

STRATEGIC COGNITION IN A MATURE INDUSTRY:
DIFFERENTIATION, CONSENSUS, & OUTCOMES

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This thesis
is dedicated to
my father, Albert Hodgkinson,

and

to the memory of
my mother, Mary Eileen Hodgkinson.

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SUMMARY

This thesis reports the outcomes of a multi-level longitudinal empirical enquiry designed to test several fundamental, though previously unsubstantiated, propositions associated with the theory of competitive enactment, recently advanced by Porac and his associates as an explanation of the role of cognition in the evolution of competitive structures in industries and markets (Porac et al, 1989; Porac & Thomas, 1990). The study, which was conducted in the UK residential estate agency industry, employed a modified repertory grid based approach in order to explore three issues: the extent to which strategists' mental models of competitive space are correlated with measurable strategic behaviours and organisational performance; the extent to which strategists' mental models within this industry are homogeneous or diverse; and the extent to which strategists' mental models are stable or transient in the face of significant changes in market conditions. In all three cases substantial empirical support was obtained in keeping with the predictions of competitive enactment theory - ie mental models were found to correlate with a number of measurable strategic behaviours, mental models were found to be highly homogeneous, and mental models were found to remain stable - despite a significant down-turn in the market from T1 - T2. These findings provide a convincing demonstration of the existence and negative impact of a strongly held collective mental model, within a mature industry, on strategy and performance. The implications for theory, research methodology, and the practice of strategic management are discussed, as are the limitations of the present study. The thesis concludes with a call for

further multi-level longitudinal studies, which extend the range of industries investigated and the methodologies employed for cognitive modelling, and vary the time intervals between data collection periods, in order to tease out the confounding effects of these factors.

CHAPTER 1

INTRODUCTION

This thesis reports an empirical enquiry into the nature and role of strategic cognition in industries and markets. Specifically, it is concerned with the relationships between strategic thinking, the way in which individuals and groups who work within a particular industry construe their competitive worlds, and the consequences of that thinking for their organisations and the industries and markets in which they operate.

The notion that businesses should analyse their competitive environments if they are to compete effectively is a fundamental and familiar prescription in the standard texts on strategic management (Eg Porter, 1980, 1985; Luffman, Sanderson, Lea & Kenney, 1987; Greenley, 1989; Wheelan & Hunger, 1989; Oster, 1990; Grant, 1991; Johnson & Scholes, 1993). However, whilst a great many analytical frameworks and models have been put forward to assist the would-be analyst in this endeavour, surprisingly few investigations have been conducted into how individuals and groups who operate within these environments actually perceive their competitive worlds (Stubbart, 1989). This thesis describes one such investigation.

It stems from a fundamental conviction shared by a growing number of scholars that traditional accounts of rivalry, accounts which tend to view competition primarily as an environmental phenomenon involving economic contingencies, are limited. Much of the literature on

competitive strategy is predicated on the assumption that business environments are objective entities waiting to be discovered through formal analysis. In recent years, however, there has been a growing recognition amongst strategic management and organisational behaviour researchers that, ultimately, it is actors' perceptions of competitive positioning filtered through existing mental models which form the basis for strategy formulation and therefore these mental models are worthy of study (Eg Porac, Thomas & Emme, 1987; Stubbart, 1989; Reger, 1990a; Johnson, Calori & Sarnin, 1992). As Porac & Thomas observe:

"From a cognitive perspective, decision makers act on a mental model of the environment. Thus any explanation for strategic responses to competitive pressures must ultimately, take into consideration the mental models of competitive strategists....

".... before competitive strategies can be formulated, decision makers must have an image of who their rivals are and on what dimensions they will compete. Given the diverse range of organizational forms and decision makers' limited capacity to process complex inter-organizational cues, the task of defining "the competition" is both important and problematic" (Porac & Thomas, 1990, pp 224-225).

Whilst the cognitive approach to understanding competitive strategy has gained increasing ground in recent years, to date, empirical research has been largely confined to small-scale, exploratory studies (Eg Gripsrud & Gronhaug, 1985; Reger, 1990a; de Chernatony, Daniels, & Johnson, 1993; Hodgkinson & Johnson, in press). These studies have established the viability of the cognitive approach for gaining potentially useful insights into processes of strategy formulation and led to some interesting theoretical developments. However, larger-scale empirical work, designed to test the key substantive elements of this emerging theory, have been almost nonexistent.

Research Agenda and key themes

The primary purpose of the study reported in this thesis was to help fill this empirical vacuum. The study was designed in order to test the theory of "competitive enactment", recently developed by Porac and his associates (Porac, Thomas & Baden-Fuller, 1989). Arguably, competitive enactment theory is the most comprehensive attempt, to date, to order systematically the limited empirical findings which have accumulated thus far, from the rapidly expanding number of cognitive studies of competition, and relate them to the wider body of knowledge within the field of strategic management as a whole.

The recent literature on competitor analysis has been dominated by attempts to reveal the bases of competition and the structural positions which firms occupy using secondary accounting and financial databases [for recent reviews see McGee & Thomas (1986) and Thomas & Venkatraman (1988)]. Competitive enactment theory seeks to complement traditional approaches to understanding rivalry, by explaining the emergence of these competitive industry structures (ie discernible groups of organisations following similar strategies) in cognitive terms.

According to this theory, competitive structures both determine and are determined by strategists' perceptions of the business environment. The reason competitive structures emerge within industries and markets is because, over time, strategists from rival firms develop highly similar mental models of the competitive arena, due to the fact that they confront similar technical and material problems and frequently share

information in the conduct of their business transactions. This process of social exchange, in turn, leads to the development of a shared understanding - throughout the community of firms within the marketplace - of how to gain competitive advantage.

Eventually, however, this collective mental model comes to over-ride any individual differences in cognition which may have originally existed amongst members of the "cognitive community" and the industry falls into decline as previously successful strategies become ineffective through over use - ie previously profitable market niches become over-populated as increasing numbers of players seek to emulate the successes of the market leaders by following the "industry recipe" (Spender, 1989). At this stage, new strategies are not forthcoming due to the inability of strategists to break free from this dominant world-view of what it takes to be successful in the industry. In short, cognition and strategic choice become inextricably intertwined with the material conditions of the marketplace (cf Senge, 1990).

As we shall see, there are several fundamental elements of this theory which have yet to be subjected to empirical scrutiny or for which, upon closer inspection, the existing empirical evidence is found wanting. The present study, therefore, was designed primarily in order to subject competitive enactment theory to a number of rigorous empirical tests, in order to remedy this situation.

Three fundamental propositions in particular have yet to be demonstrated empirically using adequate methodologies and research designs and the present study set out to test each of these, in turn:

1. Within mature/declining industries, there are detectable empirical linkages between measurable features of actors' mental models of the competitive arena, or "competitive space", and measurable aspects of strategic behaviour and organisational performance.
2. Within mature/declining industries, actors' mental models of competitive space converge to form highly unified perceptions of reality.
3. Within mature/declining industries, actors' mental models of competitive space remain highly stable in the face of significant changes in market conditions.

As would be expected in a newly developing field of enquiry, however, a host of technical issues have begun to emerge in the recent literature on competitor cognition, which the present study also sought to address: How might we best operationalise mental models? What should be the unit of analysis in cognitive studies of competitive strategy? How should we derive collective mental models? To what extent is it meaningful to speak of "the industry's mental model"? How should mental models be compared and contrasted, both at one point in time and over differing periods?

The present study was also designed with a view to improving the practice of strategic management. As noted earlier, whilst there is no shortage of analytical frameworks and techniques for assisting strategists in their relentless quest to search out new and more effective strategies, relatively little is known about the cognitive underside of environmental analysis. However, such knowledge is

potentially of great value for yielding fresh insights into the problems facing particular industries and firms. Cognitive mapping techniques would seem to hold great promise for identifying "blind-spots" in competitor awareness, which in turn, may yield practical insights into how firms might develop new strategies for competitive success (Huff, 1990). In other words, the results of cognitive analysis may provide a useful means for enabling actors to stand back and reflect on their fundamental operating assumptions. In turn, such reflection may act as a catalyst for strategic and organisational change (Bowman & Johnson, 1992).

The Study

The study was conducted in the UK residential estate agency industry. Very few industries can have experienced the degree of turbulence experienced by the UK residential estate agency industry in recent years. Within the past decade this industry has witnessed several rather dramatic environmental jolts not least of which are the entrance into the industry of the major banks, building societies and insurance companies in the mid-1980s and the rapid rise in house prices in the summer of 1988, following which the housing market has severely stagnated and a considerable number of firms have severely contracted or withdrawn from the industry altogether. Added to this, there have been a number of changes in Government policy which have directly and indirectly had a bearing on the way in which the industry presently operates. In short, this industry has experienced boom, stagnation and change over a relatively short time period. As we shall see in chapter 3, these particular features of this industry make it an ideal

laboratory in which to explore empirically the various issues and themes emerging from the recent literature on competitor cognition.

The fieldwork associated with this study was carried out between mid-July 1989 and December 1990 using a two-wave panel design. The use of a longitudinal design was considered essential, since it provided a rich opportunity to explore stability and change in mental models of the competitive environment, an issue which has been much neglected, in empirical terms, hitherto.

Previous studies of competitor cognition have tended to employ cross-sectional designs, in which the research participants' perceptions are assessed at a single point in time. Whilst the reluctance on the part of previous researchers to engage in longitudinal fieldwork is understandable, clearly this type of research is essential if our understanding of the role of mental models in strategy-making processes is to advance significantly beyond present levels.

Methodological Approach

The issues which this study addressed are multi-level in nature, spanning individual, functional group, organisational and industry-level cognition. The research objectives to be accomplished necessitated an approach to data collection that was suitable for use with relatively large samples, both in terms of the number of participating organisations and the number of individual research participants, and which would yield data in a form which could be subsequently analysed at

a variety of levels. Consequently, the research method of choice was the questionnaire survey.

The primary advantage of questionnaire based approaches is in terms of the relative ease with which they can be administered to large numbers of research participants, in comparison to other methods of data collection. The sheer volume of supplementary data to be collected in the present investigation, in addition to the respondents' perceptions of their competitive worlds, ruled out other more labour intensive methods, if a sufficiently large sample of participants was to be included in the study in order to test the hypotheses with any degree of rigour.

This is not to deny the important complementary role of other research methods which have been employed fruitfully in previous cognitive studies of competitive strategy. Particularly noteworthy here are the taxonomic mapping approaches devised by Porac & Thomas (1987). As we shall see in the next chapter, these techniques have proven most suitable as a means of gaining rich insights into the mental models of individual research participants and the collective mental models of groups of participants. However, these techniques are less easily applied in larger sample, multi-level studies, where the aims and scope are much more general and varied in nature.

Following the lead of Walton (1986), Reger (1987), and Thomas & Venkatraman (1988), a modified repertory grid approach to cognitive assessment was adopted in the present study. Though originally devised

for use as an ideographic tool of assessment by clinical psychologists (Kelly, 1955), in recent years repertory grid techniques have come to enjoy a proven track record in applied studies of social cognition in a wide variety of topic areas (see for example Forgas, 1976, 1978; Smith, Hartley & Stewart, 1978; Forgas, Brown & Menyhart 1980; Stewart, Stewart & Fonda, 1981; Dunn & Ginsberg, 1986; Smith & Gibson, 1988). The primary strength of these techniques lies in terms of their inherent flexibility, both from the point of view of data collection and analysis.

In the present study, the grids were elicited by means of a self-administered questionnaire devised by the author, and subjected to analysis by multidimensional scaling techniques (Kruskal & Wish, 1978; Shiffman, Reynolds & Young, 1981; Coxon, 1982; Arabie, Carroll & De Sarbo, 1987). As we shall see, this method of analysis proved to be a most suitable tool for exploring competitor cognition within the context of a multi-level enquiry, in which mental models were compared systematically in a multi-layered fashion.

The Structure of the Thesis

The present chapter has outlined the basic issues and concerns to be addressed by this thesis. However, before concluding this introductory chapter, it is instructive to briefly sketch out, in plan-form, the remaining contents. Chapter 2 provides an overview of the limited but growing literature on the cognitive approach to understanding competition. Chapter 3 describes the recent history of the UK estate agency industry, in order to contextualise the present study, whilst the

design of the study and the development and validation of the various research instruments employed in the fieldwork is discussed in chapter 4. Chapters 5, 6, and 7 report the substantive empirical findings arising from the study. Finally, the implications of the findings for theory, research methodology, practice and future research in strategic management, are discussed in chapter 8.

CHAPTER 2

THE COGNITIVE ANALYSIS OF COMPETITION IN INDUSTRIES & MARKETS

As we noted in the previous chapter, the cognitive approach to understanding problems in strategic management, a field traditionally dominated by economic analysis, is still in its infancy. In recent years, however, the strategy field in general has witnessed a sudden growth of interest in the use of concepts and techniques from the cognitive sciences, as evidenced by the proliferation in the number of scholarly journal articles, conference proceedings and books addressing a wide range of topics from a cognitive perspective (see for example Eden, Jones & Sims, 1979; Kiesler & Sproull, 1982; Eden, Jones & Sims, 1983; Barnes, 1984; Daft & Weick, 1984; Schwenk, 1984; Sims & Gioia, 1986; Dutton & Jackson, 1987; Porac & Thomas, 1989; Eden & Radford, 1990; Huff, 1990; Eden, 1992). The purpose of this chapter is to review those elements of this developing literature which are of particular relevance to the study of business competition from a cognitive viewpoint.

The chapter is organised in four main sections, as follows: We shall begin with a relatively brief analysis of the background research which has led to the recent interest, on the part of strategy researchers, in the cognitive analysis of competitive positioning in industries and markets. This is necessary in order to provide a context within which to evaluate the various methodological, theoretical, and empirical findings arising from the cognitive literature, to be reviewed in later sections of the chapter.

Next we shall consider recent theoretical and empirical developments associated with the study of competitive positioning strategy from a cognitive perspective, focussing in particular on the theory of competitive enactment developed by Porac & his associates (Porac et al, 1989; Porac & Thomas, 1990). As might be expected in such a newly developing topic area, however, a number of technical issues have begun to emerge, with much of the research effort in cognitive studies of competition having been concerned with the refinement of techniques for data collection and analysis. The third section of this review, therefore, comprises a critical analysis of the various methodological developments in the cognitive analysis of business environments which have taken place in recent years. As we shall see, there are a number of non-trivial methodological hurdles which have yet to be overcome, if competitive enactment theory is to be subjected to adequate empirical scrutiny. Finally, the concluding section draws together the key issues and themes arising from this review and sets out a research agenda.

BACKGROUND TO THE DEVELOPMENT OF COGNITIVE APPROACHES FOR THE ANALYSIS OF COMPETITIVE STRUCTURES

For the past two decades, much of the strategy literature on business competition has been dominated by attempts to refine techniques for the analysis of competitive structures in industries, based on the notion of strategic groups (Eg Hatten, Schendel & Cooper, 1978; Newman, 1978; Harrigan, 1980; Oster, 1982; Hawes & Crittenden, 1984; Harrigan, 1985; Cool & Schendel, 1987; Hatten & Hatten, 1987; Johnson & Thomas, 1987; Cool & Schendel, 1988; Fiegenbaum & Thomas, 1990; Lewis & Thomas, 1990). The concept of strategic groups was developed by Hunt (1972) in a study

which examined the differential performance of firms in the American home appliance industry (so-called "white goods") in the 1960's, and the commonly accepted definition of the concept is that provided by Porter:

"A strategic group is the group of firms in an industry following the same or a similar strategy along the strategic dimensions. An industry could have only one strategic group if all the firms followed essentially the same strategy. At the other extreme, each firm could be a different strategic group. Usually, however, there are a small number of strategic groups which capture the essential strategic differences among firms in the industry" (Porter, 1980, p 129).

The ultimate goal of the theory of strategic groups is to account for intra-industry variations in the competitive behaviour and performance of firms - ie the theory seeks to explain why it is that firms within a given industry do not all follow the same strategies, nor return uniform levels of performance. In other words, why do some strategies lead to competitive success whereas others do not?

According to the theory of strategic groups, firms within a given strategic group resemble one another closely in terms of their strategic capabilities. Consequently, they are able to anticipate one another's likely reactions to environmental jolts and are likely to recognise their mutual dependence on one another, and respond accordingly. Between strategic groups, however, a rather different scenario is predicted (Porter, 1979).

The theory predicts inter-group differences in strategy and profitability arise for two main reasons, namely, differential entry barriers and, more generally, the presence of mobility barriers (Caves &

Porter, 1977). Entry barriers constitute the various (largely economic) factors which prevent would-be players from entering a particular industry or market. Their effect is not uniform, however, with some strategic groups being afforded better protection than others.

The concept of mobility barriers is a generalisation of the concept of entry barriers, which seeks to explain the strategic behaviour of firms already operating within an industry. Mobility barriers are the various factors which prevent members of particular strategic groups from transferring or extending their membership into other groups:

"The argument is that the difficulty of entry into an industry depends on the strategic position the firm seeks to adopt (or on its strategic group). Mobility barriers are deterrents to a shift in strategic position of firms within an industry, deterrents that give some firms stable advantages over others. Thus mobility barriers provide an explanation of differences in performance by firms in the same industry, and provide a conceptual basis for positioning a firm within its industry (Porter, 1981, p 615).

Typically, strategic groups have been investigated through the use of secondary financial and accounting information collected by the researcher from company records or, alternatively, through the use of extant generic databases such as PIMS (for a review see McGee & Thomas, 1986). Implicit within this approach to competitive positioning analysis, is the assumption that such data can capture adequately the bases of competition. In recent years, however, there has been a growing recognition amongst strategic groups researchers and their critics alike, that this predominantly economic approach is limited fundamentally in terms of its ability to explain how or why competitive

structures in industries and markets come to develop, and on what basis particular strategies are chosen. A further limitation associated with this approach is that the variables selected for analysis by the researcher may not necessarily be the variables which actually guide the decision making of organisations and hence drive competition (Eg Porac et al, 1989; Barney & Hoskisson, 1990; Birnbaum-More & Weiss, 1990; Porac & Thomas, 1990; Reger, 1990a; Pettigrew & Whipp, 1991; Calori et al, 1992; Reger & Huff, 1993; Hodgkinson & Johnson, in press).

THEORETICAL & EMPIRICAL DEVELOPMENTS IN THE COGNITIVE ANALYSIS OF COMPETITIVE STRUCTURES

Partly in an effort to advance our theoretical understanding of strategy development and competitive positioning, and partly in order to refine techniques for the analysis of competitive structures, a growing number of scholars have begun investigating competitive strategy from a cognitive viewpoint (Eg Dess & Davis, 1984; Gripsrud & Gronhaug, 1985; Fombrun & Zajac, 1987; Porac et al, 1987; Reger, 1990a; Calori et al, 1992). As noted earlier, much of this work has been of an exploratory nature, seeking to investigate the relative merits of particular techniques for mapping strategic thought. Recently, however, Porac and his associates have outlined what appears to be a promising substantive theory which seeks to explain the role of cognition in the evolution of competitive structures in industries and markets (Porac et al, 1989; Porac & Thomas, 1990).

COMPETITIVE ENACTMENT THEORY

According to Porac et al (1989), drawing on the work of Berger & Luckman (1967) and Weick (1979), a continual objective-subjective-objective cycle underpins the development of competitive structures. Competitive enactment theory asserts that over time, within a given industry, individuals' beliefs about the identity of competitors, suppliers, and customers become highly unified through mutual enactment processes, in which subjective interpretations of externally situated information are objectified via behaviour.

This argument is based on Weick's (1979) observation that organisations often create their environments through collective sensemaking processes, then act as if their cognitive constructions were true:

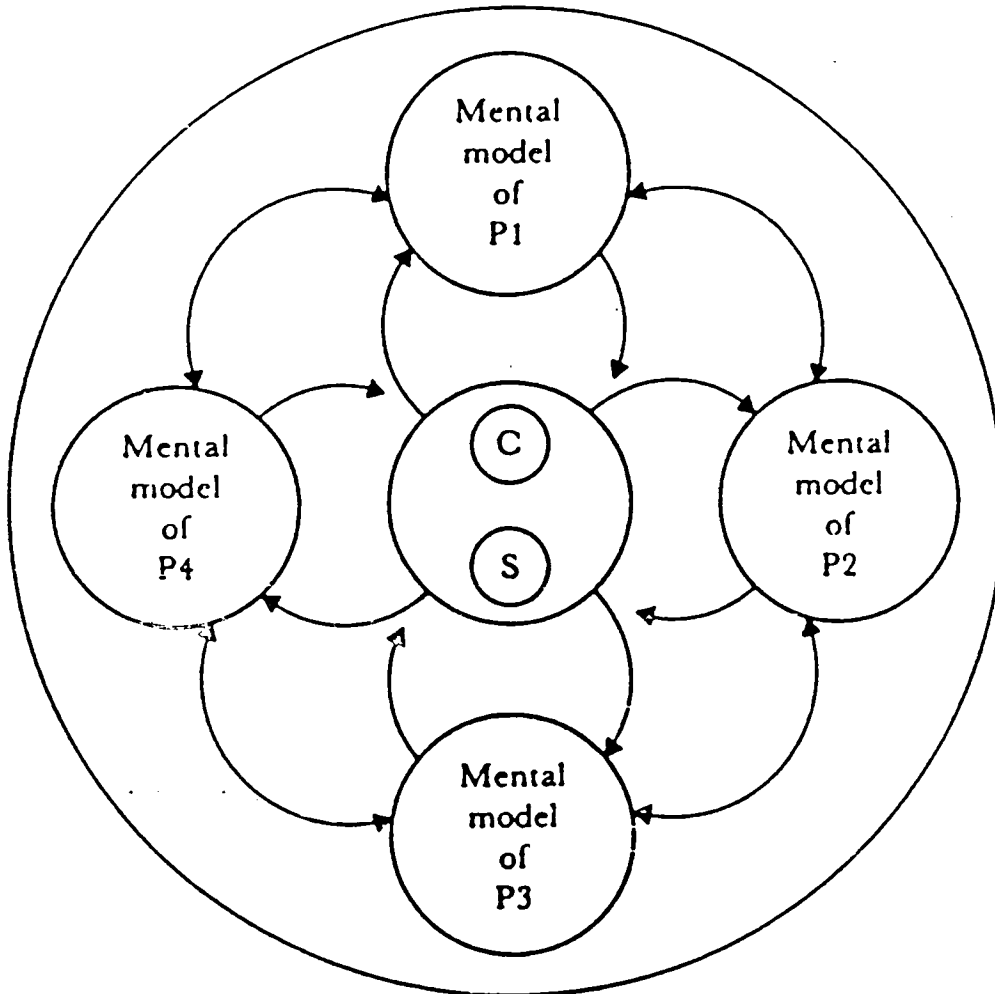
"Thus, for example, when a group of managers define their businesses as clothing stores or supermarkets, their understanding of the competitive environment is crystallized within a mental model, and their competitive focus is slanted towards organizations they perceive as members of the same competitive set. It is easy to see how such perceptions might eventually become objectified and institutionalized through such devices as trade associations, specialized publications, and a particularistic language for describing logical ecological conditions. In this view, competitive groups are more than analytical and economic abstractions of researchers; they represent the social psychological reality for member organizations. If this subjectivist perspective is true, it will be impossible to classify and understand organizational forms, at least at the micro-niche level, without describing the mental models that motivate mutually adjustive competitive activities" (Porac & Thomas, 1990, p 236).

Viewed from within this perspective, "industries", "strategic groups" and the like, are socio-cognitive constructions, created through a shared interpretation of reality amongst business rivals, which come to

define the boundaries of the competitive arena and on what bases the battles for competitive success are to be fought. According to this theory, the mental models of competitive strategists from rival firms become highly similar, thereby creating 'group-level' beliefs about the marketplace, because of the tendency of organizations to imitate one another, both directly and indirectly:

"Indirect imitation occurs because strategists from different firms face similar technical/material problems with a finite number of solutions. Belief similarity develops as a result of interpreting the same cues and solving the same problems. Direct imitation occurs because of both formal and informal communications among the set of competitors. Such communications permit the mutual exchange of ideas and concepts by externalizing individual mental models in a publicly observable form. The net result of both indirect and direct imitation is that the strategic choices of individual firms take place within the context of many shared beliefs about how and with whom to engage in transactions in the marketplace", (Porac et al, 1989, p 400).

This argument is illustrated graphically in figure 2.1. Each competitor is involved an individual enactment process in which the mental model of its strategists is reciprocally intertwined with its strategic choices and the material conditions of the marketplace. Other parties involved in the same transactional network, however, are also enacting their beliefs through activities within the value chain. Porac and his associates argue that whilst the interpretations of customers, suppliers and competitors are all involved in structuring the transactional network, it is the enactment processes of the latter which are particularly important, on the grounds that they serve to link firm-level and group-level competitive activities, through the creation of socially shared belief systems.



Note: C - Customers
 S - Suppliers
 P_n - Producers

Figure 2.1. Mutual enactment processes within an industrial sector.
 (Source: Porac, Thomas & Baden-Fuller, 1989, p 401).

Clearly this theory has important implications for understanding the processes associated with the operation of industry and market life-cycles. If this theory is correct then, within a given industry, we would expect to find evidence of a movement towards a greater convergence of beliefs amongst actors within and between organisations as the industry progresses through the various stages of the life-cycle from emergence through to maturity and decline. Furthermore, we would expect to find that within mature and declining industries, actors' perceptions remain highly stable in the face of significant changes in market conditions. In this respect, competitive enactment theory usefully complements the population ecology perspective on inter-organisational rivalry.

Population ecology theorists such as Hannan & Freeman (1977, 1988), contend that inertial forces often prevent organizations from adapting to environmental change. As Porac & Thomas (1990) observe, one possible source of such inflexibility is the cognitive inertia arising from strategists' mental models of the competitive arena. In circumstances where environmental contingencies shift and new forms of competitive strategy emerge to challenge an organization's once protected position, concomitant changes in the way in which strategists view competition would appear to be a fundamental pre-requisite for successful adaptation. However, as noted by Porac & Thomas, the literature abounds with anecdotal evidence which suggests all too often strategists are unable to reconceptualise the market identity of their businesses in this way, with drastic consequences for the firms concerned.

As noted in the previous chapter, competitive enactment theory is arguably the most comprehensive attempt, to date, to order systematically the limited empirical findings which have accumulated from cognitive studies of competition, thus far, and relate them to the wider strategy field in general. Having outlined the theory of competitive enactment and the background to its development in some considerable detail, we turn now to consider the extent to which the claims of this theory are born out by the available empirical evidence.

THE EMPIRICAL STATUS OF COMPETITIVE ENACTMENT THEORY:
A CRITICAL EVALUATION OF RECENT RESEARCH

The basic features of competitive enactment have been demonstrated empirically in a study of the Scottish knitwear industry by Porac and his associates (Porac *et al*, 1989). In this study the senior executives from a number of firms were interviewed in order to ascertain the structure and contents of their mental models of the competitive arena. According to Porac and his associates, the combined efforts of Scottish knitwear producers account for a mere 3 percent of the total amount of knitted outer-wear manufactured on a world-wide basis. Nevertheless, when asked to define their competitors, the research participants in this study tended to focus exclusively on other Scottish firms. Despite the fact that producers from Italy, the Far East, USA and other parts of the UK far outstrip the Scots in total output, firms from these other geographical areas were not typically regarded as serious competitors.

Porac and his associates contend that the reason the Scottish firms have come to regard one another as major competitors is due to the existence of a strongly held collective mental model which has directed the managers' attention inward, towards firms highly similar to their own - ie other Scottish knitwear producers of high quality, expensive cashmere sweaters in classic designs. Porac et al argue that this collective mental model has led individual firms to consider a relatively narrow range of strategic options.

According to Porac and his colleagues, only a limited portion of the potentially available competitive space is considered strategically feasible by the vast majority of players, with firms typically attempting to differentiate themselves primarily on the basis of subtle variations in colour and design within the classic motif. Other strategies such as differentiating on the basis of price, the use of innovative fibres and fashion designs are not generally considered viable. In the words of Huff (1982) and Spender (1989), an "industry recipe" has developed, informing competitors on what bases they are to compete with one another.

In short, this group-level mental model has come to define the boundaries of the competitive arena. Only firms within the immediate locality of Scotland, who produce a similar range of goods to one another, using similar technological processes of production and common channels of distribution, are regarded as serious competition.

With the exception of this study, as far as the present author is aware, no other investigations, to date, have addressed competitive enactment theory directly. Whilst the findings of this study provide a useful preliminary indication that competitive enactment theory is a promising line of enquiry, clearly there is a need for further research, if the claims of this theory are to be subjected to adequate empirical scrutiny. As we noted in the previous chapter, three fundamental assertions in particular, have yet to be established empirically:

1. Within mature/declining industries, there are detectable empirical linkages between measurable features of actors' mental models of the competitive arena, or "competitive space", and measurable aspects of strategic behaviour and organisational performance.
2. Within mature/declining industries, actors' mental models of competitive space converge to form highly unified perceptions of reality.
3. Within mature/declining industries, actors' mental models of competitive space remain highly stable in the face of significant changes in market conditions.

Each of these assertions are crucial to the theory of competitive enactment outlined in the previous section. Should it transpire that any of these statements are demonstrably false, we would have to reconsider anew the status of this theory. Let us now consider the empirical evidence for each of these propositions, in turn:

Proposition 1: Within mature/declining industries, there are detectable empirical linkages between measurable features of actors' mental models of the competitive arena, or "competitive space", and measurable aspects of strategic behaviour and organisational performance.

Competitive enactment theory asserts that within mature/declining industries, actors' mental models of competitive space and their strategic behaviours are inextricably intertwined with the material conditions of the marketplace. To the extent that this is indeed the case, we would expect to find empirical relationships between measurable features of actors' mental models of the competitive arena, or "competitive space", on the one hand, and on the other, measurable strategic behaviours and measurable features of the organisation and its environment.

However, to date, no studies, have attempted to test this hypothesis directly. In their study of the Scottish knitwear industry, Porac et al (1989) drew upon anecdotal and historical evidence in order to advance the claim that the beliefs of strategic decision makers about how to conduct their firms' activities were both the cause and result of their firms' strategic behaviours, with technical choices limiting their vision of the marketplace to that which has already been determined by existing beliefs. As noted above, to the extent that these preliminary arguments are correct, we would expect to find statistically significant correlations between measurable features of actors' mental models of competitive space and measurable aspects of strategic behaviour, the organisation and its environment.

However, to date, virtually no studies have attempted to determine empirically the correlates of mental models of competitive space. Only one study, thus far, has attempted to correlate perceptions of competitive positioning strategy with organisational performance, and none have attempted to correlate such perceptions with measurable aspects of strategic behaviour.

Bowman & Johnson (1992) investigated the extent to which the senior management teams from 35 businesses in a diverse range of sectors shared common perceptions of their own companies' strategies. This study employed a modified version of a structured questionnaire devised by Dess & Davis (1984) for classifying firms within Porter's (1980) well-known typology of generic strategies¹. The findings revealed that the extent of consensus amongst a number of senior management teams, regarding the competitive positioning strategy of their organisations, was correlated with organisational performance. Unfortunately, however,

1 Within this basic typology organisations are classified within a two-dimensional space which identifies three generic strategies as potential bases for competitive success. Firms pursuing an overall cost leadership strategy seek to maximise efficiency through a set of functional policies aimed at achieving lower costs relative to competitors, though quality, service and other facets of competitive strategy cannot be ignored. Firms pursuing a strategy of differentiation, by contrast, seek to create a product or service which is perceived throughout the entire industry as being unique. This strategy can be accomplished in a number of ways - Eg customer service, technology, or design or brand image. According to Porter (1980) firms pursuing this particular strategy should attempt to differentiate themselves along several dimensions. Firms pursuing the third strategy, focus, seek to serve a particular target group or segment rather than appeal to the market as a whole. In doing so the aim is to achieve low-cost and/or differentiation vis-a-vis a narrow market target. Porter contends that each of these three generic strategies are viable alternatives. However, he also posits a fourth category, namely, "stuck in the middle". In contrast to the other approaches, this is an extremely poor strategic position to adopt. Porter contends that firms falling into this category are unlikely to succeed, due to the fact that they lack clear strategic direction. In recent years, however, the validity of this typology has increasingly been called into question (see for example Bowman, 1991a, 1991b; Cronshaw, Davis & Kay, in press).

due to the fact that this study was conducted over a wide range of industries, rather than a single sector, it is not possible to infer from the results whether or not consensus levels per se, vary systematically from one industrial sector to another - ie the research design confounds the effect of organisational consensus with sector and so it is not possible to determine whether the variations in consensus these researchers observed are due to the differing industry contexts in which the firms operate, or whether the results are due to the background characteristics of the particular respondents and/or their organisations (cf Dess, 1987).

Nevertheless these findings illustrate the potential value of studies which seek to determine empirically the correlates of mental models of competitive positioning strategy. Clearly further research which seeks to explore systematically the empirical relationships between mental models of competitive space and strategic behaviour and organisational performance are badly needed. In the absence of such research, it is difficult to ascertain what role (if any), these mental models actually play in the development of strategy, with any degree of precision.

Proposition 2: Within mature/declining industries, actors' mental models of competitive space converge to form highly unified perceptions of reality.

In order to establish the validity of this proposition, it would be necessary to compare and contrast the mental models of multiple actors with one another, preferably across a number of different levels of

analysis². However, in both the Scottish knitwear study (Porac *et al*, 1989), and their seminal study of urban retailers in rural Illinois, USA, which preceded it (Porac *et al*, 1987), Porac and his associates restricted their analyses to the industry-level of aggregation. In neither case did they consider the extent to which their research participants might differ from one another in their mental models of competitive space.

In their earlier study of American retailers, Porac and his associates adopted an interview technique which enabled them to represent the aggregate views of their sample as a whole, but not the views of individual research participants. In the Scottish knitwear study, by contrast, they collected adequate data to study the individual research participants' mental models, but elected instead to focus their attention on the communal aspects of their data:

"In our analysis of the Scottish knitwear sector we took intra-industry variation as a given. At the same time, however, we sought to distil from interview and secondary data core beliefs that seemed to be repeated by our sources and widely accepted. Our analyses suggest that certain beliefs about competitor and market identity isolate a commonly perceived competitive arena for many of the Scottish managers" (Porac *et al*, 1989, p 405).

2 Ultimately, in order to assess the validity of the perceptual convergence hypothesis as an explanation of industry maturity, we require longitudinal studies in which the extent of convergence is systematically monitored over time as industries pass through the various stages of the industry life cycle. Alternatively, though somewhat less satisfactory, researchers could investigate the extent of convergence across several industries, each at differing stages in the life-cycle, in a comparative fashion. Recently, Easton, Burrell, Rothschild & Shearman (1993) have reported one such study. Whilst the findings appear to offer favourable support for this hypothesis, these researchers were not concerned directly with developing a cognitive perspective, as such. Accordingly, they did not seek to formally represent their research participants' mental models of competitive structures. Rather, data collection and analysis were restricted to a selective reporting verbatim transcripts of interviews held with a number of managers within the various industries studied, without recourse to formal cognitive mapping techniques (cf Calori *et al*, 1993).

The approaches to data analysis adopted in these studies are clearly predicated on the assumption that there are high levels of consensus amongst strategists within and between organisations in particular industries and markets concerning the bases of competition, who the key players are, and how they are positioned vis-a-vis one another. Whilst the results undoubtedly demonstrate the potential value of cognitive analysis as an alternative approach for revealing competitive structures (Thomas & Venkatraman, 1988; Porac & Thomas, 1990), the extent to which this underlying assumption of consensus which informed the data analysis and collection procedures in these studies is valid, is very much open to question.

The case for studying individual & subgroup-level mental models of competitive structures

Within the strategy literature there is a growing number of studies which are concerned with processes of strategic management and questions of how strategic decisions come about. Such research has established that the development of strategies is perhaps best explained by understanding social, political and cultural processes in organisations (Eg Bower, 1972; Pettigrew, 1973; Pfeffer & Salancik, 1974; Hedberg & Jonnson, 1977; Pfeffer, 1981; Pettigrew, 1985; Johnson, 1987; Pettigrew & Whipp, 1991; Pettigrew, Ferlie & McKee, 1992). This stream of research has important implications for the rapidly expanding number of cognitive studies of competitive positioning in strategic management and organisational behaviour seeking to further our understanding of strategy development and implementation, not least of which is that researchers should regard the issue of consensus in mental models of

competition within industries and markets as problematic. There is clearly a need for cognitive studies of competitive structures to be extended to a variety of other levels of analysis, particularly the organisational-level, functional group-level and the individual-level.

The primary reason for extending cognitive research to other levels of analysis is that different actors, in different roles, face different environmental contingencies at least in terms of context, function and level of responsibility (Lawrence & Lorsch, 1967). Clearly, to the extent that strategists' mental models of their business environments are shaped by past experiences and material circumstances (ie previous interactions with the business environment), a priori, we would expect to find differences in the nature and characteristic features of these mental models from one research participant to another.

Furthermore, a number of writers have argued that there exist sets of relatively common assumptions related to different contexts.

Strategists are likely to be influenced by, and interact with all of these frames of reference (Huff, 1982). Figure 2.2 represents some of these different sets of assumptions. These exist at the organisational-level (Sheldon, 1980; Pfeffer, 1981; Bartunek, 1984; Prahalad & Bettis, 1986; Johnson, 1987, 1988; Laughlin, 1991) and, as acknowledged above, at the industry-level (Grinyer & Spender, 1979; Spender, 1989).

Arguably however, the diversity of frames of reference upon which strategists draw goes still wider than the organisational or industry-level. For example, there is increasing evidence that national culture affects managers' interpretations and responses to strategic issues

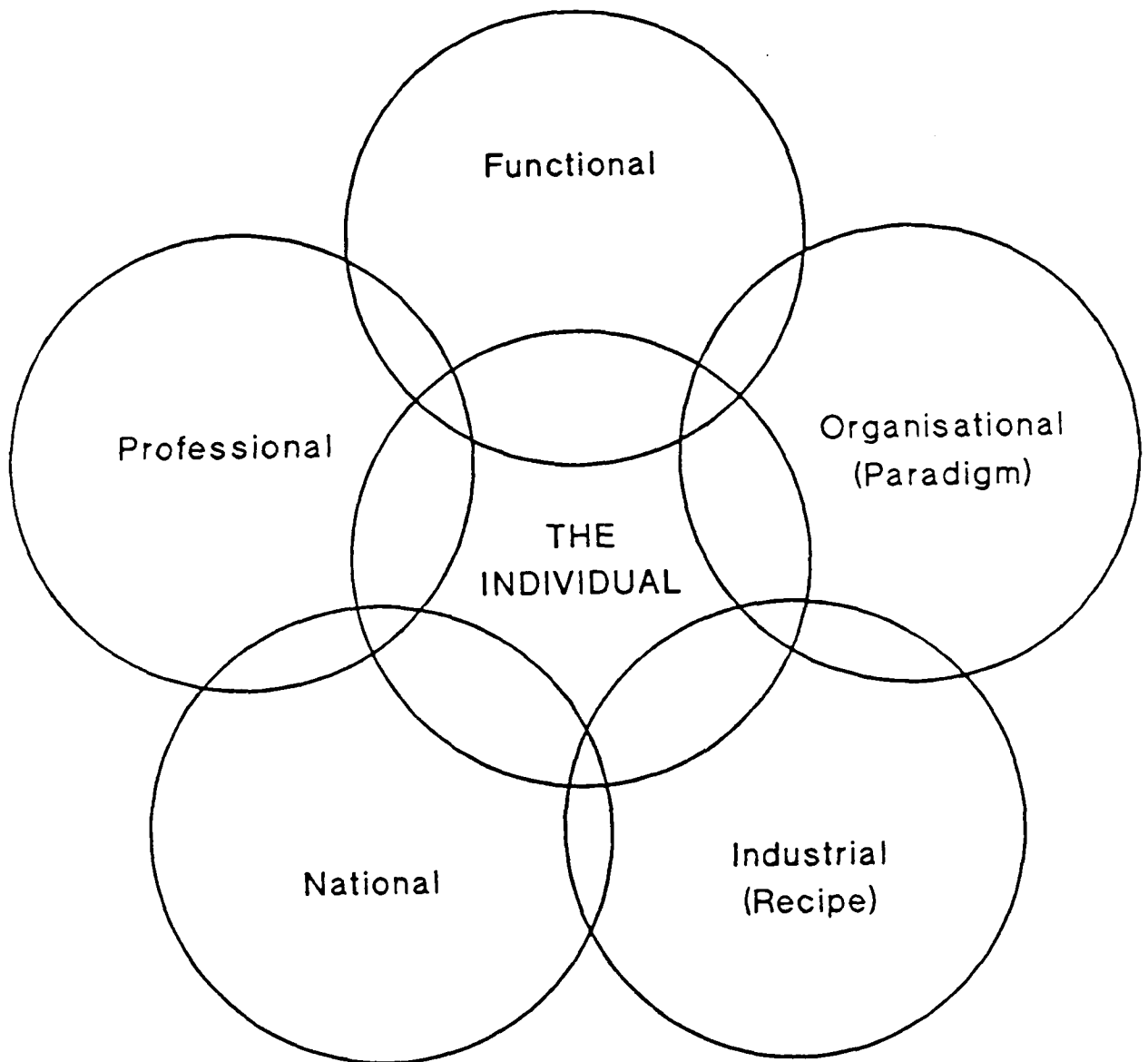


Figure 2.2. Frames of reference of strategists. (Source: Hodgkinson & Johnson, in press).

(Schneider & De Meyer, 1991; Calori et al, 1992), and their perceived control of the environment and strategic behaviour (Hofstede, 1980; Kagono et al, 1985). There are also within-organisation influences. At the level of functional groups, for example, there are functionally specific belief systems and perceptions of issues (Dearborne & Simon, 1958; Handy, 1985). Moreover, it has been argued that managers' views of the world are shaped, at least in part, by their career backgrounds (Eg Hambrick & Mason, 1974; Bouchet, 1976; Gunz & Whitley, 1985; Whitley, 1987; Gunz, 1989). Finally, there are various individual-level frames of reference which may influence the way in which strategists perceive their competitive environments (Markus, 1977; Markus & Nurius, 1986; Markus & Wurf, 1987).

In short, any actor, or grouping of actors, draws on a series of frames of reference to make sense of their world. There is a continual interplay between the individual, the context in which he or she operates, the frames of reference related to these contexts, and the political and social processes at work. Understanding the process of strategic management is therefore centrally concerned with explaining how diverse frames of reference are reconciled within and between organisations in order to formulate and implement strategies.

Individual and group-level studies of mental models of competitive structures

A number of researchers, my self amongst them, have begun investigating individual and group-level mental models in more recent cognitive studies of competitive positioning (Eg Gronhaug & Falkenberg, 1989; Reger, 1990a; Bowman & Johnson, 1992; Calori et al, 1992; Daniels et al,

1993a, 1993b; Hodgkinson & Johnson, in press). These studies have revealed considerable variation in the structure and contents of actors' mental models of competitive structures, thus calling into question the validity of the assumption of widespread consensus which underpinned the earlier studies of Porac and his associates, discussed above.

In a study of competition in the Chicago banking market, for example, Reger (1990a) investigated the mental models of senior managers from a number of rival firms, at the individual-level, in order to explore the extent to which the research participants were in agreement regarding the bases of competition, and concluded as follows:

"A surprisingly low level of agreement as to the important strategic dimensions was found in this industry. ... The results shown do not support the proposition that key strategic dimensions will be widely shared by strategists in an industry. It may be that subgroups of strategists in the industry share more commonality of dimensions than exhibited by the group as a whole. In particular, two subgroups are likely to share more commonality. First, members of the same BHC [bank holding company] might be expected to share more common dimensions because they interact more often with each other and are more likely directly to discuss competitors' strategies and key strategic dimensions in the industry. Second, strategists who share similar functional or product backgrounds are likely to share common dimensions because their training and experiences are similar and these may have shaped their cognitive constructive systems in similar ways. These hypotheses will be tested in future research (Reger, 1990a, pp 77-79).

Preliminary supporting evidence for these hypotheses has been obtained in two recent studies by Johnson and his associates (Daniels et al, 1993a, 1993b; Hodgkinson & Johnson, in press). In a study of the offshore oil pumps industry, Daniels et al (1993a, 1993b) compared the individual-level cognitive structures of several managers from differing

functional backgrounds and organisations. As in Reger's study, their findings suggest that there is considerable variation amongst managers in terms of their views of the way in which their industry is structured. However, their results also indicate that managers within particular organisations share more similar views than managers across organisations. Furthermore, managers within particular functional areas are more similar in their views than managers across functional areas.

The second study (Hodgkinson and Johnson, 1987, in press) also investigated managers' individual-level mental models of competitive structures, within the UK grocery retailing industry. Again, the findings indicated considerable differences in the structure and contents of the research participants' mental models within and between organisations in the same industrial sector. These researchers uncovered evidence which suggests that the degree of detail (structural complexity) associated with mental models of competitive structures may vary systematically according to the role requirements of the strategist's job. Managers whose roles require them to have a more detailed grasp of the business environment (for example those concerned with the formulation of national merchandising policy at head office), were found to have significantly more elaborate cognitive structures, in comparison to their counterparts whose roles do not require them to possess such detailed insights and knowledge concerning the actions of their competitors (for example regional area managers concerned with the implementation of head office policy in the field). Hodgkinson & Johnson contend that these differences in the structure and contents of their research participants' mental models have arisen due to the fact

that differing jobs place differing demands upon individuals and subgroups, which in turn, result in differing interpretations of the competitive arena.

Unfortunately, however, as we shall see in the next section, there are several methodological problems associated with each of the studies, thus far, which have sought to explore the extent of homogeneity and diversity in mental models of competitive structures, problems which render the findings equivocal. Nevertheless, these studies have important implications for the future study of competitive structures from a cognitive viewpoint. Clearly these findings call into question the validity of the assumption of consensus which has underpinned the development of competitive enactment theory and informed the research design and analysis of the data associated with the earlier studies upon which it is based. At the very least, researchers should reconsider anew the nature and status of aggregate mental models, which have been derived taking the industry-level as the sole unit of analysis (Eg Dess & Davis, 1984; Fombrun & Zajac, 1987; Porac et al, 1987; Porac et al, 1989). Such an approach to cognitive modelling fails to take account of the possibility of individual differences, differences which perhaps might vary by situational context and may be significant in relation to a number of key strategic management processes associated with strategy formulation and implementation.

The findings of these more recent studies point overwhelmingly to the need for researchers to search more systematically for patterns of difference in cognitive structures as well as patterns of similarity,

and from the literature reviewed earlier, arises the possibility of work which searches for the extent of similarities and differences in cognitive dimensions of competition according to country, industry, organisational, functional and managerial demographics; and also the extent to which context and situation at the individual level interplay with these frames of reference. If we are to understand managerial process at the cognitive level, then we need to understand better the inter-relationship of these different influences both on the individual and on the way in which they are reconciled within managerial groups. In turn, this has implications for strategic decision making, for the management of change, for managing across functional, business unit or national boundaries, or indeed for any area of management in which the reconciliation of cognitive diversity is of importance.

None of this is to say that consensual cognitive structures do not exist. They may indeed do so and, as acknowledged earlier in this review, researchers have observed such structures (for example, Spender (1989) and Porac et al (1987, 1989) at the industry level, and Johnson (1987, 1992) at the organisational level). However, the fact that a number of recent studies have revealed diverse cognitive structures at the individual and subgroup levels of analysis, suggests that, in research terms, the discovery of such consensus should be regarded as problematic rather than assumed. Moreover, in studies relating to managerial processes, where such consensus is found at one level (Eg. the industry or the organisation), a valuable and related research issue is the discovery of other areas in which consensus does not exist, for example in terms of individual roles and experience.

Proposition 3: Within mature/declining industries, actors' mental models of competitive space remain highly stable in the face of significant changes in market conditions.

As we have seen, the theory of competitive enactment implies the reason mature businesses (or indeed entire industries) fall into decline, may be due to the inability of strategists to revise their mental models of their competitive worlds in the face of significant changes in the conditions of the marketplace. In order to test this hypothesis adequately, there is clearly a need for longitudinal studies which monitor actors' mental models of competitive structures, market conditions and strategic behaviour and organisational performance, over time. Only then can we ascertain what role (if any) these mental models play in facilitating and/or inhibiting strategic change in dynamic environments.

Unfortunately, however, such studies have not been forthcoming. As far as the present author is aware, only one study thus far, directly concerned with the analysis of competitive positioning from a cognitive viewpoint, has employed some form of longitudinal research design. In a study of the forest products industry, Gronhaug & Falkenberg (1989) compared organisations' perceptions of their own and competitors' strategies with the perceptions of their competitors, during periods of growth and recession ('boom and bust'). However, this study focussed on just seven respondents from four organisations and employed a retrospective design. (ie the informants were required to report their cognitions for the periods of interest on the basis of recall.)

The organisations, selected from the Fortune 500 list of the largest US industrial firms, were pursuing strategies which emphasised wood products over pulp and paper. Multiple sources of data were used, including semi-structured interviews with top management, questionnaires, company reports and articles from relevant business periodicals. Competitive positioning strategy was operationalised in terms of Miles & Snow's (1978) four-fold typology.

Within this particular framework, organisations classified as Prospectors attempt to pioneer product/market developments and tend to compete primarily by stimulating and meeting new market opportunities. Defenders, by contrast, are those organisations who attempt to control secure niches within their industry and compete primarily on the basis of price, quality, delivery and service. Analysers are an intermediate type of firm, making fewer product/market innovations, over longer time periods, in comparison to their prospector counterparts, but are generally less committed to stability and efficiency than those organisations classified as defenders. Finally, Reactors are those organisations lacking any consistent product-market orientation, responding in an ad-hoc fashion to environmental pressures. It is noteworthy that with the sole exception of the reactor category, Miles & Snow consider all of these strategic types to be equally viable.

Following Miles & Snow's (1978) original procedure, the participants were each presented with a basic description of the four strategic types and requested to classify their own firms and the three competitors as to type, retrospectively, over the two time periods covered by the

study. Each of the four firms were also classified by the researchers for both time periods, in order to provide an additional basis of comparison. According to Gronhaug & Falkenberg, great discrepancies were observed in relation to the self-evaluations and competitors' evaluations of the firms strategies, with no changes in strategies reported by the firms themselves, despite the fact that such changes were observed by their competitors.

Although this study is based on an extremely limited sample, it clearly illustrates the potential value of longitudinal research in this field of enquiry and points overwhelmingly to the need for further studies using prospective designs with adequate sample sizes, both in terms of the number of individual research participants and the number of participating organizations. However, given the small sample size, coupled with the fact the researchers employed a relatively crude methodology of doubtful reliability and validity (it is debatable to what extent the research task adopted in this study can capture adequately actors' cognitions of their competitive worlds with an acceptable degree of consistency), it would be somewhat premature to attempt draw any firm substantive conclusions regarding change and stability in mental models of competitive space from this particular study in isolation. Further longitudinal studies, using adequate samples and more sophisticated research methods are badly needed.

SUMMARY & IMPLICATIONS

This section has outlined the theory of competitive enactment and critically evaluated the extent to which the central claims of this

theory are substantiated by the empirical evidence which is available at the present time. From the preceding discussion, it is evident that the theory of competitive enactment has considerable potential to make a substantial contribution to our understanding of business competition. However, this theory has also been found to be empirically under-determined. Three central propositions, in particular, have been identified for which the supporting evidence is has been found to be wanting, or equivocal, in a number of respects.

In order to test adequately each of these propositions, it is essential that researchers conduct relatively large-scale studies, utilising multi-level, longitudinal designs, in which actors' mental models of competitive space are compared systematically in a multi-layered fashion over time, within the context of particular industries and markets. To the extent these mental models identified across multiple units of analysis, at different levels of aggregation (Eg industry, organisation and functional group) are found to be highly similar to one another, and highly stable over time (despite significant changes in market conditions), this would be powerful evidence indeed, for the theory of competitive enactment.

Furthermore, such studies should attempt to isolate the correlates of mental models of competitive space. Should it transpire that measurable features of mental models of competitive space are found to correlate with variables which encapsulate the strategic behaviours of actors and the organisations to which they belong, this would constitute yet further strong empirical support for competitive enactment theory. On

the other hand, the absence of such correlational evidence would clearly call into question fundamentally not only the viability of this particular theory, but the value of research in this topic area in general.

However, if such a programme of research is to be undertaken, there are several major methodological hurdles which have yet to be overcome. It is to these problems we now turn in the next section.

METHODOLOGICAL ISSUES IN THE COGNITIVE ANALYSIS OF COMPETITIVE STRUCTURES: RECENT DEVELOPMENTS & FUTURE PROSPECTS

Each of the substantive issues raised in previous section, pose methodological challenges which warrant the immediate attention of scholars, if significant progress is to be achieved in subjecting the theory of competitive enactment to adequate empirical scrutiny, with a view to advancing our knowledge of the role of mental models of competitive structures in strategy development, and implementation, beyond present levels. Three problems in particular are impeding our immediate progress.

Firstly, for reasons which we noted above, the time has now come for researchers to move beyond the stage where actors' mental models of competitive space are studied for their own sake (on the basis of the largely untested assumption, hitherto, that they are somehow related to strategic behaviour and organisational performance.) Whilst significant progress has been achieved in refining techniques for the analysis of mental models of competitive structures per se, as we have seen,

virtually no attempts have been made, thus far, to develop indices which would enable researchers to relate systematically actors' cognitions of competitive positioning strategy to other variables of theoretical interest.

Secondly, there is the unresolved issue regarding how researchers should move between levels of analysis in studies of competitor cognition. Thus far, the vast majority of researchers have concentrated their efforts at a given level of analysis within particular studies, initially at the level of the industry, with a view to identifying shared belief structures of competitive space (Eg Dess & Davis, 1984; Fombrun & Zajac, 1987; Porac et al, 1987; Porac et al, 1989), but more recently at the level of the individual research participant, with a view to exploring patterns of similarity and diversity within and between particular subgroups of research participants (Eg Reger, 1990a; Daniels et al, 1993a, 1993b; Hodgkinson & Johnson, in press). However, as noted in the previous section, if recent theory is to be subjected to adequate empirical scrutiny, we need to engage in multi-level studies, in which actors' cognitions are compared and contrasted systematically, in a multi-layered fashion. Unfortunately, however, existing methods of data collection and analysis which have been used to date, in order to study mental models of competitive structures, are unable to meet this fundamental requirement.

The final, and arguably the most complex, set of issues which researchers concerned with competitive strategy from a cognitive viewpoint need to consider, is related to the problem of how actors'

mental models should be compared with one another (Huff & Fletcher, 1990). Which features of the data should form the basis of such comparisons and how should the data be analysed?

In the remainder of this section we shall attempt to identify suitable techniques of data collection and analysis which will enable researchers to overcome satisfactorily each of these problems, without placing an undue burden on the research participant or researcher from a data collection point of view. (Clearly, in order to address the substantive concerns we have isolated, such a methodology must also be capable of being applied readily to large numbers of research participants and participating organisations with administrative ease.)

METHODS FOR REVEALING MENTAL MODELS OF COMPETITIVE STRUCTURES

Researchers of competitive strategy adopting a cognitive stance have employed a variety of methods for revealing mental models of competitive structures, ranging from the simple process of having participants list competitors by name (Gripsrud & Gronhaug, 1985; de Chernatony *et al*, 1993), through to more sophisticated procedures such as the development and multivariate analysis of questionnaire items derived through a thorough analysis of relevant literature combined with expert opinion (Eg Dess & Davis, 1984; Fombrun & Zajac, 1987). Repertory grid techniques and related procedures such as multidimensional scaling have also been employed in order to reveal the basis upon which strategists distinguish competitors (Walton, 1986; Reger, 1990a; Daniels, *et al*, 1993a, 1993b; Reger & Huff, 1993). Fortunately, however, several

excellent and comprehensive reviews of the many diverse methods for studying strategic cognition have recently been published elsewhere (Eden, 1988; Huff, 1990; Fiol & Huff, 1992) and it is not the present writer's intention to duplicate this effort here. Rather, I shall confine our attention to a consideration of the extent to which various existing procedures are helpful in enabling researchers to address the substantive concerns raised in the earlier parts of this chapter.

Table 2.1 presents in summary form, a review of the various research methods which have been employed, to date, in order to investigate competitive positioning strategy from a cognitive viewpoint. It is evident from this table, that a wide range of techniques have been applied across relatively small numbers of research participants and participating organisations, in diverse settings, thus rendering problematic the extent to which we can generalise the findings from one study to another.

One of the most striking observations which emerges from this body of research, is that those studies which have revealed patterns of diversity in mental models of competitive structures (Eg Reger, 1990a; Calori *et al*, 1992; Daniels *et al*, 1993a, 1993b; Hodgkinson & Johnson, in press) are limited from a methodological point of view. Two problems in particular undermine the claim that actors' mental models of competitive space within particular industries and markets are perhaps more diverse than was previously assumed to be the case.

Table 2.1. Summary of the various research methods employed in cognitive studies of competitive positioning strategy

STUDY/SAMPLE/METHODOLOGY	PRINCIPAL CONCLUSIONS/COMMENTS
<p>Bowman (1991a)/Bowman & Johnson (1992)</p> <p>309 senior managers from 35 businesses within various industries</p> <p>Structured questionnaire designed to assess the usage of various competitive methods related to Porter's (1980) generic strategies (adapted from Dess & Davis, 1984)</p>	<p>The extent to which managers are in agreement regarding their organisations' competitive positioning strategies varies considerably from one organisation to another. In cases where agreement levels are low, differences in perceptions seem to be related to the current and historical functional roles of the research participants. The extent to which senior managers are in agreement within organisations is correlated with organisational performance.</p> <p>Unfortunately the research design confounds consensus levels with industry sectors, thereby restricting the interpretation which can be placed on the findings.</p>
<p>Calori, Johnson & Sarnin (1992)</p> <p>33 managers (16 English and 17 french) from 4 industries (brewing, car manufacturing, retail banking & book publishing)</p> <p>Content analysis of semi-structured interview transcripts in order to infer individual and collective mental models of the structure & dynamics of the industries</p>	<p>Various qualitative & quantitative comparisons suggest that patterns of similarities & differences are discernible at both the industry & country levels of analysis. Differences between countries within a given industry appear to be more pronounced than between country differences <i>per se</i>.</p> <p>Virtually the only study, thus far, which has attempted to compare mental models across multiple levels of analysis. Unfortunately, however, the sample sizes are too small, given the number of statistical tests performed on the data, with a very high probability that many of the findings are due to type I errors. Furthermore, the research methods adopted may have accentuated surface-level differences in cognition at the expense of communalities.</p>

Table 2.1. - continued.

STUDY/SAMPLE/METHODOLOGY	PRINCIPAL CONCLUSIONS/COMMENTS
<p>de Chernatony <i>et al</i> (1993)/ Daniels <i>et al</i> (1993a, 1993b)</p> <p>24 senior managers from 5 pump manufacturing companies & 17 customers from 10 companies (purchasing & engineering managers) within the off-shore pumps industry</p> <p>Free response listing of competitors in conjunction with card-sorts & repertory grid</p>	<p>Managers' mental models of competition are diverse rather than homogeneous. This diversity increases as functional & company boundaries are crossed & as industry boundaries are crossed into buyer/supplier relationships. Managers' ability to recognise one another's mental models follows a similar pattern but recognition may be more widespread than cognitive similarity.</p> <p>The relatively small sample sizes limit the extent to which the findings can be generalised within the immediate context of the study or, more generally, to other industries. Furthermore, the research methods adopted may have accentuated surface-level differences in cognition at the expense of communalities.</p>
<p>Dess & Davis (1984)</p> <p>19 CEOs from firms within the paints and allied products industry</p> <p>structured self-report questionnaire designed to assess the usage of competitive methods related to Porter's (1980) generic strategies</p>	<p>Empirical support for the presence of strategic groups based on porter's generic strategies. Significant performance differences were observed, between the various strategic groups, with firms identified with at least one generic strategy outperforming those identified as "stuck in the middle".</p> <p>Data collection was confined to a single informant from each participating organisation (the CEO). The extent to which other managers within these organisations are in basic agreement regarding their companies' competitive positioning strategies is untested, though fundamental to the validity of the claim that intra-industry stratification is a function of both structural parameters <u>and</u> top managers' responses to perceptions of their environments.</p>

Table 2.1. - continued.

STUDY/SAMPLE/METHODOLOGY	PRINCIPAL CONCLUSIONS/COMMENTS
<p>Easton, Burrell, Rothschild & Shearman (1993)</p> <p>Comparative case studies of 4 industries (medical laser, temperature control, commercial vehicles & tufted carpets)</p> <p>(Note: The numbers of participating firms & individual research participants within each industry are not disclosed)</p> <p>Semi-structured interviews analysed primarily by 'post-coding' the responses embedded within the transcripts (IE thematic content analysis of the verbatim statements of the research participants)</p>	<p>The extent to which perceptions of competitive structures are homogenized, is dependent on two inter-related factors, namely, the stage of development of the industry & the extent of heterogeneity in product, market or technology. Only 1 industry (commercial vehicles) reflected the stability & predictability inherent in the notion of an 'industry structure'.</p> <p>The scant details of the data collection & analysis methods preclude an adequate assessment of the reliability & validity of the findings. The fact that the data were gathered by 5 different interviewers, over differing time periods, may well account for the apparent lack of perceptual homogeneity in all but 1 industry (cf Easton <i>et al</i>, 1993, p 280).</p>
<p>Fombrun & Zajac (1987)</p> <p>114 of the largest firms in the USA financial services industry</p> <p>Structured questionnaire survey</p>	<p>Variables measuring managerial perceptions are useful predictors of strategic group membership.</p> <p>Data collection was confined to a single informant from each participating organisation (the CEO or some other senior manager). Consequently, the extent to which other managers within these organisations are in basic agreement regarding their companies' competitive positioning strategies is untested, though fundamental, to the validity of the claim that intra-industry stratification is a function of both structural parameters <u>and</u> top managers' responses to perceptions of their environments.</p>

Table 2.1. - continued.

STUDY/SAMPLE/METHODOLOGY	PRINCIPAL CONCLUSIONS/COMMENTS
<p>Gripsrud & Gronhaug (1985)</p> <p>43 grocery retailers in a small Norwegian township</p> <p>Free response listing of competitors in conjunction with several structured questions regarding the informants' own organisation and its most important competitor.</p>	<p>Strategists only perceive a modest fraction of 'objectively' discernible competitors as important business rivals. An adequate assessment of the competitive structure of the retail industry, therefore, is difficult to make from 'objective' market structure data alone.</p>
<p>Gronhaug & Falkenberg (1989)</p> <p>7 informants from 4 organisations in the USA forest products industry</p> <p>Retrospective classification of own organisation & its competitors over two time periods using Miles & Snow's (1978) typology</p>	<p>Firms and their competitors differ greatly in their perceptions of competitive positioning strategy. The informants' perceptions were found to differ from the 'objective' assessments of the researchers. None of the firms studied was found to change their strategies in response to environmental jolts.</p> <p>The only study, thus far, to employ some form of longitudinal research design. However, the findings may be due to the extremely small sample size and the relatively crude methodology used for eliciting the informants' perceptions of competitive positioning strategy.</p>
<p>Hodgkinson & Johnson (1987, in press)</p> <p>22 informants from 2 organisations in the UK grocery retail industry</p> <p>Self-entry within-subjects variant of Porac & Thomas's (1987) taxonomic interview procedure</p>	<p>Systematic variation in the structure & contents of the individual informants' mental models of the competitive structure of the industry, reflecting differences in the role responsibilities of their jobs.</p> <p>The interview procedure adopted in this study may have accentuated surface-level differences in cognition at the expense of communalities.</p>

Table 2.1. - continued.

STUDY/SAMPLE/METHODOLOGY	PRINCIPAL CONCLUSIONS/COMMENTS
<p>Porac, Thomas & Emme (1987)</p> <p>77 owner-managers of grocery retail businesses in the Champaign-Urbana district of rural Illinois, USA</p> <p>Top-down between subjects variant of Porac & Thomas's (1987) taxonomic interview procedure</p>	<p>Decision makers make sense of competitive environments by means of cognitive taxonomies that summarize the similarities & differences among organizations. A five level hierarchical taxonomy seems to capture the competitive structure of the grocery retail sector within the vicinity of the study.</p> <p>The data collection method adopted in this study forces a hierarchical structure to emerge, thus rendering untestable the assumption that decision makers' mental models of competitive structures are organised hierarchically. This method is also questionable in terms of the way in which data from individual respondents is aggregated in order to generate the cognitive taxonomy (the investigation of variation in cognition from one respondent to another, or from one subgroup to another, is precluded by this particular method).</p>
<p>Porac, Thomas & Baden-Fuller (1989)</p> <p>17 top managers from within the knitwear industry (located mainly in the borders region of Scotland)</p> <p>Top-down within-subjects variant of Porac & Thomas's (1987) taxonomic interview procedure</p>	<p>Strategic decision makers within this industry share a strongly held collective mental model of the industry structure, which over-rides individual and subgroup differences in cognition which may previously have existed, and has come to shape the strategic choices adopted by the various players.</p> <p>Data analysis in this study was confined to an exploration of the communal beliefs of the full sample of research participants. The extent to which the informants' mental models differed in their structure & contents, at the individual or subgroup levels of analysis was not investigated.</p>

Table 2.1. - continued.

STUDY/SAMPLE/METHODOLOGY	PRINCIPAL CONCLUSIONS/COMMENTS
<p>Reger (1990a)</p> <p>24 strategists from 6 bank holding companies in the city of Chicago, USA</p> <p>Factor analysis of data elicited by repertory grids</p>	<p>A low level of agreement amongst the informants regarding the strategic dimensions underpinning competition. The findings suggest strategists have different cognitive frameworks. Researchers should proceed with caution, therefore, when selecting strategic dimensions for use in competitive positioning studies.</p> <p>The research method adopted in this study in order to elicit the strategic dimensions may have accentuated surface-level differences in cognition at the expense of fundamental communalities (cf Reger & Huff, 1993).</p>
<p>Reger & Huff (1993)</p> <p>24 strategists from 6 bank holding companies in the city of Chicago, USA</p> <p>Cluster analysis of data elicited by repertory grids [ie a re-analysis of Reger's (1990a) data-set]</p>	<p>A high level of agreement across the informants in terms of the clustering solutions (using multiple algorithms) suggesting perceptions of strategic group structure are widely shared by strategists within an industry, rather than each strategist holding unique perceptions of strategic group structure.</p>
<p>Walton (1986)</p> <p>22 senior managers from nationally prominent firms within the insurance, securities, savings banking and commercial banking sectors of the USA financial services industry (New York City)</p> <p>Multidimensional scaling analysis of attributes, elicited using repertory grid (separate analyses were performed for subgroups of managers from each sector)</p>	<p>Differing attribute structures emerged for each of the 4 subgroups, suggesting that prototypes of what it takes to be successful vary by industrial sector.</p> <p>The apparent cognitive diversity observed may be due to the very small number of research participants in each subgroup. Furthermore, the interview task used to elicit the attributes may have accentuated diversity at the expense of communalities.</p>

Firstly, with the notable exception of Bowman & Johnson's (1992) study, these studies are based on modest sample sizes, both in terms of the number of participating organisations and the number of individual research participants. As table 2.1 shows, studies in this field have typically employed between 17 and 33 research participants from a considerably smaller number of organisations. Clearly these samples are too small for performing meaningful comparisons at the individual and/or subgroup level of analysis, if the findings are to be generalised to larger populations.

There is a more serious problem, however, which undermines our ability to draw firm substantive conclusions regarding the extent of homogeneity and diversity in cognition from these studies. This concerns the methods used to elicit and represent the research participants' mental models of the competitive environment.

As noted in table 2.1, the majority of the studies which have sought to discover the extent to which actors' mental models are homogeneous or diverse - in terms of their structure and contents - have tended to use methods of data collection and analysis which are unsuitable for exploring this particular issue. Studies which have revealed diverse mental models of competitive structures have, on the whole, tended to use research methods which, by their very nature, accentuate differences in cognition at the expense of communalities. Consequently, it is difficult to ascertain the extent to which the observed differences in cognition are due to the characteristics of the industry under study, the characteristics of the research participants and participating

organisations, or the research methods employed in order to gather and analyse the data.

Hodgkinson & Johnson's (in press) study, for example, used a variant of Porac & Thomas's (1987) taxonomic interview procedure (known as the "self-entry within-subjects assessment method"), in order to elicit individuals' mental models of their competitive worlds in the grocery retail industry. Using this technique, informants are required to discuss the nature of their business, what class of business it is (the "starting category"), what related classes of business there are, and what sub-classes of each there might be. The process is continued upwards, until the informant is unable to generalise usefully further, laterally, until all the related classes of business he or she can recall have been recorded, and downwards, until no further meaningful distinctions can be drawn. The process is recorded by the researcher on a whiteboard in full view of the informant, thus enabling informants to correct or modify their responses as the session progresses. The end result is a complete hierarchical taxonomy which represents the mental model of the individual respondent³.

3 An alternative approach for eliciting individual-level cognitive taxonomies, known as the "top-down within-subjects" variant, requires the research participant to identify the sub-categories which emanate from a starting category supplied by the researcher, known as the "root beginner" category. In all other respects this approach is identical to the procedure employed by Hodgkinson & Johnson (in press). This particular variant was the approach adopted by Porac *et al* (1989) in their study of the Scottish knitwear industry discussed earlier. A third approach, known as the "top-down between-subjects" variant, was employed by Porac *et al* (1987) in their study of USA grocery retailers in rural Illinois, also discussed earlier. This version uses multiple samples of research participants in order to identify successive subordinate levels within the taxonomy, emanating from a root beginner. The result is an aggregate taxonomy representing the collective cognitive structure of the research participants. However, as Hodgkinson & Johnson (in press) observe, it is highly questionable to what extent the results of this particular procedure are meaningful. Whilst this procedure enables the researcher to represent the

In short, this particular interview task is designed to capture individuals' personalised mental models of their competitive worlds. However, it is evident that the technique itself, by its very nature, will tend to lead research participants to generate idiosyncratic responses which may be a function of the demand characteristics of the data collection task, rather than a reflection of underlying substantive differences in cognition.

This observation is equally applicable to most of the other studies which have sought to explore the extent of consensus and diversity in mental models of competitive structures. Reger (1990a), for example, employed the classic "minimum context form" of the repertory grid technique in order to elicit separate sets of constructs from each participant, using triads of named competitors supplied by the researcher. As in the case of the taxonomic interview procedure employed by Hodgkinson & Johnson, it is highly likely that this approach, by definition, will generate idiosyncratic responses [for a related example see Walton (1986)].

Similarly, Calori et al's (1992) use of 'loosely structured interviews' in order to uncover executives' strategic thinking in relation to anticipated changes in their industries and organisations may have accentuated minor differences in cognition at the expense of fundamental

collective responses of the participants, it does not follow, indeed it seems highly unlikely, that the resulting cognitive structure reflects the viewpoint of any given individual actor or group of actors. This method, by its very nature, forces each successive group of research participants to consider the responses of previous subgroups of participants in order to generate additional levels in the resulting taxonomy.

communalities. In this study the mental models were inferred from the interview transcripts by the researchers using content analysis.

As a final illustration, consider the recent work of Daniels and his associates (Eg Daniels et al, 1993a, 1993b). In addition to the use of repertory grid, these researchers employed a card sort technique in order to study managers' mental models in their study of the off-shore pumps industry. Using this procedure, respondents are required to list their competitors on a series of cards (1 card per competitor) and sort the cards into "meaningful categories", in the presence of the researcher. The respondent is free to place the cards (on a table) in any order that personally makes sense. Respondents are instructed to place cards closer together in order to denote the fact that particular firms are perceived to be in closer competition to one another. Conversely, the respondent indicates that firms are in competition to a lesser extent, by placing the relevant cards further apart (in any direction). Once the research participant is satisfied that cards are arranged appropriately, the researcher photographs the configuration. Once again, there is a danger that the research technique itself may yield idiosyncratic responses that accentuate surface-level differences in cognition which are more apparent than real.

A further problem associated with existing techniques for representing individual-level mental models is the difficulty of comparing one mental model with another, in terms of their structure and contents, a problem which intensifies with increased numbers of research participants and

levels of analysis. Which particular features should form the basis of such comparisons and how should the necessary analysis be performed?

The answer to this question is non-trivial and, ultimately, the decision as to which particular feature(s) should form the focus of the analysis may prove to be the crucial deciding factor which determines the outcomes of a given study. This can be illustrated by reference to Reger's (1990a) study of the Chicago banking market.

As we saw earlier, Reger (1990a) found considerable variation in terms of the personal constructs elicited from managers from different banks within the Chicago area and (on the basis of a series of factor analyses), concluded that there were low levels of agreement amongst strategists in the banking industry regarding the important dimensions defining the bases of competition. More recently, however, Reger & Huff (1993) re-analysing the same data-set (using a variety of cluster analysis techniques), have noted considerable agreement in terms of the research participants' categories of competitors. On the basis of this re-analysis, Reger & Huff conclude that the findings of their study offer complementary support for Porac et al's (1989) and Porac & Thomas's (1990) view, as outlined earlier in this chapter, that there is a cognitive basis for forming strategic groups (see also Bognor & Thomas, 1993). Clearly this interpretation of the results is somewhat at variance with Reger's (1990a) initial conclusions that strategists have different cognitive frameworks, and serves well to illustrate the fact that the comparative evaluation of data across individuals in

cognitive studies of competitive positioning strategy is far from straightforward.

Similar conclusions can be drawn from my own study of the UK grocery retail industry (Hodgkinson & Johnson, 1987, in press). Again, as we saw earlier, this study revealed considerable variation in the structure and contents of the research participants' mental models of the competitive arena, and an analysis based on the degree of detail associated with each cognitive structure, suggested that competitor cognition varies systematically according to the role responsibilities of each individual's job. However, upon closer inspection, as in the Reger & Huff (1993) re-analysis, it was found that there were several categories of competitor which the research participants seemed to hold in common. In particular, a content analysis suggested that the majority of research participants seemed to share similar views regarding the nature and identity of their own businesses and their major competitors - a further illustration that the researcher's decision as to which features of actors' mental models should form the basis of comparison in cognitive studies of competitive positioning strategy is potentially crucial to the outcomes of the study.

As a final illustration of the limitations of existing techniques for the systematic comparison of mental models, let us consider again the recent work of Daniels and his associates (Daniels *et al*, 1993a, 1993b). These researchers have attempted to circumvent some of the problems we have identified, associated with the comparison of cognitive structures, through the use of structured rating scales. Having elicited actors'

cognitions by means of the minimum context form of the repertory grid technique in conjunction with the card-sorting task outlined above, Daniels and his associates require their research participants' to compare one another's mental models to their own current thoughts, directly, using a simple single item Likert scale designed to assess their overall similarity (for a psychometric evaluation of this procedure see Daniels, Markoczy, Goldberg & de Chernatony, 1993; Daniels de Chernatony & Johnson, in press).

The problem here, as we shall see in later chapters, is that it is highly questionable to what extent such assessments of similarity - based on visual comparisons of spatial representations of actors' mental models - are meaningful. In the absence of clear criteria upon which to base these comparisons, there is a very real danger that raters will focus on surface-level characteristics of the data which, in turn, as in the case of the other methods reviewed in this chapter for studying similarities and differences in cognitive structures, may give rise to findings of diversity which are more apparent than real. Moreover, there is also a likelihood with this approach, particularly if large numbers of cognitive structures are to be compared, that raters may vary the bases of comparison from one judgement to another, a further factor which could potentially give rise to artificially inflated levels of cognitive diversity.

SUMMARY & IMPLICATIONS

It is clearly evident from this discussion that many of the existing techniques for eliciting and comparing actors' mental models of

competitive structures are inadequate for the purpose of addressing the substantive issues identified in the earlier sections of this chapter. As we have seen, researchers interested in the extent of diversity and consensus in industries and markets regarding the bases of competition and competitive positioning of rival players have tended, on the whole, to adopt research methods of data collection and analysis which emphasise cognitive diversity at the expense of communality. Ultimately, the use of these techniques may give rise to false conclusions. Each of the methods we have considered lack suitable controls at the data collection stage, thus giving rise to the danger that the research participants may unwittingly succumb to the demand characteristics of the situation.

Given the low levels of control generally associated with the various procedures that have been adopted in previous studies which have revealed diversity in actors' mental models of competitive positioning strategy, it is perhaps not too surprising that such diversity has been observed. In the absence of such controls, it is impossible to discern the extent to which these findings represent genuine underlying differences in cognition, perhaps due to factors operating within the individual, organisation and/or industry, or merely reflect the demand characteristics of the research situation.

Each of the studies reviewed above illustrate the basic problems of comparing multiple cognitive structures at a given level of analysis. If we are to move on to attempt multi-level analyses, then the problems

associated with the comparison of mental models become compounded with issues of aggregation.

The implications of this methodological critique for the future study of mental models of competition are clear. If the various substantive issues, which we raised earlier in this chapter in connection with the theory of competitive enactment, are to be tested with an acceptable degree of rigour, then we need to refine further existing methods of data collection and analysis, or alternatively, search for new techniques which do not fall foul of the various problems we have identified.

TOWARDS AN IMPROVED METHODOLOGY FOR THE INVESTIGATION OF SIMILARITIES & DIFFERENCES IN MENTAL MODELS OF COMPETITIVE SPACE

One technique in particular which, a priori, would seem to be capable of sufficient refinement in order to overcome the various methodological hurdles we have identified, is the repertory grid. The primary strength of this approach lies in its inherent flexibility both from the point of view of data collection and analysis (Slater, 1976; Fransella & Bannister, 1977; Slater, 1977; Smith & Stewart, 1977; Reger, 1990b). Although its origins lie within personal construct psychology (Kelly, 1955), in recent years researchers in social cognition have successfully adapted this approach in order to investigate aspects of both individual and collective cognition at one and the same time, using powerful techniques of statistical analysis known as three-way multidimensional scaling (for example see Forgas, 1976, 1978; Coxon & Jones, 1978, 1979a, 1979b; Forgas et al, 1980; Forgas, 1981; Coxon, Davies & Jones, 1986).

As we shall see in later chapters, the use of these procedures in conjunction with suitably designed semi-structured questionnaires, offers researchers the opportunity to search systematically for patterns of cognitive homogeneity and diversity without unduly influencing the outcomes of their studies by virtue of the methodologies employed. In this way, these techniques, which neither force consensus nor diversity, enable the researcher to capitalise on the strengths associated with existing ideographic and nomothetic knowledge elicitation procedures, without falling prey to either of their associated weaknesses. An additional useful feature of these techniques, is that they yield indices of differential cognition, which may prove suitable for identifying the correlates of actors' mental models of competitive space. In short, we appear to have identified a methodological approach which, on its prima facie appearance, would seem ideally suited for overcoming each of the limitations we have found to be associated with existing procedures for investigating competitive positioning strategy from a cognitive perspective⁴.

RESEARCH AGENDA

This review has identified a number of significant issues and themes within the rapidly expanding literature on the cognitive analysis of competitive positioning strategies, which require substantial empirical analysis. As we have seen, much of the recent research effort within this topic area has been dominated by small-scale exploratory investigations, designed primarily in order to assess the viability of

⁴ Interestingly, in a parallel development within the field of strategic management, Ginsberg (1989) has advocated a similar approach for investigating the way in which top management teams in organisations pursuing diversification strategies, construe their business portfolios.

particular methodological approaches for revealing insights into how strategists view their competitive worlds. These studies have undoubtedly established that the cognitive perspective is a viable approach for advancing our understanding of business competition.

However, in the present writer's view, this field of enquiry is approaching a new phase in its development. We have reached the stage where the time has now come to move beyond such small-scale inductive exploratory work, towards larger-scale hypothetico-deductive theory testing, if further significant progress is to be achieved.

The theory of competitive enactment represents a potentially significant breakthrough in terms its contribution to our understanding of business competition. However, if its potential is to be realised, there are a number of gaps within the limited empirical knowledge-base which has accumulated, thus far, which demand immediate attention.

Three propositions in particular have been identified, which are fundamental to this theory, for which the existing evidence is either severely limited, from a methodological point of view, or non-existent. Furthermore, the findings of a number of recent studies have begun to accumulate which, on the face of it, would seem to contradict the predictions of competitive enactment theory. However, this review has demonstrated that these studies are beset by a number of methodological shortcomings which render the substantive meaning of the results equivocal.

Existing procedures for the cognitive analysis of competitive structures have been found to be unsuitable for exploring the various substantive issues raised in this review, namely, the extent to which measurable features of actors' mental models correlate with measurable strategic behaviours and measurable features of the organisation and its environment, the extent to which actors within an industry share similar or diverse world-views, and the extent to which these mental models remain stable or change over time. Fortunately, however, we have identified an alternative methodology which, on the basis of its prima facia appearance, would appear to avoid some of the problems associated with existing techniques for mapping actors' mental models of competitive space.

The study reported in later chapters of this thesis, sought to apply this methodology in order to address each of the substantive issues identified in this review, in turn. Before considering the finer details of this methodology, however, and the findings of the present investigation, we turn to explore the context in which the study took place.

CHAPTER 3

THE RESEARCH CONTEXT

The purpose of this chapter is to present a brief historical overview of the UK residential estate agency industry, the industry in which the current study was undertaken. In particular, we shall focus on the major events which have occurred within this industry during the past 10-15 years, in order to gain an appreciation of the context in which the fieldwork associated with the present study took place. This is necessary for two reasons, namely, in order to establish that the context in which the study took place was an appropriate setting in which to address the substantive concerns of this thesis, and secondly, in order to provide a backcloth against which we can evaluate the significance of the findings to be presented in later chapters.

Criteria for the Choice of Industry

It is evident from the previous chapter that the diverse research objectives which the present study was designed to accomplish require an industry which has passed through the early stages of its life-cycle into the maturity or decline phase. As we have seen, Porac et al's (1989) competitive enactment theory predicts that within such industries actors' mental models of competitive space should converge to form highly unified perceptions of reality. Should we fail to detect empirically evidence of such perceptual convergence, or conversely, should we find evidence of

widespread cognitive diversity, in this type of industry, we would have to reconsider afresh the boundary conditions pertaining to this theory.

However, in order to explore the extent to which mental models of competitive space change or remain stable in the face of significant changes in market conditions, we require an industry characterised by considerable environmental instability or volatility - ie an industry which has a marked tendency to suffer significant environmental jolts from time-to-time. Should it transpire - in this type of industry - that mental models are found to be highly stable, over a significant period of time, this would be very strong supporting evidence for the argument that the reason mature businesses and/or industries fall into subsequent decline is due, at least in part, to cognitive inertia on the part of strategists - ie the inability of strategists to revise their mental models of competitive space in the face of significant changes in the conditions of the marketplace.

Furthermore, an industry with this particular combination of features is a potentially fertile ground for exploring the empirical linkages between cognition and strategic behaviour and performance. This type of industry is a particularly interesting arena in which to explore such linkages, due to the fact that there is considerable pressure on firms to improve or maintain their competitive positions, accompanied by continual uncertainty regarding market conditions. Clearly in this type of industry there is a relatively high probability that strategic cognition is of major importance

to individuals and the organisations in which they operate. Should empirical relationships between measurable features of actors' mental models of competitive space, and measurable features of strategic behaviour and organisational performance fail to emerge in a study carried out within this type of industry, it would be difficult to envisage a context in which such relationships would be detectable.

In short, the present research objectives require an industry which has entered the later stages of its life cycle, yet also exhibits considerable volatility. Such an industry would provide a critical test-bed in which to explore the validity of all three of the propositions derived in the previous chapter. Should supporting evidence for these fundamental predictions fail to emerge in such an industry, this would imply the need to reconsider anew the nature and status of competitive enactment theory.

THE UK RESIDENTIAL ESTATE AGENCY INDUSTRY

One industry in particular which appears to meet these criteria and, therefore, would seem to be highly appropriate for pursuing the present research agenda, is the UK residential estate agency industry¹. As we

1 For the purposes of this study, we shall confine our attention to the residential sales sector of the estate agency industry, since it is this sector in particular which has undergone several dramatic changes in recent years which, in the present writer's view, make for interesting field-work in connection with the substantive issues we have identified as worthy of empirical analysis, although of course it should be recognised that the industry also encompasses several other diverse spheres of activity, not least of which is commercial & industrial lettings and the management of residential property. However, a consideration of these aspects of the industry would have demanded considerable additional resources well beyond the scope of the programme of research embodied in this thesis.

shall see, this well-established industry has undergone some dramatic changes in recent years, changes which render it an ideal context in which to address the substantive concerns of this thesis.

The origins of the modern estate agency profession can be traced back to the last century. Following the industrial revolution, patterns of land and property ownership changed dramatically from a situation in which a minority of highly privileged landowners possessed vast estates - which tended to remain within the same families from generation-to-generation - to a situation in which land and property ownership became much more widespread. Prior to this time, on the relatively few occasions such services were required, the related functions of estate agency and auctioneering were commonly undertaken by members of the legal profession. With such dramatic changes in patterns of land and property ownership, however, came the need for these activities to be undertaken formally as a specialist field of practice. In this way the practice of real estate gradually passed from being a minor task occasionally performed by lawyers, through to a separate profession with its own identity (Centre for Business Research, 1986)².

The primary function of the modern residential estate agent is to act as an intermediary between vendors (those wishing to sell their properties) and would-be purchasers. During the process of selling a property, an estate

² In recent years, however, the legal profession has re-entered the estate agency industry, with a number of solicitors' offices now offering a complete range of services from property sales through to auctioneering.

agent will advise his or her client on an asking price, prepare written details, photographs and publicity proposals, advise prospective purchasers of the property's availability, execute an advertising programme, escort prospective purchasers over the property, assure him or herself of the purchaser's financial standing and brief his/her client's solicitor on the sale. Other services provided by residential estate agents include surveys, valuations, insurance brokerage and overseeing the letting and renting of property (Key Note, 1986, 1992).

Whilst, in principle, estate agents have a responsibility to both parties, they act on behalf of vendors, their fee-paying clients, and so would-be purchasers should be on their guard. However, it is not necessary (though perhaps advisable), for vendors to employ the services of an estate agent, and Key Note (1986) - drawing on evidence from a "Which?" survey - estimate that somewhere between 25 and 30 percent of the market is accounted for by the DIY sector.

Currently, there are very few restrictions governing the practice of estate agency within the UK and, with the notable exception of bankrupts - as specified in the Estate Agents Act 1979 - virtually anyone can set up in business³. Regulation of the industry is achieved mainly through three professional bodies, namely, the Royal Institute of Chartered Surveyors (RICS), Incorporated Society of Valuers & Auctioneers (ISVA), and the National Association of Estate Agents (NAEA) who impose strict codes of

³ Whilst the Estate Agents Act 1979 expressly prohibits bankrupts from setting up in business as "estate agents", nevertheless they can work for someone who is.

conduct and standards of practice on their members. Membership of these associations is on an individual rather than a corporate basis, and is restricted to those meeting the criteria of admission, namely, the passing of certain examinations and/or a period of practical experience.

Key Note (1986) reports that there is a total of 28,000 members across the three professional bodies, which allowing for some inevitable overlap of membership, leaves an estimated 25,000 individual estate agents in practice who do not belong to any recognised association. In view of the fact that there are so few legal restrictions imposed on estate agents, coupled with membership of professional associations being a voluntary matter, it is perhaps not too surprising that the industry has suffered something of an "image problem" in recent years.

According to the Centre for Business research at Manchester Business School, the industry is divided with regard to the issue of how business transactions should be conducted. Typically, members of the RICS and ISVA support a professional approach to the conduct of business transactions, seeking to ensure their members are sufficiently qualified by examination and experience to offer a competent service. Others, however, view the industry primarily as a commercial venture in which the role of estate agents is to act in a brokerage capacity in order to secure the most profitable deal (Centre for Business Research, 1986).

Increasingly in recent years, estate agency businesses have come to provide a diversified range of services, in what appears to be something of a general trend away from their traditional, relatively narrow function, towards one-stop home purchase packages. Following recent changes in the legislation governing the operation of financial services companies, it is estimated that up to 25 per cent of estate agency businesses' income is derived from the provision of financial services, or related valuations and services (Key Note, 1987).

It is evident that in order for business transactions to be successful within this industry, the various functional specialists must be highly inter-dependent on one another. Properties which are under-valued - relative to the market norm - will undoubtedly sell quickly, but at a loss both to the vendor and the agent. Conversely, properties which are over-valued - relative to the market norm - will take longer to sell, particularly in periods of low activity within the housing market. In order to ensure effective sales, functional specialists such as valuers, negotiators, and surveyors must regularly maintain close contact with one another, exchanging valuable information regarding market conditions. In short, organisational and functional boundaries must be crossed frequently during the course of business transactions in this industry.

This high level of functional and organisational inter-dependence associated with the residential estate agency industry, is a particularly attractive feature from the point of view of testing the validity of

competitive enactment theory. To the extent that mental models of competitive space are convergent across organisational and functional subgroups in mature and declining industries and markets, we would expect to find strong evidence of such belief similarity in this particular industry.

Recent Developments in the Estate Agency Industry

As noted in chapter 1, one of the potential benefits of employing cognitive methods in studies of competition is that these techniques may yield useful insights into the problems facing particular industries and firms. In recent years the residential estate agency industry in the UK has undergone some rather dramatic changes, changes which make the present investigation particularly timely from the point of view of considering the value of cognitive studies of competitive strategy from a practitioner's perspective.

The Entrance of National Financial Institutions

Within the past decade, the UK estate agency industry has changed from being an industry in which large numbers of small firms - the vast majority being single office concerns - dominate local markets, to one in which an increasingly smaller number of large financial services institutions have come to dominate the national scene. According to Dietrich & Holmes (1990) the major reason for these changes has been the realisation on the part of the large financial institutions (ie banks, building societies and

insurance companies) of the increased opportunities afforded for marketing their financial services by entry into the estate agency sector⁴.

The rapid pace with which the financial institutions have achieved extensive national coverage in estate agency has been accomplished through merger and acquisition activity carried out on a vast scale. The first major entrant into the estate agency sector was Lloyds Bank in May 1982, through its launch of the "Black Horse" chain. From the outset, the intention was to operate as a totally professional company, with only the best firms with the highest of reputations being acquired. Existing partners were retained to run the companies - under contractual arrangements with Lloyds which guaranteed complete professional freedom:

"Each of the agencies acquired retains its local image and reflects the requirements of the market in its particular area. The client has the benefits of local knowledge and the personal service of a compact company unit run entirely by professionals, who are also able to offer the benefits of a large group in terms of training, product development and general resources. This is in direct contrast with other organisations in similar positions, where service can be entirely self-oriented and not client based" (Centre for Business Research, 1986, p 90).

During the process of establishing the Black Horse chain, Lloyds held joint consultations with both the RICS and the ISVA, in order to ensure that no conflicts of interest arose through its acquisition activities. According

⁴ Prior to recent changes in legislation brought about by the Conservative Government, which came into effect in 1987, estate agents and building societies were precluded from establishing formal ties with one another, by virtue of the Building Societies Acts.

to the Centre for Business Research at Manchester Business School, the relationship between Black Horse Agencies and their parent organisation, Lloyds bank, is strictly an arms-length arrangement, as evidenced by the fact that for every mortgage supplied by the clearing bank, between ten and fifteen building society mortgages are sold in addition (Centre for Business Research, 1986).

Other large financial services institutions quickly followed the lead of Lloyds. The Prudential corporation, one of the largest life assurance companies in the UK, entered the estate agency sector in June 1985, through the acquisition of Ekins, Dilley & Handley, a small 12 branch chain located throughout East Anglia. The chain was re-launched in January 1986 as Prudential Property Services (PPS). Within the relatively short period between its initial launch and the peak of the boom in the housing market, during the summer of 1988, PPS managed to amass some 800 branches, through an extensive nationwide programme of mergers and acquisitions.

One of the most progressive innovations in the practice of estate agency in recent years was introduced by this organisation. The "chain break" scheme was an attempt to make PPS much more attractive to potential customers than its competitors, by offering an opportunity for would-be purchasers - subject to certain conditions and an independent evaluation - to dispose of their existing properties by selling them directly to the Prudential.

Other large established financial institutions who joined the quest to dominate the estate agency industry in the 1980s include the Royal Insurance Group, General Accident, and the Nationwide Anglia, Abbey National and Halifax building societies. Unfortunately, however, as table 3.1 shows, the large-scale entrance of the financial services institutions into the estate agency sector has, on the face of it, turned out to be nothing short of an unmitigated disaster, with annual losses running to seven and eight figure numbers.

Table 3.1. Losses associated with the major UK estate agency chains during the first half of 1989.

AGENCY	NUMBER OF BRANCHES	£m
Prudential	800	24.7
Royal Life	782	14.5
Halifax	709	N/A
General Accident	600	9.0
Black Horse	562	5.9
Hambros Countrywide	496	6.6
Cornerstone/Abbey National	430	9.5
Hamptons (estimated)	150	3.0

Source: Dietrich & Holmes (1991) - based on figures published in the Financial Times.
N/A = not available.

In the period following the peak in house sales experienced during in the summer of 1988, the financial institutions have severely contracted both in terms of staff numbers and the number of branches - throughout the country. Royal Life Estates (currently the largest UK estate agency business), for example, reduced the number of its offices from 760 in May 1990, to 608 in December 1991. Within the same period, Halifax Property Services and Black Horse Agencies contracted from 709 to 581, and from 559 to 398 branches, respectively. Other chains, the most notable being Prudential Property Services - which reduced the number of its offices to 700 in May 1990, have subsequently withdrawn from the sector altogether (Key Note, 1990, 1992).

Notwithstanding the heavy losses experienced in recent years, the national chains have considerable assets at their disposal, assets which they are able to deploy in order to promote an enhanced image vis-a-vis their rivals. As table 3.2 shows, these organisations have invested major sums of money in advertising campaigns, in an attempt to establish new corporate identities in the mind of the consumer. The Halifax unveiled plans to spend an estimated £6 million in 1989 alone on a promotional campaign, with Prudential and Black Horse Agencies repudiated to have spent some £6.8 million and £3.6 million, respectively.

Nationwide Anglia, the first of the national chains to begin advertising on television, in early 1988, is reckoned to have spent a total of £3 million during the following year (Key Note, 1989). Irrespective of whether or not such campaigns are effective in countering the public perception of 'a pretty poor job at a very high price', the slogan which has come to be the

Table 3.2. Estate agents' TV and press advertising expenditure.

AGENCY	1987*	1988*
Hampton & Son	114	814
Knight, Frank & Rutley	177	905
Nationwide Anglia	1,461	1,339
Prudential Property Services	504	2,098
Savill	98	810
Strutt & Parker	94	687
Black Horse	-	926
General Accident Property Services	-	917
Humberts	-	387
Jackson-Stops & Staff	-	312
John D Wood	-	399

Source: Key Note (1989) - based on data from MEAL.

* = moving annual totals (£000) to June.

standard trademark of estate agents in recent years, these figures clearly demonstrate the fact that these, comparatively wealthier, institutions are capable of deploying considerable resources in the battle for competitive advantage, resources which their smaller, local counterparts do not have access to. The conclusion to be drawn is that the national chains (and to a lesser extent some of the larger regionally based companies), amassed considerable market power in the mid-to-late 1980s, through their high

profile advertising campaigns, combined with the development of extensive branch networks.

However, given that the market for estate agency services has traditionally been a local one, in order to assess the true impact of these structural changes on competition, Dietrich & Holmes (1990, 1991) have argued it is necessary to observe changes in the extent of market concentration within localised geographical areas, following the entrance of the national chains. Empirical research by Dietrich & Holmes (1990, 1991) into the dynamics of the market structure of the estate agency industry in the Tyneside region of North Eastern England, illustrates the way in which the changes that have taken place nationally have had a profound influence on local competition. According to Dietrich & Holmes, in the early 1980s there were 79 firms active in the Tyneside region, with the four largest firms accounting for 15.7 percent of the total industry. However, following the entrance into the local market of Black Horse, GA, Halifax, and Prudential, together with two additional relatively large local firms, the Northern Rock Building Society and Parks Estates, the percentage of the total industry accounted for by the four largest firms increased by a staggering 86 percent. These six companies, which did not exist within the locality of this study in 1987, accounted for 43 percent of the total industry size just one year later⁵.

⁵ More precisely, the four firm concentration ratio which measures the percentage of the industry's size accounted for by the largest four firms in that industry rose by 86 percent from 15.7 percent to 36.1 percent (for technical details see Dietrich & Holmes, 1990).

The results of this study clearly indicate that the rapid and high profile entrance of the major national chains into estate agency has had a highly significant impact on the way in which businesses compete within this industry. One of the major consequences of the changes which have taken place nationally, is that the markets for estate agency services are becoming increasingly concentrated at the local level.

Estate Agency Co-operatives

The fact that the major national chains have attained such an obvious visibility in the marketplace does not mean that the smaller, local firms are necessarily without market power, especially if they join forces on a co-operative basis. That such cooperation can achieve dramatic results, can be illustrated with reference to events in the City of Sheffield during the mid-1980s. Prior to 1985, Sheffield based estate agents advertised their properties in the Sheffield Morning Telegraph. However, when the newspaper requested that the agents maintain an agreed level of advertising - which previously had not been agreed but had been merely a threshold for cheaper rates, the agents collectively withdrew their advertising and established their own property newspaper, a factor which undoubtedly led to the closure of the Sheffield Morning Telegraph⁶.

A number of co-operative ventures have been established within the estate agency industry in recent years, with a view to increasing the market power

⁶ More recently, the Sheffield Newspapers Group - publishers of the Sheffield Morning Telegraph - have re-established the newspaper on a weekly basis and taken over production of the Sheffield property paper. The property paper is now issued as a free supplement in the Sheffield Telegraph.

of smaller businesses. Property World, for example, whose headquarters are in Halifax, West Yorkshire, is a marketing organisation which has been formed in order to give a national marketing image to smaller independent estate agencies throughout the UK.

The NAEA developed its "national homelink service" as means of linking up NAEA members throughout the country. The aim of this service is to enable would-be purchasers seeking to move long distances, to find suitable properties without having to search through numerous estate agents' offices in other parts of the country. This service is run by the NAEA on a not-for-profit basis, in an attempt to expand the usage of member organisations.

The National Homes Network (NHN) is a further example of a co-operative which was established in an effort to expand the business of smaller agencies on a national basis. Member offices are required to install a terminal which gives vendors and purchasers an instant link to the entire territory covered.

Other co-operatives have been formed at a local level, in an attempt to strengthen the hand of smaller estate agencies. Within the Derbyshire area, for example, several independent firms have come together in order to advertise under the marketing banner of "Stag Agencies", thereby creating greater market power with a combined total of 12 offices.

Clearly participation in co-operative ventures is potentially of great value to smaller firms, as a means of gaining increased market power by virtue of the enhanced marketing capabilities derived through membership of a larger umbrella organisation. Other potential benefits which smaller agencies may gain through co-operative action include better staff training, enhanced purchasing power in the acquisition of basic office materials and greater access to much needed information.

Changes in the Housing Market

The performance of residential estate agency businesses is inextricably linked to the state of the housing market, a market which has proven to be highly volatile in recent years. Two factors in particular which affect the income and profitability of residential estate agents are the number of properties sold and the extent to which house prices increase or decrease within a given period.

Typically, peak periods of activity in the housing market last only a matter of months, with the laws of supply and demand creating alternately a buyer's and seller's market. Within the past few years, however, the UK housing market has experienced something of a major recession, to the extent that in many regions, most notably London and the South East of England, the market has all but collapsed.

During the 1970s and 1980s, house prices climbed to record levels, with substantial increases reported annually. In 1985, for example, house

prices in the UK rose by an average of 10 percent, compared with an average increase of 14 percent during the previous year. However, as table 3.3 shows, such averages conceal considerable regional differences,

Table 3.3. House price increases for various geographical regions of the UK during 1985.

REGION	PERCENTAGE INCREASE
Scotland	5
Northern Ireland	56
North of England	6
Yorkshire & Humberside	7
North West	5
Wales	6
East Midlands	8
West Midlands	7
South West	8
Outer South-East	11
Outer Metropolitan	14
Greater London	19
National Average	10

Source: Key Note (1986).

particularly between areas north and south of the home counties. Nevertheless, these figures serve to illustrate the fact that house prices generally increased throughout the UK during this period, albeit to varying extents from one part of the country to another.

Paralleling these increases in the price of houses, the trend towards owner-occupation increased also, to the extent that Key Note concluded that the 1970s and 1980s may well go down in history as "the age of home ownership" (Key Note, 1986, p 3). By the mid-1980s, 60.1 percent of the total UK housing tenure was owner-occupied, compared with 28.5 percent rented in the public sector and 11.4 percent rented privately (Key Note, 1987). As table 3.4 shows, home ownership grew slowly in the 1970s, with rather more dramatic increases in the 1980s, not least due to the fact that local authorities engaged in a mass programme of council house sales.

However, it is evident from these data that the growth in home ownership has been achieved primarily through an increase in the amount of money lent on mortgages. Research by Key Note (1989) indicates that between 1977 and 1987 building society lending (gross advances) alone increased by 41.3 percent, whilst overall lending rose by 578 percent. According to Key Note, records of bank lending from 1983 to 1987 reveal that mortgage investment almost trebled within this four year period. Apparently, prior to 1983 insurance companies had steadily been increasing their loans, but from 1983 onwards, almost trebled them.

Table 3.4. Percentage changes in home ownership in the UK, 1971-1987.

YEAR	OWNED OUTRIGHT	OWNED WITH MORTGAGE	TOTAL
1971	22	27	49
1975	22	28	50
1977	23	28	51
1979	22	30	52
1981	23	31	54
1983	24	33	57
1984	24	35	59
1985	24	37	61
1986	25	38	63
1987	24	39	63

Source: Key Note (1989) - based on figures from OPCS/General Household Survey.

Unfortunately, however, as far too many people know to their personal cost, the increases in home ownership and the mortgage boom experienced during the 1980s, have also been accompanied by dramatic increases in the number of households in arrears with their monthly payments. Worse still, the number of repossessions also escalated, as shown in table 3.5.

Table 3.5. Building society mortgage arrears and repossessions, 1979-1988.

YEAR	LOANS	IN ARREARS	REPOSSESSED
1979	5,264,000	8,420	2,530
1980	5,396,000	13,490	3,020
1981	5,505,000	18,720	4,240
1982	5,664,000	28,600	5,950
1983	5,949,000	32,120	7,320
1984	6,354,000	50,200	10,870
1985	6,705,000	61,020	16,770
1986	7,071,000	56,560	20,930
1987	7,197,000	61,220	22,930
1988 (mid)	7,230,000	57,880	9,770

Source: Key Note (1989) - based on data supplied by the Building Societies Association.

All-told, the problem of the number of households in arrears with their mortgages grew seven-fold between 1979 and 1987, followed closely by a six-fold increase in the number of repossessions during the same period. Whilst the number of repossessions appeared to be slackening somewhat during the relatively brief eighteen month period from January 1988 to the end of June 1989, unfortunately, the number almost trebled in 1990 to almost 44,000 (Key Note, 1992).

Since the summer of 1988, when the housing market experienced its last peak in activity - following the decision of the Government to abolish multiple mortgage income-tax relief - problems in relation to mortgage arrears and repossession have been greatly compounded by fluctuating interest rates and a dramatic decline in the value of property throughout many parts of the UK. The decision to abandon multiple mortgage tax relief with effect from August 1988, served to fuel yet further increases in house prices, as potential purchasers rushed to beat the deadline. The effect was that many home owners, especially first-time buyers in London and the South East of England, undertook financial commitments which rendered them extremely vulnerable to the effects of subsequent increases in interest rates⁷.

House prices began to fall rapidly in the wake of rising interest rates during 1990, followed by rising unemployment in 1991. As sales fell to barely half their normal annual total, estate agents began to contract drastically, to the extent that more than 20 percent of the 20 leading estate agents offices have closed (Key Note, 1992). As noted earlier, one leading chain, the Prudential, has withdrawn from the sector altogether - with trading and purchase losses estimated to be somewhere in the region of £300m.

⁷ At a more technical level, as reported by the Bank of England in its Quarterly Bulletin for November 1991, household income gearing (gross interest payments as a proportion of disposable income) rose from 5 percent to 13 percent in the decade from 1980 to 1990, whilst housing related capital gearing (mortgage debt as a percentage of the value of owner-occupied housing stock) increased from 15 percent to 25 percent over the same period

In recent years, following the collapse of the housing market, the financial institutions have been faced with a major dilemma as to what they should do about the growing number households whose monthly mortgage payments are seriously in arrears. With many households in possession of properties currently valued at a price lower than the outstanding mortgage (particularly in London and the South East of England), a phenomenon known within the industry as "negative equity", and limited prospects of a successful sale - even at a greatly reduced price - increasingly the dilemma faced by mortgage lenders, is whether to re-schedule the debt or, alternatively, repossess a dwelling for which there is relatively little market.

Given this state of affairs, not surprisingly in recent years there have been increasing calls for Government intervention, both to assist those in serious difficulties with their mortgage re-payments, and in order to police the future conduct of mortgage lenders and estate agency businesses. In December 1991, the Government agreed a 'mortgage rescue' scheme which may help to stem the earlier tide of repossessions. However, should interest rates rise again for any significant period, as forecast by Key Note (1992), this can only serve to seriously offset the scheme's effect.

Operating Practices

As noted at several points in this chapter, the estate agency industry is an industry which has suffered something of an "image problem" over the years. Within the past decade, however, this problem has greatly

intensified, particularly in the period of the housing market boom during the summer of 1988 and the long-term recession which has subsequently ensued.

Throughout the 1980s growing concerns were expressed by a variety of bodies as to whether or not it is advisable for the estate agency industry to continue to be responsible for the development and maintenance of standards, with repeated calls to bring in much tougher controls. More recently the rising tide of mortgage arrears and repossessions has brought about renewed calls for tighter legislation and stricter controls on the operating practices of estate agency businesses⁸.

Within the past few years estate agents have been legally constrained to reduce the size of their sale boards to 0.5 square metres and limit them to one per property. Furthermore, the Office of Fair Trading has, inter-alia, recommended extensions to the Estate Agents Act 1979 to include powers to warn and/or ban serious or persistent offenders who mislead in advertisements (including particulars of properties), a banning of offenders who bid up prices, a requirement that 'health warnings' be included in estate agents' contracts to explain obscure terms, a requirement that agents should make written disclosures of their

⁸ See for example: 8/2/90 Scotsman ("Protection from cowboy estate agents demanded - p 15), Financial Times ("Tough laws urged to curb dishonest estate agents" - p 9), 1/3/90 Financial Times ("Estate agents are criticised" - p 7), 10/3/90 Telegraph ("Estate agents face tougher test - p 29), Financial Times (Borrie calls for legal curbs on estate agents - p 6), 16/3/90 Invest. Chronicle ("Clamp-down on estate agents" - p 31), 20/4/90 Financial Times ("Estate agents to be placed under stricter controls" - p 9).

involvement in buying or selling property, a suggestion that pressure on customers to take other services (Eg the provision of finance) be discouraged, and a requirement that information about commission and other charges should always be provided in writing (Key Note, 1990).

In addition, the Office of Fair Trading also recommended that the Trade Descriptions Act should be extended to cover property sales.⁹ However, the Office of Fair Trading did not support calls by the main professional bodies to introduce minimum standards of competence for estate agents, on the grounds that the majority of complaints against agents are of an ethical nature, rather than a question of professional competence (Key Note, 1990).

Other Developments

There are three other on-going developments presently underway which perhaps are worthy of brief comment before concluding this overview of the industry. Firstly, there is a battle currently in progress regarding the future of conveyancing, the outcome of which will undoubtedly have an effect on the future practice of estate agency, particularly for businesses tied to the financial institutions.

⁹ Subsequently this has happened. Under the Property Misdescriptions Act, which came into effect during 1993, estate agents are liable to criminal prosecution by the Office of Fair Trading if they attempt to misrepresent properties through inaccurate and/or misleading information. The Act applies to whatever is shown, said or written about a property.

In an effort to widen the scope for competition there have been calls to extend recent changes to the laws relating to conveyancing, in order that the financial institutions may undertake their own conveyancing - much to the displeasure of licensed conveyancers and solicitors.¹⁰ According to Key Note (1990), the law Society, by return, would like to see the introduction of a legal code for estate agents (a proposal which the Government has already rejected), stricter controls over mortgages (a proposal which would be difficult if not impossible to police), a statutory cooling-off period in order to enable borrowers to take independent legal advice (highly unlikely given the general push towards the speeding up of the exchange and completion of house sales contracts and the move towards 'one-stop shopping'), and the mandatory disclosure of insurance commissions (not required under the Financial Services Act for 'tied lenders') or other remuneration (a requirement which, ultimately, may entail agents having to reveal to prospective purchasers their deals with vendors, an unlikely scenario). Given the present Government's adherence to laissez-faire policies, Key Note (1990) regard it unlikely that any of these proposals mooted by the law society will achieve success.

The second development presently underway which is likely to have a bearing on the future well-being of estate agency businesses, is the abandoning of the recently introduced Community Charge, or "poll tax", in favour of the Council Tax. Key Note (1992) warns that this change will in all

¹⁰ In 1985 the Administration of Justice Act created a separate profession of "licensed conveyancer" specifically to create a source of direct competition for solicitors, who prior to this Act had held a monopoly of this element in house purchase.

probability bring about a return of the effect on house prices and saleability, which used to be exercised by rateable values.¹¹

Finally, there would appear to be further structural changes afoot. Particularly noteworthy in this respect is the apparent growth in the number of franchised independent estate agency businesses operating in the UK. Key Note (1992) reports that Century 21 - an operation which originated in the USA, but now highly active in several major countries - was launched in the UK in 1988. According to Key Note (1992), this organisation has set itself a target to open more than 650 offices throughout the UK by 1998, although the target date is said to be flexible. Clearly an organisation with such ambitious plans requires careful monitoring, particularly in the present climate.

RELEVANCE OF THE INDUSTRY FOR THE RESEARCH OBJECTIVES

This recent history of the development of the UK residential estate agency industry, serves to identify the main events which took place in the decade leading up to the period in which the fieldwork associated with the present study was undertaken. In addition, we have also briefly considered more

¹¹ Prior to 1990, local amenities were paid for by means of "local authority rates", a system in which households were charged a set fee graded according to the area in which their property was situated. A single fee was charged per dwelling, irrespective of the number of occupants. Under the Community Charge system, by contrast, a set fee was levied to each individual over the age of 18 years dwelling within a given property. The newly created Council Tax, which came into effect on 1st April 1993, is something of a hybrid system, in that houses are graded according to the type of property and the geographical area in which the property is situated. As with the original rating system, a single fee is levied per household. However, unlike the rating system, under the present system there is a 25 percent discount for sole occupants.

recent developments which have taken place during the three year period which has elapsed since the data collection for this study was completed.

The conclusion to be drawn from this discussion is that this industry is an ideal context in which to address the substantive concerns of this thesis. The UK residential estate agency industry is a mature industry characterised by high levels of functional inter-dependency. These features are particularly attractive for exploring the extent to which actors' mental models are homogeneous or diverse. To the extent that competitive enactment theory is correct in respect of the perceptual convergence hypothesis, we would expect to find evidence that mental models are highly homogeneous in this particular industry.

As we have seen, the UK residential estate agency industry is also an industry which is passing through turbulent times. This presents us with an ideal opportunity to explore the extent to which actors' mental models of competitive space remain stable or change over time, in highly volatile market conditions. Should we find, in this industry, that mental models of competitive space remain stable, over a significant period of time, this would be very strong supporting evidence for the cognitive inertia hypothesis associated with competitive enactment theory.

Finally, to the extent that we obtain significant correlations between measurable features of actors' mental models of competitive space and measurable aspects of strategic behaviour and organisational performance in

this industry, this would be supporting evidence for the assertion that cognition and strategic choice become inextricably intertwined with the material conditions of the marketplace in industries which have entered the later stages of their life-cycles. Clearly, if competitive enactment theory is correct in respect of this proposition, we would expect to find evidence of empirical linkages between cognition, strategic behaviour and organisational performance in this industry. Given the obvious importance of competitor awareness in the estate agency industry, should we fail to obtain such evidence, we would have to reconsider the role and significance of mental models of competitive space in strategic management.

As noted in chapter one, the fieldwork associated with the present study took place during the 18 month period from July 1989 to December 1990, using a two-wave panel design. It is evident from this brief historical analysis of the industry, that this was a particularly timely period in which to gather the data. As we have seen, during the period leading up to this study the industry had experienced some major upheavals:

1. The entrance of the financial institutions - with considerable wealth at their disposal - which enabled them to establish extensive branch networks on a national basis. The growth of these national chains was accomplished very rapidly, accompanied by high levels of advertising expenditure in an effort to establish market dominance. This appears to have paid handsome dividends, with evidence to suggest that the industry has become highly concentrated at the local level.
2. A growth in co-operative ventures, particularly amongst some of the smaller firms - both on a national and local basis - in an attempt to gain greater market power.
3. A steady growth of activity in the housing market and increases in house prices, partly as a result of the extensive programme of council house sales engendered by changes in Central Government Policy.

4. An increase in the provision of mortgages and other financial services by estate agents (and a concomitant increase in the number of households in arrears with their payments and, worse still, those facing repossession). Following the entrance of the national chains, residential estate agency businesses increasingly diversified throughout the 1980s in a trend away from their traditional functions of surveying, valuation, sales, property management and the like, towards more general one-stop house purchase packages.

In short, the decade leading up to this study was a particularly buoyant period for the UK residential estate agency industry. At the time of data collection, however, the fortunes of this industry were in the process of change. During the first wave of data collection - which ran from mid-July 1989 to October 1989 - the present recession in the housing market was just beginning to emerge. By the time the second wave of data collection took place (September 1990 to mid-December 1990), the recession had deepened considerably and its effects were being felt throughout the whole of UK. The period subsequent to the fieldwork has seen the recession deepen still further, with firms reducing the scale of their operations considerably. One major national chain has withdrawn from the industry totally. Added to this, as we have seen, there have been significant changes to the legislation governing the practices of estate agency businesses, amid increasing calls - from a variety of quarters - for the policing of the estate agency industry to be tightened, with an end to the era of self-regulation.

CONCLUSION

We began the present chapter by establishing that in order to address the substantive concerns of this thesis, we require an industry passing through

turbulent times, which has also entered the later stages of its life cycle. It is evident from this discussion that we have found such an industry. The UK residential estate agency industry, therefore, would seem to be an ideal setting in which to carry out an empirical investigation in order to fulfil the research agenda outlined in the previous chapter, and it is to this task that we now turn.

CHAPTER 4

THE STUDY: RESEARCH METHODS & DESIGN

This chapter is concerned with the basic mechanics of the programme of empirical research embodied in this thesis. Its primary purpose is to describe the development and psychometric evaluation of the various research instruments which were employed in the study.

Several new instruments were designed for the present study, whilst others were adapted from previous researchers. We shall begin with a brief description of each instrument, in turn, together with a discussion of the rationale for its incorporation in the study. (The complete set of research instruments is reproduced in full in appendix 1).

THE RESEARCH INSTRUMENTS: BACKGROUND & DEVELOPMENT

THE COMPETITOR ANALYSIS QUESTIONNAIRE

Following the lead of Walton (1986), Reger (1987), and Thomas & Venkatraman (1988), a modified repertory grid approach to cognitive assessment was employed in the present study. Competitor cognition was assessed by means of a questionnaire specifically constructed for the present study by the author.

The competitor analysis questionnaire (CAQ), comprises a series of 21 bipolar attribute rating scales (or constructs) which the research

participants used in order to evaluate their own business organisation and some 19 competitors. The competitors were elicited by means of a standard list of categories, thus ensuring that the research task was meaningful to the research participants, yet systematic comparisons of actors' mental models could be made at various levels of analysis. In this way, the CAQ is intended to combine key strengths associated with both the ideographic and nomothetic approaches to knowledge elicitation, whilst minimising their associated weaknesses (cf Daniels, Markoczy, Goldberg & de Chernatony, 1993; Daniels *et al.*, in press).

The attributes incorporated in the CAQ were elicited from a pilot sample of eight volunteers from different estate agency organisations. The participants were asked to list the attributes which immediately came to mind when differentiating various competitors. This yielded a total of 21 distinguishable attributes.

The aggregated list of attributes was formed into a series of seven-point semantic differential scales (Osgood, Suci & Tannenbaum, 1957), as follows: service to vendors (very poor/very good); quality of staff (very poor/very good); service to purchasers (very poor/very good); training of staff (very poor/very good); operating practices (very poor/very good); quality of advertising (very poor/very good); profitability (very low/very high); location of business premises (very poor/very good); size of branch network (very small/very large); range of services (very narrow/very extensive); geographical coverage (very narrow/very extensive); scale of charges (very low-priced/very expensive); degree of personal attention (very low/very high); market

share (very small/very large); marketing profile (very low/very high); degree of local knowledge (very limited/very extensive); strategic influence/power (very weak/very strong); amount of advertising (very limited/very extensive); financial resources (very limited/very extensive); links with financial services companies (very limited/very extensive); typical range of properties on sale (very poor/very good).

The pilot study participants were also asked to list the various types of estate agent which came to mind when thinking about competition within their industry. In addition, a search was made of advertisements placed by estate agency businesses in the Yellow Pages telephone directory and various local property newspapers, in order to ensure that no important categories of estate agent had been omitted. This yielded a total of thirteen types of estate agent, to which seven further categories, including several "evaluative" categories, were added by the author (see table 4.1).

Further pilot interviews were conducted with five fresh volunteers in order to decide which, if any, of the categories and/or attributes could be omitted from the main study on the grounds of redundancy. However there was unanimous agreement amongst the participants in the pilot study that the complete set of categories and attributes should be retained in their entirety. Hence the 20 categories and 21 bipolar rating scales were assembled into a questionnaire booklet.¹

¹ Two further tasks were also incorporated in the final version of CAQ. Respondents were instructed to rate the extent to which the 19 competitors elicited in response to the various estate agency categories were similar to and competed with their own business organisation. Unfortunately, however, these tasks did not yield data in a form amenable to reliable analysis.

Table 4.1. Categories used to elicit lists of contrasting organisations.

1. My Business
 2. My major competitor
 3. A Solicitor Agent
 4. An Estate Agent Owned by a Building Society
 5. A Traditional Estate Agent
 6. An Estate Agent Owned by an Insurance Company
 7. An Estate Agent Offering a Professional Service
 8. An Estate Agent with a Poor Reputation
 9. An Estate Agent with Chartered Surveyor Status
 10. An Estate Agent Specialising in Exclusive Property
 11. An Estate Agent Specialising in Commercial & Industrial Property
 12. An Estate Agent Specialising in Residential Property
 13. A Secondary Competitor
 14. An Estate Agent with a Good Reputation
 15. A Diversified Estate Agent
 16. An Independent Estate Agent
 17. An Inferior Competitor
 18. A very Successful Estate Agent
 19. A Moderately Successful Estate Agent
 20. An Unsuccessful Estate Agent
-

The research participants were instructed to draw up a list of 19 competitors in response to the categories. These were then entered on a prepared strip of paper which could be readily inserted into each page

of the booklet, in turn. Each page of the CAQ is devoted to a single attribute. Hence respondents evaluated their own organisation and the 19 competitors on a particular attribute rating scale before proceeding to additional scales.

Responses to the CAQ formed the raw input data for deriving the various mental models of competitive space reported in later chapters. As we shall see, this method of knowledge elicitation turned out to be highly effective, yielding data which is amenable to comparative analysis at a number of levels (ie industry, organisational, functional group and individual).

INDIVIDUAL & ORGANISATIONAL CHARACTERISTICS, MARKET CONDITIONS & STRATEGIC BEHAVIOURS

As we have seen, Porac *et al's* (1989) competitive enactment theory asserts that cognition and strategic choice are inextricably intertwined with the material conditions of the marketplace. To the extent that this is the case, we would expect to find empirical relationships between key features of actors' mental models of competitive space and variables which encapsulate their current material circumstances, past successes and failures, career histories and various aspects of strategic behaviour and organisational performance. In order to examine this previously unsubstantiated claim, a number of instruments designed to assess various characteristics of the research participants and their organisations were incorporated in the present study, which, *a priori*, we would expect to be related to competitor cognition.

Strategic Locus of Control

One variable in particular which may have a bearing upon the way in which actors view their competitive worlds is locus of control. The concept of locus of control originates with the work of Rotter (1966) and reflects the beliefs individuals have about the origin of key events in their lives. Individuals who perceive events in their lives as mainly under the control of their own actions, skills, abilities and the like, are said to be 'internals'. Conversely, individuals who perceive events in their lives to be under the control of external forces such as other people, chance events or the Government, are said to be 'externals'.

Previous research has shown that externally oriented Chief Executive Officers (CEOs) are less likely to belong to organisations which engage in strategic planning or seek information about the business environment. Internal CEOs, by contrast, are more likely to belong to firms which plan ahead (often for a period of several years hence), actively seek information about the business environment, and have a tendency to lead rather than follow competitors. Moreover, organisations led by internal CEOs are more likely to inhabit dynamic and hostile environments, to consult specialist technical staff in decision making and have a relatively differentiated organisational structure (Miller Ket DeVries & Toulouse, 1982; Miller, 1983; Miller & Toulouse, 1986).

Clearly, to the extent that locus of control beliefs are influenced by actors' past experiences of success and failure to attain mastery of the

business environment, we would expect to find empirical relationships between this variable and key features of mental models of competitive space. Unfortunately, however, there are a number of problems associated with the way in which strategic management researchers have operationalised this variable in previous studies.

In general, researchers in this field have employed the well known Rotter I-E scale (Rotter, 1966). This measure comprises some 29 items, 23 of which are designed to assess the respondents' locus of control beliefs, the others being 'filler' items. Respondents are required to complete the questionnaire by choosing from a series of paired alternatives, the statements that more closely reflect their own beliefs. The scale is arranged such that the respondent receives a point each time he or she selects a statement which is designed to reflect external locus of control beliefs. The scale is scored by totalling the number of externally worded items so endorsed. Thus the higher the score, the more external the respondent and vice versa.

Unfortunately, however, this measure is beset by a number of limitations which, in the present author's view, render it unsuitable for the study of strategic management problems (see also Spector, 1982; Boone, 1988). Firstly, as Phares (1976) notes, the I-E scale is only a rough measure of the construct and researchers should develop their own context-specific scales (cf Adler & Weiss, 1988, p 315). In line with this recommendation a number of domain-specific scales have been devised by researchers in contexts as varied as physical and mental health (Wallston, Wallston, Kaplan & Maldes, 1976; Lau & Ware, 1981; Wallston &

Wallston, 1982; Wood & Letak, 1982), politics (Davis, 1983), economics (Furnham, 1986), work (Spector, 1988) and careers (Trice, Haire & Elliott, 1989).

A second limitation of Rotter's general measure concerns its tendency to correlate with social desirability response set (Spector, 1982). As Boone (1988) observes, unfortunately, strategy researchers investigating the role of locus of control beliefs have not generally controlled for social desirability response set in their studies and so it is possible that some, or indeed all, of the relationships previously observed between strategy-making, structure and environment, are a function of respondents attempting to present themselves in a socially desirable manner. A secondary objective of the present study, therefore, was to develop a locus of control instrument that was domain-specific and not prone to social desirability effects.

The strategic locus of control scale is a sixteen item Likert scale designed in order to assess respondents' generalized beliefs regarding the capacities of organizations to attain mastery of their business environments through the application of strategic management techniques, principles and processes. Responses to the sixteen items are summed, or averaged, to derive a single score along a domain-specific continuum representing the respondent's generalized strategic control expectancies. However, responses to internally worded items are reverse scored in order to render the scoring system compatible with Rotter's (1966) I-E and Spector's (1988) Work Locus of Control scales. Thus a low score on this scale, implies the respondent's generalized strategic

control expectancies are relatively internal. Conversely, a high score on this scale implies a relatively external orientation.

Strategic locus of control is a socio-cognitive variable which reflects the extent to which organization members' accumulated learning experiences, past reinforcement histories and current organisational circumstances have led them to view strategic management processes and activities within a relatively deterministic versus an agency-oriented framework. Respondents assessed by the strategic locus of control scale are internals, to the extent that they believe organisations are generally capable of shaping their own destinies through the application of strategic management principles, techniques and processes.

Conversely, to the extent that respondents believe organisations are generally at the mercy of uncontrollable environmental forces, they would be classified as externals. Responses to this scale are not presumed to reflect exclusively a personality characteristic of the respondent, nor their organisational circumstances, but an interaction between disposition, past learning experiences and reinforcement histories in other organisational contexts, combined with learning experiences and reinforcement histories accumulated within the present context.

In other words strategic locus of control is a generalised cognitive dimension through which organisation members filter their experience. This generalised cognitive belief structure is partly determined by current circumstances, but more generally through accumulated past

experiences of organisational successes and failures to attain mastery over the business environment.

The strategic locus of control scale represents a radical departure from other domain-specific control expectancy scales, and the I-E scale, in the sense that the items tap respondents' beliefs about the capacities of organisations to attain mastery over their environments, rather than their beliefs regarding their own self-capacities. The scale was developed from a larger bank of items, so as to ensure that none of the items retained in the final scale correlate significantly with social desirability response set. The scale exhibits acceptable internal consistency, as assessed by coefficient alpha (Cronbach, 1951), and construct validity in relation to Rotter's (1966) I-E scale and Spector's (1988) work locus of control scale (for details of the development and initial validation of this scale see appendix 2).

Strategy Making Behaviour, Organisational Structure & Environment

Perceptions of various aspects of strategy making behaviour, organisational structure and environment were assessed using slightly modified versions of the scales initially devised and employed by Miller and his associates in their studies of the role of CEO locus of control in strategy making behaviour (Eg Miller et al, 1982). These scales comprise multiple items with Likert and bipolar type formats.

In previous studies these scales have been found to have acceptable reliabilities, as assessed by coefficient alpha, and acceptable construct validity. These scales have also exhibited adequate inter-

rater reliability (for details see Miller et al, 1982; Miller, 1983; Miller & Toulouse, 1986).

Organisational structure was operationalised via three scales: **formal scanning practices** (the extent to which respondents perceive their organisations attempt to keep track of their business environments), **technocratisation** (the extent to which respondents perceive their organisations rely on technical knowledge and expertise in decision making), and **differentiation** (the extent to which respondents perceive their organisations differentiate their products and services, technologies and customer bases). Environmental variation was operationalised in terms of four scales: **market diversity** (the extent to which the market is construed to be homogeneous or heterogeneous), **dynamism** (reflecting perceptions of the rate and pace of change in the environment) **complexity** (reflecting the extent to which respondents experience ease or difficulty in comprehending their environments) and **hostility** (reflecting the extent to which respondents perceive the competitive environment in which their firm operates to be relatively benign or hostile). Finally, strategy making behaviour was operationalised in terms of four scales: **innovation** (reflecting the extent to which respondents perceive their organisations to be relatively conservative or innovative in the development of products and services), **risk taking** (the extent to which respondents perceive their firms take relatively cautious or risky decisions), **proactiveness** (reflecting respondents' perceptions of the extent to which their firms follow the actions of other firms or actively attempt to innovate new ideas in order to move ahead of competitors) and **futurity** (reflecting

respondents' perceptions of the extent to which their organisations are primarily concerned with short-term decision making, over a period of weeks or months, or longer-term decision making, over a period of several years).

Organisational Size

Following Miller et al (1982) organisational size was assessed in terms of the Log of the total number of employees in property and related services (Log_{10} No of employees). However, two additional indicators of organisational size were also employed in the present study, namely, the Log of total number of branches within the UK (Log_{10} No of branches), and the Log of the total number of geographical regions within the UK in which the organisation had one or more branches (Log_{10} No of regions). Whilst, a priori, we would expect these indicators to be highly correlated with one another, all three were incorporated in the present study with a view to creating a latent variable with greater reliability and validity than any one indicator per se.

Market Buoyancy

In order to assess perceived market conditions at the time of the study, market buoyancy was assessed by means of a single item with a Likert scale format, devised by the author. Respondents were required to indicate the extent to which they perceived the local property market to be buoyant at the time of data collection. Responses ranged from "very depressed" (low score) through to "very buoyant" (high score).

Organisational Performance

Self-report measures of organisational performance were used rather than objective indicators for a variety of reasons. Firstly, financial indicators of the relative performance of the larger estate agency firms, especially those tied to parent organisations within the wider financial services industry, are not readily available in a disaggregated form. Nevertheless an initial attempt was made to secure such financial data from the participating organisations, but almost all declined access.

Secondly, whilst a number of organisations keep records of relative market share, these figures tend not to be reliable, being based on the number of new advertisements placed in local property papers over selected periods of time. Not all estate agents use the local press as their main source of advertising. Several of the larger national chains, for example, advertise extensively through their own newspapers.

In the case of larger organisations with several branches in a given locality, often it is not possible to detect from advertisements which properties are being handled by which particular branches. Further problems arise owing to the fact that the participating organisations were drawn from across several counties. Several firms actively trade over more than one boundary, thus advertising in disparate publications. In any case, advertising figures merely relate to the number of new properties placed on the books of particular firms within a given period, or potential sales, not the number of actual sales realised.

These problems make it difficult, if not impossible, to measure performance directly using "hard" indicators. For these reasons, self-report indices were preferred in the present study. Previous research has indicated that knowledgeable actors are able to estimate objective performance indicators accurately using self-report measures (Dess & Robinson, 1984) and as we shall see shortly, several of the self-report measures employed in the present study were found to correlate significantly with independent assessments of organisational performance carried out by a panel of expert raters.

Five aspects of organisational performance (wealth, market position, adaptability to changing circumstances, working climate and future prospects for the immediate year ahead) were assessed using slightly modified versions of the scales developed by Nicholson (for details of the development of these scales see Nicholson, 1991). Multiple items with a Likert type response format were devised in order to assess respondents' perceptions of the relative performance of the part of their organisation for which they had responsibility, or belonged to, (section, branch or entire company) in relation to its main external competitor(s). Response options ranged from "very much weaker" (low score description), through "no different" (the scale mid-point), to "very much stronger" (high score description). In addition, a "don't know" response option was incorporated in order to minimise the possibility of "wild guessing".

Environmental Scanning

Miller *et al*'s (1982) formal scanning practices scale assesses respondents' perceptions of the environmental scanning practices of their organisations, rather than the actual scanning behaviours of particular individuals. However, an individual's scanning behaviours may differ considerably from the formal practices of their organisation. For example, the fact that particular organisations have highly sophisticated scanning systems may mean that individual organisation members are less inclined to monitor their competitors' actions. On the other hand, it is also possible that particular individuals belonging to organisations whose environmental scanning practices are relatively sophisticated may be more inclined to gather information than those individuals belonging to organisations with relatively less sophisticated environmental scanning systems.

For these reasons, it was considered imperative to assess the individual research participants' environmental scanning strategies in addition to their perceptions of their organisations' formal scanning practices. The extent to which the individual scans the environment for pertinent information (frequency) was assessed via a thirteen item Likert scale devised by the present author. Respondents were required to indicate the extent to which they seek information through a variety of sources, including relevant industry reports, personal contacts, clients and the like.

Whilst frequency is undoubtedly one useful indicator of scanning activity, this does not inform us of the reasons why environmental

information is being sought by individuals. There is a strong possibility that individuals with particular scanning orientations will develop distinctive mental models of competitive space and vice versa.

In this respect, one factor in particular which may have a bearing on competitor cognition, is the extent to which a given individual scans the business environment primarily for opportunities or threats (cf Dutton, Walton & Abrahamson, 1989). A priori, we would expect to find that individuals who on balance are more inclined to actively seek information relating to opportunities rather than threats have a different outlook to those with a marked tendency towards the opposite extreme. In order to explore this possibility, an additional environmental scanning scale comprising four bipolar items, was designed to assess the extent to which the respondent scans the environment primarily in order to learn of threats which they must defend their business against (low score), versus opportunistic scanning (high score) - ie scanning with a view to spotting new business opportunities.

Biographical Data & Career History

Finally, following the earlier study in the grocery retail industry (Hodgkinson & Johnson, 1987, in press) - discussed in chapter 2 - a number of questions relating to the research participants' biographical histories, focussing primarily on current job responsibilities, education, training, and work history, were incorporated in the present study, in order to assess the extent to which differing work experiences are related to actors' mental models of competitive space.

SAMPLING & DATA COLLECTION PROCEDURES

As noted in previous chapters, a two-wave panel design was employed in the present study, in order to facilitate the comparison of mental models of competitive space over time. The field work at T1 was carried out between Mid-July 1989 and October 1989, whilst the field work at T2 ran over a comparable period from September 1990 to Mid-December 1990. With the exception of the questions relating to organisational size, and the questions designed in order to extract basic biographical information and information relating to the respondents' employment histories, each of the instruments described above were administered on both occasions.

The sample was drawn from the North-East Midlands region of the UK, spanning the area encompassed by West Yorkshire, South Yorkshire, the East Midlands and Humberside. The participating organisations were recruited by working systematically through all entries under the heading of "Estate Agents" in the relevant volumes of the Yellow Pages telephone directory (1989 edition) covering this geographical area.

The research participants were recruited by means of a telephone call to the most senior representative available within the participating organisation (invariably this was a member of the senior management team). During the telephone conversation I briefly explained the nature of the study as an investigation into competition between estate agency businesses, and that the participants would receive detailed feedback regarding the findings. Total anonymity was guaranteed to all potential participants and their organisations. In an attempt to minimise problems associated with low response rates, I also explained that the

questionnaires were unavoidably lengthy and that a pilot study had indicated the research task would take each participant between one and a half and two hours to complete. With the exception of five refusals, all those contacted committed their organisations to take part in the study. Participation in the research at all stages was on an unpaid voluntary basis.

A total of 97 organisations agreed to take part in the study as a result of the telephone calls. Unfortunately, however, not all those who volunteered their organisations' services returned completed questionnaires for analysis. The final sample at T1 comprised a total of 208 research participants (various grades) from 58 participating organisations.

Basic descriptive statistics relating to company size are presented in table 4.2 and descriptive statistics relating to biographical details of the individual participants are presented in table 4.3. Table 4.4

Table 4.2. Descriptive statistics relating to the size characteristics of the various participating organisations.

VARIABLE ^a	MEAN	SD	MEDIAN	MINIMUM	MAXIMUM	VALID N
No of Employees	473.20	1314.01	12.00	1.5	5782.00	56
No of Branches	71.41	198.34	3.00	1.0	800.00	58
No of Regions	2.83	4.41	1.00	1.0	17.00	58

^a These data are presented for descriptive purposes only. All subsequent analyses are based on the Logarithmic transform of these variables (Log_{10}) as explained earlier.

Table 4.3. Descriptive statistics relating to the basic biographical details of the initial sample.

VARIABLE	MEAN	SD	MINIMUM	MAXIMUM	VALID N
Age in Years	33.34	9.64	18.00	62.00	206
Number of Companies Worked for within the Property Market	2.08	1.28	1.00	8.00	208
Length of Service within the property Market & Related Fields (number of years)	10.71	9.21	< 1.00	45.00	208
Total Number of Functions Worked in	5.48	2.45	1.00	13.00	208
Education ^a	2.51	1.38	1.00	5.00	207
Training (approx number of days of formal instruction)	161.15	378.19	0.00	2200.00	207

^a This variable was assessed by a five-point Likert scale (1=no post-secondary education; 2=further education; 3=higher education - non-degree; 4=higher education - non-vocationally relevant degree; 5=higher education - vocationally relevant degree).

presents a breakdown of the sample by company types, and tables 4.5 and 4.6 provide an analysis in terms of the participants' geographical locations and functions, respectively. It is evident from these tables that a wide cross-section of estate agents is represented in the study, thus strengthening our confidence in the generalizability of the findings.

Unfortunately, as is common in longitudinal research, many participants who took place in the study at T1, failed to return completed questionnaires at T2. A total of 114 participants from 41 organisations took part in the second phase of the study, a sample attrition rate of

45.19 for individuals and 29.31 per cent for participating organisations, respectively.

Table 4.4. Analysis of the initial sample by company type.

COMPANY TYPE	N	PERCENT OF TOTAL SAMPLE	CUMULATIVE PERCENT
Local Independent	72	34.6	34.6
Regional Operator	50	24.1	58.7
National Chain	86	41.3	100.0
TOTAL	208	100.0	100.0

Table 4.5. Analysis of the initial sample by location.

LOCATION ^a	N	PERCENT OF TOTAL SAMPLE	CUMULATIVE PERCENT
South Yorkshire	100	48.1	48.1
East Midlands	51	24.5	72.6
West Yorkshire	25	12.0	84.6
Humberside	32	15.4	100.0
TOTAL	208	100.0	100.0

^a Denotes the geographical location of the respondents' individual branch or office.

Table 4.6. Analysis of the initial sample by function.

FUNCTION	N	PERCENT OF TOTAL SAMPLE	CUMULATIVE PERCENT
Senior Management	74	35.6	48.1
Management	70	33.7	69.3
Technical Specialist	55	26.4	95.7
Administration & Support Service	9	4.3	100.0
TOTAL	208	100.0	100.0

It is not possible to identify the reasons for non-response at T2, but the most likely explanation is the rapid deterioration in market conditions experienced during the period of the study - as outlined in the previous chapter. Several attempts were made to try and follow up those who failed to return completed questionnaires at T2, but many firms were reluctant to discuss their reasons for dropping out of the study. In others, however, particularly the larger firms who had given generous access at T1, the contact person gave as a reason that large numbers of staff had been made redundant in the intervening period.

This suggests that the most likely explanation for the high attrition rate is that the non-returners were either no longer with their organisations at T2, or were too busy in the wake of their firms' redundancy programmes to commit further time to the study. Fortunately, however, as we shall see later, there is much converging evidence that

sample attrition has had a minimal impact on the validity of the findings.

RELIABILITY ANALYSIS & DATA REDUCTION

Reliability analysis

The means, standard deviations and reliability coefficients for the various self-report measures of environmental scanning behaviour, strategic locus of control, organisational structure, strategy, environment and performance, are presented in table 4.7. With two notable exceptions, all the scales were found to have good reliabilities, with alpha coefficients ranging between 0.70 and 0.88. The alphas associated with the technocratisation and environmental complexity scales, by contrast, were 0.53 and 0.58 respectively. In view of the relatively small number of items forming the technocratisation scale, it was deemed to be sufficiently reliable for use in the study. In the case of the environmental complexity, however, the relatively low alpha was considered unacceptable, given the number of items forming this scale. Consequently this scale was excluded from further analysis.

Data Reduction

In order to reduce the number of variables in the study to a manageable number for the purposes of further analysis, several of the instruments were submitted to principal components analyses. A conceptual analysis of the various strategy, structure and environment scales suggested that these scales are closely related to one another, to the extent that they could probably be combined meaningfully to form three general scales

Table 4.7. Means, standard deviations, and reliability coefficients for the various scales completed by the initial sample.

SCALE ^a	NUMBER		MEAN	SD	ALPHA
	N	OF ITEMS			
Strategic locus of control	208	16	2.52	0.46	0.77
Env Scanning (Frequency)	208	13	4.20	0.75	0.74
Env Scanning (Threat Vs Opportunity)	208	4	5.15	1.03	0.78
<u>Strategy Making</u>					
Innovation	208	4	4.15	1.31	0.74
Risk taking	208	2	3.59	1.40	0.84
Proactiveness	208	2	5.08	1.58	0.87
Futurity	207	5	4.30	1.35	0.84
<u>Environment</u>					
Dynamism	207	7	4.40	1.02	0.79
Hostility	208	6	4.43	1.04	0.77
Market Diversity	208	8	3.97	0.96	0.75
Complexity	208	6	4.27	0.84	0.58
<u>Organisational structure</u>					
Env scanning	208	4	4.03	1.39	0.77
Technocratization	208	3	4.05	1.13	0.53
Differentiation	208	3	3.69	1.35	0.70
<u>Organisational performance</u>					
Wealth	188	4	4.43	1.30	0.81
Markets	197	4	4.48	1.10	0.81
Adaptability	203	5	4.91	1.04	0.85
Climate	205	4	5.61	1.14	0.88
Future growth	208	4	5.00	0.94	0.84
Market Buoyancy	208	1	3.12	0.96	N/A

a The scores for these scales were computed by averaging across the items for each respondent

reflecting respondents' perceptions of proactive/innovative strategy-making behaviour, structural sophistication and environmental variability, respectively.

In order to explore the feasibility of this proposal, the various strategy-making, organisational structure and environment scales were submitted to principal components analysis, with varimax rotation. Separate analyses were performed on each group of indicators, in turn. The results of these analyses are presented in tables 4.8 to 4.10, respectively.

In each case a single component was extracted with high loadings associated with the various indicators. On the basis of these findings the scales were combined in order to create a reduced set of variables. This was accomplished by deriving a mean score for each participant based on their scores associated with the various component sub-scales.

The three indicators of organisational size (Log_{10} No of employees, Log_{10} No of branches and Log_{10} No of regions) were also submitted to a principal components analysis. As expected, a single component was extracted with very high loadings for each indicator. The results of this analysis are presented in table 4.11. On the basis of these findings a single score was derived for each participating organisation ie the mean Z-score of the three indicators².

2 The organisational performance scales were not submitted to a principal components analysis, nor formed into a composite scale, because despite the fact they are significantly inter-correlated, in the author's view, they are nevertheless conceptually distinct and, as such, should not be aggregated into a general indicator.

Table 4.8. Principal components analysis of the various strategy-making scales (N=207).

VARIABLE	COMPONENT LOADING
Innovation	0.87
Risk Taking	0.71
Proactiveness	0.89
Futurity	0.82
Mean	4.27
SD	1.16
EIGEN VALUE	2.71
% VARIANCE	67.70

In order to reduce further the number of variables to be employed in subsequent analyses, the items designed to elicit information about the participants' basic biographical details and work histories, were also submitted to principal components analysis, with varimax rotation. The results of this analysis are presented in table 4.12.

Two components were extracted with eigen values greater than unity, accounting for a total of 60.9 percent of the variance. The first component seems to reflect general maturity and on the job experience, as evidenced by high loadings for the items tapping the respondents'

Table 4.9. Principal components analysis of the various organisational structure scales (N=208).

VARIABLE	COMPONENT LOADING
Environmental scanning	0.76
Technocratization	0.84
Differentiation	0.50
Mean	3.92
SD	0.91
EIGEN VALUE	1.53
% VARIANCE	50.90

age, number of companies worked for within the property market, length of service within the property market and related fields, and total number of functions worked in within estate agency. The second component seems to reflect education and off the job training as evidenced by the high loadings for these two items on this component, together with a high loading for the total number of functions worked in within estate agency. It is clearly evident that breadth of functional experience is an important indicator of both general maturity/on the job experience and education/training.

Table 4.10. Principal components analysis of the various environmental variation scales (N=207).

VARIABLE	COMPONENT LOADING
Dynamism	0.86
Hostility	0.72
Market Diversity	0.66
Mean	4.27
SD	0.76
EIGEN VALUE	1.70
% VARIANCE	56.50

On the basis of these findings, factor based scale scores were calculated for each participant by computing the mean Z-score of the various indicators with loadings in excess of 0.4 on each component. As would be expected, given the fact that breadth of functional experience is more or less evenly loaded across both components, these scales are significantly correlated with one another ($r=0.49$, $df=206$, $P < 0.001$, 2-tailed).

Table 4.11. Principal components analysis of the various organisational size indicators (N=56).

VARIABLE	COMPONENT LOADING
Log ₁₀ No of branches	0.98
Log ₁₀ No of employees	0.97
Log ₁₀ No of regions	0.95
EIGEN VALUE	2.80
% VARIANCE	93.40

Table 4.12. Principal components analysis of the various biographical items (N=206).

VARIABLE	COMPONENT	
	I	II
Age in Years	0.85	0.09
Number of Companies worked for within the property market	0.61	0.00
Length of service within the property market & related fields	0.91	0.19
Total number functions worked in	0.43	0.51
Education	-0.25	0.85
Training	0.32	0.61
EIGEN VALUE	2.46	1.19
% VARIANCE	41.00	19.90

CONSTRUCT VALIDITY OF THE SCALES

Several analyses were performed in order to assess the construct validity of the scales at the individual and organisational-levels.

Individual-Level Analyses

Firstly, the scale inter-correlations were computed at the individual-level. Following the work of Miller and his associates outlined earlier, together with our discussion of the theory underlying the development of the strategic locus of control scale, it was predicted that the strategy-making, organisational structure, environmental variation, organisational performance, and environmental scanning scales would all be positively inter-correlated with one another, but negatively correlated with the strategic locus of control scale.

The results of these analysis are presented in tables 4.13 and 4.14 for the T1 and T2 data-sets, respectively. As expected, the majority of the scale inter-correlations were highly significant in the predicted directions, strongly indicating that the various scales are generally construct valid, in terms of their relationships to one another. On the whole, the pattern of relationships observed at T1 appears to have been replicated at T2, suggesting the findings are reliable. (As would be expected with a greatly reduced sample size, several of the relationships found to be relatively substantial at T1 were attenuated at T2, but the general pattern of relationships has remained stable over time).

Table 4.13. Scale inter-correlations (Pearson product-moment) for the environmental scanning, strategic locus of control, strategy-making, structure, environment & organisational performance scales completed by the research participants at T1 (decimal points omitted)¹.

VARIABLE	1	2	3	4	5	6	7	8	9	10
1. Locus of Control										
2. Env Scan (freq)	-25**									
3. Env scan (Threat-opp)	-43**	35**								
4. Strategy	-38**	20*	43**							
5. Structure	-31**	29**	30**	51**						
6. Environment	-18*	23**	26**	43**	46**					
7. Wealth	-18*	14 ^b	37**	52**	39**	25**				
8. Markets	-26**	17*	36**	45**	29**	17*	66**			
9. Adaptability	-28**	17*	39**	57**	37**	22**	64**	59**		
10. Climate	-16*	08	19*	24**	21**	09 ^a	34**	37**	58**	
11. Future growth	-40**	18*	30**	38**	23**	18*	23**	24**	37**	27**

^a $p < 0.10$, ^b $p < 0.05$, * $P < 0.01$, ** $P < 0.001$ (1-tailed)

¹ $N = 208 - 188$; variation is due to missing data.

Table 4.14. Scale inter-correlations (Pearson product-moment) for the environmental scanning, strategic locus of control, strategy-making, structure, environment & organisational performance scales completed by the research participants at T2 (decimal points omitted)¹.

VARIABLE	1	2	3	4	5	6	7	8	9	10
1. Locus of Control										
2. Env Scan (freq)	-27*									
3. Env scan (Threat-opp)	-42**	34**								
4. Strategy	-50**	29**	37**							
5. Structure	-27*	32**	28**	50**						
6. Environment	-43**	29**	15 ^a	33**	38**					
7. Wealth	-22*	16 ^a	23*	32**	37**	12 ^a				
8. Markets	-14 ^a	17 ^b	16 ^b	23*	38**	00	74**			
9. Adaptability	-37**	13 ^a	33**	46**	22*	17 ^b	57**	44**		
10. Climate	05	-06	-03	18 ^b	15 ^a	-13	22*	28**	33**	
11. Future growth	-11	19 ^b	10	22*	15 ^a	-09	16 ^a	18 ^b	28**	23*

^a $p < 0.10$, ^b $p < 0.05$, * $P < 0.01$, ** $P < 0.001$ (1-tailed)

¹ $N = 114 - 108$; variation is due to missing data.

Organisational-Level Analyses

The results of the previous analyses established that the various scales exhibit acceptable construct validity at the level of the individual research participants. The pattern of scale inter-correlations over both time periods was generally as predicted.

However, according to Boone & De Brabander (1993), this approach to the assessment of construct validity is limited by the fact that the research participants completed all sections of the questionnaire, thus giving rise to the possibility that the significant scale inter-correlations are, at least in part, a result of shared method variance.

Whilst it is commonly assumed by many social scientists that shared method variance is a serious problem, resulting in inflated correlations, there has been surprisingly little research which has directly addressed this issue (Spector, 1992). Recently, however, a number of methodological investigations (reviewed in Spector, 1992) have examined the shared method variance problem. These studies suggest that the situation is far from straightforward and in the final analysis, the effects of shared method variance may be neither as widespread, nor as serious, as is commonly believed. Spector cites evidence which, contrary to popular belief, suggests that shared method variance may actually attenuate rather than inflate correlation coefficients. Nevertheless we must be mindful of the fact that there is a possibility that shared method variance has inflated the observed correlations, though it would be difficult to explain (given the wide variations in

the correlations) why some are more inflated than others, and the pattern is repeated over two separate occasions distant in time.

One way of overcoming this criticism, and thereby strengthening the claim of construct validity, is to assess the extent to which self-report indicators correlate with some external criterion (or criteria), derived objectively from independent sources. Two variables which would be particularly suitable for this purpose are organisational size and organisational performance.

To the extent that the various self-report measures of environmental scanning, strategy-making behaviour, organisational structure, environment and performance employed in this study are valid indicators of the constructs they purport to assess, we would expect to find that these variables are positively correlated with organisational size and objective indicators of organisational performance. To the extent that the strategic locus of control scale is a valid indicator, we would expect this variable to correlate negatively with these objective variables.

Unfortunately, however, for reasons which we noted earlier, "hard" indicators of organisational performance are neither readily available nor easily constructed in the estate agency industry and so a compromise strategy was adopted. In order to further assess the construct validity of the various self-report measures, an independent panel of three raters, each highly knowledgeable about the estate agency industry, assessed the relative performance of the participating organisations.

Each member of the panel independently evaluated the performance of all 58 of the participating organisations on six criteria: market share, sales performance, breadth of coverage of the range of property types, general quality of customer service, ability to adapt to changing market conditions and profitability. The criteria were derived by the author on the basis of a conceptual analysis of organisational effectiveness in the estate agency industry. This analysis was informed by consulting recent industry sector reports, for example as reviewed in the previous chapter. Each criterion was assessed by means of a single item with a seven-point Likert scale format, ranging from "very much below average" (low score description), through "average" (mid-point description), to "very much above average" (high score description). As in the case of the self-report measures of organisational performance administered to the individual research participants, an additional response category, "don't know", was also included, in an attempt to minimise the possibility that panel members lacking in sufficient knowledge to make meaningful judgements were responding by "wild guessing". Fortunately, however, none of the three judges employed for the purposes of this particular exercise returned "don't know" responses to any of the questions³.

3 Each panel member had a minimum of 15 years practical experience in the estate agency industry. At the time of the data collection, two of the panel members were involved in the full-time training & education of estate agents in a specialist university department with an international reputation for excellence in this field. The third member of the panel was a journalist specialising in the estate agency industry. All three had extensive first-hand knowledge of the industry within the geographical area encompassed by the study.

In order to assess the inter-rater reliabilities of these performance criteria, the panel members' independent judgements were analysed using Kendall's coefficient of concordance (Siegel, 1956). Table 4.15 presents the results of these analyses which indicate an acceptable degree of consensus between the raters on each of the six criteria. The coefficients are all highly significant, suggesting that there was sufficient overall agreement between the raters to aggregate their judgements into composite evaluations of the organisations on each criterion. (The coefficients associated with the general quality of customer service, adaptability to changing market conditions, and profitability items were low, but marginally acceptable).

Table 4.15. Inter-rater reliabilities (Kendall's coefficient of concordance) for the various expert panel assessments (N=3 judges).

PERFORMANCE INDICATOR	W	Chi-Square	DF	SIGNIFICANCE
Market Share	0.75	129.00	57	0.0000
Sales Performance	0.75	127.80	57	0.0000
Range of Property Types	0.72	123.76	57	0.0000
General Quality of Customer Service	0.64	108.95	57	0.0000
Adaptability to Changing Market Conditions	0.66	113.70	57	0.0000
Profitability	0.55	93.48	57	0.0017

The aggregated ratings of the assessors were submitted to a principal components analysis. The results of this analysis are presented in table 4.16. A single component was extracted with very high loadings for each item. On the basis of these findings, the six sets of aggregated ratings were combined to form a composite measure of organisational performance. This composite indicator, together with the composite indicator of organisational size, derived earlier, formed the basis for assessing the construct validity of the various self-report measures of environmental scanning, strategic locus of control, strategy, organisational structure, environment and performance.

Table 4.16. Principal components analysis of the aggregated expert panel's assessments of organisational performance

COMPONENT VARIABLE	LOADING
Market Share	0.96
Sales Performance	0.95
Range of Property Types	0.92
General Quality of Customer Service	0.94
Adaptability to Changing Market Conditions	0.97
Profitability	0.83
EIGEN VALUE	5.17
% VARIANCE	86.20

In order to form a comparable unit of analysis to the expert panel ratings and the organisational size scores, the responses associated with particular individuals for the various self-report measures were aggregated at the organisational-level. These aggregated (mean) scores, were correlated, in turn, with the composite judgements of the expert panel and organisational size.

The results of this analysis are presented in table 4.17. Before considering the significance of these findings, however, a brief note of explanation is in order. For this particular analysis, Spearman rank-order correlations were used in preference to Pearson product-moment correlations owing to the fact that the mean values derived for the various participating organisations are based on unequal sample sizes, thus giving rise to the likelihood of heteroscedasticity amongst the variances distributed around the observations (means). Under these circumstances parametric statistical tests are clearly inappropriate since there is a high probability that any parameters estimated will be biased.

As expected the correlations are generally in the predicted direction and a number are found to be statistically significant, both in relation to organisational size and the expert panels' ratings of performance. Particularly noteworthy are the correlations between the self-report measures of wealth and markets with the expert panel's evaluations of overall performance. These correlations are found to be moderately large and significant over both time periods, strong evidence indeed

Table 4.17. Spearman rank-order correlations between the organisational-level self-report ratings of strategy, organisational structure, environment and performance with organisational size and the independent expert panel's ratings of organisational performance.¹

VARIABLE	CORRELATIONS WITH SELF-REPORT RATINGS AT TIME ONE ²		CORRELATIONS WITH SELF-REPORT RATINGS AT TIME TWO ³	
	Expert Panel's ratings of overall performance	Organ- isational size	Expert Panel's ratings of overall performance	Organ- isational size
Strategic Locus of Control	-0.11	-0.32**	-0.30*	-0.48***
Env Scanning (frequency)	0.14	-0.04	0.05	0.32*
Env Scanning (Threat-Opp)	0.15	0.37**	-0.02	0.37**
Strategy	0.20 ^a	0.36**	0.30*	0.45***
Structure	0.28*	0.53***	0.36*	0.46***
Environment	0.19 ^a	0.49***	0.34*	0.50***
Wealth	0.62***	0.47***	0.29*	0.46***
Markets	0.51***	0.51***	0.36*	0.31*
Adaptability	0.14	0.19 ^a	0.08	0.17
Climate	0.09	-0.13	-0.12	-0.15
Prospects for growth	-0.07	0.01	0.01	0.11

^a $P < 0.10$, * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$ (1-tailed)

¹ The correlation (Pearson product-moment) between organisational size and the expert panel's ratings of organisational performance is $r = 0.62$, $df = 56$, $P < 0.001$, 2-tailed).

² $N = 58 - 56$; variation is due to missing data.

³ $N = 41 - 40$; variation is due to missing data.

that the participating organisations' self-assessments of these particular dimensions of performance have an objective basis.

Several of the correlations between the self-report measures and organisational size are also worthy of comment. In particular, the correlations between size and strategic locus of control, threat vs opportunity scanning, strategy, structure, environment, wealth and markets are found to be substantial and, on the whole, highly significant for both time periods. As would be expected, given the historical events which took place in this industry in the period leading up to this study (reviewed in the previous chapter), this pattern of results confirms that the larger firms, with greater numbers of employees, branches and national or near national coverage, are relatively internal in terms of their strategic locus of control orientations, with a marked tendency to scan the environment primarily for opportunities rather than threats, in comparison to their smaller counterparts.

Furthermore, the larger organisations tend to be relatively innovative/proactive in their strategy making behaviour with relatively sophisticated organisational structures, their environments are generally perceived to be relatively more changeable and varied, and these organisations are found to be generally more successful in terms of their wealth and standing in the marketplace. The overall conclusion to be derived from these findings is that the research participants' responses to the various self-report scales are correlated with

Table 4.18. Scale inter-correlations (Spearman rank-order) at T1 for the environmental scanning, strategic locus of control, strategy-making, structure, environment & organisational performance scales, at the organisational-level of analysis (decimal points omitted)¹.

VARIABLE	1	2	3	4	5	6	7	8	9	10
1. Locus of Control										
2. Env Scan (freq)	-28 ^b									
3. Env scan (Threat-opp)	-38*	39**								
4. Strategy	-37*	32*	61**							
5. Structure	-33*	38*	34*	52**						
6. Environment	-18 ^a	20 ^a	31*	41**	51**					
7. Wealth	-09	02	33*	35*	38*	19 ^a				
8. Markets	-33*	29 ^b	49**	53**	40**	31*	63**			
9. Adaptability	-18 ^a	38*	57**	63**	37**	20 ^a	48**	57**		
10. Climate	01	11	21 ^a	18 ^a	09	01	24 ^b	29 ^b	46**	
11. Future growth	-33*	32*	39**	39**	25 ^b	23 ^b	-03	09	28 ^b	29 ^b

^a P < 0.10, ^b P < 0.05, * P < 0.01, ** P < 0.001 (1-tailed)

¹ N = 58 - 55; variation is due to missing data.

objective/independently derived criteria in the predicted directions adding substantial support to the claim of construct validity.

For the sake of completeness the organisational-level scale inter-correlations associated with the various self-report measures of

Table 4.19. Scale inter-correlations (Spearman rank-order) at T2 for the environmental scanning, strategic locus of control, strategy-making, structure, environment & organisational performance scales, at the organisational-level of analysis (decimal points omitted)¹.

VARIABLE	1	2	3	4	5	6	7	8	9	10
1. Locus of Control										
2. Env Scan (freq)	-38*									
3. Env scan (Threat-opp)	-55**	45*								
4. Strategy	-73**	31 ^b	47**							
5. Structure	-43*	46**	33 ^b	65**						
6. Environment	-42*	42*	22 ^a	49**	66**					
7. Wealth	-24 ^a	08	03	33 ^b	37*	19				
8. Markets	-22 ^a	24 ^a	-01	26 ^a	41*	20	74**			
9. Adaptability	-51**	12	37*	48**	17	09	54**	47**		
10. Climate	10	-16	03	16	-05	-15	21 ^a	27 ^b	42*	
11. Future growth	-30 ^b	20	23 ^a	39*	32 ^b	06	10	33 ^b	38*	21 ^a

^a P < 0.10, ^b P < 0.05, * P < 0.01, ** P < 0.001 (1-tailed)

¹ N = 41 - 39; variation is due to missing data.

environmental scanning behaviour, strategy, structure, environment and organisational performance for the T1 and T2 data-sets are reported in tables 4.18 and 4.19, respectively. Once again, the relationships are

generally in the predicted directions and mostly statistically significant at the 5 per cent level or less.

Having established that the various indicators to be employed in the main analyses demonstrate acceptable reliability and validity, in terms of their relationship to one another and the independently derived criteria, it remains to be ascertained to what extent sample attrition from T1 - T2 poses a threat, or otherwise, to the validity of the findings.

COMPARISON OF RETURNERS & NON-RETURNERS

Two statistical procedures were employed in order to assess the extent to which the relatively high attrition rates associated with this study may pose a threat to the validity of the findings at T2. The initial responses of those research participants who returned completed questionnaires on the second occasion were compared with the responses of those participants who subsequently dropped out of the study, using the unrelated t-test. In addition, the ratios of the variances associated with the stayers and leavers were compared for each variable using the F test. These procedures were employed in order to determine whether the two groups of participants differed significantly in their mean scores and variances on each variable, due to sample attrition. The results of these analyses are presented in table 4.20.

The results clearly suggest that, in general, sample attrition appears to have had a minor impact on the variances associated with the various

Table 4.20. Comparison of the initial responses of the returners with the responses of those research participants who subsequently dropped out of the study at T2.

VARIABLE	STAYERS ^a		LEAVERS ^b		F-VALUE	t-VALUE
	MEAN	SD	MEAN	SD		
On the Job Experience/ Maturity	0.20	0.75	-0.25	0.67	1.26	4.48***
Education & training	0.06	0.65	-0.08	0.71	1.19	1.49
Env Scanning (frequency)	4.23	0.74	4.17	0.76	1.04	0.63
Env Scanning (Threat vs Opp)	5.08	1.01	5.24	1.05	1.08	-1.09
Strategic Locus of Control	2.56	0.45	2.48	0.48	1.17	1.33
Strategy	4.14	1.17	4.44	1.13	1.07	-1.86
Organisational Structure	3.90	1.00	3.95	0.80	1.57*	-0.38
Environment	4.21	0.77	4.33	0.74	1.08	-1.13
Wealth	4.39	1.33	4.48	1.27	1.11	-0.47
Markets	4.36	1.13	4.63	1.05	1.16	-1.71
Adaptability	4.86	1.05	4.97	1.04	1.02	-0.80
Organisational Climate	5.63	1.06	5.58	1.22	1.33	0.34
Prospects for Future Growth	4.84	0.88	5.20	0.98	1.23	-2.78**
Market Buoyancy	3.09	0.85	3.16	1.08	1.63*	-0.54

* P < 0.05, ** P < 0.01, *** P < 0.001

^a N = 114 - 106; variation is due to missing data.

^b N = 94 - 82; variation is due to missing data.

indicators. Only two of the 14 F ratios (organisational structure and market buoyancy) are found to be statistically significant, at the 5 percent level, with no other significant results. In view of the fact that as many as fourteen F tests have been performed on the data, there is a strong possibility that either or both of these significant results has occurred due to chance factors. (For every twenty statistical tests performed on a given sample, we would expect to obtain at least one significant result on the basis of chance alone, taking the conventional five percent cut-off level as the criterion).

Turning to the results of the t-tests, we find that with two notable exceptions, none of the t-values were significant, indicating that there are very few differences between the stayers and leavers on the variables measured at T1. The notable exceptions are the prospects for future growth and on the job experience/maturity scales, which are highly significant at the $P < 0.01$ and $P < 0.001$ levels, respectively. It is clearly evident from these findings that those research participants who dropped out of the study at T2 were generally over-optimistic about their organisations' prospects for future growth in the immediate year ahead and/or considerably less experienced/mature, in comparison to their counterparts who returned completed questionnaires on the second occasion, supporting the explanation for T2 refusal offered earlier in this chapter.

CONCLUSIONS

This chapter has described the development and validation of the research instruments which were devised and/or adapted for use in the

study reported in this thesis. The various self-report measures of strategic behaviour have been shown to be both reliable, in terms of their internal consistency assessed by coefficient alpha, and valid, as assessed by the pattern of scale inter-correlations at the individual and organisational-levels of analysis. Further evidence for the construct validity of the scales was obtained by correlating the aggregated responses to the self-report measures, at the organisational-level, with two independent criteria, organisational size and organisational performance.

Finally, we considered the extent to which sample attrition from T1 - T2 posed a threat to the validity to the findings, by comparing the initial responses of those research participants who returned completed questionnaires on the second occasion, with those who subsequently dropped out of the study. Despite the relatively high drop-out rate, we concluded that there was very little evidence to suggest that sample attrition posed a threat to the validity of the findings.

CHAPTER 5

MENTAL MODELS OF COMPETITIVE SPACE & THEIR CORRELATES

The next three chapters present the substantive findings arising from the study. As noted in earlier chapters, the primary aim of the present research is to examine Porac *et al.*'s (1989) theory of competitive enactment as an explanation of industry and market decline. In particular, three issues are of focal concern, namely, the extent to which key features of actors' mental models of competitive space correlate with strategic behaviours, the extent to which mental models within a given industry converge or diverge, and the extent to which mental models remain stable over time. In the next three chapters we shall address each of these issues, in turn.

In the present chapter we are concerned with the proposition that cognition and strategic choice are inextricably intertwined with the material conditions of the marketplace. If this basic premise of competitive enactment theory is tenable, it should be possible to detect empirically, relationships between key features of actors' mental models of competitive space and the various self-report measures of strategic behaviour outlined in the previous chapter.

ASSESSING COGNITIVE STRUCTURES

How then shall we begin the search for these empirical relationships? As noted in chapter two, previous studies of competitor cognition have employed mapping procedures which either yield a representation of the collective cognitive structure of the research participants as a whole,

but fail to capture variation at lower levels of analysis, or emphasise differential cognition in a fashion which renders the resulting mental models of particular actors, or subgroups of actors, methodologically non-comparable.

The knowledge elicitation and data analysis procedures adopted in the present study, by contrast, were chosen carefully in order to overcome these fundamental limitations. As noted in the previous chapter, the competitor analysis questionnaire was purposefully designed to be an adaptive instrument so as to ensure that the research participants were as knowledgeable as possible about each of the particular firms upon which they based their responses. However, the research task was framed in a way which would enable the researcher to make meaningful comparisons across particular individuals and/or subgroups of respondents.

Three-way Scaling for the Analysis of Cognitive Structures

Fortunately, there are also a number of analytical procedures readily available which appear to overcome the basic methodological limitations, outlined earlier, associated with previous studies of competitor cognition. The INDividual Differences SCALing model (INDSCAL) devised by Carroll & Chang (1970) and its closely related variants, such as Takane, Young & DeLeeuw's (1977) ALSCAL and Ramsey's (1978) MULTISCAL, are particularly suitable for addressing the methodological and empirical issues raised by the present study.

The main feature of these techniques, known collectively as three-way scaling (Arabie et al, 1987), or equivalently, weighted multidimensional scaling (WMDS) (Schiffman et al, 1981), which makes them particularly useful in the context of the present study, is their ability to represent individual and collective cognition simultaneously. The basic underlying assumption of three-way scaling procedures is that a given group of actors share a common set of underlying dimensions in their mental models of a particular domain. However, at the individual (or subgroup) level, actors differ in terms of the extent to which a given dimension is of relevance in their "private cognitions", including the possibility of zero relevance.

Basic two-way scaling techniques and principal components analysis (as employed by Walton (1986) and Reger (1990a, 1990b) in their studies of competitor cognition in the USA financial services industries, for example), are capable of representing particular individuals' mental models, or the collective mental model of a given group of research participants, but not both. Three-way scaling procedures, by contrast, yield an aggregate perceptual map, known as the group space, and a series of weights reflecting sources of variation in cognition at the individual or subgroup level. These source weights (Arabie et al, 1987) reflect the extent to which a particular dimension is salient in the judgements of a given individual or subgroup, or alternatively, the extent to which some particular condition imposed by the researcher, acts as a source of variation in cognition.

In essence, these weights inform researchers of the extent to which particular individuals, or subgroups, deviate from the collective cognitive model, in their private views. As we shall see shortly, these weights turn out to be highly informative in addressing the empirical concerns of the present chapter, as well as providing a partial solution to the methodological criticisms levelled against previous studies within this field of enquiry.

The analytical strategy to be adopted in the search for empirical correlates of competitor cognition will be organised in three stages, as follows. Firstly, using the technique of three-way scaling we shall derive a group space map - reflecting the collective mental model of the sample as a whole. This aggregate cognitive structure will be taken, tentatively, to represent the dominant world-view of the bases of competition and competitive positioning of particular types of firm throughout the estate agency industry - ie in much the same way that Porac and his associates regarded the taxonomies of competitive space derived in their studies of American retailers and Scottish knitwear manufacturers (reviewed in chapter 2), as reflecting the collective mental models of their research participants (Porac et al, 1987, 1989).

Secondly, a series of source weights will be derived for each of the research participants. Source weights vary between zero and unity in approximate proportion to the percent of variance in a particular source's cognitive structure explained by the group space (ie the aggregate mental model derived from the sample of research participants as a whole). As noted earlier, these weights reflect the saliences of

the various group space dimensions in the judgements of particular sources. The closer a given weight is to unity, the greater the salience of that particular dimension and vice versa (for technical details see Kruskal & Wish, 1978; Schiffman et al, 1981; Coxon, 1982; Arabie et al, 1987).

Unfortunately, due to the fact that the magnitude of the individual source weights is partly determined by the proportion of variance explained in a particular source's judgements by the group space, it is not appropriate to apply ordinary linear statistical procedures in the search for systematic variation in cognition¹. When logarithmically transformed, however, the ratios of these weights (taking each pair of dimensions in turn) provide a convenient index of differential cognition, which reflects the extent to which particular dimensions are relatively salient in the judgements of the individual sources (Coxon, 1982). These transformed ratios are amenable to conventional statistical analysis (MacCallum, 1977) and will provide a basis for addressing the main substantive concern of the present chapter, namely, the extent to which actors' mental models of competitive space and the strategic choices of organisations are inextricably intertwined with the material conditions of the marketplace.

To the extent that these logarithmically transformed source weights are found to vary systematically with the various self-report measures of

1 At a more technical level, the reason for this anomaly is that the source weights are vectors (the lengths of which vary in approximate proportion to the variance accounted for in the private cognitions of a given source by the group space) - as distinct from points in a multidimensional space. As such, it is the relative directionality of these vectors that is useful for exploring differential cognition, rather than their absolute magnitude (Coxon, 1982).

scanning behaviour, strategic locus of control, strategy, organisational structure, environment, and performance - outlined in the previous chapter - we will have uncovered supporting evidence for one of the most central, though previously untested, assumptions of competitive enactment theory.

METHOD

206 of the 208 questionnaires returned from the 58 organisations at T1 and all 114 questionnaires returned from the 41 organisations at T2 were usable in the present test. It is evident from the previous chapter that a good cross-section of estate agency firms (including small partnerships, regional operators and national chains) and a wide range of specialist functions are represented in the study. Consequently, it seems reasonable to assume that the sample is sufficiently heterogeneous to construct a collective cognitive structure that will be reasonably representative of the industry-wide world-view, at least in relation to the geographical locality covered by the study.

Multidimensional Scaling Analysis

A three-way multidimensional scaling analysis was performed on the competitor analysis questionnaire data, in order to examine and represent the collective cognitive structure of the sample as a whole. The data were analysed by adapting the procedure outlined by Kruskal & Wish (1978, pp 70 - 73) for the analysis of profile proximities (see also Forgas et al, 1980; Forgas, 1981).

The bipolar attribute ratings of the various estate agents at T1 were converted into matrices of Euclidean distances (one matrix per attribute), by averaging over the individual respondents' judgements using a formula derived from the generalized distance score proposed by Osgood & Suci (1952), Cronbach & Gleser (1953) and Wish, Deutsch & Kaplan (1976) for forming profile distances between stimuli, viz:

$$\sigma_{jk(s)} = \sqrt{\left(\frac{1}{N} \sum_{i=1}^N (X_{ij(s)} - X_{ik(s)})^2 \right)}$$

Where $X_{ij(s)}$ and $X_{ik(s)}$ are respondent i 's ratings of the estate agency categories j and k on scale s , and N is the total number of research participants. In short, the result of this formula is a dissimilarity matrix which represents all the participants' judgements on a given scale.

Using the above formula, a total of 21 profile proximities matrices were formed via the proximities procedure on SPSS version 4 (SPSS, 1990) which, in turn, served as input to the ALSCAL multidimensional scaling routine developed by Takane *et al* (1977), which is also available on SPSS. The program was run for analyses from six down to two dimensions using the model = indscal, level = ordinal (untie), level = ordinal (tied) and level = interval options. Similar configurations were obtained across each level of measurement. However, an analysis of the diagnostic measures (stress and RSQ) suggested the level = ordinal (untie) option to be the most appropriate. Taking into account both the

diagnostic criteria and substantive interpretability of the output, a two-dimensional solution was strongly indicated.

Following this, the participants' judgements were aggregated over the scales, using a procedure similar to that outlined above for deriving the attribute profile proximities matrices, in order to derive a series of profile proximity matrices representing particular individuals' judgements across all the scales. These matrices, in turn, served as input to a subsequent analysis in which the two-dimensional solution considered optimum, was held constant, in order to derive the individual source weights. Similarly, a set of source weights was also calculated for each of the research participants at T2 by initially deriving an individual profile proximity matrix (aggregated across each of the attribute rating scales) for each respondent, then inputting these matrices into the ALSCAL programme, with the T1 group space held constant.

RESULTS AND DISCUSSION

The Industry-level Collective Cognitive Structure

As indicated in the previous section, the multidimensional scaling analysis indicated a two-dimensional solution to be the optimum, taking into account both the diagnostic information and substantive issues of interpretability. This solution which accounted for 84.6 percent of the variance in the input data was considered sufficient to represent the participants' judgements both statistically and conceptually. The addition of further dimensions did not increase substantially the

variance accounted for (a third dimension added a mere 1.7 per cent and as many as six dimensions a mere 5.5 percent to the explained variance). Moreover, no convincing interpretation was obtained for additional dimensions.

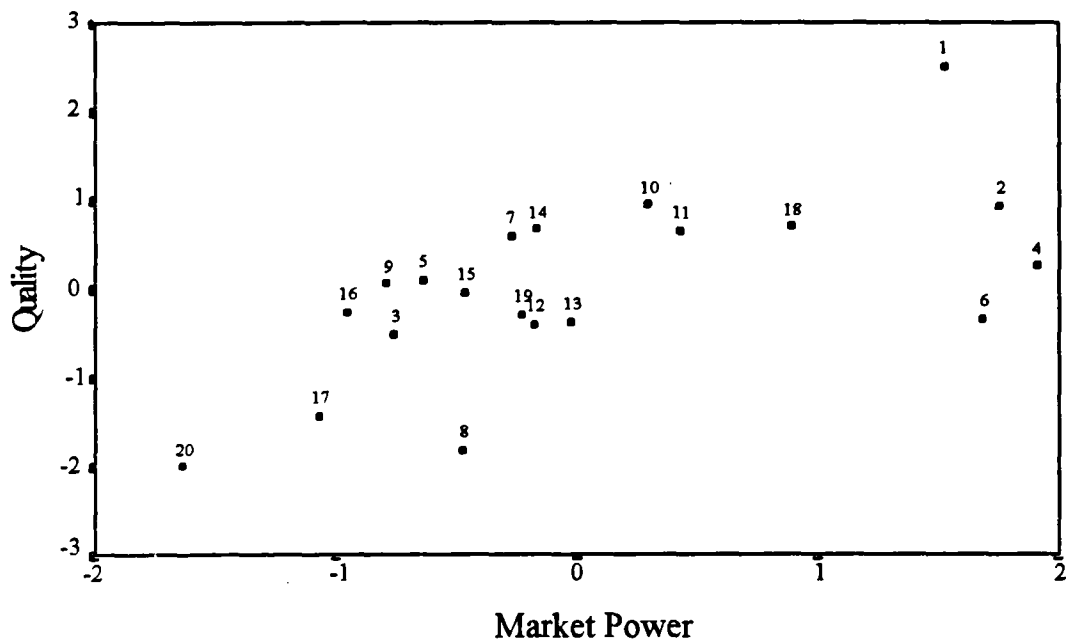
Interpretation of the stimulus space was accomplished by examining the source weights calculated by the computer programme for each of the 21 attribute matrices (see table 5.1). These weights (hereafter referred to as the dimension weights), ranging between zero and unity, are analogous to factor loadings in a conventional principal components or factor analysis, in the sense that the greater the magnitude of a given dimension weight, the greater the relevance of the associated attribute for conceptualising that particular dimension.

The results in table 5.1 strongly indicate that the first dimension represents the overall market dominance or "power" of various types of estate agent, in terms of their sheer visibility in the marketplace, as reflected in the relatively high dimension weights for the "size of branch network" (0.94), "geographical coverage" (0.93), "amount of advertising" (0.90), "marketing profile" (0.94), "market share" (0.83), "financial resources" (0.93), "links with financial services companies" (0.93), and "strategic influence/power" (0.90) attributes.

The second dimension, by contrast, seems to represent the general quality of service associated with each type of estate agent, as reflected in the relatively high dimension weights for the "service to

Table 5.1. Dimension weights for the ratings of the attributes aggregated across the full sample of respondents at T1 (N=206).

Attribute	Dimension	
	1	2
Service to vendors	0.10	0.96
Quality of staff	0.12	0.96
Service to purchasers	0.18	0.94
Training of staff	0.54	0.78
Operating practices	0.13	0.96
Quality of advertising	0.55	0.72
Profitability	0.45	0.76
Location of business premises	0.58	0.67
Size of branch network	0.94	0.00
Range of services	0.69	0.56
Geographical coverage	0.93	0.01
Scale of charges	0.64	0.50
Degree of personal attention	0.12	0.94
Market share	0.83	0.29
Marketing profile	0.94	0.15
Degree of local knowledge	0.37	0.78
Strategic influence/power	0.90	0.29
Amount of advertising	0.90	0.22
Financial resources	0.93	0.08
Links with financial services companies	0.93	0.10
Typical range of properties on sale	0.75	0.39



- Key:**
1. My Business
 2. My Major Competitor
 3. A Solicitor Agent
 4. An Estate Agent Owned by a Building Society
 5. A Traditional Estate Agent
 6. An Estate Agent Owned by an Insurance Company
 7. An Estate Agent Offering a Professional Service
 8. An Estate Agent with a Poor Reputation
 9. An Estate Agent with Chartered Surveyor Status
 10. An Estate Agent Specialising in Exclusive Property
 11. An Estate Agent Specialising in Commercial & Industrial Property
 12. An Estate Agent Specialising in Residential Property
 13. A Secondary Competitor
 14. An Estate Agent with a Good Reputation
 15. A Diversified Estate Agent
 16. An Independent Estate Agent
 17. An Inferior Competitor
 18. A Very Successful Estate Agent
 19. A Moderately Successful Estate Agent
 20. An Unsuccessful Estate Agent

Figure 5.1. The two-dimensional representation of the 20 estate agency categories for the full sample of respondents at T1 (N = 206; Stress = 0.212; RSQ = 0.846).

vendors" (0.96) "service to purchasers" (0.94), "quality of staff" (0.96), "degree of personal attention" (0.94) and "operating practices" (0.96) attributes. It is noteworthy that several of the attributes appear to be of significance for the interpretation of both dimensions. Given the pattern of dimension weights, it is clear that "staff training", "quality of advertising", "profitability", "location of business premises", "range of services", "scale of charges", "degree of local knowledge" and "typical range of properties on sale", are of some importance in relation to both market power and quality.

The aggregate judgements of the respondents with respect to each estate agency category, are plotted along the two dimensions in figure 5.1.

The results suggest that within this particular industry there is a general consensus that successful estate agents are estate agents who have established dominance in the marketplace and offer a high quality of service to vendors and purchasers alike. Such organisations tend to gravitate towards the upper right hand quadrant of the figure.

Unsuccessful estate agents, by contrast, tend to be located in the bottom left hand quadrant of the figure, reflecting the generally held view that they are considerably less powerful than their successful counterparts and offer a poorer quality of service.

Cognitive Simplification at the Industry-Level

The general pattern of results arising from this analysis, is very informative. The findings suggest that within this particular industry a highly simplified mental model of competitive space has developed.

As in Porac et al's (1989) Scottish knitwear study, it is evident that only a very limited portion of the competitive space potentially available, is considered strategically feasible by the vast majority of the research participants. A two-dimensional solution appears to encapsulate the bases of competition within the estate agency industry.

If this perceptual map is a true reflection of the industry's collective mental model of competitive space, the range of strategic options considered feasible by the vast majority of estate agents is very narrow indeed. Within the confines the competitive arena as construed here, generally only the larger, more powerful organisations can enjoy the benefits of competitive success, by virtue of their access to greater material resources, which in turn, presumably informs a better quality of service through the acquisition of higher calibre staff, better quality advertising and the like.

The results clearly suggest that, in general, differentiating a larger number of dimensions in order to emphasise particular attributes such as scale of charges, quality of advertising or marketing profile, in order to impress on the consumer the distinctive competences of the various firms, is not deemed to be viable by the vast majority of estate agents. Rather, on the basis of these results, it would appear that estate agents throughout the industry have come to consider only the strategies being pursued by the relatively successful national chains and larger regional operators, of attaining considerable market power and providing a general high quality service, as feasible.

This finding provides a further convincing demonstration of the constraining role of bounded rationality (March & Simon, 1958) in the development of competitive strategies in industries and markets (see also Gripsrud & Gronhaug, 1985; Porac et al, 1987, 1989; Porac & Thomas, 1990; Calori et al, 1992; de Chernatony et al, 1993). Due to limited information processing capacity, organisation members do not attend equally to all available environmental cues (Sims & Gioia, 1986). Rather, attributes are grouped into a much smaller subset of dimensions in an effort to reduce the information processing burden. In the present case, it would appear that the entrance of the major institutional estate agents is a highly visible stimulus, representing a competitive threat of major proportions, which in turn, has greatly narrowed actors' attention and in so doing has come to dominate the thinking of the larger and smaller firms alike.

Correlational Analyses of the Source weights

As noted earlier, the logarithmically transformed ratios of the source weights associated with the three-way scaling analysis provide a convenient index of differential cognition which will enable us to explore empirically the extent to which the research participants' private mental models correlate with the various self-report measures of strategic behaviour. Following Coxon & Jones (1978, 1979b) the ratios of each pair of source weights associated with the individual research participants were logarithmically transformed using the following formula:

$$\text{Log}_{10} (\text{dim 2} / \text{dim 1})$$

where dim 1 and dim 2 are the raw source weights associated with the market power and quality dimensions, respectively.

These transformed ratios reflect the extent to which market power and quality are salient in the judgements the various research participants. The greater the magnitude of this ratio for a given individual, the greater the salience of the quality dimension relative to the market power dimension. Conversely, the smaller the magnitude of this ratio for a given individual, the greater the salience of the market power dimension relative to the quality dimension.

The correlations between these ratios and the various self-report measures of strategic behaviour and on the job experience/maturity and education/training are presented in table 5.2. A number of these correlations are found to be statistically significant.

Before embarking upon an interpretation of these findings, however, it is important to note that, strictly speaking, hypothesis testing is inappropriate due to the fact that the source weights associated with three-way scaling procedures lack independence. For any given analysis, the source weights, even following logarithmic transformation in ratio form, are dependent upon the characteristics of the group space from which they have been derived. Consequently, any statistical procedures applied to the source weights, should be used for descriptive purposes only (Coxon, 1982). Bearing this restriction firmly in mind we may now proceed.

Table 5.2. Pearson product-moment correlations between the logarithmically transformed ratios of the source weights and the various self-report measures of the research participants' individual and organisational characteristics at T1.^a

VARIABLE	Correlation with Dim 2/Dim 1
On the job experience/maturity	-0.21**
Education & training	0.06
Env scanning (Frequency)	0.23**
Env Scanning (Threat-vs opportunity)	0.20**
Strategic locus of control	-0.20**
Strategy	0.35***
Structure	0.27**
Environment	0.31***
Wealth	0.17*
Markets	0.16*
Adaptability	0.10
Organisational climate	0.09
Prospects for growth	0.08

* P < 0.05, ** P < 0.01, *** P < 0.001 (2-tailed)

^a N = 206 - 186; variation is due to missing data.

The majority of the correlations are significant at the conventional 5 percent significance level or less, reflecting small-to-moderately substantial relationships between the logarithmically transformed weight ratios and the various self-report measures of the research participants' individual and organisational characteristics, thus adding empirical substance to the previously untested claim that cognition and strategic choice are inextricably intertwined with the material conditions of the marketplace.

A detailed consideration of the possible causes and effects underpinning these relationships, however, is beyond the scope of this thesis. As we

saw in the previous chapter, a number of these variables are inter-correlated with one another to a considerable extent and in view of the limitations of the present sample in terms of its numerical size, both in terms of the number of participating organisations and the number of individual research participants, together with the limitations associated with the source weights noted above, it would be most unwise, however tempting, to begin detailed causal modelling using highly acclaimed techniques such as Joreskog & Sorbum's (1989) LISREL or Bentler's (1984) EQS. For the present, we must content ourselves with the fact that a number of significant correlations have been found to exist between the logarithmically transformed source weight ratios, a key index of differential cognition, and various measures of strategic behaviour, thus confirming our basic prediction derived from Porac et al's (1989) competitive enactment theory.

Particularly noteworthy are the relatively large correlations between the transformed source weight ratios and the strategy, structure and environment scales. As would be expected, the general pattern of results emerging from this analysis suggests that the strategically proactive/innovative organisations, with relatively long-term planning horizons and relatively sophisticated structural design features, are differentially attending to the quality dimension relative to the market power dimension. These organisations tend to operate in relatively dynamic, heterogeneous and hostile market conditions.

As we saw in the previous chapter, these organisations tend to be the larger, relatively successful companies, staffed in the main by

employees characterised by relatively internal strategic control expectancies and a marked tendency to scan the environment more frequently, primarily for opportunities rather than threats, in comparison to their smaller, relatively less successful counterparts. This may explain the smaller, though nonetheless statistically significant, correlations between the transformed source weight ratios and strategic locus of control, environmental scanning, wealth and markets.

In short, it appears that there may be a self-perpetuating cycle operating within this industry, in which the larger, relatively successful firms engaged in proactive strategy making behaviour are differentially attending to the quality dimension relative to the market power dimension. Conversely, their less successful counterparts are attending to the market power dimension at the relative expense of quality. Presumably, the smaller, strategically less proactive organisations are concerned primarily with their dwindling market power, following the entrance into the industry of the larger institutional players.

In the longer-term, however, such a preoccupation with market power at the relative expense of quality can only serve to weaken further, the position of these organisations in the intense battle for dwindling market shares. Conversely, the larger, powerful firms will presumably continue to innovate new strategies through a focus on quality.

Time Two Analyses

In an attempt to replicate these findings, the procedure adopted in the previous section was applied to the data collected at T2 (ie a pair of source weights was derived for each of the research participants using the group space generated from the T1 analysis). As in the previous analysis, a separate matrix of Euclidean distances was calculated for each research participant by aggregating over the various T2 attribute ratings, using SPSS proximities.

Next, in order to estimate the T2 source weights, each of these proximities matrices were input into the ALSCAL programme, holding the group space configuration derived from the T1 analysis constant. Finally, as before, the ratios of the raw source weights were logarithmically transformed in order to facilitate the correlational analyses, reported below.

Before considering these results in detail, however, a brief note of explanation is in order as to why the T1 group space was adopted in the calculation of the T2 source weights. When using three-way scaling models in the context of longitudinal studies, the researcher is faced with the choice of deriving a separate group space for each successive time period, prior to estimating the source weights for the individual research participants or, alternatively, deriving the source weights for the various time periods from a common group space. The latter strategy has the distinct advantage of enabling the researcher to make meaningful comparisons over time.

As we observed in the previous section, the source weights resulting from any three-way scaling analysis, are never independent of the group space from which they have been derived. Consequently, any changes in the composition of the research sample between successive analyses will render the resulting source weights non-comparable. Given that the aim of the present exercise was to attempt to replicate the findings at T1, had the former strategy been adopted, it would be impossible to discern whether any changes observed across the two time periods were merely due to the fact that a much reduced sample had been used in order to derive the source weights at T2, rather than any meaningful changes in the pattern of relationships amongst the variables under investigation.

The correlations between the logarithmically transformed source weight ratios and the various measures of strategic behaviour for the T2 data are presented in table 5.3. In rather marked contrast to the findings at T1, almost none of the relationships are found to be statistically significant.

Virtually all the relationships observed at T1 have attenuated considerably to the point of statistical insignificance. Only the correlations with structure, wealth and markets have remained significant across the two sets of analyses. Moreover, whilst the correlation with structure remains significant, it has reduced in magnitude from 0.27 to a mere 0.19, indicating that the relationship at this point in time is very weak indeed.

Table 5.3. Pearson product-moment correlations between the logarithmically transformed ratios of the source weights and the various self-report measures of the research participants' individual and organisational characteristics at T2.^a

VARIABLE	Correlation with Dim 2/Dim 1
On the job experience/maturity ^b	N/A
Education & training ^b	N/A
Env scanning (Frequency)	0.17
Env Scanning (Threat-vs opportunity)	0.12
Strategic locus of control	-0.11
Strategy	0.18
Structure	0.19*
Environment	0.15
Wealth	0.22*
Markets	0.19*
Adaptability	0.10
Organisational climate	-0.08
Prospects for growth	0.05

* $P < 0.05$ (2-tailed)

^a $N = 114 - 110$; variation is due to missing data.

^b These variables were measured at T1 only

Clearly the fact that the highly significant correlations observed at T1 have failed to materialise at T2, suggests that these relationships are time sensitive, and therefore dynamic rather than contemporaneous. Alternatively, sample attrition may have restricted the variances associated with the various measures at T2, to the extent that the relationships observed previously have atrophied - an unlikely prospect, given our observations in the previous chapter. As we have seen, sample attrition appears to have had only a minor impact on the variances associated with the various indicators, as evidenced by the fact that there are very few differences between the stayers and leavers on the

variables measured at T1 (for details see table 3.20 in the previous chapter).

Cross-lagged Analyses

Whilst a detailed consideration of the cause and effect relationships between cognition and strategy are beyond the scope of the present study, for reasons outlined earlier, nevertheless it is instructive to consider the relationships between the source weight ratios and the various self-report measures of the research participants' individual and organisational characteristics, dynamically, across the two time periods. If the significant correlations observed at T1 were found to be replicated dynamically across the time periods, this would greatly strengthen the case for competitive enactment theory. Moreover, this would also point towards the necessity for further longitudinal studies with much larger samples, over extended time-frames, in order to develop our understanding of the time-lags involved between changes mental models of competition on the one hand, and, on the other hand, changes in strategic behaviour and the material conditions of the marketplace.

The results of these cross-lagged analyses are presented in table 5.4. A number of the correlations are found to be highly significant suggesting that the relationships between competitor cognition and strategic behaviours are dynamic across time. The overall pattern of results emerging from these analyses, taken in conjunction with the findings presented in the previous sections of this chapter, indicates that these relationships are highly complex (multidirectional). A number of the relationships which emerged at T1, but subsequently failed to materialise at T2, have re-emerged in the analyses between the source

weight ratios at T1 and the various measures of strategic behaviour at T2. Several of these relationships have also re-emerged in the analyses between strategic behaviour at T1 and the source weight ratios at T2. In particular, the correlations with the strategy, structure and environment scales are noteworthy in this respect. This pattern of results suggests that these relationships are probably reciprocal over time.

Table 5.4. Cross-lagged correlations (Pearson product-moment) between the logarithmically transformed ratios of the source weights and the various self-report measures of the research participants' individual and organisational characteristics across the two time periods.^a

VARIABLE	Correlation with Dim 2/Dim 1	
	Cognition at T1, strategy etc at T2	Cognition at T2, strategy etc at T1
On the job experience/maturity ^b	N/A	-0.04
Education & training ^b	N/A	-0.13
Env scanning (Frequency)	0.25**	0.19*
Env Scanning (Threat vs opportunity)	0.34***	0.17
Strategic locus of control	-0.21*	-0.05
Strategy	0.29**	0.21*
Structure	0.23**	0.33***
Environment	0.29**	0.29**
Wealth	0.24*	0.13
Markets	0.15	0.15
Adaptability	0.21*	0.08
Organisational climate	-0.09	0.19
Prospects for growth	0.13	-0.01

* P < 0.05, ** P < 0.01, *** P < 0.001 (2-tailed)

^a N = 114 - 106; variation is due to missing data.

^b These variables were measured at T1 only

Several other relationships, however, seem to be uni-directional, running from cognition at T1 to strategic behaviour at T2. Particularly noteworthy here, are the correlations with environmental scanning behaviours and, to a much lesser extent, strategic locus of control, wealth and adaptability.

Once again, it must be emphasised that the presentation of these results should not be construed as an attempt to formally derive an empirically testable causal model. There are undoubtedly many complex inter-relationships between the various measures of strategic behaviour, both within and across the time periods, which would need to be controlled for, before embarking on such a hazardous venture. Regrettably, as noted earlier, due to fundamental limitations in the characteristics of the present data-set, it was not possible to apply such controls.

Nevertheless, at a descriptive level, these results have proven highly informative. A number of relationships have been detected empirically, between the logarithmically transformed source weight ratios and various self-report measures designed to tap the research participants' individual and organisational characteristic strategic behaviours. To the extent that these measures are reliable and valid indicators of the constructs they have been designed to represent, the findings have added empirical substance to one of the most fundamental, yet previously untested, claims of Porac *et al*'s (1989) competitive enactment theory, namely, that cognition and strategic behaviour are inextricably intertwined with the material conditions of the marketplace.

CONCLUSIONS

This chapter has examined empirically, the proposition that competitor cognition and strategic behaviour are inextricably intertwined with the material conditions of the marketplace. The findings presented have generally supported this fundamental, though previously untested, proposition derived from Porac *et al's* (1989) competitive enactment theory.

The three-way ALSCAL analyses of the competitor analysis questionnaire data revealed a highly simplified mental model of competitive space. The results suggested that the estate agency industry in general views competition in terms of two global dimensions, namely, market power and quality. An examination of the group space stimulus configuration suggested that the successful firms are generally considered to enjoy greater power in the marketplace and to be offering a better quality of service in comparison to their less successful counterparts.

Various correlational analyses relating the source weights associated with the individual research participants to the various self-report measures of strategic behaviours, revealed a number of highly significant contemporaneous relationships at T1, which failed to re-emerge at T2. However, a series of cross-lagged analyses revealed a number of highly significant multidirectional relationships between the two time periods, indicating that the linkage between competitor cognition and strategic behaviour is far from simple.

It is highly unlikely that the discrepancies between the cross-sectional findings at T1 and T2 are merely a function of sample attrition. As we have seen in the previous chapter, there are few differences between the stayers and leavers on the variables measured at T1, suggesting that sample attrition has had only a minor impact on the outcomes of this research.

The overall pattern emerging from the findings reported in the present chapter, suggests a self-perpetuating cycle may be operating in this industry, in which the relatively strategically proactive organisations are differentially attending to the quality dimension relative to the market power dimension. Conversely, the strategically less proactive organisations are attending to the market power dimension at the relative expense of quality. In the longer-term, however, this cycle can only serve to enhance the development of the larger, relatively wealthy organisations at the expense of their smaller, less fortunate counterparts.

CHAPTER 6

MENTAL MODELS OF COMPETITIVE SPACE: HOMOGENEITY & DIVERSITY

The previous chapter was concerned with the first of the three propositions arising from Porac et al's (1989) competitive enactment theory which the present study was designed to investigate, namely, that actors' mental models of competitive space and strategic behaviours are inextricably intertwined with the material conditions of the marketplace. As we have seen, a number of the correlations between the transformed source weights associated with the three-way multidimensional scaling analysis and the various self-report measures of the research participants' individual and organisational characteristics were found to be substantial, thus adding empirical weight to this fundamental assertion of competitive enactment theory.

In this chapter we turn to consider the second of our substantive concerns, namely, the extent to which the structural complexity of mental models of competitive space within a particular industry or market sector vary as a function of actors' objective positions within the marketplace. As we have noted at several junctures, previous studies of competitor cognition have generally yielded equivocal findings in relation to this issue, due to a variety of methodological shortcomings which the present study was designed to overcome.

Porac et al's competitive enactment theory asserts that as industries and markets mature, actors' mental models of competitive space converge to form a homogeneous mindset, resulting from the fact that rival firms

repeatedly confront similar material and technical problems in the marketplace. Furthermore, according to this theory, belief similarity also emerges due to the fact that actors' private cognitions become publicly exposed in the course of business transactions.

However, as we have seen, this fundamental assertion has yet to be demonstrated empirically. In their seminal studies, from which the theory of competitive enactment was induced, Porac and his associates assumed away the importance of inter-subjective variation and in so doing focussed exclusively on the analysis of industry-level mental models of competitive space (see Porac et al, 1987, 1989).

Recently, however, a number of researchers have produced findings which cast considerable doubt on the validity of this fundamental assumption of industry-level consensus (Eg Reger, 1990a; Calori et al, 1992; Daniels et al, 1993a, 1993b; Hodgkinson & Johnson, in press). In chapter 2 it was concluded that these studies suggest there may be considerable variation in the structure of actors' mental models of competitive space within particular industrial sectors and markets. Within the confines of competitive enactment theory, this repeated finding of cognitive diversity is problematic, not least because it implies that far from sharing a common understanding of the bases of competition at the level of the industry, actors' beliefs may vary systematically according to the particular position they occupy within the marketplace. As we have seen, two factors in particular which may influence the structural characteristics of mental models of competitive space are the type of job a given individual performs and organisational

membership. In short, mental models of competitive space may vary within a given industry or market from one subgroup of actors to another.

Unfortunately, however, we also observed that these studies are beset by a number of methodological limitations which render their findings inconclusive. Whilst considerable variation has been observed in each of these studies, as we noted earlier, it is not clear whether the variation observed in the structure and contents of actors' mental models within particular industries and markets is due to systematic variation in the characteristics of the research participants and/or the organisations and functional subgroups to which they belong, or alternatively, whether these findings have arisen from the inadequate research designs and poor controls associated with the data collection and analysis phases of these studies. Certainly, given the very small sample sizes associated with these studies, both in terms of the number of participating organisations and the number of individual research participants, one can hardly over-emphasize the provisional status of the findings.

The present study was designed to overcome these limitations. If the widespread variation in the structure of mental models of competitive space previously observed in this group of studies were to be replicated in the context of the present study, this would be very compelling evidence indeed to suggest that competitive enactment theory is fundamentally flawed in terms of its basic premise regarding the emergence of belief similarity in mature industries and markets. If, on

the other hand, the variation observed in recent studies failed to emerge in the present investigation, this finding would greatly strengthen Porac et al's (1989) theory of competitive enactment in relation to this previously unsubstantiated claim.

SUBGROUP COMPARISONS

In this chapter we are concerned to see whether the basic two-dimensional group space reported in the previous chapter is also obtained when we re-analyse the data at the level of particular organisational and functional subgroups. In order to accomplish this objective it is necessary to divide the sample into a number of meaningful sub-units and derive a separate MDS representation of competitive space for each group of research participants, in turn.

As Kruskal & Wish (1978) observe, one of the limitations associated with the use of profile proximities matrices (ie proximities matrices derived from bipolar ratings) in three-way scaling exercises, is the fact that on occasions certain dimensions may get "washed out". In particular this is likely to occur in studies involving large samples, where a given dimension is associated with a relatively small number of individuals.

Clearly there is a danger, then, that the aggregation process adopted in the previous chapter has resulted in an overly simplified representation the research participants' mental models of competitive space at the subgroup level. In short, it is possible that the mental models (ie

group spaces) of particular subgroups of actors may differ markedly in terms of their structural characteristics. If this should turn out to be the case, this finding would cast serious doubt over the central claim of competitive enactment theory regarding the emergence of belief similarity in mature industries and markets.

Inter-Organisational Comparisons

We shall begin our search for evidence of cognitive diversity by considering the cognitive structures of a number of organisational subgroups. Following this we shall go on to consider the structures of various functional subgroups.

In order to explore the extent of cognitive diversity and homogeneity amongst the participating organisations, the sample was divided into nine independent subgroups. Separate MDS configurations were derived for each subgroup, in turn.

Configurations were derived for each of the 4 national chains and the 2 relatively large-scale regional chains who participated in the study (fortunately each of these six firms provided generous access to relatively large numbers of individuals). The three remaining subgroups were formed by sub-dividing the rest of the sample on the basis of whether a particular individual belonged to a relatively high, medium or poor performing organisation. (This was determined on the basis of the overall relative performance evaluations derived from the independent panel of experts, as discussed in chapter 4.)

Whilst less than ideal in some respects, this strategy of aggregating across the various smaller firms on the basis of the performance criteria, was adopted in order to ensure adequate sample sizes for forming reliable cognitive structures. (In many cases, access in the smaller firms was unavoidably restricted to a single participant.) Faced with the alternative of not performing any subgroup analyses on the data from the smaller firms, or finding a rationale for aggregating the participants from these organisations into relatively homogeneous and meaningful subgroups, the latter approach was seen as a reasonable compromise.

A separate MDS configuration was derived for each of the nine subgroups, in turn, by adopting the procedure outlined in the previous chapter for generating the group space based on the full sample. A separate set of profile proximity matrices were computed for each of the nine subgroups (ie one matrix per attribute, aggregated across the various individual subgroup members). As in the previous run based on the full sample, analyses were performed from six down to two dimensions.

Taking into account both the diagnostic criteria and substantive interpretability of the output associated with each of the nine subgroups, with one notable exception, a two-dimensional solution was strongly indicated in each case.

Comparison of the dimension weights

With the exception of one particular organisation, "North East Midlands Estates" (to be discussed shortly), the general pattern of dimension weights emerging from each of these analyses, bears a striking resemblance to the findings reported in table 5.1 of the previous chapter.¹ The market power and quality dimensions which emerged in the previous analysis of the complete data-set, materialised again, in eight out of the nine subgroup analyses (for details see table 6.2 and figure 6.1, later in this chapter, together with appendix 3).

Clearly this is a very strong indication that the process of aggregating the data at the industry-level in order to derive the results reported in the previous chapter, has not unduly distorted the dimensional complexity of the participating organisations' mental models of competitive space, with the possible exception of one particular case. Taken as a whole, these findings indicate that within the estate agency industry there are indeed high levels of belief similarity across rival firms, thus providing empirical substance for this previously unsubstantiated fundamental claim of competitive enactment theory.

The results of these analyses strengthen greatly our interpretation of the findings discussed in the previous chapter. The two-dimensional structure derived from the total sample has been replicated in all but one case, suggesting that the majority of organisations in this industry have come to share highly similar beliefs about the nature of

¹ "North East Midlands Estates" is an alias, adopted in order to protect the true identity of this organisation.

competition. Market power and quality are seen as the key ingredients for competitive success.

North East Midlands Estates: an exception to the norm?

Turning to consider the case of North East Midlands Estates, it is clear that the dimensional structure associated with this particular organisation is somewhat different to the structures derived for the other organisational subgroups. As table 6.1 shows, the two-dimensional solution associated with this particular subgroup results in a considerable reduction in the variance accounted for in the input proximity matrices, upon which the analysis is based, in comparison to the three-dimensional solution (72.4 versus 81.4 percent - a net loss of 9 percent in the variance accounted for in the input proximity matrices).

Table 6.1. Changes in stress and RSQ values with decreasing dimensionality, for North East Midlands Estates (N=19).

Number of Dimensions	Stress	RSQ
6	0.133	0.840
5	0.154	0.836
4	0.172	0.832
3	0.209	0.814
2	0.255	0.724

Further increases in the dimensionality of the solution, however, yield only negligible increments in the explained variance. (As many as six dimensions, results in a net increase of a mere further 0.26 in the R square value ie a marginal increase of 2.6 percent of the explained variance in comparison with the results for the three-dimensional solution.)

Furthermore, the resulting pattern of dimension weights associated with the two-dimensional solution does not make sense conceptually. For these reasons the three-dimensional solution was chosen as the preferred solution for interpretation in this particular case. The dimension weights associated with this analysis are presented in table 6.2.

The first dimension appears to reflect general quality as indicated by relatively high source weights for the "service to vendors" (0.93), "quality of staff" (0.94), "service to purchasers" (0.91), "operating practices" (0.92), "degree of personal attention" (0.90) and "degree of local knowledge" (0.79) attributes. The second dimension, by contrast, seems to reflect the differing marketing strategies (high versus low profile) of competitors, as indicated by relatively high source weights for the "marketing profile" (0.79), "strategic influence/power" (0.76) "market share" (0.75) "typical range of properties on sale" (0.75), "amount of advertising" (0.74) and "quality of advertising" (0.68) attributes. Finally, the third dimension, seems to reflect differences in the financial stability/scale of competitors (large and expensive versus smaller and cheaper), as indicated by relatively high source

weights for the "geographical coverage" (0.73), "financial resources" (0.63), and "scale of charges" (0.61) attributes.

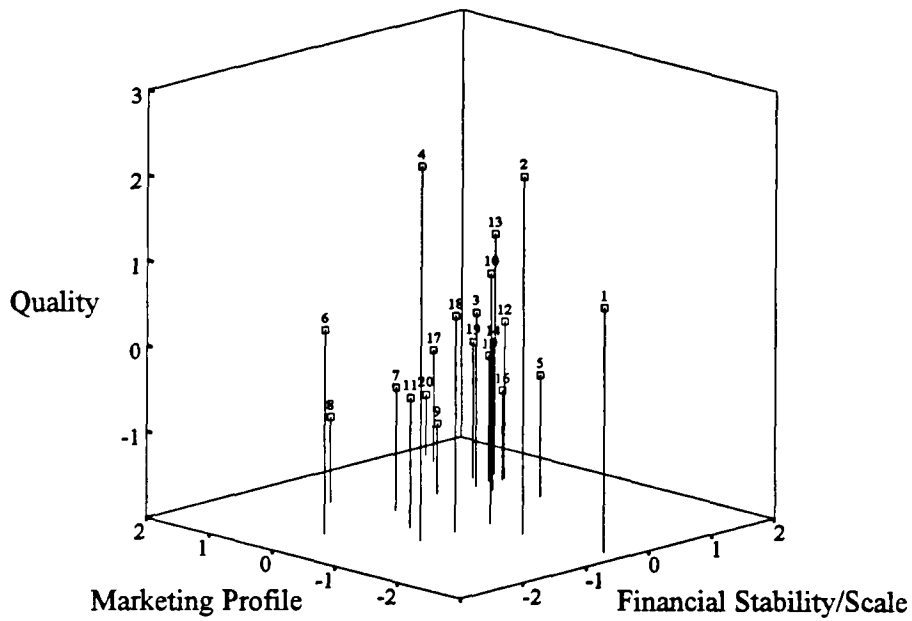
Table 6.2. Dimension weights for the ratings of the attributes aggregated across the respondents from North East Midlands Estates (N=19).

Attribute	Dimension		
	1	2	3
Service to vendors	0.04	0.93	0.10
Quality of staff	0.05	0.94	0.04
Service to purchasers	0.12	0.91	0.08
Training of staff	0.45	0.61	0.47
Operating practices	0.14	0.92	0.07
Quality of advertising	0.68	0.57	0.20
Profitability	0.67	0.66	0.08
Location of business premises	0.64	0.62	0.16
Size of branch network	0.66	0.22	0.57
Range of services	0.40	0.60	0.46
Geographical coverage	0.47	0.03	0.73
Scale of charges	0.37	0.07	0.61
Degree of personal attention	0.00	0.90	0.11
Market share	0.75	0.51	0.19
Marketing profile	0.79	0.44	0.24
Degree of local knowledge	0.46	0.79	0.02
Strategic influence/power	0.76	0.49	0.27
Amount of advertising	0.74	0.56	0.18
Financial resources	0.59	0.33	0.63
Links with financial services companies	0.28	0.58	0.48
Typical range of properties on sale	0.75	0.43	0.23

The results of the MDS analysis for this particular organisation reveal a relatively complex structure in comparison to the other configurations considered thus far. In contrast to the other subgroups, this organisation perceives the market in terms of a more highly differentiated competitive space in which the attributes are organised within a three-dimensional configuration (see figure 6.1).

It is noteworthy that in contrast to previous analyses, "size of branch network" is seen to be associated with both the marketing strategy dimension (0.66) and the financial/size dimension (0.57), whereas "profitability" is seen to be associated with marketing strategy (0.67) and overall quality (0.66). Thus, for this particular organisation there appears to be a shared view that the larger organisations are not necessarily the most profitable.

Whereas the majority of firms in this industry appear to subscribe to a view that larger organisations are generally more effective by virtue of their greater dominance in the market place, this organisation sees size as an important facet of marketing profile. However, the fact that "size of branch network" is also grouped with the "financial resources" and "scale of charges" attributes, but not "profit", suggests that there is a recognition of the greater running costs involved in servicing extensive branch networks. Size is not related directly to profit within the cognitive structure of this organisation. Here, overall quality and a high profile marketing strategy are the order of the day. Larger branch networks require greater financial resources which, in turn, are associated with higher fees. Presumably, within this logic,



- | Key: | |
|------|--|
| 1. | My Business |
| 2. | My Major Competitor |
| 3. | A Solicitor Agent |
| 4. | An Estate Agent Owned by a Building Society |
| 5. | A Traditional Estate Agent |
| 6. | An Estate Agent Owned by an Insurance Company |
| 7. | An Estate Agent Offering a Professional Service |
| 8. | An Estate Agent with a Poor Reputation |
| 9. | An Estate Agent with Chartered Surveyor Status |
| 10. | An Estate Agent Specialising in Exclusive Property |
| 11. | An Estate Agent Specialising in Commercial & Industrial Property |
| 12. | An Estate Agent Specialising in Residential Property |
| 13. | A Secondary Competitor |
| 14. | An Estate Agent with a Good Reputation |
| 15. | A Diversified Estate Agent |
| 16. | An Independent Estate Agent |
| 17. | An Inferior Competitor |
| 18. | A Very Successful Estate Agent |
| 19. | A Moderately Successful Estate Agent |
| 20. | An Unsuccessful Estate Agent |

Figure 6.1. The three-dimensional representation of the 20 estate agency categories for North East Midlands Estates at T1 (N = 19; Stress = 0.209; RSQ = 0.814).

those organisations with both a higher marketing profile (which may or may not entail an extensive branch network in order to increase visibility) and offering a superior quality service, but charging optimum fees (ie neither too expensive, owing to the need to service a large network of branches, nor too cheap) are more likely to succeed in comparison to their counterparts who do not possess this combination of attributes.

In short, this organisation appears to be engaged in a series of complex tradeoffs, sandwiched between, on the one hand, the larger and more powerful national chains, and on the other, the smaller local firms (see figure 6.1). This is a highly vulnerable position to occupy for any length of time, with the dangers of takeover from the larger firms, or the risk of failure due to the inability to sustain high levels of local market share, being ever present threats.

Comparison of the spatial configurations

Thus far, we have confined our discussion of the present findings to a consideration of the dimensions weights associated with the various organisational subgroup analyses. We turn now to consider the actual MDS configurations (stimulus plots).

Whilst the general pattern emerging from the dimension weights associated these analyses suggests there are very high levels of belief similarity amongst rival firms in this industry, we must also consider the possibility of considerable variation in terms of the positioning of the various estate agency categories within the spatial configurations

of each organisational subgroup. Such a finding would imply that whilst organisations are generally in agreement regarding their beliefs about the bases of competition, in this industry, there is a lack of consensus regarding the competitive positioning of particular types of firm. In other words this would signify that rival organisations differ in terms of the internal organisation of their category structures within a shared mental model of competitive space. Such a finding would cast doubt on the claims of recent researchers that strategic groups, traditionally detected through the use of secondary financial data, are also enduring cognitive phenomena (Eg Porac & Thomas, 1990; Huff & Reger, 1993; Bognor & Thomas, 1993).

However, as Coxon (1982) observes, considerable caution must be exercised in attempting to make comparisons of multiple MDS configurations. In particular, researchers should strongly resist the temptation to engage in simple visual comparisons. This is because it is the relative distances between the various stimuli within a given configuration which contains the vital information regarding cognition, rather than the actual location of particular stimulus points. All too often, seemingly different cognitive structures, even of varying dimensionalities, turn out to be highly similar when this factor is taken into account.

Clearly, researchers are fundamentally limited in terms of the extent to which this geometric information can be processed accurately using simple visual techniques of comparison, particularly, as here, in cases involving numerous stimuli and configurations. Fortunately, however,

there is a procedure available which has been designed to enable researchers to compare multiple MDS configurations geometrically.

The PINDIS model

The PINDIS (Procrustean INdividual Differences Scaling) model and algorithm developed by Borg and Lingoes (Eg Lingoes & Borg, 1976; Borg & Lingoes, 1978; Lingoes & Borg, 1978; Borg & Lingoes, 1987) comprises a hierarchy of inter-related techniques which perform a series of increasingly complex transformations on the input data sets (ie previously derived MDS configurations) in order to maximise their communality. The goal of a PINDIS analysis is to determine the extent to which the various configurations are comparable with one another or, often more importantly, in what ways they systematically differ.

In cases where PINDIS is used for exploratory purposes, the various configurations X_i are compared to a centroid configuration Z , which represents the cognitive structure of the average subject (ie individual or subgroup). This centroid configuration is analogous, in many respects, to the group space created by ALSCAL and related procedures.

Analysis commences by performing a series of "permissible transformations" on the original configurations (ie transformations which preserve the relative distances within each configuration) so as to ensure that any differences observed are real rather than apparent. For example, it is frequently the case that two configurations which appear radically different on the basis of their surface characteristics (such as the relative positioning of particular points) are more or less

identical, save for the fact that one of the configurations has a dimension which has been inverted and is thus a mirror image (reflection) of its counterpart. In fact, as Coxon observes:

"...configurations can be shrunken or expanded at will (1), moved - rigidly rotated through any angle (2), and may have the origin translated to any point in the space (3) in order to get them into greater conformity with each other. The value of any index of similarity between configurations should remain unchanged whenever these operations are performed" (Coxon, 1982, p 204).

PINDIS commences by performing whichever of these transformations, which preserve the relative distances, are necessary in order to maximise the communality between the individual configurations (X_{iS}) and the centroid configuration (Z). The communality values [$r^2(X_i, Z)$] resulting from this phase of the analysis (P_0) acts as a benchmark against which later solutions (ie ones involving the use of "inadmissible transformations") can be evaluated.

PINDIS then moves through a succession of phases in which various "inadmissible transformations" are performed in order to maximise the communality between the (now re-scaled) individual configurations and the centroid configuration (Z). During the first phase (P_1), PINDIS performs a transformation similar to the basic three-way scaling model employed in the analyses reported in the previous chapter. The axes of the various configurations are differentially stretched or shrunk in order to maximise the correspondence between the optimally reorientated X_i 's and Z . The resulting weights $w_a^{(i)}$ reflect the saliences of the dimensions in Z for the individual X_i 's and the corresponding communality, $r^2(X_i, ZW_i)$, denotes the goodness of fit between the X_i 's

and Z under this particular transformation. Any substantial changes in the communalities from P0 to P1 reflect incremental differences in the psychological information obtained.

During the next phase (P2), PINDIS calculates individual optimally reoriented Z's for each individual or subgroup (Z_i), ie the centroid configuration is rotated to an optimal orientation for each case. However, Coxon (1982, p 211) has warned would-be users that of the various PINDIS procedures, this particular model is rather complex and relatively ill-understood. Moreover there have not been any very compelling empirical examples and he cautions researchers "to proceed with care". Clearly, in view of these limitations, it would be most unwise to consider adopting this particular model in the present study.

In the next phase (P3), vector weights $v_p^{(i)}$ ($p = 1, \dots, n$) are constructed for each stimulus point. During this phase, each point in X_i and Z, is regarded as the terminus at the end of a vector which emanates from the origin of the multidimensional space and the role of the vector weights is to minimise the squared distance between the termini of the vectors in Z and the corresponding termini in the X_i 's. A vector weight of unity signifies that a particular point in Z occupies an identical location in X_i . Weights which depart from unity suggest that particular stimuli within the X_i 's are "scrambled" in relation to Z. (For this reason P3 is often referred to as the "unscrambling transformation").

A positive weight in excess of unity indicates that a particular stimulus point has been shifted further towards the extreme corner of a given quadrant, whereas a negative weight indicates a shift towards the diagonally opposite quadrant. Thus a weight of -1 indicates that the stimulus co-ordinates should be multiplied by a factor of -1 in order to "unscramble" a particular stimulus point for a given individual or subgroup.

Once again, any changes in the goodness of fit index [$r^2 (V_i Z, X_i)$] in comparison to values obtained under the P0, P1 and P2 transformations, indicate incremental differences in the psychological information obtained. Again, as Coxon observes:

"With some justice, the P3 model has been hailed as the major innovation introduced into MDS by PINDIS. It certainly provides a powerful and subtle form of analysis of individual difference and often gives insight into the detail about the source of variation in configurations" (Coxon, 1982, p 215).

In its fourth phase (P4), PINDIS allows each individual configuration to have its own 'point of view' (idiosyncratic origin). Given that a change of origin will undoubtedly affect the relative separation of vectors, the same set of vector weights may well have markedly different effects on differently centred configurations under this transformation. Thus within P4, it is the idiosyncratic positions of the origins that are directly comparable and form the main focus of attention. Under this transformation the vector weights are no longer directly comparable unless the idiosyncratic shift in origin is taken into account, which entails constructing a new set of vectors all emanating from the same origin. However, as Coxon (1982) observes, as in the case of P2, this

particular model has been employed very infrequently and has not generally proven fruitful. It will not be adopted in the present study².

In confirmatory mode, the procedures for the various PINDIS models are very similar to those described above, except that the various configurations under investigation are compared to an a priori fixed configuration specified by the researcher as a hypothesized cognitive structure.

It is evident from this brief review of PINDIS, that this procedure is highly suited for addressing the concerns of this chapter. To the extent that the various subgroup configurations are found to conform to the centroid configuration (Z), following the application of permissible transformations (P0), we will have uncovered yet further evidence of belief similarity at the subgroup level. However, should the community values associated with these analysis fail to suggest high levels of agreement, it will be possible to investigate the most likely sources of this diversity, using the various inadmissible transformations associated with the P1 and P3 models.

2 A further 'double weighted' model (P5) is also available, in which the dimension weights and vector weights are estimated simultaneously. However, as noted by Coxon (1982), this model consumes a considerable number of degrees of freedom, and like the P2 and P4 models discussed earlier, it has rarely given richer insights into research problems. Moreover, the algorithm is notoriously unstable, frequently giving sub-optimal solutions. Consequently its use is not generally recommended.

PINDIS analysis of the organisational subgroup configurations

In order to examine the similarities and differences between the stimulus configurations associated with the various organisational subgroups, the nine configurations derived earlier, using the ALSCAL procedure, were submitted to PINDIS - available in the MDS(X) suite of programmes (Davies & Coxon, 1983). The results of this analysis are summarised in table 6.3, whilst the accompanying centroid configuration is presented in figure 6.2 (for details of the various input configurations associated with this analysis see appendix 3).

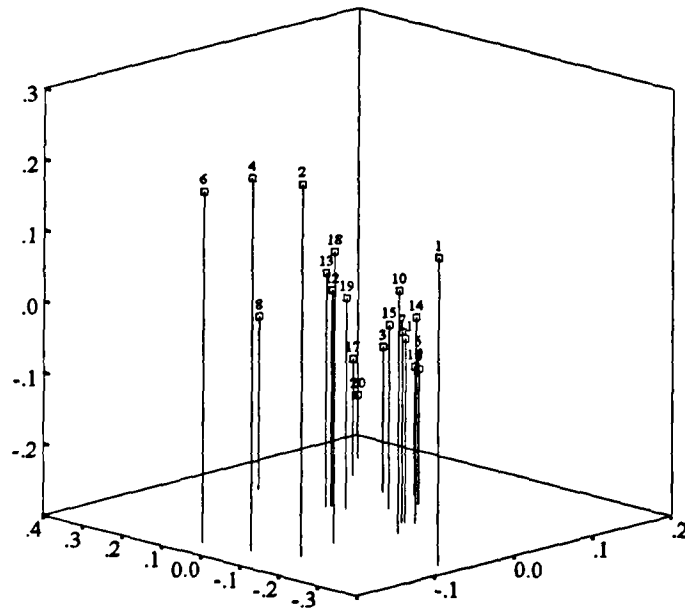
Fitting the X_i 's to this Z yields an average communality of $r^2(X_i, Z) = 0.84$, suggesting that there is considerable internal agreement between the various organisational configurations, which is attributable to admissible transformations. Seven of the nine configurations are especially well fitted with communalities in excess of 0.80.

As would be expected, North East Midlands Estates is the poorest fitted configuration. However, even this organisation is relatively well fitted with an $r^2(X_i, Z) = 0.71$. This means that some seventy one percent of the variance in this particular configuration can be explained by the centroid configuration derived from the nine organisational subgroups, without any distortions of the relative distances amongst the points, following the application of permissible transformations. Clearly, there are very considerable similarities between each of these configurations, suggesting a high level of agreement amongst the research participants at the organisational-level.

Table 6.3. Communalities between the nine organisational subgroup configurations (X_{is}) and Z, under the various PINDIS Transformations.

CONFIGURATION	TRANSFORMATION		
	0 Z,X(I)	I ZW(I),X(I)	III V(I)Z,X(I)
North East Mid's Estates	0.71	0.74	0.78
WB	0.86	0.88	0.93
BH	0.87	0.88	0.90
LB	0.89	0.91	0.94
GS	0.85	0.86	0.90
PS	0.83	0.84	0.92
Low perf small firms	0.76	0.78	0.88
Medium perf small firms	0.81	0.82	0.88
High perf small firms	0.97	0.97	0.98
MEAN	0.84	0.85	0.90

Turning to the "inadmissible transformations", we see that the application of the P1 and P3 models makes very little difference to the communality values for the various subgroups. (The P1 model results in



- | Key: | |
|------|--|
| 1. | My Business |
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| 3. | A Solicitor Agent |
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| 5. | A Traditional Estate Agent |
| 6. | An Estate Agent Owned by an Insurance Company |
| 7. | An Estate Agent Offering a Professional Service |
| 8. | An Estate Agent with a Poor Reputation |
| 9. | An Estate Agent with Chartered Surveyor Status |
| 10. | An Estate Agent Specialising in Exclusive Property |
| 11. | An Estate Agent Specialising in Commercial & Industrial Property |
| 12. | An Estate Agent Specialising in Residential Property |
| 13. | A Secondary Competitor |
| 14. | An Estate Agent with a Good Reputation |
| 15. | A Diversified Estate Agent |
| 16. | An Independent Estate Agent |
| 17. | An Inferior Competitor |
| 18. | A Very Successful Estate Agent |
| 19. | A Moderately Successful Estate Agent |
| 20. | An Unsuccessful Estate Agent |

Figure 6.2. The PINDIS centroid configuration derived from the nine ALSICAL configurations for the organisational subgroups.

negligible increases of between one and three percent in the communality values associated with eight of the subgroup configurations and no increase whatsoever in the case of the ninth - an average gain of one percent overall. The P3 model fares little better with increases of between one and twelve percent over P0 - an average gain of six percent overall in comparison to P0.) Clearly, in view of the relatively small incremental gains in the communality values associated with the various subgroups under P1 and P3, in comparison to the values under the P0 transformations, further investigation using these higher-order models is not warranted.

The results of this analysis illustrate well the dangers of researchers relying on simple techniques of visual comparison when considering multiple cognitive structures. The differences we noted earlier, between the three-dimensional cognitive structure derived from North East Midlands Estates, and the highly similar two-dimensional structures associated with the other eight organisational subgroups, turned out to be more apparent than real when submitted to the rigours of the PINDIS procedure. Clearly we have been unduly influenced by the surface characteristics of this particular cognitive structure.

The overall conclusion to be derived from these subgroup analyses, is that there are very high levels of consensus indeed, at the organisational-level, regarding the bases of competition and the positioning of various types of organisation, within this particular industry, thus adding further empirical substance to competitive enactment theory. We turn now to explore the extent to which these

findings are replicated when we consider the mental models of competitive space associated with various functional subgroups.

Functional Subgroup Comparisons

Given the extent of cognitive homogeneity observed at the organisational-level within this study, it is highly unlikely that meaningful variation will be observed across functional subgroups. Nevertheless, there is still a remote possibility that mental models of competitive space are influenced by the type of job an individual performs and that aggregating the data at the organisational-level has masked this key source of variation.

In order to explore this possibility, the sample was divided into seven independent subgroups on the basis of the research participants' job title at the time of data collection. Separate MDS configurations were derived for area managers (N=23), branch managers (N=62), partners (N=32), negotiators (N=26), valuers (N=19), sole principals (N=18) and a miscellaneous subgroup (N=26). The latter group comprised the remainder of the sample, drawn from a variety of technical and service functions but too small in number to sub-divide any further, if the resulting analyses were to be meaningful³.

Once again, multiple analyses were performed from six down to two dimensions in order to determine the optimum dimensionality for each

³ The exact composition of this particular sub-group was as follows: surveyors (N = 2), valuers & negotiators (N = 5), valuers & surveyors (N = 3), trainee managers (N = 1), personnel (N = 1), finance (N = 3), administration (N = 5) and sales managers (N = 6).

subgroup, in turn. However, in each case the two-dimensional solution was selected for further analysis on the basis of the goodness of fit criteria and the overall interpretability of the output. In all seven cases, the now highly familiar market power and quality dimensions emerged yet again, adding yet further empirical substance to Porac et al's (1989) theory of competitive enactment (for details of the dimension weights and accompanying stimulus configurations associated with these subgroup analyses see appendix 4).

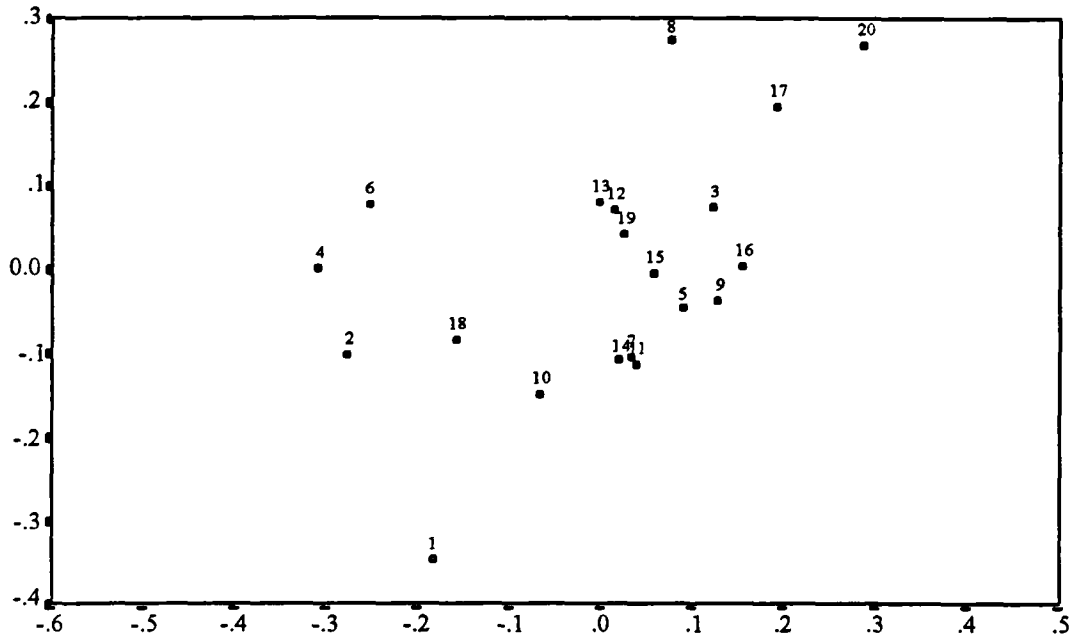
Again, in order to examine the extent of similarity between the stimulus configurations associated with these subgroups, the data were submitted to PINDIS. The results of this analysis are summarised in table 6.4, whilst the accompanying centroid configuration is presented in figure 6.3.

To an even greater extent than in the previous analysis (of the organisational subgroup configurations), the communality values for the various functional subgroup configurations under P0 are very high indeed, suggesting considerable agreement between the cognitive structures, following the application of permissible transformations. Fitting the X_i 's to the centroid configuration (Z), under P0, yields an average communality of $r^2(X_iZ)=0.91$. This means that some ninety one percent of the variance in these seven subgroup configurations can be explained by the centroid configuration, without any distortions of the relative distances amongst the points.

As would be expected with such high communality values under P0, there is nothing of any substantive significance to be gained from considering the results of the higher-order models. (The P1 model results in negligible increases of one percent in the communality values associated with two of the subgroup configurations and no increase what so ever in the case of the other five - an average gain of zero percent overall. The P3 model fairs little better with increases of between two and seven percent over P0 - an average gain of three percent overall in comparison to P0.)

Table 6.4. Communalities between the seven functional subgroup configurations (X_{iS}) and Z, under the various PINDIS Transformations.

CONFIGURATION	TRANSFORMATION		
	0 Z,X(I)	I ZW(I),X(I)	III V(I)Z,X(I)
Area Managers	0.90	0.91	0.95
Branch Managers	0.95	0.95	0.97
Partners	0.92	0.92	0.95
Negotiators	0.91	0.92	0.95
Valuers	0.92	0.92	0.95
Sole Principals	0.80	0.80	0.87
Miscellaneous	0.95	0.95	0.97
MEAN	0.91	0.91	0.94



- Key:
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 6. An Estate Agent Owned by an Insurance Company
 7. An Estate Agent Offering a Professional Service
 8. An Estate Agent with a Poor Reputation
 9. An Estate Agent with Chartered Surveyor Status
 10. An Estate Agent Specialising in Exclusive Property
 11. An Estate Agent Specialising in Commercial & Industrial Property
 12. An Estate Agent Specialising in Residential Property
 13. A Secondary Competitor
 14. An Estate Agent with a Good Reputation
 15. A Diversified Estate Agent
 16. An Independent Estate Agent
 17. An Inferior Competitor
 18. A Very Successful Estate Agent
 19. A Moderately Successful Estate Agent
 20. An Unsuccessful Estate Agent

Figure 6.3. The PINDIS centroid configuration derived from the seven ALSICAL configurations for the functional subgroups.

These results provide strong evidence that within the estate agency industry, there are very high levels of belief similarity, which transcend functional boundaries, adding yet further empirical substance to the claims of competitive enactment theory regarding the emergence of homogeneous world-views in mature/declining industries.

CONCLUSIONS

This chapter has addressed the claim that mental models of competitive space are highly homogeneous within mature/declining industries. The results provide very strong support indeed for this fundamental, though previously unsubstantiated assertion, of competitive enactment theory (Porac et al, 1989; Porac & Thomas, 1990).

With one exception, a number of analyses at the organisational and functional subgroup levels have repeatedly uncovered a basic two-dimensional structure, similar in form to the structure which was derived from the total sample, as reported in the previous chapter. The stimulus configurations associated with these organisational and functional subgroup analyses were submitted to PINDIS, which confirmed that there are indeed very high levels of consensus within this industry regarding the bases of competition and positioning of particular types of firm.

That these results are more likely a reflection of pervasive underlying structural similarities in mental models of cognition, at the organisational and functional subgroup levels, rather than an inherent structure in the concepts presented to the participants via the research

instrument (ie the CAQ), is evidenced by the fact that the two-dimensional structure widely shared by the majority of subgroups did not emerge in the case of North East Midlands Estates. Rather, a three-dimensional structure was revealed for this particular organisation, suggesting that not all organisations share this dominant world-view.

The results reported in this chapter strongly indicate that the basic two-dimensional cognitive structure, revealed at the industry-level of analysis, appears to be highly pervasive, transcending a number of organisational and functional boundaries. This suggests that the estate agency industry may be deadlocked into pursuing strategies which are no longer appropriate to the prevailing market conditions. However, to what extent these beliefs are enduring in the face of significant changes to market conditions is of course a separate empirical issue, which can only be addressed satisfactorily using longitudinal data. It is to this issue we now turn in the next chapter.

CHAPTER 7

LONGITUDINAL STABILITY

The findings presented in the previous two chapters have greatly strengthened competitive enactment theory, offering support for two fundamental, though previously untested, assertions. The results reported in chapter 5 demonstrated that actors' mental models of competitive space are fundamentally intertwined with the material conditions of the marketplace. A number of substantial correlations were obtained between the logarithmically transformed source weights derived from the multidimensional scaling analysis of the T1 data-set and various of the self-report measures of scanning behaviour, strategy, organisational structure and the like. We also explored these relationships over time, by calculating the cross-lagged correlations between the source weight ratios and the self-reported ratings of the research participants' individual and organisational characteristics.

In the previous chapter we uncovered very strong evidence for a second fundamental, though previously unsubstantiated assertion, of competitive enactment theory, namely, that within mature industries and markets, actors' mental models of competitive space converge to form a highly homogeneous world-view. Repeated analyses of the T1 data-set across a number of organisational and functional subgroups, failed to reveal any substantively meaningful differences in terms of the dimensional complexity of the various mental models of competitive space, or the positioning of particular types of organisation within these cognitive structures.

Thus far we have been concerned primarily with the analysis and interpretation of the data from one time period. Whilst we briefly considered the relationships between the source weights derived from the T2 data-set and the various self-report measures of the research participants' individual and organisational characteristics in chapter 5, the focus of this analysis was an exploration of the extent to which there are meaningful relationships between mental models of competitive space and these extraneous variables over time. As such, these analyses did not address the issue of focal concern in the present chapter, namely, the question of the extent to which actors' mental models of competitive space are stable or change over time.

As we noted in chapter 2, due to the fact that almost all of the previous studies of competitor cognition have been cross-sectional in nature, this issue has largely been neglected. Whilst the general reluctance of scholars to employ longitudinal research designs is understandable, for the reasons which we noted earlier, this field of enquiry has now reached a critical stage in its development where such studies have become an unavoidable necessity, if we are to test competitive enactment theory to its limits.

Should it transpire that mental models of competitive space are found to be stable in the face of significant down-turns in the market, from one time period to another, this would be very powerful evidence indeed for another fundamental, though once again previously unsubstantiated, assertion of competitive enactment theory. Such a finding would

demonstrate that mental models of competitive space play a key role in actually perpetuating the conditions of market decline, through cognitive inertia.

We turn now to consider the evidence relating to this issue. We shall begin by considering patterns of change and stability amongst the various self-report measures of the research participants' individual and organisational characteristics across the two time periods. This will enable us to gain insights into the local market conditions which prevailed during the periods when the research participants' mental models were assessed. Having considered these findings, we will then go on to compare the mental models of competitive space over time. As in chapter 5, for the purposes of this particular exercise, we shall confine our attention to a consideration of the individual and industry-levels of analysis.

LONGITUDINAL COMPARISONS OF MARKET CONDITIONS AND STRATEGIC BEHAVIOURS

In order to assess the extent to which local market conditions and the strategic behaviours of the research participants and their organisations remained stable or changed during the period of the study, matched-pairs t-tests were computed for each variable, in turn, together with test-retest correlation coefficients. The former procedure informs us of the extent to which the mean levels of each variable have changed or remained stable from one time period to another, whereas the latter provides an indication of the extent of stability and change amongst individual scores over time. Thus a situation in which a particular variable was characterised by a significant t-value, but a low and non-

significant test-retest correlation, would imply that the overall direction of the change from T1 - T2 which produced the significant t-value, was not a typical pattern for the sample as a whole. Rather, this would indicate considerable diversity amongst individuals with some scores increasing over time, others decreasing and still others being largely unchanged.

The means and standard deviations for the various self-report measures of strategic behaviour and local market conditions at T1 and T2, together with the t-values and the test-retest stability coefficients are presented in table 7.1. The results clearly indicate that there have been very few changes over time amongst the variables, with moderately large and highly significant stability coefficients and non-significant t-values, in all but three cases.

The notable exceptions are the organisational climate, prospects for future growth in the immediate year ahead, and market buoyancy scales. The mean values for these variables differ significantly from T1 - T2, indicating that some changes have occurred within the period of the study.

In the case of the market buoyancy scale, the t-value is very significant indeed, indicating that there has undoubtedly been a decline in the market between T1 and T2. Clearly this trend is very marked as evidenced by the relatively large t-value and the moderately large, but nevertheless highly significant, stability coefficient associated with this particular variable.

Table 7.1. Means, standard deviations, t-values and stability coefficients for the various self-report measures of market conditions and strategic behaviour across the two time periods.^a

VARIABLE	T1		T2		t-Value	Test-Retest Stability
	Mean	SD	Mean	SD		
Env Scanning (frequency)	4.23	0.74	4.25	0.70	-0.37	0.68***
Env Scanning (Threat vs Opp)	5.08	1.01	5.18	1.00	-1.04	0.54***
Strategic Locus of Control	2.56	0.45	2.55	0.47	0.30	0.51***
Strategy	4.14	1.17	4.03	1.12	1.47	0.76***
Organisational Structure	3.90	1.00	3.86	0.92	0.57	0.62***
Environment	4.21	0.77	4.14	0.72	1.13	0.65***
Wealth	4.41	1.34	4.18	1.28	1.68	0.44***
Markets	4.38	1.12	4.43	1.05	-0.38	0.43***
Adaptability	4.85	1.06	4.90	1.00	-0.48	0.42***
Organisational Climate	5.64	1.07	5.38	1.10	2.03*	0.24*
Prospects for Future Growth	4.84	0.88	4.61	0.96	2.02*	0.07
Market Buoyancy	3.09	0.85	2.33	0.78	8.43***	0.32***

* P < 0.05, ** P < 0.01, *** P < 0.001

^a N = 114 - 108; variation is due to missing data.

Before considering the meaning of the significant t-values associated with the organisational climate and prospects for future growth in the immediate year ahead scales, however, once again we must bear in mind the note of caution issued earlier, regarding situations in which multiple statistical tests have been performed on common data-sets. As noted in chapter 4, for every twenty statistical tests performed on a given sample, we would expect to obtain at least one significant result on the basis of chance alone, taking the conventional five percent cut-off level as the criterion. It is particularly important that we bear this point in mind at this juncture on account of the fact that the t-values associated with these variables barely reach significance at the five percent level. Given the fact that as many as twelve t-tests have been performed on the present data-set, there is a strong possibility that either or both of these significant results has occurred due to chance factors.

Bearing this caution in mind, it is clear that there have been slight declines in the average levels of organisational climate and prospects for future growth across the sample between T1 and T2. However, the stability coefficients for these particular variables are rather low, suggesting that there are also considerable deviations from this general trend within the sample. In the latter case, this variation within the sample is particularly pronounced, as evidenced by a stability coefficient of virtually zero (0.07). This result implies that there is no clear discernible pattern, with a number of individuals probably having severely underestimated their prospects for growth at T1 and having experienced a pleasant surprise in the interim period, others

having overestimated their prospects for growth at T1, and having been shocked by the extent of the subsequent down-turn in the market in the interim period, and still others having experienced no change on this particular variable.

We should also bear in mind that the sample of non-returners was found to differ significantly (at the one percent level) from the returners, in relation to this particular variable, as reported in chapter 4. The mean value for the non-returners was found to be significantly higher than the mean value for the returners, suggesting that the sample at T2 is biased, with an under-representation of those individuals who had a tendency towards an optimistic outlook towards future growth during the earlier period.

Nevertheless, the overall pattern emerging from these analyses is highly informative. The results strongly suggest that, on the whole, there have been no discernible changes in the strategic behaviours of the research participants and their organisations, accompanying the obvious decline in the property market which occurred during the intervening period between the two data collection points. Having established that the property market declined considerably, but the strategic behaviours of estate agents were generally stable across time, it now remains to be seen to what extent, if at all, the research participants' mental models of competitive space changed within the period covered by the study.

LONGITUDINAL ANALYSES OF MENTAL MODELS OF COMPETITIVE SPACE

Longitudinal Comparison of the ALSCAL Source Weight Ratios

In order to establish the extent of stability and change in actors' mental models of competitive space, the logarithmically transformed ratios of the source weights associated with each of the individual research participants were compared over time. As discussed in chapter 5, these ratios (which were derived from the two-dimensional group space reported in figure 5.1), represent the relative salience of each dimension (ie market power and quality) for each individual. Recall, that the greater the magnitude of this variable in the direction of the positive pole, the greater the salience of the quality dimension relative to the market power dimension. Conversely, the greater the magnitude of this variable in the direction of the negative pole, the greater the salience of the market power dimension relative to the quality dimension.

The mean values associated with the logarithmically transformed ratios of the source weights (ie the geometric means of the ratios) were -0.18 (SD=0.25) at T1, and -0.19 (SD=0.26) at T2, respectively. These results indicate clearly that there has been no meaningful change whatsoever in the mean source weight ratios over time. This finding was confirmed by the results of a matched-pairs t-test which yielded a non-significant difference ($t=0.17$, $df=113$, $P > 0.05$). Conversely, the test-retest correlation was found to be highly significant ($r=0.57$, $df=112$, $P < 0.001$), suggesting considerable stability in the relative saliences of the market power and quality dimensions, from T1 - T2, despite a considerable down-turn in the market.

Comparison of returners and non-returners

Whilst the previous analysis has indicated considerable stability in the relative saliences of the dimension weights associated with the individual research participants across the time periods covered by this study, there is a strong possibility that the research participants who dropped out of the study after the first phase, differed significantly in their initial cognitions from those who subsequently returned at T2. If this should turn out to be the case, we would have to re-consider the meaning of the findings reported above. Such a finding would render the results of our longitudinal analysis inconclusive. The apparently high levels of stability we have observed would be potentially confounded due to bias resulting from sample attrition.

In order to explore the extent to which this issue poses a threat to the validity of the findings, the mean logarithmically transformed source weight ratios associated with the returners and non-returners derived at T1, were compared using an unrelated t-test. The means were -0.18 (SD=0.25) and -0.16 (SD=0.23) for the returners and non-returners, respectively. Fortunately, the results of the t-test performed on these data confirmed that this negligible difference is not statistically significant ($t=-0.68$, $df=204$, $P > 0.05$).

Comparison of the Group Space Configurations

The previous analyses demonstrated that there are high levels of stability in competitor cognition in this industry, as assessed by the logarithmically transformed source weight ratios. The relative

salience of the market power and quality dimensions did not differ from T1 - T2 and the test-retest correlation was found to be highly significant. Moreover, the fact that there are no discernible differences between the T2 returners and non-returners in terms of the source weight ratios derived at T1, indicates that the longitudinal stability we have observed is not confounded by bias due to sample attrition.

Clearly to the extent that the group space from which these source weights have been derived is stable from one time period to another, the results of these analyses are informative. Unfortunately, however, this particular method of assessing cognitive stability does not take account of the possibility that meaningful changes may have occurred in terms of the dimensional structure of the industry-level mental model from T1 - T2. Such changes would imply that rival firms within the estate agency industry were actively attempting to adjust the bases on which they compete with one another, in response to the significant down-turn in the property market which occurred during this period. Clearly this would call into question fundamentally the role of industry-level mental models in market decline.

If the structure of the industry-level mental model was found to vary concomitantly with the changes in market conditions experienced in this industry, within the relatively short time frame surrounding this study, this would imply that competitor cognition is little more than a covariate. If, on the other hand, the highly pervasive two-dimensional cognitive structure we obtained repeatedly at T1, was to be replicated

at T2, this would constitute very powerful evidence for the assertion that changes in industry-level mental models of competitive space lag behind changes in market conditions. In other words, this finding would offer strong empirical support for the cognitive inertia argument advanced in chapter 2 - ie that industry-level mental models of competitive space, or "recipes", perpetuate the conditions of industry decline, by causing organisations to continue competing on the bases of strategies which have become outmoded in relation to the demands of the marketplace (Porac & Thomas, 1990; Senge, 1990).

In order to explore the extent to which the highly familiar two-dimensional industry-level mental model observed repeatedly at T1 was replicable over time, separate MDS configurations were derived for the returners using the competitor analysis questionnaire data from both time periods (ie separate configurations were derived for T1 and T2). In addition, a third configuration was derived for the non-returners (using the T1 data-set), in order to compare the extent to which the group level mental model associated with this particular subgroup differed from the group level mental model associated with the returners assessed at T1. Once again, any substantial differences between the configurations associated with the returners and non-returners - assessed at T1 - would alert us to the strong possibility that the T2 data-set was unduly biased owing to sample attrition.

As in previous cases, analyses were performed from six down to two dimensions, in order to ascertain the optimum dimensionality for each subgroup, in turn. However, in each case the two-dimensional solution

was selected on the basis of the goodness of fit criteria, together with a consideration of the interpretability of the output.

Once again, in each case the general patterning of the dimension weights associated with these analyses seems to reflect market power and quality, suggesting that there are no substantive differences between the returners and non-returners in terms of the structural characteristics of their mental models at T1, and that the industry-level cognitive structure is highly stable over time (for details of the stimulus configurations and dimension weights associated with these analyses see appendix 5). In order to assess the extent of the similarity between these cognitive structures, the various stimulus configurations were submitted to PINDIS.

This analysis was performed in confirmatory mode, with the configuration derived from the competitor analysis questionnaire data associated with the returners, assessed at T1, input as the fixed hypothesis configuration (Z). Thus the goal of this analysis was to ascertain the degree of fit between this particular configuration and the configurations associated with the same group of research participants at T2 and the non-returners at T1, respectively. To the extent that the former configuration departs from Z under P0, as evidenced by a relatively low communality value relating this particular configuration to the reference configuration (ie Z), the industry-level cognitive structure has changed from T1 - T2. To the extent that the latter cognitive structure departs from Z under P0, there are systematic differences in the cognitive structures of the returners and non-

returners at T1. If such differences should turn out to be substantial, again as evidenced by a relatively low communality value relating this particular configuration to the reference configuration (Z), for the reasons which we noted above, this would imply that any changes observed across the two time periods are potentially confounded by bias arising from sample attrition.

The results of this analysis are summarised in table 7.2. Fitting the $X_{i's}$ to the reference configuration, Z, yields an average communality of $r^2(X_i, Z) = 0.96$, indicating that there is virtually perfect internal agreement between the configurations associated with the non-returners assessed at T1 and the returners assessed at T2 in relation to the configuration associated with the returners assessed at T1, under the P0

Table 7.2. Communalities between the group space configurations for the non-returners assessed at T1 and the returners assessed at T2 ($X_{i's}$) with the returners assessed at T1 (Z), under the various PINDIS Transformations.

CONFIGURATION	TRANSFORMATION		
	0 Z,X(I)	I ZW(I),X(I)	III V(I)Z,X(I)
Non-returners assessed at T1	0.95	0.95	0.95
Returners assessed at T2	0.98	0.98	1.00
MEAN	0.96	0.96	0.98

transformations. The results reveal that some ninety five percent of the variance in the configuration associated with the non-returners assessed at T1, can be explained by the configuration associated with the returners assessed at T1 without unduly distorting the relative distances amongst the data points. An even greater proportion of the variance (ninety eight percent) associated with the returners' configuration assessed at T1 can be accounted for by the reference configuration under P0.

The overwhelming conclusion to be drawn from this analysis is that the two-dimensional cognitive structure we have observed on numerous occasions throughout this study, is highly stable over time and that there are no discernible differences in terms of the cognitive structures associated with those research participants who dropped out of the study at the end of the first phase and those who subsequently returned completed questionnaires for a second time. The results clearly indicate that the highly significant down-turn in the property market from T1 - T2 has had no material impact on the way in which estate agents generally construe their competitive worlds.

CONCLUSIONS

In this chapter we have explored empirically the extent to which mental models of competitive space are stable or change over time. Previous studies of competitor cognition have neglected to address this fundamentally important issue, due to an understandable reluctance of scholars to employ research designs which necessitate data collection at more than one point in time.

However, the present findings demonstrate powerfully the benefits to be gained from such longitudinal studies. As we have seen, the results clearly indicated that despite a considerable down-turn in the housing market from T1 - T2, neither the strategic behaviours of the research participants and their organisations, nor their mental models of competitive space have changed to any meaningful extent. On the contrary, we observed minimal changes in terms of the various self-report measures of strategy, structure, strategic locus of control, environmental scanning behaviour and the like. The changes observed were found to be significant for only two variables, namely, organisational climate and prospects for future growth in the immediate year ahead.

The differences associated with these particular variables were found to be barely significant at the five percent level when analysed using the matched pairs t-test, suggesting they are of little practical consequence. In short, the overall pattern emerging from the longitudinal analyses of the various measures of strategic behaviours, strongly indicated that, in general, within the duration of time encompassed by this study, estate agents had not changed their strategies in response to the highly significant down-turn in the property market experienced from T1 - T2.

This is not to say that we would have failed to observe such changes had the study been conducted over a longer time-frame. As we have seen in chapter 3, a number of significant changes have occurred in this

industry within the three year period which has subsequently ensued since the fieldwork associated with this study was completed, not least of which is the significant down-sizing of many operations in response to the continuing recession in the housing market.

Undoubtedly the competitive positioning strategies of estate agency businesses have changed in the period since the field work was completed, as evidenced by the fact a number of firms - particularly the larger national chains - are presently attempting to further differentiate their client bases, by creating separate identities for their operations relating to different types of property.¹

However, our analysis of the self-reported strategic behaviours and the mental models of the research participants indicated stability within the time period encompassed by this study. The mental models of competitive space were found to remain highly stable over time, both at the level of the individual research participants, and at the more general level of the industry as a whole, despite significant changes in market buoyancy from T1 - T2. Clearly these findings provide a convincing demonstration of the deleterious role of these mental models in the industry life cycle (Porac & Thomas, 1990).

The findings add empirical substance to the claim that the reason markets and industries mature and eventually fall into terminal decline, is that changes in mental models of competitive space generally lag

¹ Particularly noteworthy here is the fact that the larger national chains, for example GA Property Services, are creating separate identities for their operations relating to first time buyers and those seeking relatively exclusive properties.

behind changes in the condition of the marketplace. Consequently, over time, entire industries may become impervious to the fact that their competitive strategies are outmoded in relation to the demands of the environment. Eventually this negative cycle is broken when somehow particular organisations manage to stand back and distance themselves from this highly pervasive industry-level world view, or new competitors, not constrained by this mode of thinking enter the arena, thereby creating new recipes for competitive success which existing players can subsequently exploit (Eg Slater, 1984; Senge, 1990).

CHAPTER 8

DISCUSSION

As we have noted at several junctures, the field of competitor cognition is still in its infancy. There is a very limited empirical base upon which substantive theory in this area might be developed. This thesis has helped to rectify this state of affairs, by contributing one of the first relatively large scale longitudinal empirical studies to this growing field of enquiry.

The study reported in this thesis was designed in order to test three propositions derived from Porac *et al's* (1989) theory of competitive enactment, namely, that within mature/declining industries: (1) there are detectable empirical linkages between measurable features of actors' mental models of the competitive arena, or "competitive space", and measureable aspects of strategic behaviour and organisational performance; (2) actors' mental models of competitive space converge to form highly unified perceptions of reality; and (3) actors' mental models of competitive space remain highly stable in the face of significant changes in market conditions. As we have seen, in keeping with the predictions of competitive enactment theory, substantial empirical support has been obtained for all three of these propositions. In this final chapter, we shall consider the implications of the findings for the development of theory, research methodology, and practice in strategic management.

IMPLICATIONS FOR THEORY

The results of the present study provide a convincing demonstration of the existence and negative impact of strongly held collective mental models of competitive space within an industrial sector on strategy and performance. As we saw earlier, the estate agency industry has been beset by a number of seemingly intractable difficulties in recent years. The findings of the present investigation provide insights into the way in which these problems have impacted on estate agents' collective mental model of competitive space, and in turn, how this cognitive structure has come to shape, and subsequently dominate, competition throughout the industry.

This study has uncovered a two-dimensional model of competitive space which seems to be widely shared throughout the estate agency industry. With the notable exception of one organisational subgroup, repeated ALSCAL analyses have revealed a highly similar two-dimensional cognitive structure which transcends various organisational and functional subgroups.

The PINDIS analyses provided additional evidence that the competitive space maps of the various subgroups are highly similar to one another. The fact that relatively high communality values were obtained for each of the subgroups following permissible transformations (under P_0), strongly indicates that there are high levels of agreement throughout the industry concerning the competitive positioning of various types of firm.

The findings strongly indicate that this widely held cognitive structure of competitive space has severely constrained innovation throughout the industry. The results reveal that the entrance into estate agency of the major national chains has led each of the various players, smaller local and larger regional/national firms alike, to focus primarily on the strategies of the latter. Multiple analyses of the competitor analysis questionnaire data revealed time and again a similar two-dimensional cognitive structure in which the national and regional chains are typically regarded as highly successful, in contrast to the smaller, local operators.

Various supplementary analyses of the biographical, attitudinal and organisational characteristics questionnaire data, add credence to this interpretation of the findings. As we have seen, a number of significant correlations were obtained between organisational size and performance, on the one hand, and on the other hand, the various self-reported measures of strategy, structure, organizational performance, environmental scanning and locus of control variables - with the organization members from the larger national and regional chains generally describing their organizations in relatively favourable terms (relatively proactive/innovative strategies, internal strategic locus of control, and the like) in comparison with their smaller counterparts.

In essence, the overall picture emerging from these analyses is one of an industry in which the larger national, semi-national and stronger regional firms are generally the shapers of innovative competitive strategies, with the smaller, locally based firms at the mercy of what

they consider to be largely uncontrollable environmental forces. However, the analyses of the competitor analysis questionnaire data, have revealed the bases of competition in this industry, in general, to be highly impoverished. Despite the inclusion of a relatively large number of attributes within the competitor analysis questionnaire, time-and-again, the multidimensional scaling analyses revealed a highly undifferentiated cognitive structure, which encapsulated the bases of competition within a simple two-dimensional space.

Moreover, the analyses of the longitudinal data revealed that despite highly significant differences from T1 - T2, in relation to self-reported perceptions of overall levels of market activity, with a general down-turn in market conditions being widely experienced, virtually no significant differences occurred in relation to any other variable measured in the study. These results provide an even stronger indication that strategic innovation in this industry has largely stagnated. In short, the overall pattern of findings emerging from this study suggests that, at the time of the field work, companies were deadlocked into strategies which were no longer appropriate to the general market conditions in which they were competing.

Competitive Enactment

The results of the present investigation bear out the observations of Porac and his associates in their study of the Scottish knitwear industry (Porac et al, 1989). As in the Scottish knitwear study, the present results clearly indicate that within the estate agency industry, there is a shared set of beliefs about how firms compete in the

marketplace, which are so widespread that they have come to over-ride any differences, which may previously have existed, between various organisational and functional subgroups. As in the case of Scottish knitwear study, the present findings provide a powerful illustration of the basic features of "competitive enactment" (Porac et al, 1989; Porac & Thomas, 1990).

According to Weick (1979) organisations actively construe their environments through processes of collective sensemaking. However, in time, these social constructions of reality come to shape the behaviour of organisations as if they were true environmental forces. As we saw in chapter 2, extending this argument to the problem of competitor definition, Porac and his colleagues have suggested that competitive structures within industries and markets are developed through the emergence of group level mental models which transcend organisational boundaries:

"These shared beliefs establish the identity of individual firms and help to create a stable transactional network in which the actions of rivals are at least somewhat predictable"
(Porac et al, 1989, p 400).

According to Porac et al, belief similarity develops over time because organisation members from rival firms continually confront similar technical/material problems with a finite number of solutions. Belief similarity results from interpreting the same environmental cues and solving the same problems. The present findings give strong empirical substance to these arguments.

The continual uncertainty within the estate agency industry, has created the need for competing firms to gather information about their relative strengths and weaknesses. This information is represented within the minds of organisation members in the form of a mental model.

However, these mental models have not developed in social isolation. Rather, the various transactions between organisation members from rival firms, which take place within the marketplace, have lead to the creation of socially shared beliefs which, in turn, have come to define the competitive arena and inform the strategic choices of individual firms.

As we observed in chapter 3, within the estate agency industry, there are very high levels of interdependency both within and between rival firms. Organisation members continually cross organisational and functional boundaries in the performance of their various tasks. Direct and indirect transactions occur between partners, valuers, negotiators, surveyors and the like, within and between rival firms, on a frequent basis.

During the course of these transactions, formal and informal communications take place, communications which permit the sharing of ideas and concepts. It is this mutual exchange of information about market conditions and activities that has resulted in an externalising of individual mental models in a publicly observable form. The net result of these regular direct and indirect contacts within this close-

knit transactional network, is that organisation members from rival firms have come to develop highly unified perceptions of how to compete.

Competitive Space & Industry Recipes

As in the Scottish knitwear study, the present results clearly indicate that within the estate agency industry, a generic recipe (Huff, 1982; Spender, 1989) has developed which has come to define a limited number of strategic possibilities for individual firms. Mutually enacted perceptions of competitive space have provided the basic weaponry with which battles in the marketplace are to be fought.

As in the Scottish knitwear study, the present findings illustrate how a firmly established mental model of competitive space can limit the strategic options of individual firms, as cognition and choice become inextricably intertwined with the material conditions of the marketplace. The findings indicate that, in general, firms within this industry attempt to differentiate themselves only on the basis of two broad dimensions, namely, market power and general quality of service. As we have seen, more radical strategic innovations such as differentiating on the basis of pricing, elaborate marketing arrangements, and the type of properties sold, are typically not considered feasible by the vast majority of estate agents.

The notion of industry recipes has enjoyed popular credence amongst strategic management scholars in recent years, as a means of explaining the emergence and diffusion of successful competitive strategies (see for example Huff, 1982; Spender, 1989; Whitley, 1992). However, the

concept is not without its critics (Eg Slater, 1984; Hickson et al, 1986; Stopford & Baden-Fuller, 1990; Baden-Fuller & Stopford, 1992). In particular, one of the dangers associated with this term is the tautological implication that firms must necessarily imitate or adapt the strategies of other successful firms within an industry in order to prosper. As noted by Baden-Fuller & Stopford (1992), the inevitable consequence of this process is that eventually all industries will reach a stage of stagnation and ultimate decline, as industry-level cognition becomes inextricably intertwined with the material conditions of past successes, thus filtering out the objective reality of changing circumstances and giving rise to outmoded practices.

The present findings illustrate empirically the reality of these dangers. The collective outlook of the smaller, less powerful organisations studied was generally one of defeatism, as revealed through the analyses of the questionnaire responses.

Mental Models of Competitive Space, Strategy & Performance

The analyses of the individual source weights associated with the industry-level ALSCAL solution, provided further illuminating insights into the negative, self-defeating cycle of decline which seems to have imprisoned the smaller firms. These analyses revealed significant relationships between the relative saliences of the dimensions for individual organisation members and a number of measures of organisational structure and strategy. The results clearly indicated that those organisations who are pursuing relatively long-term, proactive, innovative strategies, attach greater weight to the quality

dimension relative to the market power dimension, in contrast to their less proactive/innovative counterparts.

As we have seen, these firms are generally the larger and more powerful organisations, with considerable assets at their disposal. It is highly significant, therefore, that these organisations attach greater weight to the quality dimension relative to the market power dimension, in contrast to their less proactive/innovative counterparts.

These findings provide us with further insights into the processes of competitive enactment. The results reveal that whilst rival firms share a common awareness of the competitive weapons available within this industry, individual firms are differentially attending to one or other particular dimension, depending on their own location within the competitive arena. Once again, the findings point overwhelmingly to the conclusion that cognition, strategic choice, and the material conditions of the market place have become inextricably intertwined with one another in a self-perpetuating cycle.

The results provide an indication of the processes by which successful firms within this industry are able to sustain their competitive advantage by giving a relatively greater emphasis to quality. By definition, these organisations enjoy much greater power in the marketplace, by virtue of their extensive branch networks, high profile advertising (Eg peak time radio and television advertisements) and the like. During the period within which the field work associated with this study was undertaken, in contrast to their smaller and generally

less successful counterparts, the larger/successful firms had considerable slack resources at their disposal which they were able to direct towards improving the overall quality of their service by investing in comprehensive staff development programmes, superior quality sale details, high gloss colour brochures and the like. In short, the results suggest that successful organisations are able to project a superior image in the marketplace by virtue of their material capabilities, which in turn enhances their resources (for corroborating evidence see chapter 3).

In the case of the smaller, local operators, by contrast, the entrance of the national chains has forced these organisations to be primarily concerned with basic day-to-day survival, rather than longer-term ventures. These organisations seem to be engaged in a negative, self-defeating cycle in which short-term performance pressures focus the attention of organisation members to the market power dimension at the expense of quality. In the longer-term, however, this selective cognition may well only serve to perpetuate yet further declines in the market power available to these organisations, as the larger firms seek to introduce further innovations in quality, which in turn, may attract an even greater share of the limited vendors and purchasers available, in a dwindling market.

Wider Theoretical Implications

The findings of the present study stand in marked contrast to those of a number of other recent cognitive studies of competitive positioning strategy, which have suggested that there may be considerable individual

and subgroup differences in mental models of competitive space within industries and markets (Eg Reger, 1990a; Calori *et al*, 1992; Daniels *et al*, 1993a, 1993b; Hodgkinson & Johnson, in press). Whilst these studies have found very low levels of agreement between research participants concerning the basic structure and contents of mental models of competitive space, a finding which has been attributed to the impact of such factors as functional responsibility, career history and individual and organisational-level belief systems (see chapter 2), the present study, by contrast, has found almost no evidence of such variation.

On the contrary, this study has revealed very high levels of consensus across functions and organisations, regarding both the dimensional structure of competitive space and the positioning of particular types of organisation. The findings imply that there are high levels of agreement throughout the industry concerning both the bases of competition and the competitive positioning of the various players. How then shall we account for these discrepant findings?

The broad theoretical contribution to be discerned from this programme of research, is concerned with the processes by which industries and markets fall into general decline. The overwhelming pattern emerging from the present findings, suggests that as industries mature, competitors' mental models of competitive space converge to form a highly homogeneous mindset which, in turn, leads to the development of industry-wide norms regarding the bases of competition, dysfunctional norms which stifle innovation and change (cf Baden-Fuller & Stopford, 1992).

The implications are that once a relatively small number of highly successful firms have established themselves in the marketplace, there is a danger that over time, the strategies pursued by these players come to dominate the thinking of organizations in general, throughout the entire industry. In other words, the strategic options of rival firms within such industries are eventually confined within the narrowly defined boundaries of accepted custom and practice. The ultimate consequence of this process for any given industry sector, if followed through to its concluding stages, is long-term stagnation followed by eventual terminal decline.

This theoretical interpretation of the present findings does not preclude the possibility of recovery from decline, nor is it incompatible with the predictions of those researchers cited above, whose studies have yielded substantial differences in competitor cognition at both individual and subgroup levels of analysis. As regards the first point, as Stopford & Baden-Fuller (1992) observe in the context of their study of mature businesses, there are innumerable creative measures which can and indeed should be taken by companies in declining markets in order to achieve turn-around, even in the most hostile of conditions. Indeed, the present findings demonstrate powerfully the value of cognitive analysis, as a means whereby companies can identify industry-wide blind-spots of competition, in order to provide an informative basis upon which new strategies can be developed.

In this sense, the approach to competitive space mapping adopted in this study provides a powerful addition to the general stock of environmental analysis techniques (cf Lenz & Engledow, 1986), a point to which we shall return later, when considering the implications of this study for strategic management practitioners. At this stage, it is sufficient to note that our many analyses of the competitor analysis questionnaire data have revealed the potential efficacy of our approach to cognitive modelling, for identifying the limitations of existing strategies whilst, at the same time, providing strategists with illuminating insights which may inform the development of new strategic choices.

As regards the second point, it is highly noteworthy that the organisations studied by previous researchers where the outcomes have indicated variation in perceptions of the bases of competition and competitive positioning, have almost invariably been organisations experiencing major upheavals at the time of data collection. Reger's (1990a) study, for example, was conducted in the Chicago banking market, following a number of recent changes to the rules regulating business practices. Similarly, in Hodgkinson & Johnson's (1987, in press) study, which focussed on competition in the UK grocery retailing industry, the vast majority of participants were drawn from an organisation going through a period of major organisational and strategic change. Calori et al's (1992) study focussed on competition in European countries during the period in the run up to the development of the single market. With hindsight, each of these studies were conducted at a time when the participants were, in all probability, still in the process of coming to terms with these new developments. Had the data been collected at later

points in time, these observed differences may well have been less apparent. This discussion serves to highlight the dangers of researchers utilizing cross-sectional research designs in this field of enquiry, a point which we shall discuss further in the next section.

METHODOLOGICAL IMPLICATIONS

This study has illustrated the benefits of a number of methodological innovations which, whilst by no means new within the broader spectrum of strategic management research in general, are certainly novel in the context of cognitive studies of competitive positioning strategy. Future researchers, interested in advancing the progress of knowledge accumulation in this field beyond its present levels, would be well advised to consider the methodological lessons learned from the present study, before embarking on further enquiries. In particular, four features of the present study are worthy of discussion.

1. Research Design & Analysis

In contrast to many of the previous studies in this field of enquiry, which have tended to employ cross-sectional designs, the present study adopted a two-wave panel design in order to observe the extent to which mental models of competitive space changed or remained stable over time. Whilst longitudinal research designs undoubtedly place considerable additional burdens on the researcher, both in terms of data collection and analysis, this study has demonstrated that there are a number of benefits to be gained from such approaches, benefits which greatly exceed the associated drawbacks.

The findings of the present study suggest that once established, mental models of competitive space remain highly stable. The longitudinal analyses revealed stability both in terms of the dimensional structure and the positioning of the various types of firms within the competitive space maps. Furthermore, the source weights associated with the individuals' private competitive space maps were also found to remain stable over time.

The research design adopted in the present study, has greatly strengthened our confidence in the contribution of the findings to the theory of competitive enactment, as discussed in the previous section. As we have seen, the fact that the industry-level mental model of competitive space was found to remain stable in the face of a significant down-turn in the market, provides compelling evidence for our explanation of how industries ultimately fall into total decline, or alternatively, how new entrants not bound by the market norms, come to establish new niches and overturn previous market leaders.

Without the necessary longitudinal evidence, we would have to moderate our interpretation of the findings to the extent that we would be uncertain as to whether the findings observed would persist in the event of further down-turns in the market, and hence substantiate competitive enactment theory, or whether the high levels of consensus concerning the bases of competition and the competitive positioning of various types of firm, would suddenly dissipate, as firms sought to identify new strategies for competitive success.

2. Contextual Embeddedness

Whilst it is the case that research into competitor cognition is still in its infancy, as we noted in chapter 2, far too many studies in this particular topic area have accumulated in recent years, in which cognitive structures have been explored in vacuua, without due attention given to the background characteristics of the individual research participants and their work organisations. However, these factors may well have a profound bearing upon the way in which particular subgroups construe the marketplace. As we noted in chapter 2, without such additional information, assessed via reliable and valid indicators, we are not in a position to evaluate adequately the contribution of mental models of competitive space to wider organisational life.

The present study illustrates some of the many benefits to be gained from incorporating additional biographical and attitudinal variables in studies of managerial and organisational cognition, in general, and competitor cognition, in particular. The addition of the various self-report measures of previous work experience, education, training & development, environmental scanning behaviour and organisational structure, strategy & performance, enabled us to gain a much richer picture of the estate agency industry than would have been possible using cognitive modelling procedures per se. These additional variables provided the means by which we were able to contextualise the various subgroups' mental models of competitive space.

As we have seen, the additional information gained from the supplementary biographical, attitudinal and organisational characteristics questionnaires, enabled us to go considerably further than previous studies of competitor cognition, inasmuch as we were able to derive comprehensive profiles of the characteristic differences and similarities of the various subgroups, whose mental models of competitive space we investigated. This additional data greatly enriched our understanding of the industry, by revealing some key insights into the principal differences between the national chains and the smaller local and regional operators. These findings, in turn, led us to a more detailed understanding of the processes of competitive enactment, by enabling us to relate particular structural features of the research participants' mental models, to a variety of objective and subjective indicators of organisational behaviour.

Whilst previous studies have undoubtedly provided many illuminating insights with regard to the development of methodological techniques for modelling cognitive structures of competitive space, and suggested some fruitful lines of enquiry for the development of theory, on the whole, these studies have failed to locate these mental models in their wider context. The present programme of research has begun to remedy this situation. The incorporation of these additional variables into the study, enabled the researcher to begin the task of systematically exploring the empirical relationships between mental models of competitive space on the one hand, and various characteristics of the respondents (Eg education & training, locus of control beliefs, scanning

behaviours) and their organisations (various aspects of organisational structure, strategy-making behaviour and performance), on the other.

Whilst a relatively large number of variables was incorporated in the present study, it must be emphasised that the research reported in this thesis has been but an embryonic attempt to broaden this field of enquiry. Further studies along these lines, extended into other industry contexts, are badly needed. In the absence of such supplementary information about the research participants and their organisations, it is difficult to see how additional studies of competitor cognition will advance our theoretical understanding of strategic management beyond present levels.

3. Sampling Characteristics

The third methodological feature of the present study which has enhanced the quality of the data obtained, in comparison to previous studies in this field, concerns the characteristics the sample of research participants, both in terms of its relatively large numerical size and scope. These design features have greatly increased the extent to which we can meaningfully explore subgroup differences in competitor cognition and generalise our findings to the industry as a whole.

Size

Previous studies, have tended to use very small samples, both in terms of the numbers of individual participants and the numbers of participating organisations, making comparative analyses and generalisation very difficult. As noted in chapter 2, typical studies

in this field, hitherto, have employed between 17 and 33 participants from a considerably smaller number of organisations, making legitimate subgroup comparisons, using appropriate statistical techniques, difficult if not impossible to accomplish (see for example Calori et al, 1992). The present sample, comprising 206 participants from 58 firms at T1, and 114 participants from 41 firms at T2, renders this study one of the largest investigations into competitor cognition, to date. Certainly in this particular topic area, the research reported in this thesis constitutes the largest-scale study ever undertaken, to date, within the confines of any one industrial sector.

Given the present sample sizes, considerably more confidence can be placed in the findings. The relatively large number of individual participants and participating organisations enabled the researcher to perform a number of meaningful statistical tests of difference between the various organisational and functional subgroups. (Often the smallest cell sizes in the present study, greatly exceeded the total sample sizes reported in previously published studies.) However, the present sample sizes, though adequate for the research questions being addressed, are by no means large-scale in comparison to the sample sizes being typically reported in other topic areas. Further studies using even larger samples, enabling meaningful comparisons within and between various industries, are now badly needed, in order to enrich our empirically derived knowledge base beyond its present levels.

Scope

Turning to the scope of the present sample, it is noteworthy that previous studies in this topic have tended to focus almost exclusively on senior and middle levels of managers. Implicit within this approach, is the assumption that only the views of senior and middle managerial levels matter. That somehow, it is their beliefs that come to shape the bases of competition and the views of other organisation members are of little or no consequence. It is as if most scholars have assumed that business strategies emanate from the upper echelons of the organisation and that the role of lower grade staff, is merely to implement their dictates.

The present study, by contrast, was predicated on a rather different assumption, namely, that strategy development and the competitive positioning of organisations is the business of every organisation member, irrespective of seniority (cf Pettigrew & Whipp, 1991). As far as the present author is aware, this is the only study thus far, to have extended the cognitive analysis of competitive spaces beyond managerial echelons. The fact that no major differences were observed between the various managerial and non-managerial subgroups investigated, adds further support to the competitive enactment theory of industry decline, discussed earlier in this chapter.

However, in order that competitive enactment theory can be further refined, future studies should explore in greater depth, using even larger samples, the extent to which managerial and non-managerial subgroups share common or distinctive perceptions of competitive space.

Whilst the present study attempted to address this issue in part, the sample size was too small to carry out detailed analyses at the intra-organisational-level. Given larger samples drawn from a variety of industry contexts (of varying maturity levels), it should be possible to engage in a detailed comparative analysis both within and between organisations and across sectors. Such large-scale research is undoubtedly necessary, if we are to fully evaluate and extend competitive enactment theory. Clearly, to the extent that this theory is correct, we would expect to find considerably less homogeneity and longitudinal stability in cognition in emergent and growth industries than has been observed here (cf Easton et al, 1993).

4. Advances in Cognitive Modelling

The present study has also enabled us to explore the efficacy of some rather different approaches for assessing mental models of competitive business environments. As in Walton's (1986) and Reger's (1990a) studies of competitor cognition in the USA financial services industry, the spatial metaphor has been found to be particularly apposite in the present programme of research. Whilst earlier studies demonstrated the power of spatial analytical techniques such as multidimensional scaling and principal components analysis for representing individual and group level mental models of competitive space, the present study has introduced a number of refinements which have been found to enrich our understanding of cognition, strategic behaviour and market decline.

As we noted in chapter 2, the majority of previous studies of competitor cognition have a suffered number of methodological drawbacks at the

knowledge elicitation phase and/or the data analysis phase, which have rendered problematic, the comparison of mental models of competitive space across differing subgroups of research participants. Previous studies have tended to adopt either nomothetic knowledge elicitation procedures such as standardized questionnaires (Eg Dess & Davis, 1984) or between-subjects taxonomic interviews (Eg Porac et al, 1987), predicated on the assumption that there are high levels of consensus within industries and markets, but which prevent the researcher from exploring differential cognition, or ideographic procedures such as individually based repertory-grid techniques (Reger, 1990a, 1990b) or semi-structured interviews (Calori et al, 1992), which run the risk of accentuating cognitive diversity at the expense of homogeneity. In short, previous researchers have either assumed away the importance of differential cognition or adopted knowledge elicitation and/or data analysis techniques which render the resulting mental models of differing individuals and/or subgroups methodologically non-comparable.

Advances in knowledge elicitation

The present study sought to overcome these limitations through the use of an adaptive questionnaire, in which the research participants were required to draw up their own list of competitors in response to a series of standardised categories. These competitors, together with the respondent's own organisation were then systematically evaluated on the basis of a series of standardised attributes thought to differentiate the various types of firm. However, both the categories used to elicit the competitors, and the standardised list of attributes presented to the research participants for scaling, were elicited through interviews

with knowledgeable experts drawn from within the focal industry, together with an analysis of relevant trade publications and advertising literature, rather than researcher imposed.

In this way, the present study has sought to capitalise on what the author considers to be the major strengths of both ideographic and nomothetic knowledge elicitation procedures, whilst at one and the same time, minimising some of the weaknesses associated with each. The net result of adopting this hybrid approach has been that the study has yielded data from a research task which is meaningful to the individual research participants and their organisations, yet enables the researcher to make direct comparisons at a number of different levels of analysis, without having to impose arbitrary coding procedures on the resulting mental models (cf Reger, 1990a; Calori *et al*, 1992).

Advances in data analysis

The present research has also illustrated the incremental benefits to be gained from adopting three-way multidimensional scaling procedures, in comparison with conventional two-way techniques, in studies of competitor cognition. As noted above, previous studies on this topic, some of which have adopted spatial analytic techniques of data analysis, have used procedures which are capable representing either the cognitive structures of individual research participants, or the shared cognitive structures of particular groups of participants (Eg at the level of the industry or organisation), but not both.

The three-way ALSCAL multidimensional scaling procedure adopted in the present study, however, enabled us to explore systematically the extent to which the individual research participants' private mental models of competitive space deviated from the industry norm. The subject weights associated with this analysis provided a convenient index of differential cognition which we were able to relate systematically to the various self-report measures of scanning behaviour, organisational structure, strategy and the like. In this way, we were able to develop a comprehensive picture of the principal characteristic differences between the various types of estate agent investigated in the study and, in turn, explore the relationships between these characteristics and variations in the weightings attached to the shared dimensions of the industry-level mental model of competitive space. As we have seen, these supplementary analyses enriched considerably our understanding of competitive enactment theory.

In the present study, the comparison of the cognitive structures associated with the various subgroups of research participants, was also greatly aided by the use of Borg and Lingoes's PINDIS procedure (Eg Borg & Lingoes 1978, 1987). The application of this technique provided strong confirming evidence that within the UK estate agency industry, mental models of competitive space have generally converged to form a highly homogenised world-view, which in turn, has come to limit the strategic choices of individual firms.

As we noted in chapter 6, one of the principal dangers associated with spatial modelling techniques, is the temptation to make rather naive

visual comparisons between the resulting outputs from multiple analyses of differing subgroups, on the basis of their surface-level characteristics alone. The present findings, however, bear strong testimony to the fact that such simplistic comparisons should be avoided at all costs. As we have seen, what appear to be diverse cognitive structures on the basis of the relative positioning of particular stimuli within the spatial maps associated with particular subgroups, may turned out to be highly convergent when submitted to the rigours of PINDIS.

IMPLICATIONS FOR PRACTICE

In this section, the implications of the findings for strategic management practitioners and policy makers are considered.

The Role of Cognitive Analysis in the Rejuvenation of Mature Businesses

This study highlights the potentially valuable role of cognitive analysis as a strategic management tool which could be exploited by organisations in declining industries and markets, as a means for gaining significant competitive advantage along the road to turn-around.

The present findings have yielded some useful insights regarding the dominant bases of competition between rival firms within the residential property sector of the UK estate agency industry. In particular, this study has illustrated how cognitive processes at the level of the industry have come to severely restrict the strategic choices of particular organisations. The industry-level mental model has narrowed

their attention to the extent that only a very small subset of the many possible competitive sub-spaces available are considered viable by the vast majority of players.

To the extent that market decline results from cognitive inertia, the implications for practice are that individual organisations should periodically engage in a process of self-reflection in order to reconsider anew the extent to which their assumptions and beliefs about the external environment provide a viable basis upon which to build effective strategies for competitive success (cf Huff, 1990; Bowman & Johnson, 1992). As observed in the previous chapter, the evidence from this study suggests that, ordinarily, there may be considerable time lags between changes in market conditions and changes in actors' mental models of competitive space. In this respect, it is most informative to consider the present findings in the light of events which have taken place in the estate agency industry during the three year period which has subsequently elapsed since the fieldwork for this study was completed.

As we observed in chapter 3, the ten year period leading up to this research was, in the main, one of considerable prosperity for the residential estate agency industry, with steady increases in the demand for private housing, accompanied by concomitant increases in house prices throughout the UK generally, albeit to varying extents from one geographical region to another. During this period, the financial institutions entered the arena on a massive scale, gaining considerable market power. However, by the time the fieldwork for this study

commenced, the present recession was beginning to take effect, a recession which would eventually see the demise of one of the largest UK estate agency chains, with significant down-sizing operations amongst the other large-scale operators.

However, it is clearly evident from the results of this study that had estate agency organisations, particularly the larger national and regional chains, undertaken cognitive analyses from time-to-time, this state of affairs may never have arisen. The results reveal that despite the significant down-turn in the market and subsequent recession - which began towards the end of 1988 and deepened significantly throughout the period encompassed by the fieldwork associated with this study - residential estate agents from large and small organisations alike, continued to operate on the basic working assumption that in order to attain competitive success in this industry, companies should seek to establish dominance in the marketplace through extensive branch networks, high profile advertising and the like, whilst seeking to offer a superior quality of service. That this basic strategy was no longer appropriate, given the changes in market conditions which had occurred since the summer of 1988, is now clearly evident, as revealed by subsequent events.

As briefly noted in the previous chapter, a number of estate agency businesses, particularly the larger national and regional chains are seeking to differentiate their client bases at the present time, by creating separate identities for their operations targeted at specific segments of the market. In turn, this will hopefully create a larger

number of competitive sub-spaces than have typically been considered viable within this industry, hitherto.

In summary, it would appear that during the late 1980s and early 1990s, a considerable number of estate agency businesses, large and small alike, were unduly influenced by a simple two-dimensional mental model of competitive space which, although probably adequate during the period of long-term economic growth enjoyed throughout much of the previous decade, was no longer appropriate for the changed circumstances now confronting the industry. Had these businesses engaged in a cognitive analysis from time-to-time, particularly in the years leading up to the recession, as a means of questioning the adequacy of the basic working assumptions underpinning their operations, it is possible that events may have turned out rather differently.

Implications for Organisational Development

A rather obvious step which organisations could take in order to minimise the likelihood of falling prey to the effects of cognitive inertia, discussed above, would be to periodically survey all key staff within the company, in order to re-assess the mental model of competitive space which implicitly underpins their activities. The results of this exercise could then be fed-back to the participants in the form of a "strategy process workshop", in which the participants would be encouraged to actively explore ways of creatively enhancing their organisation's competitive positioning strategy.

Recently, Bowman & Johnson (1992) have reported some preliminary attempts to facilitate the strategic thinking of top management teams using survey feedback. These researchers have employed a modified version of the questionnaire devised by Dess & Davis (1984) - in order to investigate the extent to which senior management teams are able to locate their organisations within one of Porter's (1980) generic strategies. The participants' responses to the questionnaire are computer analysed in order to derive a two-dimensional figure in which particular individuals are positioned in relation to the various strategic possibilities within Porter's framework. The results are fed-back to the workshop participants in order to provide a basis of intervention in strategy debates amongst the senior management team. Whilst in the longer term it is undoubtedly desirable that such interventions should be subjected to rigorous scrutiny before making claims about their effectiveness, Bowman & Johnson's experience provides us with sufficient preliminary evidence to suggest that a more general survey feedback approach to understanding the bases of competition and competitive positioning may well prove to be fruitful as an organisational development intervention (OD) technique.

As Lussier (1990) observes, survey-feedback is one of the oldest and most popular approaches to OD. Certainly, on the basis of the available evidence from the general OD literature, the survey feedback approach is one of the most effective methods of intervention (Bowers, 1973).

What I am suggesting is that the idea of cognitive analysis as a means of galvanising strategic debate amongst senior management teams, should

be extended to the lower reaches of the organisation in an effort to stimulate the development of new strategies for competitive success. As we have seen, the approach to cognitive analysis developed in the present programme of research could be applied on a periodic basis across all organisational-levels in order to generate a representation of the organisation's aggregate mental model of competitive space. Alternatively, separate mental models could be derived for particular subgroups within the organisation in order to enable comparisons to be made across various sections. Whichever approach to cognitive analysis was adopted, the purpose of the exercise would be to provide the organisation with a basis for breaking out of its current mode of thinking, in order to generate a viable alternative strategy for rejuvenation of the mature business (cf Mitroff, 1988; Baden-Fuller & Stopford, 1992).

Creativity enhancing techniques such as yes and thinking, reversals, incubation, wishful thinking, random input, goal orientation, brainstorming, synetics and morphological analysis could be readily adopted as a means for attempting to foster the development of new viable competitive positioning strategies (for a general overview of these approaches for facilitating creative problem solving see Rickards, 1985). The end result of such workshops would be an agreed vision regarding the way forward which could then be translated into a viable marketing strategy for re-positioning the firm within the mind of the customer. The extent to which such attempts at competitive re-positioning had been successful or otherwise, would need to be subsequently evaluated through appropriate market research using

cognitive modelling methods paralleling those adopted in the staff survey.

Comparison with Strategic Groups Analysis

As we noted in chapter 2, by far the most dominant approach to environmental analysis for understanding bases of competition and competitive positioning in industries and markets within the strategic management literature in recent years, has been the strategic groups approach, in which the analyst attempts to model competitive structures using a range of objective indicators (typically secondary accounting and financial data) which are thought to differentiate the strategies being pursued by various players (see McGee & Thomas, 1986). Recently, however, the concept of strategic groups has come under increasingly critical scrutiny, not least because of the danger that the analyst may happen to select a subset of variables which particular companies who operate within the focal industry or market would not regard as important, whilst omitting to consider the variables which are actually driving competition and strategy development (Eg Thomas & Venkatraman, 1988; Reger, 1990a; Pettigrew & Whipp, 1991).

An important corollary arising from this observation, which many previous researchers have overlooked, is that the analyst may select particular firms for comparison which those who operate within the focal industry or market would not personally regard as important, whilst omitting to consider those firms which are actually driving competition (cf Reger, 1990a; Reger & Huff, 1993). A key strength of the approach to cognitive analysis adopted in the present study, is that it enables

the research participants to explore their competitive spaces using named companies which are firmly grounded in their own cognition, as the basis of comparison. In Kellyan terms, the primary strength associated with this approach, is that it enables the analyst to access participants' cognitive structures of competitive space, without artificially forcing them to consider firms beyond their "range of convenience" (Kelly, 1955). As we noted earlier, this has enabled us to make meaningful comparisons across various organisational and functional subgroups, without fear that any observed differences in dimensional structure, were due to mere variations in the extent to which the research participants were knowledgeable about the various competitors assessed.

The present study has added to a growing number of cognitive investigations seeking to address concerns with the strategic groups approach to environmental analysis (Eg Dess & Davis, 1984; Fombrun & Zajac, 1987; Porac et al, 1987, 1989; Reger, 1990a; Calori et al, 1992; Daniels et al, 1993a, 1993b; Reger & Huff, 1993). Far from conflicting with conventional approaches to competitive analysis, however, the approach developed through this study provides a complementary method for gaining insights into bases of competition in industries and markets.

As discussed above, the present study has demonstrated repeatedly that there are very strong commonalities of perception, widely held throughout the industry, regarding the bases of competition, thus providing additional support for recent claims that competitive groups

may have an ontological status grounded in the cognitions of strategic decision makers (Porac et al, 1989; Bognor & Thomas, 1993; Reger & Huff, 1993). However, the fact that the questionnaires were both designed and completed by knowledgeable actors, meant that the potentially serious problems of haphazard variable selection and the seemingly arbitrary choice of particular firms for strategic analysis - associated with conventional studies of competitive structures - were avoided (cf Reger, 1990a; Thomas & Venkatraman, 1988; Calori et al, 1992).

Strategic Locus of Control

Thus far, this discussion of the implications of the present study for the practice of strategic management has been confined to a consideration of the implications relating to the use of cognitive analysis techniques for revealing actors' mental models of competitive positioning strategies. Before concluding this discussion, we turn to consider briefly the implications for practice arising from the development and validation of the Strategic Locus of Control Scale, reported in chapter 4.

As we observed in chapter 4, previous researchers in the strategy field concerned with the role of locus of control beliefs in strategy development and organisational performance have operationalised this variable using the well-known Rotter (1966) I-E scale. However, as we have seen, this scale is beset by a number of methodological limitations which render it unsuitable for use in the fields of strategic management and organisational behaviour. During the course of the present study, an alternative locus of control scale was devised, which has been found

to be both reliable and valid, and which does not suffer from the inherent weaknesses associated with the I-E scale.

Unfortunately, the strategic locus of control scale turned out to be only moderately useful in relation to the substantive concerns of this thesis - ie relatively weak correlations were observed between strategic locus of control and the logarithmically transformed source weight ratios associated with the three-way MDS analyses. Nevertheless, the fact that substantial correlations were observed between this variable and a number of indicators of strategic behaviour and organisational performance, both at the individual and organisational-levels of analysis, suggests that the strategic locus of control scale may be useful as a diagnostic tool in the development of individuals and organisations, and as an aid for the selection of staff into the corporate strategy function. However, whether or not it is uniformly desirable for organisations to appoint individuals with extreme internal scores into positions involving a key role in strategy development, is an open question which requires further investigation.

The fact that responses to the Strategic Locus of Control Scale have been found to correlate both with the I-E scale and various measures of the strategic, structural and performance characteristics of organisations, suggests that strategic control expectancies are partly dispositional and partly a reflection of past and present organisational circumstances - ie responses to the strategic locus of control scale result from an interaction between the individual and his or her meaningful environment (cf Rotter, 1990, p 491; Boone & De Brabander,

1993). Consequently, individuals within particular organisations may vary in terms of their strategic locus of control beliefs. On the other hand, in organisations where there is very little variation at the individual-level, the collective generalized expectancies of organisation members about the transformational capacities of strategic management principles, techniques and processes may have an impact on the organisation's capabilities for action. As I have noted elsewhere (Hodgkinson, 1993), certain organisations may be characterised by varying climates or cultures of internal and external strategic control expectancies, sustained through processes of personnel selection, socialisation and attrition (cf Schneider, 1990). The transformation of these climates/cultures may play a vital role in periods of organisational turn-around and major strategic and organisational change. If this is indeed the case, the use of the strategic locus of control scale as a diagnostic tool, may prove useful as an aid for OD practitioners seeking to facilitate such changes.

LIMITATIONS OF THE PRESENT STUDY

As we noted in an earlier section of this chapter, a number of methodological innovations have been incorporated in the present study, the purpose of which was to enhance the quality of the resulting data. However, to what extent the empirical findings in favour of competitive enactment theory genuinely reflect the state of the industry or have resulted directly from these innovations is difficult to estimate within the confines of the present research design.

As in the case of previous studies of competitor cognition, there is a possibility that the present findings are, at least in part, paradigm dependent, in the sense that the particular knowledge elicitation tasks undertaken by the research participants may have yielded the apparently high levels of consensus regarding the bases of competition and competitive positioning of particular types of firm. Had a fixed set of competitors been derived for the sample of research participants, along similar lines to the way in which the standardised list of attributes was compiled in the present study, perhaps the industry-level mental model would have been characterised by greater dimensional complexity. Moreover, considerably greater variation may have been observed between the various subgroupings, both in terms of the dimensional complexity of the mental models of competitive space and the competitive positioning of particular firms.

Similarly, had other methods of knowledge elicitation and/or data analysis been adopted in the present study, for example Porac & Thomas's (1987) within-subjects taxonomic mapping technique employed in my previous work (Hodgkinson & Johnson, 1987, in press), Reger's (1990a, 1990b) version of the repertory grid technique, or Calori *et al*'s (1992) semi-structured interview approach, perhaps a rather different picture would have emerged. Clearly this implies the need for further studies in which contrasting research tasks and analytical procedures are employed across a variety of industries in a comparative fashion. Only then can we be sure that the variations in consensus regarding the bases of competition and competitive positioning observed, hitherto, from

study-to-study, are substantive findings, not merely the effects of the particular cognitive mapping procedure(s) employed by the researcher(s).

A further potential limitation associated with the present study concerns the characteristics of the sample. Whilst the present sample is undoubtedly one of the largest, to date, within this particular topic area, both in terms of the number of individual research participants and the number of participating organisations, it is impossible to ascertain the extent to which this sample is representative of the industry as a whole. As explained in chapter 4, participating organisations were recruited on a self-selecting basis, usually via a telephone call to the most senior member of staff available (the contact person). The individual research participants were usually recruited internally by the contact person. Regrettably, within the resource constraints of the present study, it was not possible to devise a more rigorous sampling frame. Nevertheless this is clearly less than satisfactory, not least because it leaves open the possibility that the sample is biased in favour of successful organisations and/or individuals.

A closely related issue concerns the extent to which the geographical proximity within which the sample was encompassed is representative of the UK estate agency industry as a whole. Given the considerable variations in market conditions across the UK, it is debatable to what extent the findings can be generalised to other regions. Clearly it would have been desirable to extend the fieldwork into other areas of the UK, particularly those areas most badly affected by the present

recession in the housing market, namely, East Anglia, London and the South East of England, before attempting to derive firm conclusions relating to the industry in general.

Another factor to consider which may have influenced the present findings is the time interval between the T1 and T2 data collection periods. A twelve-to-eighteen month interval is a relatively short period within which changes can make their impact on the variables under investigation and the fact that no highly significant variation was observed from T1 - T2, in terms of the mental models of competitive space or the various contextual variables (other than a basic indicator of market buoyancy) may well be a reflection of this limitation in the timescale of the fieldwork. Had there been a longer time interval between the data collection periods, a rather different set of findings may well have emerged.

IMPLICATIONS FOR FUTURE RESEARCH

As in any newly developing field, the present study probably raises as many questions as it answers. Whilst providing compelling evidence for the existence of industry-level mental models of competition and insights concerning the role of such mental models in the decline of industries and markets, as we noted earlier, the present research needs to be extended into other industries, using a range of cognitive mapping techniques, before definitive conclusions can be derived either in favour or against competitive enactment theory.

As predicted on the basis of competitive enactment theory, little variation was observed in the mental models of competitive space from one organisational and functional subgroup to another, actors' cognitions were found to be stable over time - despite significant changes in market conditions - and significant correlations were observed between the logarithmically transformed source weight ratios (reflecting differences competitor cognition) on the one hand, and on the other hand, a number of self-reported measures of strategic behaviour and organisational performance. Whilst these findings greatly strengthen the empirical support for some of the basic elements of competitive enactment theory, a far more extensive database is required if we are to refine our understanding of the processes of market decline and rejuvenation.

The present study has tracked mental models of competition within a single industry, using one particular approach to cognitive mapping, over a 12 - 18 month period of time. However, as noted in the previous section, to what extent the findings regarding longitudinal stability reported in this thesis, are due directly to the methodology employed for eliciting and representing the cognitive structures, the characteristics of the particular industry studied and/or the time interval between data collection periods being too short for significant changes in mental models of competition to emerge, is problematic, within the confines of the present research design. Future studies should seek to extend the range of industries investigated and the methodologies employed for cognitive modelling, and vary the time

intervals between data collection periods, in order to tease out the confounding effects of these factors.

As we have seen, the estate agency industry is a mature industry - characterised by high levels of both intra-organisational and inter-organisational interdependency - which is passing through turbulent times. As we observed in chapter 3, these features rendered this industry an ideal context in which to address the substantive concerns of the present study. However, it is also apparent that this is a relatively simple industry in which limited demands are placed upon particular individuals, organisations and functional subgroups. Had the present study been undertaken in an industry characterised by greater complexity, a rather different set of outcomes may well have been observed to those reported here. If competitive enactment theory is to be tested to its limits, further studies are now needed which attempt to replicate the present findings in the context of other industries which have entered the later stages of their life-cycles, but which are characterised by greater complexity.

Furthermore, studies are now needed which investigate changing patterns of cognition and the differential impact of mental models of competitive space on strategy and performance, as organisations and industries pass through the various stages of their life-cycles. Alternatively, though somewhat less satisfactory, as noted in chapter 2, researchers could explore these issues using cross-sectional designs, in which organisations and industries of varying maturity levels are compared systematically on a case-by-case basis (Easton *et al*, 1993). If the

interpretation placed on the findings which have emerged from the present study is correct, we would expect to find that the results reported in this thesis are replicated in the context of other industries which have entered the later stages of their life-cycles. However, as noted earlier, in the case of newly emergent and growth industries a rather different scenario would be predicted. Here we would expect to find considerable variations in cognition from one organisation to another, with little evidence of longitudinal stability.

Whilst the present study investigated stability and change in cognitive structures at the levels of the individual and the industry, it is important that future studies should seek to extend these longitudinal comparisons to intermediate-levels of analysis. For example, it may be the case that in the event of market decline, particular types of organisation, or functional subgroups within organisations, experience differential rates of change in cognition which, in turn, directly or indirectly, influence the path to recovery for specific firms.

It is also desirable that future studies should extend the search for systematic cross-sectional differences in mental models of competition to the intra-organisational level of analysis. As we noted earlier, whilst the present study explored the extent to which mental models of competition vary across broadly defined functional subgroups, transcending particular organisations, unfortunately, due to limitations in the composition of the sample, it was not possible to carry out detailed comparisons within the various organisations (cf Calori et al, 1992; Daniels et al, 1993a, 1993b; Hodgkinson & Johnson, in press). In

short, whilst the present study has enabled the researcher to undertake various inter-functional and inter-organisational comparisons, in the search for systematic differences in cognition, even larger scale studies are now essential, if we are to perform the detailed fine-grained analyses which are necessary in order to gain meaningful insights, of the kind I have envisaged elsewhere, into processes of strategy development and change within organisations (Hodgkinson & Johnson, in press).

In essence, I am suggesting that the time has now come for researchers within this topic area to move forward into large-scale, multi-method, multi-level, longitudinal field studies, in which patterns of competitor cognition are identified and monitored systematically over varying time-periods, organisational and industry contexts, in order to tease out with much greater rigour than has been possible, hitherto, the role of mental models of competitive space in the evolution business strategies and the long-term decline and rejuvenation of mature businesses, industries and markets. This implies the need for collaboration amongst multi-disciplinary teams of researchers, rather than the more typical pattern of isolated cells from disparate institutions competing for scarce funds and methodological and theoretical supremacy. Clearly, the research councils and other sponsoring bodies, together with the various learned societies with a vested interest in fostering excellence in management research, have a significant role to play in this respect.

As noted earlier, given the numerous variables at the individual, organisational and industry-levels which may intervene between cognition

and strategic behaviour and organisational performance, such studies will require very large sample sizes indeed, both in terms of the number of individual research participants and the number of participating organisations, if we are to understand the multitude of cause and effect relationships which potentially influence and are influenced by mental models of competition.

However, if this highly ambitious research agenda is to be realised, we will have to engage in much greater levels of inter-disciplinary collaboration than has been the case, hitherto, and search for methodological procedures of much greater levels of sophistication than those adopted in the present study - ie if we are to attempt to model such cause-effect relationships with any degree of precision.

It is clearly evident that currently available techniques for analysing multivariate and multi-level cause and effect relationships are insufficiently developed for coping with databases of the order of complexity and sophistication being implied here. Fortunately, however, there have been a number of significant advances in data analysis in recent years which have laid a firm foundation for the development of appropriate techniques, and it is merely a matter of awaiting with interest for their introduction by the next generation of software manufacturers.

Two methodological procedures in particular which would seem to hold considerable promise as core building blocks in this respect, are Joreskog & Sorbom's (1989) LISREL technique (and related procedures such

as Bentler's (1984) EQS programme) for modeling multivariate causal models, and the more recently developed multi-level modelling techniques such as Goldstein's ML3 programme (Prosser, Rasbash & Goldstein, 1991a, 1991b).

Whilst these procedures have proven fruitful in the investigation of basic causal models in a range of social science disciplines and applications, unfortunately, neither technique, as presently configured, is particularly suitable for the investigation of the issues arising from the current research. Whilst LISREL and related techniques such as Bentler's (1984) EQS are perfectly adequate for the investigation of multivariate causal models involving single-level data, these procedures were not designed and should not be applied routinely to multi-level data-sets.

As noted by Cuttance (1987), the main problem associated with the analysis of multi-level data within the confines of existing causal modelling procedures, lies in their inability to handle the variance characteristics of such data. The principal danger associated with conventional linear modelling procedures, when applied to multi-level data-sets, in which lower-level units are clustered within higher-level units, is that the observations within the higher-level units (Eg organisation members within particular firms) are not independent of one another. Rather, the observations within clusters (in this case the various organisation members) will have some degree of variation in common for all organisation members within each firm, owing to the fact that the higher-level (in this case organisational) factors influence

the scores for all observations (organisation members). In short, observations on organisation members within particular firms are correlated (non-independence).

This non-independence has a number of statistical implications which have led various statisticians to develop the multi-level statistical model and associated computer software for handling such multi-level data-sets (see for example Aitkin & Longford, 1986; Goldstein, 1986; Raudenbush & Bryk, 1986) .

Within the UK, Goldstein and his associates have developed a general model which appears to hold considerable promise for the analysis of basic multi-level models, presently implemented in a computer programme known as ML3 (Prosser et al, 1991a, 1991b). As its name implies, this particular programme has been designed for the analysis of data-sets incorporating up to a maximum of three distinct levels. Future versions of the programme are presently being developed which will enable researchers to investigate data-sets incorporating up to five levels.

A major limitation associated with all currently available multi-level modelling programmes, however, is their inability to deal with multivariate data - ie latent variables and/or models with multiple dependent variables. All available procedures are presently restricted to the analysis of univariate data-sets, in which the major research question is framed in a manner amenable to analyses in the form of a multi-level analogue of conventional multiple regression. This

restriction clearly renders these procedures unsuitable for the investigation of the issues being raised here.

Fortunately, however, Goldstein and McDonald have recently extended the statistical theory of the multi-level model in order to accommodate multivariate data-sets, in effect combining the virtues of LISREL and current approaches to multi-level modelling within a single and comprehensive framework (Goldstein & McDonald, 1988; McDonald & Goldstein, 1989). Assuming that the necessary software will be forthcoming, this development is to be welcomed, not least because it will greatly extend our capacity to develop further our understanding of the role of competitor cognition in organisation, industry and market life-cycles. A plethora of multi-level cause and effect relationships must necessarily exist between individual and organisational cognition, and a wide range of individual and organisational variables which undoubtedly mediate the relationships between mental models of business environments, strategy development and organisational performance within particular organisations, industries and markets. Using these procedures, it should be possible to begin the task of disentangling these relationships, systematically, on a case-by-case basis across differing industry contexts.

CONCLUSION

Much of the recent research directed towards the study of competitor cognition has been concerned primarily with the development and evaluation of methodological procedures and theoretical frameworks for

the analysis of cognitive structures, with only limited attempts to advance our knowledge of strategic management through substantive investigations. However, as Sparrow (in press) observes, the time is now ripe for psychologists to examine strategic management and add empirical flesh to bones of the emerging paradigms within this rapidly expanding area. To the extent that the present study has contributed towards this endeavour, it has accomplished its primary objective.

APPENDIX 1

THE RESEARCH INSTRUMENTS

This appendix presents in full, the questionnaires completed by the research participants in the main study. As explained in chapter 4, the questions relating to organisational size, and the questions designed in order to extract basic biographical information and information relating to the respondents' employment histories were administered at T1 only. All the other items were administered on both occasions.

Please enter your:-

Name:

ID number:

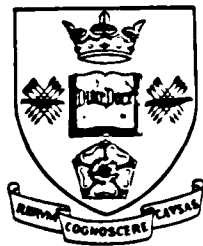
**UNIVERSITY OF SHEFFIELD STUDY OF COMPETITION
IN THE UK RESIDENTIAL ESTATE AGENCY INDUSTRY**

Competitor Analysis Questionnaire

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UNIVERSITY OF SHEFFIELD STUDY OF COMPETITION IN THE UK RESIDENTIAL
ESTATE AGENCY INDUSTRY: COMPETITOR ANALYSIS QUESTIONNAIRE

INTRODUCTION

This questionnaire is designed to enable us to map out your company's competitive environment. We are interested in YOUR OWN PERSONAL VIEW of those estate agents that you consider to be your competitors.

Please answer all the questions, giving frank responses. All data will be treated in the strictest confidence and coded to guarantee anonymity.

Do not spend too long on any given question. It is best to give your immediate reactions.

There are no right or wrong answers to any of the questions that follow. It is your opinions that matter.

Please ensure that you do not miss out any questions. Otherwise all your other responses will have to be treated as "unusable".

PART ONE

Listed overleaf are a series of titles to help you think about competition in the property business. Think about each title in turn, and write down the name of a competitor (ie company) that you personally believe can be described by that title. Use the loose leaf answer sheet inserted inside this questionnaire to record your answers.

YOU MAY ONLY LIST A GIVEN COMPANY ONCE. Please check carefully in order to ensure that you have not inadvertently listed the same company twice, under different headings. In many cases it may well be possible to describe the same company by a number of different titles. If this should occur, assign the company to the title you feel to be the most representative. **IT IS ESSENTIAL THAT YOU COMPLETE THIS LIST USING TWENTY DIFFERENT COMPANIES.**

Please ensure that you record your answers accurately in response to each title (ie ensure your answers recorded on the sheet correspond to the appropriate title). You can check that this is the case simply by matching the numbers on the sheet with the numbers on the list below. This step is crucial for analysing your responses later:

1. My Business (enter the name of your company)
2. My major competitor
3. A Solicitor Agent
4. An Estate Agent Owned by a Building Society
5. A Traditional Estate Agent
6. An Estate Agent Owned by an Insurance Company
7. An Estate Agent Offering a Professional Service
8. An Estate Agent with a Poor Reputation
9. An Estate Agent with Chartered Surveyor Status
10. An Estate Agent Specialising in Exclusive Property
11. An Estate Agent Specialising in Commercial & Industrial Property
12. An Estate Agent Specialising in Residential Property
13. A Secondary Competitor
14. An Estate Agent with a Good Reputation
15. A Diversified Estate Agent
16. An Independent Estate Agent
17. An Inferior Competitor
18. A very Successful Estate Agent
19. A Moderately Successful Estate Agent
20. An Unsuccessful Estate Agent

STRENGTH OF COMPETITION

In your experience and judgement, please rate the companies you have just listed in terms of how strongly they compete with your business, using the following rating scale (in each case circle one number):

	Do Not Compete At All With My Business	Compete Slightly With My Business	Compete With My Business	Compete Strongly With My Business	Compete Very Strongly With My Business
	1	2	3	4	5
1.			(not applicable)		
2.		1	2	3	4 5
3.		1	2	3	4 5
4.		1	2	3	4 5
5.		1	2	3	4 5
6.		1	2	3	4 5
7.		1	2	3	4 5
8.		1	2	3	4 5
9.		1	2	3	4 5
10.		1	2	3	4 5
11.		1	2	3	4 5
12.		1	2	3	4 5
13.		1	2	3	4 5
14.		1	2	3	4 5
15.		1	2	3	4 5
16.		1	2	3	4 5
17.		1	2	3	4 5
18.		1	2	3	4 5
19.		1	2	3	4 5
20.		1	2	3	4 5

SIMILARITY

In your experience and judgement, please rate the companies you have just listed in terms of their overall similarity to your business, using the following rating scale (in each case circle one number):

	Very Dissimilar To My Business	Moder- ately Dissimilar To My Business	Moder- ately Similar To My Business	Similar To My Business	Very Similay To My Business	
	1	2	3	4	5	
1.			(not applicable)			
2.		1	2	3	4	5
3.		1	2	3	4	5
4.		1	2	3	4	5
5.		1	2	3	4	5
6.		1	2	3	4	5
7.		1	2	3	4	5
8.		1	2	3	4	5
9.		1	2	3	4	5
10.		1	2	3	4	5
11.		1	2	3	4	5
12.		1	2	3	4	5
13.		1	2	3	4	5
14.		1	2	3	4	5
15.		1	2	3	4	5
16.		1	2	3	4	5
17.		1	2	3	4	5
18.		1	2	3	4	5
19.		1	2	3	4	5
20.		1	2	3	4	5

PART TWO

On the following pages are a series of rating scales. Please rate each of the firms you listed on the loose leaf answer sheet in part one, on each scale.

As you begin each new page, line up the answer sheet with the corresponding rating scales.

Indicate your responses by circling one number in each case.

Please ensure you do not leave any answers blank.

Try and avoid wild guessing. If you are really unsure of any answers select the mid-point on the scale.

P.T.O.

SERVICE TO VENDORS

	Very Poor						Very Good
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

QUALITY OF STAFF

	Very Poor						Very Good
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

SERVICE TO PURCHASERS

	Very Poor						Very Good
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

TRAINING OF STAFF

	Very Poor						Very Good
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

OPERATING PRACTICES

	Very Poor						Very Good
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

QUALITY OF ADVERTISING

	Very Poor						Very Good
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

PROFITABILITY

	Very Low						Very High
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

LOCATION OF BUSINESS PREMISES

	Very Poor						Very Good
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

SIZE OF BRANCH NETWORK

	Very Small						Very Large
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

RANGE OF SERVICES

	Very Narrow			Very Extensive			
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

GEOGRAPHICAL COVERAGE

	Very Narrow			Very Extensive			
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

SCALE OF CHARGES

	Very Low Priced				Very Expensive		
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

DEGREE OF PERSONAL ATTENTION

	Very Low						Very High
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

MARKET SHARE

	Very Small							Very Large	
1.	1	2	3	4	5	6	7		
2.	1	2	3	4	5	6	7		
3.	1	2	3	4	5	6	7		
4.	1	2	3	4	5	6	7		
5.	1	2	3	4	5	6	7		
6.	1	2	3	4	5	6	7		
7.	1	2	3	4	5	6	7		
8.	1	2	3	4	5	6	7		
9.	1	2	3	4	5	6	7		
10.	1	2	3	4	5	6	7		
11.	1	2	3	4	5	6	7		
12.	1	2	3	4	5	6	7		
13.	1	2	3	4	5	6	7		
14.	1	2	3	4	5	6	7		
15.	1	2	3	4	5	6	7		
16.	1	2	3	4	5	6	7		
17.	1	2	3	4	5	6	7		
18.	1	2	3	4	5	6	7		
19.	1	2	3	4	5	6	7		
20.	1	2	3	4	5	6	7		

MARKETING PROFILE

	Very Low						Very High
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

DEGREE OF LOCAL KNOWLEDGE

	Very Limited				Very Extensive		
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

STRATEGIC INFLUENCE/POWER

	Very Weak						Very Strong
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

AMOUNT OF ADVERTISING

	Very Limited			Very Extensive			
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

FINANCIAL RESOURCES

	Very Limited						Very Extensive	
1.	1	2	3	4	5	6	7	
2.	1	2	3	4	5	6	7	
3.	1	2	3	4	5	6	7	
4.	1	2	3	4	5	6	7	
5.	1	2	3	4	5	6	7	
6.	1	2	3	4	5	6	7	
7.	1	2	3	4	5	6	7	
8.	1	2	3	4	5	6	7	
9.	1	2	3	4	5	6	7	
10.	1	2	3	4	5	6	7	
11.	1	2	3	4	5	6	7	
12.	1	2	3	4	5	6	7	
13.	1	2	3	4	5	6	7	
14.	1	2	3	4	5	6	7	
15.	1	2	3	4	5	6	7	
16.	1	2	3	4	5	6	7	
17.	1	2	3	4	5	6	7	
18.	1	2	3	4	5	6	7	
19.	1	2	3	4	5	6	7	
20.	1	2	3	4	5	6	7	

LINKS WITH FINANCIAL SERVICES COMPANIES

	Very Limited				Very Extensive		
	1	2	3	4	5	6	7
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

TYPICAL RANGE OF PROPERTIES ON SALE

	Very Poor						Very Good
1.	1	2	3	4	5	6	7
2.	1	2	3	4	5	6	7
3.	1	2	3	4	5	6	7
4.	1	2	3	4	5	6	7
5.	1	2	3	4	5	6	7
6.	1	2	3	4	5	6	7
7.	1	2	3	4	5	6	7
8.	1	2	3	4	5	6	7
9.	1	2	3	4	5	6	7
10.	1	2	3	4	5	6	7
11.	1	2	3	4	5	6	7
12.	1	2	3	4	5	6	7
13.	1	2	3	4	5	6	7
14.	1	2	3	4	5	6	7
15.	1	2	3	4	5	6	7
16.	1	2	3	4	5	6	7
17.	1	2	3	4	5	6	7
18.	1	2	3	4	5	6	7
19.	1	2	3	4	5	6	7
20.	1	2	3	4	5	6	7

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE. PLEASE ENSURE THAT YOU HAVE NOT LEFT ANY PAGES OR INDIVIDUAL ANSWERS BLANK AS THIS WILL RENDER YOUR OTHER RESPONSES "UNUSABLE".

Name:

ID number:

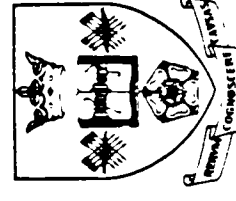
**UNIVERSITY OF SHEFFIELD STUDY OF COMPETITION
IN THE UK RESIDENTIAL ESTATE AGENCY INDUSTRY**

**Environmental Scanning & Scanning Mode Scales and
Strategic Locus of Control & Biographical Questionnaires**

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ENVIRONMENTAL SCANNING SCALE (ESS)

We need to know something of the extent to which managers spend time learning about factors of potential significance to their companies. The following questions are designed to assess the extent to which you spend time learning about the activities of your competitors.

Please indicate by circling the appropriate response how often you undertake the activities listed overleaf:-

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How frequently do you?

	<u>Never</u>	<u>Six</u> <u>Monthly</u> <u>or less</u>	<u>About</u> <u>Once</u> <u>Every</u> <u>Three</u> <u>Months</u>	<u>About</u> <u>Once a</u> <u>Month</u>	<u>About</u> <u>Once a</u> <u>Fort-</u> <u>night</u>	<u>About</u> <u>Once a</u> <u>Week</u>	<u>Several</u> <u>Times</u> <u>a Week</u>
1 Read trade journals/ newspapers/magazines.	1	2	3	4	5	6	7
2 Attend tradeshow and exhibitions.	1	2	3	4	5	6	7
3 Discuss the market situation with customers/ clients or other knowledgeable third parties.	1	2	3	4	5	6	7
4 Read research reports that contain information relevant to your business.	1	2	3	4	5	6	7
5 Listen to radio programmes that have a bearing on your business.	1	2	3	4	5	6	7
6 Watch TV programmes that have a bearing on your business.	1	2	3	4	5	6	7

	<u>Never</u>	<u>Six Monthly or less</u>	<u>About Once Every Three Months</u>	<u>About Once a Month</u>	<u>About Once a Fort-night</u>	<u>About Once a Week</u>	<u>Several Times a Week</u>
7							
	1	2	3	4	5	6	7
	Take part in staff meetings to share information concerning competitors.						
8							
	1	2	3	4	5	6	7
	Scan the press for relevant information about the market.						
9							
	1	2	3	4	5	6	7
	Read company reports and other official literature produced by competitors.						
10							
	1	2	3	4	5	6	7
	Hold formal or informal meetings with competitors at which the state of the market/business is discussed.						

<u>None At All</u>	<u>One or Two Friends/ Contacts</u>	<u>A small Number of Friends/ Contacts</u>	<u>A Moderate Number of Friends/ Contacts</u>	<u>A Fair Number of Friends/ Contacts</u>	<u>A Large Number of Friends/ Contacts</u>	<u>A Very Large Number of Friends/ Contacts</u>
(0)	(1-2)	(3-5)	(6-8)	(9-12)	(13-20)	(over 20)

11 How many personal contacts/friends in other businesses do you have who are knowledgeable about the state of the market?

<u>Never</u>	<u>Six Monthly or less</u>	<u>About Once Every Three Months</u>	<u>About Once a Month</u>	<u>About Once a Fort-night</u>	<u>About Once a Week</u>	<u>Several Times a Week</u>
1	2	3	4	5	6	7

12 How frequently do you use contacts/friends in other businesses in order to discuss the state of the market?

<u>Not At All</u>	<u>Very Limited Records</u>	<u>Limited Records</u>	<u>Moderately Limited Records</u>	<u>Moderately Extensive Records</u>	<u>Extensive Records</u>	<u>Very Extensive Records</u>
1	2	3	4	5	6	7

13 To what extent do you keep systematic records regarding your competitors' activities?

SCANNING MODE SCALE (SMS)

The following questions are designed in order to assess why you seek information about the business environment. Please indicate your answer to each question by circling the appropriate number.

- | | | | | | | | | |
|--|---|---|---|---|---|---|---|--|
| <p>1. Whenever I discuss the market situation with customers or clients, I am usually seeking information that will enable my company to protect its existing markets.</p> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | <p>Whenever I discuss the market situation with customers or clients, I am usually on the lookout for new market opportunities that my company can exploit.</p> |
| <p>2. If I discover important changes are taking place in the market, I use this information primarily in order to defend my company against their impact.</p> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | <p>If I discover important changes are taking place in the market, I use this information primarily in order to develop new ways of obtaining competitive advantage.</p> |
| <p>3. When I learn of a new innovation in my industry, I typically regard this as a threat rather than an opportunity to be grasped.</p> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | <p>When I learn of a new innovation in my industry, I typically regard this as an opportunity to be grasped rather than a threat.</p> |
| <p>4. The main reason I compare my company to my competitors, is in order to identify weaknesses in my business that must be protected.</p> | 1 | 2 | 3 | 4 | 5 | 6 | 7 | <p>The main reason I compare my company to my competitors, is in order to develop new strengths.</p> |

STRATEGIC LOCUS OF CONTROL QUESTIONNAIRE

Please read these instructions

Please indicate the extent to which you agree or disagree with each of the following statements using the rating scale provided. Indicate your response by circling the appropriate number.

In answering the questions please try and be as discerning and honest as you can. Do not give an answer merely because it seems the right thing to say or it is how you might like to be.

Whilst there is no time limit, you should aim to work as quickly as possible rather than pondering at length over any one question.

Try and avoid the mid-point ("unsure") as much as possible.

Finally, please ensure that you answer all the questions.

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	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Unsure</u>	<u>Agree</u>	<u>Strongly Agree</u>
1 There is very little my company can do in order to change the "rules of competition" in our industry.	1	2	3	4	5
2 Many of the problems experienced by businesses can be avoided through careful planning and analysis.	1	2	3	4	5
3 To a great extent the competitive environment in which my company operates is shaped by forces beyond its control.	1	2	3	4	5
4 Becoming a successful company is a matter of creating opportunities, luck has little or nothing to do with it.	1	2	3	4	5
5 There is little point in the majority of companies taking an active interest in the wider concerns of their industry because only the larger more powerful companies have any real influence.	1	2	3	4	5
6 It is not always wise to make strategic plans far ahead because many things may turn out to be a matter of good or bad fortune anyhow.	1	2	3	4	5
7 My company can pretty much accomplish whatever it sets out to achieve.	1	2	3	4	5
8 Most companies can have an influence in shaping the structure of the market.	1	2	3	4	5

	<u>Strongly Disagree</u>	<u>Disagree</u>	<u>Unsure</u>	<u>Agree</u>	<u>Strongly Agree</u>
9 As regards competing in the market place, most companies are the victims of forces they cannot control.	1	2	3	4	5
10 There is little point in engaging in detailed strategic analyses and planning because often events occur that my company cannot control.	1	2	3	4	5
11 Usually companies fail because they have not taken advantage of their opportunities.	1	2	3	4	5
12 My company is able to influence the basis upon which it competes with other firms.	1	2	3	4	5
13 Businesses who rarely experience strategic problems are just plain lucky.	1	2	3	4	5
14 There is a direct connection between the interest you take in your competitors' businesses and the success of your own company.	1	2	3	4	5
15 My company has a direct role in shaping the environment in which it competes.	1	2	3	4	5
16 Market opportunities in my industry are largely pre-determined by factors beyond my company's control.	1	2	3	4	5

BIOGRAPHICAL QUESTIONNAIRE (BQ)

This questionnaire is designed to obtain basic background information thought to be useful to the study.

All data will be coded to guarantee anonymity and confidentiality, so please try to be as frank as possible in your answers.

Please ensure that you complete all the questions.

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Please give your:-

1. Name:.....
2. Job Title:.....
3. Company:
4. Location (town/city).....
5. Sex:..... 6. Age:.....Years
7. How many different companies have you worked for?
 - a) within the property market.....
 - b) within related markets (eg insurance companies, finance houses, building societies etc)
 - c) outside the property/related markets.....
8. How long have you been with your present employer?.....years.....months
9. How long have you been working in the property market and related fields?
.....years.....months

10. Which of the following functions have you worked in?
(circle as applicable):

- Land Surveying.....01 Valuations.....09
- Minerals Surveying.....02 Management of Property.....10
- Quantity Surveying.....03 Agency/Marketing.....11
- Planning & Development Surveying.....04 Sales Negotiation.....12
- Building Surveying.....05 Personnel/Training.....13
- Land Agency & Agricultural Surveying...06 Computing.....14
- General Practice Surveying.....07 Financial Advice (insurance, mortgages etc)...15
- Estates Management Surveying.....08 Others.....16

11. Please indicate your main functions at the present time.
(Choose from the above list in question 10.)

.....

12. How long have you been in these functions? (Please specify...years...months.)

13. Which of the following regions have you worked in within the property market & related fields? (please circle as appropriate)

- Northern Ireland.....01 North East England.....11
- Republic of Ireland.....02 North West England.....12
- South East England.....03 North Wales.....13
- South West England.....04 South Wales.....14
- Greater London.....05 Northern England.....15
- Home Counties.....06 Southern England.....16
- East Midlands.....07 Northern Scotland.....17
- West Midlands.....08 Southern Scotland.....18
- East Anglia.....09 Overseas.....19
- Yorkshire & Humberside.....10

14. Education: Please select the description which fits your education best (circle as appropriate):

- a) No post-secondary education.....01
- b) College of Further Education/Technical College.....02
- c) Polytechnic/University/College of Higher Education:
 - 1. Vocationally Relevant Degree Course03
 - 2. Non-vocationally Relevant Degree Course.....04
 - 3. Non-degree Course.....05
- d) Other (please specify).....06

15. Please estimate the approximate total number of days you have spent receiving formal training throughout your career within the property market and related fields (include short courses attended on a local or in-house basis eg RICS training events, company based courses etc, in addition to professional qualifications):
.....

Please enter your:-

Name:

ID number:

**UNIVERSITY OF SHEFFIELD STUDY OF COMPETITION
IN THE UK RESIDENTIAL ESTATE AGENCY INDUSTRY**

**Organisational Characteristics Questionnaire and Environmental,
Characteristics, Strategy Making & Organisational Performance Scales**

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ORGANISATIONAL CHARACTERISTICS QUESTIONNAIRE

SECTION ONE - GENERAL STRUCTURE

The following questions are designed to assess, in general terms, the size and structural characteristics of your organisation. Please indicate your response, in each case, by circling the appropriate number.

1. FORMAL SCANNING

Rate the extent to which the following scanning devices are used by your firm to gather information about its environment:

	Not ever used				Used extremely frequently			
Routine gathering of opinions from clients.	1	2	3	4	5	6	7	
Explicit tracking of the policies & tactics of competitors.	1	2	3	4	5	6	7	
Forecasting sales, customer preferences, technology etc.	1	2	3	4	5	6	7	
Special market research studies.	1	2	3	4	5	6	7	

2. TECHNOCRATISATION

In decision making, there is great reliance on personnel with general experience & common sense.

1 2 3 4 5 6 7

In decision making, there is great reliance on specialised, technically trained line & staff personnel.

In your operations, what is the required level of formal technical competence of your first line supervisors?

No training beyond at most secondary school.

1 2 3 4 5 6 7

A minimum of a bachelor's degree with specialisation.

Varies considerably by functional area

The firm employs very few professionals such as surveyors & accountants.

1 2 3 4 5 6 7

The firm employs many professionals such as surveyors & accountants.

3. DIFFERENTIATION

How many distinctly different (ie unrelated) product lines or services does your firm market?

Only one 1 2 3 4 5 6 7 More than ten

How similar are these product lines or services in terms of (1) the technology used to produce them and (2) their markets?

Technology (including office systems)

Very similar technologies (eg all produced with similar equipment).

1 2 3 4 5 6 7

Very dissimilar (eg customised production for one, mass production for another).

Markets

Very similar in terms of required marketing strategy, types of, customers, pricing, etc (eg one product, one market).

1 2 3 4 5 6 7

Very dissimilar markets in terms of required marketing strategy.

4. Please state the approximate number of employees working for your organisation - ie property & related services. (Include all staff from top management to the bottom level, counting full-time staff as 1, part-time staff as 0.5.):

(write in space) _____

5. Please state the number of levels in your organisation - ie property & related services. (Count all levels from the most senior member of staff to the most junior.):

6. What is your level? (count top as 1 etc):

7. Please state the approximate total number of branches of your organisation in the UK:

8. Which of the following regions are covered by your organisation? (circle those regions in which your company has one or more branches):

Northern Ireland.....01	North East England.....11
Republic of Ireland.....02	North West England.....12
South East England.....03	North Wales.....13
South West England.....04	South Wales.....14
Greater London.....05	Northern England.....15
Home Counties.....06	Southern England.....16
East Midlands.....07	Northern Scotland.....17
West Midlands.....08	Southern Scotland.....18
East Anglia.....09	Overseas.....18
Yorkshire & Humberside....10	

SECTION TWO - REGION SPECIFIC

The following questions are designed to assess the structure of your organisation in this region:

1. What region is your branch office in? (use the list above and indicate your response by inserting the appropriate number):

2. Please state how many branches your company has in this region:

3. Please state how many people (approximately) your company employs in this region - ie property & related services. (Include all levels, counting full-time staff as 1, part-time staff as 0.5):

SECTION THREE - BRANCH SPECIFIC

The following question relates specifically to this particular branch of your organisation:

1. Please state the approximate number of employees at this branch - ie property & related services. (Include all levels, counting full-time staff as 1, part-time staff as 0.5.):

ENVIRONMENTAL CHARACTERISTICS SCALES

Please answer the following questions to describe your company's position in the residential estate agency industry. Indicate your answer by circling the one number on each scale that best approximates current actual conditions.

1. To what extent is the local property market buoyant at the present time?

Very Depressed	Depressed	Moder- ately Depressed	Moder- ately Buoyant	Buoyant	Very Buoyant
1	2	3	4	5	6

2. MARKET DIVERSITY

There is little variation in the products/services offered by my competitors.	1	2	3	4	5	6	7	The products/services offered by my competitors are highly varied.
---	---	---	---	---	---	---	---	--

The firms competing with my business employ very similar tactics to one another.	1	2	3	4	5	6	7	The firms competing with my business employ very different tactics to one another.
--	---	---	---	---	---	---	---	--

Customers in my industry have very similar needs to one another.	1	2	3	4	5	6	7	Customers in my industry have very different needs to one another.
--	---	---	---	---	---	---	---	--

Competitors in my industry adopt a very similar approach to business.	1	2	3	4	5	6	7	Competitors in my industry adopt very many different approaches to business.
---	---	---	---	---	---	---	---	--

The market activities of my competitors affect my firm in few ways.	1	2	3	4	5	6	7	The market activities of my competitors affect my firm in many ways.
---	---	---	---	---	---	---	---	--

Customers' buying habits are about the same for all our services.	1	2	3	4	5	6	7	Customers' buying habits vary a great deal from one line to another.
---	---	---	---	---	---	---	---	--

The nature of the competition is about the same for all our services.

1 2 3 4 5 6 7

The nature of the competition varies a great deal from one line to another.

The required methods of service are about the same for all our lines.

1 2 3 4 5 6 7

The required methods of service vary a great deal from one line to another.

3. DYNAMISM

In my industry firms seldom have to change their marketing practices to keep up with the market and competitors.

1 2 3 4 5 6 7

Firms often have to change their marketing practices to keep up with the market and competitors.

Companies in my industry seldom offer new products or services.

1 2 3 4 5 6 7

Companies in my industry frequently offer new products or services.

Competitors enter the industry very rarely.

1 2 3 4 5 6 7

Competitors enter the industry very often.

The rate at which firms leave the industry is very low.

1 2 3 4 5 6 7

The rate at which firms leave the industry is very high.

Competitors very seldom change the way in which they are organised and operate.

1 2 3 4 5 6 7

Competitors very often change the way in which they are organised and operate.

Staff turnover in this industry is low.

1 2 3 4 5 6 7

Staff turnover in this industry is high.

Market changes rarely require companies in this business to change their competitive strategy.

1 2 3 4 5 6 7

Market changes frequently require companies to change their competitive strategy.

4. Complexity

It is easy to understand the factors that determine the state of the market in my industry.

1 2 3 4 5 6 7

It is very difficult to understand the factors that determine the state of the market in my industry.

Companies need very little specialist knowledge in order to compete in my industry.

1 2 3 4 5 6 7

Companies need a great amount of specialist knowledge in order to compete in my industry.

It is very easy to anticipate how competitors will react to changes in the state of the market.

1 2 3 4 5 6 7

It is very difficult to anticipate how competitors will react to changes in the state of the market.

Relatively few factors determine my company's performance in the market place.

1 2 3 4 5 6 7

Many factors determine my company's performance in the market place.

There are very few alternative strategies that businesses can adopt in order to succeed in this industry.

1 2 3 4 5 6 7

There are many alternative strategies that businesses can adopt in order to succeed in this industry.

The downswings and upswings in this industry are very easy to predict.

1 2 3 4 5 6 7

The downswings and upswings in this industry are very hard to predict.

5. HOSTILITY

The competitive climate in this industry is relatively friendly.	1	2	3	4	5	6	7	The competitive climate in this industry is "cut-throat".
In general competitors have enough business to remain viable in this industry at the present time.	1	2	3	4	5	6	7	At the present time companies are having to compete very strongly against one another in order to survive.
Relationships between competitors in this industry are generally warm at the moment.	1	2	3	4	5	6	7	Relationships between competitors in this industry are generally hostile at the moment.
Companies don't have to compete against one another to secure good staff.	1	2	3	4	5	6	7	Companies have to compete intensively against one another to secure good staff.
There are very few firms actively seeking to put their competitors out of business in this industry.	1	2	3	4	5	6	7	There are many firms actively seeking to put their competitors out of business in this industry.
Companies in this industry generally try to co-operate with one another.	1	2	3	4	5	6	7	Companies in this industry generally try to damage each others' interests.

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STRATEGY MAKING SCALES

We want you to think about the business strategies adopted by your particular part of your company (ie branch/office). Please answer the following questions by circling one number, in each case.

1. INNOVATION

Our production/service methods have changed very substantially over the last 5 years.

1 2 3 4 5 6 7

Our production/service methods have remained essentially the same.

There is a strong emphasis on the marketing of true & tried products or services.

1 2 3 4 5 6 7

There exists a very strong emphasis on R&D, technological leadership, and innovations.

How many new lines of products or services has your firm marketed in the past 5 years? Please exclude mere minor variations.

No new lines of products or services in the past 5 years.

1 2 3 4 5 6 7

Very many new lines of products or services in the past 5 years.

Changes in product or service lines have been mostly of a minor nature.

1 2 3 4 5 6 7

Changes in product or service lines have usually been dramatic.

2. RISK TAKING

Our firm has a strong tendency to low risk projects.

1 2 3 4 5 6 7

Our firm has a strong tendency towards high risk projects.

Our firm finds it best to explore strategic options gradually via cautious incremental behaviour.

1 2 3 4 5 6 7

Our firm finds it best to take bold wide ranging actions.

3. PROACTIVENESS

Our firm has a strong tendency to follow the leader (competitors) by imitating their new things or ideas.

1 2 3 4 5 6 7

Our firm always tries to keep ahead of competitors by introducing new things or ideas.

We favour the tried and true.

1 2 3 4 5 6 7

We are growth, innovation, and development oriented.

4. FUTURITY

Most of our decisions are aimed at resolving crises.

1 2 3 4 5 6 7

Most of our decisions are aimed at exploiting new opportunities in the environment.

In this firm, there is an emphasis on the immediate future in making management decisions.

1 2 3 4 5 6 7

In this firm, there is an emphasis on long term (over 5 years) goals and strategies.

To what extent are the following activities carried out?

Very rarely

Very frequently

Long term forecasting of sales, profits and the nature of markets.

1 2 3 4 5 6 7

Long term forecasting of the technology relevant to products and services offered by firms.

1 2 3 4 5 6 7

Planning of long term investments.

1 2 3 4 5 6 7

ORGANISATIONAL PERFORMANCE SCALES

We want you to think about how effective your particular part of your company is (ie you branch/office), compared to THE MAIN EXTERNAL COMPETITORS FOR YOUR PRODUCTS OR SERVICES. Please answer the following questions thinking of your branch or office in relation to your main external competitors. Indicate your answers by circling one number for each question, using the following scale:

	Very Much Weaker	1	2	A Little Weaker	3	No Different	4	A Little Stronger	5	Stronger	6	Very Much Stronger	7	Don't know	8
1. WEALTH															
Resources & assets															
Profitability															
Value of technology															
Investment															
2. MARKETS															
Sources of materials supply															
Market share															
Diversity of markets															
Access to needed staff															
3. ADAPTABILITY															
Ability to develop new products/services															
Flexibility & adaptability of operations															
Versatility & skills of current staff															
Versatility of current technology															
Versatility of administrative & management systems															

4. CLIMATE

Warmth & friendliness of working atmosphere	1	2	3	4	5	6	7	8
Harmony, integration & team work	1	2	3	4	5	6	7	8
Staff job & career satisfaction	1	2	3	4	5	6	7	8
Staff commitment to the company	1	2	3	4	5	6	7	8

Please tell us how you rate the PROSPECTS FOR FUTURE GROWTH in the NEXT YEAR in your particular part of your company (ie branch/ office), using the following scale:

	Major decline	Moderate decline	Slight decline	No Change	Slight growth	Moderate growth	Major growth		
	1	2	3	4	5	6	7		
Market share			1	2	3	4	5	6	7
Profits			1	2	3	4	5	6	7
Capital investment			1	2	3	4	5	6	7
Staff levels			1	2	3	4	5	6	7

APPENDIX 2

DEVELOPMENT & VALIDATION OF THE STRATEGIC LOCUS OF CONTROL SCALE

This appendix describes in greater detail the development of the Strategic Locus of Control Scale and presents further evidence concerning its reliability and construct validity. This scale was created from an initial item pool comprising a total of 36 questions derived from a conceptual analysis of the locus of control construct as it relates to the strategic management field.

The questions comprising the initial item pool were balanced in terms of the extent to which they were intended to reflect locus of control beliefs about the strategic management of organisations in general and the strategic management of the respondents' own particular firms. The rationale for this design of the item pool follows directly from an analysis of Rotter's (1966) original conception of the construct.

The I-E Scale contains several items of a personal nature (Eg I have often found that what is going to happen will happen"; "When I make plans, I am almost certain that I can make them work".) Other items within the scale, however, are of a more general nature (Eg "Most students don't realise the extent to which their grades are influenced by accidental happenings"; "In the long run the people are responsible for bad government on a national as well as on a local level".)

Given that the aim was to develop a domain-specific scale reflecting, as closely as possible, the underlying rationale of the original concept of

locus of control as conceived by Rotter, it was deemed appropriate to develop a set of items which were balanced, in terms of their content, between statements relating to Strategic Locus of Control beliefs about organisations in general and belief statements pertaining to the respondents' own particular organisation. The items were also balanced with respect to the number of internally and externally worded items. Respondents were required to indicate the extent to which they agree with statements on a five-point Likert Scale ranging from 1 ("strongly disagree"), through 3 ("unsure") to 5 ("strongly agree"). As explained in chapter 4, internally worded items were reverse-scored in order to render the scoring system compatible with the Rotter I-E and Work Locus of Control scales.

Four criteria were employed in order to select items for inclusion in the the final scale, namely, acceptable item-total correlations, lack of correlation with social desirability, and that the scale should be balanced with respect to the number of general and specific items on the one hand, and, on the other, internally and externally worded items, thus following the rationale adopted in the design of the initial item pool, as discussed above. As noted in chapter 4, a sixteen item scale emerged from the application of these criteria.

METHOD

Participants

The necessary empirical work undertaken in connection with the development of this scale was carried out in the late spring of 1989,

prior to the commencement of the field work associated with the main study. A total of 100 personnel, mainly owner-managers of small businesses within the locality of Sheffield University Management School, of whom 94 returned usable questionnaires, took part in the research on an unpaid voluntary basis.

RESEARCH INSTRUMENTS

Strategic Locus of Control

The complete pool of 36 items pertaining to the concept of strategic locus of control was administered to this sample, with a view to devising a final scale with up to one third fewer items following a reliability and validity analysis of the complete set of items.

General I-E and Work Locus of Control

General I-E and Work Locus of Control were assessed using the Rotter I-E scale (Rotter, 1966) and Spector's (1988) Work Locus of Control scales, respectively. These measures were incorporated in this phase of the study in order to assess the convergent validity of the Strategic Locus of Control Scale. It was predicted that the Strategic, Work and Rotter I-E locus of control scales would all be positively inter-correlated with one another, but that the Strategic Locus of Control Scale would be more strongly related to the Work Locus of Control Scale than the Rotter scale.

Social Desirability

Social desirability was assessed using the Crowne & Marlowe (1964) social desirability scale. Following Spector's work (Spector, 1982, 1988), it was predicted that the Marlowe-Crowne social desirability scale would correlate negatively with the Rotter I-E scale, but not with the Work Locus of Control Scale. As explained previously, items selected for inclusion in the final version of the Strategic Locus of Control Scale, were selected in part on the basis that they did not correlate significantly with responses to this scale.

PROCEDURE

Each of the research participants were approached on a face-to-face basis by the researcher who explained that the purpose of the study was to develop a high quality questionnaire for inclusion in a wider investigation. The participants were asked to complete the questionnaires for personal collection by the researcher within a week-to-ten days. In view of the obvious degree of conceptual overlap between the various locus of control scales, the order in which the various instruments were presented was randomised, so as to minimise the possibility of order effects.

RESULTS & DISCUSSION

The means, standard deviations, and reliability coefficients, together with the scale inter-correlations are presented in table A2.1. The corrected item-total correlations for the Strategic Locus of Control Scale associated with the present sample (sample 1), together with the

Table A2.1. Means, standard deviations, reliability coefficients and scale inter-correlations for the various scales (decimal points omitted).

SCALE	N	MEAN	SD	ALPHA	SCALE INTER-CORRELATIONS		
					1.	2.	3.
1. Strategic locus of control ^a	94	2.68	0.53	0.82			
2. Work locus of control ^a	93	2.69	0.69	0.83	43**		
3. General I-E	91	11.65	4.31	-	34**	42**	
4. Social desirability	93	14.37	5.00	-	08	-15	-26*

* P < 0.01, ** P < 0.001, (1-tailed).

^a The scores for these scales were computed by averaging across the items for each respondent.

corrected item-total correlations associated with the sample of research participants employed in the main study at T1 (sample 2), are shown in table A2.2.

Both the Strategic Locus of Control Scale and the Work Locus of Control Scale were found to have good reliabilities, with alpha coefficients of 0.82 and 0.83, respectively. The data indicate that the Strategic Locus of Control Scale demonstrates acceptable convergent validity with respect to the Rotter I-E and Work locus of control scales. As expected, the Strategic Locus of Control Scale Shows significant positive correlations with the Rotter and Work Locus of control scales and a very low and non-significant correlation with the Marlowe-Crowne

Table A2.2. Corrected item-total correlations for the Strategic Locus of Control Scale (continued overleaf).

ITEM *	CORRECTED ITEM-TOTAL CORRELATIONS **	
	Sample 1 (N=94)	Sample 2 (N=208)
1 There is very little my company can do in order to change the "rules of competition" in our industry.	0.63	0.52
2 Many of the problems experienced by businesses can be avoided through careful planning and analysis.	0.34	0.35
3 To a great extent the competitive environment in which my company operates is shaped by forces beyond its control.	0.43	0.41
4 Becoming a successful company is a matter of creating opportunities, luck has little or nothing to do with it.	0.26	0.27
5 There is little point in the majority of companies taking an active interest in the wider concerns of their industry because only the larger more powerful companies have any real influence.	0.46	0.29
6 It is not always wise to make strategic plans far ahead because many things may turn out to be a matter of good or bad fortune anyhow.	0.51	0.36
7 My company can pretty much accomplish whatever it sets out to achieve.	0.45	0.27
8 Most companies can have an influence in shaping the structure of the market.	0.22	0.42
9 As regards competing in the market place, most companies are the victims of forces they cannot control.	0.42	0.53

Table A2.2 - continued.

ITEM *	CORRECTED ITEM-TOTAL CORRELATIONS **	
	Sample 1 (N=94)	Sample 2 (N=208)
10 There is little point in engaging in detailed strategic analyses and planning because often events occur that my company cannot control.	0.49	0.38
11 Usually companies fail because they have not taken advantage of their opportunities.	0.42	0.36
12 My company is able to influence the basis upon which it competes with other firms.	0.42	0.36
13 Businesses who rarely experience strategic problems are just plain lucky.	0.42	0.15
14 There is a direct connection between the interest you take in your competitors' businesses and the success of your own company.	0.35	0.30
15 My company has a direct role in shaping the environment in which it competes.	0.34	0.45
16 Market opportunities in my industry are largely pre-determined by factors beyond my company's control.	0.53	0.48

* Items 2, 4, 7, 8, 11, 12, 14 & 15 are reversed scored.

** This is the correlation between each item's score and the scale scores computed from the other items in the set.

social desirability scale. The Rotter I-E scale, by contrast, correlated significantly with the Marlowe-Crowne scale ($r=-0.26$, $df=89$, $P < 0.01$), thus suggesting that the previous studies which have investigated locus of control and strategy as outlined in chapter 4, may

well be confounded by a lack of control for social desirability response set. Given the overall pattern of these results, together with the findings reported in chapter 4, it would appear that the Strategic Locus of Control Scale is sufficiently reliable and valid, for use in future strategic management studies.

APPENDIX 3

MDS SOLUTIONS FOR THE VARIOUS ORGANISATIONAL SUBGROUPS

The following tables report the basic two-dimensional MDS solutions associated with the various organisational subgroups, as discussed in Chapter 6. For each subgroup, in turn, the stimulus coordinates are presented, followed by the dimension weights (see also figure 6.1 and table 6.2 in chapter 6).

Table A3.1(a). Stimulus coordinates associated with the two-dimensional MDS representation of respondents' aggregated perceptions of competitors in organisation WB (N = 13; stress = 0.291; RSQ = 0.674).

STIMULUS	DIMENSION	
	1	2
My Business	1.73	2.72
My Major Competitor	1.74	0.54
A Solicitor Agent	-0.94	-0.52
An Estate Agent Owned by a Building Society	0.86	-0.31
A Traditional Estate Agent	-0.90	-0.12
An Estate Agent Owned by an Insurance Company	1.37	-0.71
An Agent Offering a Professional Service	-0.41	0.99
An Agent with a Poor Reputation	-1.12	-1.42
An Agent with Chartered Surveyor Status	-1.14	-0.12
An Agent Specialising in Exclusive Property	0.21	0.84
An Agent Specialising in Commercial/Industrial Property	0.56	0.02
An Agent Specialising in Residential Property	0.49	-0.47
A Secondary Competitor	0.62	-0.36
An Agent with a Good Reputation	0.24	0.76
A Diversified Estate Agent	-0.55	0.19
An Independent Estate Agent	-0.84	-0.19
An Inferior Competitor	-1.17	-1.59
A very Successful Estate Agent	0.60	1.32
A Moderately Successful Estate Agent	0.39	-0.03
An Unsuccessful Estate Agent	-1.74	-1.55

Table A3.1(b). Dimension weights for organisation WB (N=13).

Attribute	Dimension	
	1	2
Service to vendors	0.35	0.84
Quality of staff	0.32	0.82
Service to purchasers	0.33	0.78
Training of staff	0.45	0.75
Operating practices	0.32	0.85
Quality of advertising	0.67	0.49
Profitability	0.42	0.76
Location of business premises	0.53	0.53
Size of branch network	0.81	0.14
Range of services	0.46	0.57
Geographical coverage	0.78	0.11
Scale of charges	0.71	0.21
Degree of personal attention	0.24	0.83
Market share	0.72	0.46
Marketing profile	0.78	0.30
Degree of local knowledge	0.41	0.53
Strategic influence/power	0.63	0.58
Amount of advertising	0.74	0.23
Financial resources	0.87	0.00
Links with financial services companies	0.66	0.13
Typical range of properties on sale	0.70	0.43

Table A3.2(a). Stimulus coordinates associated with the two-dimensional MDS representation of respondents' aggregated perceptions of competitors in organisation BH (N = 19; stress = 0.286; RSQ = 0.682).

STIMULUS	DIMENSION	
	1	2
My Business	1.80	2.08
My Major Competitor	1.14	1.60
A Solicitor Agent	-0.29	-1.11
An Estate Agent Owned by a Building Society	0.45	1.44
A Traditional Estate Agent	-0.33	-1.22
An Estate Agent Owned by an Insurance Company	-0.56	1.74
An Agent Offering a Professional Service	0.21	-0.51
An Agent with a Poor Reputation	-2.03	-0.75
An Agent with Chartered Surveyor Status	0.53	-0.61
An Agent Specialising in Exclusive Property	1.03	0.18
An Agent Specialising in Commercial/Industrial Property	0.99	-0.62
An Agent Specialising in Residential Property	-0.14	0.58
A Secondary Competitor	-0.69	0.03
An Agent with a Good Reputation	0.83	0.06
A Diversified Estate Agent	0.06	-0.07
An Independent Estate Agent	0.06	-1.08
An Inferior Competitor	-1.26	-0.62
A very Successful Estate Agent	0.79	0.14
A Moderately Successful Estate Agent	-0.28	0.08
An Unsuccessful Estate Agent	-2.23	-1.34

Table A3.2(b). Dimension weights for organisation BH (N=19).

Attribute	Dimension	
	1	2
Service to vendors	0.08	0.86
Quality of staff	0.01	0.94
Service to purchasers	0.14	0.84
Training of staff	0.55	0.66
Operating practices	0.14	0.85
Quality of advertising	0.27	0.79
Profitability	0.16	0.81
Location of business premises	0.35	0.69
Size of branch network	0.92	0.01
Range of services	0.61	0.45
Geographical coverage	0.90	0.14
Scale of charges	0.32	0.59
Degree of personal attention	0.09	0.88
Market share	0.67	0.40
Marketing profile	0.73	0.40
Degree of local knowledge	0.23	0.62
Strategic influence/power	0.75	0.45
Amount of advertising	0.58	0.55
Financial resources	0.77	0.24
Links with financial services companies	0.77	0.22
Typical range of properties on sale	0.51	0.54

Table A3.3(a). Stimulus coordinates associated with the two-dimensional MDS representation of respondents' aggregated perceptions of competitors in organisation LB (N = 17; stress = 0.288; RSQ = 0.683).

STIMULUS	DIMENSION	
	1	2
My Business	2.72	0.80
My Major Competitor	0.91	1.54
A Solicitor Agent	-0.40	-0.89
An Estate Agent Owned by a Building Society	0.70	2.06
A Traditional Estate Agent	0.12	-0.92
An Estate Agent Owned by an Insurance Company	-0.54	1.87
An Agent Offering a Professional Service	0.34	-0.88
An Agent with a Poor Reputation	-1.53	0.64
An Agent with Chartered Surveyor Status	-0.24	-1.19
An Agent Specialising in Exclusive Property	1.24	0.19
An Agent Specialising in Commercial/Industrial Property	0.89	0.02
An Agent Specialising in Residential Property	-0.99	-0.69
A Secondary Competitor	-0.85	0.23
An Agent with a Good Reputation	0.29	-0.52
A Diversified Estate Agent	-0.06	-0.79
An Independent Estate Agent	-0.15	-0.53
An Inferior Competitor	-0.92	-0.68
A very Successful Estate Agent	0.61	1.08
A Moderately Successful Estate Agent	-0.47	-0.07
An Unsuccessful Estate Agent	-1.65	-1.29

Table A3.3(b) Dimension weights for organisation LB (N=17).

Attribute	Dimension	
	1	2
Service to vendors	0.10	0.90
Quality of staff	0.11	0.92
Service to purchasers	0.24	0.88
Training of staff	0.46	0.74
Operating practices	0.04	0.87
Quality of advertising	0.41	0.69
Profitability	0.33	0.69
Location of business premises	0.45	0.69
Size of branch network	0.89	0.16
Range of services	0.54	0.29
Geographical coverage	0.87	0.00
Scale of charges	0.48	0.27
Degree of personal attention	0.04	0.91
Market share	0.46	0.64
Marketing profile	0.77	0.35
Degree of local knowledge	0.35	0.71
Strategic influence/power	0.59	0.56
Amount of advertising	0.69	0.45
Financial resources	0.87	0.00
Links with financial services companies	0.86	0.05
Typical range of properties on sale	0.49	0.53

Table A3.4(a). Stimulus coordinates associated with the two-dimensional MDS representation of respondents' aggregated perceptions of competitors in organisation GS (N = 20; stress = 0.285; RSQ = 0.629).

STIMULUS	DIMENSION	
	1	2
My Business	-1.86	-1.20
My Major Competitor	-1.78	-1.03
A Solicitor Agent	0.76	1.31
An Estate Agent Owned by a Building Society	-1.24	-0.21
A Traditional Estate Agent	0.94	-0.52
An Estate Agent Owned by an Insurance Company	-1.67	0.81
An Agent Offering a Professional Service	0.55	-1.03
An Agent with a Poor Reputation	1.68	1.44
An Agent with Chartered Surveyor Status	0.76	-0.51
An Agent Specialising in Exclusive Property	0.06	-1.15
An Agent Specialising in Commercial/Industrial Property	0.82	-0.74
An Agent Specialising in Residential Property	-0.21	0.73
A Secondary Competitor	-0.68	0.58
An Agent with a Good Reputation	0.08	-1.07
A Diversified Estate Agent	-0.11	-0.20
An Independent Estate Agent	1.11	0.61
An Inferior Competitor	1.08	1.20
A very Successful Estate Agent	-0.70	-1.31
A Moderately Successful Estate Agent	-0.05	0.32
An Unsuccessful Estate Agent	1.46	1.97

Table A3.4(b). Dimension weights for organisation GS (N=20).

Attribute	Dimension	
	1	2
Service to vendors	0.35	0.81
Quality of staff	0.26	0.86
Service to purchasers	0.40	0.76
Training of staff	0.64	0.42
Operating practices	0.25	0.85
Quality of advertising	0.45	0.55
Profitability	0.12	0.81
Location of business premises	0.60	0.33
Size of branch network	0.89	0.02
Range of services	0.66	0.38
Geographical coverage	0.86	0.09
Scale of charges	0.30	0.47
Degree of personal attention	0.24	0.73
Market share	0.75	0.22
Marketing profile	0.76	0.21
Degree of local knowledge	0.37	0.51
Strategic influence/power	0.81	0.28
Amount of advertising	0.42	0.35
Financial resources	0.89	0.11
Links with financial services companies	0.88	0.00
Typical range of properties on sale	0.65	0.39

Table A3.5(a). Stimulus coordinates associated with the two-dimensional MDS representation of respondents' aggregated perceptions of competitors in organisation PS (N = 39; stress = 0.236; RSQ = 0.830).

STIMULUS	DIMENSION	
	1	2
My Business	3.29	1.26
My Major Competitor	0.99	1.99
A Solicitor Agent	-0.33	-0.93
An Estate Agent Owned by a Building Society	0.66	1.64
A Traditional Estate Agent	-0.17	-0.35
An Estate Agent Owned by an Insurance Company	0.51	1.25
An Agent Offering a Professional Service	0.43	0.45
An Agent with a Poor Reputation	-1.19	-0.21
An Agent with Chartered Surveyor Status	-0.35	-0.51
An Agent Specialising in Exclusive Property	0.92	0.54
An Agent Specialising in Commercial/Industrial Property	-0.05	-0.59
An Agent Specialising in Residential Property	-0.46	-0.26
A Secondary Competitor	-0.23	0.35
An Agent with a Good Reputation	0.34	0.13
A Diversified Estate Agent	-0.51	-0.73
An Independent Estate Agent	-0.76	-1.25
An Inferior Competitor	-1.23	-1.51
A very Successful Estate Agent	0.01	0.82
A Moderately Successful Estate Agent	-0.54	-0.45
An Unsuccessful Estate Agent	-1.33	-1.62

Table A3.5(b). Dimension weights for organisation PS (N=39).

Attribute	Dimension	
	1	2
Service to vendors	0.96	0.00
Quality of staff	0.95	0.01
Service to purchasers	0.95	0.00
Training of staff	0.94	0.10
Operating practices	0.97	0.04
Quality of advertising	0.68	0.62
Profitability	0.23	0.82
Location of business premises	0.29	0.74
Size of branch network	0.40	0.80
Range of services	0.69	0.65
Geographical coverage	0.69	0.54
Scale of charges	0.83	0.41
Degree of personal attention	0.94	0.00
Market share	0.14	0.89
Marketing profile	0.65	0.64
Degree of local knowledge	0.70	0.47
Strategic influence/power	0.48	0.80
Amount of advertising	0.24	0.90
Financial resources	0.51	0.75
Links with financial services companies	0.49	0.74
Typical range of properties on sale	0.32	0.80

Table A3.6(a). Stimulus coordinates associated with the two-dimensional MDS representation of respondents' aggregated perceptions of competitors from the low performing small firms (N = 26 individuals from N = 19 organisations; stress = 0.307; RSQ = 0.666).

STIMULUS	DIMENSION	
	1	2
My Business	0.88	-1.96
My Major Competitor	-1.15	-1.09
A Solicitor Agent	0.37	-0.06
An Estate Agent Owned by a Building Society	-1.97	0.09
A Traditional Estate Agent	-0.08	-0.39
An Estate Agent Owned by an Insurance Company	-1.79	0.21
An Agent Offering a Professional Service	-0.62	-0.76
An Agent with a Poor Reputation	-0.12	2.16
An Agent with Chartered Surveyor Status	0.75	-0.60
An Agent Specialising in Exclusive Property	-0.47	-0.15
An Agent Specialising in Commercial/Industrial Property	0.68	-0.64
An Agent Specialising in Residential Property	0.14	0.70
A Secondary Competitor	0.39	-0.06
An Agent with a Good Reputation	0.53	-0.72
A Diversified Estate Agent	-0.39	-0.04
An Independent Estate Agent	0.88	-0.10
An Inferior Competitor	1.12	1.68
A very Successful Estate Agent	-1.32	-0.44
A Moderately Successful Estate Agent	0.01	0.01
An Unsuccessful Estate Agent	2.16	2.17

Table A3.6(b). Dimension weights for the low performing small firms (N = 26 individuals from N = 19 organisations).

Attribute	Dimension	
	1	2
Service to vendors	0.07	0.95
Quality of staff	0.04	0.90
Service to purchasers	0.09	0.94
Training of staff	0.30	0.83
Operating practices	0.13	0.92
Quality of advertising	0.50	0.63
Profitability	0.44	0.70
Location of business premises	0.51	0.47
Size of branch network	0.79	0.06
Range of services	0.55	0.52
Geographical coverage	0.79	0.03
Scale of charges	0.55	0.37
Degree of personal attention	0.22	0.84
Market share	0.76	0.20
Marketing profile	0.84	0.06
Degree of local knowledge	0.17	0.71
Strategic influence/power	0.80	0.15
Amount of advertising	0.71	0.20
Financial resources	0.85	0.11
Links with financial services companies	0.81	0.04
Typical range of properties on sale	0.58	0.30

Table A3.7(a). Stimulus coordinates associated with the two-dimensional MDS representation of respondents' aggregated perceptions of competitors from the medium performing small firms (N = 20 individuals from N = 19 organisations; stress = 0.301; RSQ = 0.597).

STIMULUS	DIMENSION	
	1	2
My Business	-0.41	1.85
My Major Competitor	1.58	-0.10
A Solicitor Agent	-1.02	-0.90
An Estate Agent Owned by a Building Society	1.96	0.04
A Traditional Estate Agent	-0.61	0.01
An Estate Agent Owned by an Insurance Company	1.65	-0.18
An Agent Offering a Professional Service	0.11	1.13
An Agent with a Poor Reputation	-0.54	-2.02
An Agent with Chartered Surveyor Status	-0.87	0.12
An Agent Specialising in Exclusive Property	-0.14	1.07
An Agent Specialising in Commercial/Industrial Property	-0.34	1.04
An Agent Specialising in Residential Property	0.60	-0.38
A Secondary Competitor	-0.33	-0.88
An Agent with a Good Reputation	0.47	1.51
A Diversified Estate Agent	-0.16	0.48
An Independent Estate Agent	-0.72	0.33
An Inferior Competitor	-1.25	-1.27
A very Successful Estate Agent	1.46	0.13
A Moderately Successful Estate Agent	0.33	-0.30
An Unsuccessful Estate Agent	-1.76	-1.69

Table A3.7(b). Dimension weights for the medium performing small firms (N = 20 individuals from N = 19 organisations).

Attribute	Dimension	
	1	2
Service to vendors	0.11	0.88
Quality of staff	0.22	0.76
Service to purchasers	0.28	0.73
Training of staff	0.57	0.49
Operating practices	0.14	0.83
Quality of advertising	0.50	0.45
Profitability	0.44	0.47
Location of business premises	0.53	0.48
Size of branch network	0.89	0.03
Range of services	0.49	0.48
Geographical coverage	0.80	0.15
Scale of charges	0.48	0.41
Degree of personal attention	0.14	0.79
Market share	0.80	0.16
Marketing profile	0.83	0.16
Degree of local knowledge	0.44	0.45
Strategic influence/power	0.84	0.15
Amount of advertising	0.79	0.17
Financial resources	0.84	0.15
Links with financial services companies	0.73	0.20
Typical range of properties on sale	0.65	0.28

Table A3.8(a). Stimulus coordinates associated with the two-dimensional MDS representation of respondents' aggregated perceptions of competitors from the high performing small firms (N = 65 individuals from N = 12 organisations; stress = 0.250; RSQ =745).

STIMULUS	DIMENSION	
	1	2
My Business	1.08	2.10
My Major Competitor	1.77	0.82
A Solicitor Agent	-0.76	-0.84
An Estate Agent Owned by a Building Society	1.95	0.28
A Traditional Estate Agent	-0.82	0.35
An Estate Agent Owned by an Insurance Company	1.86	-0.61
An Agent Offering a Professional Service	-0.66	0.62
An Agent with a Poor Reputation	-0.05	-1.73
An Agent with Chartered Surveyor Status	-0.92	0.30
An Agent Specialising in Exclusive Property	0.29	1.07
An Agent Specialising in Commercial/Industrial Property	-0.28	0.98
An Agent Specialising in Residential Property	-0.12	-0.61
A Secondary Competitor	0.18	-0.75
An Agent with a Good Reputation	-0.37	0.65
A Diversified Estate Agent	-0.53	0.24
An Independent Estate Agent	-0.93	-0.23
An Inferior Competitor	-1.02	-1.21
A very Successful Estate Agent	0.95	0.93
A Moderately Successful Estate Agent	-0.05	-0.31
An Unsuccessful Estate Agent	-1.56	-2.04

Table A3.8(b). Dimension weights for the high performing small firms (N = 65 individuals from N = 12 organisations).

Attribute	Dimension	
	1	2
Service to vendors	0.13	0.93
Quality of staff	0.10	0.95
Service to purchasers	0.25	0.91
Training of staff	0.54	0.70
Operating practices	0.08	0.94
Quality of advertising	0.51	0.66
Profitability	0.29	0.79
Location of business premises	0.47	0.63
Size of branch network	0.92	0.02
Range of services	0.54	0.61
Geographical coverage	0.88	0.00
Scale of charges	0.48	0.41
Degree of personal attention	0.18	0.88
Market share	0.66	0.44
Marketing profile	0.91	0.13
Degree of local knowledge	0.33	0.67
Strategic influence/power	0.82	0.36
Amount of advertising	0.82	0.24
Financial resources	0.87	0.10
Links with financial services companies	0.90	0.02
Typical range of properties on sale	0.64	0.48

APPENDIX 4

MDS SOLUTIONS FOR THE VARIOUS FUNCTIONAL SUBGROUPS

The following tables report the basic two-dimensional MDS solutions associated with the various functional subgroups, as discussed in chapter 6. As in the previous appendix, for each subgroup, in turn, the stimulus coordinates are presented, followed by the dimension weights.

Table A4.1(a). Stimulus coordinates associated with the two-dimensional MDS representation of the area managers' aggregated perceptions of competitors (N = 23; stress = 0.262; RSQ = 0.696).

STIMULUS	DIMENSION	
	1	2
My Business	-1.63	-1.94
My Major Competitor	-1.74	-0.82
A Solicitor Agent	0.82	1.20
An Estate Agent Owned by a Building Society	-1.57	-0.11
A Traditional Estate Agent	0.56	-0.25
An Estate Agent Owned by an Insurance Company	-1.49	0.84
An Agent Offering a Professional Service	0.68	-0.77
An Agent with a Poor Reputation	0.95	1.76
An Agent with Chartered Surveyor Status	0.94	-0.52
An Agent Specialising in Exclusive Property	-0.25	-1.19
An Agent Specialising in Commercial/Industrial Property	0.57	-1.06
An Agent Specialising in Residential Property	-0.01	0.75
A Secondary Competitor	0.54	0.61
An Agent with a Good Reputation	-0.17	-0.78
A Diversified Estate Agent	-0.58	0.15
An Independent Estate Agent	0.97	0.08
An Inferior Competitor	1.05	1.24
A very Successful Estate Agent	-1.11	-0.99
A Moderately Successful Estate Agent	0.02	0.12
An Unsuccessful Estate Agent	1.45	1.66

Table A4.1(b). Dimension weights for the area managers' (N=23).

Attribute	Dimension	
	1	2
Service to vendors	0.29	0.83
Quality of staff	0.28	0.86
Service to purchasers	0.36	0.80
Training of staff	0.71	0.48
Operating practices	0.26	0.87
Quality of advertising	0.65	0.51
Profitability	0.25	0.80
Location of business premises	0.67	0.41
Size of branch network	0.90	0.01
Range of services	0.63	0.49
Geographical coverage	0.82	0.12
Scale of charges	0.45	0.48
Degree of personal attention	0.15	0.77
Market share	0.77	0.24
Marketing profile	0.87	0.12
Degree of local knowledge	0.41	0.55
Strategic influence/power	0.81	0.34
Amount of advertising	0.77	0.21
Financial resources	0.87	0.10
Links with financial services companies	0.89	0.08
Typical range of properties on sale	0.76	0.34

Table A4.2(a). Stimulus coordinates associated with the two-dimensional MDS representation of the branch managers' aggregated perceptions of competitors (N = 62; stress = 0.242; RSQ = 0.799).

STIMULUS	DIMENSION	
	1	2
My Business	-1.98	-2.53
My Major Competitor	-1.92	-0.79
A Solicitor Agent	0.78	0.54
An Estate Agent Owned by a Building Society	-1.57	-0.20
A Traditional Estate Agent	0.80	-0.05
An Estate Agent Owned by an Insurance Company	-1.46	0.55
An Agent Offering a Professional Service	0.08	-0.77
An Agent with a Poor Reputation	0.38	1.63
An Agent with Chartered Surveyor Status	0.82	-0.19
An Agent Specialising in Exclusive Property	-0.10	-1.00
An Agent Specialising in Commercial/Industrial Property	0.31	-0.58
An Agent Specialising in Residential Property	-0.07	0.39
A Secondary Competitor	-0.27	0.30
An Agent with a Good Reputation	0.16	-0.77
A Diversified Estate Agent	0.51	0.08
An Independent Estate Agent	1.04	0.48
An Inferior Competitor	1.12	1.39
A very Successful Estate Agent	-0.57	-0.76
A Moderately Successful Estate Agent	0.38	0.28
An Unsuccessful Estate Agent	1.55	2.01

Table A4.2(b). Dimension weights for the branch managers (N=62).

Attribute	Dimension	
	1	2
Service to vendors	0.18	0.93
Quality of staff	0.23	0.91
Service to purchasers	0.21	0.90
Training of staff	0.65	0.65
Operating practices	0.25	0.90
Quality of advertising	0.44	0.73
Profitability	0.34	0.78
Location of business premises	0.71	0.47
Size of branch network	0.94	0.00
Range of services	0.76	0.41
Geographical coverage	0.93	0.00
Scale of charges	0.68	0.43
Degree of personal attention	0.31	0.87
Market share	0.86	0.06
Marketing profile	0.93	0.06
Degree of local knowledge	0.51	0.63
Strategic influence/power	0.92	0.17
Amount of advertising	0.85	0.14
Financial resources	0.94	0.04
Links with financial services companies	0.91	0.07
Typical range of properties on sale	0.76	0.31

Table A4.3(a). Stimulus coordinates associated with the two-dimensional MDS representation of the partners' aggregated perceptions of competitors (N = 32; stress = 0.289; RSQ = 0.669).

STIMULUS	DIMENSION	
	1	2
My Business	0.04	-1.97
My Major Competitor	-1.52	-1.05
A Solicitor Agent	0.68	0.66
An Estate Agent Owned by a Building Society	-2.11	0.03
A Traditional Estate Agent	0.81	-0.10
An Estate Agent Owned by an Insurance Company	-1.90	0.43
An Agent Offering a Professional Service	0.30	-0.44
An Agent with a Poor Reputation	-0.15	2.02
An Agent with Chartered Surveyor Status	0.75	-0.23
An Agent Specialising in Exclusive Property	-0.53	-0.97
An Agent Specialising in Commercial/Industrial Property	-0.26	-1.17
An Agent Specialising in Residential Property	-0.38	0.44
A Secondary Competitor	-0.06	0.41
An Agent with a Good Reputation	0.54	-0.74
A Diversified Estate Agent	0.94	-0.11
An Independent Estate Agent	0.67	0.04
An Inferior Competitor	0.97	1.55
A very Successful Estate Agent	-1.00	-0.97
A Moderately Successful Estate Agent	0.28	0.30
An Unsuccessful Estate Agent	1.92	1.85

Table A4.3(b). Dimension weights for the partners (N=32).

Attribute	Dimension	
	1	2
Service to vendors	0.08	0.91
Quality of staff	0.05	0.90
Service to purchasers	0.16	0.87
Training of staff	0.44	0.75
Operating practices	0.09	0.88
Quality of advertising	0.46	0.64
Profitability	0.30	0.77
Location of business premises	0.45	0.50
Size of branch network	0.88	0.00
Range of services	0.49	0.59
Geographical coverage	0.86	0.00
Scale of charges	0.47	0.44
Degree of personal attention	0.09	0.85
Market share	0.67	0.34
Marketing profile	0.80	0.22
Degree of local knowledge	0.31	0.61
Strategic influence/power	0.83	0.24
Amount of advertising	0.74	0.25
Financial resources	0.86	0.07
Links with financial services companies	0.80	0.08
Typical range of properties on sale	0.65	0.41

Table A4.4(a). Stimulus coordinates associated with the two-dimensional MDS representation of the negotiators' aggregated perceptions of competitors (N = 26; stress = 0.251; RSQ = 0.795).

STIMULUS	DIMENSION	
	1	2
My Business	2.84	1.54
My Major Competitor	1.00	1.60
A Solicitor Agent	-0.25	-0.72
An Estate Agent Owned by a Building Society	0.78	2.04
A Traditional Estate Agent	-0.18	-1.00
An Estate Agent Owned by an Insurance Company	0.26	1.48
An Agent Offering a Professional Service	0.16	-0.32
An Agent with a Poor Reputation	-1.53	-0.49
An Agent with Chartered Surveyor Status	-0.31	-0.57
An Agent Specialising in Exclusive Property	1.09	0.26
An Agent Specialising in Commercial/Industrial Property	0.08	-0.66
An Agent Specialising in Residential Property	-0.42	-0.16
A Secondary Competitor	-0.46	0.68
An Agent with a Good Reputation	0.34	-0.06
A Diversified Estate Agent	-0.16	-0.60
An Independent Estate Agent	-0.37	-1.18
An Inferior Competitor	-1.32	-1.12
A very Successful Estate Agent	0.79	0.75
A Moderately Successful Estate Agent	-0.54	-0.18
An Unsuccessful Estate Agent	-1.80	-1.40

Table A4.4(b). Dimension weights for the negotiators (N=26).

Attribute	Dimension	
	1	2
Service to vendors	0.93	0.08
Quality of staff	0.93	0.05
Service to purchasers	0.90	0.03
Training of staff	0.87	0.24
Operating practices	0.89	0.16
Quality of advertising	0.82	0.39
Profitability	0.53	0.67
Location of business premises	0.57	0.55
Size of branch network	0.27	0.88
Range of services	0.64	0.61
Geographical coverage	0.38	0.81
Scale of charges	0.83	0.24
Degree of personal attention	0.92	0.00
Market share	0.35	0.82
Marketing profile	0.39	0.85
Degree of local knowledge	0.76	0.28
Strategic influence/power	0.53	0.75
Amount of advertising	0.46	0.75
Financial resources	0.34	0.87
Links with financial services companies	0.25	0.83
Typical range of properties on sale	0.59	0.63

Table A4.5(a). Stimulus coordinates associated with the two-dimensional MDS representation of the valuers' aggregated perceptions of competitors (N = 19; stress = 0.269; RSQ = 0.722).

STIMULUS	DIMENSION	
	1	2
My Business	2.50	0.71
My Major Competitor	1.03	1.49
A Solicitor Agent	-0.40	-0.61
An Estate Agent Owned by a Building Society	0.88	2.30
A Traditional Estate Agent	0.40	-0.51
An Estate Agent Owned by an Insurance Company	0.20	1.84
An Agent Offering a Professional Service	0.58	-0.06
An Agent with a Poor Reputation	-1.64	0.53
An Agent with Chartered Surveyor Status	-0.32	-1.04
An Agent Specialising in Exclusive Property	1.02	0.17
An Agent Specialising in Commercial/Industrial Property	0.41	0.21
An Agent Specialising in Residential Property	-0.74	-0.71
A Secondary Competitor	-0.86	0.34
An Agent with a Good Reputation	0.42	-0.76
A Diversified Estate Agent	0.02	-0.64
An Independent Estate Agent	-0.31	-1.09
An Inferior Competitor	-1.27	-0.92
A very Successful Estate Agent	0.53	0.72
A Moderately Successful Estate Agent	-0.60	-0.53
An Unsuccessful Estate Agent	-1.84	-1.45

Table A4.5(b). Dimension weights for the valuers (N=19).

Attribute	Dimension	
	1	2
Service to vendors	0.90	0.04
Quality of staff	0.92	0.00
Service to purchasers	0.90	0.12
Training of staff	0.82	0.32
Operating practices	0.86	0.00
Quality of advertising	0.68	0.46
Profitability	0.80	0.23
Location of business premises	0.77	0.33
Size of branch network	0.37	0.79
Range of services	0.63	0.47
Geographical coverage	0.23	0.82
Scale of charges	0.35	0.58
Degree of personal attention	0.91	0.00
Market share	0.72	0.38
Marketing profile	0.50	0.72
Degree of local knowledge	0.74	0.24
Strategic influence/power	0.71	0.48
Amount of advertising	0.61	0.64
Financial resources	0.27	0.83
Links with financial services companies	0.39	0.78
Typical range of properties on sale	0.61	0.48

Table A4.6(a). Stimulus coordinates associated with the two-dimensional MDS representation of the sole principals' aggregated perceptions of competitors (N = 18; stress = 0.296; RSQ = 0.686).

STIMULUS	DIMENSION	
	1	2
My Business	0.89	-1.90
My Major Competitor	-1.45	-0.20
A Solicitor Agent	0.56	0.47
An Estate Agent Owned by a Building Society	-2.05	0.12
A Traditional Estate Agent	-0.20	-0.83
An Estate Agent Owned by an Insurance Company	-1.53	0.21
An Agent Offering a Professional Service	-0.12	-0.91
An Agent with a Poor Reputation	0.31	2.13
An Agent with Chartered Surveyor Status	0.56	-0.41
An Agent Specialising in Exclusive Property	-0.81	-0.69
An Agent Specialising in Commercial/Industrial Property	0.39	-0.94
An Agent Specialising in Residential Property	-0.11	0.30
A Secondary Competitor	0.80	0.46
An Agent with a Good Reputation	0.42	-0.84
A Diversified Estate Agent	-0.08	-0.31
An Independent Estate Agent	0.85	-0.20
An Inferior Competitor	1.24	1.44
A very Successful Estate Agent	-1.36	-0.14
A Moderately Successful Estate Agent	-0.29	-0.05
An Unsuccessful Estate Agent	1.98	2.29

Table A4.6(b). Dimension weights for the sole principals (N=18).

Attribute	Dimension	
	1	2
Service to vendors	0.09	0.91
Quality of staff	0.16	0.90
Service to purchasers	0.15	0.86
Training of staff	0.56	0.56
Operating practices	0.08	0.93
Quality of advertising	0.54	0.57
Profitability	0.54	0.60
Location of business premises	0.53	0.54
Size of branch network	0.85	0.00
Range of services	0.55	0.48
Geographical coverage	0.77	0.02
Scale of charges	0.55	0.30
Degree of personal attention	0.29	0.81
Market share	0.84	0.10
Marketing profile	0.91	0.07
Degree of local knowledge	0.20	0.72
Strategic influence/power	0.89	0.00
Amount of advertising	0.87	0.11
Financial resources	0.84	0.13
Links with financial services companies	0.81	0.01
Typical range of properties on sale	0.71	0.24

Table A4.7(a). Stimulus coordinates associated with the two-dimensional MDS representation of aggregated perceptions of competitors for the miscellaneous functional subgroup (N = 26; stress = 0.250; RSQ = 0.741).

STIMULUS	DIMENSION	
	1	2
My Business	2.51	1.02
My Major Competitor	1.16	1.74
A Solicitor Agent	-0.47	-0.97
An Estate Agent Owned by a Building Society	0.04	1.85
A Traditional Estate Agent	0.02	-0.71
An Estate Agent Owned by an Insurance Company	-0.33	1.76
An Agent Offering a Professional Service	0.80	-0.69
An Agent with a Poor Reputation	-1.60	-0.35
An Agent with Chartered Surveyor Status	0.11	-1.08
An Agent Specialising in Exclusive Property	0.97	-0.06
An Agent Specialising in Commercial/Industrial Property	0.59	-0.77
An Agent Specialising in Residential Property	-0.37	0.06
A Secondary Competitor	-0.27	0.56
An Agent with a Good Reputation	0.67	0.17
A Diversified Estate Agent	-0.38	-0.56
An Independent Estate Agent	-0.01	-0.96
An Inferior Competitor	-1.50	-0.95
A very Successful Estate Agent	0.43	1.05
A Moderately Successful Estate Agent	-0.30	0.29
An Unsuccessful Estate Agent	-2.05	-1.39

Table A4.7(b). Dimension weights for the miscellaneous functional subgroup (N = 26).

Attribute	Dimension	
	1	2
Service to vendors	0.90	0.12
Quality of staff	0.90	0.13
Service to purchasers	0.88	0.22
Training of staff	0.79	0.44
Operating practices	0.90	0.18
Quality of advertising	0.74	0.43
Profitability	0.59	0.43
Location of business premises	0.71	0.40
Size of branch network	0.21	0.89
Range of services	0.58	0.62
Geographical coverage	0.17	0.88
Scale of charges	0.49	0.52
Degree of personal attention	0.84	0.18
Market share	0.48	0.74
Marketing profile	0.45	0.76
Degree of local knowledge	0.76	0.32
Strategic influence/power	0.52	0.69
Amount of advertising	0.34	0.80
Financial resources	0.16	0.83
Links with financial services companies	0.21	0.87
Typical range of properties on sale	0.40	0.69

APPENDIX 5

MDS SOLUTIONS FOR THE LONGITUDINAL COMPARISONS

The following tables report the basic two-dimensional MDS solutions associated with the various longitudinal comparisons, as discussed in chapter 7. As in appendices 3 and 4, for each subgroup, in turn, the stimulus coordinates are presented, followed by the dimension weights.

Table A5.1(a). Stimulus coordinates associated with the two-dimensional MDS representation of the T2 returners' aggregated perceptions of competitors assessed at T1 (N = 114; stress = 0.220; RSQ = 0.827).

STIMULUS	DIMENSION	
	1	2
My Business	1.52	2.30
My Major Competitor	1.77	0.98
A Solicitor Agent	-0.76	-0.63
An Estate Agent Owned by a Building Society	1.88	0.26
A Traditional Estate Agent	-0.75	0.08
An Estate Agent Owned by an Insurance Company	1.74	-0.37
An Agent Offering a Professional Service	-0.53	0.54
An Agent with a Poor Reputation	-0.63	-1.80
An Agent with Chartered Surveyor Status	-0.80	0.08
An Agent Specialising in Exclusive Property	0.29	1.01
An Agent Specialising in Commercial/Industrial Property	-0.41	0.74
An Agent Specialising in Residential Property	0.10	-0.36
A Secondary Competitor	-0.03	-0.57
An Agent with a Good Reputation	-0.17	0.73
A Diversified Estate Agent	-0.36	0.10
An Independent Estate Agent	-0.90	-0.24
An Inferior Competitor	-0.95	-1.46
A very Successful Estate Agent	0.81	0.84
A Moderately Successful Estate Agent	-0.15	-0.19
An Unsuccessful Estate Agent	-1.65	-2.03

Table A5.1(b). Dimension weights for the T2 returners assessed at T1 (N = 114).

Attribute	Dimension	
	1	2
Service to vendors	0.11	0.96
Quality of staff	0.10	0.96
Service to purchasers	0.17	0.94
Training of staff	0.55	0.74
Operating practices	0.14	0.94
Quality of advertising	0.50	0.75
Profitability	0.29	0.85
Location of business premises	0.51	0.70
Size of branch network	0.94	0.00
Range of services	0.73	0.51
Geographical coverage	0.92	0.00
Scale of charges	0.52	0.60
Degree of personal attention	0.10	0.93
Market share	0.81	0.30
Marketing profile	0.94	0.17
Degree of local knowledge	0.31	0.76
Strategic influence/power	0.89	0.30
Amount of advertising	0.88	0.27
Financial resources	0.92	0.14
Links with financial services companies	0.94	0.07
Typical range of properties on sale	0.70	0.44

Table A5.2(a). Stimulus coordinates associated with the two-dimensional MDS representation of the non-returners' aggregated perceptions of competitors assessed at T1 (N = 92; stress = 0.228; RSQ = 0.818).

STIMULUS	DIMENSION	
	1	2
My Business	-1.50	-2.76
My Major Competitor	-1.75	-0.80
A Solicitor Agent	0.73	0.40
An Estate Agent Owned by a Building Society	-1.90	-0.11
A Traditional Estate Agent	0.56	-0.28
An Estate Agent Owned by an Insurance Company	-1.53	0.39
An Agent Offering a Professional Service	-0.16	-0.70
An Agent with a Poor Reputation	0.24	1.80
An Agent with Chartered Surveyor Status	0.79	-0.13
An Agent Specialising in Exclusive Property	-0.30	-0.90
An Agent Specialising in Commercial/Industrial Property	0.42	-0.64
An Agent Specialising in Residential Property	0.41	0.45
A Secondary Competitor	-0.05	0.13
An Agent with a Good Reputation	0.15	-0.61
A Diversified Estate Agent	0.64	0.16
An Independent Estate Agent	0.98	0.36
An Inferior Competitor	1.26	1.31
A very Successful Estate Agent	-0.97	-0.45
A Moderately Successful Estate Agent	0.34	0.48
An Unsuccessful Estate Agent	1.64	1.87

Table A5.2(b). Dimension weights for the non-returners assessed at T1
(N = 92).

Attribute	Dimension	
	1	2
Service to vendors	0.14	0.94
Quality of staff	0.18	0.93
Service to purchasers	0.25	0.91
Training of staff	0.54	0.77
Operating practices	0.16	0.95
Quality of advertising	0.64	0.59
Profitability	0.61	0.60
Location of business premises	0.71	0.52
Size of branch network	0.94	0.00
Range of services	0.70	0.51
Geographical coverage	0.92	0.01
Scale of charges	0.72	0.42
Degree of personal attention	0.23	0.91
Market share	0.85	0.24
Marketing profile	0.93	0.14
Degree of local knowledge	0.52	0.67
Strategic influence/power	0.87	0.28
Amount of advertising	0.88	0.17
Financial resources	0.93	0.03
Links with financial services companies	0.86	0.19
Typical range of properties on sale	0.80	0.27

Table A5.3(a). Stimulus coordinates associated with the two-dimensional MDS representation of the returners' aggregated perceptions of competitors assessed at T2 (N = 114; stress = 0.224; RSQ = 0.810).

STIMULUS	DIMENSION	
	1	2
My Business	-1.51	-1.91
My Major Competitor	-1.76	-1.01
A Solicitor Agent	0.89	0.59
An Estate Agent Owned by a Building Society	-1.80	-0.25
A Traditional Estate Agent	0.86	-0.16
An Estate Agent Owned by an Insurance Company	-1.49	0.50
An Agent Offering a Professional Service	0.22	-0.65
An Agent with a Poor Reputation	0.92	1.74
An Agent with Chartered Surveyor Status	0.96	-0.15
An Agent Specialising in Exclusive Property	-0.07	-1.04
An Agent Specialising in Commercial/Industrial Property	0.31	-0.88
An Agent Specialising in Residential Property	-0.15	0.29
A Secondary Competitor	0.02	0.51
An Agent with a Good Reputation	-0.04	-0.94
A Diversified Estate Agent	0.22	0.08
An Independent Estate Agent	0.99	0.36
An Inferior Competitor	1.07	1.34
A very Successful Estate Agent	-1.03	-0.93
A Moderately Successful Estate Agent	-0.17	0.22
An Unsuccessful Estate Agent	1.57	2.28

Table A5.3(b). Dimension weights for the returners at assessed T2
(N = 114).

Attribute	Dimension	
	1	2
Service to vendors	0.24	0.91
Quality of staff	0.15	0.93
Service to purchasers	0.25	0.89
Training of staff	0.69	0.60
Operating practices	0.23	0.91
Quality of advertising	0.56	0.71
Profitability	0.16	0.87
Location of business premises	0.60	0.67
Size of branch network	0.92	0.00
Range of services	0.62	0.63
Geographical coverage	0.92	0.00
Scale of charges	0.44	0.69
Degree of personal attention	0.27	0.88
Market share	0.79	0.30
Marketing profile	0.92	0.14
Degree of local knowledge	0.34	0.75
Strategic influence/power	0.87	0.24
Amount of advertising	0.86	0.21
Financial resources	0.92	0.14
Links with financial services companies	0.91	0.05
Typical range of properties on sale	0.62	0.58

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