

From I-O Economics' S-C-P Paradigm Through Strategic Groups to Competence-Based Competition: Reflections on the Puzzle of Competitive Strategy

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Over the past 20 years one basic question which has occupied the attention of both researchers and practitioners in the strategic management field is 'with whom and how do firms compete?' How research in strategy has attempted to answer this question over the past 20 years is the subject of this article. We begin by reviewing the literatures on industrial organization, spatial competition, strategic groups, cognitive communities and networks and examine how each of these theoretical perspectives have been used to answer basic questions of competition and rivalry. We then show how the resource-based view of the firm and the theory of competence-based competition can be used to integrate these perspectives. We conclude by proposing six issues which should motivate future strategy research, and which can help and enhance our understanding of how firms compete.

Introduction

Over the past 20 years one basic question which has occupied the attention of both strategy researchers and practitioners is 'with whom and how do firms compete?' Key to answering this question is determining the sources of competitive advantage for firms, identifying where these competitive advantages reside and specifying how they can be sustained. The additional questions that follow from these basic questions, and the way these questions are framed, define the manner in which research on these questions is conducted. To illustrate the fundamental nature of this issue, we will use as an example some recent research on the competitive context of the Scottish knitwear industry (Porac, Thomas and Baden-Fuller, 1989; Porac *et al.*, 1995).

The production of wool has been an important part of the Scottish economy for over 800 years. The Scottish border towns of Galashiels and Hawick were centres of the wool trade for hundreds of years, and later, especially during the industrial revolution, became centres of knitwear manufacturing. Knitwear producers in this region specialize in high quality, fully fashioned sweaters, where yarns of different colours are combined on the knitting machines to produce the garments. This production process contrasts with the 'cut-and-sew' or 'piece dying' production techniques used by other knitwear manufacturers which, although less costly, produce lower quality garments. The yarns used in production, and the skilled labour force that makes the garments, are acquired locally. The major characteristics along which products vary are size, shape, colour and

knitting design. Although a few of the larger firms have small in-house design staffs, they all hire outside design consultants. Finished product is distributed throughout the world through independent agents, who work with the firms on a commission basis. It is primarily these agents who provide the Scottish knitwear producers with information regarding market demands for their products.

Determining who competes with whom in this industry, and the dimensions along which competition and differentiation occur, requires that the characteristics of the industry's dynamics be understood and that individual firms be grouped in some way. Competitors in the Scottish knitwear industry can be grouped in a variety of ways. Geographically, they are almost all clustered in different areas within a relatively small region of Scotland. As Porac, Thomas and Baden-Fuller (1989) point out, some of the top managers of competing firms live within walking distance of each other. Using this perspective, all of the firms in a geographical cluster seem relatively homogenous. The firms in the Scottish knitwear industry may also be grouped according to the financial and economic assets they possess, such as size, debt load, public or private status, fixed assets, volume of output and so on. Using this lens allows the observer to find a bit more differentiation within the industry. A third way these firms could be grouped is based upon the mental models which the top management of each firm possess regarding the competitive dynamics within the industry. Firms whose managers share similar mental models regarding the structure of the industry, and who therefore adopt similar competitive strategies, may also be seen as a differentiated group within the industry. Finally, firms could be grouped based upon their networks of relationships with other firms. This perspective would allow for groupings not only in terms of rivalry networks, but also in terms of a firm's relationship with particular suppliers, agents, the manufacturers of other products which the agent represents, the social networks to which a firm's managers belong and so on. Each of these lenses, or perspectives, could provide a slightly different, yet overlapping, view of the competitive and strategic dynamics which exist within the Scottish knitwear industry.

As the previous example illustrates, to answer the question who competes with whom, and how,

requires that researchers adopt a unit of analysis more fine-grained than the industry level of analysis advocated by the so-called structure-conduct-performance (S-C-P) paradigm (Bain, 1956, 1968; Mason, 1957). However, the level of aggregation should be greater than the firm level. Over the years, the question who competes with whom and how has been addressed from several different theoretical perspectives, each of which has explained an additional piece of the variance in the relationship between strategy and performance (for example, Rumelt, 1991). Industry, group, and firm-level factors have all been considered. The role of competitive strategy theory and research in integrating these perspectives, and providing a multi-dimensional framework for understanding these basic issues of competition and rivalry, is the subject of this paper. Economic, cognitive and social forces can all influence the ways competitors are defined, the strategies adopted by these firms in pursuing their interests and the outcomes of both their contests and collaborations. In this paper we will trace the history of how academic research has attempted to address these issues. This review is not intended to be a comprehensive survey of all the relevant work associated with the theoretical perspectives covered here. Rather, the intent is to examine the basic arguments, contributions and limitations associated with these literatures, and to present a set of issues which can be useful in guiding future research in this area.

Beginning with the earliest theories regarding spatial competition, we will move on to research which draws largely from the literature on industrial-organizational (I-O) economics to examine how the economic characteristics of firms within an industry have been used to explain industry dynamics and place firms within strategic groups. We will then consider research which, drawing from the literature on managerial cognition, attempts to identify cognitive communities within an industry based upon the shared mental models which executives use to evaluate their environment, identify their rivals and define the dimensions along which they compete. Next, we will examine how the methods and perspectives of social network analysis have been used to examine issues of both inter-organizational rivalry and cooperation within industries. Finally, we will use the literatures on the resource-based view of the firm and competence-based competition to integrate the economic, cognitive and social

approaches to competition, and to develop a set of issues to guide future research in this area.

Theoretical perspectives

Location within a competitive space

The earliest, and most abstract, approach to examining the question who competes with whom, and how, was presented by Hotelling (1929).¹ Hotelling assumes that:

- 1 two firms are competing in a market characterized by a linear product space;
- 2 the relocation cost within that product space is zero;
- 3 the number of customers available along the entire product space is constant;
- 4 the market demand is such that firms cannot differentiate on price for the same product.

Hotelling argues that, within a linear market space, if one firm locates itself anywhere other than in the exact centre of the product space, thereby dividing the space into two segments of unequal length, the other firm will locate itself on the side of the first firm which faces the longer market segment. The first firm can then imitate the second firm's strategy, leap-frogging the second firm and locating itself next to the longer market segment. This process will continue until the two firms are located in the centre of the linear market. Hotelling's theory suggests a tendency towards minimum product differentiation, and firm clustering within a product space. Later theory and research applied these principles to dimensions other than just products, such as reliability, availability and strategic dimensions.

More recently, other economic theorists have challenged Hotelling's conclusions, and have argued Hotelling's central tendency function does not necessarily hold when the assumptions regarding utility function, customer density, number of firms, sequence of firm entry into the market and relocation costs are varied (for example, D'Aspremont, Jaskold-Gabszewicz and Thisse, 1979; Economides, 1986). They argued that if relocation costs are high and firms are far apart from each other in the product space, then they

will tend to stay separated. However, firms which are close together, and which do not have as far to move, experience lower relocation costs and will tend to cluster. This suggests that within an industry one should be able to observe clusters of firms which are homogeneous, but which are separated in distance from other, heterogeneous groups.

The primary contribution of the theory of spatial competition is that it provides a theoretical basis for the expectation that groups within an industry exist. It was one of the first attempts to explain why firms competing in the same market may adopt different strategies, and thus experience different levels of performance success. The primary weakness of this theoretical perspective, however, is that it is difficult to test empirically. Differentiation may occur across some dimensions but not others. Firms may thus adopt different spatial profiles, and may be grouped differently, depending upon the dimensions used in the analysis. Also, spatial competition theory takes a top-down approach, beginning at the industry level and working its way downwards to a lower level of abstraction. Given that groups within an industry are likely to exist, a new set of questions regarding the competitive strategies these groups pursue, and the degree of success they are able to achieve could now be addressed.

Strategic groups

At its most basic level, strategic-groups theory argues that within an industry firms with similar asset configurations will pursue similar competitive strategies with similar performance results. Firms may therefore be clustered together into groups based upon their similarities in asset configuration. Although performance within a strategic group is expected to be similar, different strategic groups are expected to experience different levels of performance.

The origins of research on strategic groups can be found in the I-O economics literature. Michael Hunt was the first person to coin the term strategic groups in his 1972 doctoral dissertation (Hunt, 1972). Hunt identified three sources of 'asymmetry' between firms in the major household-appliance industry, and used these asymmetries to distinguish between four different strategic groups, and the barriers to entry in each of these groups (e.g. full-line national manufacturers' brand producers, part-line national

¹ See also Tang and Thomas (1992) for a more complete summary of this theoretical approach.

manufacturers' brand producers, private brand producers and national retailers). Around the same time several other individuals, including Michael Porter, were also attempting to use the same general principles and apply a modified version of the structure-conduct-performance paradigm of I-O economics to the study of strategic groups.² Briefly, the S-C-P paradigm suggests that the structure of the industry influences the strategic behaviours of firms, which in turn influences their performance. Firm behaviour is essentially treated as a theoretical 'black box'. The strategic groups perspective turned the S-C-P paradigm on its head, and argued that the strategic behaviours of firms influence both the structure of the industry (the formation of strategic groups) and the performance of the industry. The early research in this area focused upon the industry level and examined entry barriers, such as capital requirements and regulatory barriers, which shaped industry membership and competition. Caves and Porter (1977), and later Porter (1980) took this concept and applied it at the strategic group level, suggesting that just as entry barriers for an industry exist, 'mobility barriers' between groups within the industry also exist. They argued that mobility barriers inhibited the ability of firms already in the industry to change from one strategic group to another. It was therefore in the interests of high-performing strategic groups to erect substantial mobility barriers, so as to prevent other firms from changing strategies and entering into their group. Early research in this area focused primarily on between-firm differences. Other researchers (for example, Hatten, 1974; Hatten and Schendel, 1977) developed methodologies which established intra-group homogeneity among firms in a strategic group, while preserving inter-group heterogeneity. One of the limitations of this early research is that it tended to focus on only one industry, and that all of the companies engaged only in that single line of business. Subsequent research (for example, Harrigan, 1980; Oster, 1982) expanded strategic groups research to include multi-industry considerations as well.

Throughout the 1970s and most of the 1980s research on strategic groups followed this economic vein. Strategic groups were defined by the researcher, using various sets of financial and

strategic variables gleaned from financial statements and other public sources of information, to classify companies into various strategic groups. Firms with similar asset configurations were expected to occupy the same 'resource space' within their environment, to compete more with each other for similar resources (capital, raw materials customers), and to be more subject to the same environmental forces than other firms in the industry which occupied somewhat different resource spaces.³ Given these similarities, firms within a strategic group were also expected to pursue the same competitive strategies. Performance was assumed to be relatively homogeneous within these groups, with greater performance heterogeneity occurring between the various strategic groups. How groups of firms came to share the same resource space and asset configurations was not considered. Researchers came to recognize this limitation, as well as the need to broaden the strategic groups literature's theoretical perspective (McGee and Thomas, 1986). Several scholars also began to note that the assumption regarding performance variations between strategic groups was somewhat equivocal, and that strategic groups often displayed strong within-group performance variations as well (Cool and Schendel, 1988; Fiegenbaum and Thomas, 1990; Thomas and Venkatraman, 1988).

Research in the strategic groups area also failed to determine whether or not the strategic decision-makers in companies sharing similar asset configurations also shared similar mental models of the competitive landscape within their industry, and whether or not they actually chose similar strategic paths. The outcomes of these processes were treated as a given, and as the starting point for various statistical clustering procedures. Finally, as Thomas and Venkatraman (1988) point out in their recommendations for future directions in strategic groups research, the boundaries of what constitute an 'industry' can be extremely fuzzy. With the globalization of competitive markets and the participation of firms in multiple markets, reliance upon simple product-based definitions, such as SIC code classifications, for

² See McGee and Thomas (1986) for a more complete review of the early strategic-groups literature.

³ During this same period, population ecology theorists in sociology were developing a parallel stream of research which examined how resource availability and competition structured groups of firms within an industry. For more on this stream of research see Hannan and Carroll (1992) and Hannan and Freeman (1977).

defining a company's industry, may significantly misrepresent the competitive dynamics which the company actually faces. Thomas and Venkatraman suggest that a more fruitful approach for defining strategic groups is to use 'environmental types', or 'profiles', which cut across industry designations and focus upon the similarity of environmental conditions a firm faces and the strategy it uses to cope with these conditions.

Taken together, all of these issues suggested that a greater understanding needed to be developed regarding how strategic activities which take place at the individual firm level influence the way strategic groups are formed. About this time, researchers began attempting to actively explore the cognitive processes of managers, and how 'management cognitions' regarding the composition and capabilities of firms within an industry could be used to identify clusters of firms, or 'cognitive communities', within an industry.

Cognitive communities

Cognitive communities take a psychological approach to the exploration of collectives of firms within an industry. Managers are motivated to evaluate the strengths and weaknesses of their firms, and how they can be used to take advantage of opportunities and avoid threats which may exist in their environments. Managers develop these 'cognitive maps' (Weick, 1979) of their firms and their environment through trial and error, through observation of the activities and outcomes of others and through trade publications, formal instruction and interactions with others within the industry. This process results in a socially constructed understanding of the structure of the industry and what it takes to compete. The sharing of a particular set of beliefs of managers of different firms results in a 'cognitive community' (Porac *et al.*, 1995). These consensual sets of beliefs make up the norms, or 'recipes' (Spender, 1989), for doing business and competing within an industry. 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 (Huff, Huff and Thomas, 1992). Managerial perceptions and shared beliefs can also be expected to influence industry evolution (Reger and Huff, 1993). This process of categorization, whereby managers develop a sense of self and a sense of others in the context of the

competitive environment has been labeled the process of 'competitive sensemaking' (Weick, 1995).

A number of studies have been conducted examining how the mental models of managers in individual firms help shape the competitive structure of industries (for example, Hodgkinson and Johnson, 1994; Porac and Thomas, 1990, 1994; Porac, Thomas and Baden-Fuller, 1989; Porac, Thomas and Emme, 1987; Porac *et al.*, 1995; Reger, 1988; Reger and Huff, 1993; Walton, 1986). In their initial study of the Scottish knitwear industry, Porac, Thomas and Baden-Fuller found that the structure of the industry both determines, and is determined by, managerial perceptions of the environment. In a subsequent study, Porac *et al.* (1995) were able to derive a six-category industry model of organizational forms based upon such attributes as firm size, technology, product style and geographic location, and showed that this categorization scheme was reproduced within the rivalry network, thereby helping to structure competition within the industry. In a study of grocery-store competition within a single community Porac and Thomas (1994) found that managers focus on a relatively narrow band of rival firms, and that a middle-level set of categorization taxonomies, differentiating between specific types of grocery stores, was the most consistent with the managers' mental models. Finally, Fiegenbaum and Thomas (1995) suggested that strategic groups can act as 'reference groups' for their members as they engage in strategic decision-making.⁴ In a longitudinal study of the insurance industry, Fiegenbaum and Thomas found support for this contention. They also found that over time firms adjust their strategic behaviour towards the group's reference point or central tendency, so that competitive strategies within a strategic group become more homogeneous. However, the degree to which this occurs varies between groups, and is a function of the competitive dynamics that exist within each group.

The strategic-groups literature begins at the industry level and works downwards, clustering firms that appear similar using some externally defined set of criteria. In contrast, the cognitive approach to identifying industry groups begins

⁴ See also Huff, Huff and Thomas (1992) for a discussion of the cognitive factors which influence the conditions under which firms will and will not attempt to change their strategies.

at the firm level and moves upwards, using manager's mental models to identify firms whose managers share similar conceptions regarding the structure of the industry, and the rivalries that exist therein. The biggest challenge facing cognitive researchers is how to identify and measure these shared maps or recipes. One of the primary methods used to date has been face-to-face interviews with managers. Various analytical methodologies, including repertory grid technique, causal mapping and multi-dimensional scaling have been used to structure the nature of the interviews and guide the interpretation of the data.⁵ Data collection, especially when it comes to issues of determining how managers from different firms come to share a single mental model, and how to aggregate mental models across managers and firms, still poses substantial challenges for research on cognitive communities. Porac *et al.* (1995) used a network analytic approach to begin to answer some of these processual questions. In the next section we will discuss how inter-organizational networks have been used to examine issues of both rivalry and cooperation within industries.

Inter-organizational networks in cooperation and competition

Network approaches to studying who competes with whom and how are a relatively recent phenomenon in the strategy literature. By identifying and focusing on the relationships which exist among organizations, researchers can begin to develop a more accurate picture of the competitive dynamics at play within an industry. Network approaches have also opened up a new area of inquiry – the ways in which firms within an industry may also *collaborate* with one another.

Competition and collaboration has been viewed from a network perspective in a variety of industries, including the knitwear, car, movie and biotechnology industries (Nohria and Eccles, 1992; Porac *et al.*, 1995; Powell, 1990). The Porac *et al.* Scottish knitwear study is one example of how a network approach can be used to understand the ways in which firms identify their strategic rivals. Porac and his colleagues identified and collected a variety of data on the salient firm characteristics and categorizations which the managing

directors of the knitwear firms used to develop industry categorizations. They also collected information regarding which firms within the industry were considered to be rivals by each managing director. Using a variety of clustering and network analytic techniques, they were able to show that a six-category model of organizational forms best describes the general conceptualization of competition within the Scottish knitwear industry, and that these categorizations were based on a relatively small number of factors. They found that this industry model was reproduced within the rivalry network which structured competition within the industry. They also found that competition within the industry was imperfect, that is, a number of asymmetries were identified when firms were asked to specify their competitive rivals.

Firms may also use networks strategically, by forming alliances, joint ventures, equity-sharing agreements, collaborative research pacts, research consortia, reciprocity deals or satellite organizations which allow them to either develop new skills, leverage current skills or compensate for weaknesses (Hamel, 1991; Khanna, Gulati and Nohria, 1998; Powell, 1990; Powell, Koput and Smith-Doerr, 1996). Powell (1990) suggests that:

'Firms pursue cooperative agreements in order to gain fast access to new technologies or new markets, to benefit from economies of scale in joint research and/or production, to tap into sources of know-how located outside the boundaries of the firm, and to share the risks for activities that are beyond the scope or capability of a single organization.' (p. 315)

Firms may form these strategic networks with competitors, suppliers and customers, sharing knowledge and resources in some arenas, while keeping other resources separate and secret. Powell uses the example of the car industry, where American and Japanese car-makers own significant equity stakes in each other (for example, Ford and Mazda, GM and Isuzu, as well as GM and Suzuki). These firms frequently share parts, product designs and or production facilities for some models (such as the Mitsubishi Eclipse and the Plymouth Laser, which for a time were built at the same production facility) yet still compete with each other in other markets (for example, the competition between the Dodge Viper and the Mitsubishi 3000GT in the high-performance sports-car market). The relationship between

⁵ See Huff (1990) for a more detailed discussion of these methodological approaches.

major pharmaceutical firms and biotech start-ups is another example of mutually-beneficial network relationships (Powell, Koput and Smith-Doerr, 1996). Biotech firms gain access to the capital, production and distribution capabilities that major pharmaceutical manufacturers such as Merck, Pfizer and Glaxo possess, while the major manufacturers gain access to the new technologies and innovative capabilities which the smaller, more nimble biotech start-ups possess, and which the major manufacturers could never hope to replicate. Firms grow and remain competitive by becoming involved in benefit-rich collaborative networks where knowledge is developed and shared, rather than attempting to develop and exploit the knowledge internally.

Although network forms of organization can offer a number of advantages, they have limitations as well. For example, although networks open up opportunities for interaction, they also serve to constrain network members' options and behaviours. If the organization's environment were to suddenly change, the restrictions of the firm's current network might not allow the firm to change along with it. Networks can also result in significant transactions costs, although the benefits of developing and participating in the network should more than outweigh these costs. If the nature of the transactions is routine and the assets being transferred are mundane commodities, then market transactions may be a more effective and less costly way of organizing the transaction.

Thus far we have examined several different perspectives which have been used in attempting to answer the question of how, and with whom, firms compete. Each of these perspectives, or theoretical lenses, has provided unique insights. However, each of these perspectives also possess certain limitations. What is needed is a unifying theoretical perspective which explicitly attempts to accommodate the effects of a firm's assets and positioning, the cognitive structures of management and the interdependence and interactions which exist among firms in an industry. Thomas and Carroll (1994) explored the conceptual overlaps which exist among the strategic groups, cognitive, and network perspectives (see Figure 1).⁶

⁶ Adapted from Thomas and Carroll (1994), p. 16. For a discussion of methodological approaches to integrating these three perspectives see Gruca, Nath and Thomas (1996).

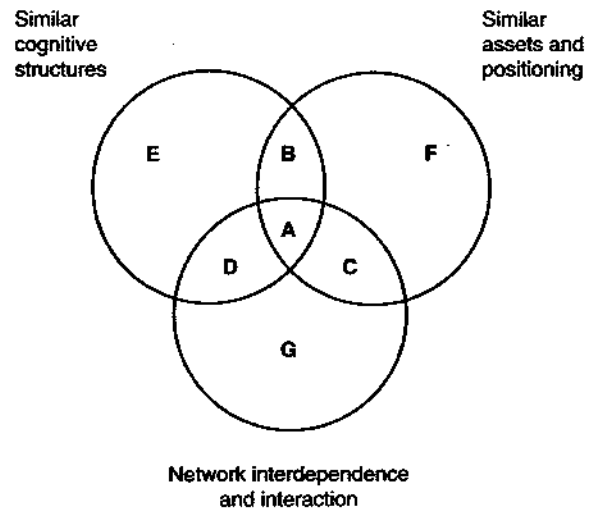


Figure 1. Conceptual overlaps among strategic groups

They argued that three criteria – similar cognitive structures, similar assets and positioning, and interdependence and interaction – could be used to define each of the perspectives. Using a metaphor adapted from efficient market theories in finance, they proposed that weak, semi-strong, and strong form definitions could be developed. For example, the weak-form definition of strategic groups requires that firms only need share similar assets and positioning (sections A, B, C and F in Figure 1). The semi-strong definition adds the requirement that firms also share similar cognitive structures, so only sections A and B would apply. The strong form of the definition stipulates that these firms also interact with each other. Only section A fits this definition. Thomas and Carroll go on to suggest that cognitive communities can have either a weak (A, B, D and E) or semi-strong definition (A and D), and that only a weak-form definition for networks currently exists (A, C, D and G).

Thomas and Carroll argue that the different definitional forms could be used to answer different theoretical questions. They also suggest that recognizing these different forms can help reduce the probability that a mismatch between the definition used to develop hypotheses and the constructs used to test the hypotheses occurs. It is likely that hypotheses based on strong definitions will not be supported if operational constructs satisfying only weak-form definitions are used in the analysis.

Although illustrative of the commonalities which exist among the strategic groups, cognitive communities and inter-organizational network perspectives, Thomas and Carroll's discussion is still somewhat abstract, and does not provide a unified theoretical perspective which can be used to explore the linkages among these perspectives. In the next section we will examine how two theories, the resource-based view of the firm and the theory of competence-based competition, can be used to integrate the perspectives and develop a new set of questions which can guide strategy research and practice in the future.

The resource-based view and competence-based competition

The resource-based view of the firm can trace its roots back to the work of Edith Penrose (1959) and her classic book *The Theory of the Growth of the Firm*. Disenchanted with neoclassical economics and its handling of real-world problems, Penrose developed a new conceptual schema of the firm as 'both an administrative organization and a collection of resources'. The resource-based view is a conceptual framework for understanding firm-level growth, using resources as the basic building blocks (Amit and Schoemaker, 1993; Barney, 1991; Peteraf, 1993; Wernerfeld, 1984). These resources may be financial, human, intangible, physical, organizational or technological (Farjoun, 1994). The rate and direction of a firm's growth is influenced by how management conceptualizes the firm's resource base. These conceptualizations in turn shape what management considers to be the firm's feasible expansion paths, and the growth strategies they choose to pursue. Prahalad and Bettis termed these mental schemas the 'dominant logic' of management (Prahalad and Bettis, 1986). They define the dominant logic as the way in which managers conceptualize the business and make critical resource-allocation decisions. These 'internal' choices and resources interact with the competitive environment to determine the firm's economic performance. Prahalad and Bettis suggest that managerial dominant logics are based in large part on what has worked for the firm. If the structure or competitive requirements of the environment change, or if the firm adds a new line of business, management must learn and adapt its dominant logic to the new industry conditions which it faces. If management misperceives the

firm's resources, and thus pursues a strategy inconsistent with the firm's resource base, or fails to recognize a resource which a firm possesses, then the firm will chronically underperform, and in the worst case, fail.

Another theoretical perspective which is closely related to the resource-based view and the theory of dominant logic is that of competence-based competition (Prahalad and Hamel, 1990).⁷ Prahalad and Hamel introduced the idea of identifying and leveraging the 'core competencies' of a firm in their 1990 *Harvard Business Review* article. According to Prahalad and Hamel, core competencies are the outcome of collective learning in the organization which are communicated across boundaries within the organization to coordinate production skills and integrate multiple technologies. They suggest that firms which successfully identify and cultivate their core competencies can use them to obtain a sustainable competitive advantage against their rivals.

Prahalad and Hamel describe three tests which they say can be used to identify core competencies within a company:

- 1 a core competence provides potential access to a wide variety of markets;
- 2 a core competence should make a significant contribution to the perceived customer benefits of the end product;
- 3 a core competence should be difficult to imitate.

A core competence is therefore a knowledge base or set of skills which is general enough to be applied in a variety of settings, results in a clearly defined benefit to the consumer, and is difficult, if not impossible, for other firms to replicate. Simply outspending your competitors in R&D, cutting overhead via sharing facilities or making a larger percentage of the workforce telecommuters is not a core competence. Nor is it even considered a strategic behaviour (Porter, 1996). Core competencies develop over time, and continue to grow, rather than diminish with repeated use.

We would like to illustrate how this concept can be applied by using Microsoft as an example.

⁷ See Sanchez, Heene and Thomas (1996a) for an in-depth exploration of competence-based approaches to strategy.

Although it is the leading provider of operating systems, spreadsheets and word-processing programs, many would argue that Microsoft's core competence is not in programming. Its programs, especially early versions, often lack desirable features that comparable programs possess, are late to market and are filled with bugs. Microsoft's ability to dominate the software industry lies in its marketing and distribution capabilities and relentless competitiveness. Early in Microsoft's existence Bill Gates negotiated some wonderful contractual relationships with IBM, Compaq and other PC manufacturers which made their operating system the *de facto* standard in the industry. Soon every IBM-compatible PC shipped in America included MS-DOS, and later Windows, as its standard operating system. The familiarity of the Microsoft name made users more likely to adopt their products when they expanded into spreadsheets and word-processing programs. Microsoft used the same distribution technique, pre-installing Microsoft applications software (later packaged as the now familiar Microsoft Office suite) with every new PC shipped, to establish dominant positions in these applications markets as well. Microsoft developed and identified a distinctive competence which could be applied to multiple product markets, which provided a distinctive benefit to the end user – familiarity and ease of adoption – and which other software manufacturers could not replicate.

Recognizing the integrative potential of competence-based approaches to strategy, researchers have begun to develop and explore the competence-based perspective (Bogner, Thomas and McGee, 1996; Collis and Montgomery, 1995; Gorman and Thomas, 1997; Hamel and Heene, 1994; Lei, 1997; Sanchez, Heene and Thomas, 1996b; Scarborough, 1998; Spencer, 1996). An example of the empirical research in this area is the Bogner, Thomas and McGee (1996) study of European entry into the US pharmaceutical industry. Thomas and his colleagues found that the resources of European parent drug manufacturers shape the entry strategies and effectiveness of their US subsidiaries. They also found that parental resources influenced subsidiary choices regarding expansion paths. Their findings suggest that the use of competencies or resources as the basis for a multi-domestic approach to international strategy still requires a parent firm to transfer or build competencies for its subsidiaries

if it is to gain competitive advantage in a new market. Resource differences can lead to differences in the way that firms attempt to directly enter new markets. Entry and expansion strategies may vary by market, as well as by firm resources, due to entry barrier/resource interactions. Finally, their findings also suggested that parental resources can act as a constraint on subsidiary development.

The strength of the resource-based view and competence-based competition is that these theories begin at the firm level and focus on the distinctive capabilities of the firm relative to its competitors. The weakness of both these theories is that they do not provide clear guidelines for identifying what exactly are the core competencies and inimitable resources of the firm, and how they compare to the resources and competencies of others competing in the same market. In addition, the identification of inimitable resources or core competencies does not constitute the development of a strategy. Rather than signal the end of the strategy development process, the identification of competencies and resources signal the beginning of the process. Resources and competencies are the basic building blocks which should be leveraged through the strategy development and implementation processes.

Tying it all together

The resource-based view and competence-based competition incorporate elements of the spatial competition, strategic groups, management cognition and network streams of research (Tang and Thomas, 1992; Thomas and Carroll, 1994). Notions of competitive space are discussed within competence-based competition. Hamel and Prahalad (1994) suggest in their book *Competing for the Future* that rather than behaving reactively and trying to figure out how to compete within their existing competitive space, those firms which will be most successful in the future strive not only to shape their existing competitive space, but to create new competitive spaces for themselves as well. The resource-based view encompasses elements of both the strategic-groups and the management-cognition literatures. The resource configurations identified by strategic-groups researchers interact with the cognitive recipes which managers possess to shape the ways in which growth strategies are developed and implemented.

Each can influence the other, and the degree to which management correctly identifies and leverages its resources impacts the firm's potential for developing a sustained competitive advantage. Firms do not develop these cognitive recipes in isolation, however. As Porac *et al.* have shown, networks of relationships among competitors can help to shape individual mental models and develop stable, commonly shared beliefs regarding firm capabilities and patterns of competition within an industry. Powell and others have demonstrated that networks can be used for cooperative as well as competitive purposes, that networks of relationships can be used to develop and leverage a firm's core competencies and that the ability to develop and manage network relationships can be a core competence in itself.

Future directions in strategy research

The resource-based view and competence-based competition possess four qualities which will allow researchers to extend and refine the discussion of who competes with whom, and how. First, this theoretical perspective places substantial emphasis on *performance*, specifically the ability to develop and maintain sustainable competitive advantage. Questions regarding why some firms outperform others are the province of strategy researchers alone.

Second, this perspective is *dynamic*, rather than static in nature. Much of the past research in strategy has attempted to answer the question 'What do firms do?' More useful questions are 'How do firms do what they do?' and 'How do they sustain their competitive advantage?' The dynamic systems and routines through which competencies or resources are developed and leveraged are then considered explicitly, rather than just assumed to occur.

Third, this perspective encourages a focus upon *longitudinal* evaluations of strategic activity. Much past and current strategy research is cross-sectional rather than longitudinal in design.⁸ This tendency has been driven in large part by the greater ease with which cross-sectional data can be acquired for conducting publishable research.

⁸ See Bogner, Thomas and McGee (1996) and Fiegenbaum and Thomas (1995) for examples of exceptions to this general trend.

The temporal and path-dependent nature of longitudinal process examinations is significant in developing a greater understanding of firm strategy development and use, and should be included in future research.

Finally, this perspective is *process*, not just outcome, oriented. Resources alone are not the key. The implementation of strategy is integral to the understanding of strategy itself; the two cannot be separated. Studying assets alone is not useful because tangible assets themselves become relatively insignificant in comparison to the ways in which they are deployed.

We would like to propose six issues which we think should drive future strategic research. They are:

- 1 definitional issues;
- 2 measurement issues;
- 3 the unit of analysis considered;
- 4 the study of processes, not states;
- 5 the examination of organizational failures, as well as successes;
- 6 a greater consideration of micro-analytic data from within the organization.

Definitional issues

To date we as a field have not reached consensus on precise definitions (Sanchez, Heene and Thomas, 1996b; Teece, Pisano and Shuen, 1997). Although a certain amount of this is to be expected, given the relative newness of competence-based research, the haggling and hair-splitting over the definitions of key constructs will become counter-productive if it continues for too much longer. For example, what is the real difference between resources, capabilities and competencies? One way to answer that question is to ask, 'are these distinctions empirically tractable?' In other words, can we measure them, and if so, does each construct really measure different things? If the answer to these questions is no, then the construct should be discarded, or redefined in a more tractable and useful way. The same tests may be applied to discussions of competence building versus competence leveraging, and the relationship between goals and performance. It is unlikely that the question, 'are competence building and leveraging distinct activities?' has a simple yes or no answer. Whether, through a given activity, a firm is building or leveraging a competence may

be a matter of degree, and may also be somewhat context dependent. Issues regarding how we define what constitutes firm performance, and how different performance measures are related to the firm's goals, also need to be revisited. Accounting measures such as ROI and ROA – while convenient – are imperfect, may be subject to manipulation and may or may not be related to the firm's true strategic goals and objectives.

Measurement issues

Developing consistent definitions of constructs such as competencies, competence building/leverage, and performance is only half the battle. In order to be useful, these definitions must also be measurable (Henderson and Cockburn, 1994). If a construct is conceptually clear but empirically impossible to measure, then it is of limited utility in advancing our quest for knowledge. This does not necessarily mean that measurement must be easy, but it must be possible. Alternative – and in some cases, less quantitative – measures of the key constructs mentioned above need to be considered (Sanchez and Thomas, 1996).

Unit of analysis

Strategy research has at one point or another considered the business unit, the firm, the group, the product market, the process market and the industry as appropriate units of analysis. All of these units of analysis are helpful in framing competition. The identification and leveraging of core competencies is a concept that can span and have an impact at all units of analysis. In determining a firm's core competencies and how they affect firm performance, future research may find it useful to consider the impact at two or more of these units of analysis simultaneously (see Figure 1, and the overlaps among the strategic groups, cognitive and network perspectives, each of which was developed by focusing upon a different unit of analysis). Such an approach provides necessary triangulation, and enhances the value of the concept of competence (for example, Bogner, Mahoney and Thomas, 1998; Oliver, 1997).

Study processes

The longitudinal study of processes suggests a change in focus away from the absolute values of

measures and towards the change in value of a measure or measures over time, as well as the rate at which they change. Many traditional measures used in strategy research, which to date have only been examined cross-sectionally, could be examined from this perspective as well, and could provide new insights (Pettigrew, 1990; Ring and Van de Ven, 1994; Thomas, Gorman and Sanchez, 1996; Van de Ven, 1992).

Examine organizational failures

In a cross-sectional study of existing firms in an industry, firms that have failed are by definition excluded from the study. By taking a longitudinal approach, researchers may more easily examine the causes of organizational underperformance and failure, as well as success (Miner *et al.*, 1996; Moulton and Thomas, 1993). It is important to remember, however, that asking why firms fail is not simply the converse of asking why firms succeed. These factors need not be opposite ends of a single continuum. They may in fact reflect two separate continua which interact. A firm that takes actions which lead to failure, but that also takes other actions which lead to success, may continue to exist, but in a chronic state of underperformance. Such a firm is different than a firm which sits in the middle range of both continua. Firms which simultaneously occupy the extremes of both continua may have a greater potential for superior performance if they can learn how to reduce those factors which, all else equal, would lead to failure. Researchers also need to make a greater effort to study outliers in an industry – both good and bad (see for example Day, Lewin and Li, 1995). By focusing on these extreme cases, researchers are more likely to learn about those factors which determine success and failure. Thus researchers should endeavour to break with the analytic approach which currently dominates strategy research that is, focusing on those factors which result, in convergence and identify central tendencies within the data.

Consider micro-analytic data

There is a need to get inside the firm and study processes at the individual – or perhaps more appropriately – team level (see Figure 2) (Eden, 1992, 1995). Network approaches to studying the decision-making processes within teams, especially

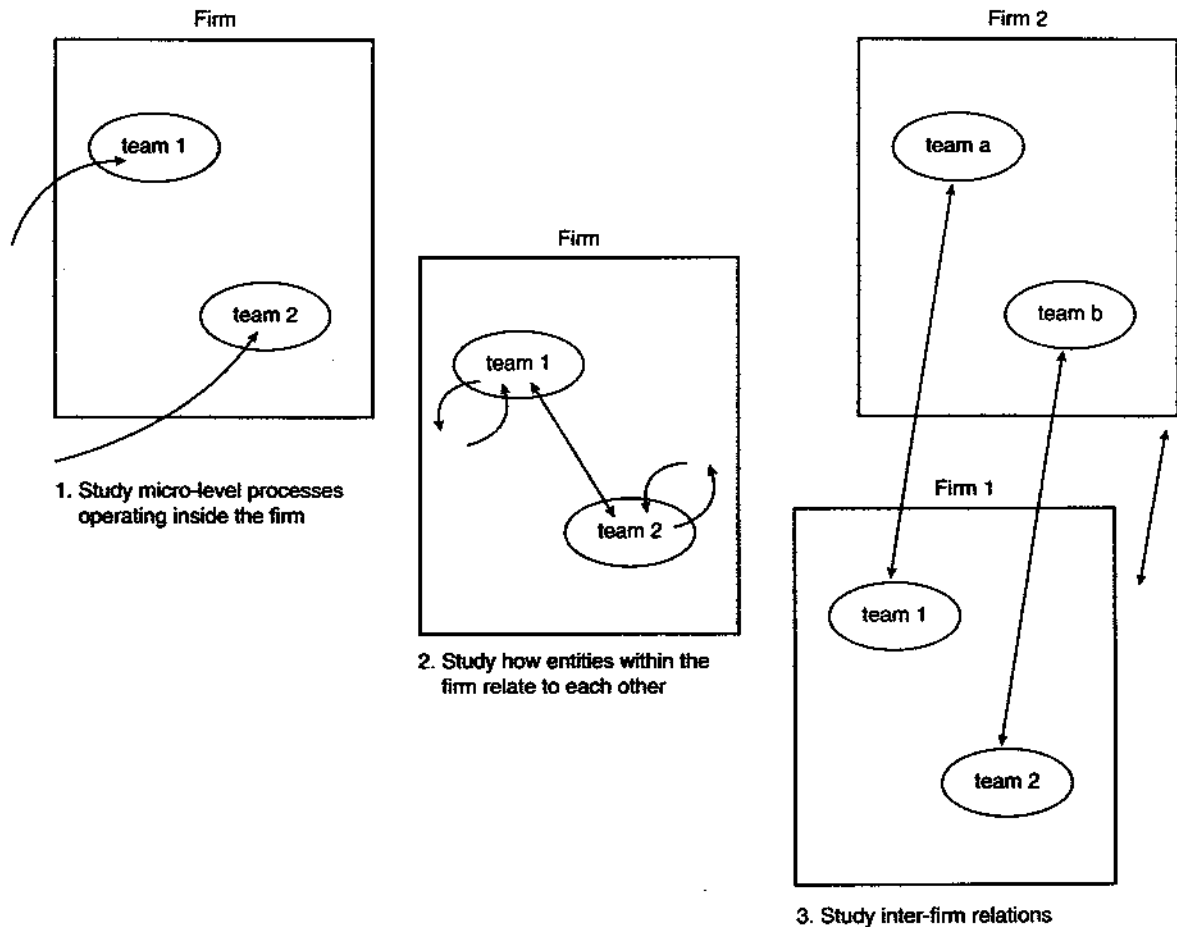


Figure 2. Network effects of micro-level phenomena

top management teams within an organization, and the interactions and dynamics between teams within an organization may be especially useful. Such research would provide us with a greater understanding of how the firm works, and where its true competencies may lie. This micro-level behavioural data may then be linked to organizational behavioural data, thus linking individuals (or teams) to organizational processes. It is through these linkages that organizational competencies may be identified and highlighted.

Conclusion

Attempting to answer the question 'with whom, and how, do firms compete?', has been at the centre of much strategy research over the last

25 years. What started out as an analytical convenience, the notion that firms could be arranged into strategic groups, was discovered to be a phenomenon with significant implications for the structure and function of corporate competition and performance. Over the years scholars have applied a variety of theoretical perspectives in this area of inquiry, and have raised as many questions as they have answered. In this article we have attempted to reflect upon the work that has been done in this area, and to suggest an integrative theoretical perspective, and set of issues which may be used to guide future strategy research. The use of multiple lenses for viewing phenomena, increased precision in the definitions of constructs and the measures used to test them, the adoption of dynamic longitudinal designs and a focus on multiple units of analysis all will

continue to further our understanding of the ways companies cooperate and compete for sustained advantage.

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