

GROWING AND DEVELOPING OLD ECONOMY FIRMS

Anne Smith¹

Glasgow Caledonian University

Bryan K Temple**

Glasgow Caledonian University

ABSTRACT

This paper paints a textual picture of two old economy firms in Scotland over a five-year period. It offers a longitudinal qualitative analysis into the processes and functions of the firms. The study draws on business development and knowledge transfer literature to provide research frameworks and underpin the analysis. The fundamental aim of the study was to understand how these businesses operate. The results give a narrow but essentially deep insight into important current issues affecting the development of such firms.

Small and medium-sized, "old economy" firms, mainly family-owned, represent the vast majority of business organizations in the UK and are particularly vulnerable to economic events, political decisions, policy change and natural disasters. Their ability to adapt and transform will hold the key to economic growth and competitiveness. This paper shows clearly the challenges facing the small or medium-sized "old economy" firms, which are restructuring for growth and development in the 21st Century.

Keywords: SME, business development, old economy, family owned business

*anne.smith@gcal.ac.uk, **bkte@gcal.ac.uk

INTRODUCTION

The Resilience of Established Small Firms

Small and medium-sized firms (SME) account for 99.8% of the UK's 3.7M businesses and 56% of employment (DTI 1998). About 76% of UK firms are family businesses (Hayward 1990) and it is likely that 99.8% of these are SME. A comparative study of 1000 Scottish and Irish family firms with >10 employees found that 44% of the Scottish firms were first generation, 29% were second generation, and 27% had been trading for three or more generations (Dunn 1995). Thus about that 43% of the SME trading in Scotland have passed into the hands of second or more generations. Their survival testifies to an ability both to adapt and to deal with changes, which have affected most aspects of their internal and external operating environments.

The Nature of the Changes in the Business Environment

The changes which have taken place in the UK in each decade of the post-war period have been quite diverse in both their nature and their impact and have consequently posed very different challenges for firms. Regulatory change has formed one important category. Technical change has been another.

The current tendency of companies to concentrate on core business and to sub-contract for complementary expertise has been a mixed blessing for traditional businesses because their expertise is being replicated in the Pacific Rim and they need to change or die. It can be very difficult for these types of company because they may often be unaware of the possibilities to change. During the post-war period, the West of Scotland has presided over a huge reduction in demand for a wide range of technical skills as a consequence of the closure of the railway and shipbuilding manufacturing industries. They were supplied by a complex infrastructure of smaller companies, many of who have now disappeared. In consequence, there is a large pool of labour with inappropriate skill sets for the changed environment.

Changes of this nature have not only affected the external environment of the firm; they have also affected their internal values to the extent that they have had to question the value of their core knowledge/expertise defined in relation to their original market. The firm must re-evaluate its business. It must identify what value has been retained through a clear analysis of its markets and its competitors (both current and potential) to provide a benchmark by which the value in the firm can be measured.

Some environmental changes appear to offer relatively easy routes to improving competitiveness. For instance, the emergence of specialist suppliers may allow cost cutting and improvements in quality due to the outsourcing of non-core functions (Rosenberg 1963). This still begs the question of which core functions really have sufficient value and ability to support growth in light of the changed conditions. Strategic outsourcing decisions must be preceded by a reassessment of the viability of the components of the core. These are likely to include important tacit elements, which cannot be codified and so may be overlooked (Fleck 1998).

These are the sorts of challenges that small firms, which have navigated a course through two or more generations of owners, have had to address.

Knowledge and Culture

Enterprises seem to evolve through a Darwinian mechanism. Those that survive have adjusted and responded to markets. Extraordinary success in small enterprises was identified in the “Middle Market Survey” (Coopers and Lybrand 1994) as being attributable to a small leadership team of highly educated individuals. They are knowledge-based companies. Established family businesses are less likely to be so well informed of modern business practices. Family relationships can give rise to an inflexible, hierarchical, structure that may challenge the firm’s ability to not only innovate but also take on board the systems for knowledge sharing. For this, trust is an essential ingredient but it seems that, during a family management crisis, knowledge sharing may be a high-risk strategy for the owners (Wickert and Herschel 2001). Thus a hierarchical structure without trust will impact on the flow of information and subsequently the flow of knowledge.

Employees of an established company may have been employed from the start of the company: particularly in old economy firms. This “Time served” labour holds knowledge and was a leader in knowledge transfer when apprenticeships were common. Knowledge transfer at management level may have a different behavioural pattern and requires a significant degree of trust. Different skill levels and differently organised groups of employees introduce the possibility of sub-cultures in the firm. In old economy sectors this is evident with unionised workers and white-collar workers in highly skilled professions where tacit knowledge may be essential (Smith 2001).

Thus it seems that the greatest challenge is to challenge the existing culture. This culture relates to social and operational processes. Critical to the change must be leadership and leadership style.

Business Development and Growth

Current literature on business development is diverse and in different contexts can mean different things (Medows *et al.* 1972, Boulton, Libert and Samek 2000). There have been many attempts at organizational business development through the application of various UK and Global initiatives and business excellence models: Total Quality Management (TQM), Investors in People (IIP), and European Foundation of Quality management (EFQM) to name but a few. Garvare and Isaksson (2001) discuss strategies for sustainable development in the light of these business excellence initiatives. In highlighting the issue of growth and its impact on society they observe that organisational values alone are insufficient: human issues must play a part. It is these latter that are crucial to the proper operation of a knowledge-based company and it is these that can respond to change and rapidly develop (Nonaka 1991).

Industrial networks seem also to be important (Bower 2002). They will be acquired by working closely with well-networked companies and especially with new economy firms (Bresnahan, Gambardella and Saxenian 2001). This can be seen in the Swiss watch industry where developments came to serve many new markets (Landes 1979 and Glasmeier 1991). See also, for example studies of the oil and gas industry (Bower, Shaw and Keogh 1998). Thus knowledge, good networking, and attention to human factors are essential to growth in small businesses (Boulton *et al.* 2000).

One might think that the university sector was a fruitful source of useful knowledge. However, a recent survey of small businesses in Scotland (Mason, Tagg and Carter 2006) found that of all advice taken up by SME, the universities represented barely 1%. Such poor take-up is despite a vigorous promotion of Knowledge Transfer partnerships on the part of government but is in line with the experience of one of the authors who, as a former director of two SME, would confirm that universities were considered too impractical to be used for effective advice.

METHODOLOGY

Case studies provide an interesting and insightful method for understanding the differences and similarities that exist in firms and also the various ways entrepreneurs and companies behave (Yin 1994, Perren and Ram 2004, Hill and McGown 1999). One is able to study system characteristics, which can offer insights not only to what the company is doing but also to how and to why it is developing.

This paper presents two case studies drawn from interview, observation and discussion with the management of two 'old economy' companies in the manufacturing sector although from very different business sectors. Data was collected over a five-year period by means of semi-structured interviews.

Further company data was drawn from the FAME database, which offers comprehensive financial data over the past five-year period.

The following key indicators were investigated to reflect the firm's management, structure and operations as well as its current business culture: Innovation, culture, structure, inter-company relationships, knowledge transfer, finance and marketing.

The companies are both located in the West of Scotland

RESULTS

Company A

This foundry and engineering firm was family owned and managed until 2004. According to the current definitions it is an 'old economy' firm but its high quality, specialist aluminum products require high levels of technical skill and are underpinned by ongoing research and development. The company was established in 1965 to supply the burgeoning oil industry with high quality cast parts.

Following the Piper Alpha disaster in 1988, the company struggled to maintain orders and it was decided to diversify the company portfolio into parts for both the electronics and automotive sectors. At the same time, the ownership of the company passed from father to his sons who presided over the portfolio shift into castings for the electronics and automotive industry. At this point the two sons were Managing Director and Technical Director respectively. They both had backgrounds in engineering and metallurgy and the management style changed from hierarchical and authoritarian to

hierarchical and paternal. Once the company re-emerged following bankruptcy, the attitude reverted to hierarchical.

Company visits were spread over the years 2001 to 2006. Table 1 and Figure 1 reflect the findings over this period of time. Table 1 tabulates financial data for company A (FAME 2006) whilst Figure 1 indicates how the company has been perceived to change over this time.

Figure 1. Changes 2001 – 2006 for the Two Companies

Company A		Nominal change			Company B		Nominal change		
		low	med.	high			low	med	high
Innovation: Tech/business		■			Innovation: Tech/business			■	
Culture				■	Culture		■		
Structure				■	Structure			■	
Inter-firm relationships		■			Inter-firm relationships		■		
Knowledge management				■	Knowledge management			■	
Finance					Finance				
Sales and marketing		■			Sales and marketing	■			

Prior to 1991, when their father retired, the business had a turnover of £600,000, 24 employees and had very little cash. By 2001 its turnover was about £4.4m, with 88 employees however, as early as 1999, it was clear that both the automotive and electronic sectors were looking to the pacific rim for piece parts and it was clear that new markets would again need to be found. Nevertheless, the company had grown. This growth being achieved during a period in which its market has declined by about 10% in Europe. According to company financial data, the firm saw some volatility in its financial trends: turnover had grown satisfactorily but their profit margins had not held steady from a high of 9.52 % in 1999, dipping to -4.25% in 2000 (Table 1).

During 1999 and 2000, the company diversified into defence contracts both in the UK and the USA. It required a high investment. For a time all went well but over a two-year period (2002/4) a number of moratoria on defense orders resulted in the company going into receivership. At this point the company was bought by one of the two directors in association with a backer who was to take charge of financial affairs. He has an entrepreneurial flair and was instrumental in proposing a new direction for the company. Now in 2006 the firm has returned to its former markets and looks to retain market share through a low-cost operation within a former Soviet country. It has risen like a phoenix from the ashes retaining the skills and knowledge from past operations but it cannot be said to be family owned any longer, it is subject to stronger financial control and has a tighter central direction.

Table 1. Basic Statistics for Company A

Company A	2005 2006	2004 2005	2003 2004	2002 2003	2001 2002	2000 2001	1999 2000
Turnover (£000)	No return	REC	4.493	4.458	4.444	3.063	3.503
Profit Margin %		REC	6.10	-20.74	5.85	-4.25	9.52
Employees	47	REC	85	107	88	68	66

Company B

Two young surveyors founded the company in 1972. They worked largely as sub-contractors carrying out small extensions, drainage and concrete works. Being based in a rural area they worked within the farming community where they built dairy units, slurry pits and so on. They quickly moved from sub-contracting to be the principal contractor in building projects and gained a good reputation in the west of Scotland. During the period of this study the turnover the company has shown a very managed and sustained growth: Table 2. In 2002 one of the partners was bought out and other directors were replaced with younger, more qualified graduates, leaving the company to be led by the one, original, surveyor now a businessman with a formidable reputation. The new directors helped him in a concerted effort to move from a local to a national player through taking strategic business risks such as bidding for PFI contracts. Key to the firm's growth seems to be the notable increase in graduate level appointments at all levels within the organization. It is

now one of the largest privately owned firms in Scotland, the principal activities being domestic building, general construction, property development and land management.

To support growth, the company has a positive and sustained IT strategy that is used not only for marketing activities but also for communication activities that embrace internal communication and extends to its customer and sub-contracting base.

Table 2. Basic Statistics for Company B

Company B	2005 2006	2004 2005	2003 2004	2002 2003	2001 2002	2000 2001	1999 2000
Turnover (£000)	113.681	76.996	86.511	51.838	70.182	47.223	57.673
Profit Margin %	11.4	8.84	4.66	2.65	7.26	3.04	7.23
Employees	159	187	216	190	218	196	172

CHANGES TO THE COMPANIES 2001-2006

Innovation

The practice of innovation, which can be promoted as a driver for change, displayed fairly low levels of change in both firms. Company A was in the past a process innovator and has continued along this path but with innovation having little clear impact on growth. Company B developed its ability to utilise technologies and techniques. This ability is a clear signal that it understands how to use innovation but not be the innovator. Overall, innovation as a driver for growth did not change very much for either case firm over the timeline of the study.

Culture

The culture characteristic showed some interesting developments particularly for Company A, which was patriarchal with intercommunication: but the phoenix firm is less patriarchal and has shared leadership. The culture had been very democratic and socially organised with many social values being upheld, for example employees were encouraged to understand the firm's finances and take part in secondments with customer and supplier firms. In the short time period and with the hard experiences of receivership this firm now has less social values and is more financially and control driven. Company B has grown financially and simultaneously reduced employee numbers. The culture has very

much remained the same across many levels of the firm however it is evident that the senior levels have developed a more professional management style.

Structure

Company A has experienced a substantial change in terms of its ownership structure. This firm was originally a family owned enterprise. Five years on it is no longer family owned and instead is led by an external investor and one remaining member of the original family. It is notable to draw on the interviewees comment that this ownership structure is much more “beneficial to the business of doing business.” Company B has also experienced substantial changes in ownership structure. Previously two directors owned the firm but during the period of this study one director bought the other out and now has full control: it was seen as an essential business move. The changes of ownership structure for both firms has been substantial and stimulates discussion on why this has happened and the relationship the change may have with other firm behaviours and characteristics and external industry trends.

Inter-Company Relations

The change in Inter-company relationships for Company B was far greater than for A. Company A was well-networked and developed close ties with suppliers and a business relationship with customers. Firm B showed similar characteristics with A but the nature of business meant it developed equal relationships with complementary construction companies. These were reinforced to construct PFI bids. As such the strength of changes has been mixed.

Knowledge Management

Company A communicated information easily but had no knowledge bridges that could be identified. It boasted a freedom of information, which now is fenced and is on a “need to know only basis to staff.” Company B displayed very informal communication systems however by using a sub contractor to install ICT they have created a state of the art internal knowledge management system. This is an example of the firm’s desire for professionalism.

Finance

Finance has changed substantially for both firms. Specifically, Company A has experienced collapse and reconstruction of the firm using business angel investment. Company B has experienced a restructure in its finance model as one partner was bought out and a number of banks were used to finance the buy out. These are very significant events for each firm and as such warrants further investigation. During the interviews both case firms highlight the operational benefits of their restructuring and the opportunities that have been created as a result. Company B has also entered into PFI initiatives, which is a substantial shift in its strategy to finance operational activities.

Sales and Marketing

Marketing behaviour in the case firms has seen small changes that tend to reflect the overall developmental behaviours in each case. Company A continues to practice sales and sales management at senior management level. Company B continues to practice marketing in terms of a corporate approach using corporate events and newspaper publicity to promote the firm. Company B has repositioned itself and is now a land management and construction firm being viewed externally as a major player within the industry.

CASE CHARACTERISTICS AND BEHAVIOURS

Both companies started life as sub-contractors. Company A has continued in this vein but Company B quickly expanded to provide a direct service which seems to have allowed them more control of their destiny. They control costs and maintain a low workforce by employing sub-contractors themselves. Thus, Company A has relied on the whims of OEM clients and it ultimately led to their downfall in 2004. Company B became a principal contractor and they were more in control of their own destiny.

Both companies, however, have had to take risks:

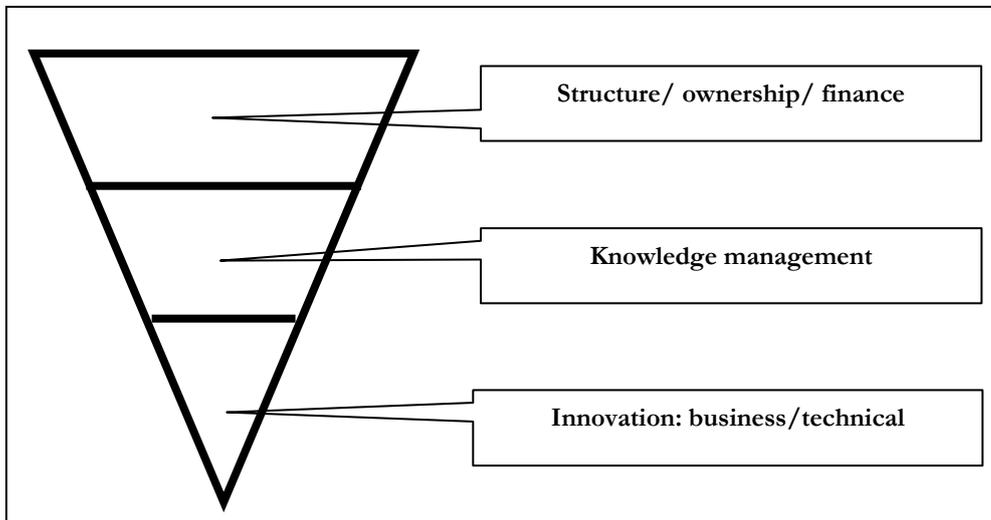
- 1) Company A: On two occasions the company became vulnerable by virtue of the economic and business environment. In both occasions they took a considered risk to diversify and both times they were successful for a time. Ultimately they faltered. The new company has also taken a risk from the outset: it has placed its faith in an offshore manufacturing plant. This is a new plant using local labour and managed by a local person. Company A has

no previous experience of this type of operation and it remains to be seen how successful they will be.

- 2) Company A whose risk taking was induced by a financial crisis, Company B has had the luxury of taking risks as a consequence of a clear business case. They diversified incrementally and did not need to go for PFI funding and it might have caused problems but at the moment everything looks good.

Over the course of the study, it was noted how little the management style had changed. Both retained a hierarchical command structure. Visiting Company A at the end of the period felt more like entering a new company, which should not be surprising since it was a new company even though one of the two directors had grown up and helped to manage the previous one. Company B, on the other hand, might have been expected to progress and indeed it had. The hierarchical command structure has been softened by the introduction of cross-divisional communication at the highest level. Nevertheless, the core operating divisions remain small and operate in a hierarchical manner. Figure 2 rates the significance of the observed changes.

Figure 2. Significance of the changes



Structure, Ownership and Finance

The progress of both companies has been greatly influenced by financial constraints. In fact, the two cases seem to be quite different: in the one case, the external environment has forced changes on the company while in the other the external environment has offered opportunities. For both companies the change involved risk and required internal adjustments. Company A failed but was re-born with a very different structure, which was dictated by financial backers and by the economic environment. It has led to greater emphasis being placed on the commercial imperative and to a decision to move manufacturing to another country. However, because of the comparative lack of cash, the risks are considerably higher than Company B, which is satisfactorily solvent.

Knowledge Management

Company A view is that too much time had been spent on internal knowledge transfer activities and the new company must concentrate on getting results: it has become more hierarchical. Company B was always hierarchical but the expanded company found problems caused by poor communication between divisions and was forced to embrace a degree of democracy. At the same time there was little evidence of knowledge transference rather, the increased capability at top and middle management level can be attributed to recruitment policies.

Innovation

This sort of activity was less in evidence. Clearly Company A had been technically innovative in the past, but there was less cash available now. Company B had never innovated technically, but the business innovation could be seen in the changed management structure (albeit small), in the changed recruitment policy, the use of IT and in the ability to identify market trends.

COMPARISON WITH OTHER SCOTTISH SME

It might be instructive to compare the characteristics of the two companies we have analysed, with other companies in this size bracket. In the fourth survey of small businesses in Scotland (Mason *et al.* 2006), it was found that Company B was part of 13% of companies in the construction sector, while 'A' was part of only 7.3% of all small manufacturing businesses.

Table 3 sets out a comparison with the norm of Scottish businesses as reported by the Federation of small businesses (above). Neither company can be said to represent the mainstream of the Scottish SME sector, neither do they represent the mainstream of family owned businesses. However, the performance represents opposite ends of the spectrum. On the one hand, Company B is very successful, with a steadily increasing profit (in line with 50% of the companies), while Company A has experienced fluctuating fortunes that parallel other sub-contractors in the manufacturing sector. Their sources of finance are broadly in line with other SME but they have more employees than the norm. In line with others, their skills training is largely informal but the educational level of the companies has risen: largely due to recruitment. In line with most companies, they find difficulty recruiting staff of high enough calibre. For the lesser jobs this resolves into basic communication techniques such as reading, writing and arithmetic but at the higher levels there are shortages of technical skills be they business or engineering varieties. Most take little advice but of those who do, prefer financial or legal opinions. If there is a preference, they prefer specific training and not general education.

THE CASE GROWTH LESSONS

Analyze Industry Trends and Sector Performance then Reinvent the Firm

Lesson one: The business environment is the strongest influence on your company. Internal issues are secondary. It is necessary to correctly identify these trends and to analysis risk carefully. Company A was always more at risk, being a sub-contractor, but their changes were based on necessity and seem not to have considered the financial risk sufficiently carefully.

Punch above Your Weight

Lesson two: try and punch above your weight but be prepared to lose. Some risks will always exist. "Punching above your weight" was a term used by both firms. In one company, a positive result and another negative. The concept is to make a move that exercises all aspects of the firm. The negative outcome in Company A reflects a series of events that could not be predicted but significant enough to bring the firm down: it did not reflect poor decision making on the part of company A.

Table 3. Comparison with Other Scottish Enterprises

ISSUE	A	B	Comment
Length of ownership >11 years	N/A	Y	40% SME are more than 11 years. The origin of company 'A' is in excess of 11 years.
Legal status: Ltd?	Y	Y	38% are limited companies
Location: factory or business unit	Y	Y	In fact the largest proportion of Scottish SME (33%) work from home
Growth: want moderate growth	Y	Y	49% of SME want this.
Owners are older than 45 yr	Y	Y	71 % in this category
multiple ownership About 25% of SME own more than one company.	Y	Y	At least one director has more than one company. 25% SME like this
Start up from scratch	Y	Y	Company A started like this. New company builds on experience
Management buy-out	Y		2% in this category
Geographical (75-100% of their customer base)	Y	Y	Local market: 30% of the SME National market 13% EU markets including UK 2%
Public sector markets		Y	8% are companies where they have got pre-bid accreditation
Turnover >£1m	Y	Y	Company 'A' had this before bankruptcy
Improved profitability	N/A	Y	50% in this category
Employment numbers > 10 FTE (full time equivalents)	Y	Y	For the group of Scottish SME, 59% < 5FTE, 80% < 10 FTE
Skills training	N/A	Y	Mainly in-house informal but 25% SME had not given training in last 12 months. The original company 'A' trained in-house.
University training	Y	Y	At least one family member had taken a degree (MBA) Increase in educational content normally through recruitment.
e-commerce	N	Y?	Company B used the internet as an information source for customers and staff. As such it was a good strategic aid. 20% SME buy and 18% sell on-line.
Business advice	N	N	Most take little advice. Of those who do it is divided as follows: Accountant 50% Solicitor 27% Family 18% University 1%

Spread the Financial and Operating Risk among a Group

Lesson three: this lesson involves spreading risk. Activity using PFI's is a positive and profitable way to spread risk in larger projects. Company B has been very successful in this approach. To a greater extent company A has failed to do this. The risk is shared between the two principal investors but the risk remains within the company and the offshore operation is effectively a new venture the success of which is still to be established.

CONCLUSION

The intention was to study old economy companies who have survived in a changing commercial environment. Both companies survived the economic recession of 1989/92 but their paths have diverged considerably since then. It was thought that family owned businesses would find change difficult but it seems that this is not the case. In one case, change was inevitable as a consequence of external pressures outside their control. In the other case, change was confronted head-on as a result of a strategic expansion.

It is clear, however, that the business environment has influenced each company differently as the above discussion has shown. Most notable are the changes in structure, finance and ownership. These characteristics could be viewed as interdependent and have played a significant role during the five years of the study. There is much ground to be gained with a more detailed study of the behaviour of old economy company growth as compared with industry behaviour and trends.

REFERENCES

- Boulton, S., B. D. Libert and S. M. Samek. 2000. A business model for the new economy. *Journal of Business Strategy* 21 (4): 29.
- Bower, D. J., C. Shaw and W. Keogh. 1998. The process of small firms' innovation in the UK oil and gas-related industry. Oakley, R. (ed). *New technology-based firms in the 1990s*. V4: 138-151. London: Paul Chapman Publishing.
- Bower, D. J. 2002. Matching technology push to market pull: Strategic choices and the academic spinout firm. *International Journal of Entrepreneurship and Innovation Management* 2 (4-5): 339-353.

- Bresnahan, T., A. Gambardella and A. Saxenian. 2001. Old economy inputs for new economy outcomes: Cluster formation in the new Silicon Valley. *Industrial and Corporate Change* 10 (4): 835-860.
- Coopers and Lybrand. 1994. *Made in the UK: The middle market survey*. London: Coopers & Lybrand.
- DTI. 1998. Small and medium-sized enterprise statistics for the UK DTI. Statistical Bulletin. London: Department of Trade and Industry.
- Dunn, B. 1995. The challenges facing Scotland's family enterprises: Perspectives for family firms, advisers and educators. Centre for Family Enterprise. Glasgow Caledonian University.
- FAME. 2006. <http://www.fame.bvdep.com>. *Commercial database of UK company financial information*.
- Fleck, J. 1998. Expertise: knowledge, power and tradeability. Williams, R., W. Faulkner and J. Fleck (eds). *Exploring expertise - issues and perspectives*. London: Macmillan. 143-172.
- Garvare, R. and R. Isaksson. 2001. Sustainable development: Extending the scope of business excellence models. *Measuring Business Excellence* 5 (3): 11-15.
- Glasmeier, A. 1991. Technological discontinuities and flexible production networks; The case of Switzerland and the world watch industry. *Research Policy* 20 (5): 469-486.
- Hayward, S. 1990. *Managing the family business in the UK*. London: Stoy Hayward.
- Hill, J. and P. McGowan. 1999. Small business and enterprise development: questions about research methodology. *International Journal of Entrepreneurial Behaviour & Research* 5 (1): 5-18.
- Landes, D. S. 1979. Watchmaking: A case study in enterprise and change. *Business History Review* 53 (1): 1-39.
- Mason, C., S. Tagg and S. Carter. 2006. Lifting the barriers to growth in UK small businesses. The FSB biennial membership survey. Scotland: Report to the Federation of Small Business.
- Medows, D. H., D. L. Medows, J. Randers and W. W. Behrens III. 1972. The limits to growth – a report for the club of Rome's project on the predicament of mankind. Potomac Associates Book. London: Earth Island Ltd.
- Nonaka, I. 1991. The knowledge creating company. *Harvard Business Review* 69 (November-December): 96-104.

- Perren, L. and M. Ram. 2004. Case-study method in small business and entrepreneurial research - mapping boundaries and perspectives. *International Small Business Journal* 22 (1): 83-101.
- Rosenberg, N. 1963. Capital goods, technology and economic growth. Reprinted in Rosenberg (ed) (1976) *Perspectives on technology*. Cambridge: Cambridge University Press.
- Smith, E. 2001. The role of tacit and explicit knowledge in the workplace. *Journal of Knowledge Management* 5 (4): 311-321.
- Wickert, A. and R. Herschel. 2001. Knowledge-management issues for smaller businesses. *Journal of Knowledge Management* 5 (4): 329-337.
- Yin, Y. K. 1994. *Case Study Research: Design and Methods*. Thousand Oaks: Sage Publications.