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Technological Innovation Studies Program

Research Report

A STUDY OF SMALL AND MEDIUM
SIZED CANADIAN TECHNOLOGY
BASED COMPANIES

by
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The University of Western Ontario

September 1978

Rapport de recherche

Programme des études sur les innovations techniques

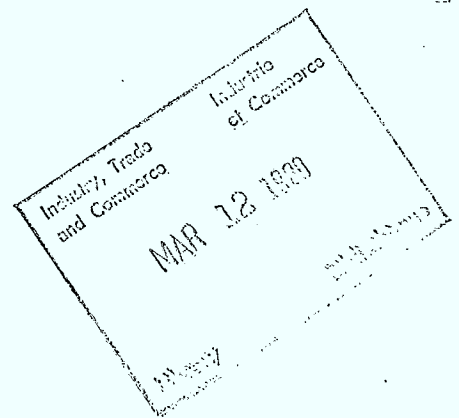


Industry, Trade
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Industrie
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Technology
Branch
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Ottawa, Canada



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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 Industry, Trade and Commerce.

Foreword and Acknowledgments

The study of small business problems in Canada is a comparatively new area of business research. There is relatively little published research upon which to build, particularly in the area of management expertise. This project, therefore, investigates some new territory and will probably be subject to considerable discussion and even disagreement with our results and recommendations. We welcome the discussion and urge readers to open a dialogue with us in controversial areas.

It is also difficult to do research on technological innovation since there seems to be relatively little of it done in Canada, especially when the commercialization phase is defined in more detail, as we have done. Many (40%) of our sample of firms did not perceive themselves as especially innovative and tended to borrow their ideas from outside the firm. This is not surprising since there is relatively little research and development done in Canada. Statistics show Canada to be well down the list of industrial countries in research and development expenditures per capita. The Financial Post of September 4, 1976 states that only 200 of Canada's 35,000 manufacturing firms have a research and development staff of five or more people with science or engineering degrees.

Despite the difficulties of doing research in this area, we plan to continue working on the subject and encourage other researchers to join us.

Many people have assisted us in the study. We owe our thanks to the Department of Industry, Trade and Commerce, Technology Branch which generously sponsored the study. Our thanks go especially to Mr. T.E. Clarke and our monitoring committee in that department as well as various government officials concerned with small business problems with whom we consulted.

Of course, our primary debt is to the management of the firms which participated in our study, who generously gave of their time to complete questionnaires and talk to us about their problems, yet must remain anonymous.

To all of these, our sincere thanks. However, the results and recommendations remain ours, especially the responsibility for any errors or oversight.

We hope that the results of this study will be of assistance to others doing research in this area and to the Small Business Secretariat of the Department of Industry, Trade and Commerce, which was preparing a statement on small business policy at the time this report was written.

We admit the sample of small businesses studied in this instance is rather small to attempt to make generalizations about small firms in Canada. However, we have been exposed to similar problems in over 500 small firms through the Small Business Assistance Program conducted at Western during the past six years. The conclusions and recommendations are further supported by that sample and by firms to which we have been exposed through our consulting and case writing activities as well.

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CHAPTER ONE

Introduction and Purpose of the Study

The purpose of this report is to investigate the level of management expertise in a sample of approximately fifty small and medium sized Canadian technology-based companies. Lack of management ability has been found to be a significant handicap to small businessmen in research conducted by both the authors and others.¹ Canadian managers have often been accused of a general lack of management ability and sophistication, particularly in the areas of marketing and finance. This is considered to be a contributing factor to the failure of many Canadian companies to innovate and survive. Our study therefore investigated small and medium sized businesses in Canada to identify areas where management had problems and to recommend possible solutions to these problems, such as various types of formal educational programs.

The purpose of the research is thus to address the following objectives:

1. To examine the level of management expertise in small and medium sized Canadian technology-based companies.
2. To determine the specific factors which cause problems in these companies.
3. To determine whether assistance is needed in this sector and whether various types of management training programs can be developed by government, large businesses, or the educational sector to address these problems.

¹"The Supply of Venture Capital Financing in Canada" by R.M. Knight, distributed by Department of Industry, Trade and Commerce, 1973.

"A Study of Successful Technical Entrepreneurs in Canada: by I. Litvak and C. Maule, distributed by Department of Industry, Trade and Commerce, 1972.

4. To explore related issues such as the technological innovation within these firms, in an effort to discover whether management problems are keyed to certain areas in the process of technological innovation.

Importance of the Topic

This particular topic is of considerable importance to different levels of society in Canada. It is obviously important to small businesses and to government in its attempt to foster new businesses in Canada. It is also important to large businesses, which desire to create customers and suppliers for themselves, and to the academic community, especially business schools, which are attempting to train managers for small and medium sized businesses as well as large companies. However, this attention to small business management is only a recent trend in most Canadian business schools.

The management of small and medium sized companies should have a high degree of interest in the data that this study provides. It could help them in measuring and developing their management expertise which would assist them in improving their position and chances of survival. Perhaps people contemplating entering a technology based business, or those thinking of launching a small general product or service company, would appreciate advice on the operational guidelines for successful management of small and medium sized firms. At the very least, they might be forewarned of danger signals so that they can recognize shortcomings and plan appropriate action to avoid those management problems. In addition, the timing of any necessary training, the areas in which such training should take place and the various types of management skills which are lacking can be established.

Governments are attempting to develop new technology based businesses, to provide for the assistance of such companies and to protect present investments of both government money and private capital. They could use data on the backgrounds of the management involved and other management factors in making decisions in this sector.

Larger businesses could conceivably be interested in fostering the development of smaller companies as both suppliers and customers, now and in the future. This study should provide them with certain guidelines to avoid pitfalls and build on certain strengths which could foster better management roles both in the small firms and in their own firms.

Education institutions should be able to use the information to develop specific courses or expand present offerings to meet the needs revealed by the study. This is particularly true of business schools, which currently do not address many of their courses to small and medium sized business management. We believe that the small business typically has different problems than those studied in the management of the large firm, if only in the degree to which small business problems are integrated problems in all of the functional areas of management. Indeed, most small business managers must be general business managers in terms of their background and in their skills in marketing, finance, production and all the other areas of running a business. From our standpoint as business school faculty members, we are interested in the level of management expertise in such companies. We also feel that we are capable of planning and recommending programs to help cure managerial skill deficiencies in these companies and hope our business schools can offer improved help in this area in the future.

Research Methodology

The primary methodology of this research involved the development of a listing of small businesses which were technically oriented and which were spread across Canada. To do this we first looked at various government research and development oriented programs for which companies had applied for funds. We obtained many of our leads from this source. In addition, many companies were recommended to us by colleagues and friends who know of small technically oriented firms which seem to fit within the parameters of our survey. Once we had compiled a list of 100 firms, we then approached them to ask for cooperation as participants in this study. A letter was sent to each one explaining what the study was all about and particularly what would be the benefit of the study to the management of the firms involved. In fact, we promised to send summaries of the results to those participants in the study. The second phase of the study involved preparation of a questionnaire covering issues such as those detailed below. This questionnaire was mailed out to each firm identified in the first phase which agreed to cooperate with us. The final phase of the study was a follow-up interview of all of those companies which had completed the questionnaire. The purpose of this interview was to clarify issues which were raised in the questionnaire but which might not be easily answered using the questionnaire and to investigate additional problem areas which arise during the course of the study and to discuss the particular problems of each individual company.

The Sample

The characteristics of the sample with which we conducted the study are

shown in Exhibits 4 through 7. We had 53 companies which both completed the questionnaire and were interviewed. In most cases, several individuals in each company were interviewed. However, in those firms which were relatively small and which were a 'one-man show', we usually only interviewed that one man. As shown in Exhibit 4, the firms ranged from sales levels of about \$200,000 to approximately 50 million dollars. We have arbitrarily split our sample into a small group which included those up to a sales level of 5 million dollars, a medium sized group in the range of 5 to 20 million dollars and a large sized group in the 20 to 50 million dollar range, which included only 5 companies. This latter group could really have been combined into the medium sized companies since they were still relatively small, compared to many Canadian companies. As shown in Exhibit 4, there were approximately 60% in the small category and 40% in the medium sized category. In terms of the number of employees, as shown in Exhibit 5, the firms ranged from 10 employees to over 500 in 5 cases. However, in 70% of the companies there were less than 150 employees. As shown in Exhibit 6, the majority of our companies were located in Ontario, 42 of the 53 companies being there and only 11 in two other provinces, Quebec (primarily Montreal) and Alberta (primarily Calgary). Indeed, nearly half of our sample was in the heart of Ontario surrounding the Toronto area ranging from Fort Erie to Whitby. As shown in Exhibit 7, there were many types of companies involved in this study but they were primarily in the electronics and specialty equipment area with approximately 50% of the companies in those two industries. Other types of industries included other industrial machinery, fire equipment and plastic.

We do not claim that this sample of firms is representative of all small to medium sized technology oriented companies in Canada. However, we feel it is probably representative in terms of the problems faced by the management of these firms and by the types of recommendations which were generated from them.

Timing of the Study

The schedule for the study extended essentially from May of 1976 through May of 1977. This study was initiated during the spring of 1976 with the list of companies being prepared and the questionnaire being developed during May. Companies were contacted and the survey was conducted using the questionnaire during the early summer of 1976 and interviews were conducted primarily in July and August of that year. Interviews extended through the early fall to about late October of 1976 before all 53 companies had been interviewed. During the fall of 1976 the results were compiled and the objective data was prepared and presented to a government audience in Ottawa in late October of 1976. During the winter and early spring of 1977 the subjective data was prepared and analyzed and the results written into what has become this report. Although the information was gathered during 1976, most of the conclusions are undoubtedly still relevant today.

Issues Addressed in the Study

The basic issue addressed by this survey was to examine the existing level of managerial expertise in small and medium sized technology based companies in Canada. We examined both successful and unsuccessful firms to determine their needs in terms of formal training programs which managers in those companies might require. The determination of whether successful or unsuccessful is really a subjective definition in terms of their profitability. Unfortunately, the really unsuccessful firms are those which have

failed and which are inaccessible in terms of gathering information about them. We have tried at various times to contact people who were involved in business failures and they were both difficult to find and very unwilling to talk about the situation after the fact. Therefore, it might be claimed that we were really examining a sample of successful companies, if we define success as survival.

We have also investigated to some extent what types of companies have been especially successful across Canada and will attempt to develop guidelines for people, both in the private sector and government, who are interested in fostering new ventures.

The issues of the symptomatic problems in the management of these firms also had to be considered. In many cases problems that were raised by the management in the firms involved were really symptoms of much deeper problems and our assessment was often very subjective in terms of these situations and what could be done about them. An example would be where a manager would state that he had tremendous difficulty generating sales and when questioned about his marketing program, it was discovered that he had little or no promotional activity and expected the customers to come to him since he had "the best product in the world". How the customer was expected to discover that with little or no promotion of the product or the company is an issue that apparently had not occurred to the manager.

Another important consideration which we investigated was how to get managers to release themselves from the fire fighting role in small businesses of addressing day-to-day problems, either to take necessary training programs or to get more involved in the planning activities required for their firm.

Results of the Study

It is hoped that the output of this study and its specific recommendations aimed at assisting government, universities, and businesses to improve the level of management expertise within small and medium sized technical firms in Canada will be used by all of these audiences.

The longer range implications of this study are that it might ultimately contribute, along with other similar research information, to the establishment of healthier technology based industry in various parts of Canada and to improvement in the business climate for small to medium sized businesses in Canada in general. It is hoped that it will assist small technology based companies to improve their management and to move them to a more competitive position, both in domestic and world markets. It is assumed that a well managed technology based company with a distinctive competence, based in Canada could readily compete internationally, and indeed many of the firms in our sample are already doing so.

It is also assumed that one thrust of the Canadian government's current effort in small business is to develop a distinctive competence in certain technology based industries in which Canada can compete internationally. It is with this longer range theme in mind that we have suggested some of the recommendations later in this study, although many of the recommendations are aimed at small to medium sized businesses in general rather than just technology based companies.

Whither Small Business?

The question has been asked why we are expressing a special concern for small and medium sized businesses. Each year many such firms either fail or

teeter on the brink of failure. In many of these cases it has been established that it is due to a lack of management ability, as evidenced by the failure record published by Dun & Bradstreet which estimates that 98 to 99% of the approximately 3,000 business failures in Canada each year are really due to poor management. In 1975, there were in Canada, according to the Canadian Federation of Independent Business (CFIB), approximately 735,000 independent businesses. That association claims that approximately 150,000 of these are small corporations eligible for the small business tax eduction, 378,000 are proprietorships, or partnerships, 106,000 are property owners, 74,000 are professionals and 27,000 are self-employed salesmen. They also claim that between 50% and 60% of the work force in Canada is employed in owner-managed firms. In other words, a majority of Canadians work for small firms. They comment on the lack of statistics regarding the Canadian situation and point to other countries, such as the U.S., Sweden and Japan for comparable statistics. In the United States there are nearly nine million small businesses and the CFIB quotes President Ford in a speech during Small Business Week saying "small business accounted for 97% of all non-farm businesses in America, for nearly half of the gross national product, and nearly three-fifths of all non-farm private employment. About 100 million Americans own, work for, or are supported by small business".²

In Japan, over 5 million enterprises are defined as small or medium sized firms, which account for 78.4% of the total employees in all industries in Japan.³ Japan, which has some of the world's biggest corporations, also

²President Gerald Ford: a Bicentennial Salute to Small Business, May 1976.

³Taichi Faitoh, "Economic Vitality and Small and Medium Sized Enterprises" (Keynote address to the International Symposium on Small Business, Tokyo, Japan, November, 1975 by the Director General of the Japanese Small and Medium Enterprises Agency).

has by far the largest percentage of small business output and employment.

Even in many other countries which are more socialized than Canada, social and economic policies are developed with the clear understanding that there is a need for treating the small business sector differently.

In the United States, there is specific legislation dealing with small business called the Small Business Act, which as amended in 1965 reads, in Section 2A, "The essence of the American economic system of free enterprise is free competition. Only through full and free competition, can free markets, free entry into business and opportunity for the expression and growth of personal initiative and individual judgement be assured. The preservation and expansion of such competition is basic not only to the economic well-being but to the security of this nation. Such security and well-being cannot be realized unless the actual and potential capacity of small business is encouraged and developed. It is the declared policy of the Congress that the Government should aid, council, assist and protect, in so far as possible, the interest of small business concerns in order to preserve free competitive enterprise".

In addition, recent legislation has been proposed in the United States to establish Small Business Development Centers at universities there. This legislation (Bill S.972) proposes that such centres should provide management development, technical information, product planning and development and domestic and international market development, all from a single source of assistance.

This approach may be contrasted with the Canadian scene, which may be characterized by Prime Minister Trudeau's now famous New Year's speech in

late 1975, where he stated that the free enterprise system is essentially dead in Canada. Nevertheless, CFIB has stated as its proposed Small Firms Policy "to increase the rate of new business formation, the number of persons employed, and the amount of gross national product produced in the owner-managed, small firms sector".

CFIB proposes the following legislative initiatives:

1. That the access to both domestic and export markets should be improved for small firms.
2. The development of Canadian-owned mini-multinationals should be encouraged.
3. Original Canadian research and technological innovation capabilities should be encouraged.
4. Transition strategies should be developed to implement a lowering of those trade and tariff barriers which would lead to the increased international competitiveness of Canadian industries.

They propose moves to reduce the external value of the Canadian dollar, to reflect the real gap in our labour and capital productivity vis-à-vis the United States. They propose tax incentives for the employment of labour capital as well as financial capital, that the incentives to work in Canada should be increased through such moves as deductible day care expenses and removal of the disincentives to work such as the unemployment insurance act. They recommend the facilitation of passing small firm ownership on to the next generation by easing the burden of death taxes and succession duties. This would help to preserve small Canadian firms. They suggest that small firms should be encouraged and allowed to band together to advantageously share common production facilities, managerial assistance,

financing, distribution etc., similar to the recent consortia established in Quebec. This would permit small firms to gain some of the economies of scale available to larger firms. They suggest that equal access to natural resources at competitive prices should be provided to small firms and equal access to financing should also be provided to the small business sector at all times, in all regions. They encourage the development of education programs at all levels which teach self-sufficiency and particularly encourage courses on entrepreneurship and 'starting your own business'. This last is a direct suggestion to the business schools of Canada.

CHAPTER TWO

Definitions and Survey of the Literature

Definition of Small Business

To begin a study which attempts to survey a group of small businesses we first attempted to define what we meant by the term 'small business'. We, like many other researchers in the field, encountered much difficulty in that definition. We found that various definitions exist depending on the purpose for which they were used. For example, the Canadian Federation of Independent Business (CFIB), which claims to represent the interests of the small businessman in terms of lobbying on his behalf to various levels of government in Canada, defines, it, like the American Small Business Administration, as follows:

- a. A small business is independently owned and operated.
- b. A small business is not dominant in its field of operation.

In the United States, there are also various size limitations used to limit that definition, but the CFIB does not recommend the use of quantitative size limits. We considered using various limits to restrict the size of our firms but found that none of the measuring devices can really be applied in general. For instance, if we use sales as a limit to the size of a firm, we find that many small wholesale and retail businesses have a fairly large sales level. But since they take a relatively small margin on that sales level, they can in reality be a very small firm, even though their sales may be relatively large. If we use asset size as the limitation, we find that many capital-intensive manufacturing companies require a fairly large investment in capital assets, but remain relatively small in terms of

the number of people employed, sales, etc. If we use the number of people employed by the firm as a criterion, we face the problem that many service companies employ a large number of people but have a very low investment in capital assets and a relatively low sales level. We finally decided to use the profit level of the firm as our limiting guideline and essentially that is the way that the federal government in Canada defines a small business. They define their small business deduction within the income tax act as a limit of \$150,000 per year of profit which is eligible for a reduced corporate tax rate of 25%. This limit is allowed for 5 years or more to a maximum of \$750,000. We will therefore consider as our small business limit a company that is earning less than \$150,000 per year. We realize that some large companies may fall into this category at various times so that even this restriction does not really fit all examples. It also does not cure the problem of a branch plant in Canada owned by a foreign company which includes in its Canadian financial statements only the earnings in Canada.

Definition of Management Expertise

To examine the level of management expertise one must first define it. Webster's dictionary defines 'management' as "the manner of treating, directing, carrying on or using for a purpose" and 'expertise' as "special skill or knowledge derived from training or experience". Drucker¹ defines management expertise more broadly as "the ability or skills gained through a formal education or practical experience to direct an enterprise, having some knowledge of the technical aspects of a product or process. But in

¹Peter Drucker, People and Performance, Harper's College Press, 1977.

addition, the manager should have an understanding of the marketing, financial and human resource skills necessary for successful operation of the enterprise". This is the definition which we shall use in this study.

Definition of Technological Innovation

One should perhaps attempt to define the term technological innovation by examining dictionary definitions of 'technology' and 'innovation'. 'Technology' is defined as "the application of science to industrial use"² while 'innovation' is defined as "the introduction of something new, such as a new idea, method or device".^{2a}

To define the term 'technological innovation' we really need to discuss the process of technological innovation. We define this process as occurring in the following stages:

1. Initial marketing research to determine a need for a product or service in the market place.
2. The development of a product or service to meet that need. This may be called the invention or idea phase.
3. The planning phase, which includes the preparation of the business plan and the gathering of resources such as capital and management to produce the product or service for the market place.
4. The start-up of the business and its organizational aspects.
5. The on-going marketing research or assessment of the market for the product or service and the best method of delivery of the product or service to that market. This is an integral part of the commercialization process that we single out for later discussion.

² Webster's Seventh New Collegiate Dictionary.

^{2a} Webster's Seventh New Collegiate Dictionary.

6. The growth and development of the new business into a going concern with management skills being gradually developed in the areas of marketing, finance and production.

Therefore, we considered the whole process of commercialization of the product or service as being part of technological innovation rather than just a development of the product or service, itself. We feel that one of the problems of both government and managerial involvement in the process of technological innovation is that many of the participants consider that technological innovation ends with the technical development of the product or service itself and does not include the other phases which we have outlined above. They confuse invention with innovation.

Research on Technological Innovation

Most of the definitions of technological innovation in the literature are biased towards the research and development phase. This is understandable, since most of the discussion of the technological innovation process is in engineering and technical journals. However, when management models such as that of Myers and Marquis,³ are developed for technological innovations, they also tend to accent the research and development phase. The Myers and Marquis model is essentially a recognition phase followed by an idea formulation stage, a problem solving stage and finally a utilization and diffusion stage. The latter includes all of the commercialization activity which we considered to be a part of the technological innovation process. They never really do define what they mean by this final stage.

³Myers and Marquis, Successful Industrial Innovations, Washington D.C., U.S. Government Printing Office, 1969.

Other authors such as Goldhar use similar models.⁴ The first phase of Goldhar's model is the idea generation, design concept formulation; the second is problem solving and engineering; and the third is commercialization and diffusion. These authors usually concentrate on the research and development or technical phases in the problem solving and engineering aspects of the process without really worrying about whether there is a market for the innovation itself, whether that market can be accessed and whether the money can be raised for commercializing the idea.

In fact, most of these articles on technological innovation are addressed to the large firm which has a research and development department or group as a separate entity and it is really the activity of this separate group to which the articles on technological innovation are directed. Very few of the articles worry about the other issues of getting a technical product to its eventual market. It is the total commercialization phase, however, which will be the concern at this particular report.

Most of the published literature on technological innovation is, first of all, American and second, oriented towards large firm research and development departments, with very little applicability to the companies which are the subject of this study. It is a suggestion of this report that one possible problem with the technological innovation process in general is that many of the people involved in it, particularly at the technical stages, are aware of the process only in its technical aspects and have no concept whatever of marketing, financing, and the other commercialization aspects of the process. An illustration is the article

⁴IEEE Transactions on Engineering Management, February 1976, "Information Flows, Management Flows, and Technological Innovation".

by Biller and Shanley in Research Management in September, 1975, entitled "Understanding the Conflicts between R & D and Other Groups". The article addresses the problems of the R & D group interacting with other groups within the large firm, but views them as protagonists, rather than cooperating groups. In most of the companies with which we will be concerned in this report, the management of R & D, marketing, manufacturing and financing is often combined in one or two individuals, rather than having separate groups to handle each specialty function.

One article which does relate to this study is a Research Management article by Hogan and Chirichello in the November 1974 issue titled "The Role of R & D in Small Firms". This article discusses the research and development activities of the American small business community and although it defines small businesses more in terms of our medium sized firm in Canada, the results are probably pertinent for our study. These authors define firms with fewer than 100 employees as their small companies and say that these firms spent approximately \$900 million in 1971 on research and development. About 90% of these firms were classified as manufacturing concerns. They discovered that a relatively small number of large companies performed most industrial research and development done in the United States in total. This is a finding which they attribute to the National Science Foundation. The average size R & D program for manufacturing companies with less than 1,000 employees in 1971 was about \$65,000. Considering the cost to a company of a scientist or engineer, this means that the average small manufacturing firm in the United States had less than 2 professionals involved in R & D in 1971. Averages of course, only give a general indication. For most of these small firms, especially the

very small firms, a single individual probably undertakes the entire R & D effort for the entire company and research and development is only one of the several responsibilities assigned to him. This is what we expected to find as the case in most of our small firms in Canada. Where there is any significant R & D activity, it is probably done by the same individual who is the overall manager of the firm and is responsible for most of the managerial activities in the firm as well.

One useful observation from this article is that there are many types of small research and development oriented firms. They range from a small manufacturing company with a formalized R & D program to the independent inventor, whose main interest is the initial stage of the innovation process. We suspect that this is true in Canada and would emphasize that probably most of the companies in the middle of that spectrum are small manufacturing companies which have adopted ideas of other inventors or other sources of innovation outside the firm and are attempting to commercialize them rather than doing their own R & D within the firm. Since most small businesses spend very little on research and development, it is assumed that they usually adopt someone else's ideas and most of the development is really on commercializing ideas generated elsewhere and producing them to meet market demand.

Significantly, this article goes on to discuss problem areas of technological innovation in the small firm. It is significant that it states "there are a number of non-R & D areas which are also important to the small firm". However, these non-R & D areas are never defined. It also states "this leads to internal competition for available capital". Unfortunately, the article tends to look upon other areas of the firm as competitors with

the R & D department rather than as cooperative entities within the firm, constituting a vital part of the technological innovation process on which all R & D depends. This also reflects the typical attitude of many technically oriented people, who tend to say that R & D itself is the center of the process. These other activities are only seen as necessary competitors for funds within the company. The only other problems discussed in the article are essentially the uncertainty of R & D effort, the requirement for assured product quality, which is associated with research and development, and the problems of the small firm in attempting to sell its R & D capabilities to the federal government. It also mentions in passing limited availability of high quality manpower, small facilities which impose restrictions on the size of an R & D program and the less sophisticated equipment than that of larger companies. The article never alludes to the marketing problems of the technological innovation process or to the fact that most small business entrepreneurs in the technical firm are ill-equipped to manage the whole process from development through to commercialization. The article does allude in one paragraph to "the inventor entrepreneur who is interested in starting a small firm" and that he is "faced with a myriad of other problems such as the fact that he is usually science-oriented with little or no business experience". They say this is a particular problem for new ventures but never really discuss it at all within existing active companies. However, one would probably expect people with technical backgrounds who are interested in the technical process to essentially ignore the managerial aspects of the process. We hope to be more oriented in this report to general management inputs into the technological innovation process.

It is only when one addresses the literature dealing with large company technological innovation that one finds much attention devoted to the overall process. One example is the work of John Moore.⁵

That author works with a division of McDonald-Douglas Corp. in California, to illustrate the large company point of view. Moore talks extensively about marketing aspects such as the overall demand for the technical product, as well as other topics such as product life cycle and the need for overall marketing programs within the technological innovation and business planning process. In discussing the launching of a new product, he states "business plans should employ a specific checklist of investigations and analyses plus a set of market, product, program and financial criteria to aid in the planning and decision making". He goes on to state examples of criteria which can apply to business planning, venture analysis and resource allocation. These include "the market, which must represent the real requirement of customers without preferable alternatives and with an ability to pay". He also states "the market must be large enough to be significant on both a yearly and a total basis and it should have either a substantial pent-up demand at the time of entry or must be capable of re-orientation away from existing suppliers". It also "must endure for a long enough time after the market development to permit recovery of investments with acceptable profit". This is one of the few articles on technological innovation we have seen that addresses in any way market requirements in the technological innovation process. However, even Moore does not comment on how this market is to be assessed and evaluated.

⁵The IEEE Transactions on Engineering Management, February 1976, titled "Unique Aspects of High Technology Enterprise Management".

He seems to have assumed that there will be a marketing department within the large firm to take care of this activity.

Technological Entrepreneurship

Another area of the literature which includes small business oriented material is the whole area of study of technical entrepreneurs. In American research this topic has been examined by several researchers including Roberts at MIT. He writes about entrepreneurship in the large firm and corporate spin-offs or the formation of small firms by individuals who have left large technical firms with an idea for a new product or process. He dwells heavily on the topic of internal entrepreneurship within large firms and creating an environment for keeping the entrepreneurial spirit alive within these firms. This is illustrated by his article entitled "A Basic Study of Innovators, How to Keep and Capitalize on Their Talents".⁶ The article also discusses spin-offs from large technical laboratories and various government agencies. Roberts states that the technical entrepreneur is typically well educated with an average education of a Master of Science degree or slightly better. This is in contrast to non-technical entrepreneurs who, in other studies, have been shown to be relatively poorly educated, often dropping out before completing high school. This study also found that the technical entrepreneurs in that study tended to be much more development oriented rather than research oriented.

Canadian Literature

The topic of technical entrepreneurship in Canada has been addressed primarily by Litvak and Maule in their work published in The Business Quarterly,

⁶Research Management, Volume 11, No. 4, 1968.

Spring 1972, Summer 1972 and Summer 1974. Litvak and Maule use several definitions which we have found very useful for this study. They describe the technology based firm and define it as a company which "emphasizes R & D or which places major emphasis on exploiting new technical knowledge. It is often founded by scientists or engineers".⁷

They also describe three types of innovation classifications as follows:

1. Fundamental - where a totally new product is generated.
2. Functional - where a new method is found of performing the same function as some other product or process.
3. Adaptive - which is the modification of an existing product.

They claim that in their study there were no fundamental innovations, while 30% of their sample of approximately 50 were functional innovations and 70% were adaptive. Litvak and Maule also conclude that there was "little tax incentive for the entrepreneur to invest his time and capital in the pursuit of a product concept or marketing opportunity".

Litvak and Maule discussed characteristics of entrepreneurs in those articles and found that 80% of the 96 entrepreneurs they contacted possessed a technical background which usually included formal education and on-the-job experience. Over 65% of the entrepreneurs possessed university training of some sort, which again was similar to results found in the United States for technical entrepreneurs, but not for entrepreneurs in general. They also state that only a few of the entrepreneurs possessed general management expertise comparable to their technical skills. This was usually due to their lack of formal business education coupled with their work experience which tended to be in the technical areas. They concluded that most of the entrepreneurs were ill-prepared to organize and manage a newly established venture.

⁷This is the definition used in our work but is taken from "A Study of Successful Technical Entrepreneurs in Canada" - September 1972. DITC.

Their level of competence in such management areas as marketing, finance and personnel and even manufacturing was sadly lacking. They concluded that the marketing performance of the entrepreneurs was weak and was a major factor in the apparent high mortality rate of the ventures. Most of the entrepreneurs were unable to see the linkage between product innovation and marketing and Litvak and Maule commented on the lack of market perception evidenced by most of the entrepreneurs.

Litvak and Maule recommended the design of special management education programs for entrepreneurs, particularly those involved in the startup of new enterprises. They really do not elaborate on what these management programs should be or should contain. They also recommend the promotion of greater awareness of entrepreneurship on the part of the universities, particularly in the faculties of engineering and administration. Again they do not suggest methods of doing this or get into the details.

Other work in the Canadian scene which has been done on innovation is that of our colleague, Blair Little, at Western. His work is primarily in terms of the marketing innovation viewpoint of the new product development and introduction process. He worked primarily on larger companies in Canada rather than small ones.

Little's work is contained primarily in his two books titled "The Right New Product" and "New Products, New Markets" and in articles in The Business Quarterly, in the Summer 1972, and 1974 editions. His conclusion overall is that what is needed is not more investment in research and development, but in market research and market planning. His companies ranged from small to large and he claims that marketing is especially neglected in the smaller end of the scale. He states that technical managers seem

oblivious of the need for marketing help in planning of their new products. he also states that large companies often had full time marketing assessment people, but that the overall lack of marketing orientation was noticeable throughout the scale with an increasing emphasis in the smaller firms.

In addition, a former student of Little's, R.G. Cooper at McGill, has recently authored a book titled "Winning the New Product Game" in which he describes three innovations within large companies and concentrates on marketing research and analysis within the new product innovation process. He comments that even within the larger firms which he has studied, the lack of definitive market reserach is often a problem. The book also illustrates the need for close cooperation between R & D and marketing in the development of new products.

Management Training

Much has been written on the need for additional training, especially for managers of research and development. Examples are articles by M. Bachynski,⁸ T. Clarke,⁹ and a paper by P. Gishler.¹⁰ We shall concentrate here on the results of the Clarke study.

A very useful element from that study is the definition of technological innovation which Clarke uses. He states that technological innovation "includes the elements or stages of R & D, finance, marketing, production and planning". This is a much broader definition of technological innovation than we have seen in any other research, including those discussed above. Most other work

⁸"Training for the Management of R & D Innovation in Canada", proceedings on the 10th Annual Conference of Canadian Research Management Association.

⁹"Technological Innovation Management Training Program for Canada", published by the Innovation Management Institute of Canada in 1975.

¹⁰"Increasing the Effectiveness of Industrial Research Managers", a report to the Office of Science & Technology in the Department of Industry, Trade and Commerce in March, 1973.

tends to discuss innovation in terms of the R & D stages plus 'commercialization'. We agree with Clarke's broader definition of the technological innovation process, and will use that broader definition in this study. In his paper, Clarke states, "in Canada, with the exception of a few short extension courses, seminars or evening courses, universities are not sponsoring Research and Development/Innovation Management Training" (a term which he uses interchangeably for technological innovation).

Clarke recommends short courses on the management of technological innovation of the order of 3 weeks or less. These should be made available to managers of technologically based organizations and brief survey type courses should be designed into undergraduate and graduate science and engineering programs and MBA programs in Canada. He also recommends the offering of evening university courses and suggests that an MBA degree program at several universities specializing in R&D/I Management should be set up. However, he states he has received relatively negative responses from some deans of engineering and science schools who commented on an earlier survey. Some deans of these programs did agree with the necessity for management courses within their curricula.

He also states that "the difficulty with regular management courses is that they rarely deal with problems faced by managers of technological innovation, such as problems of introducing new products or processes into the market place". He claims that the R & D manager must bridge the gap between the 'cultures' of business and science, and suggests that a program of these courses and seminars should include the areas of financing new projects and marketing new products and processes. He recommends grants be made to universities to encourage the development of R & D/I courses in

science and engineering departments, and that business schools be involved in helping to develop these courses.

Studies of Small to Medium Sized Firms

Another research project dealing with the innovation process in smaller businesses is the work of M. Charles and D. MacKay.¹¹ They conclude as well that there is a definite need for general management skills within the companies they surveyed. They state that there is no shortage of innovative ideas, but rather a lack of estimation of profitability of the various ventures and new product innovations which they examined. We assume that this means a lack of market research as well as evaluation of the potential return on investment of these particular products. They state that the innovations they saw were "usually modifications of existing products rather than completely new products", which tends to agree with both results of other research and with our results. Charles and MacKay also state that "the most immediately successful innovations were those in which a change in the market was perceived and where this resulted in a technical development to meet that change". They go on to state that "the need for interaction between sales personnel and R & D groups cannot be over-emphasized". However, they state that "it is easier to improve this communication gap in the small company where interaction is usually fairly informal and unstructured".

Charles and MacKay also state that "too many innovations are attempted without the proper advance market surveys" although they do remark that the PAIT program has been helpful recently since it now forces firms to undertake detailed market surveys as a condition of its grants. They also state

¹¹"Case studies of Industrial Innovation in Canada", Report to the Office of Science and Technology of DITC in May of 1975.

that "the need is for more general government assistance with the innovative process in areas other than the early technical stages of innovation", and recommend outside assistance from consultants and other sources as an area needing subsidization by government. However, much of their discussion tends to concentrate on the placing of technical people in innovative companies and commenting on the development of technical personnel in such firms. In this, they do state that there was "criticism by companies that recent technical Ph.D.'s lacked managerial ability and marketing experience". They suggested that such science and engineering students should take business courses during their program of study. However, most of their recommendations concentrate on research and development support rather than improvement of the management ability of these individuals.

Another study which dealt with the small to medium sized firm was the work of J. Robidoux and G. Garnier.¹² This study discussed the lag in research and development effects, whereby R & D effort today usually does not pay off until a year or more down the road. Often many small firms are no longer around by that stage, as they cannot afford to wait that long for such R&D payoff.

The report, however, is generally short on conclusions, and they suggest "improving the methods of management in these firms" without any specifics on how this should be done.

¹²"Factors of Success and Weakness Affecting Small and Medium Sized Manufacturing Businesses in Quebec - Particularly Those Businesses Using Advanced Production Techniques", Report 21, Technological Innovation Studies Program, Technology Branch, Department of Industry, Trade and Commerce, Ottawa, December 1973.

Other work in the area is that of M. Hecht and J. Siegel.¹³ In their work they state that the "main problem is managing human and capital resources" in these firms and that "Canadian firms were at a disadvantage compared to American-owned firms, especially in the area of management". They stated that it was necessary that help be provided to small and medium sized firms so that they could remain competitive with foreign-owned firms and that this help should be in terms of both management consulting and additional capital just as is provided by the SBA in the United States.

In his study, Hecht discusses the need for continuing education of management personnel in the area of financial assistance and sources of information. He really does not compare the educational backgrounds of the managers studied in terms of whether they were technically or general management oriented. He states, however, that the small firm was usually facing a problem of having less education and experience in its management and that attempts to extend their education were usually frustrated by problems of shortage of time and resources and awareness of the need for this education.

Stages of Corporate Development

Another useful framework which we shall need for discussion of our results is the business policy theory called the stages of corporate development. It is summarized in an article by our colleague, D.H. Thain.¹⁴

¹³"A Study of Manufacturing Firms in Canada: with Special Emphasis on Small and Medium Sized Firms" and "A Study of Manufacturing Firms in Canada with Emphasis on Education of Senior Officers, Types of Organization and Success", Hecht, 1975. Reports to the Technology Branch of the Department of Industry, Trade and Commerce, December 1973, March 1975

¹⁴"Stages of Corporate Development", The Business Quarterly, Winter 1969.

Essentially, the theory describes these stages which may be summarized as the one-man-show, the functionally organized and managed firm and the divisionalized firm.

The first stage is the case where one individual runs the firm completely on his own. Then there is a gradual development into the management team approach where, in the second stage, the firm is managed by a group which includes specialized functional managers in the areas of marketing, finance, personnel, etc. The third stage is the multi-divisional, decentralized management firm where each division operates relatively independently and each has its own management team. The divisions may be in entirely different areas of business although certain functions may be coordinated at the corporate level (eg. corporate finance).

The three stages obviously have grey areas between them and transitions are gradual rather than instantaneous. Not all firms ever move to stage three. Exhibits 1 to 3 illustrate further characteristics of the stages, but more complete details are contained in Thain's article.

CHAPTER THREE

Results of the Study

Detailed Data

A total of 53 companies completed the questionnaires and were visited for personal interviews. The tables referred to in this section will illustrate the size of the companies in the sample, their location, the types of companies, how and when they were founded, profitability, ownership status, the president's and management team's backgrounds, and a look at the past, present and suggested future type of management training. Other factors were also examined such as the use of consulting services, legislation desired and the role of government.

Size of Companies

Since small business, as mentioned earlier, is so difficult to define, we employed 3 different types of measurement to arrive at an estimate of size. Exhibit 4 indicates that if a sales cut-off point of 5 million dollars or less is used, then 60% of the companies visited were small. In terms of medium size (10 million dollars to 50 million dollars) 30% of the companies were in this category. The companies visited that had over 50 million dollars sales comprised only 10% of the sample. Exhibit 5 shows that 51% of the companies had under 100 employees. Those with 100 to 250 employees represented 32% of the sample, while the remaining 17% had more than 250 employees. By the measure of stages of corporate development, as defined earlier, Exhibit 6 indicates that 45% of our sample were stage I companies of the one-man-show type, 20% were between stage I and II, another 20% were firmly in stage II and the remaining 15% were stage II moving to stage III. One of the firms in the sample had achieved a full stage III status. Each size measure ties in fairly closely with the other. In our sample therefore approximately 55% were small businesses, roughly 35% were medium sized and the remaining 10% were fairly large.

Location

Exhibit 7 shows that the majority of companies visited were located in the province of Ontario (79%), with 8% in the Montreal area and the remaining 13% located in Edmonton and Calgary. This is perhaps understandable in that many firms studied were manufacturing firms which would normally locate either close to raw material sources or close to the markets they serve.

Age of Firm

From Exhibit 8 it is interesting to note that the climate for founding new companies was probably best in the early 1950's and in the late 1960's. Perhaps product development was more fertile in these particular periods, or else entrepreneurial people were more prevalent or the environment was more conducive to new firms during these periods. However, this is difficult to estimate. Further investigation would be needed to reveal what particular conditions made the business climate favourable at those times.

Types of Companies

A cross-section of companies was included in our sample, as indicated by Exhibits 9 and 10. Although a large percentage were in manufacturing of some type, service and design industries were also represented. Exhibit 10 indicates that 79% of the companies visited could be classified as technology based and 59% described themselves as technologically innovative.

Given that 59% of the companies had classified themselves as innovative, the researchers felt a closer look at this aspect was warranted. Using the definition of innovation given earlier, Exhibits 11 and 12 were compiled. Exhibit 11 indicates that only 20 companies out of the total 53 had themselves been responsible for innovations. That is, only about 38% of the companies were responsible for any innovation in terms of product or process. We estimated that 10 additional innovations came from outside the firms visited.

The tables also indicate that the larger firms were responsible for more innovations. It would seem that the smaller firms were less inclined or able to innovate. They usually obtained their ideas from other sources and utilized their time and money in the adaptive engineering mode.

A more precise explanation of innovation types is shown in Exhibit 12 which describes fundamental, functional and adaptive innovations. We reached the conclusion that the majority of innovations in the sample were adaptive in nature with no totally new products or processes having been generated. This result corresponds with the Litvak and Maule results mentioned earlier.

Sources of Funds

There was an interesting variation in the sources of funds used to finance the companies, as shown in Exhibit 13. In the early stages of growth, either the founder and his friends, or some small group of shareholders, usually provided the equity capital. After 2 to 3 years the banks normally came in rather heavily to provide the debt capital necessary for continued growth. In many cases, after the company had reached a stage II classification, some type of public financing was usually sought. More often it was a form of private placement to financial institutions or to other investor companies outside the corporation itself. Few companies in the sample actually went public. This is understandable, considering the size of the companies, and their after-tax profit level. These were not sufficient for the company to meet underwriter and stock exchange requirements. One half of the companies grew primarily by the common stock method and the other half used debt very heavily, as shown in Exhibit 14.

Ownership Status

Exhibits 15 and 16 indicate that the companies visited were usually in the hands of one owner or controlling shareholder, or a small group of shareholders. In the latter table, which is a cross-reference of ownership versus size of company, we are able to see that 53% of the total sample companies visited were in the small independently owned category, while 16% of the companies were in the medium sized independently owned category. It is also interesting to note from this table that 21% of all companies visited were subsidiary companies.

Profitability

Some indication of the companies' own estimates of their profitability is shown on Exhibit 17. Since, in a study of this type, it was impossible to examine the financial statements of the companies in the sample, the researchers were only able to take the companies' estimates of their profitability levels. It is interesting to note that 72% of the companies were considered moderately to very profitable. As noted in the table, the marginally profitable companies were usually sophisticated, high technology, service equipment type of companies. Those that reported themselves to be unprofitable were oil and gas companies, related primarily to exploration. On a further cross-reference between profitability and the stage of growth, the majority of the stage I companies were either moderately or marginally profitable. The majority of the companies that could be classified as moving from stage I to stage II were either moderately or very profitable and the same condition existed among those companies that were clearly defineable as stage II. All of the stage III companies were fairly evenly distributed among marginally, moderately and very profitable. Both the unprofitable companies were in the stage I of development.

Company Strengths and Weaknesses

As illustrated in Exhibit 18 each company that completed the questionnaire was asked to indicate their estimation of the strengths and weaknesses of the firm in terms of location, the management skills in each functional area, ability to raise capital, the market opportunities, government regulations, R & D and any other category they might choose to indicate. To clarify the percentage figures in the table, the reader should note that each percentage figure is related to the total number of companies studied (53) by personal interview. For example, in terms of location, 34 companies indicated this was a strength and they represented 64% of the total sample. These were located primarily in Southern Ontario, closer to their markets.

Research and development was seen as a strength in nearly every firm we visited (50 of 53). Except for the categories of raising capital and government regulations, most (55%+) of the companies in each category indicated that each factor was a strength. This would indicate that, in the area of self-assessment, the tendency was to recognize strengths and show considerable reluctance to recognize any weaknesses. The other interesting result is that a large percentage of the people in our sample, when pressed to recognize weaknesses, did indicate that marketing and finance were perhaps the greatest weaknesses in terms of management skills. In followup interviews, the researchers felt that more people would acknowledge weaknesses in the marketing, finance and personnel areas in person than were reflected as weaknesses in the original questionnaire, and this did indeed occur.

Size of Management Team

Exhibit 19 cross-references the size of the management team versus the size of the company. The majority of the small companies had group management or a management team. These small company management teams had a tendency to be very technical rather than general management oriented in their backgrounds.

It is quite understandable that as companies grow larger they tend to develop larger, more diversified management teams, and this becomes quite clear in the table.

President's and Management Backgrounds

Exhibits 20 to 22 contain the backgrounds of the presidents and the management teams. In many cases the president or management team acknowledged that they did indeed lack some management skills. Exhibit 20 examines the president's background, which is cross-referenced in Exhibit 21 with the size of the company. Almost 60% of the presidents or chief executive officers of the companies studied were technically oriented. The table also makes it quite clear that there were very few company presidents with the generalist background skills we considered essential for a high level of management expertise in these companies. To summarize this data, although the sample revealed a high incidence of college degree people at the top level, the types of degrees were often in technical studies and seldom in general management skills.

Exhibit 21 also indicates that a high percentage of the small and medium sized companies were being operated by engineering or technical people. As indicated before, marketing and financial people were definitely in the minority in the companies studied. The management team backgrounds are summarized in Exhibit 22. Again, a high percentage of the management had engineering or technical backgrounds, which suggests that, in the hiring of the management team, the owner/founder would often choose people of his own background. In fact, in several cases, the management group within corporations were often mirror images of the president himself. However, as indicated in the table, a low percentage of the presidents did attempt

to supplement their own background by hiring either financial or marketing people. This only occurred in a total of 28% of the cases.

The Use of Consulting Services

As is often the case in small to medium sized companies, and certainly in stage I companies, consulting services were usually sought from outside the company, as illustrated in Exhibit 23. At least 74% of the companies indicated that at one time or another they had used outside consulting services. It was often to provide skills not available within the company itself. In the majority of cases marketing, personnel and financial matters were the chief reasons for hiring outside help. In a few cases (6%), companies had hired people to assist them in looking for government help. A high percentage of the chief executive officers indicated during personal interviews that their company's size prevented them from sparing personnel to, firstly, examine the government programs available to them and secondly, complete the red tape necessary to qualify for government programs. In fact, it became obvious that in many cases the companies were not even aware of the assistance programs available from government sources.

Courses Taken and Suggested

The next few tables illustrate the courses currently being taken by the management team, the courses taken previously, and suggestions made for future course offerings by type. Exhibit 14 details courses that had been taken by the management team. In 40% of the cases, no management courses of any kind had been taken by the management team. The seminar-type courses were only slightly more popular in the past. Exhibit 15 illustrates the type of training programs that were being taken at the time of the survey. In a large number (70%) of the cases, no management training courses of any kind were being taken by the management team. In those

cases where they were being taken, the general business/night course type of program seemed to be in favour.

In the type of course suggested, Exhibit 26 indicates that the short management weekend course was most popular. Although 28% seemed to indicate that a two week course was useful, the majority of people indicated that it was impossible for them to take two weeks off to go on a management training course. Their feeling was that they were too busy with daily operations to spend that amount of time for such a purpose. Exhibit 27 shows that universities were favoured for offering the courses suggested over other sources. In only one case did the owners or managers indicate that the government should be involved in giving courses. The next highest percentage of respondents felt that professional and experienced managers should be employed to give these courses.

When asked whether the government should provide for funding of these courses, 66% of the companies said no, as shown in Exhibit 28. When pressed for an explanation the companies indicated that a tax incentive type of assistance program might be more useful.

Type of Legislation Desired

When asked the type of legislation the company might want from government, their responses resulted in Exhibit 29 where 53% indicated that very little legislation was required. When suggested at all, it was usually as a tax incentive rather than any form of grant or loan. In subsequent personal interviews, many presidents commented on the fact that the risk to return ratio on an investment in the small company was not favourable today. In 80% of the cases where any form of legislation was conceded to be helpful, it should take the form of some type of tax incentive rather than any gift or grant. Exhibits 30 and 31 show some of the suggestions made as to the legislation needed.

Advice to Starters

We asked the CEO's to offer advice to starters such as "If you were to do it all over again, what would you do?" Exhibit 32 is a summary of some of the comments that were made in answer to the questions in personal interviews. It is not surprising to note that, in the vast majority of cases, the need for people with specific skills was mentioned most often. Even though they had not acknowledged it before, the majority of company owners pushed the idea of surrounding oneself with people qualified in all functional areas, that is, people with generalist skills rather than technical.

Impressions and Implications

In visiting the 53 companies in the sample, the researchers spoke with many very interesting people. The respondents' opinions and feelings on varied subjects emerged during the interviews. We would like to record some impressions which, although they cannot be statistically documented, should nevertheless be mentioned.

Perhaps the most prevalent remarks from the entrepreneurs visited pertained to the high level of frustration felt towards the applications for and reporting to Government Assistance Programs. Many firms were not really aware of the various assistance and/or grant programs available to them. Once aware, the job of completing the necessary paperwork to apply was perceived as a monumental task. That in itself was a deterrent to seeking funds. If the paperwork could be reduced to one or two forms, it would be a decided improvement. They were also quite frustrated at the delays involved in seeking government assistance.

In several cases, the Chief Executive Officer felt the risk to return ratio in small business was too small, or the executive was too comfortable with the life style he had created to want to grow further. In these cases, the CEO was within 2 to 3 years of retirement, so that risking a possible

loss, thus reducing the value of the company stock, seemed unwise at that juncture.

The risk factor most often surfaced in the form of accountability. "Why work yourself to the bone if you cannot pass on a good base to your heirs in the end, without the government taking more than a pound of flesh?" They often felt that the company would be sold at a sacrifice price to pay succession duties.

In terms of strengths and weaknesses, it was interesting on one or two occasions to note that, although the questionnaire indicated marketing was a strength, the personal interview was liberally interspersed with remarks about the marketing problems the company was experiencing.

Although many companies were high in their praise of the government efforts to answer the plight of the smaller or medium sized business, the general feeling was that much of the effort was misplaced. Assistance money seemed readily available to develop products, but not available to assist in marketing those products and to determine by marketing research if there was a real market for the product or process. One impression we often received was that the companies were never aware that marketing a product could be a difficult problem requiring different skills. They felt that, if you produce a good product, it would sell itself. Marketing naivety was fairly widespread.

Most CEO's talked not in terms of grant assistance but more in terms of incentives requiring individual initiative. The free enterprise choice system was advocated. They want the choice as to whether they will take an incentive or decide against it. Accountability came in to the extent that no assistance should be given unless performance justified such assistance. Suggestions included the first stock issue being deductible,

the elimination of expense accounts and compensation by reducing corporate tax, a 10 year moratorium in capital gains tax after start-up, etc. In short, these are tax incentives as opposed to grants. In almost all cases, the owners declared unequivocally that they had started their companies on far too little capital. Many owners also indicated that they suffered from a dearth of managerial talent. They felt that good management would be more readily available to a company that offered stock ownership. And yet, many owners seemed obsessed with the idea of never giving up equity. They often did not agree that owning 30% of a vibrant growing enterprise was more desirable than owning almost 100% of a firm with marginal performance. They wanted to make all the decisions.

When asked "What happens if you are hit by a truck tomorrow?" many owners replied almost as if they had never considered that very possibility. Most felt that they could not be replaced by anyone presently in the firm. In the unlikely event of their demise, they felt the enterprise would probably go out of business within a short period of time. In one or two situations, successors were mentioned hesitatingly, as if it were a very tentative decision. Where they were designated, successors tended to be a mirror image of the owner. The implication is that very little if any thought was given to continuity of management in the firm, almost on the assumption that the owner was immortal. In most cases, it seemed it just never occurred to them to plan for such an eventuality.

There was very little planning in evidence. Most owners proved to be full time firefighters. If there ever was any free time, the CEO invariably went about looking for problems to solve. Very few firms had long term plans. If any understanding of planning and the setting of objectives was evident, it usually was summarized by the phrase "to make a good profit"

or "maximizing effort". But when pressed, managers could not explain these very well. Financial planning was usually considered the domain of their bank manager and what little he did was done with very little pro forma or future information from the firm. There seemed to be little understanding of the process, or any conviction that planning could eliminate many of the unpleasant surprises that precipitate the need for the firefighting type of decision making. A short course in how to plan would be very useful to most firms, although they don't usually see the need for such training.

Although the need for continuing education was recognized by many firms, most gave it low priority. They were so busy running the firm that they did not feel there was time for further education. Most often, CEO's acknowledge the need for either marketing or general management training of some type. Therefore, the type of training system offered should recognize the perceived time constraints of the managers.

Overall the level of management expertise was found to be high on the technical side but low on the general management side. The parochial views of the technically oriented entrepreneur were prevalent in most firms and very few generalists were in management positions. The approach to marketing was an engineer's view, because usually one of the engineer founders was designated to handle marketing.

Very little sense of marketing research on new products existed. No market research was done in advance of product development. Indeed, in one or two cases a product was developed only to discover there was very limited market or even no market at all. An example was a laser, with no industrial application for its use, until a potential customer suggested one.

People preferred to hire skills rather than acquire them. This may be a function of time or the feeling that the skills were needed sooner than

anyone within the firm could acquire them to a satisfactory level. Again, this may be the result of lack of planning of human resources. For example, one firm hired three new managers as marketing manager, treasurer and controller only after the Board of Directors insisted these skills were needed.

Some general observations on the people visited would be both complimentary and critical. Most owners were dedicated in their pursuit of a goal and quite convinced they were "doing the right thing", for them. They were often not certain of their personal goals, but this probably was due to the fact that they have never put them to paper. Although advocates of planning, they were often not practitioners and the most hard-nosed entrepreneurs often indicated the hardest part of their job was to lay anybody off. The reluctance to concede weaknesses in functional areas often seemed to be a "burying the head in the sand" type of action. For example, several managers admitted the need for additional skills in marketing and finance, but had made no attempt to acquire these skills themselves or to hire people with such skills. Above all, everyone was a strong advocate of free enterprise, even to the point of suggesting they wanted a free choice as to whether they would accept or reject any government incentive programs. They wanted the 'back door' approach to government help, namely, a tax incentive system based on performance.

Our overall impression can be summarized by the feeling that many of these firms have a great future, if the general management skill level can be raised.

CHAPTER FOUR

Conclusions and Recommendations

Level of Management Expertise

The primary conclusion of this research study is that the managers in our sample of firms were well educated and experienced in areas of technical management skills, but poorly educated and experienced in areas of general management skills. As evidenced by their backgrounds, they were reasonably well equipped in technical training, but not in general management training or experience. This result is similar to results of other studies of technical firms in the United States and by researchers such as Litvak and Maule in this country. It is different from the results of studies of small businesses in general, which show entrepreneurs to be relatively poorly educated, except in more technically oriented companies. The management skills which were lacking were primarily in the marketing and financial areas, both in our estimation and in that of our sample of managers. However, in many cases, this lack of general management expertise was not observed by the managers themselves. But, even in these cases, they admitted that most of their problems were in the marketing of their product line and in the financing of their company.

Another obvious conclusion is that the firms in our sample were not very innovative in general, but tended to adapt ideas and products from outside the firm. These outside sources included other firms from which the small businesses had been spun off, the National Research Council and other government branches involved in research, and ideas from outside Canada. In most cases, the firms in our study relied on one product or a very narrow product line or process. This was part of their problem, since they had little or no diversification.

They also had done very little market research, either before or

after the development of their product line, to really establish what the market was for their particular product. This result also agrees with much of the research done previously by other researchers such as Little and Litvak and Maule.

Obtaining Additional Skills

When questioned about their general management ability and their interest in obtaining additional skills, most of the managers in our study claimed they did not have the time or the resources to attend management courses. They preferred to hire additional skills outside the firm, either as consultants or as full time management assistants. The consultants' help and management assistance was usually general management oriented rather than technical. In fact, they rarely hired technical skills from outside the company after the original company formation, which was usually by a group of technically oriented people. Government assistance programs had been used by 80% of the firms in our study, but were usually programs which were aimed at technical assistance, such as PAIT. Now part of the Enterprise Development Program, PAIT has added the requirement that marketing research be conducted as one of the conditions for that grant. We conclude that this is a step in the right direction for such programs. The managers interviewed felt that government assistance should be oriented more towards the commercialization phase of the innovative process rather than research and development, and cited examples such as the marketing research requirement in PAIT. They complimented especially the CASE program (Counselling Assistance for Small Enterprises), which they found very useful since it used experienced managers who had been through many of the problems in their own businesses. They also complimented government efforts which assisted small firms to cultivate export markets through the formation of consortia, trade missions, etc.

However, they felt that government programs in general did little to assist small businesses, but were oriented primarily towards larger businesses. They felt overwhelmingly that government assistance should be provided more in terms of incentives to the private sector, such as tax incentives, rather than through grant and loan programs. They felt this method would permit management of small firms to take advantage of the incentives directly, rather than having to go through a long, arduous process when negotiating with the government.

None of the firms in our sample had used the Small Business Assistance Program sponsored by the Ontario government. However, evidence gathered from firms which had experienced it reinforce our conclusions. These firms claimed the SBAP was an invaluable source of relatively cheap outside consulting and should be extended to all small businesses in Canada.

Source of Management

Managers in the firms we interviewed had typically been involved in the original formulation of the firm and were almost all of a similar technical background. In many cases, these technical people had become the marketing and financial managers of the companies, despite the fact that they had little or no training or experience in these areas. It was obvious that they tended to spend more of their time oriented towards the technical side of the business, rather than worrying about the marketing and financial details, since that was the area of their specialization. In those companies where we had found a marketing oriented manager involved in the original formation of the business, we found the firms were much more oriented towards their eventual market than in firms where only technical skills were present at formation. We found many examples of managers being hired from outside, but because of the difference in their orientation, namely towards

general management, they experienced many difficulties with the technically oriented managers already in the firm and in many cases did not stay in the firm. We suspect that this was usually because the existing technically oriented management tried to impose their versions of marketing and financial management on the managers hired from outside. Reasons given for their departure were usually that they could not interact with the other managers in the firm. Most of the firms we studied did not have any financial or accounting management within the firm, but hired bookkeeping or elementary accounting assistance from outside.

When asked about hiring management from outside, many of the small business managers stated that they had difficulty competing with large firms for management talent, even if they recognized the need for these general management skills. When asked about the possibility of sharing equity in hiring new management, the entrepreneurs were rather negative toward the idea, since they did not favour the notion of relinquishing any equity control.

As the firms in our sample progressed from small to larger, it was evident that the larger firm was much more likely to possess a well-rounded management team of the type described in stage II of the corporate development model. It was usually much more successful in the commercial phase due to this functional management team. However, even the management of firms which were divisionalized (stage II to stage III of the corporate model), indicated that their primary problems were finding or developing good management for their divisions, particularly in the marketing area. It was our overall conclusion therefore, that the problem of developing capable general management skills within these technical firms was the dominant problem facing all of them.

Communication Between Functions

Only a few of these firms were large enough to have a formal research and development group or marketing group as such. Therefore we found few of the communication problems evident in many large firms between groups with these two specialities. The management of the firms which we interviewed tended to have a similar technical background and found communication with one another on technical ideas very easy and efficient. When management was hired whose skills were in the general management areas, such as marketing, however, the story soon changed. These individuals tended to have difficulty communicating with the technical individuals in the firm and this may have been the reason why many of them stayed for only a short time. In one case, a new corporate investor had insisted that additional general management skills should be hired. Three new members of the management team left the firm after only three months because of conflicts with the owner over decisions in their area of specialization.

The problem was usually to convince the technically oriented management of the firm that they really needed additional general management skills to be able to prepare complete, detailed marketing and financial plans. These plans were required to serve the market and to raise funds for the continuation of their business. It is difficult to measure the cost of this lack of general management expertise, but it undoubtedly meant at least delays in the growth of the firm and, in many cases, failure. As stated earlier, the firms in our sample can be judged as successful, if only in the fact that they had survived to the date of our survey. Most of the firms with severe problems in this area had already failed. In those cases where general management skills were admitted by the respondents to be lacking in their

firm, they admitted that it had slowed their growth and, in several cases, brought them to the brink of failure.

When questioned about expansion activities, the management of 23 firms stated that their expansion was almost completely outside of Canada, chiefly in the United States, because of the unfavourable business climate which they perceived in Canada. They stated that if the present Canadian economic climate continued, they foresaw the distinct possibility that their operations would gradually move completely to the U.S. These tended to be the firms which were growing and expanding and which had the more well-rounded management terms.

Small Business Financing

When questioned about the source of financing for their businesses, the entrepreneurs replied that the majority of the early financing came from individuals and small groups of people, chiefly in equity form. They said that much of this source had dried up recently because of government legislation to encourage individual savings in other forms, such as pension plans. They stated that the tax incentives to individuals to put money into pension and home ownership plans drew much of the funding away from small business. They felt this tax incentive was unfair unless a similar tax incentive was given to individuals to invest in small business.

Most of the managers stated that without their bank they would be completely unable to operate. The banks tend to operate in the venture capital area, whether by accident or design. However, their loans are usually operating loans secured by inventory and accounts receivable and usually do not involve the amounts invested by venture capital companies. We found that a few of the companies studied had investments in them by venture capital companies and these proved to be the firms in our sample

with the most complete management teams. This probably resulted from insistence by the venture capitalists, as previous research shows that they require a complete management team in the firm before they will invest.

The managers stated that the FBDB and other government lending agencies were usually of even less assistance in providing funds to them than the banks, since they tend to operate with terms very similar to that of the bank and often required more security than the banks did. Overall, the managers felt that they did not want 'handouts' from government as assistance to their business but rather wanted tax incentives which would let them determine the directions in which they moved to gain this indirect government assistance.

Government as a Customer

Many times during our study the subject was raised that the various levels of government do not often act as a customer of small Canadian firms. The Department of Supply and Services was criticized for favouring large firms in Canada and even foreign-owned firms as potential suppliers of their various needs. The suggestion was often made that the government should foster Canadian business by being a better customer to small businesses in Canada and by encouraging small businesses to be suppliers of government needs in general.

This conclusion also applied to large businesses in general, which could do much more to be better customers and suppliers of small firms.

However, most of the small businessmen interviewed stated that they did not want any additional help or interference from government or from large businesses. They really wanted to be free to go their own way and not be bothered by masses of government forms and by continual interference in their business by outside sources. They felt that the government should

should primarily try to provide a free enterprise climate, so that businesses such as theirs could operate as completely independently as possible and make their own decisions regarding the areas in which they would operate. They often stated that government had done more to discourage the formation of new business ventures in Canada than to encourage it. They believed that much of the existing government legislation favoured large businesses and fostered the decline of small businesses. Such legislation included a capital gains tax, succession duties and incentives for investment in sectors other than small business.

These conclusions are summarized as follows:

1. Managers in our sample of firms are well educated and experienced in areas of technical management skills, but poorly educated and experienced in areas of general management skills.
2. Firms in our sample are not very innovative, but tend to adapt ideas from outside the firm.
3. The managerial skills lacking in our sample of firms were primarily financial and marketing, both in our estimation and that of our sample of managers.
4. The primary problems raised by the managers of the firms studied were general management oriented (eg. financing and market assessment), rather than technical (R & D). Where there were technical problems raised, they tended to be production oriented, such as producing a product in quantity compared to a single unit in a laboratory.
5. Managers claimed they did not have the time or resources to attend management courses.

6. They preferred to hire additional skills outside the firm, either as consultants or full time.
7. Consulting help was usually general management oriented, rather than technical.
8. Although most of our sample were technologically based, only half considered themselves technologically innovative. Few had more than one innovation.
9. Government assistance had been used by 80% of the firms, but it was usually technical assistance, such as the PAIT program.
10. Managers felt government assistance should be more oriented to commercialization rather than R & D, such as the marketing research modification of PAIT.
11. Managers felt that government should provide incentives to the private sector in the form of tax incentives, rather than as grants or loans.
12. Managers complimented the CASE program (Counselling Assistance for Small Enterprises) as very useful as it used experienced managers (not academics or civil servants) as consultants.
13. Managers complimented government efforts to assist firms to cultivate export markets.
14. Technical firms in Canada tend to ignore the marketing research phase of technological innovation.
15. The marketing managers were often converted R & D personnel from inside the firm with little training or experience in the marketing area.
16. Financial management usually came from outside the firm except for a bookkeeper or elementary accounting assistance.

17. Our sample of firms did not routinely evaluate new product opportunities or projects and thus rarely had a formal procedure for evaluating them.
18. The management of these firms usually were more oriented to the technology of the product rather than market need for the product.
19. The larger the firm, the more likely it was to possess a well-rounded management team and the more successful it was in the commercial phase.
20. Even firms which were divisionalized (Stage II - III) expressed their primary problems as finding or developing good management (eg. marketing) for their divisions.
21. Few of these firms were large enough to have a formal R & D 'group' or marketing 'group' as such.
22. The cost of the lack of general management skills is difficult to evaluate, but it means delays in the growth of the firm and in many cases failure to survive.
23. Small business managers claim they cannot compete with large firms for management talent on a competitive salary basis or in terms of utilization (eg. of a full-time marketing manager).
24. The expansion activities of these firms are centered outside Canada, chiefly in the United States, because of the unfavourable business climate which they perceive in Canada.

Recommendations

The following is a general discussion of recommendations in various areas and these shall be summarized at the end of this section.

Management

It was obvious that small firms, as evidenced by our sample, lacked general management skills. It is therefore recommended that encouragement

should be given to small firms to hire management experienced in general management areas, such as marketing and finance. This should be done through the use of tax incentives to permit small businesses to hire better trained managers. One recent move in that direction was the proposed tax improvements on stock options in the recent federal budget of April 1977. The various levels of government should provide incentives to the private sector to improve their general management skills through management training courses and also through incentives to hire such management skills from outside the firm. These incentives provided by government should be such that the decision making power is in the hands of the firms themselves and they automatically receive the incentive if they take the appropriate action. An example would be a tax incentive to hire outside management help and even a tax break on salaries of new executives hired from outside the firm.

Another possibility would be the creation of registries or clearing houses of management talent by government and associations such as the Canadian Federation of Independent Business (CFIB). These groups would also help to provide part-time management assistance when regular management is away on training courses, export market investigations, etc. This program would facilitate the release of management to take advantage of new opportunities, and could be operated similarly to the CASE program.

Government incentives for small business to add management could include permitting tax-free stock options to executives joining small firms as well as management help to perform marketing research studies. The latter would indicate the need for full time marketing research skills in the firm.

These government services should be coordinated through one agency such as the Federal Business Development Bank (FBDB). It could act as a clearing house for ideas, programs and small business initiatives in general.

We also feel that the government should encourage the formation of various joint ventures or consortia of small businesses for various purposes. These are primarily beneficial where economies of scale or skill are present such as generating export sales, joint marketing efforts between two or more firms, the possible joint financing of firms and joint R & D. Some experience has now been obtained in use of consortia in the province of Quebec and we shall investigate consortia as one future research effort.

Government agencies and the CFIB should study various industries to determine when the opportunity for such consortia exist and encourage businesses to take advantage of consortia, where advisable. Associations such as the CFIB could act as an intermediary in the formation of such groups, and assist the flow of ideas for consortia between government and small business.

Business schools, engineering schools and science programs should be encouraged to provide courses on starting and operating a small independent business with a minimum requirement that each technical student at least has a project on operating his own business during his technical program. It is to the various schools that we attribute the blame for the fact that their students generally know little or nothing about forming or operating their own companies upon graduation from these schools. If we are to encourage entrepreneurship in Canada, it must begin in all of the education systems, which must encourage the formation of new business ventures. This encouragement should also come from government, which should sponsor programs at these schools in this area of new enterprise formation.

The establishment of small business centers (similar to the international business centers of DITC) at selected universities could assist in the creation of courses and programs for small business. These centers could assist the development of such programs in business, engineering and science programs.

Government Assistance Programs

It is the conclusion and recommendation of the report that government assistance should be aimed more at management assistance than at financial assistance. The government should concentrate on providing various incentives to obtain outside management help and should direct its existing programs in this area. We feel that agencies such as the FBDB should concentrate on providing market data on many small firms and products and should assist small firms in marketing research studies. Government agencies are in a much better position to gather this type of information and to assist in the marketing research phase than any other source, and indeed in a better position than the small firms themselves.

These agencies could also approach large businesses and various government departments to ascertain which products and services they currently import could readily be provided by small businesses. This would complement the Federal Department of Supply and Services, for example. Small businesses could also list their product lines with such a clearing house.

The government should provide legislation which gives incentive to the private sector to make investments in small Canadian firms. This should include legislation in the Registered Retirement Savings Plan area which would permit RRSP investment in small firms. We do not suggest providing a tax deduction additional to that existing in the current legislation, but to provide the option to those individuals who wish to do so to make their RRSP investments in small business. Other government legislation should be aimed at returning control of

the investment decisions to the private sector and giving incentive to private enterprise to foster the development of small businesses through the diversion of funds. This includes tax incentives to large companies to create corporate spinoffs and to assist small businesses with which they are associated as customers and suppliers through the provision of financial assistance to them.

Various levels of government should also foster Canadian small businesses by acting as customers of those small businesses, whenever possible. This suggestion has been made by many other observers of the small business scene in Canada as well as these researchers, but the government has made very little effort in this direction thus far.

The government should also continue to increase the CASE type of assistance to small businesses by using experienced ex-managers as consultants. This type of assistance was well received by small businesses, since the consultants were ex-managers who had faced similar problems in the operation of their own businesses.

Large Business Efforts

Large businesses in the private sector need to be more oriented towards the creation of small firms as both customers and suppliers and should do so by encouraging corporate spinoffs in product areas where these firms choose not to participate themselves. They should also encourage the formation and continuation of small firms as distributors of their various products, since much of the wholesale and retail sector in Canada, and distribution firms in general, tend to be small firms. The government will probably have to provide incentives to entice these large firms to take such action. In addition large businesses can encourage their more entrepreneurial employees to start up spinoff businesses of their own, possibly with funding from the firm. This will help to increase the diversification activities of large businesses

in general, as well as channelling entrepreneurial activities present within the firm into creative small businesses. Currently many entrepreneurial individuals within large businesses become frustrated and leave their firms, much to the disadvantage of both the business and the individual. If these individuals could be kept within the umbrella of the large business, it could channel their activity to mutually beneficial enterprises.

Small Businessmen Themselves

Small businessmen need to help themselves by grouping together to solve common problems. This includes the formation of business consortia to face common problems, such as export development and the creation of new product lines to serve new markets. They should also group together into industrial and other associations to solve common problems, such as government legislation, lack of management skills and problems which they cannot handle as individual small firms. The collective power of the small businesses is illustrated by the recent growth of the CFIB which acts as a lobby to government for the small business cause.

Entrepreneurs, or small businessmen themselves, need to become more willing to share the ownership of their firms. They seem to have a phobia about relinquishing any control of their firms through ownership of stock in their companies. This prevents them from growing in many cases, since small firms must grow through added equity funding to some degree. This would also permit them to offer some ownership in their firms to additional management hired from outside through the use of stock options etc. Governments may need to provide incentives such as tax legislation to give entrepreneurs sufficient incentive to share the ownership of their firms with their management teams. This would be a step in the direction of broadening the general management team and ensuring the survival of more of these small firms.

Continuation of the Small Firm

Federal legislation should also foster the continued growth of small firms rather than their forced selling out to settle succession duties and death taxes and to pay capital gains tax when a small firm or part of it changes hands. The legislation could be set up so that succession duties were not due until the shares in the firm actually were sold from one individual to another, or until the whole firm was actually sold as an entity. Current government legislation tends to force the conversion of the firm into a division of a large business through an acquisition, since large businesses are usually the only potential customers for the closely held small firm. Indeed, this is one of the real problems in the small business sector in Canada. The fact that there are very few potential buyers for a small business with its lack of liquidity is often a disincentive to individuals to start up their own firm. Since there is relatively little possibility of going public in today's stock market, the only alternative left is to sell out to a large firm. The government should therefore consider legislation to encourage the continuation of small businesses in the hands of individuals by legislation which would permit small firms to change hands without excessive tax penalties for doing so.

In general, we feel that government legislation should foster the formation and continuation of new business ventures rather than concentrating on corporate power and ownership at the large firm end of the scale, as it has recently done. Much of the effort spent studying these large firms would be better oriented towards recommending incentives to encourage small firms to succeed and grow.

These recommendations are summarized as follows:

RECOMMENDATIONS/IMPLEMENTATIONS

1. Small firms should be encouraged to hire managers experienced in marketing, finance, or general management through government incentive programs. It might be achieved using tax incentives.
 - a. Establish a small business executive reserve group as a bank of people on which small business could draw for temporary or permanent help in the fields of general management, especially marketing and finance. This might be done through the offices of FBDB or through the regular CASE program.
 - b. Another possibility for encouraging the hiring of management would be government publications and consulting, such as the CASE program, which stress the need for management expertise in the small company. References could be provided to show where such management expertise can be hired, even on a short-term basis. For example, the Province of Nova Scotia has recently developed a program which subsidizes the hiring of business school graduates by small firms in that province. This is really a management development grant to be used for the hiring of professional management.
 - c. Should a small company receive government help through an assistance program (eg. Enterprise Development Program) to commercialize a new product, conditions with reference to management expertise should be built into the agreement. For example, a marketing oriented person would have to be employed as a condition of receiving government funds and the loan could be increased to cover two years' salary for such personnel under the same loan conditions.
 - d. An example of an incentive to encourage the employers to hire managers is the modification proposed in the budget of May 1977

regarding stock options offered to management. However, these proposed changes in taxation of stock options apply equally to both large and small firms and do not help small firms to attract qualified managers from, for instance, large firms. It would be preferable if the small firms had a more favourable tax break on the provision of stock options to their management teams in order to give an incentive to managers to work for smaller firms. One possibility would be a total write-off of any investment in stock by a manager in his own firm at the time investments were made.

2. Governments should provide incentives to the private sector to improve their general management skills through management training courses.
 - a. Allow 25% or 50% additional write-off for management skill courses taken by top level management people. These should be courses approved by government manpower development people and proof of successful completion must be submitted (ie. diplomas from courses similar to those now offered by FBDB and CASE).
 - b. Courses should be given in management education centres that may or may not be on university campuses, but could be affiliated with approved university business schools. An example of this is the new Spencer Hall Centre which is a joint venture of the Bank of Nova Scotia and Western Business School. Such centres should be staffed by a combination of experienced executives and professors with business and teaching experience.
 - c. Another incentive would be to provide training courses to which the small businessman may have easy access, by making such courses available to him at very low cost during evenings and weekends so that this does not require much time away from his business.

- d. Where time away from the business is required, 'care taker' executives could be provided from a CASE-type program to assist in the operation of the firm while the top man is on a course. This could be done where appropriate experience and maturity of the CASE people could be matched to the firm. It answers the main objections of small company managers: "I can't leave here for two weeks for a course. Who would mind the store?"
 - e. Another idea is the possibility of clearing houses or development centres where a small businessman could go to get information or advice on how to prepare a business plan, develop a marketing plan, and so on. A vehicle for the provision of consulting programs could be the Small Business Consultants Assistance Program which is sponsored by the Province of Ontario, The Ministry of Industry and Tourism, or small business centers similar to those in the United States.
3. Any incentives provided to the small businessman should be such that the decision making power would be in the hands of the firms involved and they would automatically receive the incentive if they took the appropriate action. This would usually mean tax incentives whereby they received the relief in the form of optional tax breaks, if they behaved as required by the legislation. Most of the small firms we interviewed were adamant that they were against government 'give-away programs' and much preferred to have various incentives which gave them the option and awarded them immediately through tax provisions if they took advantage of the incentive.
 4. Governments should encourage the formation of consortia or joint ventures of small businesses for various purposes, where economies of scale or economies of skills exist. Examples of this would be:

- a. The joint exploration of export markets, joint venture marketing efforts, and joint financing of R & D could be done in areas where two or more companies had mutual development interests. This might lead to the formation of small trading companies/marketing agencies along the Japanese model. Governments could encourage this through publicizing circumstances where they are beneficial and by direct contact with obvious trading partners. This could also extend to providing a meeting ground in several larger centers which would facilitate the initial meeting of consortium members.
 - b. This would also involve such action and recommendations as encouraging the use of manufacturer's agents where skills present in the company are more on the technical side than the marketing side. Many small firms even now would do well to heed the advice of leaving the marketing of their products to some other more qualified firm.
 - c. Another method would be the setting up of a 'clearing house' through FBDB, for example, to list people seeking association or those who should have some association, as mentioned above.
5. Small business centres should be established at designated universities with government funding provided by the Small Business Secretariat of the Department of Industry, Trade and Commerce. These funds would be specifically for the encouragement of small business and for the development of courses and course materials. It could even extend to the use of these funds for providing qualified staff for courses. These centres should encourage business schools, engineering schools, and science programs to provide courses on starting and operating a small independent business. The contents would include exposure to all functional areas and overall policy. The minimum requirements

should be a project on preparing a business plan which students should take as far as possible towards implementation. Governments could provide leads to documenting case situations which have used government grants and loans in order to provide material for such programs. (Courses along these lines are already in place at Western, York and Ryerson Polytechnical). The small business centre with its designated staff could also be the vehicle for providing courses for small businessmen, consortia formation assistance, and the Small Business Consulting Services, all in close cooperation with the present FBDB and CASE efforts.

6. Governments should provide legislation to permit RRSP investment by individuals in small firms. One way to do this would be to permit investments in venture capital companies to be tax deductible in the same sense as current RRSP investments are. Another alternative would be to permit such deductions for direct investment in small Canadian operating businesses. We realize that control of such investments might be a problem but if the limit on RRSP investment remained as it is today and the option is given to individuals of investing their money in small firms, a small percentage of these individuals will undoubtedly exercise this option. Such investment could well overwhelm by a significant degree the total amount of available funds for small businesses in Canada today.
7. Government agencies such as FBDB, ODC etc. should cooperate in the gathering of market data on or for many small firms and products and assist small firms in conducting marketing research studies. This could be done by funding research into problems of small business, the feasibility of joint marketing research through such programs as CASE, and the compilation of statistics regarding small firms and markets, etc. The funding of research projects should be available at the university, community college and private consultant levels. This could take the form of circulated

project lists in response to small firm requests so that qualified parties might apply. Accountability could be accomplished by the appointment of monitoring teams comprised of interested and qualified parties to meet at certain project stages. Another alternative would be the clearing house idea suggested above, whereby all of this information could be gathered systematically in one central location for a region and local entrepreneurs, small businessmen, financial sector representatives, such as Venture Capitalists, and managers interested in positions in smaller firms could interact to the benefit of all concerned.

8. Governments should foster large Canadian businesses and government as customers of small businesses. This could be done by the federal government leading the way and purchasing many of its requirements from small businesses in Canada. Even something as simple as a common desk stapler is not currently produced in Canada but could be if the government would buy its staplers from a small Canadian firm producing them, provided that product quality and price were acceptable. However, recent action of all levels of government is more oriented towards the cheapest price even if it means buying imports. The same is true of many large firms in Canada which would purchase many of their supplies from Canadian sources, if these sources of supply were available. Governments could also assist by publishing lists of products available, suppliers of such products and customer needs. It could use programs like the FBDB and CASE to promote the use of such products and to help in doing the industrial and consumer marketing research necessary in such a program.
9. Governments should continue to increase the CASE type of business assistance with experienced executives as consultants. They should also encourage programs such as the Small Business Consulting Programs sponsored by the

Ontario Provincial Government. at many business schools across Ontario. These could be extended to other parts of Canada. The experience of over five hundred companies being assisted by the SBAP program at The University of Western Ontario illustrates that even simple managerial skills are not present in many of these firms. The provision of very simple management assistance would often help these small firms to survive and grow.

10. Large businesses should foster and support small firms as both customers and suppliers and even encourage corporate spin-offs in product areas which these firms choose not to pursue themselves. We did find many illustrations of this where large firms encouraged employees and outsiders to develop small businesses in areas where spin-offs from the company's main line of business could be done in that manner. Examples are distributorships from many of the large manufacturing firms in Canada and manufacturer's agents for a variety of products, one or two of which may be the parent company's products. Several others in the line could be products from other companies. A vehicle for doing much of this might be the compiling of lists and display of products that government and business would like manufactured for them by smaller firms with some technical expertise. The FBDB could sponsor periodic shows in connection with their present familiarization programs by area. Loan assistance could then be given to companies willing to take on ideas as projects.
11. Small business should help themselves by grouping together to solve common problems such as government legislation, export markets and lack of management skills. Associations could encourage the formation of consortia or joint ventures while also acting as a clearing house for publicizing lists of suppliers and customers. The only illustration

yet available of this practice is the Canadian Federation of Independent Business, which tends to be rather large and unwieldy when it comes to representing the interest of small segments of the membership. The catalysts for the formation of consortia and associations could be the small business centres, established in several areas of Canada, as suggested in Recommendation #5.

12. Entrepreneurs or small businessmen need to become more willing to share the ownership of their firm with their management teams through stock options, etc. This would assist the attraction of competent management. Legislation regarding the stock option was mentioned earlier, while a much larger scale educational program needs to be undertaken through the FBDB and CASE to encourage the small businessman to share the ownership in the firm with this management team. Convincing them that owning a smaller part of a large pie is preferable to all of a small pie is often a very difficult task. Some responsibility for this must also be shared by universities and community colleges since most entrepreneurs are very unwilling to share ownership in their firms. One additional way of doing this might be with the RRSP arrangement mentioned above whereby a wide variety of investors may put money into a small firm so that there would be no danger of losing control for the entrepreneur. Such silent partner investors are usually not interested in getting involved in the day-to-day running of the company.
13. Government legislation should foster the continued growth of small firms with the deferment of succession duties and death taxes on shares in small closely held firms until those shares are actually sold. Further education in the use of trusts and other arrangements for passing companies on from father to son are also required. Among all the firms we visited

and among the majority of the 500 small firms which have been serviced under the SBAP program at Western, this particular complaint was foremost in the owner's mind. The time and money spent in an effort to pass on a small business within the family under today's legislation acts as a very real disincentive. Indeed the omission of succession duties and death taxes should be considered for small businesses being passed on from one generation of a family to another in the same way as it is now omitted for the family farm. We encountered many examples of small firms that had to be sold to settle the succession duties. The entrepreneur going into business for himself often looks at this problem down the road and his attitude is "Is it really worthwhile if I can't pass it on to my heirs?" Legislation should foster the continued growth of small firms until those shares are actually sold. In other words, it would be much like the capital gains tax now except that the transaction could not be taxed when the shares were passed on through an inheritance but could only be taxed once they were sold.

14. Government legislation should foster the formation of new business ventures rather than concentrating on corporate power and ownership at the large firm end of the scale. We felt, as did many of the small business managers interviewed, that government spent much of its time concentrating on the large end of the spectrum, ignoring small businesses. For instance, the present equipment rapid write-off system favours large firms, which are usually capital intensive, versus smaller firms, which are usually labour intensive. If equipment is not involved, then special concessions should be given with respect to the reinvestment of any profits in the early years of a company's life. Another way to counteract this attitude at the moment might be to encourage government agencies and programs to sponsor

the study and dissemination of information about the small business sector in Canada, far more than they have in the past. The creation of small business centres as suggested in Recommendation #5, the extension of the CASE program, and the adoption of the clearing concept could together contribute a great deal to a creation and fostering of small businesses in Canada.

Guidelines for the Small Businessman

The primary guideline which we would offer to businessmen in technology-oriented firms and in small businesses in general is that they should make an effort to form a well-rounded management team in their firm. This means that they should attempt to add managers to the firm who have skills in general management areas such as marketing and finance, as well as the technical skills which are usually present. In addition, the provision of more managers with varied skills would facilitate the continuation of the business should anything happen to the entrepreneur himself. It will also provide more funding, since most of the managers will be involved as equity shareholders as well. This advice, to get one or more partners when forming a small business, is advice that we give to our students in our business courses and which is an important message for all small businessmen.

For those small businessmen already operating an existing business, we encourage them to look at their strengths and weaknesses in terms of management abilities and to make an effort to complement these with any skills they find lacking. We suggest that these skills will likely be in the marketing and financial areas in particular, as evidenced by the firms in our sample and by previous research in the area.

The lack of even simple planning by the managers we interviewed was obvious. We recommend to the small businessman that he should attempt to

develop a plan for the next 1 to 3 years which identifies targets, milestones and required resources. A searching evaluation of each past year and a new plan for the coming year is the very least that should be undertaken.

In estimating fund requirements, flexibility is mandatory. Most new capital will be raised through a negotiation process and the necessity of evaluating what might happen if things don't go as well as planned cannot be overstated. One manager suggested one should always "underestimate your sales and over-estimate your expenses" to give a comfortable margin in negotiations.

This planning must include additions to the management team and the plan for continuing the company should the manager be incapacitated by illness or die unexpectedly. He must learn to delegate authority and responsibility, since his business will eventually grow to the point where he cannot handle everything himself. Routine planning will help the manager to plan for this sharing of the management load and allow him time to plan policy for the future.

Another guideline which we would provide to small businessmen is that they should make much more effort to determine the market for their particular product, process or service before they devote a tremendous amount of money to perfecting the technical aspects of that product. We found many instances of companies where the technical development had led the company to develop a particular product or process, only to discover there was no significant market for it. We feel that even a minimal effort at early market research for especially the high technology products would be funds well invested. This would help prevent the product failures which so often cause business failures in firms of the size discussed in this study. Indeed, the moral to be learned from our survey is that a complete business plan should be prepared long before large amounts of funds are pumped into the technical development of the products being developed by firms such as those in our survey. We conclude that this complete lack of

planning exhibited by most of the businesses we interviewed was the major cause for the large proportion of business failures in Canada in both high technology firms and in small businesses in general. This planning would be enhanced considerably by the provision of additional management skills, as suggested above.

A further guideline to small businessmen is that they should consider forming a partnership with another firm which has a similar product line to cooperate in a sort of joint venture to market their products. The fact that many of our firms claim they could not afford a full-time marketing manager is evidence that the possibility exists for sharing management skills across one or more small firms, even though these firms may be operating fairly independently from the production and development point of view. This could be done by the formation of a third entity which would be a marketing and distribution company only, but which would market and distribute the products of both small firms. This arrangement might also be made for a consortium of small firms across the country rather than for only a few in a given area. One national marketing agency could probably better serve the needs of many firms across Canada, than the duplication of the same marketing services in each firm. Even if this seemed infeasible for the domestic market, it might very well serve for the U.S. and other foreign markets.

Small firms could also, through consortia arrangements of this type, be in a position to raise funding much more efficiently, since they would then be looking for a collective amount of money which would interest large institutions and venture capital companies. The diversification inherent in investing in a consortium of small firms would probably also interest the lending institutions, since the risk, should any one firm fail, is considerably lessened. This is probably difficult to do, since most of these small firms

probably visualize themselves as competitors to one another. But, we are talking mainly of firms which do not compete directly and which have product lines that are related rather than exactly duplicated.

Another guideline for small businessmen is that they consider the sharing of management skills across firms where the skills present in one firm are those needed by another and where trade-offs of management time and effort can be made to the mutual benefit of two or more firms. This could also be enhanced by the formation of the consortia described above.

We also suggest to small businessmen that they attempt to interest large businesses with which they deal, whether as suppliers or customers, in the possibility of playing a role in the formation of these consortia. An example would be a large business that is a supplier of a number of small distribution firms. This firm could easily provide the role of encouraging the formation of the consortium and indeed of presenting the opportunity to its employees to buy into some of the small businesses when the existing management either sold out or reached retirement age. This would encourage the continued development of a good distribution network for the large firm and the continued development of excellent management within the small firms, especially if it sponsored the funding of its own employees to acquire these firms. We have seen examples of exactly this phenomenon at work and intend to study it further in future research. Another example would be a large firm which did not have a readily available network of suppliers to which it could subcontract various materials which it needs, especially the secondary manufacturing of small parts and equipment. The firm could encourage employees to spin off small manufacturing and fabricating firms which act as suppliers to the large firm. Indeed, it could act as a source of funds for these employees to get into their own business and to create a reliable source of supply for the large firm. This does not mean

that the large firm would have to act as the only customer for these small businesses, but would play a central role in the formation and continued growth of the firm by directing its needs for various supplies towards that small firm.

The final area in which we would have a guideline for small business is the overall area of government-business relations in general. We would encourage small firms to proact rather than react to government legislation. This means that they have to get involved early when the legislation is in the formulative stage and provide their input to government early enough so that it can be built into the legislation being formed. The best possibility for doing this is through associations and organizations such as the Canadian Federation of Independent Business. By making their opinions known to organizations such as this, the small businesses in Canada can lobby for improved government regulations in their area and, indeed, for changes or removal of much of the legislation that tends to interfere with the way they operate currently. However, they must organize into an effective lobbying group in order to do this, rather than handling the problem by screaming loudly at the government, usually after the legislation has been "carved in stone".

It is our conclusion that these small firms are not organized in any way to make their wishes known to the government as large businesses are today, with public affairs departments aimed at influencing government legislation. However, we feel that the CFIB has done a good job in bringing the small business situation to the attention of the government as evidenced by the creation of the Small Business Secretariat within the Department of Industry, Trade and Commerce. We hope that our conclusions and recommendations will be of interest and will be used by this Secretariat in the formation of their policies for the future.

In conclusion, we wish to thank all of those managers involved in assisting us with the study and all of the other people, too numerous to name, who also helped.

EXHIBIT 1
STAGES OF CORPORATE DEVELOPMENT
CORPORATE CHARACTERISTICS

	STAGE I	STAGE II	STAGE III
MANAGEMENT	ONE MAN SHOW	FUNCTIONALLY SPECIALIZED GROUP - "TEAM"	MULTI- DIVISIONS DECENTRALIZED
FUNCTIONAL AREAS	"JACK OF ALL TRADES" ENGINEERING - R & D EMPHASIS ON OPERATING MARKETING - SALES CONTROL - SIMPLE SYSTEM	MARKETING FINANCE PRODUCTION ACCOUNTING-CONTROL ENGINEERING	MANY STAGE II ORGANIZATIONS
EXPERTISE	OUTSIDE ASSISTANCE FINANCE-BANKER ACCOUNTANT	INSIDE EXPERTS	DIVISIONAL EXPERTS OR CORPORATE EG. FINANCE
PROBLEMS	SALES LIQUIDITY HIRING PEOPLE FIRE FIGHTING	MARKET PLANNING FINANCIAL PLANNING PERSONAL DEVELOPMENT SHORT TERM PLANNING	LONG RANGE PLANNING CORPORATE STAFF EVALUATION & CONTROL OF DIVISIONS
OWNERSHIP	PRIVATE	PRIVATE-PUBLIC	PUBLIC

FROM "STAGES OF CORPORATE DEVELOPMENT" BY D.H. THAIN, BUSINESS QUARTERLY
INTER, 1969.

EXHIBIT 2

STAGES OF CORPORATE DEVELOPMENT

FUNCTIONAL AREA CHARACTERISTICS

	STAGE I	STAGE II	STAGE III
MANAGEMENT	OPERATING ENGINEER	FUNCTIONAL	AUTONOMOUS DIVISIONS EACH FUNCTIONAL
MARKETING	GENERATING SALES	SPECIALIZATION IN PROMOTION MARKETING RESEARCH ETC.	WELL DEVELOPED WIDE VARIETY BY PRODUCT OR GEOGRAPHICAL AREA
ACCOUNTING	SIMPLE SYSTEM OUTSIDE ACCT.	MORE COMPLEX COST ACCOUNTING CONTROL SYSTEM	COMPLEX CONTROL SYSTEMS
FINANCIAL	ALMOST NON-EXISTENT EXCEPT THROUGH BANKER	FORECASTING BUDGETING PLANNING NEEDS	COMPLEX PORTFOLIO MGT. AND CAPITAL BUDGETING
PERSONNEL	PERSONAL BASIS BY OWNER-MANAGER	FORMAL POLICIES & FUNCTION	SOPHISTICATED PROCEDURES IN DIVISIONS & HEAD OFFICE
PRODUCTION	SIMPLE FACTORY	SPECIALIZED PRODUCTION, EFFICIENCY	COMPLEX BY DIVISION R & D PROGRAMS

EXHIBIT 3.

STAGES OF CORPORATE DEVELOPMENT

KEY FACTORS

	STAGE I	STAGE II	STAGE III
OBJECTIVES	SURVIVAL GROWTH SHORT TERM PERSONAL SUBJECTIVE	GROWTH RATIONALIZATION RESOURCE ALLOCATION PROFITS BUDGETS	DIVERSIFICATION EVALUATION ROI EPS PROFITS BY DIVISION
MANAGEMENT	ONE MAN SHOW	FUNCTIONAL SINGLE PRODUCT OR SERVICE	MULTI-PRODUCT MULTI-DIVISION
MEASUREMENT AND CONTROL	PERSONAL SUBJECTIVE SIMPLE ACCOUNTING SYSTEM DAILY COMMUNICATION	DELEGATION STRUCTURED CONTROL SYSTEMS BY FUNCTION AGREED POLICIES	MORE IMPERSONAL EVALUATION ROI, EPS MARKET SHARE COMPLEX FORMAL SYSTEMS
REWARD/ PUNISHMENT	PERSONAL INFORMAL SUBJECTIVE	MORE FORMALLY STRUCTURED	VERY FORMAL SYSTEMS

FROM "STAGES OF CORPORATE DEVELOPMENT" BY D.H. THAIN, BUSINESS QUARTERLY
WINTER, 1969.

EXHIBIT 4

RESEARCH MANAGEMENT EXPERTISE

SIZE OF COMPANY - SALES

	<u>NUMBER</u>	<u>PERCENT</u>	
Under \$1 million	7	13)
1 - 5 Million	25	47)
5 - 10 Million	10	19)
10 - 20 Million	6	11)
20 - 50 Million	<u>5</u>	<u>10</u>)
	53	100	
	<u><u>53</u></u>	<u><u>100</u></u>	

EXHIBIT 5

SIZE - NUMBER OF EMPLOYEES

	<u>NUMBER</u>	<u>PERCENT</u>
Under 50	17	32
50 - 100	10	19
100 - 150	10	19
150 - 250	7	13
250 - 500	4	7
Over 500	<u>5</u>	<u>10</u>
	53	100
	<u><u>53</u></u>	<u><u>100</u></u>

EXHIBIT 6

STAGES OF COMPANIES STUDIED

STAGE	<u>I</u>	<u>I - II</u>	<u>II</u>	<u>II-III</u>	<u>TOTAL</u>
No. of firms	25	11	10	7	53
Percentage	45	20	20	15	100

EXHIBIT 7

LOCATION

<u>ONTARIO</u>	<u>NUMBER</u>	<u>PERCENT</u>
Central	26	49
Eastern	7	13
Western	7	13
North Central	<u>2</u> 42	<u>4</u> 79
<u>QUEBEC</u>	4	8
<u>ALBERTA</u>	<u>7</u>	<u>13</u>
	<u>53</u>	<u>100</u>

EXHIBIT 8

WHEN FOUNDED

	<u>NUMBER</u>	<u>PERCENT</u>
Since 1970	5	9
1965 - 1970	17	33
1960 - 1965	5	9
1950 - 1960	14	26
Prior to 1950	12	23
	<u>53</u>	<u>100</u>

EXHIBIT 9

TYPES OF COMPANIES

	<u>NUMBER</u>	<u>PERCENT</u>
Electronics	15	27
Specialty Equipment	12	23
Machinery	7	13
Fire Equipment	5	9
Specialty Trucks	3	6
Plastics	3	6
Oil/Gas Explorations	3	6
Computers	3	6
Other	<u>2</u>	<u>4</u>
	<u>53</u>	<u>100</u>

EXHIBIT 10

CLASSIFICATION OF COMPANIES

	<u>NUMBER</u>	<u>PERCENT*</u>
Technology Based	42	79
Innovative	31	59

*Percentage of total sample of 53 firms

EXHIBIT 11

NUMBER OF INNOVATIONS BY COMPANY

Innovations	<u>0</u>	<u>1</u>	<u>2</u>	<u>more</u>	<u>Total</u>
Number of firms	33	10	5	5	53
Percentage	63	19	9	9	100

Approximately 10 additional innovations came from outside the firms.

EXHIBIT 12

INNOVATION TYPES

1. Fundamental - Total new product or process
2. Functional - New method of performing same function
3. Adaptive - Modification of existing product

Our estimate for approximately 30 innovations was 30 - 40% functional and 60 - 70% adaptive with no fundamental innovations.

EXHIBIT 13

SOURCE OF FUNDS

	<u>NUMBER</u>	<u>PERCENT</u>
Founder/friends	20	23
Group of shareholders	6	7
Venture capital firm	10	11
Bank loans, chartered	20	23
I.D.B.	9	10
Government programs	14	16
Public	<u>9</u>	<u>10</u>
	<u>88</u>	<u>100</u>

EXHIBIT 14

METHOD OF GROWTH

	<u>NUMBER</u>	<u>PERCENT</u>
Common Stock	26	49
Debt	<u>27</u>	<u>51</u>
	<u>53</u>	<u>100</u>

EXHIBIT 15

OWNERSHIP STATUS

	<u>NUMBER</u>	<u>PERCENT</u>
One owner/controlling shareholder	15	28
2 - 10 shareholders	12	23
Group control	13	25
Public company	4	8
Subsidiary	<u>9</u>	<u>16</u>
	<u>53</u>	<u>100</u>

EXHIBIT 16

OWNERSHIP vs SIZE OF COMPANY

	<u>SMALL</u>		<u>MEDIUM</u>		<u>LARGE</u>	
	(under \$5 million)		(\$15-20 million)		(over \$20 million)	
	<u>#</u>	<u>%*</u>	<u>#</u>	<u>%*</u>	<u>#</u>	<u>%*</u>
Independent	28	53	9	16	1	2
Canadian subsidiary	3	5	1	2		
U. S. subsidiary	3	5	3	5	2	4
Foreign subsidiary						
Public			1	2	2	4

*Percentage of total sample of 53 firms

EXHIBIT 17

PROFITABILITY

	<u>NUMBER</u>	<u>PERCENT</u>
Very profitable	9	17
Moderately profitable	29	55
Marginally	13	25
Unprofitable	2	3

Unprofitable: 2 oil companies

Marginally: Computer specialities, packaging specialities, electronic specialities (usually sophisticated, high technology service equipment).

EXHIBIT 18

COMPANY STRENGTHS AND WEAKNESSES

Category

	STRENGTHS		WEAKNESSES		NOT RELEVANT	
	#	%*	#	%*	#	%*
Location	34	64	7	13	8	15
Production	33	62	10	19	2	4
Marketing	30	57	15	28	2	4
Finance	29	55	13	25	3	6
Personnel	32	60	3	6	7	13
Raise Capital	25	47	13	25	9	17
Opportunities	37	70	5	9	3	6
Government Regulation	18	34	10	19	26	47
R & D	50	95			3	5

* Percentage of total sample of 53 firms.

EXHIBIT 19

SIZE OF MANAGEMENT TEAM vs SIZE OF COMPANY

	<u>SMALL</u>		<u>MEDIUM</u>		<u>LARGE</u>	
	#	%	#	%	#	%
One man show	13	41	1	.6		
2 - 4	9	28	3	19	1	20
5 and over	10	31	12	75	4	80
	<u>32</u>	<u>100</u>	<u>16</u>	<u>100</u>	<u>5</u>	<u>100</u>

EXHIBIT 20

PRESIDENT'S BACKGROUND

	<u>NUMBER</u>	<u>PERCENT</u>
Engineer	22	50
Technical	4	9
BA	3	8
Finance/Accounting	3	8
Marketing	2	4
HBA/MBA	1	3
Commerce	1	3
Law	1	3
Other (High School/Management Course)	<u>5</u>	<u>12</u>
	<u>44</u>	<u>100</u>

EXHIBIT 21

BACKGROUND OF CEO/FOUNDER vs SIZE OF COMPANY

	<u>SMALL</u>		<u>MEDIUM</u>		<u>LARGE</u>	
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>
Engineering/Technical	21	60	6	46	2	40
Financial	2	4	2	15	1	20
Marketing	3	9	2	15		
BA/HBA	3	9	1	9		
Operations	3	9				
Law					1	20
Other	<u>3</u>	<u>9</u>	<u>2</u>	<u>15</u>	<u>1</u>	<u>20</u>
	<u>35</u>	<u>100</u>	<u>13</u>	<u>100</u>	<u>5</u>	<u>100</u>

EXHIBIT 22

MANAGEMENT TEAM BACKGROUNDS

	<u>NUMBER</u>	<u>PERCENT</u>
Engineering/Technical	56	44
Financial (CA) (RIA)	21	16
(B. Com.)	6	5
Marketing	15	12
HBA/MBA	2	2
Operations	4	3
Law	2	2
Other High School or Technical Management Courses	<u>21</u>	<u>16</u>
	<u>127</u>	<u>100</u>

EXHIBIT 23

USE CONSULTING SERVICES

	<u>NUMBER</u>	<u>PERCENT</u>
Yes	39	74
No	<u>14</u>	<u>26</u>
	<u>53</u>	<u>100</u>

REASONS FOR USE

	<u>NUMBER</u>	<u>PERCENT</u>
Skills not available internally	12	25
New product design/Marketing	7	15
Personnel matters	10	21
Production expansion/efficiency	14	29
Financial expansion/efficiency	2	4
Assist looking for government help	<u>3</u>	<u>6</u>
	<u>48</u>	<u>100</u>

EXHIBIT 24

COURSES TAKEN BY MANAGEMENT TEAM

	<u>NUMBER</u>	<u>PERCENT</u>
Degree courses	12	21
Seminars	13	22
Management Training Courses (University)	10	17
None	23	40
	<u>58</u>	<u>100</u>

EXHIBIT 25

TYPE OF MANAGEMENT TRAINING PROGRAM (BEING TAKEN)

	<u>NUMBER</u>	<u>PERCENT</u>
None	37	70
Night	4	8
University	2	4
General Business	5	9
No Response	5	9
	<u>53</u>	<u>100</u>

EXHIBIT 26

TYPES OF COURSES SUGGESTED

	<u>NUMBER</u>	<u>PERCENT</u>
Short - Management/Weekends	19	35
1 Week	2	4
2 Weeks	15	28
Night Courses	1	3
No Response	16	30
	<u>53</u>	<u>100</u>

EXHIBIT 27

WHO SHOULD GIVE COURSES?

	<u>NUMBER</u>	<u>PERCENT</u>
Industry	1	2
University	26	49
Government	1	2
Professional (Managers) (Experienced)	9	17
No Response	16	30
	<u>53</u>	<u>100</u>

EXHIBIT 28

SHOULD GOVERNMENT PROVIDE FUNDING
FOR MANAGEMENT COURSES

	<u>NUMBER</u>	<u>PERCENT</u>
No	35	66
Yes	18	34
	<u>53</u>	<u>100</u>

SUGGESTIONS:

- Assistance by funds for in-house use.
- Subsidize existing courses by loans forgivable on successful completion.
- Develop case studies of success stories on no-cost basis.

EXHIBIT 29

LEGISLATION WANTED

	<u>NUMBER</u>	<u>PERCENT</u>
Tax credit on risk investment	8	15
Change capital gains tax	6	11
Cut red tape	3	5
Relief on reinvested profits	2	4
Government help on marketing and administration costs	2	4
Change bank act	2	4
Small business act like in the U.S.	2	4
None wanted	28	53
	<u>53</u>	<u>100</u>

EXHIBIT 30

RANDOM SUGGESTIONS ON

LEGISLATION NEEDED

- Make first stock issue deductible from buyers' income for tax purposes.
- Eliminate expense accounts of controlling shareholders and compensate by reducing corporate tax.
- Some entity to promote mortgage money for Canadian Businesses like C.M.H.C.
- Insurance on joint ventures in developmental markets.
- 10 year moratorium on capital gains tax after start-up for companies 90% Canadian owned.
- Change tax laws on transfer of ownership to offspring.
- Rapid write-off of R & D expenses is better than grants.

EXHIBIT 31

SUGGESTED ROLE OF GOVERNMENT

	<u>NUMBER</u>	<u>PERCENTAGE*</u>
Prime customer of smaller businesses	5	9
Tax incentives to private sector	23	43
Assistance to improve marketing rather than only R & D	20	38
More CASE type programs	15	28

* Percentage of total sample of 53 firms

EXHIBIT 32

ADVICE TO STARTERS

	<u>NUMBER</u>	<u>PERCENTAGE*</u>
Good financial people/planning	13	25
Watch overheads in early years	3	6
Grow slowly/steadily	4	7
Hire qualified/best people	15	28
Know the market	11	21
Get strong financing	7	13

* Percentage of total sample of 53 firms

RANDOM COMMENTS

- Diversify risk, start slowly, gamble only with the profit.
- Finance properly, know market.
- Good management, sound financing, profit sharing.
- Enough capital for at least 3 years. Market research important, get good people.
- Plan everything well, use outside help, get best people, have marketing emphasis. Maximize government assistance.
- Don't get into this business at all.
- Don't -- too much competition.
- Assume you substantially underestimate costs, overestimate sales, then make sure you have enough money to cover these mistakes - pay extra for experienced people you will need three years from now.

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