

ENTREPRENEURIAL NARRATIVES AND THE DOMINANT LOGICS OF HIGH-GROWTH FIRMS

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ABSTRACT

Our focus has been on extracting information from narrative data about the 'dominant logics', or mental models, of entrepreneurial teams. It is based upon the assumption that open-ended narrative data about firm competences, founder characteristics, corporate values and future plans represent a rich source of information about the mental models of a company's management. In this study we focus on what managers view as the feasible growth strategies available to their firms and the linkages among these strategies. We show that there are inter-industry patterns in the clustering of growth strategies that summarize distinctive cognitive representations of management regarding firm expansion. The patterns are evidence of macro-level entrepreneurial knowledge with both public policy and strategic implications.

INTRODUCTION

Uncovering the mental models of managers is a topic of primary interest for managerial cognition researchers. Examining the cognitive frameworks of managers can provide insights into the motivations behind managerial actions and subsequent firm performance (Fiol, 1995; Penrose, 1959). However, 'thoughts are, by definition, unobservable through any direct means' (Fiol, 1995: 522). As a result, researchers face the difficult task of attempting to deduce managerial beliefs by examining the verbal communications of managers. To this end, a variety of cognitive mapping

techniques have been used by researchers to assess the implicit mental models of managers. Most research on cognitive mapping has examined causal beliefs (Bougon, 1983; Cossette and Audet, 1992; Eden et al., 1992; Langfield-Smith, 1992; Laukkanen, 1994; Pitt, 1998) and/or categories of competitors (Calori et al., 1994; Porac et al., 1995; Reger and Palmer, 1996). While research of this type has been interesting and valuable, cognitive mapping is applicable to more than causal beliefs and environmental categorizations. One area in which cognitive mapping has not previously been used is in understanding the linkage between firm growth and entrepreneurial cognitive frameworks.

Entrepreneurs are cognitive agents who operate in turbulent, equivocal environments such as new industries or new industry segments (Hill and Levenhagen, 1995). In these uncertain competitive environments, changes in technology shift knowledge streams so that knowledge gaps are constantly being opened and closed. Whenever knowledge gaps are created, uncertainty and ambiguity are perceived. Entrepreneurs reduce this perceived uncertainty by 'bridging and closing gaps between different streams of knowledge' (Levenhagen et al., 1993: 77). In doing so, they are able to create potentially sustainable competitive advantages. However, aside from their ability to implement their ideas and erect barriers to imitation, there are several things that entrepreneurs must do in order to succeed in finding and filling gaps. First, they must stay abreast of fundamental changes in various knowledge streams in order to be able to recognize the opening and closing of knowledge gaps (Levenhagen et al., 1993). Second, they must challenge pre-existing assumptions and beliefs in order to be able to generate the new conceptualizations or recombinations of existing knowledge and resources that are required to fill these gaps (Levenhagen et al., 1993). Finally, entrepreneurial leaders must create compelling 'stories' and arguments to reduce ambiguity and uncertainty for their stakeholders and thereby gain credibility and legitimization for their new conceptualizations (Levenhagen et al., 1993). As a result, entrepreneurs' mental models are instrumental in determining their success in discovering and bridging gaps in knowledge in order to create value for their organization.

This suggests that one difference between entrepreneurs and non-entrepreneurs may be in their respective cognitive structures. Palich and Bagby (1995), for example, found that while entrepreneurs do not have a higher risk propensity than non-entrepreneurs, the former perceive situations as being more positive and filled with opportunities than do the latter. Similarly, Jenkins and Johnson (1997) found that entrepreneurial success was associated with specific types of causal attributions that entrepreneurs make.

While researchers have examined entrepreneurial characteristics and behaviours associated with the successful start-up of a business (Gatewood et al., 1995), differences between entrepreneurs and non-entrepreneurs (Chen et al., 1998; Jenkins and Johnson, 1997; Palich and Bagby, 1995) and

corporate entrepreneurship (Russell, 1999), research on entrepreneurial cognition has generally stopped at the point a business is started. Therefore, little attention has been given to the way in which the perceptions and beliefs of entrepreneurs affect the continued growth of the firm. In addition, cognitive mapping techniques have been applied to the study of the entrepreneurial mind in only a few studies (e.g. Jenkins and Johnson, 1997; Russell, 1999). Therefore, not much is known about the linkages between cognitive mapping, entrepreneurial cognition and growth strategies. To address this deficit in the literature, we examine entrepreneurial beliefs using the resource-based view of the firm and its underlying cognitive proposition as a theoretical lens and present a new method for mapping managerial logics for organizational growth.

The Cognitive Proposition Underlying Resource-Based Views of Growth

The resource-based view of the firm provides a useful framework for understanding the role of managerial cognitive structures in shaping entrepreneurial strategies for growth (Mahoney and Pandian, 1992; Peteraf, 1993). Tracing the origins of their work to Penrose (1959), resource-based theorists argue that a firm's unique portfolio of tangible and intangible resources influences the rate and direction of its growth and diversification. The rate of growth is influenced by how the management team conceptualizes and uses the firm's resource base. The direction of expansion is controlled by path dependencies inherent in imperfect resource substitution, the indivisibility of the firm's assets, and what management considers to be the firm's feasible growth strategies. All of these 'internal' forces interact with the competitive environment to determine economic performance. A firm can capture sustainable profits and grow to the extent that its key value-creating activities, or core competences (Hamel and Prahalad, 1994), cannot be easily imitated by competitors (Barney, 1991; Lippman and Rumelt, 1982).

The ability to sustain profitability in the face of competition has received the bulk of attention in the resource-based literature (Peteraf, 1993). No doubt, this has been due to the theoretical and practical importance of understanding firm performance within competitive markets. However, as Penrose (1959) noted, the way in which competitive forces impact a firm's profit stream depends in part on the 'image' (in Penrose's terms) that its managers have of both the firm itself and the competitive environment in which it operates. Managers will pursue competitive actions and deploy resources in ways that are consistent with their images of their firms' capabilities and the competitive threats that they believe the firm faces. In fact, Penrose suggests that this is the key entrepreneurial role of the management team. Thus, the Penrosian competitive environment is a subjective one as management teams from different firms

survey the competitive landscape from their own idiosyncratic vantage points, use their market knowledge to define firm-specific productive capabilities, and then shift their firm's activities toward unique market opportunities that *they believe* their productive capabilities make possible. It is the combination of these managerial images of the firm and the competitive environment with what Penrose calls the 'entrepreneurial ambition' of a management team (its risk propensity and desire for growth) that defines the set of growth strategies that the management team deems feasible and attempts to enact.

One of the key insights of the Penrosian view is that it is not the actual resources themselves that determine the growth and direction of a firm. Rather, growth is a function of the productive capabilities that are engendered by resources interacting with managerial cognitive frameworks. To our knowledge, the 'cognitive proposition' (Mahoney and Pandian, 1992) described by Penrose, which underlies the resource-based view of organizational growth, has not been the subject of any systematic, scholarly inquiry in the entrepreneurship literature. Although a resource-based view of entrepreneurship has begun to receive some attention (Brush and Radha, 1997; Brush et al., 1997; Chandler and Hanks, 1994; Greene and Brown, 1997; Hart et al., 1995), the study of growth strategies from a cognitive perspective has not been the subject of much quantitative empirical research. The purpose of this study is to begin to investigate the cognitive bases of entrepreneurial dominant logics among a group of high-growth and successful firms. In particular, the research attempts to determine the extent to which underlying patterns of dominant growth logics exist across a sample of entrepreneurial firms from widely varying industries.

Dominant Growth Logics as Clusters of Growth Strategies

The probability of adopting a given set of growth strategies will vary given the unique conditions of a firm. Each combination of strategies can differ in its cost, a firm's ability to implement them, and the time they will take to provide a return on the company's investment. At the same time, however, research in strategic management has shown that there are systematic patterns of strategic similarity within and across industries (McGee and Thomas, 1986). These results have been generalized to the entrepreneurship arena by Carter et al. (1994), who found clear clusters of competitive strategies among new ventures across six different industries. These results make it clear that firms are not completely unique in the strategies that they enact, and uncovering similarities in strategies is an important line of research in the strategic management field.

Our study expands this line of research in two ways. First, most research on strategic similarity has focused on competitive strategies rather than explicit strategies for expanding a firm's business. In our

research, we seek to uncover patterns of similarity among firms in their logics and strategies for growing the business. Second, our approach is explicitly cognitive in nature in the sense that we focus on the belief systems of entrepreneurs regarding their growth plans, what we have called growth 'logics'. Although some research has been conducted on strategic similarity from a cognitive perspective (Porac et al., 1995; Reger and Huff, 1993), this work was not focused on growth logics or on entrepreneurial firms *per se*. Putting these two contributions together, the goal of the present research is to determine the extent to which inter-industry similarities exist in the beliefs of entrepreneurs regarding their firms' feasible expansion paths, such that clusters of differing growth logics can be discerned across firms. To answer this question, we coded open-ended statements by entrepreneurs regarding their plans for future expansion and then used cluster analysis techniques to uncover inter-industry patterns in these growth statements.

RESEARCH METHOD

Data

Our statistical sample of entrepreneurial firms consisted of 54 firms drawn from the Kauffman Foundation's recently developed database of high-growth firms. This database contains information on regional finalists and winners in the annual Entrepreneur of the Year Competition sponsored by Ernst and Young, the Kauffman Foundation and *Inc.* magazine. Of the 54 firms, 31 per cent are in manufacturing, 48 per cent are service companies, and 11 per cent are retail companies. The remaining 10 per cent of the firms are in construction and real estate. At the time the narratives were written, 54 per cent of the companies in the sample were public. The average number of employees per company was 742, although the numbers ranged from 12 to 5640. The majority of the narratives (72 per cent) were written in 1994 and 1995. The remaining 28 per cent were written in 1993. The average company in our sample had \$7.98 million in cash, \$11.63 million in fixed assets, \$6.71 million in inventory and an average net income, in the year the narratives were written, of \$6.08 million. The average company's cash reserves grew by 76 per cent, fixed assets nearly doubled, and after-tax net income grew by almost 80 per cent from the year before the company was nominated for the Entrepreneur of the Year award through the year after the company was nominated. The average company also increased its labour force by 33 per cent from the year before the narrative was written to the year the narrative was written. This suggests that the companies in this sample are indeed high-growth firms.

Of particular significance for this study, the Kauffman database contains narrative information, written by the CEO or a top management team

representative, describing both the company and the individual being nominated for the award. The narratives include background information on the nominee and his or her accomplishments, the company's history, its primary products and services, its business practices and its plans for the future. We developed a cognitive map of entrepreneurial dominant logics by content analysing these narratives to identify each firm's intended growth strategies.

Overview of Methodology

Cognitive mapping is a technique that is recognized as a useful way of depicting managerial mental models (Fiol and Huff, 1992). A cognitive map is a depiction of the hidden assumptions and beliefs of managers that represent concepts and the relationships among them (Fiol and Huff, 1992). Managerial cognitive structures must be inferred through managerial verbal or written statements (Fiol, 1995). While most studies on managerial cognition seem to use interviews, other researchers have collected public written statements in order to uncover managerial belief systems. For example, executives' statements in annual reports as well as internal planning documents have been used as sources of data to map the managerial mind (Fiol, 1989, 1995). In this study we continue in this vein by examining open-ended written statements from entrepreneurs. Entrepreneurial narratives are ideal for studying the thoughts and subjective beliefs that a manager may have about his or her environment because they contain 'implicit, personal theories of managerial action' (Pitt, 1998: 387). The statements were then content analysed using a computerized text analysis package, focusing on the sentence as the unit of analysis.

There are several benefits to using computers for qualitative data analysis. Computers can reduce the amount of labour required when organizing and coding ethnographic data without fundamentally changing the nature of the process (Dohan and Sánchez-Jankowski, 1998). However, there are many different types of software packages that can be used to assist researchers in qualitative data analysis, and each type has unique benefits. Dohan and Sánchez-Jankowski (1998) suggest that there are three categories of qualitative analysis software packages: document processors, data organizers and symbolic manipulators. Document processors are used to create and manage ethnographic databases as well as to search and retrieve text strings from these databases. Data organizers, on the other hand, allow the researcher to structure ethnographic databases by organizing and annotating or by coding. In this way, researchers are able more easily to place data in context, manoeuvre through large databases and retrieve information based on theoretical mark-ups of the databases. Finally, symbolic manipulators assist researchers in the development and/or testing of theories about the relationships present in the ethnographic database.

The software package that we used, ATLAS/ti™, falls into this last category of symbol manipulators, and was chosen for its applicability to cognitive mapping.

ATLAS/ti is a package that appears to be uniquely suited for the task of cognitive mapping, for three reasons. First, it allows the source data to be in almost any form. Unlike some other packages, which can be used to analyse only textual data, ATLAS/ti allows for the analysis of text, audio, video, graphics or a combination of all four. Second, there is great flexibility in the types of linkages that can be created in ATLAS/ti. For example, both quotations and codes can be annotated, and various types of linkages can be created between the quotations, codes and memos (Dohan and Sánchez-Jankowski, 1998). As a result, several types of cognitive maps, including taxonomies and causal maps, can be drawn from the data using this program. Finally, ATLAS/ti contains a feature that allows for the graphical representation of the codes and linkages. Therefore, it makes the process of drawing a cognitive map less labour-intensive as well.

The content analysis of textual data is an analytic technique that can be used to make inferences regarding the sender of the message, the message itself and/or the intended audience (Weber, 1990). Content categories are developed and used to make analysis of the text more tractable by grouping units of text that have similar meanings. These units may be words, phrases, sentences or other lexical units that the researcher deems appropriate. Past research (Abrahamson and Park, 1994; Wade et al., 1997) has used the frequency with which top management discusses a concept in written narratives as an indicator of the concept's importance. In this study we used the mention of a particular growth strategy as an indicator of the salience of that strategy to the management team of the firm. We assume, therefore, that mentioning a particular strategy at least once implies that the strategy is a component of the entrepreneurial team's growth logic.

The narrative statements from the Kauffman Foundation's database of high-growth firms provide rich and informative interpretations that entrepreneurs have of their environments and the resources available to their firm, as well as perceptions of their ability to influence the performance of their firm (Pitt, 1998). However, there are several potential problems in using such communications as cognitive proxies. The major problem is that there may be a self-serving bias such that the narratives may reflect impression management more than the true feelings and beliefs of the managers (Fiol, 1995; Wagner and Gooding, 1997).

None the less, researchers have demonstrated that even narratives that may have a self-serving bias are useful sources of information on management cognition and strategy (Barr, 1998; Clapham and Schwenk, 1991; Huff and Schwenk, 1990). For example, non-evaluative statements, as opposed to those containing positive or negative evaluations, may be relatively accurate indicators of managerial beliefs (Fiol, 1995). The use of narrative statements from the entrepreneurs is appropriate in this case

since we are interested in their mental models. We first analysed the content of each statement made by entrepreneurs in their narratives to separate those statements that referred to future plans for growth from statements that were not about growth. We then generated a map of different firm-growth logics by performing cluster analyses on the growth statements to classify firms into groups that used similar combinations of intended growth strategies. An advantage of content analysis is that the growth strategies and strategy combinations can be inductively derived rather than imposed in an *a priori* way by the researcher (Weber, 1990).

Content Analysis of Narratives

In order to identify the growth strategies that each company considered viable, we conducted two rounds of content analysis on each of the narratives. Two of the researchers performed the content analysis using ATLAS/ti. During the first round of content analysis, we coded each sentence of each narrative into one of six categories: CEO Characteristics, Company Characteristics, Company Capabilities, Growth Strategies, Image of the Market and Other. Less than 1 per cent of the sentences fell into the Other category. Interrater reliability was determined using Cohen's Kappa (Cohen, 1968), which adjusts for random chance in determining interrater agreement. The Cohen's Kappa for this stage of the content analysis, which was calculated on a 20 per cent subsample, was .87. Any disagreements among the raters were resolved.

In the second stage of the content analysis, each growth-strategy sentence was coded using six growth-strategy categories. These categories were derived by moving iteratively between prior theory and the data. The categories that were ultimately identified were consistent with six strategies that the literature on growth suggests can be used to increase revenues and profits (Leonard-Barton, 1995; Lieberman, 1989; Penrose, 1959; Powell et al., 1996; Thompson, 1986). These strategies are: growth through mergers, acquisitions and expansion of the firm's production capacity (Lieberman, 1989; Penrose, 1959); developing alliances or partnerships with other firms (Leonard-Barton, 1995; Powell et al., 1996); expanding into new geographic and customer markets (Leonard-Barton, 1995); developing new products or services to be offered in existing or new markets (Leonard-Barton, 1995); expanding the firm's labour force and/or increasing the capabilities of its employees (Penrose, 1959); and, finally, increasing earnings by reducing costs and/or increasing the productive capacity of existing assets through technical and process improvements (Thompson, 1986). Table 5.1 provides examples of the types of growth strategies that fell into each of these categories.

The first category of growth strategies are those that are 'capital-intensive'. The strategies in this category include building new plants or facilities, expansion of the firm's production capacity, strategic acquisitions,

TABLE 5.1 Expansion path examples

Expansion path category	Activities included
Capital-intensive	Capital expenditures for new plants or facilities Acquisitions and mergers Joint ventures
Alliances and partnerships	Alliances, partnerships, franchising and licensing agreements
Market expansion	Enter new markets (product or geographic) Increase share in existing markets New real estate developments Access new customer base
Product/service	New products and/or services
Human resources	Increased hiring Management team and employee training, education or quality of work life improvements
Technical improvements	Production and administrative process improvements Technological innovations and developments

mergers and joint ventures (Lieberman, 1989; Penrose, 1959). All of these strategies require large capital expenditures, and growth-strategy sentences were coded as 'capital-intensive' when they mentioned such things as 'joint venture', 'construction of ... [new facilities]' and 'strategic acquisitions'.

The second category of growth strategies are those that are 'non-capital-intensive'. The strategies in this category include the development of strategic alliances, partnerships with other firms, franchising and licensing agreements (Leonard-Barton, 1995; Powell et al., 1996). Unlike the capital-intensive strategies, these strategies are based upon sharing costs with other firms or otherwise reducing the amount of down-side risk faced by the firm. Growth-strategy sentences in this category mention 'strategic alliances', 'strategic partnerships' and 'licensing agreements'.

The third category of growth strategies are those that involve 'market expansion'. The strategies in this category include entry into new product or geographic markets, increase of market share in existing markets, and accessing new customer segments (Leonard-Barton, 1995). These strategies involve increasing the number of customers served, whether by capturing higher market share or by geographic or product diversification. 'Market expansion' sentences mention 'international expansion', 'seizing opportunities to enter new markets' and 'expansion and diversification ... into new fields'.

The fourth category of growth strategies are those that involve 'product or service development'. The strategies in this category include the development of new products as well as services (Leonard-Barton, 1995). Growth-strategy sentences were coded as 'product or service development' when they mentioned things such as 'developing new products',

'increasing the number of product lines' and 'bringing to market new ... products and services'.

The fifth category of growth strategies are those that involve 'human resource improvements'. The strategies in this category include hiring new employees, improving the quality of work life for employees, and enhancing the skill of the management team and employees through training and/or education programmes (Penrose, 1959). Growth-strategy sentences were coded as 'human resource improvements' when they mentioned such things as 'expanding [the company's] workforce', attracting 'additional outstanding employees' and an 'incentive reward system'.

The final category of growth strategies are those that involve 'process improvements'. The strategies in this category include production and administrative process improvement and technological innovation (Thompson, 1986). These strategies are aimed at increasing earnings through enhanced productivity or through cost reduction. Growth-strategy sentences were coded as 'process improvements' when they mentioned things such as 'productivity-enhancing technologies', 'automate numerous processes' and 'development of adaptive process control techniques'.

Table 5.2 provides sample phrases from the growth-strategy sentences that indicated which type of growth strategy was being discussed by the entrepreneur. The Cohen's Kappa for this stage of the analysis, which was calculated using all 274 growth strategy phrases, was .93.

Cluster Analysis

Cluster analysis has been used in various disciplines for the purposes of classification (Aldenderfer and Blashfield, 1984; Bailey, 1994; Romesburg, 1984). In this study, dummy variables were created for the six growth strategies. Since we were interested in the presence or absence of each strategy, as opposed to the relative importance of each growth strategy, a firm's narrative was coded as a '1' if the firm's entrepreneur mentioned his/her intent to use a particular strategy and a '0' if he/she did not. The presence/absence of each of the six strategies was coded in this way. The firms in the study were then clustered along these six binary growth-logic scores using the average-between-groups method (Romesburg, 1984).

The average-between-groups method is one of the most widely used clustering techniques. Romesburg (1984) recommends the use of this technique since there is less distortion in transforming similarities between objects into a tree and because it can be used with any resemblance coefficient. Since we wished to cluster using binary data, the average-between-groups method was the most appropriate choice.

The resemblance coefficient used in our cluster analysis was a simple matching coefficient. The simple matching algorithm calculates similarity based upon the proportion of 1-1 and 0-0 matches along the different attributes between any two cases (Romesburg, 1984). This particular

TABLE 5.2 Sample growth-strategy phrases

Growth-strategy category	Sample phrases
Capital-intensive strategies	<p>'Potential plans for further growth include the acquisition of other companies or technology ...'</p> <p>'Strategic planning for the Company includes acquisitions and mergers ...'</p> <p>'The city facility will increase manufacturing capacity ...'</p> <p>'A newly formed joint venture ... should go on stream within twelve months ...'</p> <p>'Fboss also plans continued growth through internal expansion and by the acquisition of businesses ...'</p>
Non-capital intensive strategies	<p>'These alliances ... strongly position Fcomp for a bright future.'</p> <p>'Another new division of Fcomp will license in and distribute Pproducts ...'</p> <p>'... development of strategic alliances with partners in complementary industries ...'</p> <p>'With this in mind, one of Fcomp's future goals is to build "Strategic Partnerships" with original equipment manufacturers ...'</p> <p>'Future growth will be seen in the use of licensing arrangements now in hand with Ccomp, Ccomp for Pproduct and Ccomp for Pproduct.'</p>
Market expansion strategies	<p>'Fcomp plans to expand geographically ...'</p> <p>'... the company intends to expand into related markets ...'</p> <p>'Efforts to penetrate or expand business in the emerging Rregion, Sregion and Tregion markets are a priority and will produce a larger customer base.'</p> <p>'... growth in existing Fcomp markets ...'</p> <p>'Fcomp's Plans for the Future include careful, reasoned expansion and diversification, where needed by clients, into new fields and geographical regions.'</p>
Product and service development strategies	<p>'We will soon expand our services to include ...'</p> <p>'Potential plans for further growth include ... developing new products from within.'</p> <p>'Its vision of the future includes the development of ever more capable versions of the Pproduct and Pproduct xx products.'</p> <p>'Development continues on these products and associated peripherals.'</p>
Human resource improvement strategies	<p>'To facilitate future growth Fboss has recently added several members to the senior staff.'</p> <p>'To accomplish this expansion will require a major effort to attract additional outstanding employees to the Fcomp fold.'</p>

(Contd.)

TABLE 5.2 (Contd.)

Growth-strategy category	Sample phrases
Process improvement strategies	<p>'Fboss believes that employees should be rewarded for good work and plans to structure compensation and career paths at all levels to be closely aligned with performance.'</p> <p>'... improvement and expansion of training through in-house and supported training programs ...'</p> <p>'... an incentive reward system that will improve staff motivation ...'</p> <p>'Because [xx] is an ongoing quality system of process improvement, we will undergo a rigorous schedule of external and internal audits to prove we are maintaining and improving our quality.'</p> <p>'Eliminating and/or reducing re-work through the implementation of Total Quality Management (TQM) techniques ...'</p> <p>'Adaptive process control is one of the many paths Fboss is exploring.'</p> <p>'In the mid-19[xx]s Fboss plans to invest in productivity-enhancing technologies and quality improvement.'</p>

Note: All identities have been disguised and refer to companies, products and individuals using a letter notation, e.g. Ccomp, Pproduct and Fboss.

resemblance coefficient was chosen for several different reasons. First, it was an association measure and therefore appropriate for binary data.¹ Second, it provides a meaningful proportion since it is the proportion of agreements. Third, based on the nature of the formula used to calculate this coefficient, unlike some of the other association measures, it can be calculated even if there are only 0-0 matches. Finally, simple matching weighs 1-1 and 0-0 matches equally. This was important since we were interested not only in which strategies were mentioned, but also in which ones were not mentioned.

One concern that arises when using cluster analysis is in choosing the appropriate number of clusters. Determining the number of clusters has been problematic and has often been subjective (Aldenderfer and Blashfield, 1984; Bailey, 1994; Milligan and Cooper, 1985; Porac et al., 1995; Romesburg, 1984). One method for determining the optimal number of clusters is to compute correlations between the proximity matrix used to form clusters and a series of structure matrices that correspond to various cluster solutions (Milligan and Cooper, 1985; Porac et al., 1995). The optimal solution occurs when the correlation between the proximity matrix and the structure matrices reaches a maximum. Upon running the cluster analysis, we created structure matrices for two-through ten-cluster solutions and calculated correlations between each structure matrix and the original proximity matrix using the quadratic assignment procedure (QAP) in UCINET IV (Borgatti et al., 1996). From Table 5.3 we can see that the five-cluster solution has the highest correlation and therefore is the

TABLE 5.3 Correlations between proximity matrix and cluster structure matrices

Cluster solution		4	5	6	7	8	9	10
2	3							
.326	.513	.520	.535	.533	.527	.514	.511	.507

optimal solution. Once the cluster memberships were determined, the narrative statements were qualitatively analysed to search for any commonalities among cluster members that may help explain why entrepreneurs chose a particular set of intended growth strategies. Particular attention was paid to mentions of entrepreneurs' experiences, company experiences and descriptions of their businesses and their environments.

RESULTS

Table 5.4 presents the results of the cluster analysis with five clusters. Figures 5.1 through 5.5 present the five clusters identified in our analysis graphically. Dotted lines indicate that some, but not all, members of a cluster pursued a particular growth strategy. Each cluster has distinct characteristics. The firms in the first cluster focus (Figure 5.1, see page 129) on process improvements and human resources development. The second cluster (Figure 5.2, see page 129) has a focus on market and product expansion, with some of the firms mentioning alliances and partnerships as well. The third cluster (Figure 5.3, see page 130) is focused on human resources and capital-intensive strategies with some market and product expansion. The firms in the fourth cluster (Figure 5.4, see page 131) focus on market expansion, product expansion and capital-intensive strategies. Finally, the firms in the fifth cluster (Figure 5.5, see page 132) mention all six growth strategies. The qualitative analysis of the narrative statements provided some interesting results.

Table 5.5 lists selected sample quotes from the narrative statements that indicate that there are regular patterns within each cluster that reflect the combination of strategies that comprise a cluster's typical growth logic.

The firms in the first cluster (Figure 5.1) seem to focus on expanding product offerings through process improvements and training of employees. The narratives for these firms frequently mention 'quality', 'efficiency' and 'Total Quality Management', and the entrepreneurs' descriptions of their businesses and environments seem to indicate that quality and efficiency are the key ingredients that lead to flexibility and growth. Therefore, these firms evidence a dominant logic of 'expansion of products via continuous improvement'.

The second cluster (Figure 5.2) includes two distinct types of firms. The narrative statements indicate that both types of firms see opportunities

TABLE 5.4 Cluster membership

Clusters	Company ID#	DUMMKT	DUMOUT	DUMPROC	DUMHUM	DUMCAP	DUMNO
1	1 1591	0	0	1	1	0	1
	2 1885	1	1	1	1	0	0
	3 2102	0	1	1	1	0	0
	4 2213	0	0	1	1	0	0
	5 2311	0	1	1	1	0	0
	Total 5	5	5	5	5	5	5
2	1 1652	0	0	0	0	0	0
	2 1808	1	1	0	0	0	0
	3 1814	1	1	0	0	0	0
	4 1818	0	0	0	0	0	0
	5 1859	1	0	0	0	0	0
	6 1868	1	1	0	1	0	0
	7 1888	1	0	0	1	0	0
	8 1940	1	0	0	0	0	0
	9 2066	0	0	0	0	0	0
	10 2100	0	1	0	0	0	1
	11 2109	1	0	0	0	0	0
	12 2112	0	1	0	0	0	1
	13 2120	0	0	0	0	0	1
	14 2140	0	0	0	1	0	1
	15 2141	1	1	0	0	0	0
	16 2152	1	1	0	0	0	1
	17 2155	1	1	0	0	0	1
	18 2226	1	1	0	0	0	0
	19 2227	0	0	0	0	0	0
	20 2233	1	1	1	0	0	0
	21 2244	1	0	0	0	0	1
	22 2297	1	0	0	0	0	1
	23 2506	0	0	0	0	0	0
Total 23	23	23	23	23	23	23	
3	1 1836	1	0	0	1	1	1
	2 1884	1	0	1	1	1	0
	3 1889	1	1	0	1	1	0
	4 1999	0	0	0	1	1	0
	5 2083	0	0	0	1	1	0
	6 2098	0	0	1	1	1	0
	7 2121	1	0	1	1	1	0
	8 2149	0	1	0	1	1	0
	9 2181	0	1	0	1	1	0
	10 2295	0	0	0	1	1	0
Total 10	10	10	10	10	10	10	
4	1 1870	1	0	0	0	1	0
	2 1934	1	1	1	0	1	0
	3 1979	1	1	0	0	1	0
	4 2046	0	0	1	0	1	0
	5 2096	1	1	1	0	1	0
	6 2103	0	1	1	0	1	0
	7 2125	1	1	0	0	1	0

(Contd.)

TABLE 5.4 (Contd.)

Clusters	Company ID#	DUMMKT	DUMOUT	DUMPROC	DUMHUM	DUMCAP	DUMNO
	8 2136	0	1	0	0	1	0
	9 2144	0	0	1	0	1	0
	10 2209	1	0	0	0	1	0
	11 2212	1	1	0	0	1	0
	12 2266	1	0	0	0	1	0
	13 2327	1	1	0	0	1	0
	Total 13	13	13	13	13	13	13
5	1 2090	1	1	1	1	0	1
	2 2271	1	1	1	1	1	1
	3 2314	1	1	1	0	1	1
	Total 3	3	3	3	3	3	3
Total	N 54	54	54	54	54	54	54

for growth into new product and geographic markets, but only one type has identified how to accomplish this growth. The firms that know how they want to accomplish their growth in these new markets generally mention franchising, alliances and partnerships as their intended modes of entry. Since all of the firms see growth opportunities, but only some know how they want to accomplish it, these firms have a 'market and product expansion' logic.

The firms in the third group (Figure 5.3) need to build capacity to serve increasing demand in their current segment or to expand where they have identified 'unmet' market needs and 'under-served' segments. Therefore, these firms have a logic of 'dealing with capacity deficits'.

The fourth group (Figure 5.4) is preparing for future growth through capital expenditures in plant and equipment, mergers, acquisitions and joint ventures. These firms anticipate future growth and are preparing for it by building plants and acquiring other firms. These firms have a logic of 'anticipatory growth'.

The firms from the fifth group (Figure 5.5) follow a 'scattered growth' logic. Each of these firms has experienced growth through a number of different strategies. As a result, they cannot seem to identify which particular growth strategy or combination of strategies is most appropriate for them - everything seems to work. Therefore, the firms in this group state that they are going to follow every single one of the growth strategies. A typical statement will include expansion into new geographic markets, development of new products, improvement of processes, recruitment, strategic acquisitions, partnerships and construction of new plants.

While not all firms in a given cluster choose exactly the same combination of intended growth strategies, it is interesting to note that the narratives indicate that there were dominant logics that led to their choice. For each of the clusters, prior successes with a particular growth strategy seemed to lead to a belief that it was the appropriate strategy to pursue

TABLE 5.5 Sample quotes

Cluster	Quotes
1. Expansion of products via continuous improvement	<p>'total quality control'</p> <p>'Total Quality Management (TQM)'</p> <p>'be the most cost-effective, quality leader'</p> <p>'advocate of total quality management and continuous improvement'</p>
2. Market and product expansion	<p>'find an unfilled niche in the marketplace, create a retail concept to fill that niche, and then grow the business through franchising'</p> <p>'expand globally by seizing opportunities to enter new markets'</p> <p>'Future growth will be seen in the use of licensing arrangements now in hand with Ccomp, Ccomp for Pproduct and Ccomp for Pproduct.'</p> <p>'expanding largely with the money of the franchisees'</p> <p>'the development of strategic alliances, with partners in complementary industries'</p>
3. Dealing with capacity deficits	<p>'Fboss and Fcomp are at the forefront of the fastest growing segment of the employment market'</p> <p>'increasing our market share'</p> <p>'In my opinion the need to provide this service will continue to grow during the next [xx].'</p> <p>'We are constantly spending time and money on educational seminars to maximize current job competence and readiness for future opportunities.'</p> <p>'Our group is constantly looking for investment opportunities that we feel are "under"-managed.'</p> <p>'[The newly built plant] ... enhances the company's ability to develop and serve its authorized builder organization in those regions.'</p> <p>'These capacity increases were necessary for Ccomp to meet the demand of its rapidly growing customer base.'</p> <p>'the company intends to expand into related markets. ... Each of these share some common characteristics: they are under-served by their present systems vendors, their requirements are largely met by Fcomp products, and there is no system available today that meets all their needs.'</p>
4. Anticipatory growth	<p>'strategic acquisitions'</p> <p>'To support this projected growth, annual capital expenditures at Fcomp have risen from approximately [xx] in 19[xx] to over [xx] today.'</p> <p>'to keep the organization and its resources focused on future challenges and opportunities'</p> <p>'Fcomp plans to expand geographically by opening new offices or through mergers or acquisitions.'</p> <p>'Potential plans for further growth include the acquisition of other companies or technology, as well as developing new products from within.'</p>

(Contd.)

TABLE 5.5 (Contd.)

Cluster	Quotes
5. Scattered growth	<p>'continued growth through internal expansion and by the acquisition of businesses with complementary markets or technologies' and 'collaborative efforts with large prime contractors and equipment manufacturers' and 'maintain the high quality of the company's workforce'</p> <p>'introduction of new products' and 'development of adaptive process control techniques [that will] reduce rework, increase yields and improve quality' and 'eventual acquisition of related companies' and 'strategic alliances with the remaining major equipment [manufacturers]'</p> <p>'expansion and diversification, where needed by clients, into new fields and geographical regions' and 'focus on recruiting, management training, and developing management information systems'</p>

in the future (Tyler and Steensma, 1998). There are several possible explanations for this bias. If the firm had past experiences with the strategy, the entrepreneur may believe that it is merely the appropriate strategy for the environment. Alternatively, the entrepreneur may believe that there are several appropriate strategies for the environment, but that the firm may have differential ability to implement specific growth strategies. A third explanation is that the entrepreneur believes him/herself to have the appropriate capabilities to implement a particular growth strategy based on past success with it.

DISCUSSION

The resource-based view of the firm argues that the growth and direction of organizations are determined by a complex interaction between available resources, capabilities and managerial mental models (Mahoney and Pandian, 1992; Penrose, 1959). These mental models, or dominant logics, provide subjective constraints to firm actions by limiting the amounts and types of opportunities that a firm will consider. Penrose (1959) has suggested that research on entrepreneurial mental models can be of help in explaining or predicting the behaviour of firms. By qualitatively analysing entrepreneurial narrative statements about growth, we have begun to discern some of the commonalities among firms that share similar dominant logics.

Research in strategy has rarely examined the existence of multiple strategies within an organization, and there appears to be an underlying assumption that a firm will pursue only one strategy at a time. In fact, the only way in which researchers appear to examine multiple strategies is in the context of firm diversification and maintaining coherence among the different lines of business (Grant, 1988; Prahalad and Bettis, 1986). Therefore, while firms may use different competitive strategies in different

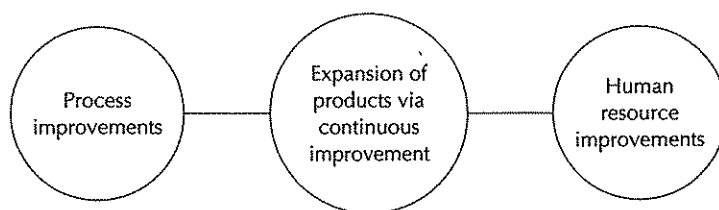


Figure 5.1 Growth logic: cluster 1

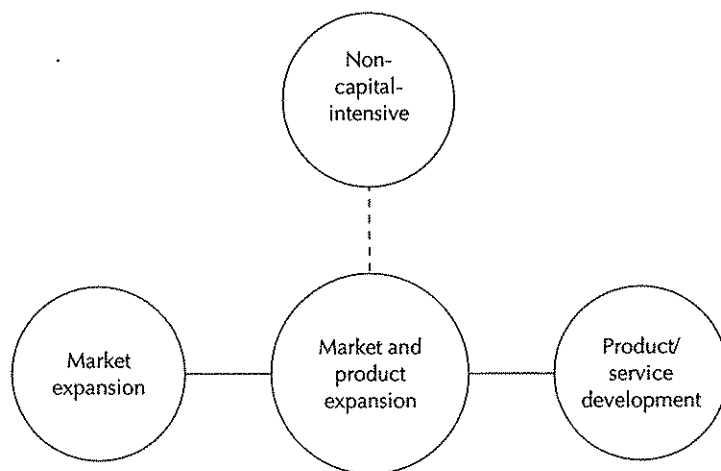


Figure 5.2 Growth logic: cluster 2

businesses, following more than one strategy is seen as generally a bad idea (Porter, 1985). As a result, there has been little research on whether or not organizations will follow multiple strategies or which strategies are likely to co-occur if they do.

However, competitive positioning is based upon the combination of activities that a firm engages in across various markets and lines of business (Porter, 1996). Therefore, it may be more appropriate to think of firms as following a cluster of different types of strategies (growth, marketing, etc.), guided by a single dominant logic about the competitive advantages, resources and capabilities of the firm relative to the competition, as opposed to a single strategy. Since a dominant logic is defined as 'the way in which managers conceptualize the business and make critical resource allocation decisions' (Prahalad and Bettis, 1986: 490), dominant logics are clusters of strategies that the managers see as appropriate for the firm. Since entrepreneurs attempt to reduce uncertainty and create competitive advantage by bridging gaps across multiple streams of knowledge (Levenhagen et al., 1993), dominant logics may be capturing these

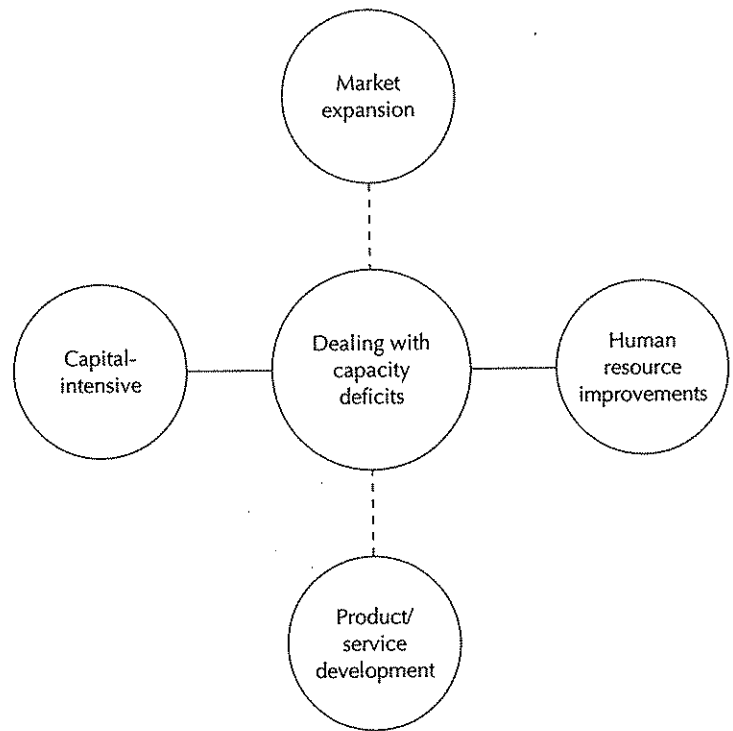


Figure 5.3 Growth logic: cluster 3

attempts to close gaps. The results of this study are consistent with this perspective, and suggest that firms intend to follow multiple strategies for growth, and that these strategies cluster in somewhat predictable ways. As such, dominant logics can be seen as strategy 'portfolios'.

In our study we found five distinct clusters of growth logics, illustrated in Figures 5.1 through 5.5. Each of these growth logic clusters differed in the number and types of strategies that were included. An examination of the narratives suggest that in most of these logic clusters, the entrepreneurs are actively trying to combine multiple strategies to obtain a desired result. Since there has been a wide-spread assumption that multiple strategies are bad and that strategies are inherently unrelated, this may represent attempts to bridge multiple streams of knowledge. However, this is not necessarily the case for all clusters. For example, the market and product expansion logic (Figure 5.2) does not seem to involve an explicit linkage between strategies. Similarly, there does not appear to be any linkage across the strategies in the scattered growth logic (Figure 5.5). Still, it is not entirely clear from the data available in this study if the use of multiple strategies is a way of closing gaps.

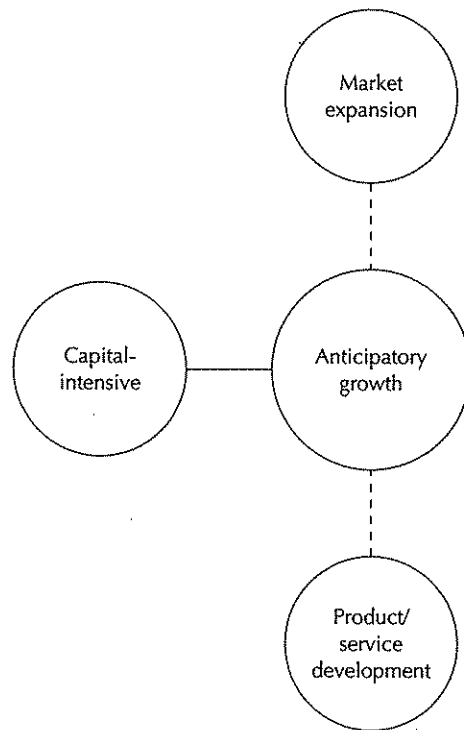


Figure 5.4 Growth logic: cluster 4

Not all of the entrepreneurs discuss whether or not these are multiple, independent strategies or if they anticipate synergies/links among them and are therefore a part of a true 'logic'. One might inquire into the performance effect of following multiple strategies. As stated earlier, strategy researchers have long operated under the assumption that lack of focus is detrimental to firm performance (Porter, 1985). Returning to the resource-based view, growth is constrained by available resources, including managerial capabilities, and attempting to follow too many different opportunities will result in the outstripping of managerial resources (Penrose, 1959). Therefore, growth without focus leads to setting oneself up for failure. As a result, we would expect the number of different strategies included in a firm's dominant logic to be negatively related to performance, with more focused firms having higher performance than less focused firms.

On the other hand, too much focus may leave a firm unable to meet the requirements of the competitive environment (Miller, 1993, 1996; Miller and Chen, 1996). While some amount of focus leads to the development of distinctive competencies, too much focus leads to a skill set that is not capable of keeping up with variation in environmental demands

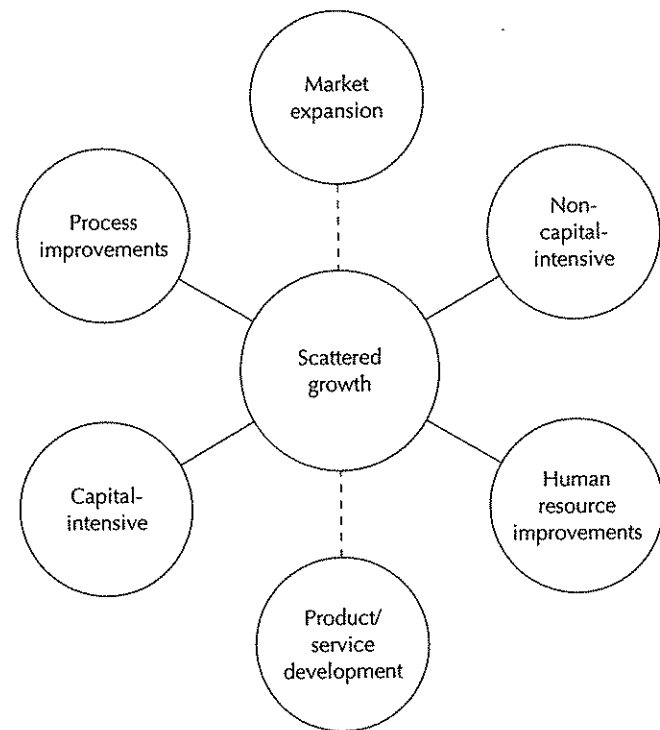


Figure 5.5 Growth logic: cluster 5

(Miller, 1993, 1996; Miller and Chen, 1996). This may limit a firm's ability to compete in all but one small segment of the environment. However, the opportunities available in any one area may be limited, so it may not be possible for firms to maintain a steady rate of growth unless multiple strategies are followed at some point. Also, some entrepreneurship researchers have stated that entrepreneurs search for opportunities beyond their current resource configurations, with the assumption that the required resources will be discovered and acquired along the way (Kirzner, 1985). This suggests that the current resource configurations need not necessarily constrain the number and type of growth strategies chosen, but there may be an optimal level of focus. As a result, we would expect an inverse U-shaped relationship where firms with both low or high numbers of strategies would have lower performance than firms that have an intermediate number of strategies included in their strategy configuration.

While we are unable to clarify the link between the number of dimensions included in a firm's growth logic and their subsequent performance based upon this data set, we are currently pursuing several different directions in our study of entrepreneurial mental models. First, future

research will examine the link between growth logics and performance. There are a number of ways in which this could be done. We will try to determine if there are appropriate dominant logics based upon a firm's resource configurations or the environment; if there is 'one best' dominant logic that leads to superior performance; or if there is a link between the number of dimensions included in a firm's dominant logic and its subsequent performance. Second, we seek to study the question of intention versus implementation regarding entrepreneurial growth logics. Argyris and Schon (1974) make distinctions between 'espoused theories' and 'theories in use'. By examining sources of secondary data, we may be able to discover to what extent these entrepreneurs followed the strategies that they discussed in their narratives. Finally, we wish to examine changes in dominant logics. Different theories offer various explanations for why a manager's mental models may change, and we wish to test several explanations against one another to determine which accounts seem to provide valid explanations for strategic change.

While we believe that this study contributes to the resource-based literature by identifying commonalities among entrepreneurs in their dominant logics for growth, there are two limitations of our research that must be recognized.

First, the size and nature of the sample may constrain the ability to make generalizations. With a sample size of only 54, it is difficult to find other systematic relationships among the firms following each dominant logic. For example, it was not possible to see if there was a systematic relationship between industry type and dominant logic. In addition, since the Kauffman database is limited to firms identified as being successful, it is not possible to generalize these findings to firms that are not as successful. This also leaves open the question of how unsuccessful experiences can influence dominant logic development. As a result, larger and more diverse samples should be examined in future research.

Second, the use of narrative statements written by the CEOs or top management team members of the sample firms presents a partial picture of the types of experiences that the firm has truly had. In addition, it is unclear if the sample firms intended to implement the growth strategies they mentioned, or if there may have been some impression management involved on the part of the entrepreneurs. Therefore, it may be worthwhile for future studies to obtain more complete data on firm experiences as well as the actual growth strategies implemented by each firm.

NOTE

1. Association measures are appropriate for binary data (e.g. Aldenderfer and Blashfield, 1984; Bailey, 1994) while Euclidean distance measures are appropriate for data measured on interval or ratio scales (e.g. Romesburg, 1984).

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