



**SWP 12/93 THINKING ABOUT GROWTH: A COGNITIVE  
MAPPING APPROACH TO UNDERSTANDING  
SMALL BUSINESS DEVELOPMENT**

**MARK JENKINS**  
Centre for Strategic Management & Organisational Change  
Cranfield School of Management  
Cranfield University  
Cranfield  
Bedford MK43 OAL  
United Kingdom

(Tel: +44 (0)234-751122)

(Fax: +44 (0)0234-751806)

*The Cranfield School of Management Working Papers Series has been running since 1987, with approximately 350 papers so far from the seven academic groups of the School: Enterprise; Finance, Accounting and Economics; Human Resources; Information Systems; Marketing and Logistics; Operations Management; and Strategic Management. Since 1992, papers have been reviewed by senior members of faculty before acceptance into the Series. A list since 1991 is included at the back of this paper.*

*For copies of papers (up to three free, then £2 per copy, cheques to be made payable to the Cranfield School of Management), please contact Mrs Val Singh, Research Administrator, at the above address.*

**Copyright: Jenkins 1993**

**ISBN 1 85905 012 3**



# THINKING ABOUT GROWTH: A COGNITIVE MAPPING APPROACH TO UNDERSTANDING SMALL BUSINESS DEVELOPMENT

Mark Jenkins, Centre for Strategic Management and Organisational Change,  
Cranfield School of Management.

## The Importance of the Small Business

In the United States research undertaken by Birch (1979) produced the notable finding that firms employing fewer than 20 employees accounted for 66% of all net new jobs in the U.S. between 1969 and 1976. The publication of this study combined with the development of the UK "enterprise culture" (Kirby & Mullen, 1991) led to an impetus for further research in the UK which has been well chronicled by Curran (1986).

Birch's findings have, to a certain extent, been replicated in the UK with Doyle & Gallagher (1986) noting that approximately one million jobs were created through small firms and self employment from 1982 to 1984. In a European context Storey & Johnson's review of the European research on job generation (Storey & Johnson, 1987a) noted that, with only one exception, in every member state small firms experienced positive employment growth, whereas larger firms suffered a loss of employment. The high profile given to the work of Birch (1979) in the US, the UK and European research findings, the existence of specific cases such as the success of small business manufacturing in Japan has led to a widely held view that small businesses are an essential element in a nation's economic engine, particularly in terms of generating employment and therefore of major importance in reducing unemployment.

However, there are those who view this perspective as over general, simplistic and potentially misleading. Storey and others (Storey *et al*, 1987; Storey & Johnson, 1987a; 1987b; Westhead, 1988; Turok, 1991) have advocated a change in emphasis from the small business *per se*, to the fast growth small business. The reason for this disenchantment with the current emphasis on the totality of small businesses is the frequently supported finding, that very few small businesses actually contribute to this growth phenomena. Doyle & Gallagher's two year study (1986) found that only 0.02% of firms created 45% of new jobs, Storey & Johnson (1987b) in a regional study attributed a 47% increase in new jobs to 6% of the businesses studied. The implication being that it is only a small fraction of small businesses which actually generate growth and therefore it is these businesses which should be the focus of support rather than all small businesses.

This perspective has encouraged a number of research studies to attempt to explain why some firms grow and others do not. Whilst a number of defining characteristics have been identified (Storey *et al*, 1988, Turok, 1991) these still do not provide a clear explanation of the differences between fast growth and non growth in the early stages of a businesses life. Critics of such work (notably the Department of Employment) consider that current small business policy (criticism of which has been a focus of Storey's work), whilst being non selective in design is self selecting in application, as fast growth firms are more likely to obtain advice and seek support (Hakim, 1989).

Whereas this may be a valid argument from the perspective of implementing policy, the fact remains that our understanding of why some small firms grow and others do not is incomplete. It is also clear that despite such questions over the importance of the small business sector, this sector, and in particular the fast growth businesses within it, play a major role in the employment, economic and social aspects of national life:

*"Nevertheless small firms in most developed countries provide more than one-quarter of employment in the manufacturing sector and in some case more than half the employment in the service sector."*

Storey & Johnson (1987a: 34)

### **The Importance of the Small Business Owner/Manager**

In order to explore the broad question; why do certain small businesses grow fast whilst others remain at a constant size, it is necessary to examine alternative perspectives for understanding organisational behaviour.

Such perspectives can be represented on the deterministic / voluntaristic construct (Astley & Van de Ven, 1983) for positioning organisational research. The deterministic orientation would position the organisation as the dependent variable, its growth is determined by a series of independent variables representing the business environment. Hannan & Freeman (1989) have termed such a view as organisational ecology comparing the evolution of the organisation with that of the organism. *i.e.* a Darwinian perspective on organisational development. This perspective is taken to a further extreme by the stochastic perspective as outlined by Kumar (1984) which sees organisational growth as a random process distributed amongst firms by chance or luck rather than identifiable independent variables. At this position on Astley & Van de Ven's framework the individual owner/managers are helpless passengers attempting to respond to the forces around them. Growth is created by circumstances outside the business rather than individual decisions and actions made within the business.

In contrast the voluntaristic orientation focuses on the motivations and abilities of the managers in creating the strategic pathway for the business. This is exemplified in the visionary perspective (Westley & Mintzberg, 1989), where a vision of the future state of the organisation is primarily associated with a dominant individual. It is therefore the clarity and conviction with which the vision is communicated and pursued which is the primary factor in explaining organisational strategy. Whilst this construct is a simplification of the multiple perspectives for understanding an organisation's strategy (see Bailey & Johnson, 1992, for a more complete discussion), it does illustrate the potential diversity of possible explanations as to why some businesses grow and others do not.

The question which is now addressed is whether one pole of Astley & Van de Ven's construct is more appropriate than the other for understanding the issue of small business growth. Both orientations have been employed by researchers working in the area of small businesses.

The deterministic orientation has identified many explanatory variables such as the geographic and economic environment (Cooper, 1982; Reynolds, 1986; Stuart & Abetti, 1986; Sandburg & Hofer, 1987). Whilst such research has made a useful contribution it has largely been unable to explain micro-level variations such as the growth / non growth effect (Davidsson, 1991).

The voluntaristic orientation, however, appears to hold more promise. A continuing theme in the literature on organisational growth is the limiting effect of managerial abilities on the development of the business, referred to by Penrose (1959) as the managerial limit. At this point the complexity and scale of the business has pushed the owner/manager's abilities to the limit, this has very real implications for the small business:

*"...the concept of bounded entrepreneurial expertise implies that knowledge is possessed in insufficient depth and inadequate breadth to sustain the optimal rate of expansion, and that the maximum position the small firm can attain is always constrained."*

McGuire (1976: 122)

As noted by McGuire (1976) growth in the small business can be viewed as a function of the managerial expertise within the business and is therefore accelerated by self education and the use of external and internal experts. This theme of self development and learning in the context of growth has been amplified by many authors in the area of small business (McKenna & Oritt, 1981; Jovanovic, 1982; Davidsson, 1991; Kirby & Mullen, 1991). Whilst there have to be deterministic factors which will ultimately influence the *actual* growth of the firm, the voluntaristic orientation provides a perspective for explaining the *intended* growth of the firm. It is therefore the voluntaristic perspective which dominates much of the current work in the small business area largely because of the central role which the owner manager plays in the direction of the business:

*"The importance of the owner-manager in the small business cannot be over emphasised. Because of his or her central function a greater comprehension of the role of the owner manager will enhance the understanding of the small business itself."*

(d'Amboise & Muldowney, 1988: 227)

The position taken is therefore that in order to gain further insights into why a proportion of small businesses grow and others do not, research needs to gain further insights into the small business owners themselves.

### **Current Understanding of the Small Business Owner/Manager**

Research focusing on the small business owner/manager has illuminated many aspects of the individual's characteristics. Stanworth and Gray (1991) have identified a number of themes in research which focuses on the owner/manager; psychological or personality traits (Butteriss, 1971; Lessner & Knapp, 1974; Begley & Boyd, 1986; Perry *et al*, 1988); the need for achievement (McClelland, 1961); risk taking propensity (Brockhaus, 1980); locus of control (Brockhaus, 1982); independence (Collins & Moore, 1970); innovation/creativity (Kanter, 1983). These studies coupled with a wealth of socio-economic data have made the small business owner/manager one of the most researched individual types in the management field.

These studies have enabled researchers to identify the more likely characteristics of small business owner/managers. This has led to the creation of many typologies which seek to categorise and characterise such individuals (*e.g.* Smith, 1967; Storey, 1982; Hornaday, 1990; Chell *et al*, 1991). Whilst such work is of undoubted value, there is still no coherent picture as to why some wish to rapidly expand their business whilst others do not. A common factor to all of these studies is that they have tended to externally identify reasons as to why particular small business owner/managers are successful, they have attributed explanation for growth rather than attempting to establish explanation. There are good reasons for this, practical issues of access and resource limitation make such approaches highly attractive, but as with any managerial issue of this sort, such approaches can only provide a partial explanation.

It is proposed, therefore, that research which attempts to reach the underlying reasons as to why certain small business owner/managers seek to grow more than others, will provide a valuable contribution to the existing body of knowledge.

### **Interpretative Frameworks for Understanding Managers**

A body of work has emerged from the strategic management literature which adopts an interpretive, as opposed to a behavioural, perspective for understanding decision making within organisations. The stance taken is that, as researchers, we must understand how managers see the world in order to understand the decisions which are made. Whilst disciplines such as economics assume an environment where all managers have access to the same information and interpret such information in identical ways, interpretive research has turned to disciplines such as social and cognitive psychology to focus on the very subjectivity which other disciplines attempt to eliminate. Such research has tended to dispel the myth of the rational manager, managers often respond to increased environmental complexity with increased simplification (Duhaime & Schwenk, 1985; Schwenk, 1984), they may also bias, distort or filter stimuli to support their existing belief system (Barnes, 1984; Walsh, 1988).

A group of approaches and methodologies have been utilised to elicit managers' interpretative frameworks, these have been broadly termed cognitive maps and have been adapted from disciplines such as the political sciences (*e.g.* Axelrod, 1976), where detailed analyses have been required of particular individuals or events. These methodologies have been applied to the area of strategic management as a means to elicit how strategists see their environments. Such work has tended to focus on large corporations (Stubbart & Ramaprasad, 1988) and top management teams (Hurst *et al*, 1989).

In view of the observations made on the need for interpretive research to explore the question of small business growth, such mapping techniques allow the researcher to elicit the reasoning or logic used by managers to make particular decisions. Whilst being susceptible to the usual issues of validity and reliability such approaches are able to cast light on new issues hitherto undetected in the literature (Reger, 1988).

### **Research Methodology**

This paper reports on the elicitation and analysis of two cognitive maps from contrasting small retail businesses. The intention being to illustrate the value of the methodology and the issues it raises, rather than to test generalisable hypotheses. However, for the purpose of providing an example to assess the potential insights afforded by this methodology, a number of preliminary hypotheses are proposed:

- 4
- H1:** Growth orientated owner/managers will focus their business activity around the concepts of market share and sales (Storey *et al*, 1988).
- H2:** Zero-growth orientated owner/managers will focus their business activity around the concept of job satisfaction (Storey *et al*, 1988).
- H3:** Both growth orientated and zero-growth orientated owner/managers will place an equal value on profitability in the business (Storey *et al*, 1988).
- H4:** That the higher achieving (growth orientated) owner/managers will demonstrate greater evidence of expert heuristics which will simplify their logic in making strategic decisions (Simon & Chase, 1973; Carroll, 1980).

Hypotheses H1-H3 are developed from work undertaken in the small business sector, most notably the regional manufacturing studies conducted by Storey *et al*, 1988. The final hypothesis draws from research undertaken in the field of cognitive psychology, indicating that experts develop simplified maps of complex situations.

The mapping approach utilised is causal mapping, this represents individual logic as a series of concepts connected by positive or negative causal links. There are many alternative approaches to cognitive mapping (see Huff, 1990, for an overview), this particular methodology was chosen because of its focus on linking concepts and thereby representing a cognitive system and also its ability to relate concrete actions with higher order values which is a theme within the literature on small business growth (Turok, 1991).

For the purposes of this exercise two businesses were selected on the basis of their recent growth history, one a small retail business which had recently doubled its number of outlets to two and had aspirations for future expansion. The second, a larger chain of twelve outlets which had recently closed an outlet and saw no future in further growth. Both respondents were the managing directors of the businesses who also held a major stake in the business. The first was a partnered founder and the second was the son of the founder.

For the purpose of this illustrative analysis it is assumed that one respondent is growth oriented and the other is not. Whilst such an assumption is dependent on how we define growth, and is open to the earlier criticism that research has tended to attribute rather than explain growth oriented behaviour, the assumption is made to illustrate the research approach rather than produce research findings.

The two maps were elicited by means of a personal interview with the respondents. The interviews followed a strict protocol, the interview was framed as a discussion on their view of running their business and a series of concepts derived from exploratory interviews were presented to the respondent to begin the dialogue, the laddering technique was then used to develop the map (Reynolds & Gutman, 1988), laddering involves responding to issues raised by the interviewee with the question; "Why is that important to you?" this allows the meaning of the statement to be defined by the effects the respondent believes it will have. Both the interviews were taped and lasted between 45 and 60 minutes, they were then fully transcribed.

In order to achieve an acceptable level of reliability, the transcripts were appraised by a team of four coders to identify the concepts used in the maps and their causal interaction with other concepts. Following the coding exercise the causal maps were constructed by utilising concepts which had a 75% level of agreement (or greater) between the coders and causal links which had a 50% or higher level of agreement. Whilst agreement levels are not 100%, as this would remove a major degree of the insight provided by the maps, this does provide a framework for ensuring that the researcher's own subjectivity is not systematically distorting the data.

### Analysis of the Maps

Analysis of the maps was undertaken using Graphics COPE, a software package designed to aid managerial problem solving through the construction of causal maps. The analysis is presented in two parts, the first will discuss the content of the maps in relation to the test hypotheses H1-H3. The second part is a structural analysis of the maps which makes no reference to content, but focuses on the nodes (concept locations) and the links between them, this part will deal with an assessment of the final test hypothesis (H4).

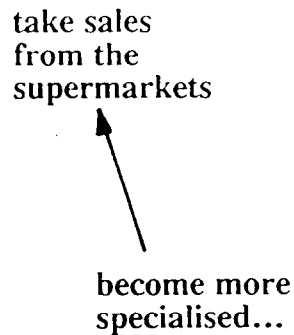
### Content Analysis

Whilst there is overlap in the content of the two maps (Appendix 1), there are also some notable differences. In order to make the analysis of content more meaningful, a number of analyses can be undertaken. The first is the identification of "heads", heads are the final nodes in a causal chain and are also described as end points or values (Gutman, 1982). In comparing the two maps Respondent A's map contained three heads; *Promote the business, Enhance profitability and Retain customers*, in contrast Respondent B's map identified 13 heads which included value orientated statements such as; *Secure future, Maintain control, No ambition to be big* etc.

The analysis package also allows the identification of nodes which are central to the map, in that they are linked to many other nodes, either directly or indirectly. The centrality analysis calculates the number of direct and indirect links and scores the nodes accordingly. For Respondent A the three highest centrality scores were achieved for the following nodes; *Bespoke product, Provides enjoyment and Promotes the business*. Respondent B's map identified three further nodes; *Ease of working life, Reinvest in business and Generate sales*.

**H1:** Growth orientated owner/managers will focus their business activity around the concepts of market share and sales (Storey *et al*, 1988).

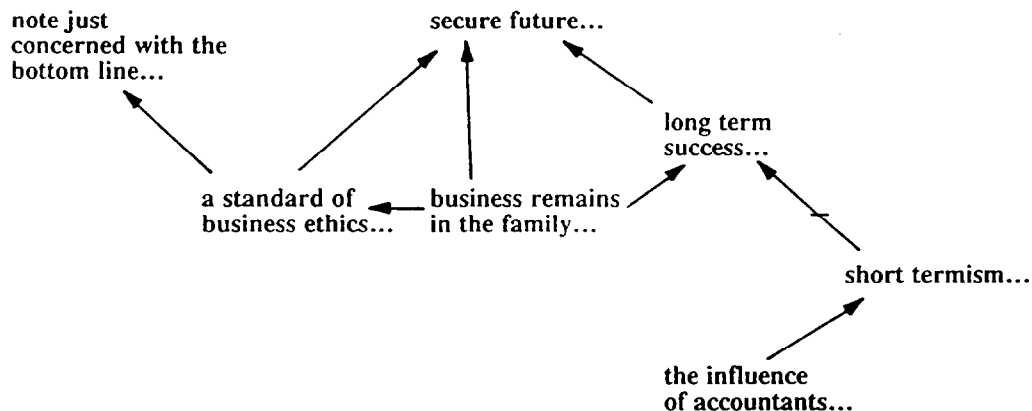
In this example, both maps include concepts which relate to sales and market share. Respondent A (growth orientated) identifies concepts such as differentiation and creating niche markets, Respondent B (zero-growth orientated) offers a competitor driven rationale, that specialisation takes sales from the supermarkets (Figure 1), whereas Respondent A's rationales are customer focused. "Generate Sales" is a highly central concept in Respondent B's map, whereas it has a far less central position in the map of Respondent A.



**Figure 1: Competitively Orientated Concepts for Respondent B (Cluster 3)**

**H2:** Zero-growth orientated owner/managers will focus their business activity around the concept of job satisfaction (Storey *et al*, 1988).

Analysis of Respondent B's map (Appendix 1) provides a number of job satisfaction orientated concepts as illustrated by Figure 2. However it can also be seen that the concept of *provides enjoyment* is a highly central concept in Respondent A's map, the difference between the two may be that the growth orientated individual (A) interlinks this job satisfaction concept with business issues such as retaining customers and communicating with staff whereas in the case of Respondent B it is seen as an end in its own right. In other words, it is not just the nature of the concept, but its interaction with others which may explain differing intentions.

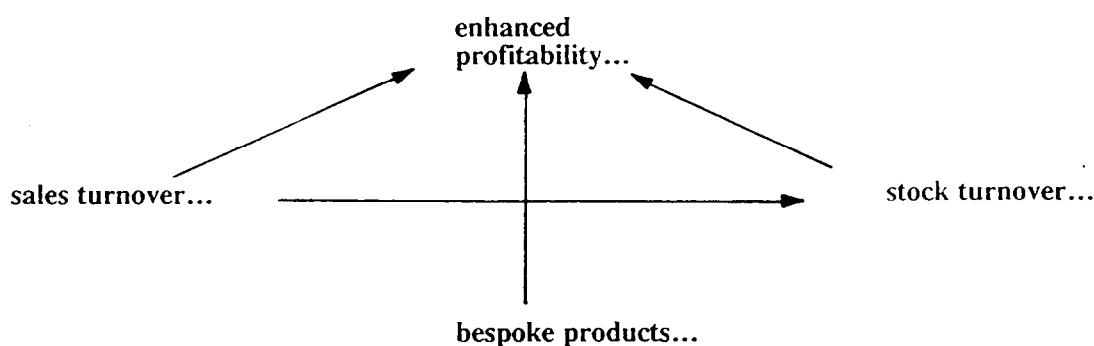


**Figure 2: Job Satisfaction Orientated Concepts for Respondent B (Cluster 9)**

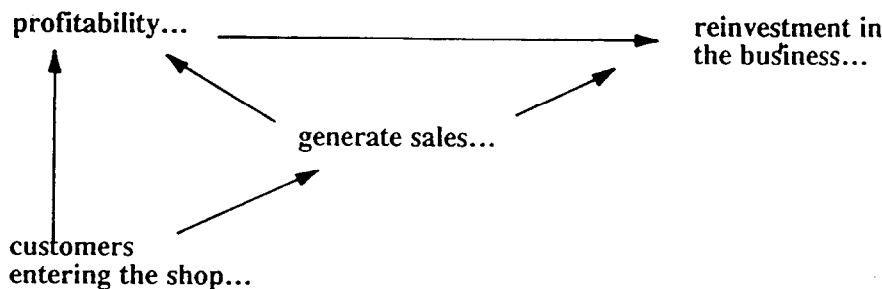
**H3:** Both growth orientated and zero-growth orientated owner/managers will place an equal value on profitability in the business.



Both respondents utilise profitability as a concept, however the immediate domain of the profit concept is related to different concepts in the case of each map (Figures 3 & 4). In the case of Respondent A profitability is clearly a terminal node in this map and therefore an end in its own right, whereas for Respondent B it is a means to the ends of reinvestment which ultimately makes life easier for the respondent. The implication that whilst the concept has importance to both respondents its meaning, as denoted by its relationship with other nodes is very different.



**Figure 3:** Domain of the Profit concept: Respondent A



**Figure 4:** Domain of the Profit concept: Respondent B

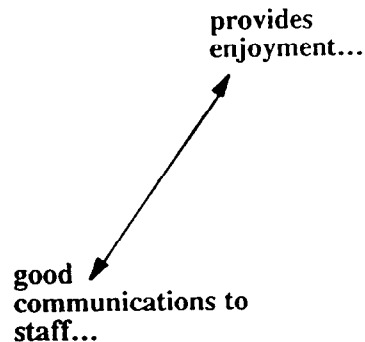
### Structural Analysis

The first point of comparison between the structure of the two maps is their relative size. Respondent A (growth orientated) produced a map with only 15 nodes, whereas Respondent B produced a more complex map with 34 nodes, both interviews lasted a similar length of time and followed the same strict protocol, the maps of both respondents are shown in Appendix 1. The connectedness of the maps refers to the intensity of connections within the map. This can be illustrated by the links to nodes ratio (Eden *et al*, 1992), once more there was a notable contrast between the two maps, Respondent A showing a high level of connectedness with a ratio of 1.6 and Respondent B a low level with a ratio of 0.94, a typical ratio being between 1.15-1.2 (Eden *et al*, 1992).

Graphics COPE is able to perform a cluster analysis which segments the map into groups of interconnected nodes. This analysis is based on simple linkage

clustering (Gower & Ross, 1969) and identifies the more "robust" parts of the map (Eden *et al*, 1992). On performing the cluster analysis, Respondent A's map remained in tact, the map in its entirety forming one robust cluster. With Respondent B the map was fragmented into nine separate clusters populated by between one and eleven nodes. Whilst the total number of nodes (34) would make Respondent B's map more susceptible to clustering than Respondent A (15 nodes), none of the clusters elicited from Respondent B were as large as Respondent A's single cluster.

A further form of structural analysis is the identification of loops within the structure of the map. The significance of loops is that they provide important evidence of the dynamic nature of the map with regard to defining strategy (Bougon & Komocar, 1991). The larger map of Respondent B produced no loops, a single loop was identified in Respondent A's map which used only two concepts as shown in Figure 5.



**Figure 5:** Loop identified for Respondent A

**H4:** That the higher achieving (growth orientated) owner/managers will demonstrate greater evidence of expert heuristics which will simplify their logic in making strategic decisions (Simon & Chase, 1973; Carroll, 1980).

The growth orientated entrepreneur (Respondent A) has produced a robust, highly interconnected map which displays a clear heuristic based around the role of the "*Bespoke products*" which this business offers. In contrast the zero-growth orientated owner/manager has constructed a fragmented and complex map indicating a divergence, rather than convergence of rationales for operating the business. The map is fragmented into nine clusters, lacking a clear focus as to how the respondent believes the business should be operated. A summary of the structural analysis is provided in Table 1.

	<b>Respondent A (Growth)</b>	<b>Respondent B (Zero-Growth)</b>
Number of Nodes	15	34
Number of Links	24	32
Links/Nodes Ratio	1.6	0.94
Clusters	1	9
Loops	1	0
Number of heads	3	13

**Table 1:** Structural Analysis of the Two Maps

The purpose of the analysis presented has been to illustrate the value of this research approach rather than to address the hypotheses raised. The indications are that such an approach can provide new insights into the nature of small business growth. Our current understanding on the nature or rationales of small business owner/managers is currently limited. The indications from this study, is that such maps can illustrate the structure and content of the rationales used to define the strategies which small businesses follow. Hypothesis generation may therefore be an invaluable contribution which such a methodology can provide to management researchers in this area. A tentative hypothesis from this analysis may be to suggest that growth-orientated or owner/managers elicit tightly constructed maps which demonstrate a simple heuristic as to how growth should be achieved.

Whilst this study has utilised a relatively labour intensive analysis, this methodology has many other potential applications in the context of small business research. As a method to elicit the rationales of small business owner/managers, such an approach can provide a valuable framework for surfacing the underlying strategies which are held by these individuals. This approach could therefore be used in an interactive mode to intervene in the strategy development process, this may be particularly appropriate in the start-up phase of a business, or as a mechanism for achieving the transition between the various phases of the business life cycle (Greiner, 1972). Such an exercise would assist in the individual development of the owner/manager and assist in the wider communication of the rationales behind the business as more employees are appointed.

From a policy perspective, it may also provide a framework for identifying those owner-managers with potentially fast growth rationales, many small business owner-managers will declare a desire for growth, but are their rationales sufficiently focused to allow them to achieve it? Whilst the debate on picking winners is a contentious one, such an approach may at least advance our understanding of the intended growth strategies of small business owner/managers.

It is not being suggested that such an approach provides a comprehensive picture of the issues involved, but it is able to make a valuable contribution by surfacing, and thereby making explicit, rationales which are often undetected by the more accepted methodologies for examining small businesses.

## REFERENCES

- d'Amboise, G. & Muldowney, M. (1988). Management Theory for Small Business: Attempts and Requirements, *Academy of Management Review*, 13, 2, 226-240.
- Astley, G. W. & Van de Ven, A. H. (1983). Central Perspectives and Debates in Organization Theory. *Administrative Science Quarterly*, 28, pp 245-273.
- Axelrod, R. (Ed.) (1976). *Structure of Decision: The Cognitive Maps of Political Elites*. Princeton, NJ.: Princeton University Press.
- Bailey, A. & Johnson, G. (1992). An Integrated Exploration of Strategic Decision-Making. Paper presented to the Strategic Management Conference, London.
- Barnes, J.H.Jr. (1984). 'Cognitive Biases and Their Impact on Strategic Planning'. *Strategic Management Journal*, 5, 129-137.
- Begley, T. M. and Boyd, D. P. (1987). A Comparison of Entrepreneurs and Managers of Small Business Firms. *Journal of Management*, 13, 1, 99-108.
- Birch, D. L. (1979). *The Job Generation Process, MIT Program on Neighbourhood and Regional Change*. MIT Press, Cambridge, Mass.
- Bougon, M.G. & Komocar, J.M. (1990). 'Directing Strategic Change: A Dynamic Wholistic Approach.' in Huff, A.S. *Mapping Strategic Thought*. Chichester: John Wiley. pp 135-164.
- Brockhaus, R. H. (1980). Risk Taking Propensity of Entrepreneurs. *Academy of Management Journal*, 23, 3, 509-520.
- Brockhaus, R. H. (1982). The Psychology of the Entrepreneur. In C. A. Kent, D. L. Sexton and K. H. Vesper, (Eds.) *Encyclopedia of Entrepreneurship*, Cambridge, Mass.: Ballinger; 25-48.
- Butteriss, M. A. (1971). The Study of Organisational and Personality Factors Influencing Decisions About Growth and Development in Small Firms. Unpublished MSc thesis, University of Wales, Cardiff.
- Carroll J S (1980) "Analyzing Decision Behaviour: The Magician's Audience" in 'Cognitive Processes in Choice and Decision Behaviour' Wallsten T S (Ed.), Erlbaum, Hillsdale, NJ
- Chell, E., Haworth, J. M. & Brearly, S. A. (1991). *The Entrepreneurial Personality: Concepts, Cases and Categories*. London & New York, Routledge.
- Collins, O. F. & Moore, D. G. (1970). *The Organisation Makers*, New York: Appleton-Century-Crofts.

- Cooper, A. C. (1982). The Entrepreneurship Small Business Interface, in C. A. Kent, D. L. Sexton & K. H. Vesper (Eds.), *Encyclopedia of Entrepreneurship*, Engelwood Cliffs, N.J.: Prentice Hall, pp 39-57.
- Curran, J. (1986). *Bolton Fifteen Years On: A Review and Analysis of Small Business Research in Britain, 1971-1986*. Small Business Research Trust.
- Davidsson, P. (1991). Continued entrepreneurship: Ability, need and opportunity as determinants of small firm growth. In *Recent Research in Entrepreneurship*. Davies, L. G. & Gibb, A. A. (Eds.). Aldershot, Avebury, 205-229.
- Doyle, J. & Gallagher, C. (1986). *The Size Distribution, Potential for Growth and Contribution to Job Generation of Firms in the UK*. Research Report No. 7, Department of Industrial Management, University of Newcastle Upon Tyne.
- Duhaime, I.M. and Schwenk, C.R. (1985). 'Conjectures on Cognitive Simplification in Acquisition and Divestment Decision Making'. *Academy of Management Review*, **10**, 2, 287-295.
- Eden, C., Ackermann, F. & Cropper, S. (1992). The Analysis of Cause Maps. *Journal of Management Studies*, **29**, 3, 309-324.
- Gower, J. C. & Ross, G. J. S. (1969). Minimum Spanning Trees and Single Linkage Cluster Analysis. *Applied Statistics*, **18**, 56-64.
- Greiner, L. E. (1972). Evolution and Revolution as Organisations Grow. *Harvard Business Review*, July-August, 37-46.
- Gutman, J. (1982). A Means-End Chain Model Based on Consumer Categorisation Processes. *Journal of Marketing*, **46**, Spring, 60-72.
- Hakim, C. (1989). *Identifying Fast Growth Small Firms*. Employment Gazette, January, 29-41.
- Hannan, M. T. & Freeman, J. H. (1989). *Organisational Ecology*, Boston, Mass.: Harvard University Press.
- Hornaday, R. W. (1990). Dropping the E-Words from Small Business Research: An Alternative Typology. *Journal of Small Business Management*, **28**, 4, October, 22-33.
- Huff, A. S. (1990). *Mapping Strategic Thought*. Chichester: John Wiley & Sons.
- Hurst, D. K., Rush, J. C. & White, R. E. (1989). Top Management Teams and Organizational Renewal. *Strategic Management Journal*, **10**, 87-105.
- Jovanovic, B. (1982). Selection and Evolution of Industry. *Econometrica*, **50**, 649-670.
- Katner, R. M. (1983). *The Change Masters*. New York: Simon & Schuster.
- Kirby, D. A. & Mullen, D. C. (1991). Education Support for the Growth Company. In *Recent Research in Entrepreneurship*. Davies, L. G. & Gibb, A. A. (Eds.). Aldershot, Avebury, 258-265.

- Kumar, M. S. (1984). *Growth, Acquisition and Investment*. Cambridge: Cambridge University Press.
- Lessner, M. & Knapp, R. R. (1974). Self-Actualization and Entrepreneurial Orientation Among Small Business Owners: A Validation Study of the POI. *Educational and Psychological Measurement*, **34**, 455-460.
- McGuire, J. W. (1976). The Small Enterprise in Economics and Organizational Theory. *Journal of Contemporary Business*, **5**, 2, Spring, pp 115-138.
- McKenna, J. F. & Oritt, P. L. (1981). Growth Planning for Small Business. *American Journal of Small Business*, **5**, 4, April-June, pp 19-29.
- O'Farrell, P. N. & Hitchens, D. M. W. N. (1988). Alternative Theories of Small Firm Growth. *Environment & Planning*, **20**, 1365-1383.
- Penrose, E. T. (1959). *The Theory of the Growth of the Firm*. Oxford: Basil-Blackwell.
- Perry, C., Meredith, G. G. & Cunnington, H. J. (1988). Relationship Between Small Business Growth and Personal Characteristics of Owner/Managers in Australia. *Journal of Small Business Management*, April, 76-79.
- Reger, R.K. (1988) *Competitive Positioning in the Chicago Banking Market: Mapping the Mind of the Strategist*. Unpublished PhD Thesis, University of Illinois at Urbana-Champaign.
- Reynolds, P. D. (1986). Organizations: Predicting Contributions and Survival. In, *Frontiers in Entrepreneurship Research*, Wellesey, MA.: Babson College.
- Reynolds, T.J. & Gutman, J. (1988). 'Laddering Theory, Method, Analysis and Interpretation'. *Journal of Advertising Research*, February / March, 11-31.
- Rowe, A. J., Dickel, K. E., Mason, R. O. & Snyder, N. H. (1989). *Strategic Management: A Methodological Approach*, (3rd Edition). New York: Addison-Wesley.
- Sandburg, W. R. & Hofer, C. W. (1987). Improving New Venture Performance: The Role of Strategy, Industry Structure, and the Entrepreneur. *Journal of Business Venturing*, **2**, 5-28.
- Schwenk, C.R. (1984). 'Cognitive Simplification Processes in Strategic Decision Making'. *Strategic Management Journal*, **5**, 111-128.
- Simon, H.A. & Chase, W.G. (1973). 'Skill in Chess'. *American Scientist*, **61**, 394-403.
- Smith, N. R. (1967). *The Entrepreneur and His Firm: The Relationship Between Type of Man and Type of Company*. Bureau of Business and Economic Research, East Lansing, Mich.: Michigan State University.
- Storey, D. J. (1982). *Entrepreneurship and the New Firm*. London: Croom Helm.
- Storey, D. J. & Johnson, S. (1987a). *Are Small Firms the Answer to Unemployment?* London, Employment Institute.
- Storey, D. J. & Johnson, S. (1987b). *Job Generation and Labour Market Change*. London, Macmillan.

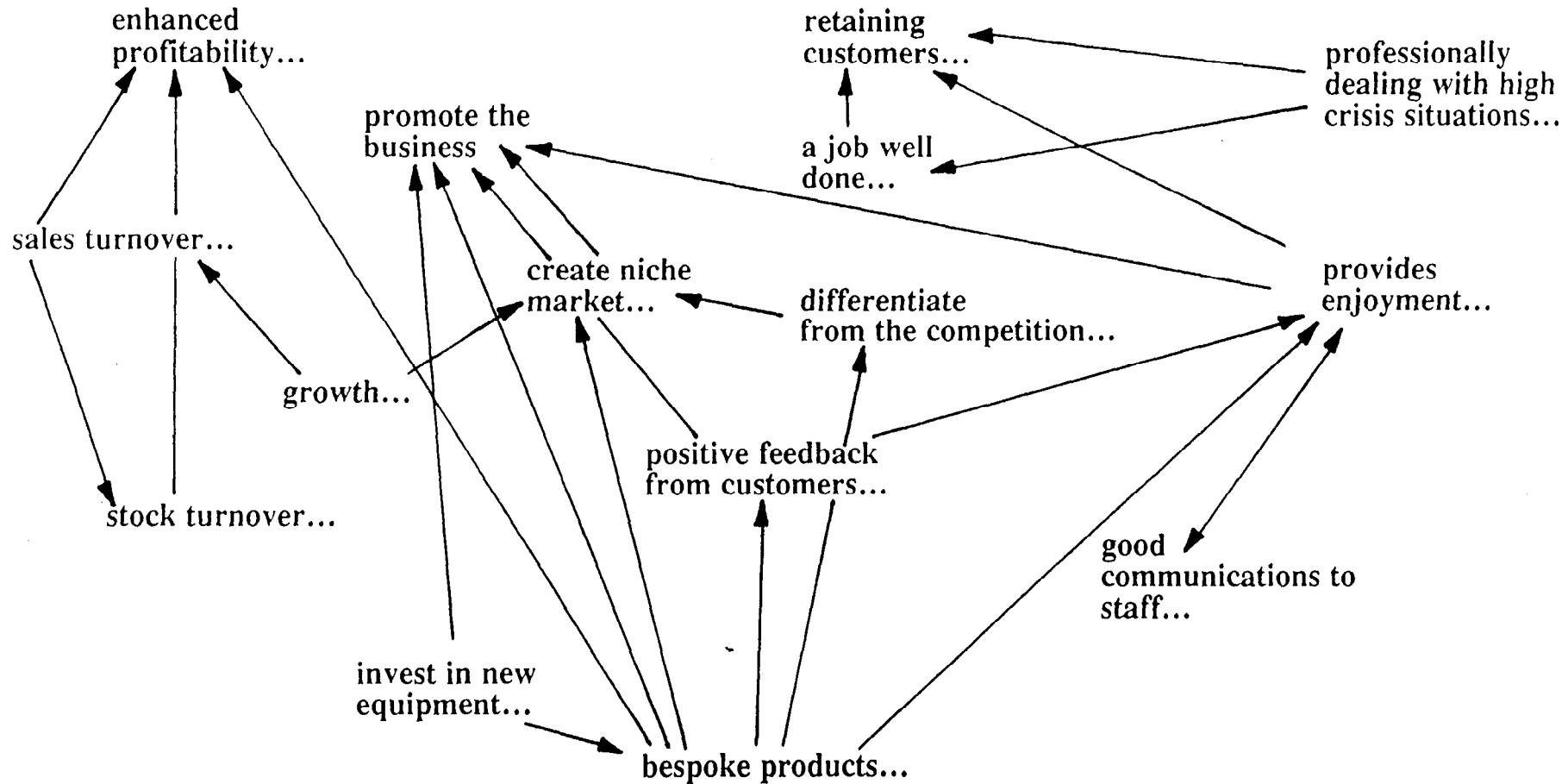
- Storey, D. J., Keasey, K., Watson, R. & Wynarczyk, P. (1987). *The Performance of Small Firms: Profits, Jobs and Failures*. London, Croom Helm.
- Storey, D. J., Watson, R. & Wynarczyk, P. (1988). *Fast Growth Small Businesses: A Study of Forty Small Firms in North East England*. Research Paper No. 67, London: Department of Employment.
- Stuart, R. W. & Abetti, P. A. (1986). Field Study of Start Up Ventures, Part 2: Predicting Initial Success. In, *Frontiers in Entrepreneurship Research*, Wellesey, MA.: Babson College.
- Stubbart, C.I. & Ramaprasad, A. (1988) 'Probing Two Chief Executives' Schematic Knowledge of the US Steel Industry Using Cognitive Maps'. *Advances in Strategic Management*, 5, 139-164.
- Turok, I. (1991). Which Small Firms Grow? In Davies, L. G. & Gibb A. A. (Eds.) *Recent Research in Entrepreneurship*. Aldershot, Avebury, 29-44.
- Walsh, J.P. (1988). 'Selectivity and Selective Perception: An Investigation of Managers' Belief Structures and Information Processing'. *Academy of Management Journal*, 31, 4, 873-896.
- Westhead, P. (1988). A Typology of New Manufacturing Firm Founders in Wales: Performance Measures and Public Policy Implications. *Cranfield School of Management Working Paper Series, No. 46/88*.
- Westley, F. & Mintzberg, H. (1989). Visionary Leadership and Strategic Management, *Strategic Management Journal*, 10, 17-32.

**APPENDIX 1**



# THINKING ABOUT GROWTH: A COGNITIVE MAPPING APPROACH TO UNDERSTANDING SMALL BUSINESS DEVELOPMENT

## RESPONDENT A (GROWTH)



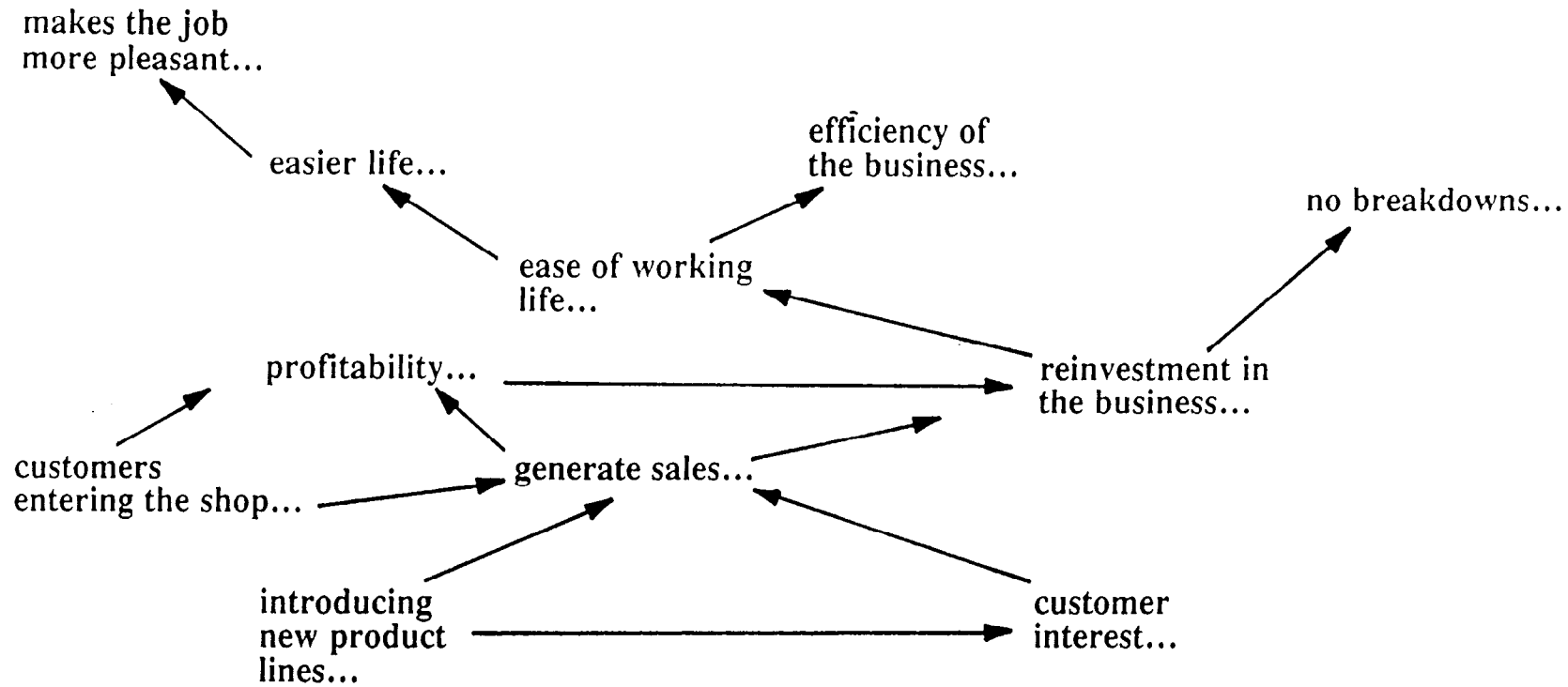
The Centre for Strategic Management and Organisational Change

*Reproduction of this visual aid in an unaltered state is allowed for personal use only.*

**Cranfield**   
School of Management

# THINKING ABOUT GROWTH: A COGNITIVE MAPPING APPROACH TO UNDERSTANDING SMALL BUSINESS DEVELOPMENT

## RESPONDENT B (ZERO GROWTH)



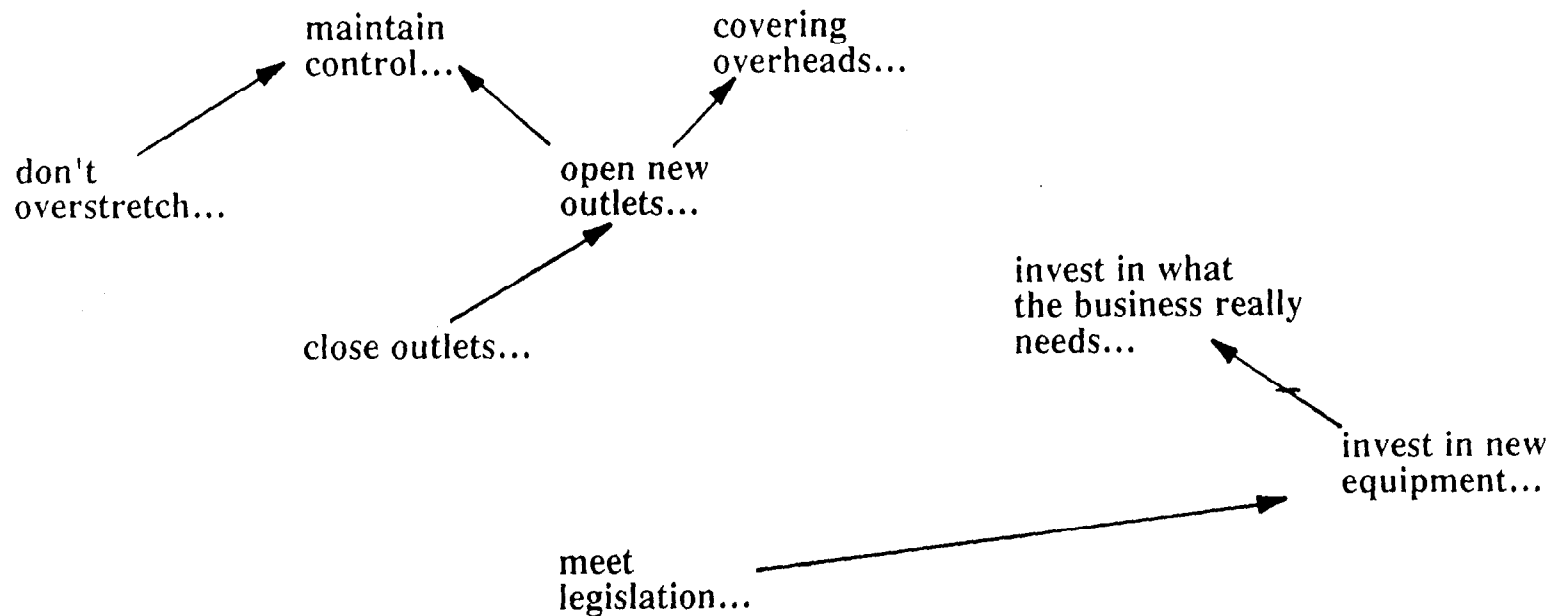
The Centre for Strategic Management and Organisational Change

*Reproduction of this visual aid in an unaltered state is allowed for personal use only.*

**Cranfield**   
School of Management

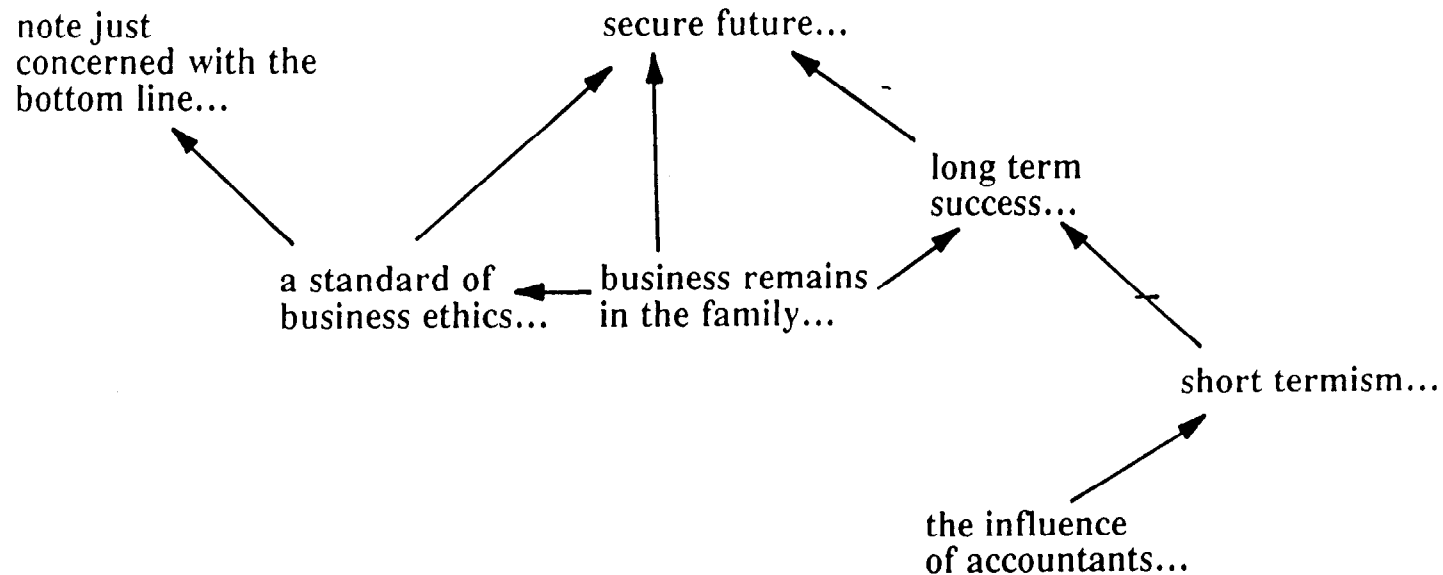
THINKING ABOUT GROWTH: A COGNITIVE MAPPING  
APPROACH TO UNDERSTANDING SMALL BUSINESS DEVELOPMENT

RESPONDENT B (ZERO GROWTH)



# THINKING ABOUT GROWTH: A COGNITIVE MAPPING APPROACH TO UNDERSTANDING SMALL BUSINESS DEVELOPMENT

## RESPONDENT B (ZERO GROWTH)



The Centre for Strategic Management and Organisational Change

*Reproduction of this visual aid in an unaltered state is allowed for personal use only.*

**Cranfield**   
School of Management

# THINKING ABOUT GROWTH: A COGNITIVE MAPPING APPROACH TO UNDERSTANDING SMALL BUSINESS DEVELOPMENT

## RESPONDENT B (ZERO GROWTH)

widen product  
range...



develop own  
products...

take sales  
from the  
supermarkets



become more  
specialised...

no ambition to  
be big...



make a decent  
living...

The Centre for Strategic Management and Organisational Change

*Reproduction of this visual aid in an unaltered state is allowed for personal use only.*

**Cranfield**   
School of Management

**CRANFIELD SCHOOL OF MANAGEMENT  
WORKING PAPER SERIES  
List No 5, 1991**

- SWP 1/91 Colin Barrow  
"How Green are Small Companies? A Survey  
by Cranfield School of Management"
- SWP 2/91 Graham Clark  
"Strategies for Product and Customer Support  
- A Research Report"
- SWP 3/91 David Parker  
"Tackling Tax Evasion in the UK"
- SWP 4/91 John McGee and Susan Segal-Horn  
"Strategic Space and Industry Dynamics: The  
Implications for International Marketing  
Strategy"
- SWP 5/91 Chris Brewster  
"Culture: The International Dimension"
- SWP 6/91 Chris Brewster and Helen Peck  
"Management Changes in China and Eastern  
Europe: Dubious Parallels"
- SWP 7/91 Keith Ward, Sri Srikanthan, Richard Neal  
"Marketing Investment Analysis: The Critical  
Success Factors for Financially Evaluation and  
Effectively Controlling Marketing Investment  
Decisions."
- SWP 8/91 Andy Bytheway and Bernard Dyer  
"Electronic Data Interchange: Persuading  
Senior Management"
- SWP 9/91 Alan Warr  
"Strategic Opportunities and Information  
Systems Management"
- SWP 10/91 Alan Warr  
"Bridging the Gap - Implementing Information  
Systems Strategies"
- SWP 11/91 Alan Warr  
"Mapping the Applications Portfolio onto the  
Projects Portfolio"
- SWP 12/91 Siobhan Alderson & Andrew Kakabadse  
"The Top Executive Competencies Survey - A  
Literature Review"
- SWP 13/91 Mike Sweeney  
"Determining a Technology Strategy for  
Competitive Advantage"
- SWP 14/91 Len Holden and Helen Peck  
"Bulgaria, Perestroika, Glasnost and  
Management"
- SWP 15/91 Robert Brown & Andy Burnett  
"Do we need Enterprising Graduates?"
- SWP 16/91 Ian Oram & Clare Tagg  
"Using an IS Strategic Model to give a  
Strategy for Teaching IS"
- SWP 17/91 Len Holden  
"Employee Communications in Europe"
- SWP 18/91 Susan Segal-Horn  
"The Globalisation of Service Industries"
- SWP 19/91 David Ballantyne  
"Coming to Grips with Service Intangibles,  
using Quality Management Techniques"
- SWP 20/91 Colin Armistead  
"Resource Productivity in the Services Sector"
- SWP 21/91 David Parker & John Burton  
"Rolling back the State? : UK Tax and  
Government Spending Changes in the 1980s"
- SWP 22/91 Simon Knox & David Walker  
"Involvement, Cognitive Structures and Brand  
Loyalty: The Empirical Foundations for a  
Unifying Theory"
- SWP 23/91 David Ballantyne  
"Internal Marketing, Collaboration and  
Motivation in Service Quality Management"
- SWP 24/91 Chris Brewster  
"Starting again: Industrial Relations in  
Czechoslovakia"
- SWP 25/91 Cliff Bowman & Gerry Johnson  
"Surfacing Managerial Patterns of Competitive  
Strategy: Interventions in Strategy Debates"
- SWP 26/91 Malcolm Harper  
"Cooperatives and Other Group Enterprises:  
What are the Critical Factors for Success? A  
Survey of Informed Opinion."
- SWP 27/91 Mike Sweeney  
"The Strategic Management of Manufacturing:  
From Waste to Haste"
- SWP 28/91 Mike Sweeney  
"How to Achieve Competitive Edge by  
Simultaneous Process Engineering"
- SWP 29/91 Mike Sweeney  
"Towards a Unified Theory of Strategic  
Manufacturing Management"

- SWP 30/91 David Ballantyne, Martin Christopher & Adrian Payne  
"The Pathology of Company-Wide Quality Initiatives: Seven Prescriptions for Failure"
- SWP 31/91 Martin Christopher, Adrian Payne & David Ballantyne  
"Relationship Marketing: Bringing Quality, Customer Service and Marketing Together"
- SWP 32/91 Mike Fleming & Joe Nellis  
"The Development of Standardised Indices for Measuring House Price Inflation Incorporating Physical and Locational Characteristics"
- SWP 33/91 Cliff Bowman  
"Charting Competitive Strategy"
- SWP 34/91 Roland Calori, Gerry Johnson & Philippe Sarnin  
"French and British Top Managers' Understanding of the Structure and the Dynamics of their Industries: A Cognitive Analysis and Comparison"
- SWP 35/91 Michael Sweeney  
"Manufacturing-Led Competitiveness: Use Maths not Myths"
- SWP 36/91 Robert Brown, Andrew Norton & Bill O'Rourke  
"Case Study - Beverley plc"
- SWP 37/91 Malcolm Harper & John Hailey  
"Management Development for Enterprise Promotion: Non-Governmental Organisations and the Development of Income Generating Enterprise"
- SWP 38/91 Shaun Tyson & Noeleen Doherty  
"The Redundant Executive: Personality and the Job Change Experience"
- SWP 39/91 Yochanan Altman  
"On Managing Volunteers - Absence of Monetary Compensation and its Implication on Managing Voluntary Organisations: The Issues of Motivation, Control and Organisational Structure."
- SWP 40/91 David Parker  
"Privatisation Ten Years On: A Critical Analysis of its Rationale and Results."
- SWP 41/91 Ian Oram  
"Implications of an IS Strategic Model for IS Development"
- SWP 42/91 Shaun Tyson  
"1992: An Investigation of Strategies for Management Development"
- SWP 43/91 Malcolm McDonald  
"The Changing Face of Marketing"
- SWP 44/91 Malcolm McDonald  
"Teaching by Degrees"
- SWP 45/91 Malcolm McDonald & John Leppard  
"Marketing Planning and Corporate Culture"
- SWP 46/91 Colin Barrow & Andy Burnett  
"The Single Market and Small Growing Companies in the UK: A Survey by Cranfield School of Management"
- SWP 47/91 Colin Barrow  
"Key Staff Recruitment in Small Firms in the UK: A Survey by Cranfield School of Management"
- SWP 48/91 Yochanan Altman  
"Organisational Consultancy and Clinical Psychology - The Meeting of Two Worlds"
- SWP 49/91 John Hailey & Jon Westborg  
"A New Role for Development Agencies: Non-Government Organisations and Enterprise Development"
- SWP 50/91 Paul Burns & Christine Choisne  
"The Attitudes of Small and Medium-Sized Companies in Britain and France to the Business Environment in the First Half of 1991"
- SWP 51/91 Paul Burns  
"The European Market"
- SWP 52/91 Shailendra Vyakarnam  
"The Mismatch between Academic and Practitioner Constructs of Ethics : Implications for Business Schools"
- SWP 53/91 Cliff Bowman  
"Managerial Perceptions of Porter's Generic Strategies"
- SWP 54/91 Adrian Payne and Flemming Poufelt  
"Increasing the Effectiveness of Mergers and Acquisitions within the Management Consulting Industry"
- SWP 55/91 John Hailey  
"The Small Business Sector in Developing Economies"

SWP 56/91 Colin Armistead & Graham Clark  
"Capacity Management in Services and the  
Influence on Quality and Productivity  
Performance"

SWP 57/91 Colin New  
"World Class Manufacturing versus Strategic  
Trade Offs"

SWP 58/91 Colin Armistead & John Mapes  
"Supply Networks and the Changing Role of  
Operations Managers"

SWP 59/91 Brett Collins & Adrian Payne  
"Internal Services Marketing"

SWP 60/91 Andrew Myers, Mairi Bryce & Andrew  
Kakabadse  
"Business Success and 1992: The Need for  
Effective Top Teams"

SWP 61/91 Malcolm McDonald  
"Strategic Marketing Planning: A State of the  
Art Review"

SWP 62/91 Malcolm McDonald  
"Excellent Selling can Seriously Damage a  
Company's Health"

SWP 63/91 Graham Clark & Colin Armistead  
"After Sales Support Strategy: A Research  
Agenda"

SWP 64/91 Graham Clark & Colin Armistead  
"Barriers to Service Quality: The Capacity,  
Quality, Productivity Balance"

SWP 65/91 Ariane Hegewisch  
"European Comparisons in Rewards Policies:  
The Findings of the First Price  
Waterhouse/Cranfield Survey"

SWP 66/91 Andy Bailey & Gerry Johnson  
"Perspectives of the Process of Strategic  
Decision-Making"

SWP 67/91 Collin Randlesome  
"East German Managers - From Karl Marx to  
Adam Smith?"

SWP 68/91 Paul Burns & Christine Choisine  
"High Performance SMEs: A Two Country  
Study"

SWP 69/91 David Parker  
"Ownership, Managerial Changes and  
Performance"

SWP 70/91 Graham Elkin (Visiting Fellow)  
"Socialisation and Executive MBA  
Programmes"

SWP 71/91 Shai Vyakarnam  
"The New Europe from the Third World"

SWP 72/91 John Hailey  
"Small Business Development in the  
Developing World: An Overview of  
Contemporary Issues in Enterprise  
Development"

SWP 73/91 Paul Burns  
"Training Within Small Firms"

SWP 74/91 Paul Burns & Christine Choisine  
"High Performance SMEs in Britain and  
France: Strategies and Structures"

SWP 75/91 Robert Brown et al  
"UK Tax Implications for the Small Business"

#### SCHOOL WORKING PAPERS LIST NO 6, 1992

SWP 1/92 Mike Sweeney  
"How to perform simultaneous process  
engineering"

SWP 2/92 Paul Burns  
"The Management of General Practice"

SWP 3/92 Paul Burns  
"Management in General Practice: A Selection  
of Articles"

SWP 4/92 Simon Knox & David Walker  
"Consumer involvement with grocery brands"

SWP 5/92 Deborah Helman and Adrian Payne  
"Internal marketing: myth versus reality?"

SWP 6/92 Leslie de Chernatony and Simon Knox  
"Brand price recall and the implications for  
pricing research"

SWP 7/92 Shai Vyakarnam  
"Social Responsibility in the UK Top 100  
Companies"

SWP 8/92 Susan Baker, Dr Simon Knox and Dr Leslie  
de Chernatony  
"Product Attributes and Personal Values: A  
Review of Means-End Theory and Consumer  
Behaviour"



- SWP 9/92 Mark Jenkins  
"Making Sense of Markets: A Proposed Research Agenda"
- SWP 10/92 Michael T Sweeney and Ian Oram  
"Information Technology for Management Education: The Benefits and Barriers"
- SWP 11/92 Keith E Thompson (Silsoe College)  
"International Competitiveness and British Industry post-1992. With Special Reference to the Food Industry"
- SWP 12/92 Keith Thompson (Silsoe College)  
"The Response of British Supermarket Companies to the Internationalisation of the Retail Grocery Industry"
- SWP 13/92 Richard Kay  
"The Metaphors of the Voluntary/Non-Profit Sector Organising"
- SWP 14/92 Robert Brown and Philip Poh  
"Aniko Jewellers Private Limited - Case Study and Teaching Notes"
- SWP 15/92 Mark Jenkins and Gerry Johnson  
"Representing Managerial Cognition: The Case for an Integrated Approach"
- SWP 16/92 Paul Burns  
"Training across Europe: A Survey of Small and Medium-Sized Companies in Five European Countries"
- SWP 17/92 Chris Brewster and Henrik Holt Larsen  
"Human Resource Management in Europe - Evidence from Ten Countries"
- SWP 18/92 Lawrence Cummings  
"Customer Demand for 'Total Logistics Management' - Myth or Reality?"
- SWP 19/92 Ariane Hegewisch and Irene Bruegel  
"Flexibilisation and Part-time Work in Europe"
- SWP 20/92 Kevin Daniels and Andrew Guppy  
"Control, Information Seeking Preference, Occupational Stressors and Psychological Well-being"
- SWP 21/92 Kevin Daniels and Andrew Guppy  
"Stress and Well-Being in British University Staff"
- SWP 22/92 Colin Armistead and Graham Clark  
"The Value Chain in Service Operations Strategy"
- SWP 23/92 David Parker  
"Nationalisation, Privatisation, and Agency Status within Government: Testing for the Importance of Ownership"
- SWP 24/92 John Ward  
"Assessing and Managing the Risks of IS/IT Investments"
- SWP 25/92 Robert Brown  
"Stapleford Park: Case Study and Teaching Notes"
- SWP 26/92 Paul Burns & Jean Harrison  
"Management in General Practice - 2"
- SWP 27/92 Paul Burns & Jean Harrison  
"Management in General Practice - 3"
- SWP 28/92 Kevin Daniels, Leslie de Chernatony & Gerry Johnson  
"Theoretical and Methodological Issues concerning Managers' Mental Models of Competitive Industry Structures"
- SWP 29/92 Malcolm Harper and Alison Rieple  
"Ex-Offenders and Enterprise"
- SWP 30/92 Colin Armistead and Graham Clark  
"Service Quality: The Role of Capacity Management"
- SWP 31/92 Kevin Daniels and Andrew Guppy  
"Stress, Social Support and Psychological Well-Being in British Chartered Accountants"
- SWP 32/92 Kevin Daniels and Andrew Guppy  
"The Dimensionality and Well-Being Correlates of Work Locus of Control"
- SWP 33/92 David Ballantyne, Martin Christopher, Adrian Payne and Moira Clark  
"The Changing Face of Service Quality Management"
- SWP 34/92 Chris Brewster  
"Choosing to Adjust: UK and Swedish Expatriates in Sweden and the UK"
- SWP 35/92 Robert Brown, with Peter Cook et al  
"Goldsmiths Fine Foods - Case Study and Teaching Notes"
- SWP 36/92 Mike Sweeney  
"Strategic Manufacturing Management: Restructuring Wasteful Production to World Class"

SWP 37/92 Andy Bailey & Gerry Johnson  
"An Integrated Exploration of Strategic  
Decision-Making"

SWP 38/92 Chris Brewster  
"European Human Resource Management:  
Reflection of, or Challenge to, the American  
Concept"

SWP 39/92 Ute Hanel, Kurt Volker, Ariane Hegewisch  
and Chris Brewster  
"Personnel Management in East Germany"

SWP 40/92 Lawrence Cummings  
"Logistics goes Global - The Role of Providers  
and Users"

SWP 41/91 Roger Seaton & Martin Cordey-Hayes  
"Interactive Models of Industrial Technology  
Transfer: A Process Approach"

SWP 42/92 Susan Segal-Horn  
"The Logic of International Growth for  
Service Firms"

SWP 43/92 Mike Sweeney  
"Benchmarking for Strategic Manufacturing  
Management"

SWP 44/92 Paul Burns  
"Financing SMEs in Europe: A Five Country  
Study"

SWP 45/92 Robert Brown  
"The Graduate Enterprise Programme - Has it  
been Worthwhile?"

SWP 5/93 Kevin Daniels, Leslie de Chernatony &  
Gerry Johnson  
"Validating a Method for Mapping Managers'  
Mental Models of Competitive Industry  
Structures"

SWP 6/93 Kevin Daniels & Andrew Guppy  
"Occupational Stress, Social Support, Job  
Control and Psychological Well-Being"

SWP 7/93 Colin Fletcher, Ruth Higginbotham and  
Peter Norris  
"The Inter-Relationships of Managers' Work  
Time and Personal Time"

SWP 8/93 Mike Sweeney  
"A Framework for the Strategic Management  
of both Service and Manufacturing  
Operations"

SWP 9/93 Colin Armistead and Graham Clark  
"The 'Coping' Capacity Management Strategy  
in Services and the Influence on Quality  
Performance"

SWP 10/93 Ariane Hegewisch  
"Equal Opportunities Policies and  
Developments in Human Resource  
Management: A Comparative European  
Analysis"

SWP 11/93 Paula Stanley  
"Service to the Courts: The Offender's  
Perspective"

### **CRANFIELD WORKING PAPERS** List No 7, 1993

SWP 1/93 John Mapes  
"The Effect of Limited Production Capacity on  
Safety Stock Requirements for Periodic  
Review Inventory Systems"

SWP 2/93 Shai Vyakarnam & Alison Rieple  
"Corporate Entrepreneurship: A Review"

SWP 3/93 Cliff Bowman & David Faulkner  
"Pushing on a String: Uncertain Outcomes  
from Intended Competitive Strategies"

SWP 4/93 Susan Baker & Mark Jenkins  
"The Role of Values in the Design and  
Conduct of Management Research:  
Perspectives on Managerial and Consumer  
Cognition"