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Rapport de recherche

Entrepreneurial Success or Failure — Ten Years Later

A Study of 47 Technologically Oriented Enterprises

By

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The views and opinions expressed in this report are those of the authors and are not necessarily endorsed by the Department of Regional Industrial Expansion.

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EXECUTIVE SUMMARY

THE STUDY

During 1970-1971, the authors undertook a study to provide empirical data about the factors which advance and obstruct Canadian entrepreneurship. The population examined in this study consisted of 47 small companies, relatively newly established ventures founded by technologically-oriented entrepreneurs, which had received government assistance.

Some 10 years have passed since the foregoing study was conducted. The underlying purpose of this study is to return to the original 47 firms interviewed in order to determine their present state of operations; specifically, to identify the survivors from the failures. Firms that survived are examined and divided into marginal and successful survivors. An attempt is made to compare the characteristics of business survivors with business failures, and in the case of the former between the more and less successful.

THE FAILURES

Eighteen of the 47 firms can be listed as failures, either because they were declared bankrupt, are in a state of receivership, or because they ceased to do business for a number of years. At the time the companies were dissolved or wound down, in 16 of the 18 cases there was some involvement in the management of the companies by the original founders; in 10 cases it was significant.

Venture capital firms or venture capitalists (individuals) were involved in 12 of the 18 failures. In those instances where a venture capital firm was involved, input of new management expertise, in addition to new capital was usually the order of the day. In terms of market horizons, eight of the 18 firms regarded the sales potential of the Canadian market to have been sufficiently large to have formed the basis of their initial investment decision, to go into business. This was not the case with the other 10 firms, whose managerial judgement led them to invest in decisions which necessitated the realization of significant export business.

There was considerable individual variation in length of survival and in financial results. Most of the factors generally mentioned as causes of business failure in management literature are included in the observations concerning the 18 firms. In at least one-half of the 18 cases, the owner managers were not sufficiently well prepared, managerially, psychologically and financially, to cope with protracted initial difficulties. They were unrealistic in their original technical and marketing expectations of how quickly they could commercialize their product-service technologies, the cost of doing business, and how much their firms would gross. And when their difficulties began to mount and become more complex, they experienced increasing problems in making adjustments to the new realities, which were far less attractive.

THE SURVIVORS

Survivors are classified into two groups: "marginal" and "successful." Out of the group of 29 survivors, 9 were judged to be marginal.

Marginal Survivors

A number of observations can be drawn from the preliminary investigation of the 9 marginal survivors. First, most of them have yet to show a corporate profit, and those that have experienced profit did so minimally and infrequently during the 1970's. Second, their product line tends to be limited (narrow) and the company's survival still hinges on the successful commercialization of the original technological project which was the rationale for forming the venture. Third, their annual sales volume is on the low side of the dollar range. All six firms which had an annual sales volume of less than $1 million in 1979 were classified as marginal, two were in the $1-2.9 million range, and one was in the $5-9.9 million category.

Fourth, in terms of ownership, five of the nine marginal survivors are family-owned firms, and every one of them realized less than $1 million in sales in 1979. Of the remaining four, three are closely held and one went public in 1972. Fifth, the original founding members, particularly the technologically-oriented entrepreneurs are still active in all five family-owned firms. This is not the case with the other four companies.

Finally, the market horizons which conditioned the initial investment decisions of the 9 marginal firms varied from domestic, to domestic plus exports, to the global market perspective. The level of technology embodied in the products produced for the world market was generally higher than that of the others, but all nine firms had been recipients of research and development assistance from the Canadian government.

The Successful Survivors

Twenty of the 47 firms (43%) appear to be financially viable; i.e., realizing some profit in the 1970's in the case of the eight companies whose shares are traded publicly, and an adequate return for those companies which are family-owned or closely held as defined and established by their owners. All 20 firms had annual sales in excess of $1 million in 1979: 7 were in the $1 - $2.9 million range, 2 in the $3 - $4.9 million, 6 in the $5 - $9.9, and 5 in excess of $10 million.

The diversity of operations among these firms is substantial; albeit, they do exhibit some common characteristics. The product technologies commercialized are somewhat higher than in the case of the "failures" and "marginal survivors". At the time of start-up, these firms would not be portrayed as machine shops whose activities centred on limited adaptive innovation. The product technologies did not undergo substantial changes during the 1970's as the firms moved through and out of their second phase, "the early-growth stage", and into "the later-growth stage", the third phase.

Avoiding direct competition with larger companies, and concentrating their technical and marketing efforts where they have a comparative edge is another key characteristic of the successful survivors. With few exceptions, these firms concentrated on specialized, rather than mass markets--catering largely to industrial users--in newly developing industries.

Superior technology and international business experience but not financial resources, were among the important corporate capabilities which led many of the firms to establish foreign subsidiaries, largely in the U.S. They stressed that their competitiveness in Canada, possibly their survival, hinged on achieving market success in the U.S. Geographical diversification was regarded as the route to getting bigger in the confines of the small Canadian market.

The experience of the survivors demonstrates that exporting and international business generally is not an activity for big business only. The small-medium sized, and threshold firms showed themselves to be heavily involved in international business. The moderate to high technology feature of their products, and the growth industries in which they competed helped them to reinforce their competitive strength in the area of marketing applications.

BACKGROUND INFORMATION

During 1970-1971, the principal researchers undertook a study supported by the Technological Innovation Studies Program to provide empirical data about the factors which advance and obstruct Canadian entrepreneurship, with a view to determining the form that Canadian government assistance might take.[1] The population examined in this study consisted of 47 small companies, relatively newly established ventures founded by technologically-oriented entrepreneurs, which had received government assistance. Some of the major findings were as follows:

-- Eighty percent of the entrepreneurs possessed a technical background, and the newly-established ventures were usually in those lines in which the entrepreneurs had previous experience.

-- The majority of the entrepreneurs lacked general management expertise, and were ill-prepared to manage a newly-established venture. First attempts at stating company objectives, surveying market possibilities and commercial feasibility of the product or process often occurred when the entrepreneur applied for financial assistance from government or business.

-- None of the innovations involved totally new products or processes. Eighty-five percent of the firms introduced their innovations into high or moderately competitive markets, which in the majority of cases included foreign markets. The limited size of the Canadian market was a critical consideration for these firms.

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1 I.A. Litvak and C.J. Maule, Canadian Entrepreneurship: A Study of Small Newly Established Firms, Technological Innovation Studies Program, Research Report, No. 1, Ottawa, Department of Industry, Trade and Commerce, October 1971.

-- Fifteen percent of the firms were judged successful and 30% appeared to have some chance of being successful. The entrepreneurs were reluctant to delegate control, and this was one of the key reasons for the poor performance of many firms. Debt financing was favoured over equity financing because of control factors. Access to government funds was favoured because control would not be lost. One-third of the firms could not have completed their projects without government assistance, specifically PAIT.

-- Success breeds success but failure did not necessarily discourage the entrepreneurs from starting up new ventures. Thirty percent of the entrepreneurs were simultaneously promoting a number of projects through a variety of companies.

The study contained certain policy proposals concerning the rationalization of government program support, a number of which were subsequently introduced by the Federal Government.

THE PRESENT STUDY

Some 10 years have passed since the foregoing study was conducted. The underlying purpose of this study is to return to the original 47 firms interviewed in order to determine their present state of operations; specifically, to identify the survivors from the failures. Firms that survived will be examined and divided into marginal and successful survivors. An attempt will be made to compare the characteristics of business survivors with business failures, and in the case of the former between the more and less successful.

SOURCES OF INFORMATION AND DATA COLLECTION METHODS

The original study, conducted in 1970-1971, involved an examination of 47 firms. Each firm fell into the "manufacturing" industrial classification as used by the Business Finance Division of Statistics Canada; i.e., SIC 101 to 399 which includes classifications such as primary metal industries, metal fabricating, machinery, petroleum and coal product industries, chemicals, food and beverage, tobacco products, leather, textiles, knitting mills, clothing, wood and furniture. The selection of these firms resulted from information gained from recognized Canadian entrepreneurs, venture capital firms, interested business executives, trade association representatives, government officials and published sources. The sample selected was based on judgement and the availability of information. Every effort was made to ensure that the interviewees were technological entrepreneurs involved in the formation of firms. With few exceptions, the firms were small. An attempt was made to obtain regional representation for the sample. However, it should be noted that no interviews were conducted in the Atlantic provinces.[1]

Information on these firms was obtained through a combination of telephone and personal interviews. Prior to the interviews, the authors

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1 A detailed discussion of entrepreneurship in a selected area in the Atlantic provinces can be found in A. Vanterpool, The Potential for Science-Based Industry in the Halifax-Dartmouth Area, Ottawa, Department of Regional Economic Expansion, January 1971.

collected materials on the companies from secondary sources in order to acquaint themselves with as many facets of the companies as possible.

The first research phase of the 1980 follow-up study centred on locating the original group of 47. Since the names and addresses of the firms were retained, the telephone directory and long distance information became a quick and easy source of verification, followed by a search of business directories such as Canadian Trade Index, Scott's Directory and Canadian Key Business Directory. Provincial Securities Commissions, Stock Exchanges, and the Federal Department of Consumer and Corporate Affairs greatly facilitated this investigatory phase.

The material drawn from the above sources provided invaluable background to what happened to many of the companies during the 1970's. Another key source of information for tracking the firms was the venture capital company. Certain venture capital companies held equity positions in some of the firms, in addition to having been contacted by many members of the group, particularly in earlier years, for capital assistance. The "neighbourhood scanning search system" was later expanded to include firms in the group.

The second phase of the search process involved making actual contact with the firms. This was handled through a combination of telephone, mail and personal interviews. Company interviews were conducted in all regions: Ontario, Quebec, the Prairies and British Columbia. The willingness of the respondents to supply data varied with the kind of information sought. This was especially true of answers to financial questions. Recognizing that exact figures on sales, expenses,

salaries, profits, and investments represent the best indices for measuring the progress of a business enterprise, the interview guide was designed to elicit this information.

Some firms were quite willing to supply all the financial information requested to the best of their ability. Many, however, were more or less reluctant to disclose financial data. In most cases, however, it was possible to obtain sufficient data, usually approximations, to permit an overview of business progress. It should be noted that

> "Performance data for smaller companies are difficult to interpret. In closely-held companies, reported profits may be minimized through large executive salaries and perquisites and through payments to relatives. New companies, particularly those which are growth-oriented, may invest heavily in product and market development, resulting in losses or low profits even when the firms are well-managed. Furthermore, the corporate goals may be intertwined with the personal values of the owner-managers to a marked degree; the satisfactions and life-styles of the founders may be difficult to measure in any systematic way." 1

Ten of the 47 firms were selected for a more in-depth examination. An attempt was made to reconstruct historically the forces of formation, establishment and the commercial performance of each firm from date of incorporation to 1979. Of the ten firms, seven had "gone public." Access to financial information was a key consideration in the selection

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1 A.C. Cooper,"Strategic Management: New Ventures and Small Business", in D.E. Schendel/C.W. Hofer (eds.), Strategic Management, Boston, Little, Brown and Company, 1979, p. 326.

process, besides product technology, markets serviced, geography and size. Five of the ten firms are Ontario-headquartered, four are Western based and the head office of one is in Quebec.

BACKGROUND AND MOTIVATION

Almost all of the cases examined in the original study involved technological innovation, and, thus, we are dealing primarily with technological entrepreneurship which has been described as follows:

> "The firm is started by two founders, both of whom are in the middle thirties. One usually can be described as the driving force. He conceives the idea and enlists the other founder. They come from the same established organization, which is where they got to know each other. Either both are in engineering development or one is in engineering and the other is a product manager or in marketing. Often, they have achieved significant prior success, with titles such as Section Head, or Director of Engineering, being common." [1]

In more than half of the firms examined, this pattern of technological entrepreneurship, which resulted in the formation of new ventures, prevailed. There exist three types of innovation:[2] fundamental--these innovations create totally new products and processes which may give rise to the formation of a new industry (e.g., aircraft); functional -

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1 A.C. Cooper, "The Palo Alto Experience", Industrial Research, May 1970, pp. 58-60.

2 W. Lazer and W. Bell, "The Concept and Process of Innovation," in E.T. Kelley and W. Lazer (eds.) Managerial Marketing: Perspectives and Viewpoints, R.D. Irwin Publishers, Homewood, Illinois, 1967, pp. 284-291.

for these innovations the product or process remains essentially the same, but the method of performing the function is new (e.g., power brakes); and adaptive - these innovations centre largely on modifying existing products or processes (e.g., minor alterations to design and size). None of the cases examined included fundamental innovation, 70 percent involved adaptive innovation, and the remaining 30 percent were functional.

The majority of the entrepreneurs went into business for themselves for one or more reasons: first, to make a living through self-employment, the majority of them emphasizing the "independence" consideration related to being self-employed; second, the desire to produce something through one's own efforts and to achieve both personal satisfaction and public recognition. Frustration experienced through employment in a previous job, which does not allow recognition of the prospective entrepreneur's contributions or proposed project idea for commercialization, was a major motivational factor in the establishment of about one-quarter (12) of the entrepreneurial ventures.[1] On the other hand, the desire to be one's own boss was common to all the entrepreneurs.

A third reason was to escape from underemployment or unemployment, actual or expected. Approximately one out of every two of the entrepreneurs studied were immigrants to Canada, and for many of them the frustration/insecurity experienced in their first jobs prompted them to

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1 For a detailed discussion of this and related factors, see A.C. Cooper, "The Palo Alto Experience", op. cit.

establish their own businesses. Nevertheless, they were impressed with the ease with which one could establish a new business in Canada, in contrast to their native countries. As for reasons for choosing a specific line of business, the most frequently cited factor was previous experience.

THE FAILURES AND THE SURVIVORS

What has happened to the 47 entrepreneurial firms which were first interviewed in 1970-1971? How many have managed to survive, grow and profit from their commercial pursuits? How many failed and why? What has become of the founding members of the entrepreneurial ventures, particularly the ones most intimately involved in the development and commercialization of the product-service technologies? These and related questions were of considerable interest to the principal researchers who noted in their earlier study that,

> "... based on our field interviews, only 15% of these ventures were commercially successful, another 30% appeared to have some chance of becoming successful, with the remaining 55% either failing or failed. It should be noted that the failure of a firm need not result in its physical disappearance, but merely in a change of ownership, or the pursuit of a new project. In addition, the closing of business firms is not always indicative of unsuccessful operation. It may be connected with events in the personal lives of the owners, particularly in the case of small operations where the fate of the business is linked closely with the lives of individual owners and their families."[1]

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1 I.A. Litvak and C.J. Maule, Canadian Entrepreneurship: A Study of Small Newly Established Firms, op. cit., p. 29.

Some ten years later, 29 of the 47 firms (62 percent) were still in operation (see Exhibit 1). At first glance it appears that the performance of the "group of 47" fared slightly better than that projected by the researchers in 1970. This statistical observation, however, is questionable because within the "surviving group" there are two companies whose ownership, management and products bear little resemblance to their original corporate make-up, and because of those companies which appear to be surviving on a "corporate life support system."

EXHIBIT 1

Operating Status of the Group of 47
(1980)

Region	Failures	Survivors	Total
Ontario	7	12	19
The Prairies	4	8	12
British Columbia	5	3	8
Quebec	2	6	8
Total	18	29	47

THE FAILURES

> "Many small businesses are wound up or liquidated without ever going through the bankruptcy process and many others are forced to be sold because the owners can no longer maintain them independently. ... With the exception of a few businesses which go bankrupt because of disaster or some similar reason, Dun and Bradstreet classify 98% of all business failures as being due to lack of managerial expertise of some type. 1

Eighteen of the 47 firms can be listed as failures, either because they were declared bankrupt, are in a state of receivership, or because they ceased to do business for a number of years. Exhibit II provides some detail concerning the companies that failed. With respect to "company status", the two firms which are in receivership are public companies which were ordered to cease trading on the Toronto Stock Exchange in 1979 by the Ontario Securities Commission. At the time this order was issued, some of the founding members were still involved in a minimal way in the operations of the two companies, largely in the technical/sales areas. Both companies had viewed their market as being global, and one of them had made extensive investments in the United States and Europe. The latter company had realized in 1972 a high in annual sales of $8.5 million, after which it was "downhill all the way."

Twelve of the companies were deemed to be "dissolved"; i.e., out-of-business. Two of the twelve went bankrupt in 1979. Four of the 18

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1 R.M. Knight, "The Determination of Failure in Canadian Small Business", ICSB Conference, Quebec City, June 1979, Paper 40, p. 2.

EXHIBIT II

The Failures

Region	1. Status				2. Ownership			3. VCI	4. Market				5. Founding Members		
	D	R	NT	Total	FO	CH	P		D	D+X	W	Total	SI	MI	NI
Ontario	4	2	1	7	-	5	2	5	2	3	2	7	4	2	1
Prairies	3	-	1	4	-	4	-	3	2	2	-	4	2	2	-
British Columbia	3	-	2	5	2	3	-	3	4	-	1	5	3	1	1
Quebec	2	-	-	2	-	2	-	1	-	1	1	2	1	1	-

Legend

D Dissolved
R Receivership
NT Non-Traceable
FO Family-Owned
CH Closely-Held
P Public
VCI Venture Capital Involvement
D Domestic
D+X Domestic + Exports
W World
SI Significant Involvement
MI Minor Involvement
NI No Involvement

could not be traced, but sufficient information was obtained from a variety of sources such as venture capital firms to conclude that they too were no longer in business. At the time these sixteen firms were "dissolved" or "atrophied", two were family-owned, and the remaining fourteen were closely-held, i.e., the ownership of the firms was concentrated in the hands of a few individuals/firms.

Venture capital firms or venture capitalists (individuals) were involved in 12 of the 18 failures. In those instances where a venture capital firm was involved, input of new management expertise, in addition to new capital was usually the order of the day. In terms of market horizons, eight of the 18 firms regarded the sales potential of the Canadian market to have been sufficiently large to have formed the basis of their initial investment decision, to go into business. This was not the case with the other 10 firms, whose managerial judgement led them to invest in decisions which necessitated the realization of significant export business, as was the case with the two companies that were ordered to cease trading in 1979.

At the time the companies were dissolved or wound down, in 16 of the 18 cases there was some involvement in the management of the companies by the original founders; in 10 cases it was significant. Such participation was most apparent in the two family-owned firms and in those firms which were closely held, but where effective control was still exercised by the original founders, and this usually meant the absence of venture capital participation. One interesting observation should be noted. When the ownership and control of the original founding member(s) is reduced

significantly, the "technical" entrepreneurial member is often the person whose managerial role is the first to be eliminated or constrained. In many instances, this results in his departure with or without the ownership of his patent(s), where applicable. In one such instance, there was a twist of irony when the original owner-manager-inventor returned to purchase some of the bankrupt assets of the company he had helped to establish. This was the case with Canadian Submersible Co.

1. CANADIAN SUBMERSIBLE CO. (CSC)

In June 1979, a provincial Supreme Court approved the sale of the operating assets of CSC, ending eight months of receivership and 15 years of turbulent operation for the innovative manufacturer of deep-sea submersibles. Activities at the company's plant were wound up on June 30 with the layoff of the remaining employees. Nonetheless, some of CSC's expertise in the highly specialized field of minisubs may be preserved and expanded on under a new owner.

The court approved the sale of CSC's plant equipment and engineering designs to UVL, a private firm whose president, Albert James, intends to stay in the submersible business. According to James, he has lined up a $20 million contract, subject to Canadian government approval, to build a submersible for the Soviet Academy of Sciences.

James, an inventor, with extensive experience in underwater design, teamed up with two professional divers in 1963 to form a company, CSC, to build a submersible in a garage. The CSC's founders' goal was to satisfy the demand for a small, relatively inexpensive, manned diving module capable of reaching great depths. The success of their original sub, and later of more sophisticated equipment, gave the company an international reputation for high quality, reliable submersibles. CSC's capsules found work worldwide in offshore oil exploration, underwater cable construction and environmental research.

James hasn't been involved with CSC in recent years, when the company was deluged by problems--including a series of management struggles, depressed market conditions and a bitter controversy over financial commitments to its major shareholder.

According to James, "CSC's internal difficulties effectively shut it out of the market during the past few years, but there's no end of work available in this field. It's a big industry now, and this company can take part in it."

CSC's in-house troubles coincided with a sinking demand for its product. Offshore exploration in the North Sea slackened, and manned subs proved less essential in other areas of offshore activity--such as the Gulf of Mexico, where shallower water and less severe weather conditions prevail. The company was forced to compete in the market with its own equipment, offered for sale secondhand by North Sea operators who no longer required its use. CSC lost $1.1 million in fiscal 1977, down from a profit of $304,000 a year earlier. Debts mounted, and shareholders failed repeatedly to agree on a refinancing plan. In October of 1978, the company's major secured creditor, a Canadian chartered bank, lost patience, and appointed a receiver.[1]

CSC first exceeded annual sales of $1 million in 1973, in 1974 it was approximately $2.5 million, but the company absorbed losses in both

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1 R.M. Knight noted that, "One of the surprising results of the study was the degree to which the small firms relied almost exclusively on bank financing. However, much of this financing is secured by personal signatures of the shareholders as well as by fixed assets, inventory and accounts receivable where available.

In fact, the bank was the instigator of the bankruptcy action in most instances (87% of those examined) and rarely was the bank not fully covered, especially considering personal signatures. This was effectively near equity, since the shareholders were personally responsible for the loans in most cases."

See "The Determinants of Business Failure", op. cit., p. 7.

years. Sales for 1976 reached an all-time high of $3.7 million and for the first time a "profit", sales fell slightly to $3.5 million for 1976, but the company showed a profit again which turned into a substantial loss in 1977 when annual sales dropped to $2.2 million. CSC is the classic example of a one-product company, which while recognizing the limitations of the new craft long before the North Sea developments, moved to establish its own leasing operations, but with the sudden oversupply of manned submersibles, the prospects for leasing plummeted.

CAUSES OF FAILURE

There was considerable individual variation in length of survival and in financial results. Most of the factors generally mentioned as causes of business failure in management literature are included in the observations concerning the 18 firms. Table 1 lists the causes of failures involving small business in 1976 in the United States. The analysis of the reasons for the failures that occurred in 1976 was conducted by Dun and Bradstreet. It parallels the Canadian experience in 1977 (see Table 2), and to an important extent includes some of the key reasons which led to the failure of the 18 firms in our study.

One major conclusion drawn from the study of small business is that the overriding cause of failure can be attributed to managerial incompetence. Inadequate performance of the management function, specifically as it relates to effective decision-making and planning is a primary cause of the problem. One author notes that "strategic planning behaviour in the small business firm is unstructured, irregular and incomprehensive."[1] Another authority, addressing the same issue, concludes that

> "... strategic planning in small business is incremental, sporadic, reactive and primarily in the mind of the entrepreneur.... while large firms have the advantage of staff specialists to help in this regard, the small business manager lacks

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1 See Thomas W. Still, An Exploratory Investigation of Strategic Planning Behavior in Small Business, 1974, Ph.D. Dissertation, Florida State University. Footnoted in Richard Robinson, "Strategic Planning, Potential Data Base and the Development of Small Business Strategies", ICSB Conference, Quebec City, June 1979, Paper 44, p. 3.

Table 1

CAUSES OF FAILURES IN THE UNITED STATES

1976

Neglect		0.8%
Fraud		0.5
Inexperience, incompetence		92.1
Inadequate sales	49.9%	
Heavy operating expenses	13.0	
Receivables difficulties	8.3	
Inventory difficulties	7.7	
Excessive fixed assets	3.2	
Poor location	2.7	
Competitive weakness	25.3	
Other	1.1	
Disaster		0.8
Reason Unknown		5.8
		100.0%

Source: The Business Failure Record: 1976 (New York: Dun & Bradstreet, Inc., 1977), pp. 12-13. Since some failures are attributed to a combination of causes, percentages for the items in the inset column do not add to 92.1%.

Table 2

REASONS FOR BUSINESS FAILURES IN CANADA

1977

Reasons	Number	Percent
Incompetence	2,287	55.4
Unbalanced Experience	319	7.7
Lack of Experience in the Line	475	11.5
Lack of Managerial Experience	879	21.3
Neglect	93	2.2
Disaster	38	0.9
Fraud	7	0.2
Reason Unknown	33	0.8
	4,131	100.0

Source: Dun & Bradstreet (cited in R.M. Knight, "The Determination of Failure in Canadian Small Business").

> such assistance and must constantly solve daily issues that continually demand his attention. This is done ... at the expense of planning activity that looks at the future, if only one or two years hence." [1]

For purposes of illustration, some of these factors will be highlighted; however, they seldom function in isolation since most failures include a number of managerial mistakes and errors. Lack of business skills and experience resulted in fatal managerial errors being committed during the course of the operations by many of the 18 firms, and this precluded some of them from becoming successful from the beginning. Certain owner-managers were overwhelmed by the type of difficulties that often afflict newly established firms; i.e., they were ill-prepared to deal with the problems. A combination of lack of experience, coupled with psychological unpreparedness often exacerbated the problems facing the firms, especially for those who did not employ professional mangers via venture capital participation, or where the dominant stockholders were still the original founding members. Admittedly, there were exceptions to this observation, as witness the Canadian Submersible Company example.

The entrepreneurs in the group were generally persons who had gone into business, aware of the inadequacy of their capital, but in hopes that the business itself would produce enough funds through the retention of earnings. The conditions of under-capitalization, insufficient working

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1 Arnold C. Cooper, "Strategic Management: New Ventures & Small Business", 1977, paper presented at Business Policy Conference, Pittsburg, Penn. (Footnoted in R. Robinson, Ibid.).

reserve, and over-reliance on borrowed capital, however, soon took its toll. Discouragement, frustration and impatience with their situation prompted some of the owner-managers to make premature decisions which ultimately led to the demise of their business operations.

In brief, in at least 50 percent of the 18 cases, the owner managers were not sufficiently well prepared, managerially, psychologically and financially, to cope with protracted initial difficulties. They were unrealistic in their original technical and marketing expectations of how quickly they could commercialize their product-service technologies, the cost of doing business, and how much their firms would gross. And when their difficulties began to mount and become more complex, they experienced increasing problems in making adjustments to the new realities, which were far less attractive. Alcoholism, breakdowns and marriage break-ups were apparent in a number of instances, which the entrepreneurs attributed to their immediate business difficulties.

> "... the requirements of starting a new venture frequently consume the energies, emotions, and time of the entrepreneur. As a result he has little to give elsewhere, and his other commitments suffer. Entrepreneurs who are married, and especially those with children, expose their families, at best, to the risks of an incomplete family experience and, at worst, to permanent emotional scars from inattention, quarreling, and bitterness.
>
> An entrepreneurial effort by an individual has special features which subject a person to high psychic risk. First, everyone, including the entrepreneur himself, indentifies the venture with one or two men. The company is these people. In addition, the magnitude of effort required

> to start a venture has given those activities priority over everything else in their lives--family, friends, and other interests. The greater the commitment, the more the identification with the venture is internalized.
>
> If an individual fails, the experience can be shattering. In addressing the causes of a venture's failure, the entrepreneur himself is always one of the reasons. He planned poorly, he executed poorly, he followed through poorly, or in some way he did not allow sufficient margin for the unexpected.
>
> If an individual concludes that his failure in a particular effort was because of an inherent incapacity or inadequacy, he has lost his self-confidence. The risk to an individual is the risk of losing his self-confidence. The individual without self-confidence loses not only his abilities to function effectively in his career or profession but also loses his ability to deal effectively in his personal life. Moreover, once begun, such a process gains momentum and tends to whirl into a relentless downward spiral." 1

The Product Innovation

In the majority of cases, the survival of these companies hinged on their ability to transform a perceived technological breakthrough into a commercially profitable product. In short, they were essentially one project companies. The attempted innovations included chemical processes, a balloon logging system, off-track vehicles, an ice-breaking bow, a polypump device, a hydraulic motor, a combine, a submersible, a diving suit, a stamping machine, a wool processor, a sugar extraction machine, and pollution abatement systems.

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1 P.R. Liles, "Who Are the Entrepreneurs?", MSU Business Topics, Winter 1974, pp. 13-14.

While some of the products were successful in the technical sense, they failed because of limited application, thus preventing the firms from achieving the minimum necessary market share to succeed in the commercial sense. For most of the products, the basic technology could not be considered to be high. This fact was often overlooked by the founding members of the venture, thus leading them to err on the high side with respect to prospective market penetration and sales growth, and simultaneously to underestimate competition.

Another major problem arose from underestimating user needs and post sales service demands. Key costs were ignored in this area including those related to the need forexpanding company facilities, and personnel and customer training in order to service both product and customer requirements. The capital outlays required to service the "projected innovations" in the marketplace were in a number of instances the last obstacle to drive these firms into a premature exit.

THE SURVIVORS

Numerous authors have created typologies of small firms.[1] The criteria employed is often as complex as some of the groupings. One author, for example, developed five distinct types of small business: the rare successes; firms in small business industries; firms based on successful

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1 For an interesting discussion of some of the typologies in the small business literature see Arnold C. Cooper, "Strategic Management: New Ventures and Small Business", op. cit.

specialization; satellite firms; and turnover firms.[1] Other authors have written in terms of failures and survivors, and then proceeded to further sub-divide the two categories. In one such study, the surviving group was broken down into the following four categories: the marginal survivors, the limited success, the potentially profitable enterprises, and the profitable enterprises.[2]

For our purposes, the survivors will be classified into two groups: "marginal" and "successful". Situated on the border or edge, at the outer limits, and almost insufficient are some of the dictionary definitions involving the term "marginal," and all of them capture the essential character of such firms, namely, their constant business vulnerability. In an earlier study of small technology-based firms, Professor E.B. Roberts points out that "the first several years are the tough ones and that those surviving the first five years are likely to survive thereafter."[3] He also notes that,

> "Survival is not the same as success, of course, although for many entrepreneurs survival may in fact be sufficient success. We typically define enterprise success in such businessmen's terms as growth, sales, profitability, and the like. But entrepreneurs do not necessarily have those objectives in going into new enterprises; for some, simply producing an organization that has survivability is a sufficient reward--even if it yields no greater income to the entrepreneur than he made in his previous employment." [4]

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1 See Lee E. Preston, "The World of Small Business: A Suggested Typology", American Journal of Small Business, Vol. 1, No. 4, April 1977.

2 See Kurt B. Mayer and S. Goldstein, The First Two Years: Problems of Small Firm Growth and Survival, Washington, Small Business Administration, 1961.

3 E.B. Roberts, "How to Succeed in a New Technology Enterprise", Technology Review, December 1970, p. 22.

4 Ibid.

In our study, this is simply not so if the observation is linked to the business venture, rather than the founding members of the business; i.e., the entrepreneurs. In all previously noted 18 failures, the businesses survived the first five years, with the majority exceeding this time frame, some by as many as five years plus. As for the founding members of these entrepreneurial ventures, company failure did not necessarily mean that their individual entrepreneurial pursuits were halted. The "born again" phenomenon is not unique to organized religion, as a number of these entrepreneurs managed to re-enter the market place through the establishment of new businesses promoting the old/modified/ new technological concept with renewed vigour and "gusto."

MARGINAL SURVIVORS

A key difference between firms that have failed and those that are deemed to be "marginal" is the sheer determination and endurance of the managers of such firms. This character strength is no guarantee against eventual failure, nor does it indicate rational decision-making when executives are unwilling to bail out of a sinking ship. Out of the group of 29 survivors, 9 were judged to be marginal (see Exhibit III).

A number of observations can be drawn from the preliminary investigation of these 9 firms. First, most of them have yet to show a corporate profit, and those that have experienced profit did so minimally and infrequently during the 1970's. Second, their product line tends to be limited (narrow) and the company's survival still hinges on the successful commercialization of the original technological project which

EXHIBIT III

THE SURVIVORS

Region	1. Status			2. Ownership			3. VCI	4. Market			5. Founding Members			6. 1979 Sales (Millions)				
	MS	SS	Total	FO	CH	P		D	D+X	W	SI	MI	NI	<1	1-2.9	3-4.9	5-9.9	10+
Ontario	4	8	12	5	4	3	4	2	3	7	11	-	1	4	3	1	2	2
The Prairies	1	7	8	-	6	2	6	2	2	4	3	1	4	-	3	1	2	2
British Columbia	1	2	3	-	1	2	3	-	1	2	-	1	2	1	1	-	1	-
Quebec	3	3	6	3	1	2	2	2	1	3	2	1	3	1	1	-	2	2
Totals	9	20	29	8	12	9	15	6	7	16	16	3	10	6	8	2	7	6

Legend

1. Status
   - MS Marginal Survivor
   - SS Successful Survivor
2. Ownership
   - FO Family-Owned
   - CH Closely-Held
   - Public
3. VCI Venture Capital Involvement
4. Market
   - Domestic
   - D+X Domestic + Exports
   - World
5. Founding Members
   - SI Significant Involvement
   - MI Minor Involvement
   - NI No Involvement

was the rationale for forming the venture. Third, their annual sales volume is on the low side of the dollar range. All six firms which had an annual sales volume of less than $1 million in 1979 were classified as marginal, two were in the $1-2.9 million range, and one was in the $5-9.9 million category.

Fourth, in terms of ownership, five of the nine marginal survivors are family-owned firms, and every one of them realized less than $1 million in sales in 1979. Of the remaining four, three are closely held and one went public in 1972. Control in the "public" firm is still in the hands of individual venture capitalists and the company's chief executive officer. This firm could hardly cover the brokerage fees when it went public, let alone raise capital through the equity route to finance its survival and growth.

Fifth, the original founding members, particularly the technologically-oriented entrepreneurs are still active in all five family-owned firms. This is not the case with the other four companies. The founding entrepreneur who was also the inventor in the company that went public is no longer with that company. A similar departure took place in one of the three closely held firms; the one in which a venture capital firm took a dominant management position, in order to stave off disaster.

Finally, the market horizons which conditioned the initial investment decisions of the 9 marginal firms varied from domestic, to domestic plus exports, to the global market perspective. Four of the nine companies defined their market as domestic, one included export sales as crucial to its success, and the remaining four had to realize a substantial portion

of their business outside of Canada in order to survive. The level of technology embodied in the products produced for the world market was generally higher than that of the others, but all nine firms had been recipients of research and development assistance from the Canadian government.

The following two case illustrations should help to explain the dynamics of the types of problems that are experienced by marginal survivors, as well as to highlight the causes which underlie their problems.

2. RANKIN LTD.

Rankin Ltd., a private company incorporated in 1965, manufactured, installed and serviced continuous sucker rods used to pump oil wells. While conventional sucker rods were produced in twenty-five foot lengths, threaded at each end for field assembly, Rankin's product was manufactured in one piece for the total depth of the well. The heat-treated steel rod was transported to the well site in a trailer-mounted rod and was installed by a Rankin service rig specifically designed for that purpose.

Two people were to be credited with the Rankin concept, and both were professional engineers. One, Al Carmichael remained with Rankin until 1972. He then opened up his own consulting firm, and along with a few other engineers, established a new venture. Carmichael became an engineering consultant to Rankin and remained a shareholder of the firm, although a minor one, as added capital infusion had diluted his position in the firm. Carmichael's patents were lodged with Rankin, as they constituted his capital contribution.

There were three key original backers of Rankin. Mr. Sven Johnson was President and Chairman of the Board in 1979. Mr. Johnson was, at one time, a director of a major venture capital firm which holds a significant equity position in Rankin. Mr. Johnson moved from his position at the firm to take management control of Rankin. In 1979, there were some 35 Rankin shareholders, 5 of which were significant shareholders.

Financial Performance

Although incorporated in 1965, Rankin had not consummated its first rod sale until 1968. The first net profit had not occurred until 1978 and it was miniscule. After 13 years of having incurred consecutive operating losses, a minor profit had been earned. In 1979, Rankin returned to a net operating loss for the year, although it was a minor sum. Sales in that year had been almost $3 million, and a total of 45 people were employed. Only one engineer was employed on staff, plus a consulting engineer who monitored production output and quality. Management was expecting to realize a profit for 1980.

A decision taken in 1972 had been the major factor which had prevented Rankin from experiencing profits earlier in its corporate life. Rankin had built a plant in the United States, as it was a major market for the sucker rod. This investment, however, had occurred before the technology of Rankin had been perfected and resulted in an unsuccessful venture. The major problem had been a financial one--Rankin had been uncercapitalized at that time, and was not able to carry its U.S. investment to fruition. The plant was shut down in 1975.

This financial difficulty had remained with Rankin until 1979. The U.S. market for sucker rods was an immense one, combined with the fact that 95 percent of the Rankin sales in 1979 were earned in Canada with the remaining 5 percent coming from the U.S. Rankin, however, was too undercapitalized to exploit and service this market. Rods can only be sold where rigs have been placed. If a company places too many rigs to earn rod sales with an undercapitalized financial base, losses are inevitable.

Government Assistance

Since Rankin was established, it had received $190,000 in PAIT loans, $5,000 in IRDIA grants and $40,000 in PMD assistance. The provincial government had also provided help; pending a Soviet agreement to a Rankin test arrangement in 1980, the provincial government would finance the placement of a rig in the Soviet Union.

Future Market Opportunities

As of 1979, Rankin had 25 percent of the Canadian market, and was the only continuous rod producer in Canada. There were Rankin-equipped oil wells in Canada, as well as in the U.S. The Rankin plant is 13,000 sq. ft. and a new service base had been established in another region in Canada in 1979,and services were expected to be expanded early in 1980. Stelco was the major competitor and producer in the industry and was also a major supplier of steel to Rankin.

Future projections of sales for Rankin as of 1979, saw sales becoming more international in origin. Management also saw the possibility of joint ventures and licensing arrangements being set up with well-established companies in foreign countries. The countries most likely to be big purchasers of the Rankin sucker rod were the U.S.S.R., U.S. and Venezuela.

3. HAMILTON INDUSTRIES LTD.

Hamilton Industires Ltd. (HIL) was incorporated as a private company in 1967. Between 1969 and 1975, HIL was involved in the design, development, patenting, manufacture and marketing of a solid waste disposal system, with particular emphasis on the development of a machine with capabilities of shredding, crushing and flattening all types of glass, metal or plastic containers, garbage, and paper and plastic waste. The machine reduced volume of the disposed material by 80 percent without creating pollution of any kind. It operated at a low noise level and had built into it an automatic disinfectant deodorizing system. The operation of the machine was controlled by highly sophisticated electronic circuitry and solid state technology.

The machine had been designated by HIL as the HIL Shredder-Compactor (hereinafter called "The HIL Machine"). The HIL Machine was developed with the assistance of a Federal Department of Industry, Trade and Commerce loan under the Programme for Advancement of Industrial Technology (PAIT) and a grant made under the Industrial Research and Development Incentives Act (IRDIA) programme.

There was an international market for the HIL Machine. Patent applications were made by the company in the following countries: Canada, U.S., Britain, Sweden, Japan, Australia, France, West Germany and Italy. By 1972, HIL had manufactured and sold 75 HIL Machines which were being used by hotels, hospitals, apartment blocks, food outlets, schools, and bottle and can crushing plants, located in B.C., Alberta, Manitoba, Ontario and Quebec, and in the U.S., England, Sweden and Australia.

At the time HIL went public, it sub-contracted to local manufacturing concerns the manufacture of the component parts of the HIL Machine. In addition to the manufacture and sale of the HIL Machine, HIL intended to develop a mobile shredder-compactor unit, utilizing the same engineering principles as were applicable to the HIL Machine, for use in the field of residential garbage disposal.

The success of HIL was dependent upon its ability to market its HIL Machines locally and internationally, either by way of direct sales or through licensing agreements with other manufacturing companies. Net sales for the fiscal year ended May 31, 1972, were $153,334.16.

HIL went public in 1972, and the research and development of the mobile HIL Shredder-Compactor was to commence upon the completion of the sale of the offering. If all of the shares offered were not sold, the proceeds derived from any sales were to be used to pay the costs of the offering, to repay the loans, to provide working capital for the continued marketing of the Company's stationary HIL Machine and to undertake such international patent application work as was required to protect the Company's interest in the HIL Machine. "Going public" did not solve HIL's financial problems. In fact, the corporate offering was so under-subscribed that the revenue generated, about $62,500.00, barely covered the brokers' fees and expenses.

Undercapitalization

Between 1972-1975, John Hamilton (the founder and inventor) spent most of his time trying to develop offshore licensing agreements, and to further perfect his HIL product. Licensing agreements were negotiated with a

number of prestigious firms in Europe, Oceana and Japan; countries in which HIL had patent protection. Throughout these years, however, HIL was badly undercapitalized. The revenue earned came largely from "up-front money and royalties" realized from the licensing agreements. Product sales were few and primarily made in Canada. Total annual sales were less than $300,000.

While a number of venture capital firms showed some interest in HIL, John Hamilton's antipathy towards such organizations, because he feared that they wanted full control over his operations, dissuaded them from investing in HIL's future. Late in 1974, some capital and management expertise was injected into HIL through the participation of a member of a local, wealthy family.

In early 1975, Al Peters, a relative of the above individual, was brought in as a marketing consultant. Allan had his own consulting firm. A number of strategic decisions were taken in 1975. First, no more money was to be invested in the research and development side of HIL. The product had to prove itself in the market place through solid sales and profit performance. Second, substantial sums of money were spent on promotional and distributive activities for HIL. Third, a few hundred thousand dollars were raised through the assistance of Peters, which was used to recruit marketing personnel and strengthen HIL's distributive support services. The new capital injection meant that John Hamilton's control had now eroded, and in January, 1976, he resigned as President of the Company. His wife, who was the firm's accountant, also resigned. John Hamilton decided to return to his father's old firm. The latter

firm held a number of patents which had no relationship to the HIL product. In 1978 John Hamilton sold his father's firm, and proceeded to establish another technology-based firm.

The New Era

The year 1976 marked an important turning point for Hamilton Industries Limited. Founded in 1969, taken public in 1972, the Company's early history was typical of the investor-entrepreneur technological venture. In 1973, the HIL system won for its inventor, John Hamilton, the Design in Steel Award of the American Iron and Steel Institute, for "Best Engineering--Environmental Enhancement and Control Equipment." In its early years, the company was financed by John Hamilton's capital, the placement of shares, and more frequently by the sale of international manufacturing licenses. Mr. Hamilton's sale of control of the company in 1975 concluded the research and development phase of Hamilton Industries Ltd.

The second period began in early 1976, with the introduction of a marketing programme, and appointment of distributors in Canada and the U.S. Expenses exceeded income, and in February, 1977, with the resignation of the then President and the sale of his holding company, management changes took place and new investors were approached by the Board to provide equity capital for the company. Common shares were placed with investors and a Canadian financial institution. The monies so raised were immediately put to use: first, to generate working capital; and second, to acquire a manufacturing facility.

By the end of May 1977, the company had completed the transition from a venture capital, research and development enterprise, to a manufacturing and marketing company. Net sales for 1977 were $352,394.63. With this change, the audit committee of the Board recommended writing off, for financial statement purposes, the 'deferred marketing,' 'research and development,' and other expenses capitalized in the past. Allan Peters was now a director and vice-president of HIL, and was given the responsibility of managing the firm. The non-resident president was a director of a company which had previously participated in the venture capital injection, and at this time was the key financial actor in the firm.

HIL obtained a $143,326.22 loan from the Federal Business Development Bank in 1976. The loan was secured by a debenture with a first and floating charge on the assets of the company. The new management felt that the future of HIL was excellent. It had sold licenses for the HIL System in international markets, and HIL Machines were located in the Scandinavian countries, Russia, Europe, Japan and the Australasian continent. The technology, which was Canadian, was now being exported to the U.S., and they expected substantially increased penetration of that market. The system was unique; the patents had been investigated by many international companies, and adjudged effective; and the invention served a large and growing market in the developed countries of the world. Management felt that the company's cash flow would now permit it to grow, both internally, and by acquisition.

The Marketing Thrust

The 1978 fiscal year was an important and disappointing one. It was important because it marked the first fruits of its efforts to market HIL equipment extensively in North America: sales volume increased 70 percent-sales in the U.S. increased 300 percent; and total unit sales doubled. The company's sales for the year ended May 31, 1978, were $616,662.

At the end of the 1977 fiscal year, seven outlets in North America were selling the HIL line; at the end of the 1978 year, thirty-eight outlets were handling its equipment; by the end of the 1979 fiscal year, management expected dealer outlets to be in excess of sixty.

The 1978 year was disappointing because of the substantial loss incurred. The company built its inventories to too high a level, anticipating even stronger U.S. sales. A plant lay-off followed and margins declined from 43.5 percent to 30.3 percent by year end. Administrative expenses were excessive, but substantially of a non-recurring nature. For example, professional fees were large to complete the reorganization and refinancing of the company and the listing of its shares. The plant was relocated from one province to another and consolidated in one location with the sales and head office. Finally, HIL made its first North American exposure of the HIL equipment by participating in the U.S. Multi-Housing trade show in Atlanta, the U.S. National Supermarket show in Chicago, and the Canadian Restaurant Show, "HOSTEX", in Toronto. Sales leads generated were extensive and were responsible for the company's encouraging 1979 sales performance of $760,338.

Diversification

Although HIL's financial results were disappointing, sales progress was made and the operating loss was reduced. While sales were up in Canada, they were well below target in 1979 in the United States.

The United States marketing program was reorganized. Replacing the former warehousing master-distributor was a system of direct distributors, divided into major regions of the United States. Resident American sales management personnel of HIL would coordinate these distributors' sales activities and continue to add new outlets. Pricing was substantially altered as well. Management felt that the system of more direct HIL management and supervision of the American marketing effort would restore U.S. sales to their growth rate of the previous few years.

The HIL waste handling system still occupied a unique position in a rapidly growing market. Management felt that HIL would continue to grow with it; however, great opportunities were perceived in Canada in resource fields with the rising cost and need for energy. HIL's wide shareholder ownership and tax loss carry-forwards could provide it with additional opportunities in energy.

In October 1979, Hamilton Industries Ltd. made an offer for the purchase of certain interests in oil and gas producing properties in Saskatchewan and Alberta. In addition, the company offered to acquire interests in Alberta gas properties. These offers were successful and so by the end of January, 1980, HIL owned producing oil and gas properties in Alberta and Saskatchewan, spread over four fields. While the company's individual interests were small, the gross acreages were substantial and the number of wells involved exceeded 180.

The acquisitions were made on the basis of independent engineering appraisals, and payment was in common shares of the Company. In addition to making a payment of approximately 1,600,000 common shares, HIL assumed the production loan on the properties amounting to some $300,000. A 1980 agreement was made with the holders of the preferred shares of HIL, to convert their preferred shares into common shares at a value of $1.00 per share. Upon completion of these transactions, HIL would have approximately 2,700,000 common shares issued and outstanding. HIL now intended to pursue an active expansion of its oil and gas interests and would utilize its tax loss carry-forwards to assist it in sheltering the income from its producing properties.

THE SUCCESSFUL SURVIVORS

Twenty of the 47 firms (43%) appear to be financially viable; i.e., realizing some profit in the 1970's in the case of the eight companies whose shares are traded publicly, and an adequate return for those companies which are family-owned or closely held as defined and established by their owners. Exhibit IV lists some of the characteristics of the "successful survivors."

Ownership

Two of the eight companies whose shares are traded publicly are subsidiaries of larger firms. Their survival and present viability can be partially attributed to their respective parent companies; one was acquired in 1972, the other in 1979. Both companies are Canadian owned, and actively involved in the moderate to high technology fields. The founders of the acquired companies are no longer associated with the operations, nor are the original corporate names identifiable in the present company operations.

As for the remaining six companies three went public because of decisions taken by the original founders, while the actions of the other three were strongly conditioned by the management judgement of venture capital firms which had considerable equity positions in the companies. Venture capital firms often do not take their investments public because they may not be too profitable, or because it might be easier and more profitable to sell their company holdings to another firm. As a rule, venture capital suppliers tend to dispose of their interest within a predictable period of time, anywhere from five to ten years.

EXHIBIT IV

THE SUCCESSFUL SURVIVORS

Region	Total	2. Ownership			3. VCI	4. Market			5. Founding Members			6. 1979 Sales (Millions)				
		FO	CH	P		D	D+X	W	SI	MI	NI	<1	1-2.9	3-4.9	5-9.9	10+
Ontario	8	3	2	3	4	-	2	6	7	-	1	-	3	1	3	1
The Prairies	7	-	5	2	5	2	-	5	4	1	2	-	2	1	2	2
British Columbia	2	-	1	1	2	-	-	2	-	-	2	-	2	-	-	-
Quebec	3	1	-	2	2	-	1	2	2	-	1	-	-	-	1	2
Totals	20	4	8	8	13	2	3	15	13	1	6	-	7	2	6	5

Venturetrek, Innocan, CED and Ventures West are some of the key venture capital firms that have equity stakes in a number of the marginal and successful survivors in the group. These venture capital firms are closely identified with some of these companies in terms of their equity and management participation. The results of their involvement are not universely welcomed since some of the entrepreneurs contend that the venture capitalists often hold a very narrow view of the entrepreneurial process.

It has been alleged that "many owner-managers dream of 'going public' with their company", and "it is still considered an ultimate objective or 'way out' method of realizing their investment by many managers of venture capital."[1]

In a recent interview, the chairman of the Ontario Securities Commission noted that

> "... current rules and practices in Ontario prevent small businessmen from raising small amounts of capital from the public. This hinders development of new Canadian businesses. The law requires anyone issuing shares to the public to produce what usually is a costly and lengthy prospectus to disclose fully, honestly and plainly all material aspects of a proposed venture. People interested in going to the market for small amounts--say, about $1 million--find they cannot afford the disclosure costs.
>
> Stock firms cannot get enough profit from dealing in these smaller distributions, because the costs are higher than their return..." 2

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1 A. George Fells, "Venture Capital and the Small Business", The Business Quarterly, Summer 1974, pp. 26-27.

2 Jack Willoughby, "Venture Capital Exchange Proposed to Aid Business", Globe and Mail, July 30, 1980, p. B-1.

The experience of some of the original owner-managers in the group of 47, including the successful ones, parallels the foregoing observation. Besides failing to generate the expected financing, the high technology entrepreneurs were now required to disclose information which they felt was confidential, and in some cases too costly to develop and obtain. The cost of compliance was viewed as a nuisance and a misallocation of scarce resources. The disappointing financing performance of the new issue, and the loss of some control that accompanied it, made the "going public" experience less than a satisfactory one for most of the firms, regardless of their subsequent commercial performance.

Eight of the 20 firms are closely held, and four are family owned. In the case of the former group, most of them had received some capital infusion from venture capitalists/firms. A supposed feature of this group as opposed to those that went public is the greater likelihood that some of the founding members of the enterprise still play a significant, if not a dominant role in the company operations. While this is so, the situation with our "public" group of companies is not devoid of similar examples. In the case of one of the two companies that went public in Quebec, the chief executive officer was the first president of the entrepreneurial venture. The same holds true for two of the successful firms that went public in Ontario, and for one in the Prairies.

In 13 of the 20 successful surviving firms, some of the original founders have managed to retain a significant involvement through the three key phases experienced by a growing firm:

"1. The start-up stage, including the strategic decisions to found a firm and to position it within a particular industry with a particular competitive strategy;

2. The early-growth stage, when the initial product/market strategy is being tested and when the president maintains direct contact with all major activities (many firms stabilize at this stage);

3. The later-growth stage, often characterized ... by some diversification for manufacturing firms; organizationally the firm usually has one or more levels of middle-management and some delegation of decision-making." 1

Sales and Marketing

All 20 firms had annual sales in excess of $1 million in 1979: 7 were in the $1 - $2.9 million range, 2 in the $3 - $4.9 million, 6 in the $5 - $9.9, and 5 in excess of $10 million (see Exhibit IV). The two firms that were acquired were subsidiaries of firms that had annual sales in excess of $100 million; however, only the 1979 sales of the acquired operations are listed in Exhibit IV.

The diversity of operations among these firms is substantial; albeit, they do exhibit some common characteristics. The product technologies commercialized are somewhat higher than in the case of the "failures" and "marginal survivors". At the time of start-up, these firms would not be portrayed as machine shops whose activities centred on limited adaptive innovation. The product technologies did not undergo substantial changes during the 1970's as the firms moved through and out of their second phase, "the early-growth stage", and into "the later-growth stage", the third phase.

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1 Arnold C. Cooper, "Strategic Management: New Ventures and Small Business", op. cit., p. 317.

The earlier study noted that many of the inventor-owners were excessively possessive of their product technologies, constantly refining the development and design of their product, and suffering from marketing myopia. This condition was most apparent in the case of the failures, less so among the marginal survivors and least among the successful survivors. In the case of the latter group, the self selection process in the market place and organization had a significant impact on the continuing role of the technical entrepreneurs in the company, especially if substantial outside capital was involved.

Avoiding direct competition with larger companies, and concentrating their technical and marketing efforts where they have a comparative edge is another key characteristic of the successful survivors. With few exceptions, these firms concentrated on specialized, rather than mass markets--catering largely to industrial users--in newly developing industries. One such example is Western Electronics Limited.

4. WESTERN ELECTRONICS LIMITED

Western Electronics Limited (WEL) was established in the year 1968. WEL is a manufacturer of medical and dental electronic equipment, and is owned by two families that have provided substantial financing. One family is the silent partner, the other manages the company. The President and Chief Executive Officer is a graduate engineer, and his brother is a Vice-President of the company. The company has 12 stockholders. The President, along with three other engineers, hold numerous patents, some of which are commercialized by WEL.

The company defines its industry as "Health Care"--a 14 billion dollar market, where 95 percent of all products purchased in Canada are imported. The health care industry is a growth industry for Canada, leaving great potential for the Canadian Government to insure that the new business is concentrated in Canada. Canada's foreign exchange advantage is a benefit to a company like WEL; however, while Canada has no duty on imports on "like" products, the U.S. does--approximately 8 percent. The dollar exchange serves to make the products, for all practical purposes, tariff free in North America. The domestic market for the WEL products, i.e., Canada and the U.S., should account for 85 percent of total sales in 1980, with off-continent sales or exports accounting for the other 15 percent.

The Marketing Strategy

WEL, as a small company, considered itself to have an advantage over large companies since it could move quickly in new product innovations and new market schemes. WEL had endeavoured to extend its distribution by

appointing distributors in various parts of Canada and, to a lesser degree, in the U.S.

Besides its branch office in the U.S., a foreign branch office was also located in Paris. While the industry is freight insensitive, it did not matter where the WEL plants were situated. WEL served large customers, the majority of which were multinationals. WEL produced and assembled the products for them, i.e., it engaged in private brand marketing.

WEL planned to market the highest-quality, most reliable instruments, with each instrument carrying a two-year warranty against defective parts and workmanship. The company had sufficient product liability coverage, and stocked its instruments in principal centres for immediate replacement, rather than repair, as part of its service and warranty policy.

One exporting problem encountered by WEL was the inconvenience of getting its products through U.S. customs. This factor had prompted management to consider a possible acquisition of an existing U.S. operation. The Americans, recognizing the importance of the industry, have invited WEL to consider setting up a plant in North Dakota. Should a U.S. operation be bought or established, WEL would maintain the company's research and development capability in Canada, which is made up of three bio-medical engineers. The President believes that, to be successful, one requires the insoluble support of the market place. Marketing expertise, he contends, exists in the U.S., not in Canada. WEL had many of its own patents, and also exploited those owned by NRC, CPDC, and the Sick Children's Hospital in Toronto.

Since 1970, WEL's sales volume had increased eight-fold. The annual sales volume, by 1979, was in the $1.5 million range. WEL employed approximately 70 employees in 1979, the majority of whom performed manual tasks. The WEL plant had 12,000 sq. ft. and was being crowded into either expanding its plant facility in Western Canada, or opening up a plant in the U.S. to serve that market. As of 1980, WEL has established an American sales subsidiary in Newport Beach, California.

Government Assistance

WEL received a total of $250,000 in government grants, in support of its research in the 1970's. For example, by 1975, WEL had received PAIT assistance to develop a fluid measuring device. This instrument was the culmination of a three-year research and development program. During the gestation period, a number of the units were sold to various dental schools and academicians in Canada, the U.S. and Europe for research and/or teaching purposes. In that same year, feedback from practitioners using the units had led WEL to redesign the instrument to better fit a modern clinical setting. The original PAIT assistance did not include any industrial services, nor had PAIT covered such services in 1970. Patents had been issued on this product in the U.S. and Canada, and had been filed for protection in nine other countries in light of its uniqueness and potential in world markets.

The President maintained, however, that the research and development component was "a small piece of the pie in terms of costs related to commercializing an idea or invention." The real challenge, he professed, was marketing. The President would like to see greater support from the

government for promoting a trading company, better and more factoring, and more and easier financing.

THE THRESHOLD FIRM

Thirteen of the 29 survivors had annual sales in excess of $5 million in 1979, and four of the six companies, which were in the $10 million plus category, had sales in excess of $25 million. With the possible exception of three firms, the remaining ten in the $5 million plus category could be described as threshold firms.[1] A threshold firm is one which is in transition between a small-medium sized firm and a large firm, where management must effect a transition from the informality of the entrepreneurial enterprise to the formality and sophistication of the large organization. The products and markets of many such firms are often well-defined, and for this reason there is little pressure for formal management structures and processes.

The challenge facing many threshold firms is the need for product diversification, and the means to finance such a strategy. The economic characteristics that distinguish a threshold firm from its large competitors include as a minimum the following: first, it is less diversified and thus more strongly affected by industry cycles than its big competitors. Second, it is less conservatively financed and for this reason more readily influenced by economic and commercial developments. The profit margins are lower than those of the large competitors, and tend to decline as the threshold firm pursues its sales expansion strategy. Third, because these companies are less powerful and hold a weaker market position, they

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1 For a detailed discussion of the threshold firm see Donald K. Clifford, Jr., "Growth Pains of the Threshold Company", Harvard Business Review, September/October 1973, pp. 143-154.

are also financially more sensitive. Their balance sheet shows them to be highly leveraged, and money costs are higher for them, than for their large competitors. Thus, while these firms have survived, and appear to be well on the road to bigness, their vulnerability of yesteryear when they were "start-up" enterprises appears to be exchanged for the challenges facing the "later-growth" phase.

The following example illustrates some of the foregoing findings and discussion.

5. CANADIAN TRACKED VEHICLES LTD.

The business of Canadian Tracked Vehicles Ltd. (CTV) grew from the owner-inventor's development of his prototype tracked vehicle in early 1950. The inventor responded to the needs of the major oil companies when confronted with the muskeg regions of Northern Alberta in their quest for oil. Conventional transportation equipment was no match for the swampy terrain. The inventor's response was the development of the first of many innovative vehicles. By the late 1950's, the inventor's vehicles had developed the reputation in Western Canada for being the machine that could do the job in difficult terrain conditions.

The CTV name first appeared in the industry in 1965. The next seven years were quite turbulent for CTV as it tried to expand its base of operations into the farm equipment and machinery area through a combination of acquisition and merger activity. The experience was a dismal one. During 1972, CTV divested itself of inventories, equipment and a trade name associated with the agricultural machinery manufacturing and wholesale divisions, through a sale to a Canadian firm.

In order to provide additional equity for the financing of increased marketing and production activity levels for its tracked vehicle operations, an equity financing agreement with four Canadian venture capital firms was consummated in 1973. The investors provided $900,000, and an additional $150,000 was provided by a shareholder through a related agreement. Throughout the formative stages of its product development programs, CTV benefited from government research and development assistance.

Although oil and gas explorations in Western Canada propelled the development of the CTV vehicles, this activity was a highly cyclical one. It had become apparent that success in the tracked vehicle industry could only be achieved through the development of machines for a diversified market. CTV developed vehicles for meeting requirements not only in the oil and gas industry, but also in other industries where reliable transportation in difficult terrain was a necessity.

International Orientation

As CTV developed new products for more and varied applications, there was a dramatic shift in effort from the limited domestic market to the international marketplace. Sales activity in the year 1975 had substantially increased, primarily from the company's sales successes in the U.S.A., the U.S.S.R., Indonesia and the Middle East.

Recognizing that continued marketing success would depend upon the company's flexibility in responding to shifts among world markets in 1976, the Marketing Department increased its staff and established regional marketing offices in Houston and Singapore. In addition, intensive efforts had been initiated to upgrade and expand the worldwide dealer network, particularly in Africa and South America. By 1977, over 75 percent of CTV's shipments were to foreign customers. In that year, it was the world's major projects which developed the greatest demand for CTV's product lines.

By 1978, however, the strategy of getting large export contracts led to a fluctuating sales pattern. Although sales in North America had increased, total export sales were considerably reduced. Export orders were dependent upon major resource projects, which, when successful, were large,

but, in between these orders, sales dropped significantly. The reduction in revenues, and the net loss which occurred in 1979, resulted from a low level of export vehicle sales.

The Marketing Strategy

CTV viewed itself as a leader in a market which it described as "project-oriented and consisting primarily of major capital goods." As it was a broad market, marketing emphasis was placed on the petroleum resource development and the utilities industry. Since the sales demand pattern could not be easily forecasted, CTV's marketing approach was to identify major projects during their embryonic phase and develop an organized approach to the prospective participants. This was accomplished by allocating marketing personnel to the various projects. This allocation could take the form of direct, recurring contact, or through the use of local dealers in conjunction with CTV's marketing personnel.

Financial Performance

Sales and net income generated by CTV have shown a downward trend since the year 1975 (see Exhibit A). A decline in export orders was attributed to the fall in sales, and management was hopeful that this was a situation that would eventually reverse itself. Plans for the construction of a major Canadian natural gas pipeline in the North kept the company hopeful that domestic sales would eventually increase.

In line with CTV's optimistic approach to market prospects for their product, expenses were not kept to a minimum. In 1976 and 1977, additional office space was leased, and the Materials Management group introduced a computer installation to improve its inventory and production control systems.

EXHIBIT A

CANADIAN TRACKED VEHICLES LIMITED

(1975 - 1979)

	1979	1978	1977	1976	1975
		(Thousands of dollars)			
FINANCIAL RESULTS					
Sales	$8,689	$10,280	$13,799	$14,174	$17,170
Income (loss) before income taxes and extraordinary item	(631)	562	2,467	3,584	3,779
Income taxes	(325)	183	992	1,452	1,654
Income (loss) before extraordinary item	(306)	379	1,475	2,132	2,125
Extraordinary item	--	336	--	--	685
Net income (loss)	(306)	715	1,475	2,132	2,810

Furthermore, new staff was recruited, and research and development effort was a key expenditure item. From 1975 to 1978, over $1,000,000 was invested in the conceptual and developmental phases of the oil field pumping unit. In 1979, research and development expenditure accounted for 10 percent of sales revenue.

In 1979, the Company showed a net loss of $306,000, but management believed that 1979 represented the low point in sales and income for CTV, and was very optimistic about its future market prospects. These included a higher level of activity in the oil industry in North America, increasing the demand for rig moving vehicles, service rig chassis, and geophysical units, and with export activity beginning to increase.

Product Development

From the beginning, research and development was undertaken to ensure that CTV's unique technological design capability would be applied to the introduction of new products as a means of promoting the company's sales growth. By 1977, three new vehicle products had been introduced: two for pipeline construction and one truck for high speed crash-free-rescue work.

The research and development expenditure increased significantly in 1977 over 1976, and the increased activity was directed to the conceptual design and prototype testing of a high-technology oil field pumping unit. This product utilized Hydraulic, Electronic and Pneumatic systems in its design. The development of the oil field pumping unit was completed in 1978.

CTV recognized that the introduction of new technology into a firmly established market place required a substantial amount of time and effort. Nonetheless, management was confident that its new product program would lead to a profitable complimentary business line. To provide and implement the company's philosophy of diversification, CTV was organized into three distinct divisions: The Transportation Equipment Group, the Oil Field Equipment Group and the Corporate Services Group.

Vehicle-related research continued to be a key factor in CTV's operations. During 1978, emphasis had been placed on upgrading the vehicle line of products, including the development and production of a rig carrier truck for use in the domestic market. CTV's planned expansion into new endeavours was not to lessen the emphasis placed on the further development of the vehicle product line. It was CTV's intent to maintain its technological lead in the development of high mobility trucks.

To help facilitate the implementation of its corporate strategy of diversification, a new unit, the corporate services group was established. The need for a centralized corporate service base resulted from the establishment of a multi-divisional structure, each segment of which had distinct products, markets and operating methods. In addition to providing various services to the operating divisions, the Corporate Services Group was responsible for the investigation and development of new investment opportunities for the company.

Based on past financial performance and present working capital, management was confident that it could now pursue a successful diversification strategy.

INTERNATIONAL BUSINESS

Approximately 80 percent of the Group of 47 included export sales in their company market projections when they were first interviewed during 1970-1971. Their perceived goal of success was to varying degrees dependent on achieving export sales. The limited size of the Canadian market was a critical consideration for the need to develop an export market base. It was also noted that about 50 percent of the entrepreneurial group were immigrants to Canada, and that many of them had familiarity/experience with international business. This undoubtedly made them more sensitive to foreign market opportunities and less reticent than some firms to engage in the development of export business.

Ten years later, most of the survivors viewed the non-Canadian sales component as critical to their existence, growth, viability and future profit prospects. A majority of these firms had foreign affiliate operations, primarily in the United States, some in Europe, and a few in the rest of the world. The foreign acquisition strategy was largely limited to the U.S.

Only six of the 29 survivors limited their business activities to the Canadian market, and four of them are classified as marginal survivors. Of the remaining 23 companies, 15 can be classified as internationally-oriented firms; namely, companies that depend, for more than 50% of their business, on non-Canadian based customers. Only one of these companies is in the "marginal" category.

The degree of internationalization experienced by these companies runs the gamut from being largely exporters with foreign sales branches, to manufacturing locally abroad, particularly in the United States, and to a

much lesser extent in Europe with minimal investment involvement in Third World countries. Exporting technology was a key variable in the strategies of many of the companies, as illustrated in the following case example.

6. FAIRFAX

Fairfax, a private Canadian company, was incorporated in 1964. Its purpose was the development, manufacture and marketing of prestressed, hollow core concrete production systems and technology. The technology is in the field of machines that extrude hollowed-out concrete flooring slats for construction purposes. The end product is called "corefloor" and the basic machine produced by Fairfax is called the "corefloor extruder." The extruder was developed by an inventor who is still associated with Fairfax.

The corefloor extruder had been considerably refined by Fairfax over the years. The new extruder is twice the price of the old Fairfax machine--in the $100,000 range--but is more efficient. The new extruder costs 12 percent less to operate than the old machine. Italy, which is presently experiencing a boom in housing construction, is very interested in purchasing the new extruder. There are only eight such machines presently in use in North America.

The original corefloor extruder is still being manufactured and marketed by Fairfax, as it is most suitable for certain markets. Cuba, for example, concluded a $809,000 contract with Fairfax in early 1980. As the Cuban infrastructure cannot support a machine that produces concrete slab at the rate of the new extruder, the Cubans expect to use the old Fairfax machine, i.e., the corefloor extruder, at least until 1984. The Export Development Corporation has agreed to lend $687,000 to the Banco Nacional de Cuba to help Cuba finance the purchase of the Fairfax equipment--six hydraulic concrete extruders, five hydraulic saws and spare parts will be used to build Cuban housing units.

Foreign markets account for 90 percent of Fairfax's sales. There are a number of Fairfax machines in East European countries, but not, as yet, in the U.S.S.R. or China. Fairfax has a keen interest in the latter's market, and may someday have a resident staff marketing man in Asia. Fairfax has also licensed firms to produce concrete construction flooring with Fairfax machines. While it has been Fairfax's practice to license franchise-holders for individual geographic regions, this will no longer be the case. This system raised the possibility of market stagnation in a given area where the franchise holder was an unaggressive marketer. The new practice will allow two franchises to be located in the same geographic region.

A subsidiary of Fairfax is Fairfax International Ltd., located in the United Kingdom. This subsidiary produces replacement parts for Fairfax machines in the European and North African markets. It also houses the marketing staff for that area and other countries, such as Hong Kong. The subsidiary has a staff of 25, while the Canadian base has a staff of about 85.

Fairfax, already considered to be a world-leader in precast concrete and hollow core industries, is planning to expand through the development of new products and markets. The manager of new product development has initiated a plan to acquire new products, ideas and technology transfer by way of licensing or acquisition. The objective is to broaden the Fairfax commercial base for introducing their products to existing and new customers, in addition to getting into new product lines.

Company sales for 1965 totalled almost half a million dollars--five years later the sales figure for 1970 approximated the $1 million level. The figure for the year 1979, was about $8 million, and corporate management expects to triple this figure by 1985. Such a projected sales revenue would give Fairfax sufficient cash flow to support a full-scale research and development unit. In the early part of its corporate history, Fairfax benefited from government assistance in the research and development area, e.g., PAIT. However, as the market for prestressed concrete flooring cannot expand sufficiently to triple corporate sales in five years, the successful introduction of new products is a prerequisite for achieving this sales goal.

GEOGRAPHIC VS. PRODUCT DIVERSIFICATION

Superior technology and international business experience but not financial resources, were among the important corporate capabilities which led many of the firms to establish foreign subsidiaries, largely in the U.S. They stressed that their competitiveness in Canada, possibly their survival, hinged on achieving market success in the U.S. Geographical diversification was regarded as the route to getting bigger in the confines of the small Canadian market.

In a study dealing with the export marketing orientation in small Canadian firms, it was noted that "the development of highly specialized products for which there is no adequate domestic demand often triggers off greater export orientation in the small firm." And, moreover, "the rapidly increasing demand for high technology products and processes in world markets has provided attractive foreign business opportunities for technology-intensive companies."[1] With few exceptions, this has been the experience of the successful survivors.

Market considerations were judged to be among the most important reasons for establishing the first foreign affiliate, typically in the U.S. The majority of the firms realized for themselves a particular niche in the Canadian market, through the design and development of a limited product line. Most of these companies occupy a dominant market position in Canada. The drive for growth led these companies to invest in

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1 T. Abdel-Malek, "Export Marketing Orientation in Small Firms" American Journal of Small Business, Vol. III, No. 1, July 1978, pp. 27-30.

replicating their strategy and operations in the U.S., although they readily acknowledged the existence of opportunities to diversify their product line in Canada.

The unwillingness to diversify in Canada was attributed to a number of factors such as reticence to enter a new product-market, especially if there is probable competition from large firms; the cost of building up a new product line in the area of manufacturing, sales and distribution; as well as general hesitation to engage in new business fields, especially if the corporate waters are uncharted. For these and other reasons, many of the companies elected to invest in the U.S. market as a means of increasing total company sales and profitability.

The corporate pursuit of growth and profitability by Canadian Key Limited, one of the largest successful survivors, and the strategy employed to achieve these goals, can be explained in large measure by the above-mentioned reasons.

7. CANADIAN KEY LIMITED

Canadian Key Limited (CKL) was incorporated in 1964, to design, patent, manufacture and market a keyless mechanical and electrical security lock system for industrial and commercial use. This system had been developed three years earlier by the company's founder. In 1968, CKL went public and one year later, recognizing the need for additional facilities and experienced personnel, plus the necessity to diversify its product line, the company purchased the outstanding shares of two small complementary Canadian-based companies.

Establishing a U.S. Base

CKL's first move into the U.S. came on May 6, 1968, with the incorporation of Canadian Key Corporation. In 1971, CKL acquired 65 percent of the outstanding shares of Security Inc. of Mass. This company supplied the central control chamber around which the CKL keyless security locks were designed. It also produced a medium-priced line of push-button locks for the commercial and residential markets, and for college dormatories in the U.S. In 1972, CKL finalized its most important U.S. acquisition, Brook Inc. This move made CKL one of the largest and broadest based manufacturers of builders' and replacement security products in North America. Brook was the world's largest single-source supplier of keys and key-cutting machines, and a major supplier of builders' door hardware, and replacement and auxilliary locks for original equipment manufacturers in the U.S.

In late 1972, CKL acquired the assets and business of Sun Corporation, a manufacturer of heavy-duty, high security cable locks and padlocks. These manufacturing functions had been integrated into the Brook plant, and all assembly operations were performed in a new plant in North Carolina. Distributing this line through the well-established Brook network, CKL now had the most comprehensive one-source listing of locks in North America.

Going Overseas

By 1973, CKL had solidly established itself as a major supplier of security products in North America, and begun to look to the overseas market for sales potential. In Britain, a reciprocal arrangement was made with a major British lock company which gave Brook an exclusive British-made lock, while the British company assembled and marketed a Brook line of locks. In Europe, CKL through Brook, established an affiliate in Geneva, Switzerland, and sold and distributed selected CKL products, while similar arrangements were being planned for other countries. An agreement with a French company, which was a leading European manufacturer and distributor of lock equipment, had resulted in the formation of two more subsidiary companies in Asia to facilitate the distribution of lock equipment that had been manufactured in Canada, the U.S. and France.

Research and Development

CKL's research unit had been organized in 1970, by its president and one of his co-founders, a Ph.D. who was an engineer and Vice-President of Technology at CKL. With the substantial assistance of federal government research grants (see Exhibit A), CKL had been actively involved in the

CANADIAN KEY LTD

EXHIBIT A

Financial Performance 1972-1979 — Selected Indicators

	1972	1973	1974	1975	1976	1977	1978	1979
Sales	$14,233,459	$24,820,337	$29,361,721	$25,242,107	$28,238,253	$24,800,723	$28,314,393	$34,158,135
Cost of Goods Sold	12,828,604	22,411,280	N/A	N/A	24,892,336	22,734,362	24,715,631	29,474,753
Operating Income	1,404,855	2,409,057	3,154,747	(318,920)	3,345,917	2,066,361	3,598,762	4,710,380
NET INCOME	$ 583,097	$ 943,609	$ 794,319	$ (2,554,767)	$ 473,346	$ 436,975	$ 1,090,911	$ 1,813,023

Research and Development Expenditure*

$ 242,073	$ 175,906	$ 216,525	$ 293,553	$ 185,600	$ 148,200	$ 133,200	$ 0

* All R&D expenditures recorded are net of government grants.

research and development of new security products. As a result of its research, several patents had been issued. The overall cost of these research programs was estimated at $1.2 million in the 1970's, shared equally by CKL and the Federal Government.

Financial Performance

In December, 1972, CKL common shares were listed on the Toronto Stock Exchange. The year 1973 was a key one for CKL, as measurable progress was made in the areas of new product introduction, cost control and market penetration. Sales hit a high of approximately $25 million (see Exhibit A for Financial Performance for the years 1972-1979). Sales almost reached the $30 million mark in 1974; however, in 1975, sales dropped back to the 1973 level and the Company absorbed a significant loss that year, in excess of $2.5 million.

The year 1975 was the low point for CKL when its bank debt stood at $6.7 million, which forced management to reduce the company's short term borrowings, and to subsequently reduce general overhead expenses along with a program of inventory control and the disposal of obsolete facilities. CKL's drive for manufacturing efficiency continued and, in 1977, management consolidated all of the company's U.S. operations into one major facility. As well as improving manufacturing efficiency CKL was also involved with expanding the U.S. marketing capabilities.

CKL's sales and net income for 1979 attained record levels. Sales increased by 20.6 percent over 1978 sales and net income rose by 63 percent. The extraordinary sum recorded in 1979, (as well as in 1977 and 1978) was the result of prior years' tax losses carried forward. The significant

improvement in 1979 materialized from past years' efforts, during which time major parts of the company had been transferred to modern production facilities. Furthermore, product lines had been altered, eliminated and/or added in keeping with the market's requirements, and research and development activity was intensified to keep up with new applications and requirements.

SUMMARY OBSERVATIONS

At the start-up stage of the technological enterprise, the enthusiasm of the entrepreneurs was at its highest, and the perception of the business was such that market prospects were viewed as exceptionally attractive, fitting well with the expertise and skills of the founders. The period of shared enthusiasm was short-lived when future financing and cash flow requirements were beyond the means of the founding group. Obtaining investment capital or loans was a particularly difficult task, since the start-up enterprise was typically devoid of both adequate collateral and business history. Venture capital firms were reticent to invest in such operations at that time. It has been estimated that "fewer than 10% of business proposals to venture capital sources for start-up or ongoing financing are actually finished."[1]

Each of the 47 firms received some form of financial assistance from the federal/provincial governments during their start-up phase: as a minimum in the form of research and development assistance. The majority of these firms acknowledged the importance of that assistance at that time; albeit they had suggestions for how to improve the screening process, reduce the monitoring hassle, and increase the availability of funds.

It has been argued that during the start-up phase, the critical management decisions taken by the founders will condition the direction of the enterprise and thus the framework for future business decisions.

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1 J.A. Timmons, "A Business Plan is More than a Financing Device", Harvard Business Review, March-April 1980, p. 28.

This was the case for many of the firms, both failures and survivors. The most significant business problem area was that of marketing, or the lack of it.

> "Technical and scientific entrepreneurs share one misconception I call the 'better mousetrap fallacy'. They frequently place unwarranted faith in a product or invention, especially if it is patented. Indeed, technological ideas must be sound, but marketability and marketing know-how generally outweigh technical elegance in the success equation. . . . less than one half of one percent of the best ideas contained in the Patent Gazette five years ago have returned a dime to the inventors. In essence, the patent is usually a useful marketing tool, but not much else, and may be worth 15% or considerably less of the founding equity." 1

All 47 firms managed to enter the second phase of their evolution, i.e., the early-growth stage, but it was here that many of the 18 failures took place, frequently attributable to the marketing myopia exhibited by the initial founders, and the financial consequences that followed. The inventor-entrepreneurs, in particular, were found to be stubborn in their product orientation. They were possessive of "their product technology", and this prevented them from perceiving some of the marketing limitations associated with the technology; e.g. limited customer applications. This, in turn, made it difficult for the companies to receive adequate financing in the early-growth.

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1 J.A. Timmons, Ibid., p. 30.

Where financing was available, especially if it involved venture capital firm(s), the probability of the inventor-entrepreneur finding himself in a future non-strategic management position was high. Additional equity financing resulted in a dilution of his company shares, and hence control. Friction and bitterness would soon ensue towards the new shareholders and their management proxy, leading to the imminent departure of the inventor member of the founding group. The other members did not necessarily accompany his departure at that time.

It was the rare inventor-entrepreneur who managed to move his original concept/invention through all three stages of the corporate evolution, start-up, early-growth, and later-growth. Regardless of the stage of exit, many of the inventor-entrepreneurs somehow survived and re-emerged through the development of new inventions and the start-up of new enterprises, often in the same neighbourhood as their last entrepreneurial involvement. Observers of these entrepreneurs noted that they were usually poor people managers as indicated by the high personnel turnover in their ventures. And, as previously noted, their management sophistication in business, specifically planning, was sadly deficient. Although disciplined in the technical area, they were not well disciplined when it came to managing a business.

The situation is quite different for many of the successful survivors whose management group includes some professionals with accounting, financial, managerial and manufacturing expertise. Attempts at introducing planning is evident, particularly in firms which have "gone public" and whose sensitivity to money markets is obvious. This also holds true for firms in

which venture capital firms have a significant stake and whose success is important to the business interests of the venture capitalists.

While the later-growth venture usually pursued a diversification strategy, this did not entail significant product diversification. The manufacturing and marketing concentration was on one or two product lines and markets, but in order to expand the Company's business base, management opted for a strategy of geographic diversification, i.e., exporting and manufacturing locally abroad. The experience of the survivors demonstrates that exporting and international business generally is not an activity for big business only. The small-medium sized, and threshold firms showed themselves to be heavily involved in international business. The moderate to high technology feature of their products, and the growth industries in which they competed helped them to reinforce their competitive strength in the area of marketing applications, thus reducing the need to compete largely on price. For the successful entrepreneurial enterprises, research and development activity was the lifeblood of their current viability, and was crucial to their future success. With few exceptions, the research and development ratio to sales was a high one.

The experience of these 47 firms over a ten-year period provides important guidelines for government policy regarding assistance both for research and development and for small business. The start-up of small technology-based firms can be viewed as going through three stages of development, start-up, early-growth and later growth. Not only does the size of firm increase as it moves from one stage to the next, but the managerial, marketing and financial requirements vary between stages.

The criteria for evaluating the potential for success will thus vary by stages.

The literature dealing with the analysis of small firms has often approached this process in a slightly different way. It examines the problem of management succession as a small firm develops. It is noted that many small firms stumble, because the original owner-managers fail to delegate responsibility, and to establish the management team required for the stage of development reached. This hinders the firm from moving from one stage to the next. A critical situation occurs when it is necessary for the original owner-manager to pass on managerial control to the next generation. If no-one has been groomed for the job, then the firm tends to fail, or be acquired at a price which is disadvantageous to the original owner and his family. In the event of the owner's death, additional problems arise, if funds have to be raised to pay estate taxes and the firm's assets are not liquid.

A second aspect of the three stage process is to distinguish between the technical innovation and the entrepreneur. The innovation is knowledge or information, which if packaged appropriately has an opportunity of becoming a commercial success. The entrepreneur, on the other hand, is a catalyst who takes the knowledge and packages it with finance, marketing and other managerial skills in an attempt to achieve personal reward through commercial success. Neither the technology nor the entrepreneurship should be viewed as a depletable resource. If the new start-up fails, the technology still exists, as does the entrepreneurship. In the case of entrepreneurship, its existence within an economy should be viewed as a

valuable scarce resource (i.e., a catalyst). It should be nurtured in such a way that even, if it is associated with a commercial failure in one instance, it can be re-used in some other venture. The fact that failed entrepreneurs try again is a healthy sign, because it means that the scarce resource is being used where it has a comparative advantage. A more ideal situation would be that an entrepreneur, who is successful in one venture, is duly rewarded and moves along to initiate other new ventures. Entrepreneurial resources would then be used to their fullest extent.

Two points are then relevant for government policy on technology and small firms. One is to recognize the nature and use of entrepreneurship as a national resource. The second is to develop the type of assistance and evaluation-monitoring process which will be appropriate to a firm's stage of development.

TECHNOLOGICAL INNOVATION STUDIES PROGRAM

PROGRAMME DES ÉTUDES SUR LES INNOVATIONS TECHNIQUES

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1. Litvak, I.A. and Maule, C.J., Carleton University. **Canadian Entrepreneurship: A Study of Small Newly Established Firms.** (October 1971)

2. Crookell, H., University of Western Ontario. **The Transmission of Technology Across National Boundaries.** (February 1973)

3. Knight, R.M., University of Western Ontario. **A Study of Venture Capital Financing in Canada.** (June 1973)

4. Little, B., Cooper, R.G., More, R.A., University of Western Ontario. **The Assessment of Markets for the Development of New Industrial Products in Canada.** (December 1971)

5. MacCrimmon, K.R., Stanbury, W.T., Bassler, J., University of British Columbia. **Risk Attitudes of U.S. and Canadian Top Managers.** (September 1973)

6. Mao, J.C.T., University of British Columbia. **Computer Assisted Cash Management in a Technology-Oriented Firm.** (March 1973)

7. Tomlinson, J.W.C., University of British Columbia. **Foreign Trade and Investment Decisions of Canadian Companies.** (March 1973)

8. Garnier, G., University of Sherbrooke. **Characteristics and Problems of Small and Medium Exporting Firms in the Quebec Manufacturing Sector with Special Emphasis on Those Using Advanced Production Techniques.** (August 1974)

9. Litvak, I.A., Maule, C.J., Carleton University. **A Study of Successful Technical Entrepreneurs in Canada.** (December 1972)

10. Hecht, M.R., Siegel, J.P., University of Toronto. **A Study of Manufacturing Firms in Canada: With Special Emphasis on Small and Medium Sized Firms.** (December 1973)

11. Little, B., University of Western Ontario. **The Development of New Industrial Products in Canada. A Summary Report of Preliminary Results, Phase 1.** (April 1972)

12. Wood, A.R., Gordon, J.R.M., Gillin, R.P., University of Western Ontario. **Comparative Managerial Problems Early Versus Later Adoption of Innovative Manufacturing Technologies: Six Case Studies.** (February 1973)

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14. Dunn, M.J., Harnden, B.M., Maher, P.M., University of Alberta. **An Investigation Into the Climate for Technological Innovation in Canada.** (May 1974)

15. Litvak, I.A., Maule, C.J., Carleton University. **Climate for Entrepreneurs: A Comparative Study.** (January 1974)

16. Robidoux, J., Garnier, G., Université de Sherbrooke. **Factors of Success and Weakness Affecting Small and Medium-Sized Manufacturing Businesses in Quebec, Particularly those Businesses Using Advanced Production Techniques.** (December 1973) (Available in French)

17. Vertinsky, I., Hartley, K., University of British Columbia. **Project Selection in Monolithic Organizations.** (August 1974)

18. Robidoux, J., Université de Sherbrooke. **Analytical Study of Significant Traits Observed Among a Particular Group of Inventors in Quebec.** (August 1974) (Available in French)

19. Little, B., University of Western Ontario. **Risks in New Product Development.** (June 1972)

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