MANAGEMENT SKILLS FOR SMALL BUSINESS

A Report Submitted to
Small Business Policy Branch, Industry Canada

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CRUISE
March 30th, 2001

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Acknowledgments

Thanks are due to Hilje Visser for valuable assistance with respect to the production, formatting and graphics for this project. Desmond Sackey provided research assistance. Don Harrison, of the Small Business Policy Branch (SBPB) at Industry Canada was very helpful in suggesting contacts and in making available a variety of research materials. The assistance and cooperation of the many respondents for the interviews and case studies are much appreciated. Hats off to SBPB for recognizing something useful in my earlier research and for giving me the opportunity to bring something new to this important area of policy research.

1. Introduction and Outline

This paper addresses several issues relating to management skills for small business in Canada. Is there evidence of deficiencies in management skills in the small firm population? Is it possible to identify key management skills for small firms? What are the barriers to the acquisition of the critical skills and, conversely, are there factors or circumstances favourable to their acquisition? What are some of the key characteristics of the demand for, and supply of management skills for the small business sector in Canada? What are some of the approaches used to address the problem? What is the appropriate role for government? Can fruitful areas for future policy research in this area be identified?

The background to this work stems, in general, from Industry's Canada's central emphasis in the policy agenda on a strategy to encourage innovation as the engine of growth for productivity and competitiveness. It stems, too, from the department's recognition of competent management skills as the *sine qua non* for successful innovation, productivity growth and competitiveness and, in particular, of the importance of such skills in the large proportions of overall economic activity that are undertaken in the small business sector. Further, this study is in part an outgrowth of an earlier one published by the department as Management Skills Development in Canada (Newton, 1995). A major purpose of the present work is to revisit that paper and, *inter alia*, extend it to focus on small business. In doing so an important criterion will be, wherever possible, to bring something fresh to the debate.

The approach adopted has been to survey the recent literature, especially for new empirical evidence, to draw upon the expertise and experience of key informants in order to elicit information about promising institutional approaches, and to extract key messages from case studies. The fruits of all these approaches are presented in what follows. Throughout the undertaking of this research it has been assumed that the ultimate underlying concern is with innovation, higher productivity, enhanced competitiveness, growth and jobs in the small business sector of the economy, and that improved management skills are a critical factor in the achievement of these goals.

Accordingly, the paper is organized as follows.

The next section sets out the context: the forces and characteristics of the evolving global KBE and some of the challenges it presents to SMEs, with particular emphasis on the importance of responding to the exigencies of "innovation competition". It argues that management skills are a central component of a firm's innovation strategy. It then goes on to show that small business is a critical force in the KBE inasmuch as the sector accounts for large shares of economic activity in practically all advanced, knowledge-intensive economies and is an important contributor to innovation, dynamism and growth. From the foregoing the paper synthesizes a rationale for the paper and a set of key underlying assumptions.

Section three looks at the nature of the small business management skills problem. As Baldwin et al. (1997) put it:

> "While entrepreneurs who have tried and failed are a key part of the risk-taking economy, there is no need to accept the existing failure-rate as optimal".

Without repeating them, the paper refers the reader back to Newton (1995) for a lengthy list of factoids which adduce evidence as to deficiencies in management skills in the economy generally. This section of the paper presents new evidence which relates more specifically to the small firm sector of the economy.

Then, in section four, the paper turns to the question of the identification of key management skill sets. It notes at the outset the hazardous nature of this quest because of the sheer heterogeneity of the small business population. Indeed, this is a major caveat that should be borne in mind throughout the paper: attempts to be definitive and unequivocal on this issue are foolhardy. To be practical, the best one can hope for is to be suggestive. A variety of approaches from the extant literature are described.

Section five takes up the question of stages development. Starting at the intuitive level it goes on to recall the management skills pyramid of Newton (1995), and presents a new version, and then outlines the contributions of Gasse (1996) and the National Research Council (2000).

A concluding subsection of section five sets out a completely new model developed by the author, drawing on his earlier work as well as on new information from the literature search, key informant interviews, and case studies. It posits the notion that a "new management paradigm" can be seen as the logical response to the forces and challenges of the new global KBE. In terms of the stages of development framework this new paradigm calls for a level of innovation and sophistication that is well along on the development continuum.

Section six is a brief overview of recent additions to the literature on the demand and supply sides of the market for small business management skills as set out in the earlier Industry Canada report. Section seven looks at the factors impeding, and those conducive to, management skills development by small business. Section eight addresses some policy questions and the appropriate role for governments. A final section sets out some principal conclusions and suggestions for further policy research.

Some underlying assumptions for this paper are as follows.

- the pace of technological change is unlikely to abate
- globalization will proceed apace
- the ferocity of competition will not ease
- knowledge will continue to be an increasingly important factor of production
- continuous innovation will continue to be the source of competitive edge
- management skills will therefore be crucial
- governments recognize the importance of these problems but desperately need applied policy research to inform decision-making about strategies, policies, and programs
- these strategies, policies and programs will be developed in the broader context of economic and social policy agendas that explicitly emphasize the role of innovation in promoting productivity, competitiveness, growth and jobs
- the policy context for considerations of management skills as the key to innovation is therefore one that emphasizes *survival* of SMEs and their subsequent prosperity
- therefore it is useful to consider the stages of growth and development of small firms, and the

critical management skills that apply to each

- from the standpoint of policy making the major questions pertaining to the issue (having documented problems and identified critical management skills and competencies) are: what are the barriers to successful acquisition and development of the management skills; what are the recommended ways of surmounting these obstacles and what is an appropriate role for government?

Descriptions of the case studies are given in appendices A, B and C and a list of key informants in appendix D. The bibliography may steer the reader to other useful material.

2. Context, Rationale and Assumptions

The broad context for this study of management skills for small business in Canada is the emerging global knowledge-based economy with its emphasis on continuous innovation, and the important role that small firms play in this new economy.

The KBE

The knowledge-based economy (KBE) is widely acknowledged to be no less than a new techno-economic paradigm that is revolutionary in scale, impact and pervasiveness. An essential characteristic is the central role of knowledge (tacit and codified) in the cumulative process of innovation. The increasing knowledge-intensity of economic activity reflects this (Gera, Sing, Newton, 2001; OECD; 1998).

Certain features of the evolving KBE are of particular relevance to the issue of necessary management skills. First, for example, it is global in scope. Trade liberalization has led to growth rates of world trade in recent decades that far surpass the growth of world GDP; and the growth of foreign direct investment has been even greater. Global corporations undertake economic activities around the globe and interfirm alliances and networks have burgeoned and are now the typical operating mode in the KBE. Trillions of dollars of financial transactions are undertaken daily.

A second major driving force is rapid, incessant and pervasive technological change, exemplified in particular by the advances in biotechnology and in information and communication technologies (ICTs). The latter constitute a powerful revolutionary force: they are "general purpose", "enabling" technologies that are ubiquitous and have myriad applications. Their speed and computing power provide researchers with enormous analytical potential and the ability to rapidly exchange new knowledge and ideas. As networks they bring information to millions of people around the world and play an important role in heightening awareness of issues and shaping public opinion. For firms and consumers, electronic commerce is revolutionizing the market place.

The new technologies, accompanied by complementary organizational innovations, have radically transformed the nature of production, markets, and the workplace. Markets are fiercely contested on the basis of competitiveness deriving not so much from cost, or quantity but from innovation. Economies of scale give way to economies of scope (in niche markets characterized by customization and variety) and economies of networking (for knowledge exchange and for the production of goods and services in "virtual firms").

Continuous comprehensive innovation is the *sine qua non*. Shorter product cycles and speed to market are of the essence. The continual quest for innovation puts a premium on knowledge in the production process: new ideas, flair and creativity are highly prized and firms endeavour to turn themselves into "learning organizations" that create intellectual capital as their most important intermediate input. It should be noted that the KBE and its defining characteristic --continuous innovation-- are by no means exclusively large firm phenomena. As the next subsection shows, small firms figure prominently in the advanced, knowledge activities and the empirical literature shows that in some cases small firms can be important sources of innovation and dynamism.

Small Firms and Innovation

As table 1 shows, small and medium-sized enterprises (SMEs) account for substantial proportions of economic activity in many advanced economies. The proportion of all firms accounted for by SMEs in practically all OECD countries now stand at over 95 per cent. SMEs' contribution to

employment is now generally more than 50 per cent. Contributions to GDP are somewhat smaller, but nevertheless substantial.

Table 1. The Role of Small and Medium-sized Enterprises (SMEs) in National Economies

Percentages

	SMEs as a percentage of enterprises	Employment	SME contribution to GDP
Australia	96.0	45.0[3]	23.0[3]
Belgium	99.7	72.0	n.a.
Canada	99.8	60.0[4]	57.2[4]
Denmark	98.8	77.8	56.7
Finland	99.5	52.6	n.a.
France	99.9	69.0	61.8[5]
Germany	99.7	65.7	34.9
Greece	99.5	73.8	27.1[6]
Ireland	99.2	85.6[3]	40.0
Italy	99.7	49.0[4]	40.5
Japan	99.5	73.8[4]	57.0[5]
Netherlands	99.8	57.0	50.0
Portugal	99.0	79.0	66.0
Spain	99.5	63.7	64.3[5]
Sweden	99.8	56.0[8]	n.a.
Switzerland	99.0	79.3	n.a.
U.K.	99.9	67.2	30.3
U.S.	99.7	53.7	48.0

1. SMEs definition varies across countries but most countries define SMEs as having less than 500 employees. Some countries such as Italy and Sweden define them as having less than 200 employees.
2. All data are for 1991, except Spain, Canada and Ireland (1989), Germany, Greece and Italy (1988), the Netherlands and France (1990).

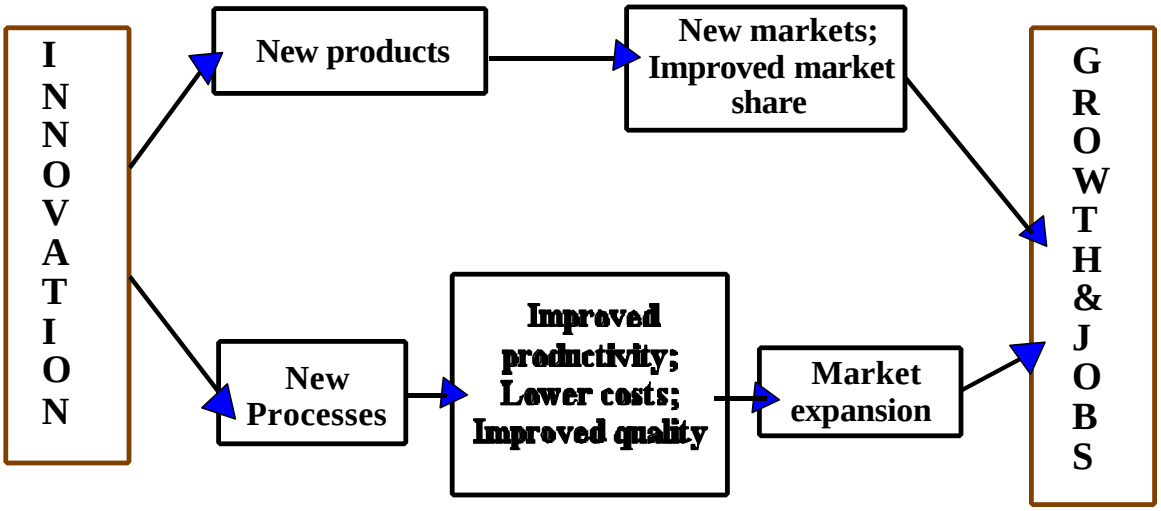
3. Manufacturing only
4. For Canada, percentage of sector employment and GDP in 1993.
5. Percentage of value added.
6. Percentage of value added in manufacturing.
7. Percentage of sales.
8. Percentage of private sector employment in 1992.

Source: OECD (1997b).

Innovation, as emphasized above, is crucial for survival and growth (figure 1).

Figure 1: Innovation As the Key to Growth and Jobs

Given the critical importance of innovation in the KBE, and given the very significant contribution of SMEs to the economies of many countries, including Canada, a priority question for policy research is quite simply: just how innovative is that substantial sector of the economy that is made up of SMEs?



There has been a long and lively debate about the version of the "Schumpeterian hypothesis" that maintains that large firms innovate more than small (You, 1995). Thus, for example, it is alleged that larger firms with superior resources can afford to do R&D, access technological information, forge partnerships with universities and governments, and so on. Small firms are said to be more flexible or "nimble" and to have closer relations with customers and suppliers. Drawbacks for large firms might include certain dangers of sclerosis: unwieldiness, hierarchy, rigidity, communication problems, impersonality, etc. Small firms, by contrast, may be less hidebound by tradition and procedure, and have speedier and more personal communication. In any event, for present purposes a convenient point of departure is the observation that "the most notable feature of the considerable body of empirical research on the relationship between firm size and innovation is its inconclusiveness" (Cohen and Levine, 1989 p. 1069).

A recent review of the empirical literature (Lee and Newton, 2001) concludes, on balance, that innovation is positively related to firm size. However, it is misleading to conclude that small firms are not innovative. Table 2, based on a 1993 Statistics Canada's survey, provides evidence that small firms are indeed innovative. It shows that small firms introduce just as many product innovations per innovator as larger firms, though they lag behind larger firms in process innovations (Baldwin, 1998).

Table 2: Number of Innovations per Innovator in Canadian Manufacturing, 1989-91

		Number of employees		
Type of innovation	All innovators	20-99	100-499	500+
Products	3.4	3.6	2.9	4.2
Processes	1.9	1.6	2.1	2.4
Combined products & processes	2.4	3.0	1.7	2.9

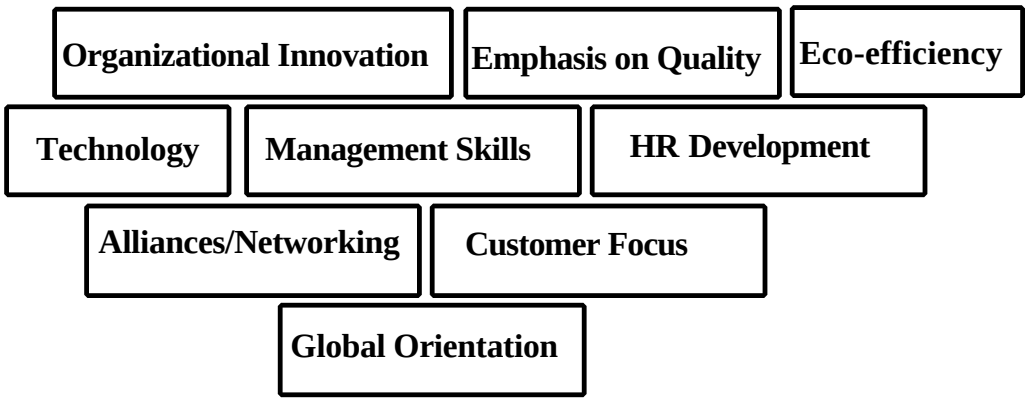
Source: Baldwin (1997).

Furthermore, while R&D activity appears to rise monotonically with firm size, Freeman and Soete (1997) point out that of the small firms that do perform R&D, there are two important categories. First, those that have just begun to exploit a new invention and whose sales are therefore low relative to R&D. Second, those with a special, R&D-sustained expertise in a narrow field. In both cases one would observe high R&D-to-sales ratios. Moreover, the authors contend on the basis of the rapid growth of science parks and the number of university spin-offs, that the proportion of small firms in these two categories has grown in recent decades. So one might suppose that the small firm contribution to the innovative capacity of the economy, at least in terms of R&D, has been increasing.

It is clear that management skills must be a critical driver of small firms' innovative capacity

Figure 2: Building Blocks of Innovation: The Centrality of Management Skills

This notion is depicted graphically in figure 2. The model begins to give a sense of the essential components required for successful innovation and, therefore, of the areas in which management skills must be deployed. It is worth noting in passing with reference in particular to the "global orientation" building block that a brand-new study for Industry Canada (Lefebvre and Lefebvre, 2000) finds that Canadian SMEs became increasingly active in foreign markets in the 1994-97 period and that among the strongest determinants of export activity are R&D and knowledge



intensity.

In closing this section the main messages to be reiterated are :

- the small firm sector in Canada accounts for a substantial "share of the action", economically
- the lifeblood of the KBE is continuing, comprehensive and pervasive innovation
- small firms can contribute innovativeness and dynamism to the economy but generally, for a variety of reasons, and on a number of measures, are less innovative than their large counterparts
- management is central to the innovation process
- so the management capability of small business is of vital concern to the Canadian economy

Data presented in Lee and Newton (2001) show that among various sources of firms' innovation, management is the most prominent. Notably, moreover, there is a clear negative relationship with

firm size. In other words, small firms rely on management as the well-spring of their innovation to a greater extent than do large firms, which tend to exploit alternative sources. This finding underlines once again the importance of management skills and competences in the small business sector.

3. The Problem

It is well-known that the small firm population is characterized by high rates of turnover: high birth-rates and high death rates are typical. Recent Statistics Canada data show that over two-thirds of micro-sized firms (<5 employees) and almost half of small sized firms (5-99) fail within five years of start-up. Nearly 80% of all new SMEs are gone within 10 years. Some would argue complacently that one should not be alarmed by such figures since they are not untypical of the experience of other countries and, in any case, survival of the fittest is the natural order of things. Needless to say, however, policy makers have long recognized that if more small firms could be fitter their probabilities of survival would be enhanced. That is why, as will be shown later, public, private, and NGO efforts of various kinds are being used to address management skills difficulties in small firms. It is also why much recent policy research concentrates on the ingredients of success, as well as the reasons for failure (notably, Baldwin et al. 1994; Johnson, Baldwin and Hinchley, 1997; and Baldwin et al. 1997).

Evidence of Deficiencies

Evidence of deficiencies in Canadian management skills is presented in some detail in Newton (1995). To that list may be added some more recent findings.

- Porter et al. (2000) in *The Global Competitiveness Report* 2000 rank some 59 countries on various criteria to construct a competitiveness index. On the factor of "competence of senior management" Canada ranks a modest 9th
- Similarly, the International Institute for Management Development (2000) in *The World Competitiveness Yearbook 2000* ranks Canada 9th of 47 countries on the overall management measure, but 13th on the specific dimension of managerial competence and 16th on international

experience

- A survey in 2000 by the Information Technology Association of Canada (ITAC) of firms in the information technology sector on barriers to growth ranked “appropriate and effective management resources” second on a list of three gaps (the others being access to investment funding and adequate knowledge of sales and marketing)
- The Canadian Manufacturers and Exporters of Canada conducted a survey in 2000 on the management issues faced by its members (the majority of which are SMEs). Management skills were ranked first on a list of skill needs --before information technology skills and before engineering skills
- Also in 2000 the Certified Management Accountants of Canada conducted a survey of its members who are involved, or had been involved, with small businesses, either as employees or advisors. The top two factors of CMAs identified in SME failures were poor business planning and poor financial planning . In addition, they ranked “better knowledge of business skills” top on the list of SME needs. (CMA Canada: Briefing Notes to the Government of Canada)

Table 3: How important are the following needs of an SME from a business skill development perspective?

	Critical	Somewhat important	Not very important	Not at all important
Better knowledge of business skills	30%	59%	10%	1%
Resources to hire professional advisors	24	46	22	7
More staff training	17	53	26	5
A continuous learning philosophy	25	50	20	5

Source: CMA Canada

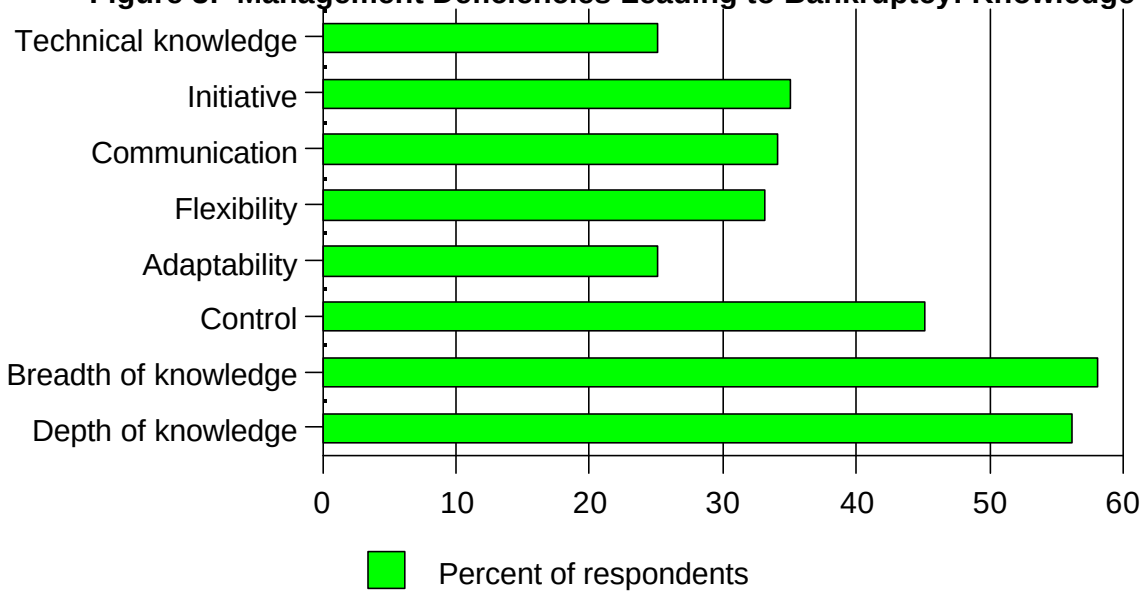
Of the recent empirical work one of the most telling pieces of evidence is Baldwin et al. (1997) which examines in detail the causes of business bankruptcy in Canada, using a sample consisting predominantly of small firms. Among the authors’ principal conclusions are the following observations:

- Almost half of the firms in Canada that go bankrupt do so primarily because of their own deficiencies rather than externally generated problems. They do not develop the basic internal strengths to survive. Overall weakness in management, combined with a lack of market for their product, cause these firms to fail

- The main reason for failure is inexperienced management. Managers of bankrupt firms do not have experience, knowledge, or vision to run their businesses. Even as the firms age and management experience increases, knowledge and vision remain critical deficiencies that contribute to failure
- The management of new firms face a learning curve. In the early stages of life, internal deficiencies are so prevalent that most bankruptcies occur for these reasons. Management must master the basic internal skills --general and financial knowledge, control, communications, supervision of staff, and market development-- or it will fail solely or primarily from the weight of these problems. As a surviving business grows, a new set of problems arise that are associated with the increased complexity of running an older and often larger firm. Managerial issues such as the poor use of outside advisors, lack of emphasis on quality, and unwillingness to delegate responsibilities, departure of key personnel, and personal problems associated with the owner/manager become relatively more important factors contributing to failure as a firm ages. (From Baldwin et al.: Failing Concerns, 1997)

Strong management skills had already been identified as critical for growth in Baldwin et al's (1995) *Strategies for Success* and again in Baldwin et al's (1997a) as the crucial means to survive and emerge into thirteen years. The latest findings (Baldwin et al. 1997) in *Failing Concerns* further substantiate this story: in 71% of the failed firms, deficiencies in both general and financial management are described as the major causes of failure --the single most important internal causes of bankruptcy, ahead of marketing (50%), production/operations (30%), innovation (28%) and HR (27%). This general conclusion is supported with reference to three specific areas of management skill deficiencies.

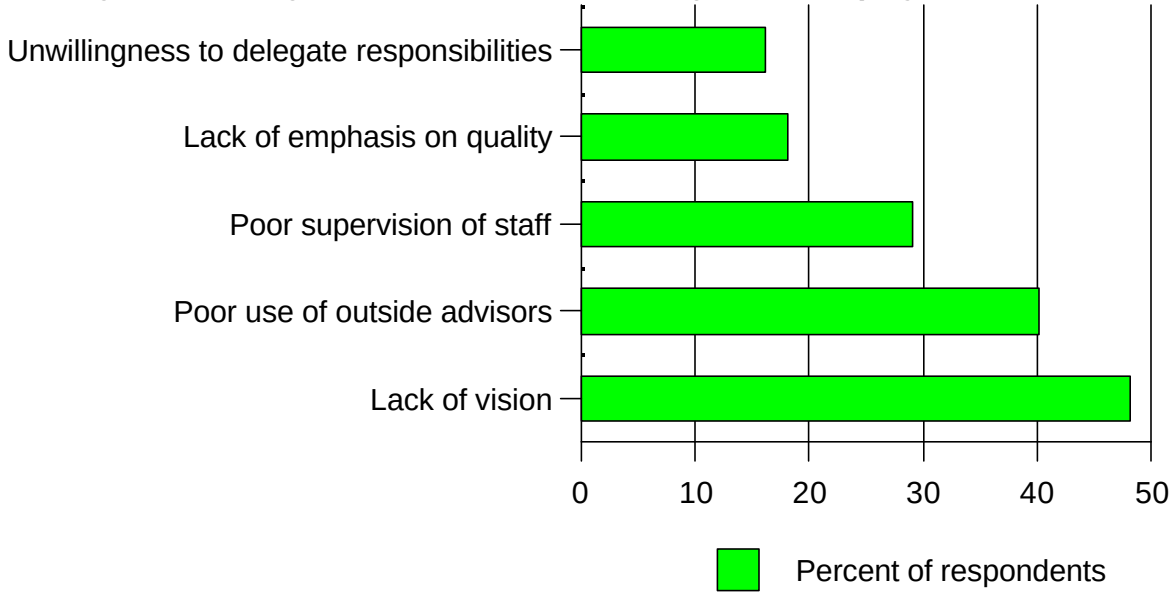
Figure 3: Management Deficiencies Leading to Bankruptcy: Knowledge



As shown in figure 3 bankruptcies occur mainly because of lack of both breadth and depth of knowledge on the part of management, and the authors contend that this was particularly so in the areas of financing, marketing and operations. White technical knowledge was somewhat less of a failing, lack of control (due to management inexperience) was cited as a factor by 45% of respondents and management deficiencies in adaptability, flexibility, communication, and initiative were identified as sources of failure by about one quarter of failed firms.

The results presented so far begin to hint at the importance of "soft skills" and this is further strengthened with reference to figure 4, which depicts management deficiencies relating to attitudes and characteristics. While quality was seen as crucial for growth and survival in the earlier studies by Baldwin et al. (1994) and Johnson et al. (1997) it is a cause of failure in only 17% of bankruptcies. Nor was management's unwillingness to delegate responsibility deemed to be a factor, though it is apparently more of a factor for firms in the smaller size category (1-9 employees).

Figure 4: Management Deficiencies Leading to Bankruptcy: Attitudes



While lack of knowledge was shown to be a major problem, this was often not recognized and responded to: failed firms neglected to avail themselves of the services of outside professionals to fill the knowledge gaps. Staff supervision and lack of control appear to be problems that increase with firm size.

4. The Identification of Management Skills for Small Business

In this section an attempt is made to identify key management skills for small business. First, however, it is extremely important to emphasize that such identification can be neither definitive nor unequivocal.

Caveat Lector!

- the SME population is huge and heterogeneous, running the gamut from the hot- dog stand to the latest "dot.com" company; from mom-and-pop store owners to teenage millionnaires
- the SME population also runs the size gamut from individual owner-operators, through "micro-firms" to different size categories ranging all the way (by some definitions) to 250 employees, or even more

- closely related to size is the question of *stage of development*; maturity, sophistication and market breadth call for more refined and extensive skill sets
- the SME population is similarly extremely variegated by industry (and knowledge-intensity; “old economy/new economy” etc.) and by location
- therefore, the demands for, and deployment of, various management skills will vary enormously, and generalizations, or the attempt to distill "generic" skill sets or competencies are hazardous
- nevertheless, a number of attempts to identify key small business skill sets have been undertaken and these should be synthesized

Various Approaches

It should be noted at the outset that there is a rather tangled semantic web concerning various dimensions and aspects of management. One may encounter the following terms:

- “knowledge”,
- “skills”,
- “competences” (or in North America, usually, “competencies”),
- “attitudes”,
- “characteristics”,
- “instincts”

Moreover, “entrepreneurship” and “entrepreneurialism” are sometimes distinguished as separate characteristics from what in the paper are referred to as management skills for small business. We choose not to plunge the reader in this embroiled debate. Rather we simply observe that in some instances resort to terminology other than “skill” sets may be appropriate. Recall that in section three, above, Baldwin’s powerful data on bankruptcies focusses on the inadequacy of various dimensions of management “knowledge” --including its depth and breadth. Later, in discussing the more sophisticated management skills and attributes that must be brought to bear in more advanced stages of the firms’ development, management “characteristics”, “attitudes”, and “culture” will be seen to be important. For the present, we note that “competences” seems to be the preferred word in the development of policies, both public and private, in the UK and is used in the recent work of a prominent Canadian researcher in this field (Gasse, 1997). What follows is simply a set of

approaches that differ in emphasis and terminology. It is hoped that they will give readers some flavour of the range of recent thinking. It is left to readers to opt for the approach, emphasis and terminology that resonates most positively and/or to construct their own hybrid. The following are some variants.

Box 1: Framework For Management Skills and Competency Standards and Guidelines For Small Business Owner/Operator/Entrepreneur
Prepared for Sector Councils Steering Committee by Robert Dénommé and Associates, 1995

Competency Blocks

1. Business Planning
2. Marketing/Sales/Service
3. Fiscal Planning
4. Human Resource Management
5. Business Operations
6. Professionalism
7. Automation (Technology)
8. Industry Awareness
9. The Business Cycle
10. Entrepreneurial Values

Box 2: Small Business Owner/Operator Competency Guide
Sector Councils' Steering Committee and HRDC 1997

A. Professionalism
1. Exhibit Professional Skills
2. Communicate Effectively

B. Business Planning
1. Define Business Planning Terms
2. Evaluate Status of Business
3. Implement Business Plan
4. Describe Strategic Alliances

C. Finance
1. Prepare Budget
2. Manage Accounting and Cash Control

D. Marketing
1. Prepare Marketing Plan
2. Use Promotional Activities

E. Human Resource Management
1. Evaluate Human Resource Plan
2. Hire Employees
3. Train Employees
4. Manage Employee Performance
5. Dismiss/Lay off Employees

F. Operations
1. Manage Office Operations
2. Manage Risk
3. Manage Products and Services
4. Manage Projects

G. Sales and Service
1. Maintain Positive Business Image
2. Manage Products and Services

Box 3: Core Management Competencies (Gasse 1997)

C	VISION:	Positioning/Adapting, Strategic Planning/ Implementations
C	PEOPLE:	Leadership/Involvement/Communications, Learning/Training
C	OPERATIONS:	Organizing, Managing/Decision-Making
C	RESOURCES:	Cognitive Ability/Information, Financing Capabilities
C	STRATEGIES:	Technical Capabilities, Entrepreneurship/Innovativeness, Shares of Markets and Export Rates

As mentioned above, the concept of management "competences" is central to the policy approaches adopted in the UK. As described in Johnson and Winterton (1999) the definition of occupational competence provided by the Manpower Services Commission (MSC) and adopted by the *Investors in People* program (1995) was 'the ability to perform activities in the jobs within an occupation, to the standards expected in employment'. However, the definition also included 'mastery of skills and understanding' and 'aspects of personal effectiveness'. This definition of competence was subsequently adopted as the official Employment Department approach in defining occupational standards as 'a description of something which a person who works in a given occupational area should be able to do... (and) able to demonstrate' (Training Agency, 1988: 5, 1989; Employment Department and NCVQ, 1991).

An extension of this approach was the establishment in 1988 of a Management Charter Initiative (MCI) as the operating arm of the National Forum for Management Development and Education. A set of Management Standards was developed as an extension of the new framework of national vocational qualification (NVQ) with four levels:

C MIS: Supervisory Management
C M1: First Line Management
C M2: Middle Management
C M3: Senior Management

As shown in box 4 the basic management level identified in this national standards exercise identified seven key roles.

Box 4: Key Roles for Basic Management

UK Management Standards from the Management Charter Initiative

- manage activities
- manage resources
- manage people
- manage information
- manage energy
- manage quality
- manage projects

An example of the competence-based approach is the Safeway supermarket chain which introduced competence-based HD systems and processes before the MCI Standards. A strategy was developed in the 1980s 'to ensure that employees and prospective employees are matched against specific competence-based specifications for each job' (Stringfellow, 1994: 293). The twelve 'management dimensions' identified were later termed 'competences':

- problem analysis
- problem solving
- planning and organization
- delegation
- management control
- leadership
- human relations skills
- personal effectiveness
- verbal communication
- oral communication
- stress tolerance

5. Stages of Development and Their Differing Skill Needs

The notion of stages of development seems intuitively acceptable and it has, in fact, an academic

tradition that goes back to Edith Penrose's (1959) classic *The Theory of the Growth of the Firm.* The beginning of the life cycle is usually referred to as pre start-up. Many people have mused about the possible marketability of some pet scheme or idea. (How many does the reader know who have wondered if they could make it on their own as consultants?) This was precisely the position of the thousands of people affected by restructuring, downsizing (or, euphemistically, "right-sizing") in the private and public sectors in the early and mid-1990s. The pre start-up phase involves the initial musing and more or less casual consideration, followed by the decision to "give" it a go" and more determined exploration of resources, opportunities and needs. It typically requires the formulation of some kind of guiding vision which is translated into the elements of a business plan. The latter will typically involve some assessment of the market for the would-be entrepreneurs's product or service and a consideration of sources of financing.

The management skills that can be brought to bear at this stage, as in other stages of development, may differ enormously. Some would-be entrepreneurs may have formal management education such as an MBA. Others may have many years of experience in the private and/or public sectors. Yet others may be virtually innocent of any such expertise and experience, bringing with them only ideas, or a fledgling invention, and enthusiasm. All will develop their management skills --though, clearly, to vastly varying degrees-- through learning-by-doing. Iterations of the business plan will reflect better understanding of market opportunities, greater awareness of financing needs, identification of relevant technologies, necessary skills, and soon. In the early stages an important part of the process will likely be one that rarely gets into the text-books, but one which came up often in the key respondent interviews for this paper --namely, self-assessment, or "soul-searching":

- am I cut out for this?
- do I have the "right stuff'?
- do I have the drive, ambition, vision, flair, creativity?
- do I have, or can I get, the skills and resources?

Subsequent stages in the sequence might include:

- the actual start-up (often, these days, by means of a "spin-off" from a parent company, a

university or a government or private sector lab, and sometimes facilitated by a small business "incubator")

- survival
- first growth
- expansion/maturity/formalization
- global perspective/export markets

There is a temptation, especially for academics, to identify some such progression as one axis of a matrix, the other being the various components of a management skill set --finance, marketing, production, R&D, human resources, etc. The individual cells then of course, represent the types, and the levels of sophistication, of the management skills needed at each stage of development. There are numerous models of this kind and some are described below. It must be emphasized, however, that they *are* simply models --stylized generalizations of empirical observations of samples of firms with widely differing characteristics. They may be useful as guides or general frameworks but should not be taken literally as the necessary "way to go".

In reality, in other words, the stages will merge and overlap. Some may be skipped --some firms will seek foreign markets at the outset while others will do so only after securing a solid home base; some will enter the market on the basis of technological superiority while others have to learn about technology, and so on. And the progression through the stages is unlikely to be smooth. Key informants for this paper frequently referred to key "breakthrough" events, or thresholds they had surmounted -- so uncertainties and discontinuities are the rule.

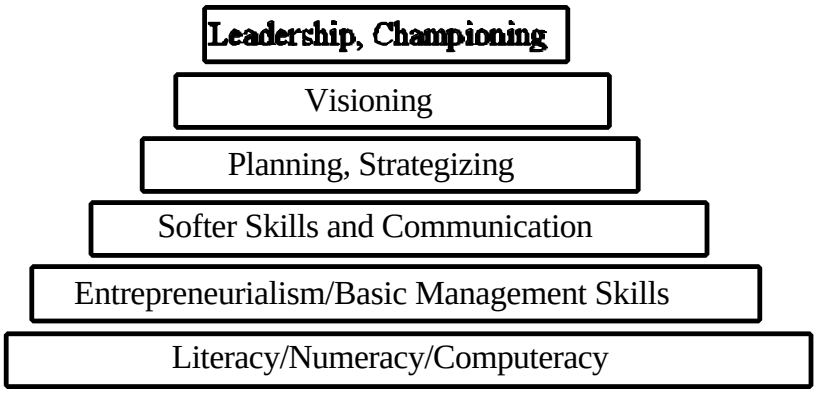
Nevertheless, the suggestive potential of stage models may be helpful and some are presented here.

The Management Skills Pyramid

By way of prelude we recall the management skills pyramid of Newton (1995) and invoke it, in modified form, in the stages of development context. In figure 5, starting at the base of the pyramid one assumes an array of basic skills and competencies. At least a basic functional mastery is required in terms of literacy, numeracy and "computeracy" --it is hard to survive in the KBE without such abilities. Many would-be entrepreneurs have superimposed on those foundation

skills certain technical skills which in many cases become their "selling card". The application of such skills requires, at the next stage, the invocation of entrepreneurial instinct and attitude and the use of some basic management skills in the preparation of a business plan. Communication skills then become of primary importance (a) in securing financing from venture capitalists or loan officers and (b) in convincing potential clients of the merits of one's product or service (c) in acquiring key people (d) in acquiring the best possible advice and (e) in forging partnerships and alliances.

Figure 5: A Hierarchy of Management Skills, Competences and Traits



Successive growth phases require that the initial "ad hockery" and "flying by the seat of one's pants" be gradually replaced by some formalization, standardization, policies, routines, and procedures. Formal planning and strategizing become more important elements of the management skill set. Then, slowly perhaps, the pieces start to come together and visioning becomes important: how does this company see itself; what is its mission and mandate; what kind of corporate climate and culture do we want to establish? Finally,

the management traits that will “make it stick” are leadership and championing --setting the tone, leading by example and backing the cause.

The Gasse Model

Another somewhat more traditional approach is used by Yvon Gasse (1997) who, as outlined above, identified five fundamental management competency domains or dimensions: vision; people management; operations; resources; strategies. These are broken down into various “entrepreneurial/managerial competencies” that are deployed at the various stages of the firm’s development cycle. They include:

- interpersonal skills, leadership, communication, delegation and coaching
- financial management
- technical capability
- organizational competency
- strategic planning
- entrepreneurship
- innovation

The four stages of development in the Gasse model are as follows.

1. The Start-up/ Survival Stage

   In Gasse’s sample most firms in this stage were single product firms with limited, local markets. The organizational structure tended to be informal, planning typically did not extend beyond a one-year time horizon, and the business plan was still the main management tool.

2. First Stage of Growth

   Management in the firms at this stage was centralized and the financial plan had become a major management tool. Some semi-formal procedures had been introduced but management style remained predominantly entrepreneurial. Investments had been made in plant and equipment, R&D, and inventory. Products and services had been broadened and exporting activities had begun. Mastering growth and keeping control were the major challenges. Profits had been generated and they, along with public financing, were the major sources of funds.

3. Expansion/Transition

   This stage is characterized by steadily growing profits, and substantial investments in

equipment, facilities, marketing, and R&D. Organizational structure is more functional, arranged around products or markets. Management is increasingly decentralized with delegation of authority and reduced involvement of the entrepreneur in operations and administration. Marketing features include extended export markets, and new or modified product lines. Seizing strategic opportunities and maintaining control, motivation and commitment are the main preoccupations of entrepreneurs.

4. Maturity/Rational Administration

   This stage is characterized by more formal procedures, and market strategy focusses on product/service differentiation and product/service mix. Structure is decentralized and entrepreneurs spend more time on strategic decision-making and less on day-to-day operations. Maintaining and defending market position is a major objective. Concern for productivity is reflected in expenditures for process innovations to improve efficiency and reduce product costs.

An NRC Model[1]

This model, reproduced as figure 6, involves a 7x5 matrix in which the rows are seven principal areas of management skills or competences and the columns are five stages of development. As such, this is in keeping with classic formal models of the stages of firms' development. Since it is pretty much self-explanatory only a few expository comments are in order. Briefly, the successive stages are characterized by increasing degrees of sophistication and professionalism. Take, for example, the management continuum. In the pre start-up stage the requirement is vision, motivation and a modicum of business sense. In start-up mode the entrepreneur needs to

[1] We say "an" NRC model. The NRC officers and management have a vast accumulated experience with assistance to small firms and are well aware of the heterogeneous nature of small firms and their widely differing experiences of development.

Figure 6: Business Development Cycle

	Pre Start-Up	Start-Up	Stage 1 (*Initial Sales - Revenue/No Breakeven)*	Stage 2 (*Revenue/Breakeven*)	Growth *(Revenue/Profit or Stability)*
Planning	C business concept C building the business plan (includes market research) C assessing viability	C business plan evolution C measure, evaluate, modify	C measure, evaluate, modify (market feedback) C priorities are marketing, financing	C diversity product/service base	C realize market opportunities C growth as soon as possible
Management	C must be a visionary C self-starter/motivated C some business acumen	C leader with broad business skills	C formal, well-heeled Board/Advisors C key position - sales/marketing	C more professional managers C key position - finance person (junior ie. CGA)	C professional CEO (entrepreneur could fill role or stick with earlier role if marketing/ technical)
Finance	C financial plan (if necessary) C personal support ($) C professional services	C start-up capital C detailed financial plan (if necessary)	C working capital, access to capital C private investors	C venture capitalists C bank debt	C professional CFO C more sophisticated finance C whole spectrum of capital (vc equity etc.)
Marketing	C networking/ relationship building	C marketing plan & implementation C beta-testing	C implementation, initial market penetration C market intelligence	C consolidate position C increase market share C check out new markets/products	C new markets and products
Operations	C too early	C infrastructure C processes/ procedures	C consistency in product delivery, improve quality C infrastructure development	C higher volume C formalize systems and processes	C geographical spread including distribution and sales
Human Resources	C define skill set	C skill requirements C how to recruit C government requirements/ policies	C “fighting fires” scenario C team effort C key task: recruiting C employee loyalty	C “maintenance” C functional responsibilities C key task: training/upgrading	C “prevention” C mature delineation of roles and responsibilities C key task: structuring, planning, developing
R&D	C product development C define product	C refining/modifying C beta-testing	C final refinement C development of next generation	C incorporate customer feedback C modify/change products	C more sophisticated level of incorporating customer feedback and modifying/ changing products

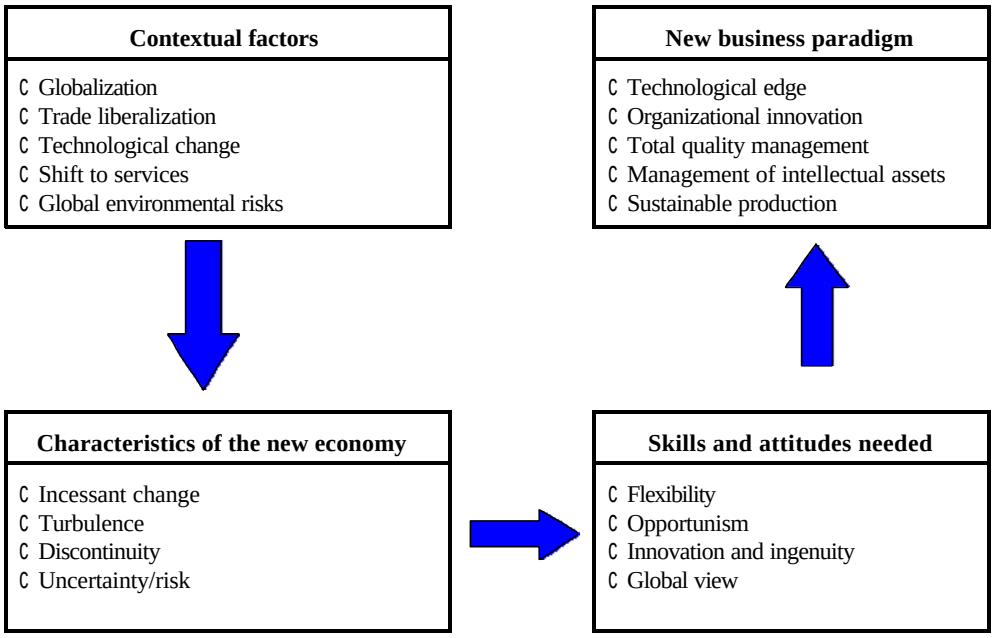
Source: Industrial Research Assistance Program, National Research Council of Canada

show leadership and exercise basic business skills. In the next stage, entrepreneurs need to get advisors with good business acumen. Later, they hire professional managers and a financial accountant . Finally, they appoint a professional CEO. Similarly, the HR function proceeds from identifying basic skill needs and how to fill them, through the development of teams, policies and procedures to rewarding, motivating and retaining talent, to formal delineation and functions and responsibilities, to HR development and training, career development, etc. Similar lines of progressive sophistication, formalization and professionalism may be seen for the other components of the management skill set.

A New Model

In this subsection a new contingency theoretic model is presented to emphasize the managerial challenges posed by the nexus of contextual realities of the KBE, the characteristics of the emerging new economy, the management traits and attitudes that are demanded and some of the innovative managerial strategies that make up what we have called *a new business paradigm*. The basic thesis advanced in this section is that a powerful confluence of forces evolving in the KBE demand a certain set of responses by various players - - individuals, firms, and institutions of various kinds, including governments. Since our principal focus is on management skills, we concentrate on responses at the level of the firm. The model depicted in figure 7 suggests that a set of contextual forces in the KBE are manifested in certain challenging characteristics which, in turn, call for the acquisition of certain skills and attitudes on the part of the managers of firms. Thus, for example, flexibility (and "nimbleness" in the current jargon) are needed for fast response to emerging opportunities. Opportunism is enhanced by constant scanning and networking which must increasingly transcend national boundaries to reflect a "global mindset". Once perceived, opportunities and challenges must be met with ingenuity, creativity and innovation. The acquisition and development of these skills, attitudes and instincts need, in turn, to be facilitated by a framework or strategy, which we refer to as a "new business paradigm".

Figure 7: Evolution of the New Paradigm: Responses to the Challenges of the KBE



This new paradigm, as can be seen in the upper right quadrant of the figure, has several components. A winning business strategy in the innovation-based KBE places a premium on the quest for, and maintenance of, technological edge, for example. Second, complementary, mutually reinforcing organizational innovations are needed to realize the potential of the "hard" technology. Third, given the rigours of highly discriminatory global markets that demand customization, uniqueness and variety, some variant of TQM is required to satisfy the market. Next, knowledge production, management and leverage are the keys to innovation in the KBE. Knowledge workers are an increasingly important factor of production. Intellectual and other intangible assets (such as "image assets" like good corporate citizenship and "greenness") are increasingly valued explicitly by the market -- as recent estimates of Tobin's q attest[2]. Finally, there is growing recognition that in the urgent and incessant quest for new efficiencies, innovation and competitive edge, various elements of sustainable production or "eco efficiency" have salutary effects on firm's performance -- and are complementary to other components of the new business strategy. Technological edge, organizational innovation and TQM, for example, are clearly complementary to a sustainable production emphasis. But so, too, are some elements of the

[2]Named after Nobel-winning Yale economist James Tobin. It is the ratio of market value to the replacement cost of capital. For many knowledge-intensive firms the ratio is 10:1 more.

management of intellectual assets. One example is the nurturing of organizational learning, including the invocation of what Argyris and Schon (1978) called double-loop-learning, in which not only are the proximate manifestations of a problem examined, but so, too, are the fundamental goals, tenets and working operations of the firm. The acquisition and motivation of knowledge workers and the use of cross-disciplinary teams are clearly consistent with pursuit of sustainable production.

This translates into a set of *Management Skills for the KBE*

- internet use and e-commerce
- quality standards: 150 series and beyond
- 'soft skills'/the 'charm factor': personal relations/motivation/leadership/championship/presentation skills/persuasion
- exporting skill: transcend national boundaries; understand other cultures and languages
- managing intellectual assets: knowledge ("gold collar") workers march to a different drummer; get, keep, motivate
- eco-efficiency: "doing well by doing good"

6. Some Demand and Supply Considerations

The issue of the demand and supply of management skills for small business was addressed at some length in Newton (1995). Rather than revisit that treatment the present brief section simply sets out some additional material for consideration. The first main point is that our earlier observation remains valid: many small firms simply don't know what they need. Sometimes they misread the nature of their problems and mistakenly conclude that a fresh infusion of financing, or a "technological fix' will be the magic bullet. In some cases they do not realize that they have a management skills deficiency before it's too late --recall the findings of Baldwin et al. (1997) in section 3, above, where many bankrupt firms had failed to bring in expertise to fill gaps. One may surmise that in many cases the deficiencies were just not perceived in time.

So diagnosis is important. We will not revisit the discussion of diagnostic tools set out in Newton

(1995). For present purposes it suffices to observe that diagnosis and assessment are vital prerequisites to the array of counselling and consultancy services of such institutions as the network of entrepreneurship centres, the Business Development Bank of Canada, the NRC, CMA Canada, etc. For self diagnosis many tools are available and examples range from the sophisticated Interactive Business Planner of Industry Canada's Canadian Business Service Centres to the user-friendly Build Your Own Business tool of the Kingston Economic Development Corporation's small business web-site.

Self diagnosis can also be undertaken through the kind of approach used by the UK's Investors in People program, mentioned above. Essentially, it simply involves a check-list of skills, competences, traits and attitudes in a number of key management domains. The manager(s) simply work their way down the list, self-assessing on a scale of 1-10. The next step is to identify, through benchmarking, networking, and scanning, what is the best practice in each of the areas. Comparison identifies gaps, priorities, and actions to be taken. What this underlines is that the capacity for continual self-assessment and evaluation, along with the associated activities of monitoring, benchmarking and the identification of best practices are themselves valuable skills for small business managers.

Now for some fresh light on the demand side of the market for small business management skills we summarize some results from an enquiry that essentially asked: what do would-be entrepreneurs and 'small business types' expect of courses in entrepreneurship and small business? The survey reported in Pretorius (1996) asked B.Com students, MBA students, entrepreneurs and business people, academics and members of the general public in South Africa, Russia and the Republic of Ireland. The results are rather interesting.

Table 3: Subject Preference in a Course in Entrepreneurship

Rank	Subject or Topic	Respondents
1	Starting of a New Business	398

2	Identification of Business Opportunities	368
3	To Think Creatively (And To Implement)	321
4	Leadership Development	210
5	Financial Management for the Small Businessperson	196

It is instructive to see what the respondents did *not* consider appropriate:

Table 4: "Unsuitable" Topics In An Entrepreneurship Course

Rank	Subject or Topic Not Suitable	Respondents
1	Commercial Law	307
2	Analysis And Interpretation Of Financial Statements	215
3	Income Tax Aspects	210
4	Manpower Management	208
5	Finalizing of Contracts	157
6	Social Responsibility of Entrepreneurs	157

Respondents also maintained strongly (74%) that there should be a difference between entrepreneurship courses and small business management courses, with the former concentrating more heavily on creativity, innovation and start-up.

Turning now to the supply side, recall, first, the variety of programs and institutions set out in chapter 3 of Newton (1995). They include various federal programs, national sectoral approaches, regional programs, college and university courses, co-ops and internships, consultants, university-business partnerships, private business colleges, etc.

One important institutional arrangement not described in the earlier study is university entrepreneurship centres of which, as Menzies (2000) describes there are now 32 in most major Canadian cities coast to coast. One of the earliest was at Memorial (established in 1978) and among the most recent is Bishop's (1998)

Some of the activities of the entrepreneurship centres identified by Menzies include the following.

- Developing entrepreneurship curriculum and programs
- Providing entrepreneurship certificate and degree courses
- Hosting an entrepreneur in residence
- Conducting and publishing academic research
- Writing case studies
- Providing entrepreneurship education through training courses of varying duration and sometimes on contract with the public sector
- Providing entrepreneurship education through certificate and credit courses
- Acting as an information source for community members interested or engaged in launching a new venture
- Providing consulting (including business plan preparation), counselling, mentoring and networking for venture launch and early growth stages
- Providing workshops or seminars on new venture creation and planning
- Fostering business partnering
- Providing new venture assistance expressly for aspiring women entrepreneurs
- Organizing and running conferences relating to entrepreneurship
- Offering distance education, information and consulting via the WWW to a wider community
- Conducting market research for aspiring or new entrepreneurs regarding their new venture
- Co-ordinating and disseminating information about government programs for entrepreneurs
- Organizing and co-ordinating mentor programs
- Operating an incubator

Clearly, then, there is a growing recognition of need and a heartening institutional response. As far as government programs are concerned, an invaluable reference is the government of Canada's *Your Guide to Government of Canada Services and Support for Small Business (2000)* which provides small business managers with information (including web sites) on

- key support and information services
- financing
- exporting

C tax requirements
C HR
C management and skills development
C science, technology and innovation
C the information highway
C relevant legislation
C government contracting

We turn now to a brief look at a handful of other institutional players with interesting and relevant approaches

The first of these is the NRC where the Industrial Research Assistance program (IRAP) is world-renowned. Its network of some 200 Industrial Technology Advisors across the country assist small businesses to commercialize ideas and inventions through advice on technologies and the complementary business elements required to ensure viability. A second NRC offering is the entrepreneurship program which concentrates on helping researchers bridge the gap between their technological innovation and the business world. It offers a 7 day entrepreneurship training program called Creating a Technology-Based Business Venture that is offered over several weeks. "Talks and Tools" are presented by some 30 experts. Of particular interest is the *mentoring* feature.

Participants can choose to be partnered with a mentor --a skilled professional who will help them make sense of the Talks and Tools and guide them through the process of developing the business case. Some of the mentors are Industrial Technology Advisors from the Industrial Research Assistance Program (IRAP) and others are either from the business community or the participant's business/technology transfer office. Based on information provided during participant registration, mentors are carefully chosen by the Entrepreneurship Office to ensure they understand the technology and appreciate its full potential. The mentor will assist and advise the participant in developing an action plan and preparing their business case, as well as help in identifying sources of information on markets and other data, and in analyzing information.

Next, the Entrepreneurship Centre of the Ottawa Economic development Corporation is one of many similar centres in cities across the country.

The Entrepreneurship Centre provides access to a full suite of business service including:

C Walk-in Business Resource Centre

C Free printed material on start-up issues and frequently asked questions

C Starting Your Business orientation sessions

C Business consultations

C Professional legal and accounting advisory services

C Technology services

C Business Name registration kiosks

C Linkages to business mentors

C Financial advisory and investment matching services

C Young Entrepreneurs Financing Program

C On-line training programs

C Business seminars covering a wide range of topics

Once, again, a special feature is mentoring. Coordinated by the Entrepreneurship Centre, the Mentorship Program provides owners of existing businesses with individual mentoring by successful business owners and senior managers. Needs are assessed through a consultation with one of the Centre's consultants who will determine if the entrepreneur is a suitable candidate for the program.

Qualified candidates will be matched with a mentor who has complementary skills or expertise (provided that a suitable mentor is available). To be considered, candidates must require specialized help in a business area or face a critical business situation that requires immediate attention. They must also provide a "value-added" product or service and demonstrate the potential for growth through market expansion or hiring. Successful candidates are generally matched with a mentor for a six-month period. There is a $50 fee for this program to cover administrative and coordination expenses.

Mentoring is also the principal operating mode of the organization known as Inno-Centre. Inno-Centre acts as a catalyst for the start-up, development and the commercial and financial

success of emerging high technology companies offering a high-potential innovative product. Since its founding in 1987, Inno-Centre offers its clients --promising high-tech companies that have made it through a rigorous selection process-- a two-year business development service

This *comprehensive mentoring formula* of a "business engineering" and "business coaching" type combines personalized interventions by a dedicated counsellor and an experienced multidisciplinary team, and the participation of members of the scientific and business communities. The client companies benefit from a *business skills development program* and enjoy access to Inno-Centre's extensive business, technological and financial network. The support that the Inno-Centre provides to its client companies takes two forms: a complete business development service and access to a prestigious business network.

Within six months of a company's enrolling in the program, the assigned counsellor, working with the company's directors, draws up a business plan. The plan is then used by the entrepreneur and an Inno-Centre expert to seek financing. Inno-Centre's multidisciplinary team also assists the company in planning key aspects of its operations, such as management, production, finance and marketing. This assistance continues for the full two years of the program.

At the same time, an advisory board (management committee) is formed for the company. The members of the advisory board act as expert business development advisors, helping the company to define its strategic orientations.

Inno-Centre's entrepreneurs also enjoy access to a practical, management-oriented skills development program. The skills development program features courses, seminars, conferences and other activities.

One of the key elements of the program is an impressive business network. In its full-time team, specialized counsellors, sector-based committees, collaborators and resource bank, Inno-Centre has built a network of highly qualified and respected individuals from the business and high-tech sectors to serve its client companies.

7. Factors Impeding, and those Conducive to, Management Skills Development for Small Business

This question was addressed at some length and in some detail in Newton (1995). That discussion is not reproduced here. Its main elements are very briefly recalled as the starting point for additional material drawn from recent literature, key informant interviews, and case studies.

First, the reality for most small firms is that they quite simply lack the time, money, information and experience to evaluate their training needs and access the required programs and services. Inexperience and imperfect information may therefore lead to misdiagnosis of problems and needs. At all stages of the development cycle of the firm imperfect information is a principal barrier. At the crucial pre start-up stage the daunting challenges are risk and uncertainty. Information is a means to minimize uncertainty and accurately assess risk. At each subsequent stage of development timely, accurate and relevant information is required to assess needs and acquire the means to address them. In doing this, however, firms may face another information problem in the form of the plethora of largely uncoordinated potential suppliers of services. As mentioned in the earlier study, there seems to be no absolute shortage of such services. But, which source is best suited to meet my particular needs? What quality assurances do I have?

One important information gap that small firm managers have to overcome has to do with the links between the development and deployment of management skills, on the one hand, and impacts on the firms' performance outcomes on the other. The influential and useful work of Baldwin and his colleagues at Statistics Canada is a sound platform but much more needs to be done. Newton (1998) reviews the theoretical and empirical literature on high performance workplaces. The empirical evidence includes studies involving small firms in Canada, though most of the work relates to larger firms. Briefly this research shows that the judicious combination of "bundles" of management practices can have salutary effects on a range of firms' performance outcomes that may include productivity, costs, market share, profitability, quality, client satisfaction, morale, turnover, absenteeism, waste reduction, and Tobin's q. More recently Newton and Magun (2001) examine organizational learning and intellectual capital management as the means to enhanced

performance, using Canadian case studies.

However, such research is rare. And until a solid, wide-ranging body of empirical evidence can be marshalled to demonstrate the wisdom of investment in management skills the natural reluctance of small business manager to pay for costly services and/or advice with uncertain results will continue to prevail. Many small business owners and managers feel intuitively that skill acquisition makes sense but hesitate because of the direct pecuniary costs and the opportunity costs of forgone time. Ideally, they should be convinced that skill acquisition is not just a cost but an investment that has bottom-line payoffs.

Similarly, small business managers are frequently exhorted to undertake self-assessment, undertake benchmarking and identify best practices. The difficulty here is obtaining the information necessary to gain access to relevant, appropriate and low-cost tools. Once again there is an impressive array of potential sources and, increasingly information and communication technologies make accessing them easier, but informed choices are sometimes difficult because of a lack of standards and coordination.

At various junctures this, and the earlier paper allude to the vital importance of alliances and partnerships as a corporate *modus operandi*. Such interfirm linkages are an essential means to help overcome information and knowledge gaps. Too often, however, small firms lack the information, experience and skills to forge such linkages and benefit from them. And too often, fledgling firms, resource-poor, feel they have little to "bring to the table". Paradoxically, then, while it is a formidable task to "spin-off" research from universities into the business world, so too is it difficult for small firms to "hook onto" the knowledge and research resources of universities. In the first situation the barriers may be the risks and uncertainties associated with the "leap in the dark" from the familiar world of academic research to the (often) unknown world of market competition. The brilliant scientist or engineer may be relatively innocent of the ways of business. In the second case, as suggested above, the barriers to forming partnerships with universities are simply imperfect information and limited resources.

Finally, at the most general and fundamental level, while some progress has been made, Canada still has a long way to go in breaking down some of the barriers associated with the relative absence of a celebrated entrepreneurial culture and tradition. For too long the denizens of the business schools studied management as a scholarly pursuit and rarely descended from the ivory tower. Entrepreneurship while an interesting topic to study was frequently regarded as something innate --not teachable: you either had it or you didn't. Similarly, cross-disciplinary curricula were rare. Scientists and engineers would be equipped with solid and up-to-date technical skills but none of the business management skills with which new ideas or innovations could be applied. Finally, the risk-taking ("gambling", to some) that is the hallmark of entrepreneurialism has often been regarded by large segments of the public with some suspicion if not outright opprobrium. So there is a long way to go before entrepreneurs are widely and frequently found among Canada's pantheon of national heroes.

Turning now to the factors and circumstances favouring SME skills development, many will be seen simply to be examples in which the impediments described above --imperfect information, knowledge gaps, resource constraints-- can be successfully challenged. Thus, many of them are primarily various institutional arrangements to facilitate acquisition of information and knowledge and pool resources.

The first of these is interfirm collaboration, alliances and partnerships. These take many forms -- networks for information exchange, collaborative research, joint business ventures, shared training and development, etc. --and may be found in various locations, such as clusters, technopoles, science parks, and so on. Some large firms encourage "intrapreneurs" to form their own companies while still, for a period, enjoying access to the parent company's resources before spinning off. Some private organizations provide nascent firms with a variety of incubation support services. In some cases valuable interfirm linkages may be between the firm and its suppliers, since vendors are often willing to supply not only information but training. And where small firms are suppliers of large firms the latter can be useful sources of intelligence. All of these many forms are therefore useful means by which small business managers can attack the information barriers and broaden the range of their knowledge and experience. From a policy

standpoint this still begs the question of how these favourable circumstances can be brought into play and the facilitating factors enhanced. This will be addressed in the next section.

The next form of partnership to address the information and resource barriers is relationships with universities,. Basically, these may be of two types. The first consists of linkages to access information about related scientific and technological research which may be particularly important in high-tech companies where staying abreast of the latest research may confer competitive edge. The second form consists of forming relationships that tap the professional resources of the schools of commerce and business --including the kinds of programs and resources offered by the entrepreneurship centres described in section 6, above. A variety of professional (and in some cases voluntary) resources are available, including advice and counselling, workshops, seminars, conferences etc., in addition to courses.

Another institutional arrangement that is conducive to the development and deployment of managerial skills is organizational learning. Firms that consciously, determinedly and systematically create a climate of continuous learning or knowledge acquisition have been shown in the conceptual and empirical literature to enjoy competitive advantages (see, e.g. Newton and Magun (2001) and Newton (2001)). Such “learning firms” actively encourage knowledge development as a modus operandi. They provide the tools and practices to facilitate innovation and the rewards to motivate its pursuit. Where this climate is inculcated at the start of the development cycle the firm can enjoy an ongoing stream of relative advantages.

Finally, an effective factor in addressing the information and resource barriers is access to timely and relevant advice, skills and experience. Where firms can enjoy effective consultations with trusted business advisors --bankers/financiers or accountants for example-- who can review and provide feedback on general business or more specialized financial plans they may benefit considerably.

Of special interest in the context of access to advice (and particularly so given the current and foreseeable demographic structure) is the concept of mentoring. Teaming up with retired

successful business executives and owners and operators of small firms may be especially useful. The accumulated experience and expertise of this group (who may consult for a fee and, in some instances, voluntarily) may prove especially valuable.

8. Policy Considerations

The foregoing analysis has suggested many challenges for policy-makers, in both the public and private sectors. At the most general level, issues of entrepreneurial culture, public attitudes and mindsets, as well as political will must be the focus of attention if entrepreneurship and small business management and ownership are to be a flourishing contributor to the process of innovation in the KBE . Simply (though paradoxically!) put, SMEs are big business. They will continue to be a major force in the KBE. Policy makers concerned with innovation, productivity improvement, enhanced competitiveness, aggregate economic growth, and job creation would be well advised to give special attention to this sector. Not only is it a major contributor to innovation and overall economic activity in its own right, it is, in an important sense, the key to the future. To use a sports analogy, the big guys with proven skills and performance make the big bucks, but the little guys are our talent pools, our farm teams. Care and nurturing, the best instruction and advice, coaching, mentoring, facilities and equipment for the small business sector would therefore seem to be clear and important national priorities for innovation and growth strategies in KBEs.

There is much soul-searching and hand-wringing these days about the appropriate role for government. How much direct intervention is warranted in terms of the delivery of policies and programs for small business? Is, as the current orthodoxy seems to suggest, the appropriate role for government one of acting as facilitator, broker, agent, catalyst; the provider of infrastructure; the creator and custodian of healthy marketplace guidelines and climate; the creator and disseminator of strategic information? (“Helping the private sector do what the private sector does best” is the phrase often used) Since the public sector is itself responsible for a substantial contribution to overall economic activity, what is the scope for leading by example? How might the public sector champion and develop intrapreneurial, unit-based approaches to innovative

management practices that may have wider application? In considering these questions the reader may usefully refer back to the five guiding principles for policy formulation set out in Newton (1995). For the present it is simply asserted that in practice the foregoing questions about the role of government should not be treated as politically dogmatic "either/or "choices. More likely, some judicious combination of roles may approach an optimal solution. Where there is clear market failure and the unfettered and unaided market is unable to address the deficiency ,than a government role is indicated. Where market solutions are possible they should be encouraged. Encouragement might mean incentives deriving from regulatory and/or fiscal regimes but might mean addressing imperfect information through brokerage and facilitation, provision of (particularly electronic) infrastructure or "irrigating" the market with strategic information.

In this report we continue to emphasize information as the central thrust of policy considerations concerning small business skills for the KBE. In the 1995 report we emphasized networking and sketched the ingredients of a network of management excellence. Allied to this we set out in stylized form the elements of a management information directory which served in part as a contribution to the intellectual underpinnings and rationale for the development of Strategis and Contact! The further development and enrichment of these tools of strategic information infrastructure should be regarded as a priority for policies directed to the development of management skills in small firms.

In a sense, however, one obvious framework for addressing the question of policy consideration consists of going back to the discussion of the barriers to, and the factors conducive to, the acquisition, development and application of small business management skills. The policy challenge, then, is simple: how might one lower the barriers while simultaneously accentuating the positive factors? In this vein, several institutional approaches already alluded to seem eminently sensible. The various kinds of interfirm alliances, business-university-government alliances hold out much promise. The policy question, simply put, is how to make them happen. This challenge is obviously clearly perceived in policy circles inasmuch as the word "partnership" is liberally (small 'l'!) sprinkled throughout government policy papers, The translation of rhetoric into reality is proceeding apace but requires continued, concerted effort.

Clearly this agency or brokerage role, connecting the key players (including SMEs) in national systems of innovation is a key one for governments in KBEs. Increasingly, however, one observes the emergence and growing prominence of non-governmental intermediaries. One outstanding example in Canada' national capital region is the Ottawa Centre for Research and Innovation which regularly and continuously facilitates and enriches connections, partnerships, alliances and collaborations of many kinds. Soon to be formally allied with the Ottawa Economic Development Corporation (with its flourishing Entrepreneurship Centre) this organization looks like a useful model to address information and resource barriers and, from a policy standpoint, a model opportunity for public-private cooperation

As far as other institutional arrangements to confront the barriers and enhance the forces conducive to small business management skills development, two others also seem promising methods of delivery. One is mentorship. With the imminent retirement of the populous ranks of the highly skilled and educated "boomer" generation it makes eminent sense to seek ways to systematically marshall and deploy this potentially powerful national resource. The other potentially promising direction is to use the capacity of ICTs in encouraging the establishment and development of business networks that would involve participating firms in information exchange, joint research, benchmarking and identification of best practices to mutual advantage.

In the policy context, two other topics are worthy of consideration but require separate research studies in themselves. As such they are beyond the investigative scope of this paper, but should be noted in passing. The first is the development of some widely accepted standards of management competence. These need not slavishly follow the UK approach mentioned briefly earlier (section 4) but some such generic approach might be a useful starting point. The reason for raising this issue derives simply from the observation that, in examining both the demand and supply sides of the market for management development skills one is struck, first, by the problems associated with defining the necessary skills and competencies on the demand side and, at the same time, by the bewildering welter of uncoordinated sources on the supply side. One might therefore argue that the establishment and maintenance of a widely-acceptable set of competence standards would be a first step towards some order, harmony and coordination.

Closely allied to this is the question of certification and standards on the supply side of the market where, given the explosion of organizations and individuals seeking to address the skill needs of the KBE., some assurance of quality levels is sorely needed.

For many, the last thing we need is yet another unit of bureaucracy. At the same time some innovative high profile (but lean) institutional arrangement (public-private, perhaps) might be useful to implement and maintain a national framework. We note in passing that a preliminary suggestion for a National Strategic Business Plan for SMEs was recently advanced by the Society of Management Accountants of Canada. The plan would include the following elements: a mentoring program, a benchmarking program, a local business incubator strategy, a business cluster and network strategy and a SME Management and Innovation Centre. Perhaps such a national plan might be the first step towards design of the national strategies to lend greater coordination to the demand and supply sides of this market described above.

9. Summary and Concluding Comments

This paper has attempted to position the debate about small business management skills development squarely in the context of the importance of the small business sector to the emerging global KBE. Knowledge and skills are the critical factors of production in the KBE and the source of competitive edge. Continuous and comprehensive innovation is the key to survival and growth. Management skills are, in turn, central to that process of innovation. Since SMEs account for sizeable proportions of economic activity, therefore, and since they are an importance source of dynamism and innovation, small business management skills should be a primary focus for economic policy in general and for innovation strategies in particular. This rationale is further substantiated by findings that indicate deficiencies in small business management skills.

The paper has noted some of the difficulties in identifying small business management skills. These difficulties stem in part from the sheer heterogeneity of the SME population and in part from the varying sets of needs at different stages in the development of the firm. The stages of development theme was developed and illustrated in the paper which posits as an ultimate stage of

knowledge-intensity, the emergence of a new business paradigm in the KBE, one which demands new and sophisticated management practices.

Building on an earlier Industry Canada publication on management skills development the paper looked at some features of both the demand and supply sides of the market and then at the factors impeding, and those conducive to the acquisition of small business management skills. This discussion was followed, in section 8, by some observations about policy in this crucial area.

The paper concludes with a few thoughts about some directions for further research to inform the policy-development process. The first has to do with the point that became overwhelmingly clear in the preparation of this paper --namely, the incredible heterogeneity of small firms. The stall at the farmer's market, the corner store, your neighbourhood diner, the B&B, the hunting lodge, the artist's studio, the lawyer's office, the machine shop, computer repair, the myriad "consultancies" --they're all small business.

Empirical analysis should, ideally, recognize this explicitly in order to draw conclusions as to whether there are generic small business management skills sets that are common across most, many or some industries and occupations and which are specific to particular lines of business.

Second, the research for this paper certainly confirms the propriety of using a stage-of-development framework, though we conclude that the parameters of that framework should emerge from the data rather than the data being forced, in procrustean fashion, into some rigid predetermined matrix. Empirical work should clearly distinguish stage of development from firm size --they are clearly not synonynous though some of the literature gives the impression that they are.

Third, as noted above, research is required to demonstrate empirically the links between the development of small business management skills and performance. But productivity is too narrow --and, in any case, too slippery-- a concept to be the primary measure. A wide range of complementary performance outcomes should be utilized, including costs, quality, market share,

satisfaction, etc., as well as some measure of the impact on the innovativeness of the firm which, after all, is of vital importance in the KBE.

Finally, governments might want to consider support for a concerted program of policy research in a coordinated framework to evaluate the various policies and programs at various levels of government, and the vast array of institutional delivery mechanisms for the development of small business skills. What works, what doesn't, and why? Such work would be an invaluable input to policy-making in this important area.

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Appendix A: BARRY PADOLSKY ARCHITECT LTD.

This small (seven persons) specialized architectural firm in Ottawa illustrates many of the characteristics and applications of small business management skills and of the concepts of organizational learning and intellectual capital development described above. Quite simply, but most importantly, the very nature of this kind of work is fundamentally intellectual. It requires high levels of technical skill, but also vision and creativity. And all of these attributes must be continuously enriched in order for the firm to survive and prosper.

A number of facets of the firm's operations illustrate its knowledge-based, continuous learning character. First (and, of course, this is by no means unique) it relies on advanced CAD technology and the continuous learning that experimentation with such systems and their applications require. In this case, however, there is an interesting twist to the story. Sensing the growing importance of technological sophistication the firm's principal deliberately sought out and acquired a special set of intellectual assets in the form of a graduate architect whose skills were less of the traditional kind, and more computer-based. This in itself, created an opportunity for team learning as the acquisition of technological competence by the incumbent staff was facilitated by the new employee. The latter, in turn, benefitted from the broader experience of new colleagues.

A second example illustrates what the literature variously refers to as "interactive learning" and "learning from clients". Such interaction is the lifeblood of architectural research and development. Take the case of the firm's commission to design a new hospital extension to accommodate Alzheimer's patients. Clearly this involves an intensive and lengthy iterative process with the clients to articulate performance standards for the facility: eating arrangements, sanitation, and the spatial and psychological features of the environment. (The latter includes "meaningful wandering paths " for the patients --secure and comfortable but with therapeutic themes and events along the way— that clearly call for creativity and ingenuity). Based on the principle of "design economics" Padolsky and his team would then offer several design options for criticism and feedback. Before submitting a redesign the team would typically undertake additional research, such as, in this case, drawing on the expertise and experience of the Australian ADARDS (Alzheimer's Disease and Related Disorders) model in Hobart, Tasmania. The iterative process ultimately approaches a mutually acceptable consensus that reflects a rich

learning process and new knowledge.

The term R & D typically conjures up images of white-coated boffins tending test tubes and retorts. But R & D, albeit of a different kind, is essential to this architectural firm, too. Some years ago the firm was called in to address problems stemming from subsidence at Ottawa's historic Victoria Museum, a massive stone castle-like structure with turrets and crenellations. In analyzing the problem and recommending the methods and materials for repair, the team seized the opportunity to develop a comprehensive system for evaluating and monitoring the building by establishing the coordinates of the entire building, entering them on a CAD system, and establishing a management information system for maintenance and costing. This Global Positioning System is, in effect, a knowledge baseline for management in future generations.

Another example of the firm's R & D also illustrates its unique leveraging of specialized or "niche knowledge" relating to the restoration of heritage properties --"reinstating features that were long lost ", in Mr. Padolsky's words. Ever on the look out for abandoned items of historical significance that could be brought back to practical or ornamental significance in a contemporary setting, Padolsky came across a copper weather vane in the form of a flying Mercury. Custom-crafted by American sculptor W.H. Muller for Sun Life in Ottawa in 1898, the building it adorned was demolished in 1949 and the Mercury went into custody of the Ottawa Historical Society. The rescued vane now stands atop a domed clock tower, one of the new features the firm incorporated into the renovation of a vacant 65 year old department store now known as Mercury Court.

But for several other characteristics of learning organizations the firm is also an exemplar. Take teams and mentorship. The firm encourages a team approach that combines complementary skill sets and gives everyone a taste of the various aspects of project management. Cross functionality extends outside the firm, too: many projects call for partnerships with external experts --such as structural engineers, for example. Padolsky's mentoring role vis-à-vis such teams is interesting: "set up the team, agree on the broad parameters, and let them be creative ".
His encouragement to "throw away the rules" is entirely congruent with Argyris' key concept of *double-loop learning*. He avers that, in this context, he sees himself as a kind of critic and consultant.

Learning, in any firm of this kind, must be continuous. In addition to the means described above, this firm, like most, encourages staff to keep up with and surpass the skill sets of other organizations through self learning, and participation in trade and professional organizations. In addition, there are two forms of learning that are specific to the architectural profession. The first is the institution of internship, in which new graduates are required to proceed through a systematic, monitored, and documented process of practical skill acquisition and expertise. This, in itself, is a contributing element in the climate and culture of innovation and learning that are the hallmark of the architectural firm. The other is interesting and perhaps less well-known. Architecture, like medicine and law, is potentially subject to liability suits. Naturally, it is in the interest of insurance companies to minimize the frequency and incidence of claims, and therefore the maintenance and development of expertise is a major priority. Accordingly, the insurance companies strike a deal: follow a prescribed program of training to keep up and enrich your skills, and we will give you a break on the premiums.

Finally, a useful practice in this firm is the *post-mortem.* What did we learn from this project? What worked, what didn't, and what can we do about it? This is in keeping with what Garvin (1993) has dubbed the "Santayana review" after the famous American philosopher who asserted that those who do not learn from history are condemned to repeat it. It is through retrospective evaluation that organizational memory is developed.

All-in-all this case clearly illustrates many of the features of the knowledge-intensive firms set out in the earlier sections of this paper. It is in many ways a classic small-firm exemplar that emphasizes a synergistic, multiskilling team approach in which "everyone learns a bit of everything ", and in which leadership is crucial in defining the learning culture of the organization.

Appendix B: PERIGON SOLUTIONS INC.

When Ron George left his professorship at the University of Guelph his new mission was to fundamentally overhaul the academic computing infrastructure at the University of Calgary. This, in itself, was a major challenge. Little did he realize how far it would take him. Since a principal element of the overhaul was a government commitment to match any donations, George & his colleagues were soon forging links with major suppliers in the computing field. As they began to tailor the acquired products to the needs of academic clients they were increasingly called upon by the companies themselves to help in the solution of software problems. Paradoxically, than, the roles were reversed as George and his colleagues provided their expertise --starting in 1981 with a modest 13 thousand dollars in contracts that blossomed to about 1½ - 2 million dollars in the subsequent 2-year period. The advanced Computing Technology Centre, as the U of C group was known became so successful that in 1988 the Honeywell Corp (through its European spin-off, Bull) offered a new, attractive, 5-year contract. A condition, however, was that the unit should incorporate as a private company. Parenthetically, this was probably a timely suggestion since the very profitability of the venture was proving a little embarrassing to its publicly-funded host institution. Thus, ACTC was born. But the academic links remain strong.

Last year the company changed its name to Perigon Solutions Inc. The Greek components of the name imply that the company is the epitome of versatility --*peri*, suggesting "all encompassing" and the suffix *gon*, as in a figure with various angles. Its main business has been the development of operating systems, compilers and data communications software. Much of the seminal work was undertaken with Multics (developed by GE and MIT) an operating system with advanced US Department of Defence Security rating. A powerful, high security multi-processor system, it provides the environment , the model, for developers to build their own software and has been the basis, for example, for much of the software technology development of companies like Macintosh and Unix. The high-security characteristic of the system is an important one as it immediately implies the very strictest attention to standards and quality requirements --a feature which has become the hallmark of the company's work and a building-block of its reputation. What the foregoing illustrates is the importance Perigon places on alliances to get access to knowledge and technology.

Client orientation is the central focus in many dimensions of what Ron George calls “doing software right” which involves not just the normal maintenance but explicit and comprehensive “life cycle support”. And the critical factor in the “doing software right” philosophy is the use of high performance teams. While these teams of 5-15 members may be composed of individuals with differing skill sets, everyone in the team has responsibility for all aspects of the project. This maximizes learning, insures complete sharing of all information, and spreads risk. The approach is clearly successful as recent metrics on life-cycle software support show Perigon twice as effective as competitors, and consultants refer to them as a “true learning organization” because of their flexibility and ability to learn quickly. This management style and business culture clearly pays off.

Reacting quickly and innovating effectively are crucial for survival in the turbulent knowledge-based economy. As Perigon witnessed the growing competition from larger software companies an important question became: can we get into the software *product* business? In fact, the company had built various specialized products for specific clients in the past. The challenge now was to develop one with wide application. This challenge is being met with ‘Morpheus’ a “middleware” product embedded in other’s applications. While its initial use is for data applications in the oil patch it holds considerable potential for a variety of applications --electronic commerce, for example; and cable companies and telecoms can use it to deliver product.

This exciting product of R & D is now at what the President describes as the “internal beta release” stage --complete and demonstrable, but still needing refinement and polishing (including appearance). If the next stage toward commercialization is successful the product will change fundamentally the nature of the company --a prime example of continuous learning, innovation, and adaptation, and a symptom of the diversification that reflects a more sophisticated stage of development.

Clearly, knowledge creation is the lifeblood of a company like Perigon. Its employees are actively encouraged to be continuous learners and are supported by a variety of training and learning facilities as well as the high-performance team approach. In addition, external sources of learning are also important. First, the heavy emphasis on quality and customer satisfaction means

that learning from clients is an integral part of organizational learning. Second, Perigon has maintained links with the university and has also become involved in the product development teams of such companies as Bull H. N. and Motorola, which have actually bought into the company and have representatives on its board. Interfirm linkages, in other words have been an integral part of small business management.

Appendix C: MONTAGE eINTEGRATION INC

This case study illustrates many of the key features highlighted in the discussions of management traits, competence and attitudes in the main body of this paper. First, it exemplifies the stages of growth model. President and Chief Operating Officer Steve Byrne recalls that it was founded by Grant and Elizabeth Lakeman in Edmonton in 1986. For a while it was a four-person basement operation but has grown at annual rates of 30-40 % in the last decade. Byrne sees three thresholds in the stage of development cycle: "making the first million, then ten, and next year we hope to pass a hundred". Each stage has involved increasing markets, product and service diversification, global expansion, and greater sophistication.

Second, deployment and leading-edge technological and knowledge resources. Third is a distinct management culture and style that encourages cooperative teamwork, a sense of common ownership and strong commitment and loyalty. Fourth the management has systematically forged interfirm alliances.

In the 14 years since Montage eIntegration Inc. began as a small Edmonton consulting company, it has become the largest Alberta-based information technology company and a world leader in e-commerce systems integration. Montage has grown quickly --between 35 and 40 per cent per year during the past decade-- and is constantly changing to meet the growing demands of businesses branching out in e-commerce.

It's what hasn't changed --the "Montage culture"-- that company co-founder Grant Lakeman attributes to the company's success. "Montage is my company as much as it is every employee's company", Lakeman says of the outfit he co-founded with his wife, Elizabeth, in 1986. "People like to be part of something they believe in, and that they believe *they are building*". Montage's expertise is in helping firms develop software systems best suited to the company needs, linking those systems with existing procedures effectively within the organization, and the Internet.

Montage culture embodies a well-established work ethic, challenging work, and equal respect for all employees and a responsibility to the company, as well as the clients, says Lakeman, now CEO

and chair of the Board of Directors. "And having fun at the same time can't hurt". Montage employees seem to embrace the culture. Annual staff turnover is less than 10 per cent, a rate unparalleled in the high tech field. Among executive and senior managers, there has been no turnover since the company was founded.
The company employs more than 400 people in Edmonton, Calgary, Raleigh, N.C., Toronto, Ottawa, Vienna and Rome. Revenues are projected to double to $100 million by 2002.

Coupled with the need to raise money to fund company growth, Lakeman introduced the employee stock-purchase program in the mid-1990s. "If everybody owns stock it's much easier for us to convince ourselves that every employee will adopt an owner's mentality", Lakeman says. "It creates a whole different sense of cohesiveness internally. We all share the risk of success or failure on any given project". The response has been overwhelming. Each time Montage has an offering, the company can't meet the demand for shares. Last May, Lakeman raised more than $500,000 by selling shares for $2 each.

LEAPS AND BOUNDS

- 1986 Lakeman resources founded in Edmonton by Grant and Elizabeth Lakeman
- 1988 Ottawa branch opened
- 1990 Calgary branch opened
- 1995 Toronto branch opened
- 1997 Raleigh, N.C. office opened
- 1999 second Ottawa office opened to service the needs of the telecommunications sector
- 2000 opened San Francisco office

Montage is committed to securing projects that are challenging, and that require employees to use new technologies, says Elizabeth Lakeman, who founded Montage with her husband. She says. "We give them the opportunity to expand and grow where they see themselves fitting in. They really appreciate that."

Steve Byrne believes the relationship with Nortel, one of the world's technology revolution's leading lights, an extremely demanding customer, has been a key factor in Montage's success. "That account experience has allowed us to develop some really deep roots in the world of e-integration in that we've delved into great depths in addressing the electronic marketing, selling,

ERP, electronic supply chain (and) business intelligence challenges of a Fortune 500 customer." "That whole breadth of experience we believe is an excellent launch pad, and our strategy is to, one by one, try and build similar relationships with a number of major accounts, in telecom manufacturing, the financial services, the energy and government segments."

Note: Background information from the Edmonton Journal and Calgary Herald. Other information from discussions with employees at the Ottawa Office.

Appendix D: KEY INFORMANTS

Maria Bacile	Montage
Steve Byrne	Montage
Jim Shea	Montage
Arvind Chhatbar	NRC
Denys Cooper	NRC
Steve Palmer	NRC
Michael Darch	OEDCo
Stephen Daze	OEDCo
Bill Collins	OCRI
Ted Mallett	CFIB
André Pichet	CFIB
Graham Burton	OCCELL,Inc.
Gaetan Marcheterre	BDC
Rod Brandvold	Cognos
Barry Padolski	Barry Padolski Architects Ltd.
Ron George	Perigon Solutions Inc.

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