appears that organisations are driven to scan by the need to manage relationships, search for opportunities and monitor outside influences. As noted in Section 7.6.2, this is related to the three categories of activity that emerged from the empirical data. *Watching* the environment resulted in scanning for both opportunity search and influence monitoring purposes, *analysing* the environment occurred for opportunity search purposes, and *engaging* with the environment occurred for relationship management purposes.

Strategy choice is supported by scanning mainly for decision support purposes, while implementation is supported by scanning for budgeting and forecasting purposes, with an element of ongoing influence monitoring.

Table 7.20 shows PEU types by strategy process area. PEU appeared to have no relationship with scanning for implementation purposes, but was related to the other three areas of the strategy process.

Table 7.20: PEU types by strategy process area

Sector	Strategic Intent	External Interaction	Strategy Choice	Implementation
State	1	12	4	0
Effect	0	2	2	0
Response	0	0	2	0
Total	**1**	**14**	**8**	**0**

Evidence exists to suggest that state PEU is linked to scanning for external interaction and strategy choice purposes, and there is limited evidence of a weak link between state PEU and strategic intent.

Effect PEU was linked to both external interaction and choice. The overall link between effect PEU and external interaction was weak, but the aggregate result masks the true nature of the relationship. For smaller organisations, effect PEU actually discouraged scanning connected within this area of the strategy process. That negative relationship between effect PEU and scanning noted in Section 7.5.5 almost cancelled out the positive relationship between effect PEU and scanning for larger organisations.

Response PEU was found in only one organisation and it was related to scanning in the strategy choice area of activity. This is of little surprise, given that this area of activity is concerned with making decisions, which could alternatively be conceptualised as formulating responses to issues.

7.6.7   *Links between scanning and strategy process elements: summary*

Overall the strongest links between scanning and the strategy process seemed to be in the external interaction area of activity, followed by strategic intent and strategy choice. Scanning was also observed to be related to implementation. The picture presented in the preceding section is one of scanning the external environment being a pervasive and

extensive part of the strategy process, related strongly to activities explicitly conducted to watch, analyse and engage with the environment, but also related to other activities which were not explicitly concerned with interaction with the environment in different ways. The findings in this section, combined with those from preceding sections, form the basis of the model of environmental scanning and the strategy process that is developed in the final section of this chapter.

7.7   Developing a model of environmental scanning and the strategy process

In Chapter 4, Section 4.4.1, an integrated conceptual framework of environmental scanning and the strategy process was proposed based on the review of literature presented in Chapters 2 and 3. This is reproduced in Figure 7.12. The framework consisted of strategy process elements, placed within the organisation, and elements of scanning and the external environment, placed outside the organisation.

The conceptual framework can be used as the foundation for a model of environmental scanning and the strategy process. This can be developed in light of the evidence presented in the cross-case analysis. The model is presented in Figure 7.13, directly after the re-presentation of the conceptual framework. A number of elaborations and adjustments have been made, which are discussed after the model is presented. Strategy process elements and environmental scanning concepts are shaded grey in both diagrams to allow the reader to follow the changes from one to the other.
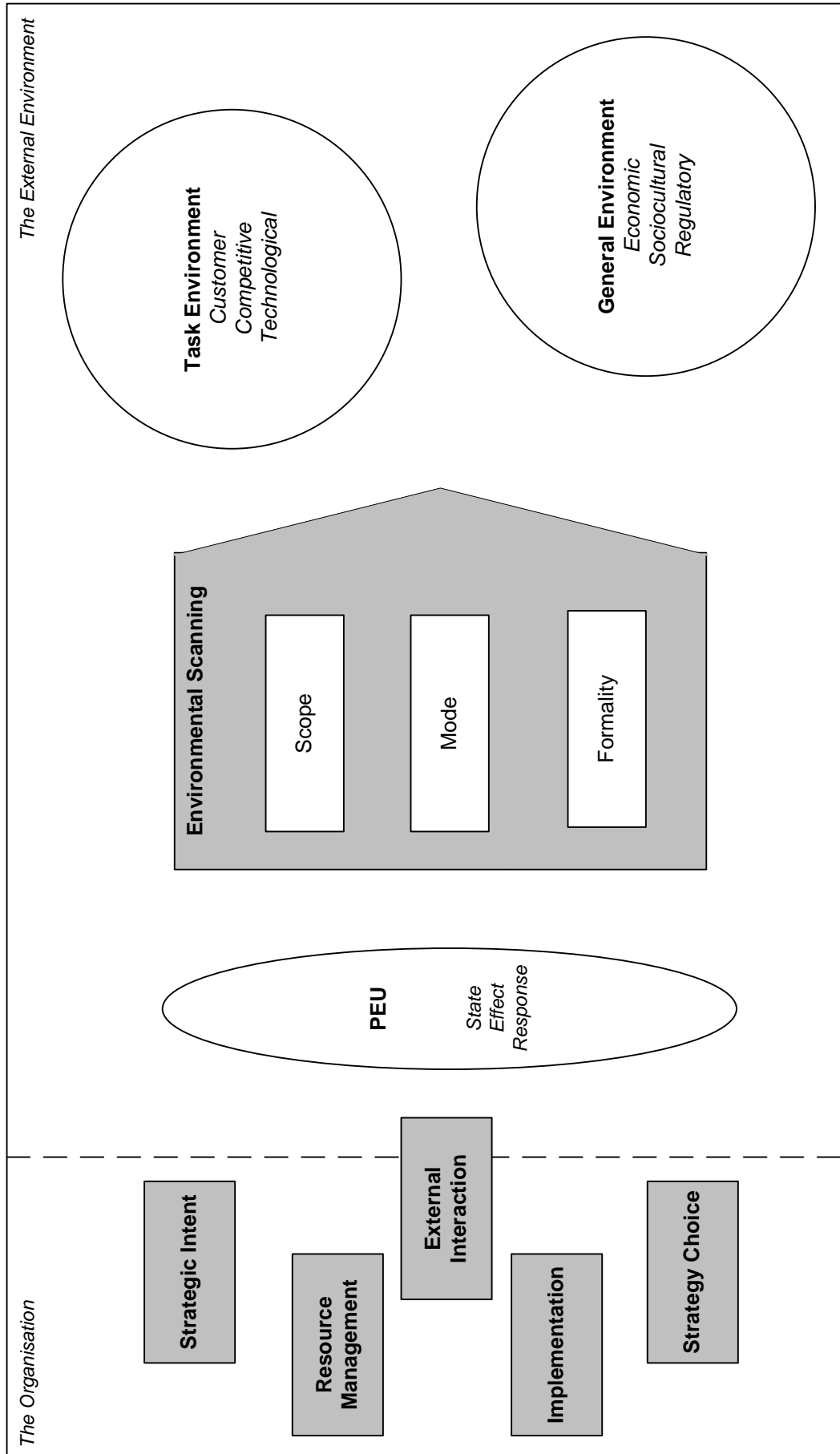
Figure 7.12: Conceptual framework: environmental scanning and the strategy process (same as Figure 4.1)
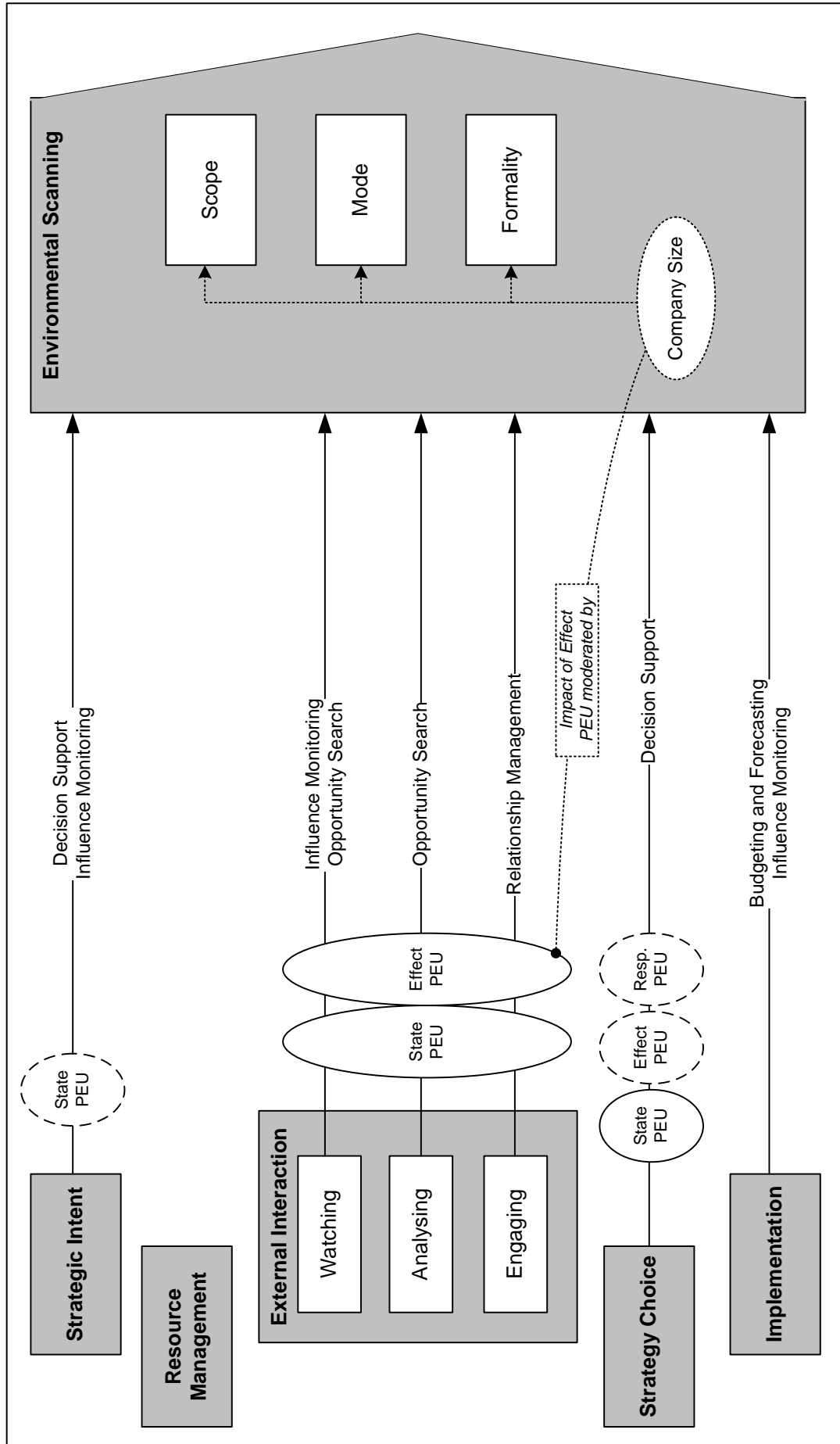
Figure 7.13: Model of environmental scanning and strategy process areas

Development of the model involved a number of changes to the conceptual framework, involving removal, adjustment and addition of some concepts as follows.

- The model is intended to show relationships between scanning activity and strategy process elements, so the task and general environments, along with the split between the organisation and the environment, were removed entirely.

- The external interaction activity has been split into its three empirically observed activities of watching, analysing and engaging. This provides a further level of detail on the nature of strategic activities that might comprise this part of the strategy process.

- The PEU filter has been split into the three constituent types – state, effect and response uncertainty – because of their varying impact on scanning activity.

- The concept of company size has been added to the environmental scanning box because of its importance as an influence on scope, mode and formality of scanning activity in the seven organisations studied.

At this point the salient concepts were laid out and links between the various areas of the strategy process and environmental scanning developed. The strongest scanning drivers associated with each area of activity were used to characterise the links in the diagram. Links between strategy process elements and environmental scanning were modelled as follows.

- There is a link between strategic intent and environmental scanning. In this part of the strategy process the link involves scanning for decision support purposes and a weaker element of influence monitoring. This is based on evidence presented in Section 7.6.1.

- There are links between the different types of external interaction and environmental scanning. The environment is watched when searching for opportunities and when monitoring outside influences. Analysis of the environment is associated with searching for opportunities, and engaging with the environment is conducted to manage relationships. This is based on the evidence presented in Section 7.6.2

- No links are shown between resource management and environmental scanning, based on the lack of empirical evidence for such links, noted in Section 7.6.3.

- Activities concerned with strategy choice are linked with environmental scanning. At this point the links are through scanning to support strategic decisions. This link is based on evidence presented in Section 7.6.4.

- Implementation activities are also linked to environmental scanning, through budgeting and forecasting, and influence monitoring activities, based on the evidence presented in Section 7.6.5.

Splitting PEU into its three constituent types allowed the various relationships identified in Sections 7.5 and 7.6 to be included in the model. Relevant PEU types are shown as filters on individual links, solid outlines indicating strong association and dotted outlines indicating weak association as follows.

- State PEU exhibited a strong association with scanning related to external interaction and strategy choice activities, and a weak association with scanning for strategic intent.

- Effect PEU was seen to have a strong association with scanning related to external interaction. This positive relationship was, however, moderated by the size of the organisation. As noted in Section 7.6.2, effect PEU in smaller organisations tended to result in lower levels of scanning than would otherwise be the case. Effect PEU also exhibited a weak association with scanning for strategy choice activities.

- Response PEU exhibited only one weak link with scanning for strategy choice, as discussed in Section 7.6.4.

Finally the nature of scanning activity itself was included in the model. As noted above, company size was added to the environmental scanning box. Given the evidence gathered on the influence of size in Sections 7.3 and 7.4, it was linked to the three scanning characteristics of scope, mode and formality.

The conceptual framework was a graphical representation of relevant concepts that emerged from existing literature as being worthy of further investigation. The framework has at this point been developed into a model of strategy process elements and their links with environmental scanning, using the empirical evidence presented in preceding sections. Note that the purpose of the model is not to show links between different areas of the strategy process, so none are shown in Figure 7.13. That is not to

say that they do not exist; rather they are not shown because they were not the focus of the present research.

7.8   Conclusion

This chapter has presented a detailed cross-case analysis of the organisations examined sequentially in Chapter 6. A number of patterns and relationships have been identified, relating to various scanning variables. The size of the organisation has emerged as an important influence on the way in which scanning is conducted. Both size of organisation and strategic approach of the organisation appeared to influence the reasons the organisations scanned their environments. PEU was seen to have a mixed impact on scanning depending on size of organisation and on uncertainty type.

The analysis of scanning and the strategy process has revealed that scanning is linked to various areas of strategic activity in different ways. Different environment sectors and drivers of scanning were observed to relate to different areas of the strategy process. The model proposed at the end of this chapter is an elaboration of existing concepts from the literature, using the empirical evidence gathered through the seven case studies.

While the cross-case analysis contains the most important outcomes of the empirical stage of the research, it is not yet complete. The next chapter represents the last part of the empirical stage of the research. It contains findings from the validation study, which was conducted to test the robustness of the findings.

Chapter 8:   Findings: Validation Exercise

8.1   Introduction

This short chapter contains findings from the validation exercise, which was conducted both to test outcomes of the in-case analyses and to discuss with respondents potential implications for practice of the research outcomes. As noted in Section 5.5.4, validation involved re-visiting three of the sample organisations to present the outcomes of their in-case analyses and their place in the wider sample. One small company (D), one medium company (B), and one large company (E) participated in the validation exercise.

The intention of this chapter is not to work through each company in detail; rather it is to explore whether the individual analyses were robust, and to highlight areas of particular interest emerging from the validation interviews.

This chapter is divided into two sections, the first examining scope, mode and formality of scanning, and the second looking at drivers, PEU types and verification of the causal networks.

8.2   Scope, mode and formality of scanning

The exact questions asked in the validation interviews were specific to the company in question, but they followed a similar structure to those in the in-case report. After an introduction by the researcher, involving a discussion of the thesis title and review of the research aim, some initial questions were posed regarding scanning activity in the organisation. These are provided in Appendix E, Section E.1.

To facilitate discussion, respondents were provided with a copy of Figure 8.1, which summarises scope of scanning, and Figure 8.2 on scanning modes, which is a copy of Figure 3.5.
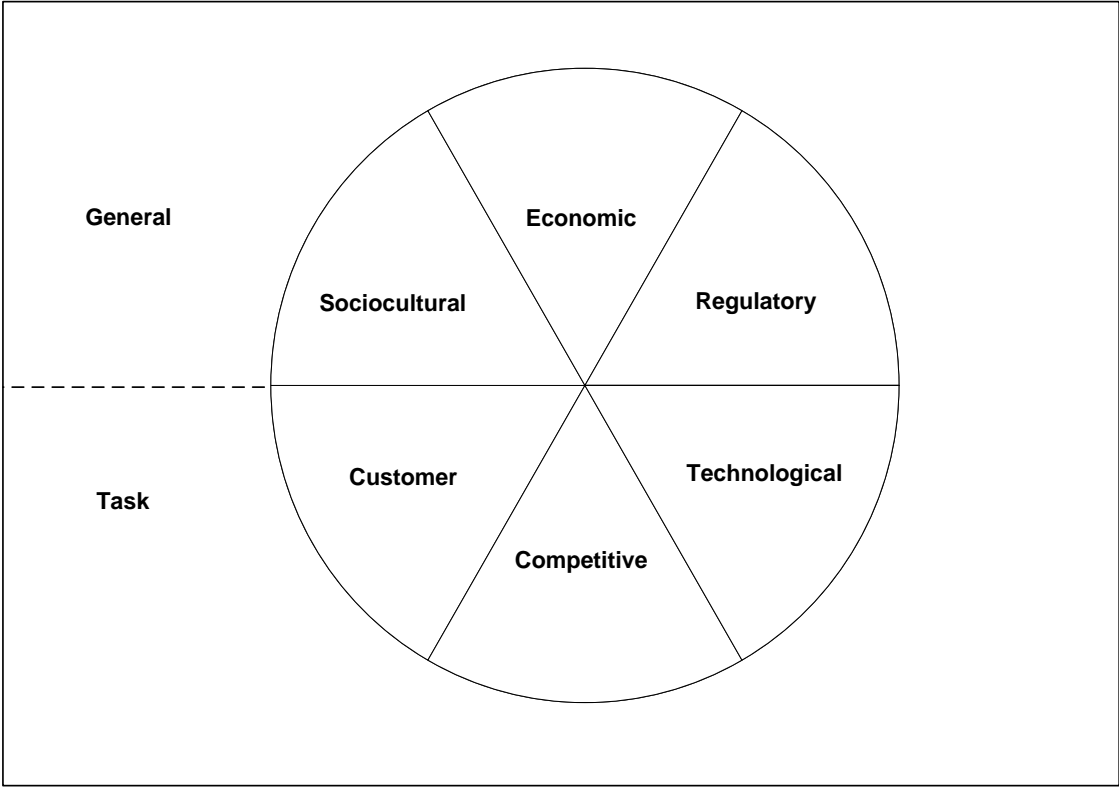
Figure 8.1: Six environment sectors provided for scope discussion

Figure 8.2: Four scanning modes, with source examples (copy of figure 3.5)

All three companies agreed with findings regarding both formality and scope of scanning. When asked to identify the sectors of most interest to them, answers reflected those shown in Table 7.2. In reference to Figure 8.1, the respondent in company B seemed surprised that the regulatory environment would be placed in the general rather than the task environment:

> *'Because it's interesting that regulatory comes under "task". For example, in our world we need to convince the regulator that the work we are doing is appropriate – and hence receive whatever, a letter or a permit – so there's very much a task focus toward that part of our environment.' (company B)*

Company D's impression of scanning scope was also in broad agreement with the outcomes of the analysis, a particular interest in the customer and competitive environments being observed at the time interviews were being conducted:

> *'I think the competitive and customer environments were something we were very much looking at. A lot of the other things take care of themselves […] but the regulatory [environment]: that's a thing you need to be aware of.' (company D)*

Company E's response was similar to that of company B and implied that the regulatory environment was something that was considered part of the task environment:

> *'Customer and regulatory determines what we do […] technology is just a means to an end. […] It's putting it online… well, what's not online? That's not a thing; it's just how we do stuff.' (company E)*

Further discussion with the respondent from company E resulted in a useful outcome for the respondent, who worked in the corporate strategy team. A concern was voiced that the company was not gathering and using competitive intelligence in a useful way. At this point the researcher was able to explain the company's system of producing internal reports using existing knowledge from sales teams that interacted with the environment on a regular basis. It was also noted that the content of these reports was tailored to the requirements of decision makers. The response was as follows:

> *'You know more about what he does than I do. I think that's very good; I wasn't that aware that we did that, frankly. I think it's good that we do that, because*

> *for corporate schemes and workplace things, we do pitch regularly and there is a new requirement that every workplace scheme is re-brokered, I think it's every three years now. A lot of that information will be coming through then.' (company E)*

The respondent in company D had some interesting observations regarding the sociocultural environment in response to a comment by the researcher that it was generally of little interest across the small and medium organisations in the sample:

> *'I look at that as rich people's problems. Not that I'm disinterested in it, but I wish we had somebody more than just me who can take care of this stuff.' (company D)*

Regarding scanning mode, respondents were in broad agreement with the findings presented. In particular, the respondent from company B provided an interesting vignette that lends some support to both the mode relationship networks in Section 7.4.3 and the tentative model of modes over time in Section 7.4.4. With regard to developing a better understanding of the regulatory environment in a particular country, the following was noted:

> *'I think the background documents get us started, but in the end you just go and meet them. I see it as a cycle, the way our team does it. For example, if you wanted to better understand the regulator, you wouldn't just pile into a one-to-one meeting. You'd do some work, you'd identify the internal/external sources that could supplement what you've got, and eventually you'd have to go and test that by meeting them.' (company B)*

The respondent from company D, while in broad agreement with the limited usefulness of industry databases, provided an anecdote that could perhaps explain the scepticism with which some of the earlier respondents treated such reports:

> *'Most of the things that get in [to the database], if anything gets in there about us we generally planted it there. So there is a bit of messaging that goes both ways. So you read it up there and then go to the source and you go to people who might know some more about things.' (company D)*

Finally, it was noted in Section 7.3, and in other parts of the cross-case analysis, that company D appeared to be an outlier, behaving more like one might expect from a large company than a company of its size. A number of reasons for this were proposed in Chapter 7, such as the fact that the company was an autonomous SBU in a larger organisation, that it was relatively recently formed, or that managers had previously worked in larger organisations. When the respondent was asked why their behaviour might be different from that of other small organisations, he was of the opinion that differences could be explained by educational background:

> *'I guess there were quite a few personal reasons in that. Partly I'd just come out of that MBA programme. There were also a couple of guys you met: [respondent 2], he's a very process-oriented guy. I'm actually a lot more emergent, really, in a lot of things I do. I'm also able to recognise that having some underpinning structure is actually good for me and I think good for general efficiency. That kind of structured approach is good to have without having too much. You don't want to get rid of the creativity and the fast-moving, fast-reacting ability of some of these companies.' (company D)*

Overall, responses to questions regarding the researcher's assessment of scanning activity in the three organisations seemed to support the outcomes of the respective analysis presented in Chapter 6.

8.3   Drivers, PEU types and causal network verification

Following the discussion of scanning activity, respondents were provided with a copy of the causal network developed for their organisation. This formed the basis for the remainder of the interview, which involved taking respondents through their causal network and discussing the relevant drivers, PEU types and causal links. Questions used as part of this process are provided in Appendix E, Section E.2. Again the exercise provided broad support for the analyses that had been conducted.

With regard to scanning drivers, the respondent from company E confirmed that the regulatory requirements that the company needed to satisfy drove part of their environmental scanning efforts:

> *'I think our regulators require us to have an emerging risk process. They certainly require us to run economic scenarios, but they don't tell us what those*

> *should be. It's up to us to say, "Here are the things that are important in our*
> *environment. Here are the things that could change in those things. This is what*
> *it could mean for a whole range of metrics. If we applied those metrics to our*
> *numbers, what would those numbers look like?"' (company E)*

The respondent from company D felt that relationship management was an entirely appropriate driver of scanning activity in his own context:

> *'Yes, a lot of the times you'd be dealing with local content issues in various*
> *countries, so you can't just rock up with your kit and gear because you cannot*
> *qualify unless you come under some sort of local regime, which involves*
> *establishing and maintaining various relationships.' (company D)*

Regarding PEU, the respondent in company D was interested in the idea of state uncertainty as it applied to the customer environment. The state PEU identified in the main fieldwork had been resolved by the time of the validation interview:

> *'I think at the time [whether customers would accept a new entrant or not] was*
> *still something that we were a little unsure about. In the end we got most*
> *attention from the bigger players, because we had correctly identified that there*
> *was a monopoly situation in the market where one company was utterly*
> *dominant in [region A] and one in [region B].' (company D)*

In company B, state PEU had been observed to increase the level of scanning activity in the economic sector, specifically regarding the oil price. When this was proposed to the respondent, the following was noted:

> *'Rather than the state of it, it's the effect of it that's of interest. Otherwise, why*
> *would we be interested in it? We're only interested because of the effect it might*
> *have [on our costs].' (company B)*

This is in direct contrast to the outcomes of Section 6.3.3, where the same respondent noted that the company, while being interested in the oil price, was not interested in its impact on costs. This could perhaps be explained by the changes in the external environment that had occurred between the main fieldwork and the validation interview: the price of oil had dropped from a near all-time high of $120 per barrel to around $55. While this does not invalidate the findings from the in-case analysis, it does suggest that

PEU is a dynamic phenomenon that can change in terms of both type and impact depending on changes in the environment.

Regarding the causal networks themselves, respondents were taken through each driver and PEU type, following each causal chain from driver to outcome. The networks received general support from all three respondents. In addition, respondents were provided with a copy of the causal networks to reflect upon and were asked to provide further feedback if anything came to mind. In the end, no further points were raised, suggesting that the causal networks had captured a reasonably accurate picture of the relationships in each of the three cases.

While it was not the intention of the validation exercise to find support for the process-based approach, some was nevertheless provided by the respondent in company B, who showed interest in the five strategy process elements as a possible basis for organising strategic activity in the organisation. The following was said when the respondent was shown a list of the five areas of activity:

> *'That's quite a useful breakdown. I can't talk specifically about some of the things we're doing at the moment, but we've been using the word "strategy" a lot. Indeed, we have a particular intention, we've tested that externally – or tried to negotiate it – and considered the implication in terms of activities and resources [and] based on that we've made some decisions. [...] That's a very interesting list.' (company B)*

As in the previous section, responses to questions and the outcome of subsequent discussions appeared to suggest that the analytical approach taken was valid, and that the outcomes of the in-case analyses were robust.

8.4   Conclusion

The final part of the empirical stage of the research presented in this chapter provides reassuring support for the initial analyses of companies B, D and E. These three cases represent a reasonable cross-section of the overall sample, being one small, one medium and one large company. Therefore, some weight has been lent to the suggestion that the empirical findings presented in Chapters 6 and 7 are sufficiently robust for the purposes of the present research. The findings now need to be placed in the wider context, which is the purpose of the next chapter.

Chapter 9:   Discussion

9.1   Introduction

This chapter reconciles empirical findings presented in the preceding three chapters with the literature base examined in the theoretical chapters at the start of the thesis.

While the research questions were addressed briefly at the end of each in-case report in Chapter 6, they need to be addressed holistically in light of the outcomes of the cross-case analysis. That is the premise of the first part of this chapter. Next, these answers are examined in relation to existing literature, and areas of agreement and disagreement are highlighted. Finally, the stance of the present research regarding environmental scanning is discussed and some propositions are developed. It is in this chapter that the research outcomes, as discussed in Section 5.2, are presented.

9.2   Addressing the research questions

The aim of the present research is to examine how and for what reasons organisations scan their environments, and how this scanning relates to their strategy processes. After completion of the empirical stage of the research, the four questions proposed in Section 4.3 to guide the empirical work can now be addressed. These are taken in turn in this section with each sub-section related to one of the research questions. At the end of this section the overall research aim is considered in light of the answers to the four questions.

As discussed in section 5.4.2, these findings presented in this these are not, in themselves, generalisable to all organisations. They may, however, be indicative of wider practice given the relatively heterogeneous sample of companies and the degree of replication across case studies.

9.2.1   How do organisations scan their environments?

A variety of approaches to scanning the environment were evident. The use or otherwise of a formal system was different in each case, with larger companies having more structured approaches to scanning the environment than the smaller companies in the sample. This distinction was not clear-cut, however, and while formality appeared to increase with size, mixed approaches were found in some organisations. For example, company A, a medium-sized company, scanned two sectors of the

environment through a loosely defined organisational system, with a specific person assigned to gather and analyse information on those sectors.

Even when formal systems were in place, informal scanning, either active or passive, was sometimes still evident. In companies E and G, for example, periodic meetings were held to allow senior management to reflect on the environment and their understanding of it, the outcome being a system that took account of both individual and organisational scanning.

Regarding the scope of scanning, larger organisations appeared to have wider engagement with their environments than the smaller organisations, scanning more sectors of the environment and having more interest in these sectors. A ranking of sectors in order of interest across the seven cases noted that the economic environment was of most interest, followed by the competitive, regulatory, customer and technological environments. The sociocultural environment was a distant last.

Companies tended to have a stronger interest in the sectors that were scanned using organisational rather than individual means. For example, in Table 7.3 company A was seen to have a strong interest in the economic and competitive sectors, and in Table 7.4 it is noted that these were the two sectors scanned using organisational means. Companies also tended to have a stronger interest in sectors that they saw as closest to them.

Company D appeared to be an outlier with regard to scope and formality of scanning, scanning more widely and in a more formal manner than one would expect from a company of its size. In Chapter 7 it was proposed that this might be because the managers of the company had previously spent time working in large organisations, because the company was a semi-autonomous SBU of another company, or because of the relatively short time since its foundation. Possible reasons for company D's approach to scanning were explored during the validation exercise, however, and the manager of the division seemed to place most emphasis for the approach on his educational background of and that of his counterpart, who dealt with operations.

The investigation of scanning mode produced some interesting results. A preference for personal sources emerged on a case-by-case basis, but the cross-case analysis revealed a more complex picture.

When looking at impersonal modes, external sources were favoured across all sectors. That said, some sectors were scanned using both internal and external sources. These tended to be the sectors that were of most interest, or those scanned by organisational means. To some extent this is to be expected, because where organisational systems are in place, reports are likely to be produced on certain sectors of the environment that are prioritised for scanning, resulting in the use of both internal and external impersonal sources.

An exception to the preference for external sources of impersonal information was company C, which eschewed externally sourced impersonal information in favour of personal sources or internal impersonal sources. This could perhaps be attributed to the fact that significant resources were devoted to the organisational approach to scanning, and to the fact that the company had built up a reputation for publishing periodic reports on the external environment.

Regarding personal modes, preferences of internal versus external appeared to be mixed. Personal modes were less likely to be used to scan the economic and sociocultural environments overall and, when they were, a preference for internal sources was noted. In the other four sectors a preference for externally sourced information from personal sources was exhibited. The three most popular sources of information overall were all personal sources. Specifically, these were individuals working inside the organisation, individuals working at a customer or partner, and industry networks and professional bodies.

Of course, the use of one information source does not preclude the use of another. The approach taken in the present research allowed a number of relationships between different scanning modes to be examined. In Section 7.4.3, a number of mode relationship networks were developed, showing a variety of scanning modes across organisations, depending on size.

The large organisations, given their complex structures and multiple groups scanning the environment, tended to make use of all four categories of information source, with strategy teams gathering personal and impersonal information from external sources, along with some element of internal personal information from employees whose role happened to involve facing some aspect of the external environment. These were then

collated into reports for decision makers, who relied on these internal impersonal sources for their information on the environment.

The two medium organisations tended towards a direct relationship between the external-facing employees and decision makers, resulting in use of internal personal, rather than impersonal, sources to make the link between external-facing employees and decision makers. The small organisations exhibited a direct link between decision makers and the environment, resulting in external sources, both impersonal and personal, being used. This is perhaps unsurprising, given that small organisations are limited in terms of the number of people available, firstly to scan their own environment and secondly to act as an internal personal source of information.

A final dimension to this argument is the way in which scanning mode can change over time. It was noted in Section 7.4.4 that all organisations appeared to start scanning using external impersonal sources of information. These sources were, in most cases, used to gather preliminary information that would precipitate the need for further scanning regarding a particular issue. Further investigation tended to require the use of some kind of personal source, depending on the company and the situation. In the larger companies, information from these personal sources were then collated and prepared as internal impersonal sources for use by decision makers. Given the nature of the empirical data used, findings regarding modes over time are tentative. They could, however, form the basis of further empirical work in the future.

In summary, a variety of approaches to scanning the environment were seen across the seven cases, mainly depending on the size of the organisation in question. The organisations used a mixture of formal and informal processes to look at a mixture of different issues in the environment. Even formal systems designed to systematically gather and analyse information on the external environment made some use of individuals who, either passively or actively, scanned their immediate environment.

Information sources used were diverse, and an explicit movement from one source of information to another is something that emerged from the data gathered. Another point of interest is how sources used by different groups of individuals across the organisation to build a picture of events in the external environment changed according to the size of organisation.

9.2.2   What motivates organisations to scan their environments?

Six drivers emerged from the cross-case analysis, as discussed in Section 7.5.1.   The organisations studied scanned their environments for a number of reasons, some company-specific and others replicated across multiple cases.   Six frequently observed drivers that would cause organisations to look for information on the external environment were identified: *opportunity search*, *opportunity evaluation*, *decision support*, *relationship management*, *influence monitoring* and *budgeting and forecasting*. The fact that all of these were replicated across a number of cases suggests that results are indicative of what might drive environmental scanning in other organisations.

The most frequently observed drivers were relationship management and opportunity search.   These, along with budgeting and forecasting and influence monitoring, were observed in five of the seven cases.   One of the drivers, decision support, was exclusive to medium and large companies in the sample (A, C, E and G).   It is of note that these four organisations all had some kind of formal system in place for gathering and analysing information on the environment.   It is possible that this driver is found only in organisations that formally assign scanning activities to employees.   These employees then gather information that is prepared for use by decision makers.

It was proposed in Section 7.5.3 that there was some relationship between what drives an organisation to scan its environment and its strategic orientation.   Prospectors were motivated to scan the environment more for opportunity search and opportunity evaluation purposes, while those classified as analysers scanned the environment more for decision support and influence monitoring purposes.   With regard to the defender organisations, their motivations for scanning the environment were more concerned with managing relationships and supporting strategic decisions.

It was proposed in Section 7.5.4 that the scanning drivers that emerged could be used to propose how scanning of different sectors of the environment might work over time. The drivers were placed in a logical time order and associated environment sectors mapped onto this time order.   A model was proposed (shown in Figure 7.7) of how organisations with different strategic orientations might scan sectors of the environment over time.   These findings are tentative, given the cross-sectional nature of the data collected, but again may form the basis for future empirical investigations.

9.2.3   *What is the impact of perceived environmental uncertainty on scanning?*

PEU was observed in all seven cases and in all sectors of the environment apart from the sociocultural sector and was apparent most often in the regulatory and economic sectors. These latter sectors were also the most commonly scanned across the seven cases, as discussed in Section 9.2.1. The effect of PEU on scanning, however, changed according to the type of PEU and the company in which it was observed, as noted in Table 7.11.

In general, PEU of all types appeared to encourage scanning of a particular sector of the environment.   Thus, state PEU observed in the customer and technological environments always appeared to encourage scanning of those environments. While state PEU was observed to actually encourage scanning of the other sectors of the environment in most cases, it appeared to discourage scanning of the competitive and economic sectors in one organisation.

The impact of effect PEU, on the other hand, was observed to be more ambiguous. Of the eight instances of effect PEU found, four of them appeared to discourage scanning. These were all located in the economic, regulatory and competitive environments. Effect PEU in the economic environment always seemed to have a negative impact on scanning activity.   Only two instances of response PEU were observed, both in company C, in the regulatory and economic environments.

The impact of PEU appeared to depend on the organisation in which it was observed. Larger companies appeared to scan sectors where PEU was apparent, while smaller companies took a mixed approach. In companies B, D, and F for example, effect PEU always appeared to have a negative impact on scanning. These three organisations were the prospector organisations in the sample. The negative impact of state PEU was observed only in the small organisations (D and F).

It is possible that the negative impact of state PEU could be explained by company size and available resources. Smaller companies have limited management time available to try to understand the state of objects in the environment.   They also have limited resources with which to scan the environment.   It is of note that state PEU had a negative impact in two sectors in the smallest company.

The negative impact of effect PEU may be a more complex phenomenon. It is of interest that the three organisations in which negative effect PEU was observed were all categorised as prospectors. It is possible that the strategic orientation of a prospector, given the drive to search for new opportunities noted in Section 9.3.2, lends itself less towards determining in detail the effects of specific events in the environment. It may be sufficient to gather an understanding of the behaviour of different environmental variables in such organisations.

Indeed, it may be the case that managers in the organisations where effect PEU was seen to have a negative effect on scanning may convince themselves that the potential impact of environmental issues is smaller than an objective observer might think. This was most marked with regard to the oil price and its effect on costs. The two exploration companies (B and F) both noted that they did not spend large amounts of time worrying about what would happen to cost levels as a result of the oil price increasing.

Overall the impact of PEU across the seven cases was mixed and appeared to have some relationship with company size, and possibly some relationship with company strategic orientation.

9.2.4 *How is scanning activity linked with the rest of the strategy process?*

Scanning activity was linked with various areas of strategic activity in all seven cases. The strategy process, consisting of five areas of strategic activity identified in Chapter 2, was found to be related to scanning activity in a number of ways. The integrated conceptual framework in Chapter 4 was developed into a model of links between strategy process and environmental scanning in Section 7.7. The links proposed in this model, reproduced in Figure 9.1 below, are based on evidence from the seven cases collected in the empirical stage of the research.
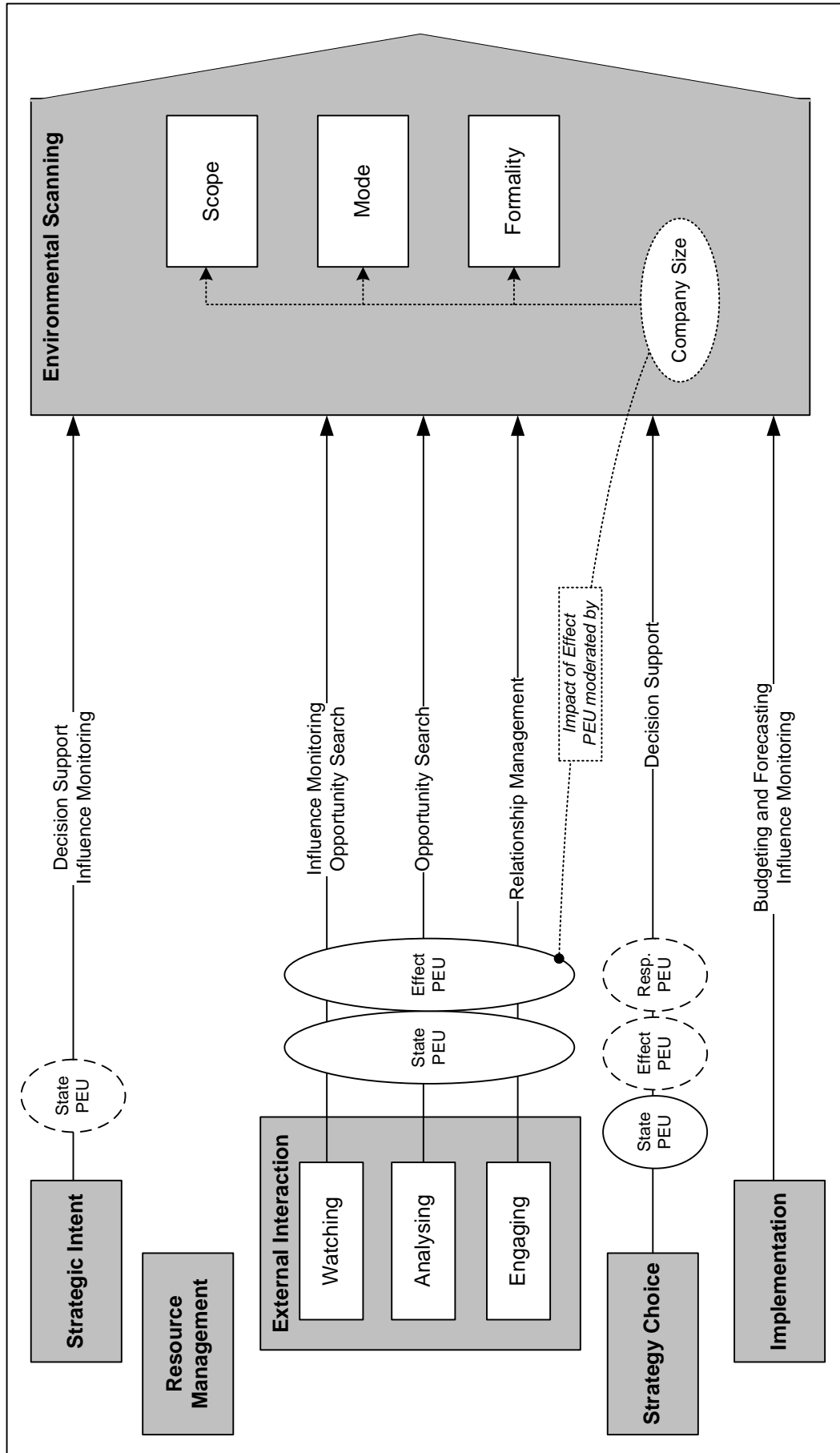
Figure 9.1: Model of environmental scanning and strategy process areas (same as Figure 7.13)

The model shows a number of links between environmental scanning and the strategy process. Every area of strategic activity identified in Chapter 2 was related in some way to scanning activity, apart from *resource management*, which did not appear to be linked to environmental scanning activity in any of the cases.

The nature of the links between scanning and strategy process were different depending on the area of strategic activity in question. *Strategic intent* was linked to scanning activity for decision support and influence monitoring purposes. The specific activities categorised under strategic intent tended to involve both forward- and backward-looking elements, involving some kind of periodic review of strategic direction.

The activity termed *external interaction* in the theoretical foundation appeared to include three activities: *watching*, *analysing*, and *engaging*. Each of these involved different types of scanning activity. *Strategy choice* and *implementation* were also found to be related to scanning activity, the first because of decision support, and the second because of influence monitoring and budgeting and forecasting needs.

The impact of PEU depended on the area of strategic activity in question. State PEU was most related to *external interaction* and *strategy choice*, while effect PEU was mainly concerned with *external interaction*. The impact of effect PEU depended on the size of the organisation, with smaller organisations tending to reduce their level of engagement with objects in the environment that caused effect PEU. Response PEU, observed in only one case, appeared to have some impact with *strategy choice.*

In general, the activity of environmental scanning was strongly related to various parts of the strategy process in all seven cases. While the exact nature of scanning activity and strategy process approach was different in each organisation, the links between scanning and the strategy process shown in Figure 9.1 were replicated in a number of different situations.

9.2.5 Summary: consideration of the research aim

As noted in Section 4.3, the aim of this research was to examine how and for what reasons organisations scan their environments and how this scanning relates to their strategy processes. By addressing the four questions above using the outcomes of the empirical stages of the research, this aim has been achieved.

The model proposed in Figure 9.1 includes elements of all four research questions, noting the impact of company size on how organisations scan their environments, the motivations for scanning the environment in relation to different areas of strategic activity, the role of PEU in the process, and the links that scanning activity has with the various elements of the strategy process. Overall these answers represent the outcomes of the empirical stages of the research, which now need to be set in the wider context.

9.3   Setting the research outcomes in the wider context

The intention in this section is to compare the outcomes discussed in the previous section with the existing literature base, reviewed in Chapters 2 and 3. The section is structured in a similar way to the cross-case analysis, looking at empirical results versus existing knowledge at each point.

9.3.1   Scanning formality

The empirical findings of the present research lend a new perspective to knowledge of environmental scanning as an organisational phenomenon. Firstly it seems clear that the dimensions of analysability and intrusiveness proposed by Daft and Weick (1984) may be too simple to be applied at the organisational level. In the organisations studied, some aspects of the environment were viewed passively and others actively. Some parts of the environment were analysed and others were not. Thus, to say that an organisation might view its environment as either 'analysable' or 'unanalysable' may require a stretch of the imagination. More likely, given the discussion in Section 9.2, is that organisations view different aspects of their environments differently, and therefore treat them differently. This is a theme picked up again in Section 9.3.5 on PEU.

The early research noting limited instances and effectiveness of organisational scanning systems (Fahey and King, 1977; Fahey *et al.*, 1981; Stubbart, 1982) also requires some reassessment. The fact that no organisational system for scanning the environment exists does not necessarily imply that scanning by the organisation is ineffective. In the present research, multiple instances have been observed of formal systems that target particular areas of the environment, while other parts are scanned informally. Given the findings of the present research, it is possible to propose that organisations tend to put structured systems for scanning the environment in place for the sectors of the environment in which they are most interested. In addition, the mixed approaches to different parts of the environment call into question the three categories of irregular,

regular and continuous scanning proposed by Fahey and King (1977). It is more likely, given the empirical evidence presented here, that the regularity or otherwise of scanning activity will depend on the environment sector in question, the individuals involved and the sector's perceived importance. Also the claim of Jain (1984), who noted that environmental scanning was a new activity, appears to be a narrow view that scanning only happens if it is part of a formal system.

It is perhaps unsurprising that these works are not consistent with the observations of the present research, given their age. It is possible (and one would hope) that, in the time between those studies and the present one, knowledge built up in the literature has moved into the field of practice. The propositions of Lenz and Engledow (1986) on the effectiveness and role of scanning units also require some qualification. While they divided approaches into specific unit types (shown in Table 3.2), the distinction in practice appears to be less clear. The large organisations in the study appeared to make use of all three systems in different ways at different points. For example, company E's competitive intelligence system is in some ways a *function-oriented* system because of its focus on particular sectors of the environment. On the other hand, the access to management and the iterative approach to developing reports (see Section 6.6.2) suggest that this particular unit may actually be more of a *strategic planning-integrated* system. In addition, the risk management system, given its role to stimulate thinking among top management and prevent surprises, would be classified as a *public policy* unit, with the caveat that its focus was on more than the general environment.

Work such as that of Yasai-Ardekani and Nystrom (1996), Costa (1997; 2000) and Mayer (2011) on the effectiveness and integration of such scanning systems with planning approaches can also be qualified to some degree. While previous research has focused on organisational scanning systems, it is clear from the empirical findings in the present research that both individual and organisational scanning can contribute towards strategic decision making. The medium and large companies in the sample all made some use of individual scanning, and some, in particular companies C and E, had developed sophisticated systems to gather information through active or passive scanning at the individual level and integrate it into a more formal system.

In conclusion, it appears that work on scanning systems and formality to date has failed to recognise that there is a combined role for individual and organisational scanning

effort. The present research has identified a number of approaches to scanning the environment that, at least to the managers at the companies in question, appear to be effective by taking advantage of both types of system. Systems found in the large companies appear to take the 'best' points in each of the three categories proposed by Lenz and Engledow (1986) and adapt them for their own purposes.

9.3.2   Scanning scope

Scanning scope has been treated overwhelmingly as an individual phenomenon in existing research, as noted in Section 4.2. The present research, however, has examined scanning scope as an organisational phenomenon with some interesting results.

Previous research that ranked sectors of the environment studied in order of interest produced mixed results on the importance of the task versus the general environment, and mixed results on priority of individual sectors (Daft *et al.*, 1988; Sawyerr, 1993; Elenkov, 1997; May *et al.*, 2000; Jogaratnam and Law, 2006). In general, though, these studies found that the task environment was of more importance than the general environment, and that the customer sector was of particular importance, usually appearing in the top two or three in terms of rank.

In the present research the economic environment was scanned the most and the customer environment was fourth in a list of six. Two of the organisations in the study (A and F) made no mention of the customer environment. This could be a result of differences in research structure. Previous research has taken a statistical survey-based approach, usually looking at one industry in one country and with the individual as the unit of analysis. The present research, on the other hand, has examined a small number of organisations in diverse industries with diverse operating environments, looking at the organisation as a whole. The difference may also be explained, in part, by the overlap between the customer sector and the regulatory sector in some of the organisations in the study (some oil and gas and defence companies). However, that overlap was not apparent in company A, where the customer environment did not appear to be an issue. The above raises a question: is the distinction between the task and general environments valid?

Some researchers have preferred the term *remote environment* to *general environment* (e.g. Sawyerr, 1993; Jogaratnam and Law, 2006; Jogaratnam and Wong, 2009),

suggesting that general environment sectors are 'far' from the organisation. The relative distance between the organisation and a particular sector of the environment in the present research, however, was different in each case.

For example, company E, operating in the financial services industry, found that it spent a significant amount of time dealing with and explaining itself to regulators, and noted that items in the technological environment were of little direct significance to its day-to-day operations. Thus for company E the regulatory sector was part of the task environment and the technological sector part of the general environment. On the other hand, the technological environment was of particular importance to company F, who spent significant time and effort scanning the technological environment to find new techniques and new resources.

The closeness or otherwise of the regulatory environment was also explored in the validation exercise, with one respondent noting that regulatory issues were very much part of their organisation's task environment. Overall, the findings here suggest that the detailed nature of the task and general environments may be industry- or company-specific.

A finding that appears to be consistent across existing studies and the present research is the relative lack of interest in the sociocultural environment. Sociocultural issues ranked last in various quantitative studies (Daft *et al.*, 1988; Sawyerr, 1993; Elenkov, 1997; May *et al.*, 2000; Jogaratnam and Law, 2006; Stewart *et al.*, 2008), and in the present research the outcome, although measured in a different way, was similar. It was noted with some relish by one respondent in the validation exercise that sociocultural issues were outside the scope of useful scanning activities (see Section 8.2).

The present research was not focused on scope of scanning alone, and does not propose to state that all organisations will prefer one particular sector over another. That said, it does call into question again the exact nature of the task/general split that is already the source of some debate in the literature. In addition, findings seem to show that the exact contents of the task and general environments may be industry-specific. They may even be company-specific, given the differences between the two oil and gas exploration organisations in the study (B and F).

9.3.3   *Scanning mode*

Scanning mode, in the same way as scanning scope, is usually treated as an individual phenomenon in the literature. The present research has attempted to recognise that it is not solely the scanning mode used by an individual manager that is important; rather it is the way in which the organisation as a whole gathers information that is of interest. Findings have been both supportive of and divergent from existing knowledge in this area.

Several of the individual respondents noted a preference for personal, rather than impersonal sources. This finding is broadly supported by the literature (Keegan, 1974; Daft *et al.*, 1988; Sawyerr, 1993; Jogaratnam and Law, 2006), but some qualification needs to be made. Internal personal sources appeared to be preferred for the economic and sociocultural sectors, while external personal sources were preferred in other sectors.

While some researchers have proposed that personal source preference is due to the unstructured nature of scanning (Fahey and King, 1977; Thomas, 1980), others have argued that preference for personal sources was a result of the inaccessibility of hard data on specific issues in uncertain environments (Daft *et al.*, 1988; Elenkov, 1997). It is the second proposition here to which the present findings lend more weight. A number of instances were noted in which personal external sources were used because information was difficult to access. In company F the technological and economic environments were examined using personal contacts, sometimes gathered through industry events or networks. In company D professional bodies were noted as a source of opportunities. This is perhaps consistent with the findings of Lee *et al.* (2001), who noted that increased participation in external networks was associated with increased performance in small companies.

A limitation of existing research on scanning mode has been its quantitative approach. While research addressed above was able to propose reasons for particular preferences being exhibited, they were unable to confirm or refute such propositions. The present research is able to contribute in that regard. A preference for particular sources was driven by a number of different things. Accessibility of source can be an issue, as noted above and addressed by Culnan (1983). In all seven cases, it appeared that scanning mode tended to change over time, starting with external impersonal source and moving

on to some kind of personal source, depending on the organisation. This is in contrast to the quote taken from Daft *et al.* (1988) in Section 3.4.2, which proposed that impersonal sources may be used to clarify information gathered from personal sources. The difference could perhaps be explained by advances in information systems technology since Daft *et al.*'s study was conducted. The increasing importance of the internet in scanning activity was also noted by Jogaratnam and Law (2006). The accessibility of news aggregators, alerts, RSS feeds and social media platforms such as Twitter has increased dramatically the availability and ease of searching impersonal sources.

In the present study organisations that required more information on a particular issue sought it out in a variety of ways and were more concerned with source quality than accessibility, consistent with findings of Auster and Choo (1994). A source of perceived lower quality, however, was not necessarily dismissed by users. It was noted in Section 7.4.2 that, despite reservations being expressed about quality of information provided by various market intelligence systems, they were the fourth most-mentioned source of information. In fact, easily accessible information was often gathered first and then examined with a critical eye. This would then provide prompts for searching out further pieces of information that may be more difficult to access.

Another point of interest in the present findings is the augmentation of such reports with internally sourced information, as found in company E. The organisational perspective taken uncovered a system whereby impersonal external sources were supplemented with personal internal sources by the manager responsible for competitive intelligence activities. The information gathered in this way was then converted into an internal report that combined insights from the market intelligence companies and from those working in the firm, meaning that scanning mode for decision makers was in this case impersonal internal.

The organisational perspective also allowed the present research to examine the relationships between modes within the organisations studied, resulting in the mode relationship networks[9] for the different sizes of organisation. In larger organisations, dedicated teams gathered information through both personal and impersonal means

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[9] Figures 7.1, 7.2 and 7.3.

from inside and outside the organisation. These were then compiled into reports for decision makers.

Small and medium companies exhibited less complicated networks, but similar activities were taking place. Medium companies in the sample did not have dedicated scanning or strategy teams, yet used many of the same sources in similar ways. Small organisations again used similar approaches in a more concentrated manner. These mode relationship networks provide depth to existing research on individual scanning. They also lend an organisational perspective to scanning mode that is richer and deeper than existing studies might suggest. The organisation, it appears, gathers information in various modes and compiles it into useful media for decision makers. This was found to be the case, to a greater or lesser extent, in all of the organisations studied.

In conclusion, scanning mode has been found to be a more complicated affair than existing statistical studies might suggest. Information source use is complex, usually overlapping in multiple areas using multiple sources. The qualitative approach of the present research has assisted in explaining why this might be the case.

9.3.4   Scanning drivers

The present research has examined motivations for scanning the environment rather than objective characteristics of the environment, as noted in Section 3.3.3. Literature focusing specifically on what motivates organisations to scan their environments is sparse. While some previous works have touched upon motivations for scanning, they have tended to take a limited perspective, looking at the background of individual managers (Aguilar, 1967; Kefalas and Schoderbek, 1973; Hambrick, 1981), at the personal interests of managers (Hambrick, 1982) or at the objective environment itself (e.g. Garg *et al.*, 2003; Hough and White, 2003; Natanski, 2004) as potential influences on scanning.

A significant volume of existing research has focused on the role of PEU, finding the perceived strategic importance of particular variables to be the main determinant of scanning (e.g. Boyd and Fulk, 1996). Given its importance in the literature, PEU is addressed separately in Section 9.3.5.

As in preceding sections, existing literature is constrained in its relevance by its almost exclusive use of the individual as the unit of analysis and its quantitative nature. The

qualitative approach of the present research, along with the use of the organisation as the unit of analysis, allowed the six frequently observed drivers to be developed in Section 7.5.1. Some of these drivers can be found in existing literature, while others represent a novel perspective on the reasons an organisation might scan its environment.

A focus on opportunities emerged as being related to strategies based on differentiation, while a focus on competitor monitoring was related to cost leadership strategies (Jennings and Lumpkin, 1992). In more general terms, opportunities and threats have been found to be the main motivation for gathering information about the environment in resource-constrained small businesses (Lang *et al.*, 1997; Beal, 2000). This means that, implicitly at least, o*pportunity search*, *opportunity evaluation* and *influence monitoring* have appeared as drivers of scanning activity in some existing studies.

It appears that existing research has failed to recognise the role of *relationship management* in driving scanning activity. This is significant because management of external relationships was the most frequently observed driver of scanning activity, appearing across five of the seven cases, and in three sectors of the environment. In a similar fashion, the drivers *decision support* and *budgeting and forecasting* have not emerged from existing literature. This could perhaps be explained by the quantitative nature of existing research, which has not allowed open-ended exploration of the motivations behind scanning activity and has instead focused on relationships between scanning and a number of internal and external variables.

An alternative explanation for the emergence of these drivers could be that the organisational perspective has afforded insight that predominantly individual-focused existing work has not permitted. This is almost certainly the case with the *decision support* driver, which by its nature involved multiple individuals. It could also explain the emergence of *budgeting and forecasting* as a driver of scanning, because the organisational approach allowed the researcher to engage with individuals other than decision makers, who have tended to be the focus of existing research.

The present research has also uncovered what appears to be a relationship between the drivers of scanning activity and the strategic approach of the organisation when classified using the Miles and Snow (1978) typology. While prospectors scanned mainly to find and analyse opportunities, analysers appeared to scan for decision support and influence monitoring. Defenders spent more time scanning outside

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influences and gathering information to assist in managing relationships. These findings contrast with early work by Hambrick (1982), who noted that there was no difference between the scanning activities of prospectors and defenders. This contrast could again be explained by differences in methodological approach or the time since Hambrick's work was conducted.

The findings appear to indicate that different strategies result in different drivers of scanning activity in organisations. This is broadly consistent with the work of Jennings and Lumpkin (1992) mentioned above, but their work used Porter's generic strategies (1980) rather than the Miles and Snow (1978) typology. Given the variety of organisations studied in the present research, application of Porter's generic strategies was not possible because of their predominant use at SBU level.

Overall, the emergence of six drivers of scanning activity from the empirical stage of the research represents a significant step forward in understanding the link between strategy and scanning activity. While previous research discussed here has implicitly identified one or two drivers of scanning, the qualitative approach, combined with the organisational perspective, has resulted in a deeper picture of what might drive an organisation to scan its environment. The effect that strategic approach has on the preponderance or otherwise of specific drivers of scanning activity provides further insight into the nature of the relationship between type of strategy and the nature of scanning. This relationship is worthy of further investigation, in future studies.

9.3.5   *Perceived environmental uncertainty*

As noted in the preceding sub-section, a substantial amount of existing literature that attempts to explain scanning activity focuses in some way on PEU. Again, the predominant approach is to look at PEU as an individual-level phenomenon, and existing studies have, in the vast majority of cases, been quantitative in nature.

Which sectors of the environment PEU is most often observed in appears to depend on context. While Daft *et al.* (1988), using a sample of US-based firms, found that the competitive, customer and economic sectors of the environment generated higher levels of PEU, others have found the regulatory sector to be of some importance (e.g. Elenkov, 1997; Stewart *et al.*, 2008). The present research found that the economic and

regulatory sectors of the environment generated the highest levels of uncertainty, thus providing some support for both sets of findings.

A significant number of previous works have identified the perceived strategic importance of a particular sector, along with the level of perceived uncertainty, as having a significant relationship with the level of scanning activity directed at that sector (Daft *et al.*, 1988; Boyd and Fulk, 1996; Elenkov, 1997; May *et al.*, 2000; Jogaratnam and Wong, 2009). The present research did not specifically ask managers to rate the importance or otherwise of aspects of their environments, but it can be inferred, given the framing of the semi-structured interviews, that each instance of PEU observed was related to some item of perceived strategic importance to the organisation.

By breaking down PEU into its three types, as articulated by Milliken (1987), the present research was able to provide some insight into the impact of PEU on scanning. While state uncertainty tended to result in greater levels of scanning, effect uncertainty sometimes resulted in lower levels of scanning. This was especially true in the smaller organisations, where time and cost of search may have had some impact on the process.

Boyd and Fulk (1996) noted that items in the environment that were seen as too complex or too difficult to analyse were not scanned. The present findings support this to some degree, with the qualification that the reluctance to scan uncertain aspects of the environment was limited to medium and small organisations. Large organisations, whose resources available for scanning were significantly greater than those of the small organisations, did not appear to see difficulty of analysis as an issue. Indeed, in the case of company C, a significant amount of effort was devoted to developing proprietary models of complex variables in the environment.

Findings concerned with response uncertainty are limited because they were observed in only one case out of the seven. Indeed, the findings of the present research concerned with PEU are in general limited, given that only certain individuals in the organisation were interviewed as part of the data collection process. This means that observations of PEU are unlikely to be comprehensive from the organisational perspective. That said, the two PEU types observed across multiple cases seem to have had a relatively consistent impact, indicating that the impact of PEU on scanning may be related to PEU type and company size, as well as the perceived sector importance indicated in existing literature.

9.3.6   Scanning and strategy process links

Much of the previous research considered in this section has taken the organisation as its unit of analysis, perhaps facilitating easier comparison with the present research than in the preceding sub-sections. The novel approach to the strategy process in the present research, however, means that only a small number of previous scanning studies are of direct relevance.

Previous work has tended to look at the relationship between scanning and strategy type (Hambrick, 1982; Jennings and Lumpkin; 1992, Beal, 2000), at the relationship between scanning and organisational performance (Stubbart, 1982; Lee *et al.*, 2001; Garg *et al.*, 2003), or at scanning as part of an organisation's dynamic capabilities (Liao *et al.*, 2009; Bérard and Delerue, 2010; Wu, 2010).

Three studies of direct relevance to the present research are Lenz and Engledow (1986), Yasai-Ardekani and Nystrom (1996) and Costa (1997), all of which were primarily concerned with environmental scanning units. Lenz and Engledow (1986) noted that effective units tended to be integrated into the planning process, but their perspective was limited in that it looked only at planning systems and processes. Yasai-Ardekani and Nystrom (1996) proposed that effectiveness depended on the nature of the environment itself and also looked at different sizes of organisation. That said, their quantitative approach limited the level of insight into specific activities that related to strategy.

Costa (1997) proposed a model of integrating formal scanning systems into a strategic planning process and found that scanning by individual managers was not related to strategy in the organisations studied.   The perspective of the present research, considering both formal and informal contributions to scanning, has shown that a variety of formal and informal approaches can be used to scan the environment and that these relate to various parts of the strategy process.

A more traditional view of the strategy process, as taken by Schendel and Hofer (1979), would likely place environmental scanning as part of the 'environmental analysis' stage of their strategy process, an activity that should occur before decisions are made. The enhanced perspective taken in the present research on the strategy process as a set of discrete but related activities that may be sequential, concurrent or iterative takes into

account the dynamic nature of the strategy process and acknowledges later research in the field, as discussed in Section 2.6.

The approach taken has resulted in a novel view of how scanning is related to the strategy process. The model developed in Section 7.7, and re-presented in Section 9.2.4 above, proposes that scanning tends to be linked to various aspects of the strategy process in different ways. Scanning drivers, discussed in Section 9.3.4 in relation to existing literature, add depth to the nature of these links. In addition, the three types of activity related to environmental interaction – *watching*, *analysing*, and *engaging* – provide a novel view of how an organisation interacts with its environment at the strategic level.

9.3.7   Summary: the present research in the wider context

This section has placed the outcomes of the empirical stages of the research discussed in Section 9.2 in the wider context of existing knowledge. While findings have been broadly consistent with existing knowledge, significant depth and richness has been added in a number of areas, notably the mode relationship networks, the six drivers of scanning activity and the qualifications made to the relationship between PEU and scanning. It was noted in this section that a limited amount of research on specific strategy process elements and environmental scanning exists. The model of environmental scanning and strategy process provides some insight into the nature of links that exist between areas of strategic activity and environmental scanning. The next section develops a set of propositions based on the discussion presented here.

9.4   Final research outcomes

The intention of this short section is to consolidate the outcomes of the discussion in previous sections into seven propositions that represent the position of this research with regard to environmental scanning and the strategy process. The propositions are based on the empirical findings discussed in Section 9.2 and their relationship to existing literature, which was addressed in Section 9.3. These are the research outcomes originally discussed in Section 1.2

9.4.1 Seven propositions

Proposition 1: Environmental scanning is best understood as an organisational activity rather than an individual one, and scanning by individual managers contributes to scanning at the organisational level.

A recurring point in Section 9.3 is the insight afforded by the organisational perspective. Scanning, when seen as an organisational activity that individuals may or may not contribute to, can be better understood as a key strategic activity in organisations. The existence or otherwise of a formal system does not preclude useful scanning activity being conducted, as noted in Section 9.3.1.

Proposition 2: Size of organisation has some impact on the nature of scanning activity in terms of scanning scope, mode and formality.

Insights have been afforded in the present research by looking at different sizes of organisation. Size was seen to affect formality, scope and mode of scanning, as discussed in Sections 9.3.1, 9.3.2 and 9.3.3. Size was also included in the model presented in Section 9.2.4, given its impact on the nature of scanning in the seven cases.

Proposition 3: The location of sectors in terms of the task and general environments will depend on the industry and the organisation in question.

As noted in Section 9.3.2, the environment sectors located in the task environment and the environment sectors located in the general environment are likely to be industry-specific. This proposition is further supported by the outcome of two of the validation interviews, discussed in Section 8.2.

Proposition 4: Organisational scanning mode is more complex than individual scanning mode, with personal sources used to follow up impersonal sources.

A number of relationships between scanning modes were identified in Section 7.4.3, with company size playing a role in the nature of these relationships. This suggests a more complex picture than presented by existing research, as discussed in Section 9.3.3.

Proposition 5: The relative importance of the six drivers of scanning activity identified in this research will depend on the strategic approach of the organisation.

The drivers of scanning that emerged from the empirical data provide a deeper understanding of why an organisation might scan its environment than existing research allows, as discussed in Section 9.3.4. A relationship between strategic approach and prevalence of scanning drivers appeared to exist, also discussed in Section 9.3.4. The relationship management driver is of particular interest given that it has not been identified in previous research as having a relationship with environmental scanning.

Proposition 6: In addition to perceived sector importance, company size and PEU type affect the relationship between PEU and scanning.

While existing research acknowledges the importance of PEU in driving scanning activity, the present research has yielded further insight into the nature of its impact. Company size and PEU type appear to be important factors in determining the nature of the relationship between PEU and scanning, as discussed in Section 9.3.5. This is in addition to the idea of perceived sector importance that has been given prominence in previous research.

Proposition 7: Environmental scanning is linked to strategic activity at various points in the process; the nature of these links varies depending on the activity in question.

This proposition could be broken down into a number of more detailed propositions but has not been developed as such to avoid repetition. It was noted in Sections 9.2.4 and 9.3.6 that the model developed in Section 7.7 has not only captured the links between environmental scanning and the various areas of the strategy process but has also allowed insight into the nature of these links. The areas of *strategic intent*, *external interaction*, *strategy choice* and *implementation* were all linked to environmental scanning activities in some way. The area of *resource management* was not found to be linked to scanning activity in any of the seven cases studied. This lack of relationship may require further investigation in the future.

9.4.2   Summary: seven propositions

The seven propositions summarise the position of this research on environmental scanning and the strategy process. They are not intended to be hypotheses, but could be used to develop a number of hypotheses as part of future research. This is discussed in more detail in Section 10.4.

9.5   Conclusion

This chapter has placed the empirical findings discussed in Chapters 6, 7 and 8 in the wider context, linking new evidence back to the theoretical foundation developed in Chapters 2, 3 and 4.

The research presented in this thesis represents a contribution to knowledge of environmental scanning and strategy process issues. Existing knowledge has been consolidated in the theoretical foundation. Empirical evidence has been collected and analysed. The outcomes of this analysis have been used in this chapter to elaborate on this existing knowledge in several ways, providing a deeper insight into a number of scanning variables. In addition, a model of mode relationships and a model of scanning and strategy process elements have been developed. The final position of this research is captured in the seven propositions developed in the preceding section.

Chapter 10: Conclusions

10.1 Introduction

This final chapter provides a reflection on the outcomes of the thesis, examining both contributions to management theory and implications for practice. The limitations of this research are discussed and some areas for further research proposed.

10.2 Contributions to management theory

This research has contributed to management theory on a number of fronts, each of which is addressed in a short sub-section below. The first three contributions are theoretical propositions in their own right, while the last two are more general in nature, relating to aspects of theory that have been synthesised or elaborated upon in the process of conducting the research.

10.2.1 Environmental scanning and strategy process links

The model developed in Section 7.7 and discussed in the wider context in Section 9.3.6 contributes to knowledge of environmental scanning and its relationship with aspects of the strategy process. The model proposes that a number of areas of strategic activity, namely *strategic intent*, *external interaction*, *strategy choice* and *implementation,* are related to environmental scanning in different ways. Types of PEU are proposed to affect scanning in different ways in different parts of the strategy process. In addition, the empirical work allowed three broad categories of activity (watching, analysing and engaging) to be observed in organisations in relation to the external environment, as discussed in Section 7.6.2.

10.2.2 Drivers of environmental scanning

The drivers of scanning activity, *opportunity search*, *opportunity evaluation*, *decision support*, *relationship management*, *budgeting and forecasting*, and *influence monitoring*, that emerged in Section 7.5.1 represent a contribution to knowledge in their own right. Some of these drivers have been touched upon in other research on environmental scanning, but they have never been categorised as such, as noted in Section 9.3.4. The explicit search for scanning motivations in this research, however, has allowed the six drivers to be developed. In particular, the concept of scanning for relationship management purposes does not appear to have emerged from prior research

on scanning. The importance of each driver appears to depend on the strategic approach of the organisation, as noted in Section 7.5.3.

10.2.3 Scanning mode interrelationships

The organisational perspective taken in the present research has allowed the development of the mode relationship networks for different sizes of organisation in Section 7.4.3. These present a deeper picture than existing research suggests, as discussed in Section 9.3.3. Some of the relationships between different modes were confirmed in the validation exercise in Section 8.2, lending weight to the proposition that, rather than being limited to preferences for specific scanning modes, organisations tend to use a combination of modes to understand their environments, each being used for a different purpose. The size of organisation was also observed to impact the relationship between scanning modes.

10.2.4 Understanding of environmental scanning

In more general terms, this research has contributed an improved understanding of environmental scanning in a number of ways. The perspective of looking at the organisation as a whole, while acknowledging how individual managers could contribute to scanning, has allowed an enhanced understanding of how environmental scanning works at the organisational level.

In addition, by looking at organisations of different sizes, a number of insights into the effect of size on scope, mode and formality of scanning have been developed.

Finally, the part of the theoretical foundation that is related to environmental scanning, contained in Section 3.4, provides a synthesis of existing knowledge on scanning that can be used to develop research in the future.

10.2.5 Strategy process framework

The review of strategy process-based literature and other contributions to the strategic management field identified five key areas of activity, presented in section 2.6, that together form a framework containing aspects of the strategy process. The proposition that these aspects may be concurrent, sequential or iterative allows them to be readily applied to real situations. The perspective could be used as the basis of other research in the future.

10.3   Implications for management practice

At this point reference can be made back to the discussion of management research and Hume's guillotine in Section 2.2. There it was noted that one should not attempt to derive what ought to be from what is. This was a limitation of some early research in the strategic management field. With that in mind, it is not the intention in this section to provide a set of guidelines for effective environmental scanning.

Nevertheless, there are a number of lessons the practising manager might take from the present research. For example, managers who are interested in assessing and adjusting their information gathering and processing capability or approach may be interested in the models of mode choice and mode relationships discussed in Section 7.4.3, or the information on drivers of scanning activity presented in Section 7.5.1.

The organisational perspective taken here may also assist senior managers in identifying external-facing parts of their organisations that they might wish to engage with more actively in order to gather external environmental information. On a more granular level, the seven case studies provided in Chapter 6 provide a variety of examples of how one may or may not wish to organise for scanning the environment.

Two outcomes of the validation exercise are also worth noting. The respondent from company E in charge of strategy process discovered new information on the organisation's scanning activity and was reassured that what he thought was a potential blind spot in their organisational scanning activity was in fact a strength.   The researcher was pleased to assist, in that respect, in contributing to practice of a participating organisation.

The respondent from company B showed considerable interest in the framework of five areas of strategic activity that was developed in Chapter 2. This suggests that the areas of activity may be of practical use when organising strategic activity. The framework in Chapter 2 may provide a useful starting point for discussions with senior managers about how to best organise various aspects of strategic activity in their organisations. Following this, the model of environmental scanning and strategy process elements may assist managers in developing links between both formal and informal scanning activity and the strategy process in the organisation.

10.4   Limitations

This research has made contributions to both theory and practice, as discussed in the preceding sections. This does not mean, however, that it is without limitations. Here both practical and methodological limitations are addressed, some of which are covered in more detail in Section 10.5 on areas for further research.

10.4.1   Practical limitations

Data for the seven case studies reported in this thesis were collected over a period of time, during which there may have been changes in the external environment. The time taken was in no small part due to the researcher's full-time work commitments and an eight-month international secondment that occurred in the middle of the data collection process. That said, the intention was not to examine a cross-section of similar organisations at a single point in time, but rather to develop a set of case studies in different sizes and types of organisation.

The seven organisations of the sample, while sufficiently heterogeneous to satisfy the sampling requirements, are from a relatively small set of industries. In addition, all seven cases were collected from commercial organisations, meaning that findings presented here may be different from those that might emerge from public sector or charitable organisations.

Despite the researcher's best efforts to minimise bias, an element of response bias may exist in the sample. It is not unreasonable to assume that participating organisations agreed to do so only because the initial respondent felt that the organisation performed well with regard to both strategy process and environmental scanning. Organisations that felt deficient in one or other of these areas may be less likely to engage with a researcher to discuss such matters.

10.4.2   Methodological limitations

The case studies represent a snapshot of how organisations scan their environments and how this scanning relates to strategy processes at one particular point in time. The nature of the research design means that, in many instances, respondents were being asked to recall how something was done or, in general, how information was collected. There may then be an element of post hoc rationalisation by respondents in the interviews.

The qualitative approach taken, while allowing insight into how scanning and strategic activities are conducted in practice, does not allow statistical testing or underlying relationships to be developed. Despite this, the extent of replication of activity and relationships across the seven cases does lend weight to the findings and suggests that they may be indicative of how things work in a wider population of organisations.

10.5   Areas for further research

The first area for further research requires an application of quantitative techniques to find generalisable relationships between scanning and the strategy process. The links in the model presented in Section 9.2.4 could form the basis of a set of hypotheses that could be tested and the results subjected to quantitative analysis.

It is possible that further insight into scanning and strategy process links could also be developed by using the same approach developed in the present research in other domains. This could involve industry-specific or industry comparative studies, or an exploration of public sector or charitable organisations.

Another area for further research would involve taking the time-based analyses of mode and sector scanning that were tentatively proposed in Sections 7.4.4 and 7.5.4 and observing them longitudinally in one or more organisation.

Finally, the five areas of strategic activity identified in Section 2.6 must be linked in some way, but the investigation of these links was not the purpose of the present research. Therefore, one area worthy of pursuit is the investigation of the links that exist between the five areas of strategic activity, using the framework developed in Chapter 2 as the starting point.

10.6   Conclusion

The propositions in Section 9.4.1 represent the final position of the present research regarding environmental scanning and the strategy process. This chapter has articulated the contributions to both theory and practice, the limitations and areas for future research. The thesis represents a contribution to knowledge of scanning and the strategy process, upon which a number of future research programmes could be built. At this point the aim of *theory elaboration*, first discussed in Chapter 1, has been achieved.

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