The Entry of Canadian Small Businesses Into International Markets

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Abstract

This study investigates successful small Canadian firms that export. Four factors are considered from a theoretical perspective as variables that have affected the success of these firms. Regimes define the international and national environment. State support is studied as a strategic factor at the domestic level. Networks are considered as both strategic and organizational factors at the firm level. The study of internal factors considers organizational capability and strategy at the firm level.

The empirical research was conducted through field studies and a questionnaire that was completed during an in-depth interview with the president, founder or principal officer of 21 firms in the cross-sectional sample (in Ontario and Quebec) and telephone interviews for the 13 firms in the supplementary sample (in Nova Scotia and British Columbia). All interviews in Ontario and Quebec were videotaped and case records were developed for each firm. Additional data are based on information from the Industry, Science, Technology (Canada) data bank and the researcher's observations of principal actors and operations of the sample firms.

A Technological Skill and Product Maturity Typology is developed to categorize firms into quadrants according to product maturity and technological sophistication. The typology has been designed as an analytical tool to categorize firms according to strategic focus. This typology provides a framework for the analysis of firm needs and for the evaluation of the usage and effectiveness of support programs by firms.

This study offers a typology for classifying firms by start-up mode: the entrepreneur with a classic start-up, with a spin-off, with an acquisition, and with experience in an established firm. Mode of start-up was not significantly associated with specific strategic sectors. Results suggest that the qualities of the entrepreneur responsible for successful start-up are imprinted on successful small firms. This entrepreneurism provides significant strategic advantage for firms competing in international markets.

This study has found that successful small Canadian firms that export are innovation-driven and entrepreneurial in culture, structure, strategy, and operations. These firm operate relatively independently and have limited awareness of international regimes despite the influence of regime rules and regulations on their operations. These firms depend on the national government to promote and protect their interests in the international trade regime, which entails balancing the change needed for market entry with the stability needed by firms with scarce resources. Firms in this study did not have strong domestic competition and most recognized the limitations of the domestic market and set out from the start to export. Export success is dependent on the ability of firms to develop and market innovative products or services in existing and emerging niche markets. Firms in this study did refer to the importance of domestic factor conditions, particularly quality education, in their development. Many firms recognize the value of assembling and deploying their strategic resources. All firms in this study made use of federal and/or provincial support programs but few found such programs essential for their success. Marketing and R & D assistance were most extensively used. All firms were involved in the development of innovative products or services but only half of the firms made use of R & D funding. Firms used support for start-up, training, and organizational growth on a limited basis. All firms were involved in informal networks for contacts needed to extend their information base. Networking is largely dependent on the contacts firms generate through involvement with government programs and agencies. Relatively few of the firms in this study were involved in strategic alliances.

The results of this study indicate that small firms in diverse industries, with very different products and strategic advantages can use entrepreneurial leadership, strategy, and innovation to take advantage of changing international regimes, favourable domestic factor conditions, and state support to compete successfully in international markets.

Résumé

Cette étude s'interroge sur la question des petites enterprises Canadiennes qui participent à l'exportation. Il y a quatre perspectives théoriques qui ont affecté le succès des ces compagnies. Les régimes sont responsables pour la définition de l'environnement national et international. Le support de l'état est étudié comme étant un facteur stratégique au niveau domestique. Les réseaux sont considérés comme étant stratégiques ainsi que des facteurs d'organisation au niveau de la firme.

La recherche empirique a été effectuée en se servant de la recherche sur le terrain et des sondages administrés lors des entrevues approfondies avec les présidents, fondateurs, ou officier principal de l'échantillon de 21 compagnies (Ontarien et Québécois). Des entrevues téléphoniques ont servi comme base de données pour l'échantillon supplémentaire (Nouvelle Écosse et Colombie Britannique). Toutes les entrevues effectuées en Ontario et au Québec ont été enregistrées sur vidéo et des dossiers ont été créés pour chaque compagnie. Les données supplémentaires parviennent de la base de données du Départment Canadien de l'industrie, de la Science et de la Technologie, et des observations de la part du chercheur des personnages principaux et des opérations des compagnies choisies.

Une typologie d'habileté technique et de maturité de produit est développée pour ranger les compagnies par catégorie en vue de la maturité du produit et de la sophistication technologique. La typologie a été créée comme un outil analytique pour ranger les compagnies d'après leurs objectifs stratégiques. Cette typologie donne à la compagnie un encadrement pour l'analyse des besoins de la compagnie ainsi qu'une ressource pour l'évaluation de l'usage et l'efficacité des programmes de support.

Cette étude offre une typologie pour classifier les compagnies par mode de démarrage commercial: l'entrepreneur avec un système de démarrage classique, avec des retombées, avec une acquisition, et avec l'expérience d'une entreprise déjà établie. Le mode de démarrage n'avait pas d'association significative avec les secteurs stratégiques spécifiques. Les résultats suggèrent que les qualités de l'entrepreneur responsable pour un démarrage positif soient imprimées sur les petites enterprises. Cette qualité d'entrepreneur crée des avantages significatifs pour les entreprises qui font partie du marché mondial.

Cette recherche a conclu que les petites enterprises canadiennes qui connaissent du succès sont dirigées par l'innovation et ont une culture, structure, stratégie, et des opérations basées sur l'esprit d'entrepreneur. Ces entreprises existent indépendamment et n'ont qu'une petite connaissance des régimes internationaux, en dépit de l'influence que les règles des régimes ont sur leurs opérations. Ces entreprises dépendent du gouvernement national pour promouvoir et protéger leurs intérêts sur la scène, ce qui entraîne un équilibre entre les changements requis pour l'entrée du marché avec la stabilité requise par des entreprises avec des ressources peu abondantes. Les entreprises dans cette étude n'ont pas de compétition domestique importante, et la plupart d'entre elles reconnaissant les limites du marché domestique, elles ont démarré avec l'intention d'exporter. Le succès des exportations dépend des habités des entreprises en matière de développement et promotion des produits ou services innovateurs pour des marchés niches, ou qui existaient auparavant. Les entreprises étudié ont fait référence à l'importance des conditions domestiques, en particulier la qualité d'éducation, dans leur développement. De nombreuses entreprises reconnaissent la valeur de compilation et du déploiement de leurs ressources stratégiques. Toutes les entreprises se sont servi des programmes de support fédérale et/ ou provincial, cependant peu ont trouvé que ces programmes étaient essentiels à leur succès. La commercialisation et l'assistance en recherche et développement sont les services les plus utilisés. Toutes les entreprises étaient impliquées dans le développement des innovations (soit produits ou services), mais seulement la moitié des entreprises se servaient des fonds de support de recherche et développement. Les entreprises se servaient des supports pour le démarrage, la formation, et sur une base plus limitée pour la croissance de l'organization. Toutes les enterprises étaient impliquées dans les réseaux informels pour des contacts essentiels à la croissance de leurs bases de données. La

croissance du réseau de contact est dépendant des contacts que les entreprises ont pu générer durant leurs relations avec des programmes et agences gouvernementales. Seulement quelques-unes des entreprises impliquées dans cette étude avait des alliances stratégiques.

Les résultats de cette étude indiquent que les petites entreprises, dans des secteurs variés, avec des produits et des avantages stratégiques, peuvent se servir d'une direction d'entrepreneur, de statégie, et d'innovation pour prendre avantage des régimes internationaux changeants, les régimes qui favorisent les conditions domestiques, et le support de l'état pour atteindre le succès sur les marchés internationaux.

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Chapter I. Introduction

This research is undertaken in response to research and opinion that in the 1990s a nation's economic performance depends on its competitiveness in global markets (Ohmae, 1991; Levitt, 1983; Bartlett and Ghoshal, 1987; Hamel and Prahalad, 1990) and that small firms have distinctive competitive advantages in meeting the demands of new and dynamic markets (Peters, 1987; Toffler, 1990; Albrecht and Zemke, 1985; Naisbitt and Aburdene, 1990; Velloso, 1991). It examines regimes[1], state support[2] and networks[3] as external factors that affect small Canadian firms that export. It also explores entrepreneurship, organizational structure and strategy as internal factors that affect the success of small Canadian firms as international competitors.

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1 Regimes are the rules of the established international system which are enforced through regime structures such as the General Agreement on Trade and Tariffs, now known as the World Trade Organization, which regulates international trade between signatory countries.

2 State support involves providing money, resources or know-how to firms. Other forms of state intervention may be less direct, such as regulations benefitting domestic firms.

3 Networks in this paper include relationships where there is high interaction between individuals or firms. In larger firms, these networks could result in more formalized strategic alliances, joint ventures, or research consortia (Jarillo, 1988; Wright, Chiplin, and Robbie, 1990; Nadler, Gerstein, Shaw, 1992).

The study reports on successful small Canadian firms that export, analyzing the organization and operations of these firms. Also studied is the role government policies and support programs have played in the domestic and international development of small firms.

Porter (1990) stresses the importance of firms' productivity to the nation. He states that:

> *The central economic concern of every nation should be the capacity of its economy to upgrade so that firms achieve more sophisticated competitive advantages and higher productivity. Only in this way can there be a rising standard of living and economic prosperity. The process of upgrading requires that the nation's firms continuously improve their capabilities and technology and evolve their strategies if they are to achieve and sustain competitive advantages against ever-improving international competition.*

From an economic and political perspective, small business is significant as job and tax generators (The Economist, 1993). The Ministry of Supply and Services (Canada) has produced a book, Small Business In Canada: A Statistical Profile 1982-1984, in which there are a reported 2.2 million economic units operating in Canada. The unit size for business is by "*reported revenue*" and indicates that the small business segment[4] accounts for 95.65% of all businesses and 18.7% of revenue (Table 1).

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[4] In statistical studies gathered for the Organization for Economic Co-operation and Development, "O.E.C.D.", and most government reports (e.g., Statistics Canada and the U.S. Department of Labor) small firms are typically classified as those having under 500 employees.

Table 1: ***Statistical Data on Revenue by Size of Firm***

Size of Firm	Share of Revenue	Number of Firms
Small Firms ($19k-$2M)	18.7%	743,400 (95.65%)
Medium Firms ($2M-$20M)	20.1%	30,400 (3.91%)
Large Firms (>$20M)	61.2%	3,400 (0.44%)
Totals:	100%	777,200 (100%)

From Table 1, it can be seen that small business in Canada is significant in terms of the number of firms although large firms contribute more to gross revenue.

Small business has become significant to national economic growth in terms of employment, contribution to gross national product, "GNP", and tax revenue generated for government (Bracker and Pearson, 1986) which reports that between 1978 and 1983 small business replaced all of the jobs that were lost in medium and large firms and still added enough new jobs to create growth. Industry, Science and Technology (Canada), "I.S.T.C.", in its publication, Small Business and You, reports that:

> *Between 1979 and 1989, small business accounted for more than 80 percent of all new jobs added to the Canadian economy - a total of more than 2.1 million.* (ISTC, 1993)

The same report shows the importance of small business in terms of cash flows for jobs:

Companies with fewer than 100 employees now account for almost 40 percent of all payrolls in this country, and businesses with annual revenues of less than $5 million handle more than a quarter of all sales in Canada. (ISTC, 1993)

Small business is also recognized as a significant contributor to the economy in Europe. According to Berney (1990), the 13.4 million small and medium-sized enterprises, "SME's", are the key to Europe's dynamism, innovation and job creation.

The same trend has also been noted in the U.S., where the growth potential and new contribution of small business have been contrasted with the relatively poor performance of big business. Based on U.S. Department of Labor data, Magnet (1993b) states that:

Small business is the dynamo of U.S. job growth. Firms with fewer than 500 employees accounted for ten million of the Eighties boom's extraordinary 18.4 million new jobs. By contrast, the Fortune 500 industrials ***lost*** *nearly two million jobs.*

Currently, nations recognize not only the increased importance of small business but also the significance of international trade to national economic growth and prosperity. Research suggests that competitiveness in international markets depends on economic performance (Nadler, Gerstein and Shaw, 1992):

The basis of rivalry of nations is shifting to economic terms, at least in the industrial world. Competitiveness has become a critical national concern.

Recent research suggests that a country's power depends on its trading capabilities (Ostry, 1990; Ohmae, 1991; Quinn, 1992; Astley and Chandrasekaran, 1992). While small firm contribution to the export balance of trade is less than that of large business, the Canadian government notes that the contribution of small firms is increasing:

> *Whether in manufacturing or services, thousands of small Canadian companies are successfully selling to dozens of foreign markets, and more are joining the ranks of Canada' exporters all the time. Overall, however, Canada's export performance is dominated by the country's larger corporations.* (<u>Exporting for Competitiveness</u>, ISTC, 1992)

In the 1990s, the economies of nations have become interconnected due to high-speed low-cost communications systems and the power of computing systems (Quinn, 1992). These same technological developments have enhanced the ability of small firms to generate innovative products and services for both domestic and export markets. Small businesses have been shown to be strategic assets to states since they have proven their ability to compete in markets with high-profit margins (Wright, 1993). It is interesting to note that the government is aware of changes in the environment which favour small business:

> *Between 1978 and 1983 these thousands of new and small enterprises accounted for 100% of all new jobs created in the private sector. <u>In fact, small business employment compensated for a 15% decrease in jobs among medium and large firms during this time period.</u>*
>
> *Many new technologies would appear to favour a smaller scale production for services and goods. For instance, new relatively*

inexpensive and small sized laser printers produce a better quality product than do more expensive larger, older technology machines which require longer production runs to meet expenses and remain profitable. In this case a new technology is pushing the restructuring of an industry towards lower entry costs, shorter production runs, and fewer employees per establishment. The economy's shift towards the relatively more labour intensive service industries would also appear to be a factor favouring small business. Smaller organizations are well suited to respond to the wide diversity of consumer services being demanded by an affluent and well-educated population. (Exporting for Competitiveness, ISTC, 1993)

It has been argued that the world should be seen as a single global marketplace (Peters, 1987 and 1990; Drucker, 1989; Toffler, 1990; Naisbitt, 1990; Ohmae, 1991). The popular writers suggest that many successful participants in this global marketplace are small firms. It is possible that many small Canadian firms depend on their ability to compete in the world market for product sales since the domestic market is so small. To understand the success of small firms in international trade, it is necessary to explain the linkage of small firms to the international system.

The work of Strange (1988) in political economy deals with international structure and competitiveness. She describes power as a function of:

... control over security; control over production; control over credit; and control over knowledge, beliefs and ideas.

Her model suggests that power is dynamic with changes in any of the four power structures effecting change within the regime. Strange's (1988) work contributes to an understanding of change at the regime or superstructure level and describes the current regime system and structures as dynamic. Change in communications and finance have enabled more firms and countries to become global participants. Her work explains the interdependency of factors that account for a country's success but does not explain how sectors or firms within a nation develop and exploit internal and external factors to become successful. Her explanations are nation-based at the macro level. She does not directly address the issue of firms as international actors.

Porter (1990) suggests that it is not a nation that establishes competitive advantage but particular industries that successfully compete internationally. A country can, however, make a difference to firms through advanced factor creation and the provision of demand conditions. His *Determinants of National Advantage* ("Diamond") model is industry based and suggests that four factors interact to provide competitive advantage:

(1) ***Demand conditions***, especially demanding sophisticated customers;

(2) ***Related and Supporting industries***, such as a Silicon Valley industry cluster that enhances quality and available skills;

(3) ***Company Strategy, Structure and Rivalry***, which assumes that there should be vigorous rivalry among domestic firms in the same industry; and

(4) *Factor Conditions* that include natural resources and upgraded factor conditions such as a highly-skilled workforce.

Porter's (1990) "diamond" is not adequate in explaining the success of small Canadian firms since the small domestic market inherently limits domestic rivalry.[5] Porter's (1990) focus is on external factors and industry clusters. He does not explain the potential for the growth and development of small firms as successful international competitors in a small domestic market in the absence of stiff competition.

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[5] Grant's (1991) critique of Porter (1990) points out that the shift between his earlier 1980 and 1985 work is from the performance of the firm to the performance of the nation. Porter is concerned with the "home base" of a firm and about how national influences have resulted in clusters of firms in certain industries. The work deals with (1) changed world conditions such as an increase in world trade which affects firms, (2) internationalization which affects industries because of accelerated technological change and reduced life cycles for products and (3) increased disparity between the technologically sophisticated industrialized countries and the remainder of the third world underdeveloped countries. Whereas Grant praises Porter (1990) for recognizing the dynamic nature of the market at the firm level, he is critical of Porter's analysis at the national level. This shortcoming leaves Grant wanting a further explanation:

> *Least successful is Porter's analysis of economic development at the national level. The problem here seems to be that the further Porter gets from the micro-foundations of his theory, the more difficulty he experiences in explaining relationships between economic aggregates. Hence, despite the novelty and the appeal of many of Porter's recommendations for government policy, the persuasiveness of his prescriptions is limited by doubts as to whether his analysis is adequate in explaining economic development at the national level.*

Porter (1990) states that the success of firms is affected by a nation's economic environment, institutions and policies. His view is that government is an actor in creating international competitiveness but rarely has a starring role. This position contrasts sharply with researchers such as Eisinger (1988), Reich (1989), Ohmae (1991), Schreiber (1970), and Niosi and Faucher (1991) who argue that state intervention is critical to success and makes a crucial difference if applied at the right time.

Niosi and Rivard (1990) indicate that the industrial organization approach, the product cycle theory and factor-endowment theories may have some application to small firms but were designed for and better fit large firms. These researchers state that theories concerning multinational corporations are inadequate when applied to small and medium-sized firms.

Recent research in international business refers to global industries as distinct competitive environments (Bartlett, 1987; Doz, 1980; Porter, 1986;, Prahalad and Doz, 1987, Morrison and Roth, 1992). This research suggests that competitive advantage in global markets is based on securing tangible and intangible asset flows. Although this is consistent with contingency-based theory, it can only be applied to firms with global strategies. Smaller firms typically use a number of non-global strategies in global markets. Competitive advantage based on globally integrated operations, subsidized cross-country market share battles and political influence to better establish national investment platforms (Doz, 1986; Hamel and Prahalad, 1985; Jolly, 1988) are beyond the resource capability of small firms.

Recent research in Canada related to globalization and the success of firms has primarily focused on large firms and government policy regarding the Canada-U.S. Free Trade Agreement (Miele, 1988; D'Cruz and Fleck, 1988; Dana, 1990a; Reichardt, 1990; and Manzella, 1991). Yet according to these authors, small Canadian firms may be important beneficiaries of changes in international trade regimes, such as regional free trade.

It is apparent that a new framework is needed to study the experience of small Canadian firms that export. For this study, the emphasis is on the interplay of external and internal factors influencing small Canadian exporters. A multi-level framework is proposed to analyse the external factors: (1) the international and national regimes or rules of the game within which firms operate; (2) the availability and use of government support programs by small exporting firms; and (3) the use of networks by small firms that export. To understand the success of Canada's small firms that export, it is also necessary to study the entrepreneur, entrepreneurism, and firm structure and strategy as internal factors contributing to firm success.

As small firms become increasingly capable and important as contributors to the nation's international competitiveness, the government should periodically reassess its role and design its strategy relative to small business development and international trade. Because the international regime is considered fundamental to the ability of firms to trade and because the regime is studied as an external factor, the international regime provides the operating superstructure for international trade - supplying the framework and monitoring the rules and regulations for compliance by all actors within the system. Canadian policy is limited by the provisions of the current international regime rules and regulations.

Changes within the international regime affect both nations and firms. Recent changes have enhanced the ability of small nations and small firms to become actors in international trade. Prahalad and Hamel (1994) state:

> *... during the last 10 years (1984-1994) competitive space has been dramatically altered. ... Globalization has changed the boundaries of competition. It has become easier to leverage a unique business idea without regard to national boundaries.*

The change factors they refer to are: deregulation, structural changes within industries, excess capacity, mergers and acquisitions, environmental awareness, less protectionism, changing customer expectation, technological discontinuities, emergence of trading blocks, and global competition. These changes are typically discussed as factors affecting the internationalization of multinational firms.

Popular writers suggest that power within the current international regime has been affected by the entry of new actors with different capabilities (Toffler, 1990; Drucker, 1989). This study addresses the gap in the research concerning how change in the international regime affects small Canadian firms that export and how small firm activity impacts the regime.

Research has shown that, while national initiatives are somewhat limited by international regime requirements, states can intervene to enhance domestic development and trade. State intervention has been considered by researchers in regard to specific types of strategies (Eisinger, 1988; Reich, 1989; Ohmae, 1991), specific programs to raise capital or to provide services to businesses (Servan-Schreiber, 1970; Niosi and Faucher; 1991; Tucker, 1991) or as it relates to recommendations for industrial policy (Cunningham, 1991; D'Cruz and Fleck, 1988). States establish national regimes to promote and protect domestic growth. National regimes establish the infrastructure that provides for advanced factor creation and also allows firms to reap maximum advantage from domestic factor conditions, internal resources, and international market conditions.

Because state support has been shown to directly affect the growth and development of a nation's firms, it is included in this study. State support is studied as a strategic tool capable of extending the limited resource base or organizational capability of small firms. Research related directly to state support for small firms is limited although there are case studies on the effect of state policy and programs on small firms in different jurisdictions (Dana, 1990b; Barker and Kaynak, 1992; Lafuente and Salas, 1989; and Kathawala, Judd, Monipallil and Weinrich, 1989). Research on state support has focused on large firms (Niosi and Faucher, 1991), on comparisons between countries (Beamish, Craig and McLellan, 1993) and on technology transfer (Niosi and Rivard, 1990). This research addresses the gap in the literature related to state support for small Canadian firms that export. It analyses the existence and effectiveness of government support for start-up, organizational growth, R & D, training, and marketing in these firms.

The third external factor considered in this research is networks. The fact that small firms have limitations imposed by the size of their resources and operations suggests that networking could provide them with strategic and competitive advantage. Several researchers suggest that networks provide small firms with strategic advantages that allow them to compete effectively against larger firms. As well, different forms of networks can provide the linking mechanism between national and international markets (Astley and Rajam, 1992; Nadler, Gerstein and Shaw, 1992; Quinn, 1992; Demers and Hafsi, 1993; and Rugman and D'Cruz, 1993). While strategic alliances are formalized, sophisticated arrangements used by large firms for specific purposes (e.g., production or marketing), networks are less formal and more flexible. This would suggest that networks have the potential to link small firms to domestic firms, markets, national regime organizations and to international regime organizations, firms and markets. Research on networks includes studies of contact networks (Dubini and Aldrich, 1991), organizational networks (Jarillo, 1988; Nadler, Gerstein and Shaw, 1992; Shepherd, 1991; Larson, 1991), strategic alliances (Hamel and Prahalad, 1990; Quinn, 1992; Mohr and Spekman, 1994; Johanson and Mattsson, 1990; Hatch, 1991; Kogut, 1988), learning networks (Teubal, 1991; Roberts and Mizouchi, 1989; Raia, 1992) and networks as a new form of competition (Bressand and Nicolaïdis, 1990). Research on networks has been restricted primarily to the experience of large firms operating in countries other than Canada. This study considers the type, role and effectiveness of networks used by small Canadian firms that export.

The three external factors selected have been chosen because they provide the external environment for small firms that export. Regimes (both national and international) define the operating or permissive environment, state support limits or empowers firms to grow depending on the extent of domestic factor creation and assistance programs, and networks facilitate growth and expansion. While other external factors have been shown to influence the success of export firms, the purpose of this study is to analyze the factors most fundamental to the operations of small Canadian firms that export. Transaction costs are relevant primarily for larger firms deciding on mode of entry into international markets (e.g., subsidiary, licensing, joint venture, and acquisition), whereas the smaller firms in this study are engaged only in exports. For small firms operating in niche markets with high profit margins, transaction costs are not considered significant. Strategic power is a factor attributed to the successful internationalization of multinational corporations (Doz and Prahalad, 1980). It is argued that strategic advantage is achieved through the firm's position of power within the industry. Because small firms cannot be expected to benefit from this factor, it is not considered in this research.

Table 2 presents the three external factors studied in this research. It includes a description of the principal actor, the level of analysis, and the academic discipline related to each of the factors.

Table 2: *External Factors Affecting Market Entry*

Factor	***Actors***	***Level of Analysis***	***Academic Discipline***
International Regimes Domestic Regimes	Different Countries (and key firms in an industry) National and sub-national levels of government (and influential firms in an industry)	State-to-State ◆International Agreements Within a state or sub-state ◆ Domestic Agreements	Political Science
State Support Strategies and Programs	Single Countries and Sub-States (Provinces)	State-to-Firms ◆Domestic Policy	Political Economy
Networks	Firms	Firm-to-Firm ◆Domestic and International Organization	Strategy

Internal factors are included in this study because research has shown diverse internal factors to be critical to the operational success of firms. The resource-based view, "RBV", is promoted by researchers who argue that a firm's strategy should start with an assessment of the organization's resources, capabilities and core competencies, not with an assessment of the external environment (Barney, 1986; Grant, 1991; and Black and Baol, 1994).

This study is based on the premise that both external and internal factors must be considered in strategy formulation. This is consistent with the argument of Black and Baol (1994) that a firm's resources must be considered in terms of their interaction with things both inside and/or outside the firm to create sustainable competitive advantage, and the contingency theory view that:

> *"Organizations are open systems that need careful management to satisfy and balance internal needs and to adapt to environmental circumstances."* (Morgan, 1986)

While behavioural-based research (Lewin, Lippitt and White, 1939; Katz, Maccoby and Morse, 1950) suggests that an organization's creation and success depend on the existence of the right conditions, trait-based theory (Stogdill, 1948) argues that the organization can be seen as an extension or projection of an individual and suggests that a firm's success depends on this individual. Mintzberg (1973) suggests that the success of the entrepreneurial firm is dependent on the entrepreneurism of the manager. This research will analyze the leadership, structure and operations of small firms to further understanding of the entrepreneur and entrepreneurism.

In the literature, internal factors studied include traits of leaders and successful founders (Stogdill, 1948; Drory and Gluskinos, 1980; House and Baetz, 1979; Miller and Toulouse, 1986) strategy and organizational structure (Mintzberg, 1990; Sandberg, 1992) and entrepreneurship (Colven and Slevin, 1986; Guth and Guinsberg, 1990; Naman and Slevin, 1993; Miller, 1993). If popular writers are correct, there are several internal factors common to small firms which give them competitive advantage over large firms within the current business environment (Dumaine, 1991; Glen, 1990; Sewell, 1990; Deutschman, 1991; Burck, 1993, Velloso, 1992). Existing research typically relates either to small firms or to export firms. This study will consider entrepreneurship, organizational structure and strategy as internal factors that affect the success of small Canadian firms that export.

The purpose of this study is to conduct empirical field work that explores and explains how small Canadian firms have become successful participants in international markets. This research has implications for small firm business strategy when operating within Canada and when expanding business through foreign market entry and penetration. It also has implications for the government in developing its strategy for improving the potential of small firms as contributors to the national economy. This study provides descriptive data on small Canadian firms that export for academic research in international relations, political economy, entrepreneurism, organizational structure and strategy.

The study provides a systematic consideration of external and internal factors, a review of current literature, and a comprehensive review of the organization and operations of the sample firms. Chapter 1 provides an introduction to the international business environment with a brief explanation of factors considered in this research. Chapter 2 examines the current literature on external factors (regimes, state support programs and networks). Chapter 3 deals with internal factors that affect the success of small exporting firms. This chapter also considers how the approaches of strategic management and behavioural science researchers have converged. Chapter 4 outlines the research methodology, interview process, questionnaire, plan for data analysis, and intended contributions of this research. Chapter 5 explores the findings on internal factors with a view to analyzing the experience of leaders of small Canadian firms involved in international sales and the entrepreneurial nature of their firms. Chapter 6 analyzes the findings on external factors and provides a new conceptual framework. Chapter 7 presents research contributions including conclusions, limitations, and implications. Appendices include information from the ISTC data bank, the questionnaire format used in the study, a list of acronyms, and the results for the supplementary sample.

Chapter II. Literature Review of External Factors

A. Regime Theory: Systems and Structures

1. Definition and Scope

Regimes are considered in this research since they are an integral factor in the structure and operation of the international business environment. A review of the historical development and current status of regimes at both the international and national level is fundamental to an understanding of the ability of small Canadian firms to successfully compete in international markets.

The term "regime" has been defined by Stephen Krasner (1985) in international relations literature:

> *Regimes are principles, norms, rules, and decision-making procedures around which actor expectations converge. Principles are a coherent set of theoretical statements about how the world works. Norms specify general standards of behaviour. Rules and decision-making procedures refer to specific prescriptions for behavior in clearly defined areas. For instance, a liberal international regime for trade is based on a set of neoclassical economic principles that demonstrate that global utility is maximized by the free flow of goods. The basic norm of a liberal trading regime is that tariff and non-tariff barriers should be reduced and ultimately eliminated. Specific rules and decision-making procedures are spelled out in the General Agreement on Tariffs and Trade. Principles and norms define the basic character of any regime. Although rules and decision-making procedures can be changed without altering the fundamental nature of a regime, principles and norms cannot. Regimes define basic property rights. They establish acceptable patterns of behavior. They coordinate decision- making.*

Regimes provide the framework or superstructure for the development, operation and regulation of business. Historically, international regimes have been established by the leading power(s) to protect and preserve their existing power position(s) within the international order. Power relates to finance, security, production and knowledge[6] (Susan Strange, 1985). International regime structures or organizations provide a mechanism for control and supervision through governing bodies and institutions that deal with world government, trade, banking and industrial development. These international bodies monitor the conduct of all actors in the international system either directly or indirectly. National regimes are established by individual countries to facilitate domestic development and link the national business system to the international regime. National governments create the infrastructure that provides a domestic environment conducive to business. However, they must operate within the limits set by the international regime.

The question arises as to how regime structures are established, maintained, regulated and changed. Krasner

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6 Susan Strange (1988) in her book, "States and Markets" outlines four structures that define power as the finance structure, the production structure, the knowledge structure and the security structure. She asserts that Britain led in all of them at the close of the Napoleonic Wars which permitted Britain to install the first modern world regime system.

(1983) argues that the creation of a regime and its subsequent ongoing maintenance requires:

(1) the existence of a dominant or hegemonic power that favours free trade,

(2) other major states that will benefit from such creation, and

(3) trade advantages such as lower transaction costs.

Krasner asserts that historically a regime was established by the hegemon but was accepted by developing countries due to the advantages gained by operating within the prevailing regime system. Colonies and subject states traditionally accepted the rules and regulations of the prevailing regime because they benefitted from protection provided by the security umbrella and also from support received for economic development[7]. The leading power benefitted in its control of the international system from stability provided by the co-operation of less-developed, less-powerful countries. In essence, the leading power controlled less-developed countries, prevented them from protecting their nascent industries and limited export of their products to "unauthorized" markets.

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[7] Hirschmann (1970) indicates that colonies prefer the benefits of development and need foreign investment in order to progress. He found that a regime system's values are frequently expressed in terms of ideology. Politically the leading power could maintain loyalty to the regime more easily in many instances through an appeal to ideology rather than through arguments based on logic and statistical data.

With industrialization, trade became significant to the economic growth of states. This led Organski (1954) to suggest that the speed of industrialization became the key factor allowing states to gain wealth and power. This suggests that as more countries become industrialized, there will be more actors directly affected by the prevailing regime. Beth and Robert Yarbrough (1987) support this view. They indicate that the post-World War II regime system has experienced three stages: hegemonic control, multilateral control, and minilateral control.

During the hegemonic control period of the current regime other powers were content to have the United states unilaterally impose a liberal trade regime with the understanding that the United States would support it and finance its operation (e.g., the significant role of the U.S. in the establishment of the United Nations, the North Atlantic Treaty Organization and the General Agreement on Tariffs and Trade).

During the multilateral control period the United States was supported in its control of the system by other leading powers (e.g., countries in the Organization for Economic Co-operation and Development, G-7 countries[8], signatory countries to the General Agreement on Tariffs and Trade).

During the multilateral control period countries began to reorganize themselves into loose alliances which eventually launched the minilateral control period. The minilateral period is characterized by the establishment of more agreements between more trading partners (e.g., 1957 Treaty of Rome establishing the European Community, North American Free Trade Agreement, American-Israeli Free Trade Agreement, Central American Common Market, Latin American Free Trade Agreement, etc.). Krasner (1984) indicates that:

> *More cooperation has persisted than the theory of hegemonic stability would have predicted. International regimes perform functions demanded by states having shared interests; when the regimes already exist, they can be maintained even after the original conditions for their creation have disappeared.*

A review of the research suggests that while the structure and influence of the current regime as established by the U.S. (as hegemon) remains intact, there are segments of the international system that operate outside the regime's sphere of control. Ruggie (1983) describes three central features of the current regime structures:

(1) The normative frameworks (principles and norms) do not change but instruments (operating rules and

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[8] The G-7 countries consist of the United States, Japan, the United Kingdom, France, Germany, Italy, and Canada.

procedures) are subject to constant revision and renegotiation.

(2) The regimes facilitate "transnationalization" or trade flows between countries in an intentionally created permissive environment.

(3) The structures embody "embedded liberalism" as an ideology where open markets with few constraints on trade are advocated for both domestic prosperity and for international competitive advantage.

While hegemonic theory argues that the maintenance of an international regime depends on the absolute power and support of the hegemon, the current international regime reflects the need for regime structures that recognize the interdependence of countries in international trade.

Some researchers have argued that the current regime is in a state of disintegration with U.S. control challenged by the rise of other industrialized nations. The international system is in a constant state of renegotiation and revision as countries develop and trade-based power changes in both absolute and relative terms. The controlling powers are forced into new positions as their ability to control the international environment changes. Change can be driven by social, economic, political or technological pressures. For example, the United States set up the regime structure in telecommunications and let it collapse when technology developments indicated that the United States could reap competitive advantage from a less-regulated system that did not foster and protect monopolistic firms within states (Cowhey, 1990).

Gilpin (1987) and Yarbrough & Yarbrough (1987) argue that the regime is actually being strengthened and extended because other leading industrial powers now share part of the support and maintenance costs. Gilpin (1987) suggests that interdependence between states, as their economies are more closely linked, results in stronger motivation for states and firms to co-operate at more levels and in more ways. In essence, the web of contacts between states has become more dense so that greater co-operation and commitment to regime systems become more likely (Strange, 1985). Keohane (1984) argues that if there is an appearance of decline in trade regimes, it is caused by the pressures of international competition and structural adjustment rather than by the decline of the United States as a hegemon. Joseph Nye (1990) supports this view, arguing that the United States is not in decline but instead is undergoing adjustment from being the leading industrial power to becoming the leading intelligence-based post-industrial power. In his view, the American hegemon now leads in sophisticated computer and service information-based industries. According to Nye, American power is increasing but not in a manner that is easily captured by statistical data based on firms reporting financial performance and output. It also becomes more difficult to capture accurate trade data as more companies operate through international holding companies (Shapiro, 1985).

The current regime can be characterized as having the appearance of control and stability, but with a high degree of instability and insecurity. Within the international system, revision to the existing regime is made more difficult and enforcement is complicated by the inclusion of more actors with diverse cultural and ethical values. Regimes benefit from the inclusion of all actors who participate in the system (Strange, 1988). Individual states benefit from the prevailing regime structures but cannot easily be subjected to the enforcement of rules and regulations. For smooth operation, the regime requires self-enforcement by participant states (Keohane, 1984).

Robert Jervis (1982) refers to involvement in the international system as operating in heavy traffic where actors are best to follow the general rules. However, compliance and enforcement are inconsistent. The situation is made more complex by the presence of free riders (Gilpin, 1987) and states that are self-serving. Robert Jervis (1982) sees a parallel to the dynamics of a prisoner's dilemma[9].

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9 "[A] *situation is called a prisoner's dilemma because basically it is the same as a situation where two persons who commit a crime are*

States come to recognize their ability to cheat and the rewards of cooperation when cheating. The pressure for ongoing revision is constant as states seek to redefine the rules of the regime in their favour.

Change can be seen not only in the actors involved but also in the nature of the control mechanisms established by the regime. Critical to keeping the current regime in place is its ability to renegotiate operations and re-establish effective control mechanisms that recognize change within the international arena. The research work of Krasner (1991) finds that international control can be maintained through four different control mechanisms:

1. ***informal networks*** based on generally understood rules of conduct (e.g., the oil industry),
2. ***formal regime structures with supervisory organizations*** (e.g., the International Monetary Fund and the Bank of International Settlements),
3. ***comprehensive regulatory control*** with organizations established to draft and enforce detailed regulations (e.g., the International Civil Aviation Organization),
4. ***no regulatory control*** (e.g., remote sensing).

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arrested. The police lock each person in a separate room, and offer each one the following deal: 'If you confess, while your partner does not confess, you will get a 2 year jail term, while he will get 12 years.' Each person knows that if they both confess, each will get 10 years (not 12 years because they cooperated with the police). If neither confesses, each will get only 3 years because the evidence against them is weak." Mansfield (1985)

Changes in the structure and the operations of the international regime are particularly evident in the evolution of the monetary and trade regimes from those imposed by the U.S. as hegemon in 1944 to the current regime structures. While the current regime has been established to create stability, it is also characterized by a high degree of change caused by the renegotiation of the regime by its member states and by technology developments which make policing more difficult by both nation states and regime organizations. As actors in the international system, small firms can be expected to be influenced by both factors. Small firms depend on change for inclusion as participants in many regulated industries. It is anticipated that change would favour small firms over larger firms since they are expected to be rapid reactors which can adapt both processes and products to meet new market demands. However, small firms also appear to depend on relative stability within the trade regime so that they can achieve sustained competitive advantage and realize profits with products developed to meet international standards and regulations.

a. Monetary Regimes

The evolution of the monetary regime is reviewed to illustrate change in the structure and operation of a regime structure. There has been an evolution from tight monetary control under the Bretton Woods Agreement of 1944[10] to limited monetary control under the Basle Accord of 1988. The operational style of the regime has changed from a formal regime structure to an informal network model. The nature of the regime has changed from one that was designed with rigid rules and requirements to protect and promote large central banking institutions to one with limited controls on capitalization[11] that permits participation by non-bank institutions and specialty firms.

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10 The Bretton Woods Agreement of 1944 adopted the system developed at the Genoa Conference of 1922 whereby central banks had either to back their currency with gold or to hold as reserves for crises currencies that were backed by gold such as the British pound or U.S. dollar. This system required central banks to defend their currency at the fixed rate and to receive approval from the IMF for devaluations or revaluations. The underpinning of the system was the U.S. pledge to convert other currencies to U.S. dollars at the fixed exchange rates and to exchange U.S. currency for gold at $35. per ounce with gold from its own reserves.

11 "*Capitalization*" means that for the purposes of credit creation, central banks must maintain a certain percentage of their assets in liquid form such as gold or other gold-backed currencies. This is necessary so that central banks can make payments upon demand in an acceptable form to meet needs that arise during occasional banking crises (Sarver, 1990).

The Basle Accord acknowledged the fact that substantial changes had occurred since the time of the Bretton Woods Agreement in 1944. The system of consultation that developed during the disintegration of the Bretton Woods System resulted in organizations other than central banks having political influence through their representatives at G-7 meetings. Since the G-7 countries were anxious to participate in the growth of the growing financial services industries, regulations were relaxed to give benefits to domestic firms when certain countries needed help to restore economic growth. This consultative and coordinated system of regime renegotiation is an example of a network model.

With the passage of time, the monetary system developed strains related to confidence in its stability. Due to commercial bank failures, the G-7 countries were aware that the monetary system was under substantial strain[12]. Consequently, the monetary system periodically needed to:

(1) restore faith and confidence in the system to keep international trade healthy,

(2) create a level playing field since abuses in many member states had occurred (especially in relation

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12 The 1974 failure of the Herstatt Bank in Germany and the Franklin National Bank in New York, the Mexican loan repayment failures of 1982, and the failure of the Continental Illinois Bank in 1984 were examples of failures that were considered serious enough that the Bank of England recommended an investigation to look into methods to deal with restoring confidence. The recommendations of the Cooke Committee eventually led to the Basle Accord (Sarver, 1990).

to credit creation, capitalization requirements[13], and from new risks from off-balance sheet transactions[14]), and

(3) devise a means for regulating the new participants while permitting them free access to markets.

The Basle Accord appeared to meet all of the challenges by revising the capitalization rules in tiers and by acknowledging new market entrants. It permitted a number of entrants with no tight control on size. The new entrants into the world of banking and finance included investment banks, acceptance corporations (e.g., General Motors Acceptance Corporation), industrial finance companies (e.g., GE Credit) - all of which engage in bank-like activities, stock brokerage and investment firms, and smaller specialty firms that write software programs or handle sophisticated financial products such as swaps. Some of the new entrants were larger in size than the central banks of the smaller IMF countries. Small Canadian firms are now able to become full-fledged participants under the new rules.

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13 Many central banks found it difficult to separate domestic and international finance transactions due to the complexity of new market vehicles and took different accounting approaches for the purposes of capitalization. Other capitalization calculation problems arose because substantial assets were beyond central bank control either because the assets of market participants were located in tax haven jurisdictions or in the Eurocurrency market (Sarver, 1990).

14 New financial vehicles such as new forms of letters of credit, note issuance facilities (NIF's) and performance bonds were off-balance sheet items that were offered by commercial banks and even specialty firms, many of which had no obligation to report to central banks.

b. Trade Regime

Critical to the entry of small business into international markets is a trade regime supportive of their participation and willing to protect their intellectual property rights. "The GATT"[15], was designed by Americans in the post-World War II era with the unwritten intent of assisting U.S. multinational firms in gaining access to foreign markets (Reich, 1989). Due to its position as the hegemon, the United States was able to set up the international trade regime (the GATT), and was able to become a participant in the European regional trade regime as well[16]. The GATT system has been modified by subsequent trade negotiations: the Kennedy Round (1963-1967), the Tokyo Round (1973-1979) and the Uruguay Round (1986-1993).

The principles of the GATT trade regime are: (1) non-discrimination, (2) liberalization of markets, and (3)

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15 As a result of the conclusion of the Uruguay Round of talks on December 15, 1993 "the GATT" has since been renamed the World Trade Organization ("WTO").

16 American multinational firms all gained "European status" in the European Economic Community after the Treaty of Rome in 1957. American firms were recognized as "European" due to their extensive participation in rebuilding Europe under the Marshall Plan. American multinational firms were active market participants in most western European countries as a result of American military, economic, trade and financial power (Gilpin, 1987).

reciprocity. During the Truman Administration's "*Four Pillars*" lobbying campaign to promote acceptance of the GATT trade regime, these principles were stated as follows:

(1) The principle of ***non-discrimination*** applies so that all signatory countries receive most-favoured-nation status whereby goods enter each jurisdiction with either no tariff barriers or at least on the most-favoured-nation status terms.

(2) Under the ***most-favoured-nation principle*** any concession given to one trading partner has to be extended to all other partners.

(3) The ***principle of reciprocity*** applies multilaterally so that in terms of repayment, concessions from A to B would have to be recovered from increased trade which meant that A would have to compensate itself by attracting other partners (e.g., countries C, D, E, etc.) under the multilateral agreement to trade.

(4) All partners accept that countries can invoke ***exceptions and escape clauses*** to defend their national interests but the use of such exceptions is monitored and reported on by the GATT administrative bodies.

In order to enhance the expectation that fairness and due process are important, the GATT provides for judicial and arbitration proceedings to handle disputes between member countries.

The GATT has not always enjoyed enthusiastic cooperation by the signatory countries. When the GATT was first enacted many countries tried to informally gain the benefits while delaying opening their domestic markets. Many countries obtained exception agreements or devised non-tariff barriers (e.g., country-specific protocols and safety regulations as in the

Netherlands and Germany as reported by Grieco, 1990) and procurement barriers to protect small domestic firms from large American multinational firms (as in France; Servan-Scheieber, 1968). During this period of protectionism, many firms prepared themselves for entry into international markets. However, the level of international cooperation under the GATT system has generally increased with the passage of time as more and more countries have come to identify participation under the GATT with the development of wealth through international trade.

Ostry (1990) and Ohmae (1991) indicate that the GATT regime structure has fostered globalization. In Ohmae's view, large firms consider it necessary to compete in all of the major markets (e.g., in his view the major markets are Asia, Europe and North America). Ohmae (1989 and 1991) refers to the sale of products in these major markets as the "*triad marketing strategy*".

The entry of big firms into international markets has paved the way for small firms to enter. Increases in the number of countries and large firms in international trade have resulted in regime renegotiation of the GATT. Benefits achieved for large firms have indirectly affected the ability of small firms to export. There are opportunities not only in emerging markets but also in markets already serviced by large firms.

With technological diffusion and rapid product development, small firms have become viable participants as soon as entry barriers, financing limitations, and communications barriers have been removed. In the new high-end markets where service, intellectual property, and value-creations are the keys to success (Drucker, 1989; Toffler, 1990), small firms have established competitive advantage over larger firms in specialized niche markets. New technology and applications products do require international trade protection for patents, trade marks, copyrights and processes. Consequently, the GATT provides for firms of all sizes to sell products and services to a world-wide market.

While Canadian firms benefit from Canada's involvement in the GATT, further trade benefits have been negotiated under bilateral and multilateral regional agreements: the Free Trade Agreement ("FTA") with the U.S., and the North American Free Trade Agreement ("NAFTA") between Canada, the U.S. and Mexico. The U.S. market has provided a logical extension for sales of Canadian products and these trade agreements have provided access and competitive pricing opportunities for Canadian businesses. The benefits are particularly significant since small firms have access to very large markets that are within close proximity. The impact of the Canada-U.S. Free Trade Agreement on the creation and successful growth of small Canadian firms must be reviewed. NAFTA is expected to extend the current benefits of the FTA. Although the Mexican market is large in size, the number of users for high-cost products is limited due to the low purchasing power of the majority of Mexican residents. Nonetheless, there is a growing middle class that is anxious to buy consumer goods so there will be many Canadian and U.S. industries that will reap substantial benefits from increased trade with Mexico (Richman, 1993). Firms producing individualized, value-added goods and services that meet customer needs are expected to be among the biggest beneficiaries (Matthews, 1993). Since Canadian small firms fit into this category, they should find that NAFTA extends advantages already conferred under FTA (The Economist, July 3, 1993). The close proximity of the Mexican market and the extension of programs for creation of credit for Mexican purchases should benefit Canadian small business.

The development of new trading blocs does suggest, however, that the globalization of trade is still restricted. Protectionist policies are currently in place for groups of nations as well as for individual nations. The trade regime reflects the transition towards a borderless world but is still operating in large part on the structure established to protect GATT participants and more specifically U.S. industry (Ohmae, 1990). This research considers what these developments mean for small Canadian business.

2. Section Summary

Regimes are significant since the international regime system provides a framework for the conduct of international business and trade. Regimes can be imposed unilaterally by a hegemon but depend on the open or tacit consent of the leading powers. The current regime in which the United States is the considered to be the leading power has moved through stages from hegemonic control, to multilateral control, and to minilateral control. With so many countries currently active in international trade, the ability of any one country to curtail, change or control the regime is significantly reduced. Individual countries cannot unilaterally create new international regimes, erect protective mechanisms or create prohibitions and quotas for internal markets without consideration of the international business environment and existing trade agreements.

Countries which were not directly involved in the creation of the international regime exert pressure for change as they become more actively involved in the international system. Such pressure has resulted in ongoing renegotiation of regime structure and operations. This renegotiation is complicated by the diversity in values and needs of new entrants and changed circumstances of the original actors.

The rules of operation at the international level are enforced by regime organizations or institutions through regulations, operating policies, licensing conventions and general agreements. Formal regime structures have traditionally been responsible for enforcing the regime. A review of the current monetary and trade regimes, however, suggests that the regime has become very dynamic and dependent for both change and enforcement on more informal regime networks. The significance of the monetary regime in international trade is well-recognized as is shown by Ohmae's (1990) inclusion of currency as one of the 5 c's (e.g., customers, competitors, company, currency and country). Regime structures have been forced to move from being regulators in charge of ensuring that only authorized large firms or countries can participate to becoming facilitators of international development and trade.

The dynamic nature of the current international regime has provided opportunities for the active involvement of many new actors and for extension of opportunities for existing actors. These include countries, large and small firms. Deregulation has provided a real opportunity for small firms to sell into foreign markets.

While change in the international regime can be seen as an opportunity, it also presents a challenge to individual countries and firms that must be prepared for competition under new and constantly changing conditions. National regimes that are established to promote domestic development and trade must recognize the provisions of current international regimes.

B. State Intervention and Support Strategies

1. Context and Approaches for State Support

Countries establish national regimes in an effort to create or extend competitive advantage. They are intended to link domestic firms to the national economy and the nation to the international trade regime in a manner that maximizes the country's economic performance. While national regimes ostensibly comply with international regime rules, participating countries on occasion push the limits of what is permissible. Whereas state intervention attempts to create factor conditions conducive to the development of domestic firms regardless of size, state support programs often target individual firms or industries for assistance. This support can be offered in the form of economic aid, access to knowledge or data, and/or other resources.

National institutional arrangements can make a difference to the success of countries (Porter, 1990; Kogut, 1991) and to the performance and behaviour of firms (Murtha and Lenway, 1994). Different endowments, consumer preferences and strategy implementation can be affected by the degree of collaborative interaction between government and business (Kim, 1988). For government the key to success seems to be finding a fit between the environmental context and the needs of both firms and markets (Naman and Slevin, 1994).

To comply with international regulations support is often offered pursuant to industrial, social or economic development programs that target under-developed regions. National regimes reflect state strategy and establish the mechanism to provide for national economic development and link this development to the international economy.

Niosi and Faucher (1991) suggest that a government can actively intervene in providing education, contribute either directly or indirectly to R & D, monitor and restrict importing technology through licensing, affect industry performance through competition policy (e.g., anti-trust and anti-combines legislation), and stimulate domestic firms through procurement policies. In their view, the state, through intervention, can change the country's natural endowments. This is critical at a time when the source of competitive advantage is in the process of shifting for a third time:

> *We suggest that with industrial development, with its evolution from labour-intensive industries to capital-intensive and then knowledge-intensive industries, the weight of static natural advantages diminishes and that of dynamic socially produced advantages grows.* (Niosi and Faucher, 1991)

Niosi and Faucher (1991) further indicate that the secret to success is having state intervention policies that provide limited but necessary assistance to the private sector:

> *As a general rule, recent examples show that interactive policies combining private initiative with a limited amount of public resources can achieve more than what can be accomplished through cumbersome state planning and public ownership. Thus, the outcome of public intervention depends largely on the intrinsic quality and dynamism of the country's entrepreneurship.* (Niosi and Faucher, 1991)

A review of the literature suggests that in the current international environment, countries with published industrial policies and state support programs (often tied to manufacturing policies: Carr, 1993) have accelerated the development of both large and small businesses which compete in both domestic and international markets.

> *The economics of market supply and demand became infused by the political economics of global competition. U.S. firms were suddenly faced not by foreign competitors but by competitors benefitting from coordinated industrial policies orchestrated by foreign governments in cooperation with business and labor. (Astley, 1992)*

To maximize performance, a firm's strategic capabilities must be developed and applied to fit the business environment and goals established in a national industrial policy.

The American strategy of having no published national industrial strategy has been relatively successful since World War II. Currently, however, as the leading position of the U.S. is being challenged by international competitors, there is pressure for the U.S. to reconsider its strategy. It took a substantial period of time for the Canadian government to perceive that its position and its strategic needs are different from those of the U.S. Prior to the 1970s, Canada followed the American lead of having no published national strategy and assisting large, resource-based industries. In order to create development in less developed regions of the country and to take advantage of Canada's perceived advantages in the natural resource sectors, Canada invested in mega projects (e.g., for the development of oil and gas in Hybernia and the tar sands in Western Canada). In the 1980's these programs were established as regional development initiatives. As a result, the Government of Canada was seen to be promoting a "general approach" while progressively instituting support programs that were in fact specific or targeted. During the years of the mid 1980's to the mid 1990's, a wide variety of targeted programs were established, many of which are contained in Appendix "D". In 1994, the Canadian government attempted to clarify its strategic approach in a published policy.

> *These actions are grouped in four main thrusts: improving the marketplace climate, expanding international markets, ensuring an adequate infrastructure, and harnessing technology to accelerate economic growth.* (Industry Canada, 1994)

The government's goals include:

> ... increasing participation in regime organizations (e.g. expanding Canada's participation within the World Trade Organization and working with new members such as Russia, Taiwan, China, Ukraine and Saudi Arabia),
>
> strengthening export financing (e.g. through the EDC and CCC with information available for small firms, with new guarantees so that the chartered banks will be more willing to make loans, and with the development of a risk-sharing plan),
>
> and extending marketing programs (e.g. expanding PEMD, expanding Canada's participation in the information highway, extending CANARIE which is the acronym for the Canadian Network for the Advancement of Research, Industry and Education). (Industry Canada, 1994)

The literature indicates that Canada has several options in providing this support. A government employing a *general approach* establishes social and industrial policy and programs that apply to the business environment across sectors. It is typically associated with capital intensive mature products. The idea is to foster an environment where industrial growth will abound. Such a policy does not focus on particular industries, firms or products but can favour national firms in terms of government procurement and safety standards. On the other hand, a government can use an interventionist strategy that attempts to organize national resources in a manner that targets specific geographical regions, industries, firms and products. It is typically associated with development of innovation in the high tech niche. This interventionist approach is referred to as a *specific approach*.

Sylvia Ostry (1990) outlines two specific approaches in terms of innovation policy strategies. The specific approach can be "*mission-oriented*" aimed at moving the frontier of knowledge forward in a permissive atmosphere or "*diffusion-oriented*" attempting to take existing ideas and technologies to new heights of achievement through rapid learning developed from research, training and adopting best-practice techniques and improving them:

> *Two basic models summarize the essential nature of innovation policy strategies. One seeks to push forward the technological frontier by developing leading-edge techniques, and the other centers on closing the gap between the actual and the best available practice by fostering technology diffusion.*
>
> *While most countries engage in both types of policy, the tilt in the United States is "mission-oriented" - that is, concerned primarily with pushing out the technological frontier. Diffusion - that is, U.S. firms' process of adopting "best practice" is less a conscious strategy than a by-product of the high internal mobility and openness of the American industrial and education system. This makes the American system uniquely porous in international diffusion as well. Many European countries (Germany, Sweden, and Denmark, for example) have concentrated on policies and institutions devoted to effective domestic diffusion. Among the industrialized countries, only Japan has an innovation policy that explicitly includes and explicitly coordinates both mission - and diffusion-oriented objectives. As for the EC, in contrast to its individual member-countries, the policy stance is in a process of evolution but has borrowed elements of the Japanese model.*

A country's options in developing a state intervention strategy are extensive and can include both general and specific approaches. Historically, the national governments of both the United States and Canada have used a predominantly general approach whereas provincial and state level governments have more frequently used the specific approach. As evidence that governments use both approaches, Ostry (1990) points out that the federal U.S. government did use a specific approach in creating the Tennessee Valley Authority. It can also be argued that the Canadian government used the specific approach in targeting mega-projects in the 1980s and in developing regional economic development plans.

The concepts of general and specific approaches from political science are similar to the concepts of the "*weak state model*" and the "*strong state model*" in political economy (Peter Eisinger, 1988). Eisinger indicates that national governments can stimulate over-all business performance through fiscal, monetary and macroeconomic policies. He argues that the U.S. federal government has adopted this weak state approach by distancing itself from investment and development decisions at the firm level.

Eisinger (1988) supports the strong state model to create and stimulate new growth. He approvingly labels any government adopting this approach as an "*entrepreneurial state*". He argues that economic and industrial growth will come primarily from emerging industries, processes and markets. Traditional large-scale industries will not be able to effectively compete due to the rapid rate of technological change. He recommends state investment and intervention to accelerate business development:

> *Underlying the actions of the entrepreneurial state is the assumption that growth comes from exploiting new or expanding markets. The state role is to identify, evaluate, anticipate, and even help to develop and create these markets for private producers to exploit, aided if necessary by government as subisidizer or coinvestor. The policies of the entrepreneurial state are geared to these functions. They include the generation of venture capital for selected new and growing businesses, the encouragement of high-technology research and product development to respond to emerging markets, and the promotion of export goods produced by local businesses to capitalize upon new sources of demand.* Eisinger, 1988

The specific approach is preferred by governments that choose to use their resources primarily for the support and nurturing of new industries that generate leading-edge products by means of heavy investment in R & D and loan programs. This approach is also favoured by researchers who advocate the "*induced strategic approach*" (Burgelman, 1984). Many of these products are intended to sell in low-volume niche markets where substantial profits can be made because of early entrant advantages and high demand. For the most part, entrepreneurial states have chosen to develop targeted support programs for the use of start-up firms that specialize in high-technology industries.

The effectiveness of the weak state approach is limited because it benefits the mature, large-scale, manufacturing firms which are often in declining industries. The effectiveness of general programs that attract existing firms by providing subsidies, low taxes and pre-paid services is decreasing also because a large number of other governments are offering the same kinds of incentives. The potential for the generation of economic growth by existing large firms is limited. This suggests the reduced value of general state support.

Reich (1989) concludes that a strong state approach with specific programs is most effective because a weak state, general approach is based on the false assumption that the government can, through its control of domestic factor conditions, effectively support all new and mature industries. Ohmae (1991) argues that strong state, targeted approach strategies can be effective even in declining industries where there are untapped market opportunities. With increased international trade, a declining product in one market may become very profitable in another emerging market. Innovations to a mature product can also extend its profitability. Niosi and Faucher (1991) also argue that it is important that the developed industrial economies not run the risk of decline by reducing funding for mature industries and products.

States must decide not only on a strategic approach to state intervention, but on the extent of their commitment and the policies and programs that will best serve both firms and the state. Consideration of the needs and opportunities of firms must be undertaken in view of current national and international opportunities and limitations.

At the "*macro level*" a country must make decisions related to the following:

(1) national involvement in international regime organizations and what policy areas to focus its negotiations upon (e.g., intellectual property issues and the rules for protecting such property),

(2) the establishment and role of national regime organizations (i.e., the specific economic or development sectors that need the control and/or protection of national regimes: e.g., the National Wheat Board), and

(3) the use of general or specific state support.

At the "*meso level*" a government makes decisions related to:

(1) the creation of infrastructure that provides factor conditions or environments favourable for business development (e.g., transportation, education, banking, and environmental protection policies),

(2) the extent and nature of government involvement (e.g., strong state versus weak state) in providing infrastructure and support programs. The potential of the private sector and provincial governments must be considered.

At a "*micro level*" a country must make decisions related to the following:

(1) business sectors which should receive support (e.g., high-technology versus low-technology, resource-based industries versus manufacturing industries, export firms versus domestic firms),

(2) type of support (e.g., financial, networking, advertising, and government procurement),

(3) type of firm to be supported (e.g., small firms versus large firms, new firms versus mature firms),

(4) extent of support for each program (e.g., terms and conditions for usage, limited time frame versus ongoing),

(5) specific programs to be supported (e.g., marketing, training, research and development, and operational development),

(6) stage of development of firms requiring support (e.g., start-up, growth, or expansion).

A review of the literature reflects the many options available to governments committed to state intervention. This study considers research findings related specifically to state support programs for small firms that export.

Several researchers have argued that state support for small business is necessary and can be very effective. Paul Dana (1990) who studied the Canada-U.S. Free Trade Agreement, suggests that a major portion of new job creation will be in the small business sector.

Those in favour of supporting large firms argue that they can conduct global strategic operations and conduct market share battles by cross-subsidizing operations:

> *A global strategy would presumably consist of efficiency-based competitive positioning combined with internationalization based on globally integrating operations, subsidizing cross-country market share battles, and influencing political actors to better establish national investment platforms.* (Morrison and Roth, 1992)

However, multinational and transnational firms are not easily controlled by government. Small business is more susceptible to government influence and control than big business (Magnet, 1993b). Government policies and programs have direct impact on small firms since they are less able to cushion effects through relocation or reorganization of operations than larger firms (Magnet, 1993a). Countries need to spend less on tax collection since small firms lack the scale to be involved in sophisticated tax delay and tax avoidance schemes (e.g., off-shore re-billing and re-invoicing centres require cash flows in the nature of $100 million U.S. per year according to Shapiro, 1991). Consequently, it can be argued that small business is a better target for government funding because of its greater loyalty, inability to exit its country of origin, and because government funding has the greatest impact upon them.

Whether small business is more suitable for state support programs than large business has been considered by a number of researchers. Sriram and Sapienza (1991) assert that the high involvement of small firms in export is good reason for national support programs to target small firms. Sriram and

Sapienza (1991) conclude that small firms are more likely to succeed in international market competition than large firms for the following reasons:

(1) Their products are customized.

(2) Small firms are more focused on individual customers.

(3) Small firms place greater emphasis on focused marketing than large firms.

(4) Small firms export to more countries in order to build up necessary production volumes. This wide distribution of risk reduces the overall risk level of small firm exporters.

Bonaccorsi (1992) suggests that, for small firms, exporting is the path of least resistance for generating fast growth. The comments of Bonaccorsi (1992) suggest that the U.S. may not be the logical first step in international market entry for firms. She states that international competitiveness for small firms is based much more on general competitive factors than on explicit marketing strategies and policies. She indicates that low entry barriers, easily accessed information and an ability to imitate other successful firms increase the likelihood of small firm success. As well, she states that the needs of small firms may be less complex than large firms and it may be easier for government programs to assist the smaller firms.

Popular writers assert that small firms can compete aggressively against larger firms due to a number of additional factors. With sophisticated software programs, small firms can produce goods and services in small runs that match, and often surpass, the quality of large firms (Dumaine, 1991, Cunningham, 1991, Deutschman, 1919, Burck, 1993). Small firms have, due to their size and short lines of communication, faster reaction time when reacting to market change (Sheridan, 1990). Small firms link themselves to their customers by using rapid data transmission and communications technology (Knight, 1989, Schmidt, 1990). This equipment is available to small firms at reasonable cost since they can use simple, fully dedicated equipment (Dumaine, 1991).

Based on a sample of 178 firms drawn from the Saskatchewan Manufacturers' Guide, Barker and Kaynak (1992) indicate that there are several major motivators for small firms to export. These factors include the size of overseas markets, the demand and profit potential of foreign markets, and the search for stability through pursuing a market diversification strategy. The physical proximity of the U.S. market means there is a nearby international market for initial product testing for Canadian firms. These researchers favour state support that is directed towards small business.

A number of researchers believe that government can very efficiently improve the position of small firms by supporting exports. For example, Moini (1992) asserts that if government provides information to small firms on countries and markets (e.g., on the conditions and opportunities in EC markets), then the number of small firm participants will increase. Moini's approach is based on two observations:

(1) that a greater proportion of small firms than large firms is involved in exporting, and

(2) that small firms are more optimistic about export profitability than large firms.

If government is going to become involved in start-up of new firms, then it follows that government should attempt to help firms find niche markets where their products are in demand. Chrisman (1989) strongly recommends that the role of government is to establish Small Business Development Centres ("SBDCs") which will help analyze the feasibility of proposed ventures and develop strategic plans to facilitate success.

In a study of small businesses in Illinois, many small firms were found to be sub-optimizing by Kathawala, Judd, Monipallil, and Weinrich (1989). These firms failed to reach out to foreign markets for several reasons:

(1) They perceived that there were few export markets with potential.

(2) They feared the complexity of the export paperwork.

(3) The perceived high cost of marketing and sales deterred them from trying.

These researchers conclude that a government agency is required to promote international trade, conduct educational seminars, and provide a training centre for firms. The state agency should promote international trade and coordinate export assistance programs.

The central government information agency approach is supported by Naumann and Lincoln (1991) who indicate that non-tariff barriers are a substantial problem for many small businesses. Since an entry strategy is required market by market, state support in supplying information and contacts is required. For this reason the state government of Maine introduced a product marketing support program through which firms could choose to participate in industry sectors that were of interest to them (Cook, 1992).

Whether or not small business is a suitable risk for government state support is another issue which has been considered by a number of researchers. Carter (1990) indicates that small business entrepreneurs have their own money invested in these enterprises. Consequently, he argues, governments do not run large risks in providing secondary financial support for these firms. A similar argument is advanced by Timmons (1990) who found that entrepreneurs had 75% of their assets invested in their firm. In his view, this level of investment indicates a very high level of confidence in their product or service. However, despite this confidence, Terpstra (1993) found that many entrepreneurial enterprises need help to manage different stages of growth and maturity.

Mangelsdorf (1991) indicates that one of the biggest barriers to small business entry into international markets is in raising sufficient financing. She quotes a 1988 House of Representatives Banking Subcommittee survey that reports that 53% of the respondents lost export business because they could not arrange suitable financing. This line of reasoning suggests that the United States' economy could be adversely affected if there are not adequate programs to assist small business with financing.

From a technology development point of view, Knight (1989) suggests that small firms are the appropriate target for state support because large firms develop only new processes whereas small firms develop new products. This reasoning is similar to that of Burgelman (1984) who considers unexpected innovations that spring up to be "*autonomous*" and those that are produced pursuant to a corporate strategy to be "*induced*". Knight (1989) suggests that the greatest value-added and profit margins come from new products developed by small firms involved in research. Consequently, Knight argues that government should support small business since it produces the autonomous research break-throughs that generate the largest profits.

Goldman (1991) argues that large firms can deal only in induced strategic innovation compared to autonomous innovation because of the disconnection between large firm strategists and R & D implementors. Goldman (1991) indicates that break-through inventions of the unexpected (autonomous) type will most typically continue to come from small firms and that investment by government to foster their inventions is a prudent choice as a long-term strategy.

Schmidt (1990) states that small firms live in an innovation-increasing environment because they sell in small production lots to users who expect constant improvement, process refinements and technological sophistication. Due to their exclusive participation in high-end custom markets, small firms can successfully earn large profit margins in markets which large-scale producers have not pursued.

The Canadian government recognizes that small business is spending substantial amounts on R & D in comparison to its revenues. In total these expenditures are sizable and should be contributing to the development of new technologies and processes:

> *In 1990, some 84 percent of firms reporting R&D expenditures had fewer than 100 employees. These firms accounted for 21 percent of all private sector expenditures on R&D.*
>
> *In fact, small firms doing R&D do so more intensively than do larger firms, committing a higher proportion of company sales to R&D. In*

1990, for example, R&D-performing firms with less than $10 million in sales spent 26.3 percent of company sales on their research activities, compared to only 1 percent for firms with more than $400 million in sales. (Small Business and You, 1993)

In a study of growing Canadian small and medium size businesses with less than 500 employees, Baldwin (1994) found that 12% reported R & D expenditures, with a greater emphasis on product rather than process innovations. Firms with sales of less than $1 million had the highest R & D to sales revenue ratio at 11.9%.

Several researchers argue that the government should support the development of incubator locations that target research and development of new products. The setting up of research consortia and incubator locations to encourage start-up of new firms in growth industries is supported by Hogan (1991). In his view, the role of government is to determine the location, coordinate university, government and business specialists, and provide economic development programs so that private sector firms can exploit the advantages of being in a rapid-learning environment. Research suggests that small firms involved in high technology products benefit from incubator development.

Roberts and Mizouchi (1989) indicate that firms doing research in biotechnology need consortia partners because there are different approaches, long-term development periods and financing difficulties for high-risk projects. Consequently, Roberts and Mizouchi recommend alliances with government laboratories and university research facilities. These researchers recognize that small firms, due to their size, limited capital and lack of marketing experience, need assistance in launching products and in finding suitable distribution channels. They go so far as to suggest that the government's role is to assist in setting up joint ventures, corporate alliances, minority equity investment pools, and research contracts.

In a study of such an incubator sponsored by the San Antonio Texas Research and Technology Foundation ("TRTF") Raia (1992) stresses that start-up firms must be connected to university-driven think tanks and have access to sophisticated research facilities. In her view, access to these incubator locations and the network should be at no-cost or very low-cost. The majority of the costs for network access should be funded by universities and federal government agencies because they conduct their research from grant revenue that derives from public revenue sources.

In a study of the Tri-Cities Science and Technology Park in Washington State, Graff (1991) stresses that incubators are a total environment where intellectual property development creates market interest so that venture capital becomes available. By locating many research firms together, venture capitalists focus on the region so that new capital becomes easier to raise.

Doutriaux (1991) suggests that government should assume the additional obligation of using the products of the incubator firms in its own facilities in order to provide for new product testing. According to Doutriaux (1991), government procurement practices should give preference to products from incubator firms. The use of new products is beneficial in that it allows the products to be certified by standards organizations (because they have been used under appropriate test conditions). These products will also be easier to market since they have had proven success. However, such practice might be considered a violation of the WTO provisions.

Another issue to be considered is whether government should attempt to involve firms in new industries by encouraging start-up of domestic firms rather than by soliciting multi-national firms with facilities in other countries.

Romanelli (1989) suggests that factor conditions influence start-up strategies and the choice of business sectors that small firms enter. She states that specializing in the production of specific goods and using aggressive strategies cause firms to grow quickly, thereby increasing the likelihood of survival during the start-up period. Hurst and Zimmerman (1994) indicate that with the rapid growth of new markets, the production capability of the firm ("*r*" factor) must be developed to line up with market capacity ("*k*" factor). This suggests the need for market-based information. Willard and Savara (1988) argue that the role government plays is significant because small start-up firms must be able to successfully exploit favourable environmental conditions during a very short window of opportunity period.

Easterly (1991) proposes that states should provide capital to assist in start-ups and cites the success of the IMF and World Bank as examples where capital funding has succeeded in disadvantaged regions. In his view, governments should not become involved in market selection or regulation (e.g., subsidies, price controls, or trade intervention policies). Easterly (1991) advocates a general policy of support for start-ups based on a supportive economic policy for new firm formations through the provision of capital funding.

Another consideration is whether government state support programs should be directed at firms in general or target specific interest groups, regions, and industry sectors. Lafuente and Salas (1989) considered Spanish firms and conclude that there is a need for public policies that respond to the needs and expectations of different groups of entrepreneurs. They suggest not selecting sectors for support but rather developing wide policy guidelines that will respect the differences between firms and promote all entrepreneurial firms in different environments.

The appropriate level for government support to small business is an issue in federal systems such as Canada and the United States, where economic powers overlap between national and sub-national governments. In Canada, for example, the negotiation and implementation of the Canada-U.S. Free Trade Agreement have shown the need for cooperation between the federal government and the provinces. In support for his position that sub-national governments are more effective, Moskowitz (1992) cites examples of state governments that have successfully taken on the responsibility for initiating sales leads, developing export financing programs, and fostering strategic alliances for small business. On the other hand, Sriram and Sapienza (1991) argue that the high involvement of small firms in exports warrants national support programs.

Manzella (1991), in discussing the Canada-U.S. Free Trade Agreement, suggests that the national government has a role to play in networking, linking business to the international trade regime by providing information regarding trade rules and regulations and market opportunities. The national government must coordinate the dissemination of information, even if provincial governments are delegated specific responsibilities. Miele (1988) indicates that corporate planners have a responsibility to keep in touch with federal and provincial officials since many aspects of the FTA have yet to be worked out and implemented. The awareness of new opportunities and programs supporting technological development can help industries earn high value-added margins and make substantial profits from early market entry (Dosi and Soete, 1991). The program options presented by Niosi and Faucher (1991) imply that both national and provincial governments must be involved in intervention, through trade policy and state support programs, to help firms compete internationally.

2. Section Summary

A review of the literature shows the importance of a country's intervention strategy linking the nation's business sector with the international system. The objective for government is to maximize the potential success of its business sector so it can compete internationally and thereby improve the country's balance of trade. Research suggests that a nation can choose between strong and weak state interventionist strategies. Intervention may include specific (targeted) or general support programs. The nation must determine what its role is relative to existing international and national factor conditions and current business needs. Research shows that small business can, with its leading-edge products and ability to identify and respond to market niches, successfully compete in emerging international markets.

Research further indicates that small firms depend on government support in providing an environment conducive to development. This includes general strategy, policies and programs that protect, create or enhance existing factor conditions. This also includes specific support programs that promote small business development.

The Government of Canada's 1994 industrial policy recognizes the limitations and opportunities provided by current international and domestic regimes. It recognizes the potential of small business to successfully compete in emerging international markets and the need for government support for small business, particularly for programs that support R & D and exports.

This study will analyze the development of small firms in Canada that have achieved success in foreign markets with a view to furthering the understanding of the significance of the state in small business development. It will report on the effect of Canada's national regimes, current industrial policy and support programs on small firms that export. The usage and evaluation of state support programs for start-up, organizational growth, training, research and development, and marketing will be studied.

In this research small firms that export are categorized according to their level of technological sophistication and product maturity. This will allow the research to study the actual experience and state support requirements of specific types of small firms.

C. Networks

Researchers Niosi and Faucher (1991), Dosi and Soete (1991), and Quinn (1992) suggest that networks are critical to success of firms competing in the new global context. Duncan (1990) reports that conditions have changed in the world due to government programs that encourage increased incentives for consumers to buy, new consumer buying trends by yuppies in the economically advanced countries, and the development of regional trading blocs that make the need for contacts, partners and participation in various forms of network alliances highly desirable. Networks are considered as a linking device between firms and the national and international system. The term "*network*" is used in various contexts by researchers but whether a network is used as a means of extended influence for marketing or as a form of organization to facilitate involvement in international market competition, the network provides the medium or linking device which extends the resource base of the firm. A review of the literature suggests that there are five distinct types of networks used by firms: personal contacts, new form of organization, strategic alliance networks, learning networks and new form of competition networks.

1. Personal and Extended Contacts Networks

Networks are patterned relationships between individuals, groups and organizations. The term "*network*" is most commonly used to refer to a relationship between two or more people who have something in common which can somehow be shared with others. Dubini and Aldrich (1991) define personal networks as the contacts possessed by an individual or firm. Extended networks are the aggregation of personal contacts possessed by a group of firms. Firms form networks to reduce the costs of developing contacts, acquiring information and obtaining services. Networks result in concerted group action. However, the structure of the network is often weak since relationships are developed from mutual understanding and are rarely codified. Typically, there is no organization chart - the members just know how it works. The network system works due to a high degree of mutual respect, trust, and predictability of behaviour.

This research considers the effects of contact networks for Canadian small businesses that export. It also considers the role of government in establishing networks for firms intent on entry into or expansion of international markets.

2. Networks as a New Form of Organization

Although traditionally, the term, "*network*", refers to a group of contacts of either a personal nature or an extended group, with the passage of time new forms of business organization have resulted. Just as building architecture has changed to recognize new needs and to accommodate different methods of meeting, so in business new configurations of business organization have resulted to accommodate new realities (Nadler, Gerstein and Shaw, 1992). Networks can be considered to be complex arrays of relationships between firms (Jarillo, 1988). They can also be considered to be a form of business organization (Nadler, Gerstein and Shaw, 1992; Bressand and Nicolaïdis, 1990).

New demands upon businesses and developments such as globalization have necessitated the development of innovative forms of business architecture[17]. A network structure is an alternative to an hierarchial structure[18]:

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17 Nadler, Gerstein and Shaw (1992) indicate that each new design in building architecture was a response to changed needs. In their view, Roman temples replaced the Greek style of temples when more interior space was needed. Later, Christian designs responded to the need to seat large numbers of people within churches. In each case, new demands resulted in architectural responses.

18 The network structure tends to be flatter than traditional structures and to be designed with very few hierarchial positions. The organizational design of a network system features a configuration with centrally-

Information technology has begun to revolutionize organizational design by providing alternatives to hierarchy as the primary means of coordination. Information systems, common architectures, shared data bases, decision support tools, and expert systems facilitate the coordination of behavior without control through hierarchy, thus enabling the creation of autonomous units linked together through information. It also allows more loose coupling (versus tight coupling) without the risks of lost coordination and control. The combination of the great potential of information technology with the great demands of the competitive environment has led to innovations in organizational design. (Nadler, Gerstein and Shaw, 1992)

Networks allow firms wide latitude in the design and construction of new business entities. One model provides for a "*weak alliance*" based on trust and mutual understanding, while another model provides for a "*hub firm*" which directs operations on behalf of the whole group. Many variations are possible based on these two basic models. Nadler, Gerstein and Shaw (1992) suggest that the glue that binds the parties is a commitment to common production or technologies. Unlike the holding companies of the early 19th century in the U.S., these firms are also bound together by values, ideology, and needs:

> ***Networks:*** *Those companies that become particulary adept at shaping themselves to face uncertainty will evolve into a combination of wholly owned operations, alliances, joint ventures, spinouts, and acquired subsidiaries. They will not be holding companies, but will be linked together in what will be called organizational networks through shared values, people, technology, financial resources, and operating styles. Examples of such organizational networks are Benetton in Europe and*

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located staff departments which provide expert advice in specific areas such as in marketing or finance. Within networks, team structures tend to abound since people usually possess multi-skilling capacity.

Corning, Inc., in the United States. (Nadler, Gerstein and Shaw, 1992)

This model of a network with a hub firm at the centre of its constellation (or configuration) is also considered by Shepherd, (1991). The hub firm grows faster than other member firms as it moves in to occupy the centre of the network. As the hub, this firm develops a strong power position since it has access to all marketing, production and financial data. The hub firm handles the dissemination of most information to other member firms. As the hub firm becomes progressively more involved in management, administration, and strategy formulation, it tends to relinquish its production competencies and responsibilities. The hub firm maintains power based on expertise in the coordination of information and services. The hub firm concept is considered by Larson (1991) who indicates that in many of these configurations the hub firm targets other firms that it wants to have within the network system. Hub firms become tightly integrated through extensive communication and information-sharing.

In Shepherd's (1991) constellation model, there are two kinds of information networks. Shepherd suggests that "*weak links*" exist in networks where firms have contact between themselves without mediation from the centre and "*strong links*" exist where the central hub firm is involved in most contacts. In the model, growth in network firms is facilitated through the sharing of marketing or production knowledge. This information-sharing leads to the development of value-added advantages which include high-quality products, innovative products, and brand recognition of the network's products on domestic and international markets. The participating firms come to appreciate these value-added capabilities since their security is increased within a strong, highly competitive network. The glue that binds the members together is soft, based on trust and mutual understanding. Many of the agreements are verbal rather than written. With the passage of time the hub firm attempts, for protection, to codify and formalize many agreements.

Shepherd (1991) notes that there can be fierce competition between networks[19]. Once into a network, it is considerably more difficult to exit due to the strong relationships established both between firms and between individuals. As well, after being in a network a firm tends to lose some of its original competencies and becomes dependent on resources controlled by other firms or the hub firm. Although each firm has certain "*assets*" it brings to strengthen the network, each member firm is dependent on the others for a mixture of

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[19] Networks are involved in market competition with each other at the retail level and in attempting to obtain the best firms as members or suppliers.

tangible and intangible asset requirements[20]. The tendency, as Albert O. Hirshmann (1970) notes, is for participants within a network system to use "voice" rather than "exit" strategies.

Wright, Chiplin, Thompson, and Robbie (1990) consider network firms which are spin-off firms resulting from the restructuring, down-sizing and re-organizing caused by the market readjustment and realignment in the late 1980s. These firms are legally independent but are tied to each other because they are doing the majority of their business together. This results in relationship planning, joint consultation and cooperative learning.

Nadler, Gerstein and Shaw (1992), Brassand and Nicolaïdis (1990), Jarillo (1988), and Thorelli (1986) consider networks to be a new form of organization in an evolutionary chain of development. To illustrate this, Kotkin (1989) calls the new form a "*natural partnership*" where one firm in the network provides capital and another provides expertise. These are natural alliances because the firms are in the same industry

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[20] Firms within a network require "tangible" assistance from the hub firm for financing new equipment. "Intangible" support is needed to accelerate acquiring process knowledge and installing high-tech production equipment which may come from other member firms, from the hub firm, or from an outside consultant provided through the hub firm.

and each benefits from the resources delivered by the other network partner(s).

Astley and Fombrun (1983) identify networks as groups of firms that form relationships that can be graphically shown on a model to include diagonal as well as vertical relationships. These firms are market-oriented and distribute packages of services using common carriers for a variety of related services (e.g., telephone or cable lines can deliver telephone, television, home video entertainment, home shopping, and information services from different suppliers).

Networks have been developed to coordinate specific expertise between firms and to encourage the sharing of knowledge and/or assets through cooperative action. Together the network firms can acquire the best resources and compete against large multinational and transnational firms. For this reason networks should be of particular benefit to small firms with limited capabilities.

3. Strategic Alliance Networks

Quinn (1992) indicates that groups of specialized users and suppliers can be formed into networks for competitive market distribution of services. The object is to combine best-in-the-trade firms into a single network. For maximum effectiveness these firms use sophisticated CAD/CAM/CIM (computer-aided design, computer-aided machining, computer-integrated manufacturing) technology and state-of-the-art communications equipment to communicate with each other, to make products, and to deliver services to their clients. Key competencies include speed and accuracy in data processing to find and react to market trends.

Mohr and Spekman (1994) consider the formation of partnerships and strategic alliances to be an increasingly common way for firms to build and maintain competitive advantage. In many cases such alliances turn out to be learning environments rather than the more traditional production and marketing based types. Networks are used to find partners and to obtain references on potential strategic alliance partners.

Hamel and Prahalad (1990) study market-based formations that create new value by bringing the best producers together to create global products that offer superior quality, feature enhanced craftsmanship, and command premium prices. Products can be sourced either at single or multiple sources through networks. New technology and rapid communication make coordination and low-cost management possible.

Johanson and Mattsson (1990) conclude that the formation of networks is based on identifying various national, production and expertise nets. Networks are formed when all essential nets (e.g., groups of people, organizational capabilities, and other requirements) are represented in order to enter into active market competition against other firms. They define markets as networks of relationships between firms. They see network relationships as stable in the long-term but constantly changing in the short-term as the sources of expertise and other power sources shift.

Kogut (1988) suggests that strategic alliances are definitely needed in cases where there is a dependency on tacit or embedded knowledge. Since such knowledge cannot be blueprinted and licensed, some form of relationship for learning and acquiring skills is needed[21]. Networks have developed as a means of bringing together firms with tacit knowledge. Firms with tacit specialization can market this knowledge within a network. They subsequently become the designing, progammming and supervisory firms within the network. Although artificial intelligence, "AI", is

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[21] Kogut (1988) points out that learning in joint ventures comes from the parent firms which are often reluctant to share leading-edge technology with the joint venture firm out of fear of potential leaks to the other parent firm or to other competitors. Many joint ventures are considered to be relatively short-term relationships which encourages cautionary behaviour. By contrast, network firms learn from all participating firms. These firms are anxious to offer each other assistance. They view their relationship with each other as long-term and consider the opportunity to accelerate process learning as a contribution to their combined strategic asset pool.

developing rapidly, firms with tacit knowledge are always needed to provide programming instructions and to supervise manufacturing processes. Through these networks, workers acquire tacit skills and become knowledge-information workers prepared for the next stage of business development[22]. There is a constantly changing or evolving, dynamic aspect, to networks. One of the challenges is to find ways for each firm and the network as a whole to learn - especially since speed is such a critical factor in today's rapidly changing environment.

4. Learning Networks

Quick response, high quality and innovation are crucial competencies in sophisticated markets. Teubal (1991) suggests that network evolution occurs as the result of rapid learning which he calls the "Z" variable. Networking provides for an ongoing learning process.

> *Network development may be viewed as an evolutionary process triggered by innovation, that is, by the increasingly successful coupling of technology (or technological knowledge) and user needs. This coupling is ignored in economic theory, since it is usually assumed that products and technology already exist, so that the only problem is to determine equilibrium prices and quantities.*

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[22] People with these tacit skills who use high-tech equipment are the knowledge-information age workers that Peter Drucker (1954, 1989), Alvin Toffler (1970, 1990), and John Naisbitt and Patricia Aburdene (1990) describe.

We assume that: (i) each user, at each moment of time, has a preferred product type, (ii) the degree of specificity of this product type (or alternatively, the hierarchy ***level*** *to which it belongs) depends on its discriminating capabilities (Z), (iii) that success in coupling needs to the product class (or alternatively, the "goodness of fit") depends on the specificity of the preferred product type.* (Teubal, 1991)

Within this kind of network linkage is established between marketers and producers "to generate a broad social pool of knowledge" (Teubal, 1991[23]). Sales are increased as firms accurately analyze and react to market demands. It is essential to translate changed consumer preferences into new product offerings as quickly as possible. Networks become the critical dynamic link between innovation and the market. Networks speed up learning (for both R & D and for process specialization), diffuse capabilities to member firms and create new products for market distribution.

Jarillo (1988) concludes that rapid learning is enhanced by the web of relationships between the participating firms. Typically, the webs are considered to be dense so that

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[23] *The fundamental task of the network PBX [central agency which mediates among the various users] is to facilitate interaction and information flow. This may provide private and social functions beyond those involving information. For example, when the PBX of N2 [user-producer networks in the emerging capital goods markets] is also the supplier of a novel capital good, its activity will create a* ***social*** *pool of knowledge concerning the capital good in question, i.e., a pool accessible to every user linked to the network. This task involves exploiting economies of scale in the generation, diffusion and use of user-related information and experience, a critical function in the process of creating a market for a novel capital good.* (Teubal, 1991)

participant firms have many potential contact points for learning. The strategic aspect of networks emerges since member firms are encouraged to farm out activities to their most efficient suppliers and to retain activities where they possess competitive advantage. Using this strategy each firm can concentrate on the activities it does best. Increased specialization and rapid learning occur. The firm's competitive advantage is protected since other firms face substantial time and resource commitments in trying to catch up. The member firms in the network go through growth and maturity stages which Jarillo describes based on the work of Lorenzoni (1962).

> *Analyzing the phenomenon, he describes the rich web of relationships that constitute the networks of small firms ('constellations'), and how these networks go from a phase of 'reaction' (realized constellation), to one of efficiency (rationalized constellation) to its current phase of effectiveness (planned constellation).* (Jarillo, 1988)

In this process, Jarillo (1988) suggests that one firm will lead and become the hub firm that coordinates activities.

Networks provide a solid base for competitive advantage in both domestic and international markets. Through the combined resources of the network, these firms have access to the best financial, production and marketing expertise available. To maximize returns, network partners enter international markets. A network can do this by using the different strategies of extension, penetration or integration which Johanson and Mattsson (1990) describe as follows:

According to the network model, the internationalisation of the firm means that the firm establishes and develops positions in relation to counterparts in foreign networks. This can be achieved (1) through establishment of positions in relation to counterparts in national nets that are new to the firm, i.e., ***international extension****; (2) by developing the positions and increasing resource commitments in those nets abroad in which the firm already has positions, i.e.,* ***penetration****; and (3) by increasing co-ordination between positions in different national nets, i.e.,* ***international integration****.*

5. Networks as a New Form of Competition

Bressand and Nicolaïdis (1990) propose that networks form not just a new means of organization but also provide a new form of competition:

We may say that 'networks' are not only alternative means of penetrating foreign markets but also the organizational expression of a kind of shift from international division of labour to international integration of labour whereby the location of economic activities around the world and the corresponding distribution of wealth are determined by a logic which may have little to do with geographic features.

Three shifts in international competition have been fostered by networks. There has been a shift in favour of relative efficiency so that network firms can manage, access and deploy resources on a global scale. There has been a shift from mass scale standardized production to mass customization[24]. There has also been a shift to co-production of value. The result

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24 *Networks, for their part, are the organizational response to the need to customize on a mass scale and to integrate tasks which may not be easily predefined.* Bressand and Nicolaïdis, 1990.

is that consumers become "*prosumers*" because they are both creating value and shaping future demand by what they buy. The power of consumers to shape future demand has occurred largely because computers can track daily sales in various parts of each country. Future demand consists of variations on items that are in current demand. Since the ability of any small firm is limited in terms of forecasting, marketing, tracking, production, and future product development, the network should be a strategic asset to small firms.

Hatch (1991) considers a network to be a group of firms that cooperates in order to compete. They collaborate in order to do things that they cannot do alone. He describes how sub-national bodies in Germany, Denmark and Italy have fostered networks. He outlines how state support strategies can be used to establish information, manufacturing and distribution networks. In the Italian case a network hub called "CITER" was set up by the government in the Emilia-Romagna region. The hub firm provided management services, marketing advice and financing to firms in the Carpi knitwear industry. A number of firms established a network to produce high-fashion apparel using new technologies that were beyond their individual financial capabilities. Network firms were able to expand their markets beyond their traditional niche. The network was able to reduce the industry's dependency on German technology and marketing. According to Hatch, in ten years the region moved from being depressed to being at the top in national income and eighth in all of Europe. Similarly, in Denmark the Ministry of Industry formed a network broker system to provide information, identify mutual business opportunities, assess modernization and technological upgrading needs, and coordinate group activities. From its inception in 1989 to July 1990, over 3,000 firms had joined strategic alliances or networks. In Germany inter-firm cooperation and networks have emerged in the textile machinery, automotive component and electronics sectors.

It is interesting to note Quinn's (1992) observation that these competitive network structures tend to look and act like Japanese *keiretsu* structures[25]. In Japan a large number of companies, many of which are small, belong to each of six major network firms. These network firms conduct the majority

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[25] Richard Wright and Pauli Gunther (1987) describe the *keiretsu* structure of Japan as a reconfiguration of the *zaibatsu* system in place up to the end of World War II as follows:

> *The modern day "families" of companies had their origins in the pre-World War II __zaibatsu__ or giant clusters of companies from many different industries. Each conglomerate was formally tied together by a common holding company and interlocking directorships. Under pressure from the American occupation authorities, who viewed such groupings as incompatible with American anti-monopoly ideals, the __zaibatsu__ were formally dissolved after the war. But tradition does not change that easily. Almost as soon as the American occupation forces had left Japan, the old groups began moving back together, only this time on a more informal basis: voluntary associations of apparently independent companies from a wide range of different industries.*

of business transactions. Member firms in the Japanese *keiretsu* structure own small percentages of each other's stock but firm members account for majority control (in most cases). Japanese *keiretsu* members buy from each other, offer each other discounts and favourable terms of trade, and formulate strategy as a group. Quinn (1992) states that a network system such as one developed by AT&T looks surprisingly similar to Japanese *keiretsu* organizations. Both systems look to best-in-the-world systems for production, marketing, and distribution. Quinn (1992) also points out that networks increase national wealth by selling high value-added products at home and abroad thereby increasing the size of the corporate tax base. Networks also tend to increase employment in high-paying jobs. Competition between networks in high value-added products also increases national spending power since the cost of high-quality goods tends to fall as a result of savings from reduced production costs. The consumer's spending power is increased accordingly. Quinn (1992) states that small firms have used networks in order to compete against the existing giant firms in marketing and retailing.

The effect of networks as a new organizational structure and as a strategic asset for small Canadian firms to compete in international markets is considered in this research. The nature, extent, and success of networking will be studied.

6. Section Summary

The literature indicates that networks have emerged as a new form of business organization that have allowed businesses to compete effectively in both domestic and international markets. Research suggests that governments have a role to play in developing networks that effectively link businesses to each other and to domestic and international markets. Networks extend the competitive advantage of both firms and nations by increasing the resource base (e.g., information and assets) of domestic firms. Both productivity and distribution can be extended through networks. This research will explore how and to what extent small Canadian firms which export depend on networks.

D. Comparative Discussion of the Three Factors

The international regime has become increasingly dynamic. There are more nations and firms actively participating in the international system. There are also more actors influencing the national regime. As the power of the nation becomes increasingly dependent on its performance as an actor in the international economic system, the nation has become more dependent on the success of its business sector including small business. Although representation at international regime negotiation sessions is still restricted to countries (e.g., at the GATT renegotiations), firms of various sizes participate in regime organizations (e.g., development banks) and new regulations specifically anticipate their involvement in regulated market and trading activities (e.g., regulations for "admitted" banking functions, electronic services, and for software development and distribution).

With influence being exerted by increasingly more diverse actors, it has been suggested that the traditional flow of power is undergoing change. Many popular writers (e.g., Toffler, 1990; Naisbitt and Aburdene, 1990; and Drucker, 1989) allege that the power flow has begun to change from top-down to bottom-up because of increased involvement and the perceived importance of small firms due to their contribution to innovation, employment, and the gross domestic product.

The literature suggests that networking has become increasingly prevalent in response to the demands of a dynamic world economy. With regime systems in a state of constant flux and renegotiation, firms and states network in various ways to enhance their competitive advantage. This is necessary to establish, maintain or improve their economic position.

Research has shown that small business is critical to a country's economic development and that small business can effectively compete in international markets. State intervention can affect the potential for success of firms but a nation's strategies must be carefully developed and implemented to meet the real needs of both firms and the nation.

The literature suggests that regimes, state intervention (e.g., policies and support programs), and networks influence the operations of national firms in international trade. International regimes provide an overall framework (superstructure) within which states develop national regimes and services (infrastructure) as well as policies and support programs. Networks (the linking device) facilitate the operation of business by linking business to each other, to national and international regime organizations, and to markets. Table 3 expands Table 2 (page 11) to describe the function of each factor, explain the issues that each factor addresses, and identify the relevant participants or actors with reference to the flow of power.

Table 3: *Issues and Participants for Each External Factor*

Factor	***Description***	***Issue***	***Participants***
International Regimes	Superstructure	Absolute and Relative Power of Countries	Countries and Domestic Regimes ◆Top-Down Power Flow
National Regimes State Support Strategies and Programs	Infrastructure	Comparative and Competitive Advantage	Governments and firms ◆Primarily Top-Down Power Flows
Networks	Linkage Mechanism	Performance: ◆Efficiency ◆Effectiveness	Regime organizations, state support organizations, firms and individual experts ◆ Primarily Bottom-Up Power Flows

This research studies the experience of small Canadian firms that export reporting on firm awareness of and involvement in international and national regimes. The usage and effectiveness of state support programs is also analyzed. This research studies the role of networks in linking small firms to each other and to the regime organizations.

Chapter III. Literature Review on Internal Factors

The significance of the regimes, state support and networking in providing an environment favourable for the development of Canada's small firms that export has been considered. These external factors do not, however, fully explain the emergence, existence, or expansion of firms within this environment. Internal factors deal with organizational and operational capabilities. A review of the literature suggests that entrepreneurism, organizational structure and strategy are internal factors key to the success of small firms and export firms.

Research related to internal factors has traditionally covered organizational needs, the relationship between conditions of work, fatigue, boredom and productivity (Mayo, 1933), consideration of leadership styles (Stogdill, 1948), classification of human needs as hierarchies (Maslow, 1954), the study of workplaces as sociotechnical systems (Trist and Bamford, 1951), the study of job design in enriched working environments (Herzberg, 1966), contingency theory (Lawrence and Lorsh, 1967) and classification of firms according to their internal structure (Mintzberg, 1973).

Schendel (1994) states that the strategy field has attempted to find a central paradigm and explain competitive advantage by different models, such as the industrial organization ("IO") and resource-based views ("RBV"). He states that, although models have been advanced and conceptualizations have been completed, there has been no single force with the power to cause unification.

Recent study of internal factors has focused on the firm's strengths and weaknesses in what is termed a "*resource-based view*":

> *... strategy formulation starts properly, not with an assessment of the organization's external environment, but with an assessment of the organization's resources, capabilities, and core competencies. This resource based view (RBV) of the firm approach which emphasizes the internal side of the 'SWOT' analysis to strategy formulation is gaining popularity among strategy theorists.* (Black and Baol, 1994).

The resource-based view was proposed by Barney (1986) and was further defined by Barney (1991) and Grant (1991). In an attempt to identify the needed characteristics of firm resources, the VRIO framework (value, rareness, inimitability and organizational rareness) was developed (Barney, 1992; Barney and Griffin, 1992). Black and Baol (1994) attempt to determine more specifically how firm resources provide sustainable competitive advantage. They operationalize the VRIO framework and suggest that it is the configuration of resources and the nature of the relationships between them that explain a firm's success. Their assertion that:

> ... *value is the fit of resources or factors to strategy combined with the fit of the strategy to the external environment*

is consistent with the research of Amit and Schoemaker (1993) who also attach importance to the complementary relationship of internal resources with both other internal and external factors.

Sandberg (1992) states that strategic management brings together external and internal factors with different schools stressing different factors for success. It focuses on the overall performance of the firm and on the role of managers in influencing such performance (Rumelt, Schendel and Teece, 1991). Mintzberg's (1990) configurational school provides for many possibilities in terms of organizational structure. However, when small firms are considered, the principal characteristics noted are explained by the entrepreneurial school which focuses on a central leader or founder who imprints the firm with his vision, method of organization or commitment to certain values or approaches (Mintzberg, 1983; Stinchcombe, 1965). The entrepreneurial firm both depends on and reflects, in its structure and strategy, the entrepreneurism of the firm's manager (Mintzberg, 1973; Colven and Slevin, 1986). Sandberg (1992) states that the entrepreneurial school conceives of strategy as "*the personal flexible construct of one individual*". This is consistent with the argument of trait theorists who emphasize the importance of the individual over the operating context, with the organization considered to be a projection or extension of the individual entrepreneur. The behavioural approach, however, views the creation of the organization as a contextual event and the result of many influences (Gartner, 1988).

Theory suggests that the success of small firms that export is complex, depending on the strategic capability of firms to assemble and deploy resources, to seize changing market opportunities and to sustain competitive advantage.

Nevertheless, researchers have attempted to define the internal factors responsible for success. Hershkovich (1991) isolates the following internal attributes as factors of success for small firms:

(1) Small firms achieve quality gains by keeping track of activities.

(2) Small firms better deploy capital resources.

(3) Training in small firms is more successful due to management commitment and direct instruction by top management personnel.

(4) Small firms feature daily participation in decision-making by employees affected by outcomes.

Louter, Ouwerkerk, and Bakker (1991) indicate that the universal success factors for small and medium-sized firms are: unique products, good communications and personal contact, focused strategy, positive attitude and commitment toward exporting and foreign countries, acquisition of market knowledge, and the effective use of distribution channels.

Simon (1992) refers to the development of policies and procedures that foster close ties between managers and workers. Stopford and Faden-Fuller (1994) suggest the importance of a team orientation in entrepreneurial firms. Sheridan (1990) states that successful small firms benefit from employee commitment created by involving staff in decision-making.

Schmidt (1990) and Knight (1989) argue that small firms willingly embrace sophisticated technology. Holstein (1992) also reports that successful small firms willingly employ the most recent technology and services in order to exploit new market opportunities. This view that successful small firms are high technology oriented is shared by popular publications such as <u>Systems 3X/400 Magazine</u> (September, 1993) which attributed the growth of Koch International Corp. to its decision to employ the latest technology.

McCoy (1989) isolates creativity, capital, information and persistence as the factors needed for doing business in both domestic and global markets. Hall (1993) links intangible resources including a firm's reputation directly to competitive advantage. Baldwin (1994) lists the following characteristics of successful firms as cited by firm managers: management skills, customer service, flexibility, product quality, employee skills, product range, and frequency of new product introduction. However, Baldwin (1994) found that the key factors differentiating higher sales growth firms from lower sales growth firms were as follows: innovation, R & D capability, access to export markets, frequency of new product introduction, and technological capability. This suggests that competitive advantage results from the strategic deployment of internal resources.

Jarillo (1990) suggests that entrepreneurship is based on a firm's innovative capacity and capability to deploy resources in order to deal effectively with dynamic environments. Many researchers have studied entrepreneurism as the internal factor key to the success of small firms. Colven and Slevin (1986) define "*entrepreneurship*" as follows:

> *Entrepreneurship can be viewed as a characteristic of organizations and can be measured by looking at managerial behavior as the firm engages in the entrepreneurial process. Entrepreneurial firms are those in which the top managers have entrepreneurial management styles, as evidenced by the firm's strategic decisions and operating management philosophies.*

Entrepreneurial firms are described as innovative, change initiators, and rapid reactors (Miller, 1993) which handle environmental change adroitly due to their flexibility (Naman and Slevin, 1993). Based on innovation, flexibility and responsiveness, entrepreneurial firms provide sophisticated and efficient management (Guth and Guinsberg, 1990). Simon (1992) reports on the self-reliance of successful firms, especially in regard to funding for research and development. On the other hand, Litvak (1992) found that successful firms were prepared to raise capital by giving up some equity ownership.

Small firms are reported to have some natural advantages related to the "*entrepreneurism*" of their founders (Inc. Magazine, September, 1990). Founding entrepreneurs are thought to impress upon their firms a distinct corporate culture which is embedded in attitudes and approaches which provide competitive advantage (Mintzberg, 1983 and 1990). These founders act as champions in developing and promoting both the initial product and the firm itself.

Mintzberg (1973) argues that the key to an entrepreneurial firm is the presence of an entrepreneur who designs and initiates change starting at the individual level. This entrepreneur who has a vision and inspires others is essential in an entrepreneurial firm. Miller and Friesen (1982) indicate that managers in entrepreneurial firms like environments with high growth capability where opportunity abounds. Burgelman (1984) argues that a single person must champion a product if it is to be successful[26], regardless of

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[26] Bower (1970) considers a similar concept when he states that champions are necessary to obtain funding in the capital allocation of resources process ("CARS").

whether an innovation is "*autonomous*" (altogether new and unexpected) or "*induced*" (the result of corporate planning to invent a solution or product). Carland, Hoy and Carland (1988) suggest the importance of studying the qualities of the entrepreneur who creates and manages the firm. Ohmae (1991) suggests it is these same qualities of the entrepreneur that become the source of strategic advantage for the firm competing in emerging world markets.

A. Characteristics of Entrepreneurs

Burck (1993) interviewed one hundred small businesses and developed a list of traits of the founders who start up and manage entrepreneurial firms. He found that entrepreneurs are high-energy, pragmatic people with a preference for lean organizations with very few levels of management. These people are risk-takers who prefer to take direct action and assume control rather than relying on the efforts of outsiders. Successful entrepreneurs are tenacious. They reported that they had stuck with their dream or product after most entrants would have given up.

Burke (1993) asserts that self-reliance is reflected in the fact that growth is often limited by the belief that it should be financed from retained earnings rather than venture capital or bank loans. In his view, many successful entrepreneurs have a fear of losing control if they rely on venture capitalists.

Duchesneau and Gartner (1990), in a study of firms involved in juice distribution, report that leading entrepreneurs have three common traits:

(1) They were raised by entrepreneurial parents.

(2) They have broad business and start-up experience.

(3) They believe that they have less control of their success in business than larger firms with more connections and influence.

The findings of Duchesneau and Gartner (1990) contrast with the findings of Collins and Moore (1970) who found that entrepreneurs often had one domineering parent, were pushed to succeed due to pressure from conditions within their family, and focused only on firms where they could personally exercise substantial control.

Menzel (1993) points out that entrepreneurs who start up small businesses typically are fast learners who begin with a small amount of knowledge and learn quickly as the firm matures. This willingness to learn is also reflected in the findings of Ali and Swiercz (1991) who found that managers of small firms successfully integrated into foreign cultures when working abroad. Small firm managers made a concerted effort to learn foreign languages and customs.

A review of the literature suggests that the imprinting of the entrepreneurial qualities of a firm's founder or manager can be seen in both the structure and strategy of the firm.

B. Organizational Structure

Small firms typically have a simple structure with few layers of management. Mintzberg (1983) defines the "*simple structure*" as follows:

> *The Simple Structure is characterized, above all, by what is not - elaborated. Typically, it has little or no technostructure, few support staffers, a loose division of labor, minimal differentiation among its units, and a small managerial hierarchy.*

Mintzberg notes that the simple structure is associated with entrepreneurial firms:

> *The classic case of the owner-managed organization is, of course, the **entrepreneurial firm**. In fact, the entrepreneurial firm seems to be the best overall illustration of the Simple Structure, combining almost all of its characteristics - both structural and situational into a tight gestalt.* (Mintzberg, 1983).

Sheridan (1990) suggests that this simple structure provides small firms with strategic advantage. He refers to the benefits gained from administration being near production operations, excellent communications and a greater feeling of involvement by all staff. This suggests that innovation is facilitated within the simple structure since there is a connection between the strategist and the implementor.

Maggina (1992) refers to simple structure in his study of small and medium-sized enterprises in Greece. He says these organizations are characterized by simple organizational structures, rapid decision-making, innovation, efficient production, independence and flexibility. Maggina's (1992) description highlights the difficulty of separating strategy from structure since they come together as part of the package that is introduced by the entrepreneur.

C. Organizational Strategy

Stopford and Baden-Fuller (1994) refer to a focus on change as a strategic orientation when they report that entrepreneurial firms promote:

(1) proactiveness, meaning that such firms are willing to break with past behaviours and find new ways of doing things in a changed environment,

(2) aspirations that exceed their current capabilities, meaning that such firms are prepared to dream, create and innovate to find new combinations of existing resources that meet pressing challenges, and

(3) rapid learning from experience.

Other researchers refer to organizational orientation and operational factors that reflect a change-based strategic focus. Small firms also embrace change as it relates to product development and customer service. Dumaine (1991) and Caminiti (1991) suggest that small firms have a risk-taking attitude that encourages them to design new products and services for customers in emerging markets.

Deutschman (1991) refers to the competitive advantage gained by firms that move with relentless speed in meeting customer needs. Deutschman (1991) suggests that, because small firms are concerned about their reputation and want to be recognized as the leading supplier, they develop customer listening and response capacity that features speed and accuracy. Customer service becomes a fundamental component of the organization. To ensure that the firm can meet customer demands, successful small firms work on developing excellent communications with their customers (Albrecht and Zemke, 1985). Deutschman (1991) states that successful entrepreneurs put the customer first by finding ways to deliver what customers want the way they want it. Simon (1992) suggests that export success is achieved by firms with the best performance in the areas which concern customers the most. He emphasizes the importance of balancing proximity to the customer with deep technical knowledge so that the desire to please customers does not run ahead of the firm's ability to produce goods and services within stated and proven quality guidelines. Menzel (1993) reports that small entrepreneurial firms build trust with the people and firms they deal with and that they carefully hire employees capable of serving their customers.

Marketing strategy is reflected in the observation of Deutschman (1991) that successful small firms focus their product development and sales on niche markets. Litvak (1992) identified a global marketing niche strategy as characteristic of successful small and medium-sized firms. Bonaccorsi (1992) argues that successful small firms are very perceptive in identifying markets where they can exploit their competitive advantages.

Bonaccorsi (1992) also suggests that export is the path of least resistance in terms of new and low-risk opportunities for small firms. She states that, due to their small size, these firms can afford to enter and exit foreign markets several times as conditions change. In her view, international market entry is based on favourable competitive factors rather than on explicit marketing strategies and policies. She attributes export success to flexibility and perception. Christensen (1993), in his study of the Canada-U.S. FTA and NAFTA, supports Bonaccorsi's view that exporting is the path of least resistance for firms seeking growth.

In a study of Wisconsin manufacturing firms that were exporting to Europe, Moini (1992) found that a larger proportion of small firms than large firms were exporting and that these firms were more optimistic about export profitability than large firms.

A study by Sriram and Sapienza (1991) concludes that small firms that exhibit high export involvement are different than low-involvement firms. High-involvement, small export firms place a greater emphasis on marketing, customize products and advertising, sell more to individual customers, and export to more countries than low involvement export firms. Also in regard to customization, Culpan (1989) found that firms which customized products for sale into foreign markets enjoyed higher market sales in those markets where customization initiatives had been undertaken.

Culpan (1989) suggests that the process of acquiring export-related assistance is a critical factor in export success for small firms. Litvak (1992) suggests that successful small and medium-sized firms have learned at an early stage how to obtain government R & D grants and as a result of their dealings with government have been able to generate a considerable amount of repeat government business. He adds that these firms have also extended their internal resources base through sub-contracting and entry into strategic alliances which has resulted in rapid learning.

Hosmer (1994) argues that ethics make a substantial difference in the realization of success for firms.

> *The argument here is that the selection of the posture and the leveraging of the resources [of the firm] are not enough in a competitive global economy. Trust, commitment and effort must be added to ensure cooperative and innovative acts on the part of all stakeholders.*

The concept that ethics make a difference to an organization is not new. Barnard (1938) referred to the "*moral factor*" in organizations. Doz and Prahalad (1988) referred to the "*quality of management*".

Singer (1994) suggests that the ethics of the corporation commit it to act as a "*moral agent*" rather than simply as a cold, calculated actor as proposed by economic theory. In his view, control and performance systems can endow an organization with distinctive moral and operational capabilities. For example reward systems can foster rapid learning, encourage preparedness, build strong stakeholder commitment and create a distinctive identity for the firm that can be a marketing advantage. These researchers suggest that the commitment to ethical activity may be fundamental to corporate success.

Ghoshal and Bartlett (1994) identify discipline, stretch, trust, and support as the primary dimensions of organizational context that influence the levels of individual initiative, mutual cooperation and collective learning within a firm. They suggest that this shaping of the organizational context has a direct and important implication on firm performance. Research studying the impact of ethics on organizational effectiveness has been limited and has not targeted small export firms.

A review of the literature shows that the success of small firms has been attributed to internal factors by many researchers and popular writers. This study will attempt to isolate the internal attributes and strategies that have been responsible for success in small Canadian firms that export.

D. Section Summary

This review of the literature provides an understanding of the significance of internal factors in the success of firms. Entrepreneurship, organizational structure and activities, and strategy emerge as strategic assets of successful firms in several studies. These factors are directly linked by many researchers to the traits of the entrepreneur who has founded or manages the small firm. This is consistent with trait-based theory which focuses on the individual and treats the organization as a projection of the individual's goals (Carland, 1984). Research suggests that these traits become imprinted on the firm and that the entrepreneurial firm clearly reflects the qualities of the entrepreneurial manager (Mintzberg, 1973 and Stinchcombe, 1965). Behaviourists, however, suggest that the individual entrepreneur is only one of several factors responsible for the success of a firm. This is consistent with the resource-based view which argues that success depends on the internal capability of a firm. The factors attributed to the success of entrepreneurial firms include: flexibility, innovation, a commitment to ethical behaviour, management skills, customer service, persistence, product quality, employee skills, product development, R&D capability, technological capability, and export capability. It must be noted that flexibility, customer service, and innovation are also the qualities many researchers and popular writers have isolated as fundamental to the success of firms competing in emerging world markets (Omhae, 1991; Magnet, 1993; Albrecht and Zemke, 1985). A review of the literature suggests that internal attributes become strategic assets only when incorporated into firm strategy and only when strategy fits the external environment. This suggests the validity of the VRIO theory (value, rareness, inimitability, and organizational orientation) proposed by Barney (1992).

To further the understanding of internal factors responsible for success in small Canadian firms that export, this study will consider firms with different strategic assets. A typology will be developed to classify and consider firm attributes and needs. This research will report on the actual experience of entrepreneurs in small Canadian firms that export. It will also report on organizational structure and strategy as factors critical to the success of Canada's small firms that export.

Chapter IV. Research Methodology

This research uses Glaser and Strauss' (1967) methodology of grounded theory which they define as discovering theory from the data collected:

> *Generating a theory from data means that most hypotheses and concepts not only come from the data, but are systematically worked out in relation to the data during the course of the research.*

The research process in this study involves the use of a questionnaire completed by the researcher during an oral interview with each respondent. Firms were asked to select senior corporate personnel for interviews. Respondents included the following: the founder, President, Chief Executive Officer, or Vice-President, each of whom had extensive knowledge of the history, operations, strategy, and experience of the firm. All respondents were working as managers in the sample firms. The interview format was intended to be open. An interview checklist (Appendix "C") was used as a guideline to control the direction of questioning and to ensure that all respondents were asked the same questions. All interviews were conducted by the researcher. In this study all interviews were videotaped.

In qualitative research and in case studies, collection and analysis of data is a simultaneous process (Bogdan and Bilken, 1992). The findings of the case studies are shaped by the data that has been collected and the observations that accompanied the collection process. In this research the questions were formulated to investigate areas of interest.

Yin (1984) recommends the use of a case record. After reviewing the videotapes, case records were prepared. Although the questionnaire provided a format for organization of material, data was collected in the case record format for use in compiling tables and for further reference. This is recommended by Yin (1984):

> *The case record pulls together and organizes the voluminous case data into a comprehensive primary resource package. The case record includes all the major information that will be used in doing the case analysis and the case study. Information is edited, redundancies are sorted out, parts are fitted together, and the case record is organized for ready access either chronologically or topically.*

Data was recorded in a format that relates to the questions. Data was later drawn from the case records in preparing tables and organizing research findings.

Conceptual categories, typologies, themes or theories can be developed and devised inductively (Guba and Lincoln, 1981). In this research a number of typologies, figures, and categories were developed for use in the analysis section of the study. Holsti (1969) considers category construction to be a direct form of content analysis which should reflect the purpose of the research, the goals and the questions. In this research the typology for start-up circumstances reflects this form of content analysis.

In the recommendations it became necessary to generalize from the data (Glaser and Strauss, 1967). In qualitative research there is an element of intuition which involves drawing inferences from the data, from the people who presented it and from the nature of the environment in which the data was presented (Glaser and Strauss, 1967; Merriam, 1988; Strauss, 1987; and LeCompte and Goetz, 1982). A number of findings are based on contextual implications from respondents and information the researcher gleaned from conversations with management or front-line personnel during an informal tour of firm facilities.

The type of data interpretation that is appropriate depends on the purpose of the study (Merriam, 1988). In this study, the research questions provide respondents with the opportunity to share comprehensive information related to their experience and their firms' success. A review of the original research questions is considered an appropriate place to begin with data analysis. A review of the questions and why they have been formulated follows in this section. By reviewing the research questions, the reader can focus on the objectives of the research and on the audience for whom the research is being conducted (Goetz and Le Compte, 1984).

A. The Sample

This study is based on intensive interviews with representatives from twenty-one sample firms (listed in Table 4) located in Ontario and Quebec. All of these firms have successfully competed in international markets. The firms included in this sample have been drawn from a data bank of Industry, Science, Technology (Canada), "ISTC". Since 1984 ISTC has been accumulating data on Canadian firms that qualify as "Success Stories" using its criteria. A review of the Success Stories' criteria and objectives is contained in Appendix "A". In January 1993 this data base included approximately 500 firms. Of these, 103 firms had fewer than 200 employees[27]. These firms represent all regions of Canada, although over half of the firms are located in the provinces of Quebec and Ontario. The research's core sample represents a wide range of industries including manufacturing, processing and services (see Table 4).

[27] The ISTC data reflect the number of employees when the field report was filed (between 1984 and 1993). In a small number of cases the field reports have been updated.

Table 4: *Firms in the Sample*

Firm	*ISTC Industry Classification*
Agrodev Canada	Services
Artco	Furniture
Battery Technologies	Batteries
Ceeco Manufacturing	Machinery
CRC Sogema	Services
DTI Télécom	Telecommunications
Flintshire Farms	Food Processing
Fortron International	Sporting Goods
Innovator Machine	Industrial Machinery
Institut Rosell	Research and Development
Inverpower Controls	Electric Motor
James Ross	Pulp and Paper Equipment
MediaSoft Telecom	Software
Mortice Kern Systems	Information Technology
Nora Beverages	Beverage
Allen Simpson	Consumer Products
Sonic Frontiers	Consumer Electronics
Steel Cylinder Manufacturing	Manufacturing
Thordon Bearings	Shipboard Marine Equipment
Trojan Technologies	Environment
Zeph Technologies	Manufacturing

Note: The classification of industry group is drawn directly from government records. The indicated industry is taken from each firm's Success Story Data sheet.

A review of the firms, including their start-up and development, structure, strategy and leadership is contained in chapter V, section B, "The Entrepreneurs' Stories".

The specific criteria to be met by firms for inclusion in this study reduced the number of firms to 54 across Canada and to 24 in Quebec and Ontario. This group of firms is listed in Appendix "B". The sample of 21 firms used in this study consists of the Quebec and Ontario firms which agreed to participate. The criteria for inclusion of a firm in this sample are as follows:

(1) Under 200 employees.

(2) Active in business for 5 years.

(3) Profitable or conducted for profit.

(4) Involved in active market competition.

(5) Operationally independent from any other firm.

(6) Over 50% of the firm's business is in markets external to Canada.

(7) Sales to international markets besides the United States of America.

Criterion (1) was established to ensure that firms included in the sample were indeed small businesses. Criterion (1) reduced the size of the potential sample from 500 to 102 firms.

Criterion (2) ensures that only firms that have sustained success and have established themselves as viable long-term businesses are included in the study.

Criterion (3) excludes not-for-profit firms, government agencies, organizations that operate on grants from non-profit foundations, and firms funded by advocacy or interest groups. Firms in the sample must be intended for profit, be profitable, and be in competition with other firms.

Criterion (4) specifying active, free-market competition excludes firms that operate under regulatory agencies or under government-sponsored cartels, oligopolies or monopolies. Such firms are excluded since they exist in special microeconomic environments that do not reflect typical small business conditions.

Criterion (5) eliminates from the sample Canadian firms that are subsidiaries of other firms. In some cases, these firms had been included in the ISTC data base. As an example, several service departments of chartered banks were included in ISTC's data base of 500 firms. Also included in the ISTC data bank were branch plants producing components for G.M., Ford, Chrysler and tire manufacturers. This research studies only operationally independent, Canadian small businesses.

Criterion (6) and (7) were established since this study deals with entry into international markets and not just the U. S. market. While the U.S. market is significant for Canadian business exports, the study will attempt to determine whether the strategy of small Canadian firms is to use the U.S. as its initial entry point into international markets or to initiate its foreign market penetration by entering other less-competitive international markets first.

Since it was possible to complete interviews at the firms in Ontario and Quebec during the time period from April to August 1993, this was the group of firms selected for inclusion in this study. To control for fluctuations or change in the business environment, all interviews were completed within a five-month time frame. To provide some control for regional factors which may have affected results, a supplementary sample group of ten firms from British Columbia and three firms from Nova Scotia was drawn from the same ISTC data bank. A more limited questionnaire was developed that allowed the researcher to interview representatives from these companies by telephone. Appendix "E" reports on these results.

B. The Interview

1. The Questions

Question (1) provides for descriptive data regarding plant location, personnel, sales, financial and product information. The question related to the principal product is intended to reveal the firm's long-term competitive strategy. Porter

(1980) suggests that firms will use one of three strategies (differentiation, overall cost leadership or focus). Abernathy and Utterback (1978) expect firms to work on either process specialization or on new product innovation. The response to this question should allow the researcher to determine what kind of approach is used by firms and to see if the approach changes as a result of any particular factors.

Questions (2) through (6) deal with the start-up phase.

Question (2) considers the actual start-up of the firm, asking about the initial product and the organization of the firm at its inception. This question also asks about any agreement or association between the firm being studied and any other firm during the start-up. This should provide information on the firm's initial involvement in networks.

Question (3) considers the factors that were most relevant in the decision to set up the firm. The role and significance of regime structures, state support programs, and networks in making the decision to start up are considered[28].

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[28] A checklist of possible programs such as government funding for R & D is included. Ideas promoted by government and researchers (Albrecht, 1988; Glen, 1990; Haywood-Farmer and Nollet, 1991; Berry and Parasuraman, 1991) to increase productivity and sales by means such as employee stock option plans, employee profit-sharing plans, and employee incentive plans are covered to find out if government assistance has been needed to introduce

Question (4) asks about labour, financial and regulatory problems that were encountered by the firm during the start-up period. A discussion of these problems and their resolution should reveal weaknesses or deficiencies in actual state programs and regime structures and the internal factors that provided for resolution of difficulties encountered. This question should provide insight into the actual, rather than the anticipated, significance of these factors.

Question (5) deals with organizational, operational, and strategic change from the time the firm was set up to the present time. Changes in the firm's vision, products, objectives and culture are considered to see if there has been incremental change (Quinn, 1980) or quantum change (Mintzberg, 1978; Miller and Friesen, 1984). Responses should reflect when, in what ways, and to what extent state support, networks, regime structures and internal factors have influenced change in these firms.

Question (6) considers industry conditions[29] and the nature of inter-firm relations. This question will provide information

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them. Regime structure assistance may be indicated by changes to recognize patents and by changes that have made capital more available. Network assistance may be indicated by the efforts of sponsors.

[29] This question may result in observations relating to firm contribution in the value-chain (Porter, 1985; Kogut, 1985).

related to the influence of regime systems, regime structures and the firm's participation in networks.

Question (7) considers the firm's business strategy at inception, during the initial growth stage, currently and for the future. The original intended entry strategy in domestic and international markets will be reviewed and compared with emergent and realized strategies (Mintzberg and Waters, 1985). The firm's strategy will be discussed to determine which internal factors facilitated entry into international markets and facilitated subsequent success.

Questions (8) to (11) consider internal operational factors.

Question (8) asks each firm to list its own key success factors and to indicate how these have changed throughout the life of the firm.

Question (9) considers firm maturity and growth cycles. Greiner (1972) and Flamholtz (1986) suggest that there are identifiable growth stages with specific need patterns. This question will help determine if small Canadian firms have different needs at different stages of growth. Responses to this question will provide data for the development of effective business strategies and also for effective government policies and programs.

Question (10) considers a number of factors to determine their importance to firms in the current business context. A group of 14 factors is considered to determine the relative importance of these variables as indicators of the need for supportive regimes, state programs, and networks.

Question (11) considers the firm's approach to hiring and staff training. This question will provide a description of the labour force, the degree of technological sophistication, and the extent of participation by each firm in training programs (e.g., apprenticeship programs). The responses to this question will reflect the impact of national and/or sub-national regime structures (e.g., the unemployment benefits and job retraining) and support programs on the firm's organization and operation. It will provide data on the strengths and/or weaknesses of current regime structures and government policies and programs. Should firms indicate that certain types of employee training, staff selection techniques, or specific programs are particularly useful, recommendations will be made regarding future government initiatives.

Question (12) deals directly with state support programs and networks to determine the impact of these factors on each firm. This question also asks if there are comparative advantages (Porter, 1990) to being located in Canada and in their particular province or region. Firms that indicated that they benefit from country-specific advantages, were asked to describe and discuss them.

Question (13) deals specifically with the firm's entry into international markets to determine if regime structures, government support programs, and networks are factors that have been recognized by firms as significant to their international success. In this question firms are asked to describe their experience with government programs, trade offices, or other organizations. Culpan (1989) indicates that the process of acquiring export-related assistance is the main factor in export marketing success. Firms are specifically asked about their views on the utility of the GATT, FTA, NAFTA, professional bodies, and trade associations. Firms are also asked if they have promoted the firm differently in domestic markets than in international markets. The results from this question will further clarify the importance of internal factors, regime structures (e.g., trade regimes such as GATT), government support programs and networks.

The concluding questions ask about the strengths, weaknesses, and opportunities of the firm. This section gives the respondents an open-ended opportunity to comment on anything they consider to be important to their firm and to small business in general. It is expected that internal factors, including the nature of entrepreneurs, organizational structure, and operational strategy will be discussed by respondents.

2. The Research Process

The questions in Appendix "C" were tested on Innovator Manufacturing. At that time two company representatives were interviewed. A video camera was used to record responses so that the actual words used would be recorded and could be used later to check the respondents' actual words and phrases. The interview took almost three hours. Following the interview, a brief on the results was prepared. The videotape was reviewed by the research committee. Although no substantive changes were made in the format of the questions, suggestions from the committee resulted in a second interview that was intended to expand the coverage by including video footage of the work area, other employees, and the production process. A second interview took place at Trojan Technologies Inc. Following a review of this second interview, the thesis committee agreed that subsequent interviews could be conducted with only one official from the sample firm and that videotaped coverage of the work area, other employees and the production process could be omitted.

Of the twenty-four firms targeted as the sample group, three of the firms proved too difficult to schedule for interviews. One firm indicated a desire not to participate. Others turned out to be extremely difficult to schedule for interviews. Since the committee supervising this research had stipulated that the sample group should consist of at least twenty firms, the firm that declined to participate was replaced with Innovator Manufacturing which had been used for the initial pilot study. This firm was being processed for inclusion into the ISTC data bank at the time of the initial search at the Success Stories Branch and fully qualified on all of the study criteria. The sample consists of twenty-one firms.

Each of the sample firms in Ontario and Quebec was contacted by telephone to arrange the interview. The initial calls resulted in very few acceptances. In practically every case secretarial screening staff connected the researcher with the named individual only after several telephone calls. An average of five telephone calls was required to establish each contact. After a brief explanation of the scope of the research, about half the firms agreed to set an interview date. The other half required further information and positive persuasion. Most agreed to an interview after a third follow-up telephone call with the firm's designated spokesperson. The third telephone call was generally preceded by a fax that outlined the objectives of the research.

Additional phone calls were required in order to confirm appointments and reschedule in cases where subsequent scheduling conflicts occurred. Due to existing commitments by the firms' key personnel, most interviews were scheduled two months in advance. An interview schedule was completed after about 5 weeks.

In each interview situation, the respondent was impressed that responses were being videotaped in order to ensure accuracy. Once the interviews began, the video equipment seemed to be incidental. Although the interviews were expected to take between forty-five minutes and one hour, due to the number of anecdotes and illustrations that respondents related, most interviews lasted two hours and a few of them exceeded three hours. After each interview a plant tour was requested. Plant tours were conducted in 15 firms, which included all sample firms that are production-based. Several of these plant tours took up to two hours since the employees were anxious to share their experiences. These tours provided the researcher with the opportunity to talk to other management and staff and to observe operations first-hand.

The video tapes were reviewed at least one week after completion of the interview in order to reduce any recency effects in data recording. The tabulation sheet shown in Appendix "C" was completed. Responses were recorded as presented. In the case of questions on regime structures many firms needed to have initial responses corrected if they subsequently indicated participation in regime structures in question (13). Although the researcher expected that the videotapes could be played back to retrieve quotes relatively easily, this did not turn out to be the case. All video tapes were replayed once in full. The process of transcribing responses for each interview typically took a full day. It was important to ensure that responses were transcribed accurately. On many occasions the meaning was clear from the context, but on a video replay there was interference from papers shuffling, background noise, or interruptions from ringing telephones that made accurate transcription difficult. Many quotations required four replays to accurately capture remarks that were made. As a test of the accuracy of the transcribing of results from the recording session, a copy of the researcher's summary sheet was sent to Innovator Machine, James Ross Limited and Allen Simpson Limited. James Ross Limited made minor corrections in the text (versus the recorded quotations) and submitted additional material. Their response indicated that the process was satisfactory. Other firms made very few corrections to the recorded material and submitted no further data. The committee decided that after this point the summary sheet would not be sent out to other firms.

After a review of the tapes and collection of data on the summary sheets, a written report on each firm was prepared using a common format. The reports range from three to nine pages. The quotations used in the analysis section are drawn from these individual reports.

Content analysis has been restricted to data generated by interviews with the sample firms and direct observations made by the researcher. The responses given have been treated as the data. Data has been analyzed to identify trends and patterns which can be reflected in new models or typologies.

In an attempt to control for regional factors the researcher subsequently questioned firms in the supplementary sample from British Columbia and Nova Scotia. An abbreviated questionnaire was developed and is included in Appendix "C". These firms were contacted by telephone. The same criteria applied as in the original research. Responses were recorded in writing as the interview progressed. Notes were prepared after each interview and a brief report was prepared on each of the firms. These results are contained in Appendix "E".

C. Data Analysis

Descriptive data will be gathered to provide the researcher with an understanding of the organization and operation of each firm. Data is reported in the discussion of findings. Typologies and tables are presented using the data which has been generated during the interview process.

Chapter V. Analysis and Discussion of Internal Factors

A. Research Findings

The descriptive data reported in this study is based primarily on data and information presented to the writer in the interviews conducted with respondents from the twenty-one sample firms in Ontario and Quebec. Respondents reported their stories related to the start-up and development of the firms they lead. The discussion of internal factors is based in large part on the comments of respondents related to the structure and operations of their firms. Findings related to entrepreneurs and entrepreneurism are anecdotal, based on the respondents' comments and the researcher's observations of the respondents, other principal actors and operations in the sample firms. The researcher has summarized this information in a case history of each firm. These are presented according to the start-up circumstances.

Data collected from the telephone interviews with respondents from the thirteen firms from Nova Scotia and British Columbia are considered in Appendix "E". It should be noted that the data collected from the supplementary sample group is generally consistent with that from the main sample group.

Table 5 provides a list of the sample firms with the type of business in which each firm is engaged. This table indicates that 15 firms (71%) are production-based and 6 firms (29%) are service-based. The fact that service-based companies account for 29% of the firms appears to indicate a trend towards intelligence-based export services in the information-age as is stated by popular writers including Drucker (1989), Toffler (1990) and Naisbitt and Aburdene (1990).

Table 5: *Firms and Type of Business*

Service & Distribution	*Production*
Agrodev	*Battery Technologies*
Artco	*Ceeco*
CRC Sogema	*Flintshire Farms*
DTI Télécom	*Fortron International*
MediaSoft	*Innovator Machine*
Mortice Kern Systems	*Institut Rosell*
	Inverpower
	James Ross
	Nora Beverages
	Allen Simpson
	Sonic Frontiers
	Steel Cylinder
	Thordon Bearings
	Trojan
	Zeph
6/21 (29%)	***15/21 (71%)***

Table 6 categorizes firms by age. This table indicates that five firms (24%) are under 10 years, seven firms (33%) are between 10 and 20 years, and that 9 firms (43%) are over 20 years. These results were tabulated using 1995 as the final year of reference.

Table 6: *Categorization of Firms by Age*

Under 10 years	***10 - 20 years***	***Over 20 years***
Battery Technologies	CRC Sogema	Agrodev
Fortron International	Flintshire Farms	Artco
MediaSoft	Innovator Machine	Ceeco Machinery
Nora Beverages	Inverpower Controls	DTI Télécom
Sonic Frontiers	Mortice Kern Systems	Institut Rosell
	Allen Simpson	James Ross
	Trojan Technologies	Thordon Bearings
		Steel Cylinder
		Zeph Technologies
5/21 (24%)	*7/21 (33%)*	*9/21 (43%)*

Table 7 indicates that 29% of the firms employ less than 25, 19% employ between 25 and 50, and 52% of the firms employ more than 50. Of this last group, only three firms have over 100 employees. None of the sample firms was a unionized shop.

Table 7: *Number of Employees in Firms*

Under 25 Employees	*25 - 50 Employees*	*Over 50 Employees*
Artco (10)	CRC Sogema (40)	Agrodev (55)
Battery Technologies (17)	DTI Télécom (45)	Ceeco (130)
James Ross (22)	Flintshire Farms (30)	Innovator (56)
MediaSoft (12)	Fortron (40)	Institut Rosell (75)
Allen Simpson (12)		Inverpower (125)
Sonic Frontiers (24)		Mortice Kern Systems (85)
		Nora Beverages (80)
		Thordon Bearings (120)
		Trojan (60)
		Steel Cylinder (62)
		Zeph (75)
6/21 (29%)	*4/21 (19%)*	*11/21 (52%)*

Responses indicate that these small firms operate from a single location within Canada. No exceptions were noted, although both Zeph Technologies and Thordon Bearings are considering setting up manufacturing facilities in Europe within the next five years.

Respondents confirmed the profitable nature of the firms' operations. However, it is interesting to note that specific financial information related to this profitability was not easily discussed by these respondents.

Respondents also confirmed their firms' participation in export markets. Firms reported that about 20% of their sales are in Canada and that 80% of their sales are to foreign markets. The U.S. is not the principal foreign market except for Allen Simpson, Innovator Machine, and Nora Beverages. Principal markets include South America, Asia, Europe and Africa. Data regarding the breakdown of sales to foreign markets was not readily available from the respondents. Managers offered to refer the researcher to others within the firm for detailed information.

1. Classification of Firms

A Technological Skill and Product Maturity typology has been developed in Table 8 to provide for a classification of firms which will facilitate the reporting and discussion of this study's results.

Table 8: *Technological Skill and Product Maturity Typology*

Techno-logical Skill Level (High ↑ … ↓ Low)

Quadrant 1	Quadrant 2
New Technology Break-Throughs Need: Long-Term Capital	**Applied Technology Development** Need: Short-term Capital
Quadrant 3 **Exploitation of Country-Specific Advantages** Need: Infra-structure Aid	**Quadrant 4** **Innovative Marketing & Sales** Need: Partners and Introductions

Low ←—→ High
Product Maturity

In Table 8 the horizontal axis represents product maturity and is time-based. Product maturity reflects the age of the firm's principal product. The vertical axis represents technological skill level. Technological skill level reflects the use of specialized staff and computerized equipment. Categorization of firms is relative. The firms in the sample have been placed into four quadrants on the basis of the following criteria: Quadrant 1 (high technological skill level, low product maturity) firms are involved in new technology break-throughs as a result of "fundamental research" development; Quadrant 2 (high technological skill level, high product maturity) firms are involved in "applied technology research" development; Quadrant 3 (low technological skill level, low product maturity) firms have comparative advantage dependent on the exploitation of country-specific factors; and Quadrant 4 (low technological skill level, high product maturity) firms have developed as a result of innovative marketing and sales capability. Each of these quadrants is discussed in relation to the needs and experience of the firms within them.

This typology has been inductively derived to identify the principal strategic needs of firms. As innovative firms, small firms in all quadrants can benefit from research which is defined as critical to Quadrant 1 and 2 firms. Similarly, all firms do depend on domestic factor conditions (e.g., transportation, communications, power and water systems) which are considered critical to Quadrant 3 firms. As export firms, firms in all quadrants can benefit from the information base which is particularly critical to Quadrant 4 firms.

Quadrant 1 firms require patient capital to fund the high cost of doing original, sophisticated research over substantial time periods. Chartered banks and government have traditionally been reluctant to become equity investors in small start-up firms. In Canada, the chartered banks have been barred by legislation from becoming equity participants in firms. These restrictions have been in place since the collapse of the financial markets in the 1930s. As a result of government restrictions the largest eight Canadian banks have been unable to invest in firms except in bankruptcy and distress situations. Even government programs and institutions such as the Business Development Bank of Canada (formerly the Federal Business Development Bank of Canada) have been unable to resolve the need for sources of equity capital. Venture capitalists do not address the needs of start-up firms since they tend to invest only after firms have established themselves in either domestic or international markets. New sources of equity capital are a fundamental requirement of Quadrant 1 firms.

Quadrant 2 firms have made technological improvements to products in order to penetrate emerging market niches. For effective, comprehensive market penetration, Quadrant 2 firms need short-term funds for research and development, organizational growth, and for marketing.

Quadrant 3 firms exploit country-specific comparative advantages and consequently depend on the provision of infrastructure which supports production and transportation. Low-cost utilities such as water and electricity permit manufacturers to gain production cost advantages. Through low-cost and effectively linked transportation systems, firms acquire delivery capabilities that are particularly important in the case of fragile and perishable goods. Quadrant 3 firms depend on the government for infrastructure services since the massive costs are far beyond the resource capacity of small firms.[30]

Quadrant 4 firms are involved in the sale of established products into new markets. These firms need access to information and introduction to potential trade partners with whom different types of strategic alliances can be formed. Quadrant 4 firms benefit from the surveillance function performed by Canadian embassies, trade consulates, and trade representatives from international organizations.

The concept of quadrants has been used by a number of writers including Miller (1990) when he classified firms in the growth stage as craftsmen, salesmen, builders or pioneers. When

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30 Later in Section VI in the discussion and analysis of external factors, the effectiveness of government support programs is grouped by "purpose" (e.g., start-up, organizational growth, training, research and development, and marketing). The infrastructure needs of Quadrant 3 precede this analysis by purpose and as such this later typology and the quadrant typology are not an ideal fit.

those same firms took their natural capabilities to an extreme endangering the firms' survival, they became tinkerers, drifters, imperialists or escapists in Miller's (1990) framework. While comparisons might be drawn between Porter's (1990) stages of development and quadrants in the Technological Skill and Product Maturity Matrix of this study, the quadrant typology does not reflect the four stages of industrial development he proposes. Porter (1990) presents the four stages of national competitive development as factor-driven, investment-driven, innovation-driven and wealth-driven. Porter's (1990) diamond does not provide for the categorization of firms but rather for the categorization of nations. Firms in Quadrants 1 and 2 are primarily innovation-driven since they compete on the basis of technological innovation. Firms in Quadrant 3, although basically resource-based or factor-driven, compete with innovative products rather than with traditional resource-based products. Firms in Quadrant 4 derive competitive advantage from marketing innovations and are, therefore, not wealth-driven. Since small firms do not depend on scale of production for competitive advantage none of the quadrants can be considered to reflect the investment-driven stage of development.

Table 9 classifies firms by quadrant in the Technological Skill and Product Maturity typology.

Table 9: *Categorization of Sample Firms* (n=21)

Quadrant 1 **High Technological Skill** **Low Product Maturity**	**Quadrant 2** **High Technological Skill** **High Product Maturity**	**Total:**
Battery Technologies MediaSoft Telecom Mortice Kern Systems Trojan Technologies	Ceeco Machinery Innovator Machine Institut Rosell Inverpower Controls James Ross Sonic Frontiers Steel Cylinder Thordon Bearings Zeph Technologies	
N=4 19.0%	N=9 42.9%	N=13 61.9%
Quadrant 3 **Low Technological Skill** **Low Product Maturity**	**Quadrant 4** **Low Technological Skill** **High Product Maturity**	
Flintshire Farms Nora Beverages	Agrodev Allen Simpson Artco CRC Sogema DTI Télécom Fortron International	
N=2 9.5%	N=6 28.6%	N=8 38.1%
N=6 28.5%	N=15 71.5%	N=21 100%

Note: Firms are listed alphabetically.

Although tentative placement of each firm was completed based on information available from the ISTC Success Stories Data Bank prior to the actual interviews, each firm's respondent was asked to identify the quadrant in which the firm should be placed. In some cases placement was not clear-cut and the researcher made the final judgement. For example, Mortice Kern Systems does development work on software applications which did not initially appear to primarily involve breakthrough ideas or products. But since MKS stressed that it had developed new products and protocols, the firm was moved into Quadrant 1. The documentation provided by the firm on its ToolKit product appears to be consistent with a Quadrant 1 placement.

Institut Rosell was initially classified in Quadrant 1 because it appeared from the ISTC brief that the firm did fundamental research. After discussion with the firm's respondent, it became clear that the firm develops new bacteria within a known field. The firm indicated that it should be in Quadrant 2.

Also difficult to classify was Artco Inc. Since its furniture products have been in existence for a long time, it appeared from the ISTC brief that this firm was involved principally in a marketing function and would belong in Quadrant 4. During the interview it became apparent that new designs, new bonding techniques for glass, metal and wood, and new surface finishes have given this firm its competitive advantage which would suggest that it could be classified as Quadrant 3. This firm does not exploit country-specific attached to Quadrant 3 firms in Table 8. Artco's principal source of competitive advantage depends on the innovative application of glass, metal and wood into furniture production. This allows the firm to position and market its products in select top-end market niches in the hotel industry. Consequently, the firm is classified in Quadrant 4.

Table 9 indicates that 19% of the core sample firms are in Quadrant 1, 42.9% are in Quadrant 2, 9.5% are in Quadrant 3, and 28.6% are in Quadrant 4. This means that 61.9% of the firms are classified as having a high technological skill level and 38.1% have a low technological skill level. Results also indicate that 71.5% are in the high product maturity category and 28.5% are in the low product maturity category. The highest concentration of firms is in Quadrant 2 (high technological skill and high product maturity).

Results indicate that there is potential for success for small firms with diverse types of products and with differing levels of technological skill level and product maturity. From Table 9 it can be seen that, while all these firms can be considered innovation-driven, 71.5% are dependent on mature products. The results suggest that marketing capability and applied technology development are the factors that provide competitive advantage for small firms that export.

The results support the findings of Schmidt (1990) who suggests that competitive advantage of small firms is dependent on success in market niches. The constant improvements to product and process refinement necessary to meet these market demands depends on the firm's innovation-increasing factors. The results suggest that investment by firms in R & D is necessary to ensure induced process and product refinement. Ongoing R & D also has the potential to provide for autonomous innovations. However, these firms do not depend, as Knight (1989) suggests, on the autonomous research break-throughs typically associated with the need for research parks and incubators (Hogan, 1991; Roberts and Mizouchi, 1989;, Raia, 1992; and Graff, 1991).

These results have significant strategic implications for small Canadian firms and for government policy. These are discussed in chapter VII.

B. The Entrepreneurs' Stories

From discussion with respondents it was evident that firms in this industry had experienced different start-up circumstances. These include:

(1) acquisition,

(2) classic start-up,

(3) spin-off, and

(4) start-up within an established firm.

Firms are classified in Table 10.

Table 10: *Start-up Circumstances*

Acquisition	***Classic Start-up***	***Spin-off***	***Established Firm***
James Ross Trojan	DTI Télécom Flintshire Farms Fortron Innovator Machine Inverpower Institut Rosell Steel Cylinder Manufacturing Thordon Bearings	Allen Simpson Artco Battery Technologies MediaSoft Mortice Kern Sonic Frontiers Zeph Technologies	Agrodev Canada Ceeco CRC Sogema Nora Beverages
2/21 (9.6%)	8/21 (38%)	7/21 (33.3%)	4/21 (19.1%)

The firm's placement in the Technological Skill and Product Maturity Typology does not correlate to differences related to start-up circumstances of the firms and the entrepreneurism of the leader or of the firm. The start-up and development of all firms reflects personal vision, commitment and involvement of the entrepreneurial leader.

1. The Entrepreneur with an Acquisition

Firms classified as acquisition start-up represent 9.6% of the sample. These firms are considered start-ups because they are established when an entrepreneur purchases an existing firm and fundamentally reorganizes the business. James Ross Limited and Trojan Technologies Inc. were sold to the current owners by owners who wished to retire. The new management teams purchased these firms because of their patented processes.

Three of the partners at James Ross Limited (e.g., Ted Abbott, Bill Pawsey and Mel Welcher) had worked together at Albany Engineering Systems Limited in Montreal, a subsidiary of an American firm in the pulp and paper industry. When political and economic conditions became uncomfortable in Quebec during the late 1980s, Ted Abbott actively began to search for new employment and discovered James Ross Limited. The founder of the firm was ready to retire so Abbott, Pawsey and Welcher, with the assistance of an outside financier, purchased the firm to acquire its patent on a cooling process.

When the competitive environment heated up in the cable television business, H.J. (Hank) Vander Laan decided to leave Rogers Cable Systems where he was a Vice-President. He attended a conference sponsored by the Canada Centre for Inland Waters and found out that Trojan Machine and Tool Company had patented a process to disinfect water using ultraviolet light. Hank was convinced that this ultraviolet process would address the growing need of municipalities for a cost-efficient, chemical-free method of water purification in response to environmental concerns. The process was expected to be both effective and environmentally friendly. Hank Vander Laan organized a group to buy the company. After the purchase, Trojan sold off the Machine and Tool division to cover the costs of research necessary to develop products that would make use of the firm's patented technology.

At both James Ross Limited and Trojan Technologies the buy-out opportunities were pursued by entrepreneurs who believed in the potential of the companies' patented products.

2. Classic Start-up

Firms classified as classic start-up represent 38% of the firms studied. These firms are established by entrepreneurs who start new firms or fundamentally restructure existing firms. This restructuring would involve a complete change in the firm's product or market focus. These entrepreneurs have highly specialized backgrounds that have enabled them to exploit unique market opportunities. However, energy, additional creativity and determination were required to make each firm a success.

DTI Télécom installed the communications system for Expo' 67 in Montreal. This project launched the firm into telecommunications sales in Canada and abroad. A network contact with CIDA suggested that the firm bid on a contract in Guinea. In this case, a new opportunity was suggested by an outsider which launched the firm as a participant in the international telecommunications industry. Initially, the firm was retained on a consulting contract to assess the feasibility of a telecommunications system in Guinea. Subsequently, the firm was retained to oversee the construction of the project. Today, DTI Télécom sells its consulting capabilities and products throughout the world although its focus is currently on developing countries, primarily in South America.

In the case of Flintshire Farms, biologists Ken Hook and his wife set out to find a business which would enable them to continue living in Flinton, Ontario. With their background in biology, they were able to see that the sandy soil in the Flinton area was not good for agriculture but would be ideal for raising certain kinds of birds. They developed a highly specialized strain of pheasants that could be raised under the conditions where they lived. The Hooks decided to differentiate their pheasants so they could command a premium price. With ingenuity and patience they developed a strain of pheasants with white feathers. This became the important differentiating factor because when the birds are slaughtered for processing there is no staining of the meat. Higher prices are commanded by their product since there are no colour blemishes. With this competitive advantage, their firm has succeeded in selling in very sophisticated foreign markets including Japan. Demand rose so fast for their product that Flintshire Farms and another Western Canadian producer joined forces in a temporary strategic alliance. This allowed the firm to handle its growth potential and yet maintain its hold on the lucrative foreign markets that it had penetrated. The firm plans to expand its production and to increase the number of foreign markets served through strategic alliances.

A fascinating start-up is related by Ron Foxcroft of Fortron International. Foxcroft had used a "pea-whistle" to referee a World Cup qualifying match between Argentina and Brazil. When the whistle failed, spectators thought that a referee had failed to penalize a player and a riot broke out. Foxcroft decided that if he lived through the riot, he would invent a louder, fail-proof whistle. At the first game where a prototype "pea-less" whistle made out of balsa wood was tested, so many referees and fans saw the new whistle that 2,500 orders were generated. This dramatic illustration shows how Ron Foxcroft capitalized on a unique opportunity he had as a referee in professional sports. Only later, when the firm needed to build sales volume, did the firm discover other uses for the "Fox 40 Whistle". Most of the additional uses have been suggested by customers. These include safety applications by airlines (which attach whistles onto life vests), police forces, and sporting enthusiasts (e.g., alpine and cross-country skiers, windsurfers, and scuba divers).

Innovator Machine established itself in the grinder business after a customer in Michigan hired the firm to design a unit for a specific use. The firm put its experienced personnel with an applied engineering background to work designing an innovative product for a demanding new application. This new product became one of the firm's major product lines. John Dorscht said of his firm, "*We do not build prototypes, we just build the first unit of each new class as we develop it.*" This quotation captures his firm's entrepreneurial spirit. The firm is growing fast and has established contacts in several countries for the sale of its products.

Institut Rosell was established in 1932 by three partners - Drs. Rosell, Toupin and Brochu. The partners were involved in bacteria culture research at Canadian universities. Their firm was established to grow specific bacteria cultures under controlled conditions for use in the manufacture of specialty cheese products. The product life cycle of bacteria cultures is relatively short since improvements are constantly being made. Consequently, a firm in this business needs a state-of-the-art research facility to develop new cultures. Today the firm holds patents and trademarks on 80 cultures for various cheese varieties. The firm has developed a highly competitive bacteria called, *"beefeater"*, as a result of its intended strategy which is to develop new bacteria strains while production continues on strains that have been patented.

Inverpower Controls Ltd. produces high voltage power equipment that is used by heavy manufacturing plants and municipalities. The firm was founded by Dr. Dewan and his research colleagues from the University of Toronto. Inverpower currently does 70% of its R & D in-house on application technologies, such as the production and use of electrical inverters and converters in which the firm enjoys a leading position world-wide. Inverpower registers very few patents. Its strategy is to keep inventing new applications so that it will remain ahead of rival firms that choose to imitate rather than to innovate.

In 1987 James Marsh took over Steel Cylinder Manufacturing Ltd. and fundamentally restructured the firm. The firm refined a new process known as deep draw and ironing ("DDI"). He developed a strategic alliance with Airco Gases, a leading industrial electronic gas company from the U.S. The firm now produces containers for the industrial and electronic gas industries. Its strategy is to develop new processes with clients so that the clients will have strong identification with Steel Cylinder and order exclusively from it. As evidence that this strategy is working, Airco and Steel Cylinder currently hold a joint patent. In co-operation with another firm, Steel Cylinder Manufacturing developed a fire extinguisher system for tanks. This product's success in field tests during the Gulf War led to a number of orders from other countries for both military and non-military applications. The firm has become recognized in the industry as a leader in the production of light-weight cylinders for a variety of uses. The firm reports that its planned product development strategy with customers for light-weight cylinders has been so successful that a recent plant expansion for manufacturing these products has been made possible through an Ontario Development Corporation loan.

In the case of Thordon Bearings, Thomson believed that the firm's newly discovered polymer product would have a large number of potential applications. Sandy Thomson had just completed his engineering degree and was aware of an emerging market for a pollution-free lubricant for bearings and other parts of ships that are immersed in water. The family firm had been founded by his grandfather, Major George J. Thomson, in 1911. From the time of its founding until Sandy joined, the firm had been mainly a supplier for local engineering firms. From time to time the firm had taken on a number of research projects for clients. The polymer product was the result of one of those research projects where the firm developed a solution to address a customer's specific need for a product which would prevent rust and seizing-up of moving parts on ships. The firm retained an expert with a research background from the India rubber industry to work on refining its polymer product. Sandy Thompson's engineering background, tenaciousness, and personal drive were responsible for Thordon Bearings' successful development of self-lubricating bearings which release no oil or other environmentally dangerous by-products. The identification of a need for and development of these specialized products have been responsible for the firm's success. The firm has now developed to the point where it has several divisions. Its polymer product is marketed world-wide. The firm has recently purchased a ship, the "*Rudokop*", from the Russian navy which it outfitted in Poland as a demonstration vessel.

In each of the firms in this group, a key individual, usually but not always internal, identified a unique opportunity that would provide a niche market for the start-up of a new firm. This is referred to as a classic start-up because it involves a new product/service and a new firm.

3. The Entrepreneur and the Spin-Off Firm

Firms classified as spin-off start-ups represent 33.3% of the sample firms. These firms were started up by entrepreneurs with experience acquired while at established firms. In each case, the parent firm which provided the learning was not interested in developing the specific idea, process or product which became the basis for start-up of a new firm.

Allen Simpson Marketing and Design Ltd. was founded by Allen Simpson who had worked for Height Metal Furniture (Waterloo, Ontario), which manufactured school and outdoor leisure furniture. The firm wanted to develop a product that could be produced in its off-season. Allen Simpson had noticed, while at Canadian Tire stores, that garden tools were either very inexpensive, low-quality products from countries like Taiwan or very expensive, high-quality products from firms such as

Wilkinson Sword in the United Kingdom. The price differential for a garden trowel was from $0.69 to $26.00 with no products in the intermediate price range. Height Metal Furniture was not interested in developing garden tools so Allen Simpson decided to invest in the idea himself. He ordered an aluminum die which he financed with a sizable mortgage on his home. After an initial production run, he developed a buffing process that gave the aluminum product a sterling silver appearance. When Canadian distributors failed to respond to his sales efforts, he took a truckload of garden tools to New England and returned only after finding enough distributors to successfully launch the firm.

Artco Inc. is a spin-off from its parent firm, the Art Shoppe Inc. of Toronto. This firm is slightly different from the others in that the parent firm decided to concentrate new business opportunities with Artco Inc. as the hub firm in a network design system. The Art Shoppe Inc. had developed a reputation as a top-end furniture retailer. Artco Inc. was established to make large contract sales to commercial organizations such as hotels. It made sense that strategic production alliances should be formed with key manufacturers: Peppler, Kaufman, and Deilcraft. One of Artco Inc.'s flagship customers is the Four Seasons Hotel chain which furnished its first location in Toronto with custom furniture supplied exclusively by Artco Inc. This firm has developed and sells a number of innovative, artistically designed products that rely upon the tacit expertise and craftsmanship of its network partners in plastic, wood and metal applications.

The founder of Battery Technologies Inc., Dr. Kordesch, conceived of the process for the reusable alkaline manganese ("RAM") battery while at Union Carbide in the late 1960s. Union Carbide was a major distributor of single-use zinc-carbon alkaline systems[51] and feared that the RAM would cannibalize its existing product line. Kordesch's personal attempts to commercialize the product through production licences granted on loose terms resulted in limited success. Then the Ontario Idea Corporation introduced Dr. Kordesch to Wayne Hartford, who had marketing expertise from his employment experiences at Kimberly-Clark, Proctor & Gamble and Warner Lambert. Hartford's plan to license a rechargeable lithium battery at a firm called MOLI collapsed when an accident claim occurred and MOLI was purchased by its major customer - Mitsui of Japan. Hartford was still convinced that his original licensing strategy was the proper course to follow. Together with Dr. Kordesch, Hartford decided to set up Battery Technologies Inc. ("BTI") to develop technologies

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[51] John O'Sullivan of the University of Western Ontario prepared a case on this firm, "Battery Technologies Inc. (A)". He states that Union Carbide's market share peaked at 52% in 1986 for single-use batteries.

and license production to other firms.

MediaSoft Télécom's product was developed while Bachir Halimi was the President at Alis Technologies Inc. Alis decided not to work on further development of multilingual electronic data processing (EDP) based on voice, text inscription, and recognition systems. Alis decided to concentrate on its icon-based product for languages with a large number of characters (e.g., Chinese, Korean, Japanese, Arabic languages, Hebrew). Alis' experience has been used by MediaSoft, since many of its products combine voice recognition and data encoding using icon-based systems. MediaSoft's products are sold in many of the same markets as Alis' products. The two firms offer complementary product lines.

The experience of Mortice Kern Systems (MKS) is similar to that of MediaSoft Télécom. Randall Howard worked for an American software development firm near Chicago. He believed that personal computers ("PC's") could be enhanced to perform functions that were handled at that time only by mainframe computers using UNIX systems. Since his employer did not want to pursue development in that area, Randall Howard and his former University of Waterloo associates formed MKS. The firm did contract work that incorporated research and product development. Contract work for the Ontario Ministry of Education, Commodore Business Machines, and Imperial Oil provided the cash flow, operational experience and test sites to develop their ToolKit product.

Sonic Frontiers Incorporated was founded by Chris Jensen who had worked at an electronic sales outlet while he was a business student at the University of Toronto. At the outlet which sold audio parts to top-end users, he learned the audio component business from a person whom he refers to as the "master magician". After graduation, Chris Jensen formed a partnership with Chris Johnson. Chris Jensen arranged a loan to start their business as a custom supplier. The firm's initial strategy was to develop a mail order business selling audio parts. This provided the cash flow necessary for the firm to continue working on development of top-end audio equipment. With the assistance of a third partner, John Sloan, who had worked with an audio assembly firm, Sonic's first product was developed. Like Innovator Machine, Trojan Technologies and Allen Simpson, this firm made its initial sales in the U.S. After sales of its custom products had reached a sustainable level, Sonic shifted its sales emphasis from mail order to the sale of completed audio component products through a distributor network.

Mr. Zeph, Sr. of Zeph Technologies Inc. had worked for a bottling equipment firm in the 1950s. He wanted to produce high-speed equipment that could perform multiple functions, but that firm's management was satisfied with their existing technology. Mr. Zeph, Sr. finally decided to set up his own firm to accomplish his mission. He kept himself busy as a tool and die maker while he developed the technology necessary to launch his product line. Today his firm sells high-speed, multiple size bottle filling equipment to firms (e.g., Proctor and Gamble) on a world-wide basis. His firm's specialty equipment also affixes bottle-caps and applies labels. All equipment uses the latest CAD/CAM/CIM technology.

4. The Entrepreneur within an Established Firm

Firms classified as start-ups within an established firm represent 19.1% of the firms studied. These firms were started by entrepreneurs who developed expertise within an existing firm pursuant to an intended strategy. The parent firm decided to retain the new concept or product and placed an entrepreneur in charge of a new subsidiary whose operations would become independent of the parent firm.

Agrodev Canada Inc. was formed by people with a background in government research and administration. Among its employees are former deputy ministers from departments such as Fisheries and Oceans (Canada). When the firm has provided its consulting services to other countries, it has enjoyed access to Canadian government precedents as virtual templates for the custom-design of systems for clients. This firm has not only participated in designing ministerial departments and in writing policy and procedure manuals for the operation of departments in foreign countries, but has undertaken complete projects for the introduction of new crops and new fishing processes into foreign countries (e.g., a specialty potato that was developed for production in Prince Edward Island is now sold throughout South America).

Ceeco Machinery and Manufacturing Limited was started up by entrepreneurs with expertise in designing and building cable manufacturing equipment. Shortly after start-up, the firm needed capital and merged with York Steel. André Varga who founded the firm in 1966 took the firm over again in the late 1980's when many firms were undergoing restructuring and downsizing. Ceeco enhanced its core competencies by hiring experts such as Richard Schofield. His knowledge of fiber weaving helped the firm produce new equipment for lighter, stronger cables. From inception this firm planned to export its products and assembled people from around the world with specialized expertise in order to achieve this objective.

CRC Sogema is a spin-off firm from its parent firm, Maheu Noiseaux. Although this firm could have been included in the third category, it is included here because its founding was part of an intended strategy. All other firms in Category 3

(Spin-Off) had ideas that the parent firm did not choose to pursue. In this case, CRC Sogema was set up as a separate firm to take advantage of opportunities that could not be handled through the parent firm. Although now an independent firm, CRC Sogema still maintains a close working relationship with its parent firm which has been renamed Le Groupe Mallette Maheu. CRC Sogema specializes in international project management and in providing consulting and management services to organizations in developing countries. The firm has developed expertise, retained specialists, and formed project teams to handle a variety of challenging contracts ranging from privatization to training assignments.

Nora Beverages was founded by partners who had experience in selling bottled water in the Middle East. They felt that the product would sell in North America due to increased concern with health, fitness, and the environment. The partners retained the Lavalin firm to conduct a search for sites with suitable mineral water. The Mirabel site was chosen due to its proximity to transportation networks. The firm built its plant with the assistance of federal and provincial development programs. Nora holds a patent on the process for making its bottles as well as a trademark on the shape of its bottles. The firm is currently working on an intended strategy for development of technology to affix bottle tops and hopes to make a break-through in the next twenty-four months. It plans to file a patent on its new process.

These stories reflect the ability of entrepreneurs to start up firms under varying circumstances. The anecdotal data also presents the attributes of entrepreneurial leaders in small Canadian firms at the time of start-up. Results show that the entrepreneurial leader brings together personal experience and a vision of a product or service and seizes opportunities as they become apparent. Meeting these people gives a researcher the sense that they are perceptive innovative, flexible, persistent, pragmatic, high-energy, and self-reliant. They perceive themselves and their firms to be ethical. Their comments suggest that they value ethical behaviour as an important factor in success because it is critical to the firm's ability to establish a reputation for excellence in both product and customer service. These leaders do not link ethical behaviour directly to the culture or organizational context of their organizations as would be expected from the research of Ghoshal and Bartlett (1994).

The entrepreneur does not always emerge in a brand new firm with a new product. Start-up circumstances vary and cannot be considered an indicator of success. This study's results show that there is potential for success in new firms that have new leaders and new products, new firms with new leaders and established products, established firms with new leaders and new products, and established firms with new leaders and established products. This suggests that it is the nature of the leadership that is critical to successful start-up. This is consistent with the fundamental premise of strategic management that the study of a firm's performance must also include an understanding of the role of managers in influencing such performance (Rumelt, Schendel and Teece, 1991).

C. Entrepreneurial Strategy

The strategy of firms in this study can be described as informal and pragmatic. Responses indicate that firms typically act on the basis of the leader's intuition rather than on the basis of a written, planned strategy. As suggested by Mintzberg (1995), the entrepreneur acts on intuition and uses strategic thinking rather than strategic planning.

This study confirms the findings of Mintzberg (1995) that for Canadian small firms the process of internationalization has been one of feeling their way into foreign markets rather than the result of a grand strategy. He stresses the difference between the strategic planning approach and strategy based on experimental learning and synthesis:

> *Planning and globalization are two separate issues. Going international, on the one hand, and how you do it, on the other hand are quite different. The fun stories are those of companies that worked it out through experimentation and testing, and not through a systematic process of planning everything.* (Mintzberg, 1995)

The firms in this study reported a clearly-defined commitment to export-based growth from the time of start-up. However, they did not have formally planned and enunciated strategies. Respondents' strategy involved recognizing opportunity and using internal and external resources as efficiently and effectively as possible to meet customer needs in existing or emerging markets. They recognized both the limitations of the domestic market and the challenges inherent in targeting global niche markets. Their response is to develop innovative, high-quality, customer-driven products and service. This is consistent with the findings of Sriram and Sapienza (1991).

Firms in this study pursued an aggressive customer-driven, product development strategy. This is consistent with Romanelli (1989). Service-based firms develop product to meet the specific demands of their customers. Production firms respond to an apparent niche market by developing a specific product and promoting this product in potential markets. Litvak's (1992) finding that successful firms use a global marketing strategy is not supported by this research since most sample firms stated that they respond to perceived market niche opportunities. Only Battery Technologies and Thordon Bearings could be said to qualify as users of a global marketing strategy. Firms, such as Fortron International, personalize their offerings market by market, even though the product is essentially the same.

Simon's (1992) finding that small firms have a narrow product-market focus is confirmed in this study. Respondents indicated an initial dependence on a single product. As the original product matures, small export firms aggressively attempt to refine both process and product to maintain competitive advantage. Effort is also made to expand the product line. In this way firms are able to sustain competitive advantage over time, as suggested by Litvak (1992). This was evident in all production firms except Battery Technologies, Flintshire Farms, James Ross, and Nora Beverages which remain dependent on their original innovative product. Service firms design innovative products on a customized basis for individual clients. This is consistent with the finding of Culpan (1989) that firms that customized products for sale into foreign markets enjoyed higher market sales in each market where customization efforts had been undertaken. The results could be interpreted as a confirmation of the findings of Dumaine (1991) and Caminiti (1991) who suggest that small firms have a risk-taking attitude that encourages them to design new products and services for customers in emerging markets. However, these firms carefully design and develop products to meet specific niche markets. This suggests that the risk is minimized. This is confirmed by respondents who reported that they did not perceive significant risk. The results of this study suggest that small firms that export benefit from aggressive and specialist strategies as suggested by Romanelli (1989).

In an effort to ensure innovation and adaptation to change firms in this study proactively innovate by adopting the most recent and sophisticated technology. This is consistent with the findings of Schmidt (1990), Knight (1989), Velloso (1990), and Holstein (1992). Of the production-based firms, only Allen Simpson used low technology production methods. Firms in this study have made the decision to use sophisticated technology as a means of implementing their strategy to become and remain competitive through innovation. Firms report that they are constantly scanning the environment for new methods and processes that will give them competitive advantage. This was particularly evident in the case of firms like Mortice Kern Systems, MediaSoft Telecom, Institut Rosell, Inverpower Controls, and Sonic Frontiers. This willingness to adopt the latest technology is critical to firms depending on competitive advantage from rapid response to customer demand, as suggested by Deutschman (1991).

This study also confirms the findings of Sriram and Sapienza (1991) regarding small firms that are highly involved in marketing. Marketing is emphasized as a key competency in the sample firms. However, while marketing is considered important by respondents, sample firms do not appear to have adequate internal marketing capability. This is consistent with Knight (1989) who reported that independent firms cited marketing problems as the greatest obstacle to launching innovations. This suggests that small firms need help in acquiring the extensive market-based information that they need. Barrett (1990) states that "a small company's success in the global market may depend on obtaining the right advice and support".

The findings of Bonaccorsi (1992) and Christensen (1993) that small firms have found sources for assessing international opportunities does not seem to be supported by data collected in this research. Firms such as Fortron International, Thordon Bearings, Artco, Flintshire Farms, and Nora Beverages were motivated to sell in foreign markets because they believed either that demand did exist or that it could be created. They did not rely on market studies or surveys. Only Artco did any market study prior to foreign market entry. The others all felt their way into international markets with their initial participation typically through the Government of Canada's PEMD Program. Although Bonaccorsi (1992) and Christensen (1993) may be correct that export expansion is the growth path of least resistance, it may be more accurate to say that export is the only path to growth for these small Canadian firms. Every respondent stated that export markets demand high quality and that competition is fierce. However, respondents were also optimistic about export profitability, with none expressing the opinion that export markets would shrink in size or in terms of over-all profitability. This finding supports Moini (1992). Every firm expressed its plan to expand export sales.

The results of this study confirm that successful small firms perform well in the areas which concern customers most (Simon, 1992). Respondents passionately recounted many stories related to customer awareness and superior customer service. The commitment to quality and customer satisfaction was evident in all interviews. This is consistent with Deutschman (1991) and Albrecht and Zemke (1985) and is evidence of an aggressive customer-service strategy. This was particularly evident in firms such as Fortron International, Mortice Kern Systems, Sonic Frontiers, MediaSoft Télécom, Artco Inc., Innovator Machine, Inverpower Controls, and Allen Simpson. In order to encourage customer contact these firms take proactive action (Holstein, 1992) by using 800 numbers, listing their sales outlets and phone numbers prominently, and doing extensive customer sampling (Fortron International, Nora Beverages, Sonic Frontiers, Thordon Bearings, and Allen Simpson). These firms have adopted a customer-service mentality with near evangelical zeal. Artco Inc., MediaSoft Télécom, Mortice Kern Systems, Ceeco Machinery, Flintshire Farms, Inverpower Controls and Thordon Bearings report that they deliberately solicit customer feedback which is consistent with the research findings of Hermann, (1992).

Hosmer (1994) refers to ethics as the factor fundamental to the success of firms. A strong commitment to ethical behaviour was professed by the leaders of these firms.

Simon's (1992) conclusion that firms often over-sell their quality guidelines, does not appear to be supported by this research. Firms expressed their concern that quality assurances must meet or exceed stated limits and some of the firms (e.g., James Ross Limited) have total quality management systems in place.

This study also has significant findings related to resource utilization strategy. Results support the findings of Hershkovich (1991) by showing that these small firms carefully deploy capital and other resources, and monitor firm activity to maximize efficiency in all aspects of operations. Firms actively solicit input from employees and customers in an effort to ensure that resources are being applied effectively.

Inc. Magazine (September,1990) refers to the efficient application of resources as "*bootstrapping*". This study suggests that the entrepreneurs who start up small firms have limited resources and are obligated to bootstrap initially. Entrepreneurs such as Hank Vander Laan and Jan Maarschalkerweerd of Trojan spoke of having their capital in the firm and mortgages on their home in favour of the bank. The same pattern appeared in a number of other firms. Allen Simpson initially mortgaged his home to build the moulds for his garden tools; Ken Hook at Flintshire gave security to banks and the government; Pat Hogan and John Dorscht at

Innovator Machine had unlimited guarantees outstanding; Randall Howard at Mortice Kern Systems had pledged his assets; Chris Jensen, Chris Johnson and John Sloan at Sonic Frontiers used their own funds and additional funds that they borrowed from relatives; and Ted Abbott and Bill Pawsey at James Ross Limited also borrowed and pledged their assets. This study suggests that these firms do continue to strategically deploy resources in a manner that maximizes the value of those resources.

Training is informal and in-house with management organizing sessions for employees. To increase productivity, employees cross-train to develop multi-skilling capabilities. Training is a high priority in all high-technology firms but is basically informal in nature. Respondents also indicated the importance of hiring highly-skilled employees who would fit the entrepreneurial culture of their firms. Several firms did access government support for training but did not rate it as critical to success. The need for management training programs was reported.

The application of firm resources to R & D is limited. While the value of R & D is recognized by sample firms, their prime strategy is to induce innovation. Systems and structures are incorporated into the organization which reflect an organizational orientation to continuous research and development. Only Zeph Technologies Inc. and Mortice Kern Systems are located in research parks and neither reported significant advantage from this. This contrasts with the findings of Raia (1992) and Hogan (1991) that research parks are highly effective in the start-up and growth of small firms. The results of this study suggest that successful small firms that export do not depend on product or process breakthroughs or networking opportunities that are promoted in research parks or incubator locations. This finding has implications for the development of government programs that are further discussed in chapter VII.

Firms in this study expressed their preference to maintain their independence. They access government support for R & D only when necessary and when the terms are favourable. Litvak's (1992) finding that successful firms learn how to obtain government R & D grants is not supported by this research. It should be noted that, while half of the firms in this study did use some government R & D funding, this support is not the only or even the most significant source of R & D funds. The only exception is Battery Technologies Inc.

Similarly, firms did not access government support for marketing until they had become established. This result is consistent with the findings of Banks and Taylor (1991).

The independence of firms in this study is also reflected in their limited involvement with professional and government organizations and in formalized strategic alliances. Networking is primarily based on informal and personal contacts.

This study does not confirm the finding of Litvak (1992) that firms use substantial subcontracting for production. Artco Inc., Battery Technologies Inc., and Fortron International were the only firms that did use subcontracting. As well, there is little support for Litvak's suggestion that firms patent technology. Most firms which could patent products and had done so indicated that they were not prepared to go through this process in the future unless it is absolutely necessary (e.g., Fortron International, Inverpower, Thordon Bearings). They cite the costs of the patent process and its enforcement as less than cost-effective.

Firms in this study did make similar strategic choices for research, product development, operations and production, marketing and internationalization which can be identified as primarily entrepreneurial. They are innovation and customer-driven and growth oriented. Strategies are both informal and pragmatic. Firms are committed to change that focuses on optimizing the value of internal resources. They do, however, recognize the potential value of external resources.

Chapter VI. Discussion and Analysis of External Factors

A. Regime dynamics and small business market entry

This research reports on the actual influence of regimes on small Canadian firms that export. It also reports on the regime awareness of small Canadian firms that export as actors in international and domestic regimes.

Small firms are typically studied as a component of a nation's domestic development and are becoming increasingly recognized as significant contributors to the national economy. Small firms that export are particularly significant to the nation's economic growth as international power becomes progressively more trade-based. This study explores the extent to which the growth in contribution by small firms to the domestic economy has been recognized by these firms and reflected in increased influence at the national and international regime levels. It could be expected that small firms that export would benefit from awareness of and involvement in regime organizations that establish the rules and regulations related to development and trade. Such involvement would be expected to result in change in the power structure within the international system, with power becoming increasingly subject to the influence of new actors. This change in the flow of power described as a change from top-down to bottom-up power, could be expected to evolve as power becomes increasingly influenced by customer-driven markets and firms. This increase in power at lower levels would be balanced by a decrease in the power traditionally held by regime organizations and larger firms. This shift in power has been referred to by popular writers including Toffler (1990), Drucker (1989), Peters (1987) and Naisbitt (1990).

This study also explores the extent to which the government's recognition of the contribution of small firms that export has been reflected in the development of national policies and programs based on an understanding of the nature and needs of small firms.

To understand the dynamics of power within regimes, it is necessary to understand the sources of power. Considered in this study are information power, regulatory power, production and trade power, and financial power. These sources of power are similar to those discussed by Susan Strange (1988) as knowledge, security, production and finance structures.

Table 11 indicates that fifteen of the twenty-one sample firms are subject to regime-based, information power. These firms are involved with sharing information through international regime-based organizations such as the International Standards

Organization ("ISO") that deals with quality standards. The ISO sets international standards and regulations which affect trade and the terms of competitive advantage. It also provides a forum for the exchange of new technologies and scientific research among professionals.

Table 11: *International Regime-Based Information Sharing (15/21)*

Firm	***Area of Regime-Based Information Sharing***
Agrodev	Research
Battery Technologies Inc.	Scientific research, environmental certification
Ceeco	Research, acceptance of new products and change to protocols
CRC Sogema	Research
DTI Télécom	Research
Institut Rosell	Research, dissemination of new capabilities
Inverpower	Research, certification of systems and upgrading of standards
MediaSoft Télécom	New standards, acceptance of new systems
Mortice Kern	Standards, new protocols
James Ross	Research, developing new processes
Sonic Frontiers	Knowledge of new products, setting new standards
Steel Cylinder	Access to new research, certification and approval for new products
Thordon Bearings	Research, certification of new products
Zeph	Research, information on new techniques
(15/21) (71%)	

The regulatory power of the regime is through regime structures that deal with trade in terms of market access and product standards to which firms must conform. Standardization allows firms to produce goods for different international markets without the need to re-certify products in each country[52]. Firms such as Ceeco, Battery Technologies Inc., Trojan and Thordon participate in professional and research organizations (e.g., American National Electrical Manufacturers' Association, Canadian Standards Association, International Marine Safety Organizations, Professional Engineering Associations, Camp David Research Association in California, U.K. Water Research Council, the Canada Centre for Inland Waters, etc.) in an attempt to increase their own knowledge and with a view to establishing their technologies as new international standards for their industries. Certification by international standards organizations gives these firms competitive trade advantages when their proposals for products and processes are chosen as industry standards. Small firms are subject to existing international standards which can restrict penetration of international markets with new innovative products. Ceeco indicated that it has

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[52] Several firms expressed the need for reciprocal recognition of standards and were frustrated at additional costs that were incurred in obtaining certification. The comment of Chris Jensen from Sonic Frontiers seems representative: "*We need to have a broad recognition of standards. CSA standards are better than UL. In the Singapore market as of June 1, VEE standards from Germany will be required. This will cost our firm $10,000. per product for certification. These are just front-end extra costs since the products conform now. The Singapore intention is to restrict the entry of other countries' products in order to protect their own home market.*"

developed new materials and methods to manufacture cables with improved performance qualities in smaller diameters but is forced to add extra wrapping so that these innovative cables match the diameters of current protocols.

Several sample firms indicated that the regulatory authority and influence of international structures (e.g., the International Telecommunications Union) are impeding their progress. These firms view the certification process and new standards (e.g., ISO-9000, 9001, 9002 and 9003) as barriers to success since they increase the cost of doing business. Other firms, however, turn this potential cost into a competitive advantage by increasing their learning and obtaining endorsements from their involvement in joint research and testing with government agencies. For example, Trojan Technologies Inc. does research and testing work with the U.K. Water Research Council in order to have its designs and systems accepted internationally. Trojan's strategy is to work through national regulatory organizations or regime structures to obtain international approval and endorsements for its products. With the approval and endorsement of well-respected national research, testing and licensing organizations, Trojan attempts to influence international bodies to change their standards to fit Trojan's specifications. Once a firm has its specifications accepted at the international regulatory level, it has a significant competitive advantage.

The power of regimes in relation to production and trade is significant since access to markets is controlled by multilateral agreements such as the GATT. All sample firms are impacted by the GATT. However, none of the sample firms had made any direct submissions to the Canadian government regarding issues discussed at the Uruguay Round of GATT talks. This is an interesting finding since Table 11 shows that fifteen firms are affected by information-based power and Table 12 shows that fifteen of the sample firms need protection for patents, copyrights and intellectual property rights in order to protect themselves from unauthorized duplication and distribution of their products. Many of these firms derive revenue from royalty payments which can only be assured if countries respect and diligently enforce agreements such as the GATT.

Table 12: *Regime-Based Intellectual Property Protection* *(15/21)*

Firm	*Intellectual Property*
Agrodev (Canada)	Patents
Battery Technologies	Patents, Trademarks
Ceeco Machinery	Patents
Fortron International	Patents, Trademarks
Innovator Machine	Patents, Trademarks
Institut Rosell	Patents, Trademarks
Inverpower Controls	Patents
MediaSoft Télécom	Patents, Trademarks
Mortice Kern Systems	Patents, Trademarks
Nora Beverages	Patents, Trademarks
James Ross	Patents
Steel Cylinder	Patents, Processes
Thordon Bearings	Patents, Processes, Trademarks
Trojan Technologies	Patents
Zeph Technologies	Patents, Processes, Trademarks
(15/21) (71%)	

A few firms (e.g., Thordon Bearings and Steel Cylinder Manufacturing) indicated that, based on the FTA experience, small firms should have been more proactive in lobbying for specific items in the NAFTA negotiations. In retrospect, several firms indicate that they let organizations, such as the Canadian Federation for Independent Business, lobby for them rather than become more directly involved.

The financial power structures of the international regime system significantly empower three of the sample firms -

Agrodev, CRC Sogema and DTI Télécom. Each firm does more than 50% of its business with development agencies that provide either direct funding or guarantees which finance their work (e.g., the World Bank, and the Asian, African, Caribbean Development Banks).

The sophistication and role of international regime structures have changed from the pre-World War II period when the main international structures were organizations such as the ITU (International Telecommunications Union). In the 1990s international regime structures regulate, finance and plan for development in much of the third world. The services small Canadian firms sell to international regime organizations include consulting, design, and installation of Ministerial Departments, infrastructure projects, and telecommunications systems. These development projects are financed partly with national government funds but depend largely on credits and guarantees from international regime organizations. The other eighteen firms in the sample are involved in commercial dealings with other firms and are not directly involved with the finance-based power of international regime organizations.

The role of national regimes has expanded as international regime structures have expanded. Since the late 1960s, nations have established a number of internal regime structures in an effort to make their countries more competitive. In Canada, marketing boards and the National Energy Program are examples. Both federal and provincial development agencies have attempted to foster industry and commerce in economically depressed regions.

A number of companies have benefitted from their involvement with national regime organizations independent of their participation in state support programs. Although the principal function of national regime organizations is to regulate, they also conduct negotiations on important issues such as the protection of intellectual property rights and set national standards which can be an important sources of competitive advantage. Trojan Technologies Inc. indicated that its participation with Environment Canada had helped set standards which it could easily expect to meet and surpass but which would be an impediment to other firms entering the water purification industry. As well, it is vital to Trojan Technologies Inc. that its new processes be protected at the international level by enforcement agencies that are dedicated to protecting intellectual property.

Similarly, Battery Technologies Inc. indicated that its involvement with Energy Canada has given it advantages in the development of alkaline rechargeable batteries because of the safety standards and protocols which have been developed. Like Trojan Technologies, Battery Technologies expects that it will be in a better position when international standards are changed because of acceptance by Canadian national regulatory agencies. Battery Technologies Inc. is also interested in having its intellectual property rights protected, through ongoing negotiations conducted by the Government of Canada, since it holds a substantial number of patents.

Although other firms such as Inverpower Controls do not use patents extensively, they do rely on certification by organizations such as CSA (Canadian Standards Association). Inverpower's involvement with national certification organizations makes it easier for them to sell into other foreign markets which recognize these standards.

National regimes, while set up to foster development, can have adverse effects on specific industries or firms. Flintshire Farms indicates that its ability to produce Cornish hens has been negatively affected by quota restrictions imposed by the marketing board that regulates poultry products. This finding is interesting since marketing boards were designed to assist producers in maintaining prices and in expanding export markets (especially if subsidies permitted under international agreements make the exported produce more competitive in terms of quality and price).

Results of this study indicate that small Canadian firms that export are subject to regime-based power. It is also apparent that these firms do not consider themselves to possess substantial influence at either the national or international level. In cases where firms do attempt to exert influence, demands are typically product-driven rather than industry or sector-driven. At the national and international levels small firms pragmatically respond to their specific individual needs rather than proactively work to establish processes or organizations that would better serve the interests of the small business sector generally. Results of this study suggest that power continues to flow primarily downward from regime organizations dominated by the interests of leading trading nations and large international actors. While there is an increasing number of actors at all levels and the system has become more dynamic with constant renegotiation of the rules and regulations by all member countries, this study suggests that small Canadian firms that export do not, by choice, become directly involved at the international level except with their agents and customers. Rather than lobbying for themselves, sample firms depend on the Canadian government to lobby for them in international matters.

It could be argued that the limited involvement of small firms in international regimes reflects the firms' limited awareness of the power of those regimes. In Table 13 firms have been divided into three groups based on their awareness of regimes.

The awareness level is measured relative to the other firms in the sample and not in comparison to firms in other countries or to larger Canadian firms. Five sample firms (23.8%) fall into the high-awareness category. Four firms (19%) are classified as moderate-awareness. Twelve firms (57.2%) are classified as low-awareness. This can be contrasted with the finding that fifteen sample firms (71.4%) are subject to information-based power (Table 11) and fifteen (71.4%) are subject to regime-based intellectual property protection (Table 12).

Table 13: *Awareness of International Regimes* *(n=21)*

Distribution of Firms in Study		
High Awareness	***Moderate Awareness***	***Low Awareness***
Agrodev Canada Artco Battery Technologies CRC Sogema Trojan Technologies	DTI Télécom Fortron Sonic Frontiers Steel Cylinder	Ceeco Machinery Flintshire Farms Innovator Machine Institut Rosell Inverpower Controls MediaSoft Telecom Mortice Kern Nora Beverages James Ross Allen Simpson Thordon Bearings Zeph Technologies
5/21 (23.8%)	*4/21 (19%)*	*12/21 (57.2%)*
Interaction Pattern with Regime Systems and Structures		
High Interaction	*Infrequent Interaction*	*Low Interaction*
◆ Regime structures set industry standards and regulations	◆ Regime structures provide market access	◆ Regime structures create barriers to sales activity
Implications for Competitive Advantage		
Active Involvement	*Positive Dependence*	*Negative Dependence*
◆ Firm strives to shape favourable regime structures and rules	◆ Firm views itself as automonous; benign or neutral regime conditions allow unimpeded networking for trade	◆ Fear of being excluded forces firm to adhere to regime rules (example: ISO-9000)

(a) Firms in the ***high-awareness category*** have regular interaction with regime structures and participate in regime institutions. These firms deal in the sale of products and services that depend on sophisticated processes. Their high-awareness is a result of their dependence on access to and dissemination of information. These firms rely on regime organizations to provide them with information on leading-edge products and processes. Regime organizations furnish recommendations, provide product safety approvals and convene meetings of leading experts who present research papers and report on new findings. Regime structures in many instances control market access, set regulations and standards, and promote international development (e.g., foreign aid).

Firms in the high-awareness category display a working understanding of how regime organizations affect them and have had ongoing interaction with one or more such organizations. Agrodev and CRC Sogema do consulting work for clients where references from regime organizations (e.g., the African and Asian Development Banks) frequently result in these firms being recommended as bidders on projects. Trojan Technologies has shared information about new product development with regime organizations in the expectation that wider publication of their technology processes will result in acceptance of their products for tender specifications and new product codes. Artco Inc. exhibits high-awareness because the furniture finishing and bonding processes for wood and metal developed by its network production firms are setting new standards for the international furniture industry. Artco Inc. also conducts surveillance activities on product developments and market trends in order to learn about the activity of competitors.

Firms in the high-awareness category also participate in international standards organizations and professional organizations both to promote networking and to enhance their competitive advantage. The leading technology firms (such as Battery Technologies Inc. and Trojan Technologies Inc.) are involved in fundamental or applied research. They lobby to successfully influence international standards. Their technology is promoted as the new industry standard which gives these firms a competitive advantage over rival firms that are forced to catch up. High-awareness firms discussed the influence of regimes in terms of the following:

(1) Financing provided by regime institutions (e.g., the World Bank, the Asian, Caribbean and African Development Banks);

(2) Standards set by international bodies (e.g., the International Standards Organization, "ISO");

(3) Regime regulation (e.g., the European Community in regard to market entry or participation);

(4) Regime agreements (e.g., the GATT for market access); and

(5) Managed competition under regional regime structures (e.g., the Canada-U.S. Free Trade Agreement and the North American Free Trade

Agreement).

Although firms in the high-awareness category exhibit relatively high-awareness in comparison to the other firms in the sample group, they have limited involvement with regime organizations on a day-to-day basis.

(b) Firms in the ***moderate-awareness category*** do not directly interact with regime structures, regime institutions or even the Canadian government on a regular basis. Business is conducted with independent corporations or agencies. Participation by these firms in international organizations is primarily network-oriented for the purpose of making contacts for international sales (e.g., military procurement). The network contact these firms have is focused on selling their products (e.g., Steel Cylinder worked at selling its light-weight cylinders for the infra-red fire extinguisher system for tanks to the U.S. military and other allied forces) rather than on influencing the regime system, structures or standards. Firms in the moderate-awareness category recognize that regimes have created an environment that is favourable for the sale of their goods and services. However, these firms see themselves and their products as the prime basis for their success. These firms are only moderately interested in discussing changes since they generally think that the prevailing regime has been set in place and is beyond their influence.

(c) Firms in the ***low-awareness category*** think of themselves as market-driven and regard regime structures as a negative factor capable of impeding sales and increasing costs. As a result of negative impressions acquired through their initial exposure to regimes, these firms do not really want to pursue further contact with regime organizations. Some firms in this category explained that they do participate in the standards upgrading process sponsored by the International Standards Organization (e.g., ISO-9000, ISO-9001, ISO-9002 and ISO-9003) due to fear of being excluded from lucrative markets in the future. It is the threat to trade that has been responsible for their involvement rather than an interest in upgrading documentation, improving safety, and developing standards and protocols. Low-awareness firms typically agreed (after direct questioning on specific regime structures) that regimes have affected their market access. They expressed the opinion that they feel unable to influence the prevailing regime system and the structures that set the rules and govern the international system.

Results suggest that even sample firms that are highly aware of regime power remain uninvolved because they lack confidence in regime operations and in their ability to influence regimes. Respondents indicated that regime systems do not effectively protect their products. Although many firms had registered patents in O.E.C.D. (Organization for Economic Co-operation and Development) countries as is suggested by Litvak (1992), they agreed that there is little protection offered for intellectual property. Since only large firms with substantial resources could afford to defend a major patent suit due to the high costs of litigation, small Canadian firms indicated that the regime system does not adequately protect them. Although all of the firms indicated awareness, after direct questioning, of the fact that the Uruguay Round GATT talks included provisions for the inclusion of services and for the protection of intellectual property, most indicated that their intention is to file copyrights in the future. An indicative comment was made by Ron Foxcroft at Fortron:

> *We would not do a patent again. We would spend $1,000. on trademark protection instead.*

Firms also indicated their intent to rely on R & D or application expertise rather than on protection under patents or regime regulations. This point of view was expressed succinctly by James G. Marsh of Steel Cylinder Manufacturing Ltd.:

> *For other people to catch-up, there is both a two to three year time frame for learning our processes and a major cost hurdle while the expertise is being developed. By the time other competitors try to catch-up, we are well beyond them in terms of expertise and new product development. We differentiate ourselves based on product quality. We*

have the lightest weight, best surface, and a lead in new technology processes.

These firms fear that the descriptions given in patents provide sufficient detail to enable competitors to circumvent their patents with only slight modifications. They also reported that enforcement by international organizations is slow and ineffective. Sample firms in the moderate and low-awareness categories indicated no intention of using their limited economic resources to actively attempt to influence international regime structures and organizations. This is consistent with their low level of commitment to resource deployment for lobbying their own federal and provincial governments in an attempt to renegotiate changes in domestic regime structures. Sample firms also expressed concern, that within the international trade regime, countries establish regulations and standards under the guise of health and safety protection when their real intent is to erect barriers against foreign competition. There is concern that the international trade regime does not punish countries for this kind of action on a frequent or consistent basis.

Many of the small firms that exhibited low-awareness reported that they were currently suffering some adverse effects from the trade regime. Firms indicated that if something adverse and significant to them were to occur, they would expect the Government of Canada to initiate a trade complaint on their behalf in the appropriate international forum. Ceeco Machinery Manufacturing Limited indicated that, if a foreign country gave loans or subsidies to its own domestic firms, it would expect the Government of Canada to launch legal action and underwrite the costs of using the dispute settlement procedures of the GATT. Mortice Kern Systems confirmed this point of view when Randall Howard indicated his firm would expect the Government of Canada to file and prosecute a trade violation action if its software programs were copied in one GATT country for the purpose of being sold in other GATT countries.[53]

Firms in the sample indicated that one recurring problem with the trade regime is bad faith in implementing agreements on the part of member countries. Countries which have previously agreed to abide by liberal free trade principles under agreements such as the GATT, subsequently exhibit bad faith by erecting non-tariff barriers to trade. Nora Beverages indicated that many countries, which have signed the GATT, pass legislation in violation of GATT principles in order to exclude outside firms unless a "state licence" has been obtained. Because many individual national or sub-national markets are small, it is not cost-effective to undertake the

53 Countries such as India are frequently reported in the press for not enforcing international agreements to protect foreign intellectual property. These countries have frequently condoned and even encouraged such practices.

expense of filing complaints under international trade legislation.[54] This has led to disenchantment of small firms with regime structures. It also reinforces the opinion of researchers (e.g., Krasner, 1983 and Keohane 1984) who argue that the current regime is undergoing stress caused by a lack of enforcement.

Sample firms consider the Canadian government to be their link to the international regime system and its organizations. All firms indicated that they expect the Canadian government would continue to renegotiate regime structures with a view to increasing market access for small firms. However, only four of the sample firms indicated that they had made presentations to the government on matters of concern to them (Institut Rosell, Zeph Technologies Inc., Battery Technologies Inc., and Trojan Technologies Inc.). These are all high technology firms and most of their presentations dealt with access to government funding for research. Even though other firms felt that change was likely, they felt powerless to influence such change at either the national or international level.

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[54] A notable exception occurred when U.S. beer manufacturers launched a complaint under the GATT about the distribution and pricing system for beer against the Government of Canada based on the Ontario Brewers' Retail distribution system and taxes levied on beer imports. The U.S. beer producers must have thought the Ontario market was worth the cost of carrying a complaint through the GATT dispute system.

It is a paradox that the dynamic nature of the current regime system has created the opportunity for small firms to enter international markets but small firms depend on stability in the regime to be successful. They look to the Canadian government to ensure this stability. Despite the involvement of small firms in international trade, the small Canadian firms in the sample perceive themselves to be basically powerless to affect regime structures at both the national and international levels. Sample firms which have attempted to influence change express high levels of frustration. Sample firms see the regime system as unchangeable even though the regime and its supporting structures and institutions have rules and regulations that are constantly evolving. The international regime system changes slowly in response to political and economic pressures and is the result of ongoing negotiations by member countries as they attempt to increase their economic performance relative to each other and largely at the expense of non-member countries. These findings are consistent with Krasner's (1983) description of change within regime systems. It could be argued that small Canadian firms perceive the regime system to be unchangeable because change in international regimes has traditionally taken place over long periods of time. Small firms, on the other hand, typically operate with a short-term focus. Stability within the regime is considered to be in the best interest of small firms since it permits them to realize profits from their investment in product, processes and marketing. These firms depend on both the dynamic and stable nature of the trade regime.

To negotiate effectively for changes that will benefit its small firms, the Canadian government must work with these small firms to ensure that they are aware of and involved in national decision-making related to national and international development and trade. This is consistent with Niosi and Faucher (1991) who suggest that the role of the state is a strategic factor as industrial development moves from labour-intensive to capital-intensive and finally to knowledge-intensive industries.

B. State Support

Canada is restricted in terms of trade and intervention strategy options by participation in international trade regimes such as the GATT. However, Canada is in a position to promote domestic development through state support programs, a strategy proposed by Ikenberry (1988) and promoted by Eisinger (1988). This strategy is based on the belief that state support can strengthen domestic firms and that strong domestic firms will be able to successfully compete internationally. Porter (1990) promotes this strategic approach to national economic development. Porter's emphasis is on the need for strong domestic competition in the development of international competitiveness of firms. Firms in this study, however, stress the lack of domestic competition and the ever-increasing competition from other international firms. This suggests that other factors are critical to small successful Canadian firms that export.

State support programs are considered in this study as a factor in the success of sample firms and as an indicator of the extent to which Canada's industrial development strategy targets the development of small firms that export. The literature review indicates that many options are available to a nation in terms of state support. This study reports on the experience of sample firms as users of existing state support programs. A partial listing of Canada's federal, Ontario and Quebec support programs is included as Appendix "D".

Based on research in the literature review, the purpose of government support programs has been divided into five categories: (1) start-up, (2) organizational growth, (3) research and development, (4) training, and (5) marketing.

Table 14 presents data reflecting usage and evaluation of different programs used within each of the five categories.

"Effectiveness" in this study is defined "as being critical to firm success" since the purpose of offering state support is to make a significant difference in the development of firms. It could be argued that while specific programs are not considered critical, a combination of programs may have significantly affected firms. It must be noted that programs may not be essential or critical but can still be useful. Discussion of the data and respondents' comments related to specific programs and state support generally will further clarify "effectiveness".

Table 14: *Usage and Effectiveness of State Programs* (n=21)

Concentration	Program Name	Firm Usage	Critical for Firm Success
Start-Up	* Regional Development Corporations * FBDB	2/21 (10%)	2/2 (100%) * Flintshire Farms * Nora Beverages
Organizational Growth	* Ontario Idea Corp. * Farm Credit * Regional Development Corporations * FBDB New Ventures * Quality Assurance Assistance Program	7/21 (33%)	5/7 (71%): * Battery Technologies Inc. * Flintshire Farms * Innovator * Nora * Sonic
Training	* Ontario Skills * Apex (Quebec) * Apprenticeship	10/21 (48%)	0 (0%)
Research and Development	* Federal and Provincial Tax Credits * Ontario Energy, * Cooperative Agreement on Industrial Development Opportunities * IRAP * IPP * TPP	11/21 (53%)	1/10 (10%) * Battery Technologies Inc.
Marketing (These programs are the most widely available.)	* Canadian Development Corp. * Canadian Export Development Corp. * PEMD * FBDB * WIN * REE (EAITC) * International Marketing Initiative * BOSS * Canadian Commercial Credit Corp.	21/21 (100%)	4/21 (19%): * Mortice Kern Systems * Sonic Frontiers * Flintshire Farms * Allen Simpson Marketing

Results indicate that the usage by sample firms of state support is extensive with every firm having used at least one program.[55] It should be noted that use of government programs was not a requirement for inclusion in the sample group. Table 14 indicates that start-up programs were used by 2/21 (10%) of the firms[56], organizational growth programs by 7/21 (33%) of the firms[57], training programs by 10/21 (48%) of the firms[58], R & D programs by 11/21 (53%) of the firms[59], and

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55 The categories suggested by Eisinger (1988) are relevant since Canada does have development credit corporations (e.g., the Canadian Development Corp., the Ontario Development Corp., the Quebec Development Corp., and the Nova Scotia Development Corp., among others in Canada), venture capital corporations (e.g., the Federal Development Business Bank has a new venture program as does the Province of Ontario), product development corporations (e.g., the federal and provincial Farm Development Corporations), and pension fund venture pools (e.g., Ontario Municipal Employees Retirement Fund).

56 Flintshire Farms and Nora Beverages

57 Agrodev, Artco, Battery Technologies, Innovator Machine, Sonic Frontiers, Steel Cylinder Manufacturing, and Thordon Bearings. The state support programs for organizational growth include Artco even though such support is used by the production firms within its network. Artco Inc. is the hub firm in a network form of organizational structure.

58 Artco, Ceeco, DTI Télécom, Institut Rosell, MediaSoft, Mortice Kern Systems, Allen Simpson Marketing, Sonic Frontiers, James Ross, and Zeph Technologies.

59 Battery Technologies Inc., DTI Télécom, Ceeco Manufacturing, Fortron, Institut Rosell, Inverpower, MediaSoft, Mortice Kern Systems, Nora Beverages, Thordon Bearings and Trojan Technologies.

marketing programs by 21/21 (100%) of the firms.

The number of times different programs have been used is as follows:[60]

Marketing	45
R & D	18
Training	13
Organizational Growth	12
Start-Up	3

Despite extensive usage of support programs, only 1/3 of the firms in the sample (7/21)[61] reported that one or more state support programs had been critical to their success. The firms that rated government programs critical for their success compete in a wide variety of industries and represent all quadrants in the Technological Sophistication and Product Maturity Matrix. The majority of the programs used by these firms are very targeted[62].

Within each type of program, results indicate that assistance

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60 These results were tabulated from data in Tables 16 to 19. They represent the total number of times types of programs were used.

61 Battery Technologies Inc., Mortice Kern Systems, Innovator Machine, Sonic Frontiers, Flintshire Farms, Nora Beverages, and Allen Simpson Marketing and Design Limited indicate that one or more state support programs were critical to their success.

62 Battery Technologies Inc. used some of the general type of programs such as the Scientific Research Credit Program and the Ontario Idea Corporation but also used specific programs such as those of the Nova Scotia Development Corporation and the Ontario Energy Corporation.

is not evaluated as critical to firm success. Of sample firms, 10% (2/21) reported start-up programs were critical to success, 23.8% (5/21) reported organizational growth was critical to success, 0% (0/21) reported training was critical to success, 0.5% (1/21) reported R & D was critical to success, and 19% (4/21) reported that marketing was critical to success.

An analysis of frequency of usage of programs by quadrant as shown in Table 15 indicates that marketing support was the most extensively used type of government support. In Quadrants 2, 3, and 4 over half the programs used targeted marketing. In Quadrant 1, R & D usage slightly surpassed marketing.

Table 15: *Frequency of Usage of Programs by Quadrant*

Quadrant	*1*	*2*	*3*	*4*	*Total*
Marketing	*7*	*21*	*5*	*12*	*45 (50%)*
R & D	*8*	*7*	*1*	*2*	*18 (20%)*
Organizational Growth	*6*	*5*	*0*	*2*	*13 (14%)*
Training	*2*	*6*	*0*	*4*	*12 (13%)*
Start-Up	*0*	*0*	*3*	*0*	*3 (3%)*
Total	*23(25%)*	*39 (43%)*	*9(10%)*	*20 (22%)*	*91 (100%)*

To understand when and why small firms use state support, usage is studied as a factor affecting firms in the four quadrants of the Technological Sophistication and Product

Maturity Matrix. Results are presented in Tables 16, 17, 18 and 19.

Table 16: *Quadrant 1 - Government Programs Used* *(n=4/21)*

Founded	Firm	Purpose	Government Programs Used
1986	Battery Technologies	Org. Growth R & D R & D Org. Growth Org. Growth Org. Growth Marketing R & D Marketing	* Ontario Idea Corp. * Dept. of Environment (Federal) * Ministry of Energy (Provincial) * Nova Scotia Business Development Corp. * Cooperation Agreement on Industrial Development & Opportunity * Cdn. Development Corp * Cdn. Export Development Corp. * Industrial Research Assistance Program * PEMD
1987	MediaSoft Telecom	Marketing R & D Training Marketing	* WIN * R & D Grants (F & P) * Quebec Skills Dev. * PEMD
1984	Mortice Kern Systems	Training Org. Growth R & D Marketing	* Ontario Skills Devel. * Technical Pers. Prog. * R & D Programs * PEMD
1976	Trojan Technologies	R & D R & D R & D Marketing Org. Growth Marketing	* U.S.Environmental Protection Agency * Canada Centre for Inland Waters * U.K.Water Res. Counc. * Export Devel. Corp. * FBDB * PEMD

Table 17: *Quadrant 2 - Government Programs Used* (n=9/21)

Founded	Firm	Development	Government Programs
1966	Ceeco Machinery	Marketing Marketing R & D Training Marketing	* WIN * REE * R & D (Fed, Prov.) * Ont Apprenticeship * PEMD
1984	Innovator Machine	Organ. Growth R & D R & D Marketing Marketing	* Ont. Devel. Corp * IRAP * IPP * EDC * PEMD
1932	Institut Rosell	R & D Organ. Growth Marketing Training Marketing Marketing	* R & D (Fed, Prov.) * TPP * REE * Apprenticeship Program (Prov.) * WIN * PEMD
1980	Inverpower	R & D R & D Organ. Growth Marketing Marketing	* R & D (Fed, Prov.) * IRAP * Intersearch * WIN * PEMD
1958	James Ross	Training Marketing Marketing	* Ont. Skills Devel. * WIN * PEMD
1987	Sonic Frontiers	Organ. Growth Training Marketing	* FBDB New Ventures * Ont. Skills Devel. * PEMD
1973	Steel Cylinder	Organ. Growth Marketing Marketing Marketing	* Ont. Devel. Corp. * WIN * BOSS * PEMD
1911	Thordon Bearings	Marketing R & D Marketing Marketing Marketing	* REE * R & D (Fed, Prov.) * EDC * WIN * PEMD
1972	Zeph Technologies	Training Training Marketing	* Ont.Skills Devel. * Ont Apprenticeship * PEMD

Table 18: *Quadrant 3 - Government Programs Used* *(n=2/21)*

Founded	Firm	Purpose	Government Programs
1984	Flintshire Farms	Start-Up Start-Up Marketing Marketing Marketing	* Farm Credit Corp. (Fed.) * Eastern Ontario Development Corp. * WIN * EDC * PEMD
1986	Nora Beverages	Start-Up R & D Marketing Marketing	* Que Development Corp. * R & D (Fed, Prov) * WIN * PEMD

Table 19: *Quadrant 4 - Government Programs Used* *(n=6/21)*

Founded	*Firm*	*Program*	*Government Programs Used*
1960	Artco	Organ. Growth Training Training Marketing Marketing Marketing	* ODC * Ont. Skills Devel. * Ont. Apprenticeship * EDC * WIN * PEMD
1972	Agrodev Canada	Marketing Organ. Growth Marketing	* CIDA * Ont Devel.Corp. * PEMD
1973	DTI Télécom	Marketing Marketing Training R & D Marketing	* CIDA * EDC * APEX (Prov.) * R & D (Fed,Prov.) * PEMD
1977	Allen Simpson	Training Marketing	* Ont Skills Devel. * PEMD
1987	Fortron	R & D Marketing	* R & D (Fed, Prov.) * PEMD
1980	CRC Sogema	Marketing Marketing	* EDC * PEMD

1. Quadrant 1: Fundamental Research Firms

Table 16 presents a listing of Quadrant 1, fundamental research firms, with their involvement in state support programs. These firms reported that they did not use state assistance for start-up[63], but did so for R & D, organizational growth, training, and marketing. These firms indicated that if funding had been readily available for start-up, they may have used it. They also indicated that they had introduced their products on their own. These products were intended for introduction into world markets from the time of start-up.

For Quadrant 1, the principal need is for long-term funding

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63 Battery Technologies Inc. could possibly have been classified as a firm that was created because of government influence. This firm has used government funding for organizational growth and for R & D, rather than for start-up. The firm was founded by Dr. Kordesch who had worked with an American battery manufacturer (Union Carbide in the late 1960's) when he worked on the idea for rechargeable alkaline manganese (RAM) batteries. The Ontario Idea Corporation introduced him to Wayne Hartford who organized the firm with the intention that it would do research and sell licences for the technology to battery manufacturers. Since Dr. Kordesch had been working on the technology for years and had already entered into some agreements for production, government policy and programs were not considered to have led to the firm's start-up.

for fundamental research and for growth. Since direct capital for expansion was not readily available through government programs, these firms struggled to raise capital from private sources. In each case, Canadian chartered banks were of little assistance other than in financing short-term cash flows created by work-in-process. Only Trojan used venture capital. The other firms have financed organizational growth principally through retained earnings and further investment by shareholders. While involved in short-term, small-scale government programs, Quadrant 1 firms discounted the value of existing government programs and stressed the need for access to long-term capital.

Each of these firms was initially managed by the person who had the vision for a new product. Battery Technologies Inc. and Trojan required highly skilled management and professional employees as the firms matured and new management teams took over. The firms reported that management training programs were not available through the government when they needed them. Although these firms have recently used programs through universities and community colleges for management training, none of them were aware of such programs offered through either the federal or provincial governments. There does not appear to be a coordinated effort to provide business training. An initiative that would provide a link between firms, education and training would be beneficial. Since innovative product development does depend on highly-trained staff, these high-technology firms have used support for R & D, organizational growth and marketing. Their limited use of support for marketing might reflect their lack of awareness and lack of experience with government programs rather than a conscious decision not use existing programs.

2. Quadrant 2: Applied Research Firms

Table 17 lists Quadrant 2, applied research firms, with their involvement in state support programs. Quadrant 2 firms did not access government programs for start-up but did so for organizational growth, R & D, staff training and marketing. These firms accessed a variety of programs in an effort to expand their sales abroad. All firms used the PEMD (Program for Export Market Development through External Affairs and International Trade Canada) to attend international trade exhibitions. Some Quadrant 2 firms used highly focused programs such as REE (the Renaissance of Eastern Europe Program of External Affairs and International Trade Canada). Several firms used the WIN (World Information Network of External Affairs and International Trade Canada) program to inform foreign embassies and trade offices about their range of products and services.

Quadrant 2 firms reported that they have suffered from a chronic lack of capital for short-term expansion and marketing needs. These firms indicate that, despite some government support for R & D, they have carried the burden of raising short-term capital themselves. They are committed to in-house R & D and designate 10% of gross sales to research. This funding has been supplemented by government R & D support. Sample firms reported that government R & D funding is subject to very specific criteria and requires detailed documentation. There have been benefits for firms that have been involved with government R & D programs as pointed out by Sandy Thompson of Thordon Bearings:

> *Government R & D programs forced us to be better disciplined than before when we did our own research. The format was better understood by academics and professionals so that we obtained responses from a wider group of participants. Now we would not think of doing things as we did before. These programs moved us on to a higher plane of performance and of expectation.*

These government R & D programs provide small firms with limited resources with low-cost access to people with expertise at universities and government research facilities. The quality of these resources has improved the quality of R & D within some firms. Quadrant 2 firms that had used government laboratories and computer processing facilities indicated that they would not have been able to afford to use these facilities without government financial aid and networking.

Two of these firms (Innovator Machine and Steel Cylinder Manufacturing) used loans from the Ontario Development Corporation to purchase capital equipment which was needed to produce leading-edge products. Other firms accessed organizational growth programs such as Intersearch and the FBDB New Ventures Program. In most cases firms have supplied the necessary capital from retained earnings which means that the growth, expansion, and market penetration process has been retarded. The firms suggested that government could do more to provide capital funding. Zeph Technologies Inc. is the only firm in any of the quadrants which has taken the initiative to attempt to influence government with a written submission[64].

Firms in this quadrant all reported that government programs for organizational growth and for financing foreign expansion have been inadequate. They have found it impossible to access sufficient capital through the Canadian Chartered Banks and all firms experienced pressure on lines of credit caused by the need to internally finance work-in-process on large foreign contracts. Although the Government of Canada helps, through the Export Development Corporation, to insure political risk and offers various kinds of insurance, Quadrant 2 firms indicated that government should consider extending

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[64] Zeph Technologies has produced a booklet entitled, "*Canada's Technology Triangle Business Community Program*".

the range of its financial services[65]. Letters of credit are expensive and difficult to arrange for many countries where there are markets (e.g., Iran, China, Egypt) for goods and services of Quadrant 2 firms. Respondents indicated that the Government of Canada should include more countries, especially third world ones, for program participation on a consistent basis. Sample firms indicated that they need government support not only in marketing at trade exhibitions but also to assist in financing inventories, materials, labour and overhead costs until the goods and services are delivered.

Quadrant 2 firms have used short-term government programs to provide for training necessary to upgrade employee skills. One of the principal complaints about these programs is that they are not consistently available. When funding runs out, the balance of firms are excluded or are left to fund the rest of the training themselves. The Ontario Skills Development Program was a program specifically named by three of the firms (e.g., James Ross, Sonic Frontiers, and Zeph Technologies). Some firms (e.g., Mortice Kern Systems and Zeph Technologies) had enroled employees in university and community college programs for training in foreign languages and for upgrading of computer and technical skills. Government funding was

[65] The Business Development Bank of Canada, formerly the Federal Business Development Bank, has a new Venture Corporations section which offers this type of loan assistance.

available to partially cover the costs of these courses as part of employee multi-skilling programs. Six firms (e.g., Innovator Machine, Institut Rosell, Inverpower Controls, James Ross, Steel Cylinder and Zeph Technologies) have accessed government programs for training new employees in new technologies. Five of the firms (e.g., Ceeco, Institut Rosell, Inverpower, James Ross and Zeph Technologies) indicated that university personnel, who had been introduced through government-funded consulting programs, were retained on private contracts after government funding had expired. Most firms indicated a strong preference for using outside consultants for the acquisition of new capabilities and felt that government had been of assistance in locating consultants with the appropriate expertise.

Firms in Quadrant 2 continue to access a large number of government programs for marketing but most of them are short-term. The most frequently accessed programs have been marketing programs that have accelerated expansion into foreign markets. All Quadrant 2 firms entered foreign markets very early in their life cycle. Each firm has used government programs such as PEMD at some point for marketing and six firms maintain listings on WIN as a prime source of marketing contacts. Many of these firms stated that Canadian aid policy and programs operated by CIDA (Canadian International Development Agency) have delivered business to them because

Canadian foreign aid programs require recipients to use Canadian goods or services. Most of these firms have a world-wide frame of reference. The fact that these small Canadian firms price their products in U.S. dollars is significant since it indicates a mindset directed towards exporting. All of these firms reported that they could not hope to survive if they were limited to sales in the Canadian market.

While Quadrant 2 firms have not used state funding for start-up, they have done so for organizational growth, R & D, training and marketing. This is consistent with their need for short-term capital in order to finance plant expansion, develop next-generation products, and establish a comprehensive distribution network for penetration and expansion of foreign markets.

Their extensive usage of government programs probably reflects their product maturity since they are familiar with their own needs and with external support that has the potential to meet specific needs. The learning curve for small firms interested in accessing government support is lengthened by the extensive assortment of programs, the lack of coordination between programs, and the lack of awareness of firms about existing programs. When small firms are in greatest need of government assistance, they may not be aware of or able to access the support that would facilitate their development.

3. Quadrant 3: Exploitation of Natural Resource Firms

Table 18 lists Quadrant 3, resource-based firms, with their involvement in state support programs. These firms reported that they used start-up, marketing and R & D programs.

Firms in Quadrant 3 exploit country-specific advantages: Nora Beverages bottles natural unprocessed spring water and Flintshire Farms raises pheasants and other exotic game birds in ideal geographic and terrain conditions. These firms used government programs to commence operations and both indicate that state support start-up programs were a critical factor in launching their firms. Without funding from the Ontario Development Corporation, Flintshire Farms would not have been founded. Ken Hook and his wife were recent university graduates with little cash available to start up a business. The research work of Nora Beverages to locate and test wells would not have been possible without government start-up assistance. Once Nora Beverages had located a supply of water, it also needed government support program resources to help build a world-class bottling facility. In this case, loan guarantees were needed so that the financial markets would undertake the risk of the investment in this relatively new type of business.

These firms have used government programs for marketing to facilitate expansion and penetration into foreign markets. Each of these firms has used and continues to use state marketing programs such as PEMD and WIN. The firms indicate that they had expected greater efficiency from government. They have been frustrated by red tape (required bureaucratic procedures) and indicated that government programs should be consolidated (e.g., available through a single access process).

Flintshire Farms indicated that it wants to use state programs for staff training as it introduces more complex systems to handle international orders. Nora Beverages expects to use state funding for multi-skilling programs in the future. Each firm expressed a need for more assistance from government.

Quadrant 3 firms stressed the need for further government support to enhance the Canadian transportation system, to provide programs to offset the negative impact of taxes levied on carriers (e.g., airport taxes for landing and unloading, aviation fuel taxes, etc.) and to provide training programs to improve product handling for fragile items such as live chicks. Although these firms have entered international market niches, they will require sustained government assistance to break into new markets and to service established (and usually protected) foreign markets:

"All our major competition comes from Europe. The largest firms are

> *French and Italian. We would need major organization and government support to launch our products in European markets. Meanwhile, with government support, they sell products into our markets."* (Naji Barsoum, Nora Beverages Inc.)

Although Quadrant 3 firms did access state support for start-up, R & D, and marketing, their principal need was for government investment in infrastructure. These firms were dependent for start-up on environmental conditions that facilitate production and cost-efficient transportation of their products to foreign markets. Without the infrastructure investment by government these firms would not be able to successfully exploit country-specific advantages.

4. Quadrant 4: Sophisticated Marketing Firms

Table 19 lists Quadrant 4, mature product marketing-based firms. These firms reported that they did not use state assistance for start-up, but did do so for organizational growth, marketing, R & D, and training.

The three firms in the consulting business (e.g., Agrodev, DTI Télécom, and CRC Sogema) indicated benefits from their involvement in government marketing and networking programs. Marketing expertise to assist with foreign expansion through CIDA and EDC was reported to be particularly valuable. Allen

Simpson and Fortron singled out the PEMD program as helpful to them in the early stages, leading to contacts in foreign countries that produced tangible results. These firms indicated that there is a need for expanded long-term state support in marketing directed at new markets and at penetrating established markets. The firms in this quadrant expressed concern that government programs (e.g., PEMD) were designed only to assist with initial market entry. Artco, Allen Simpson and Fortron International expressed frustration over this policy since several lucrative foreign markets (e.g., the Japanese, Korean, Chinese and several other Asian and African markets) require extended efforts for successful market penetration.

Firms in Quadrant 4 have all benefitted from government-sponsored education and training. Agrodev's experience is unique in that its employees had received their training as top-level career civil servants or scientific researchers. The employees of CRC Sogema have typically had professional training in Canadian universities. While not dependent on state training programs, these firms do depend on the availability of highly educated and trained workers.

5. Limitations of State Support Programs

i. Start-Up

While there is some difference in usage of government programs by firms in different quadrants, there is similarity in comments of respondents regarding limitations of existing programs and Canada's current state support strategy.

Regarding start-up programs, participation was limited because of very restrictive criteria. Results show that regional or sector initiatives can be successful but that this success is limited to few firms. Other sample firms did indicate that funding was difficult to procure for start-up but that it may have been used if available. Respondents suggested that what most small firms need at start-up are banking regulations and organizations that more reasonably respond to small firm requirements. This research supports Romanelli (1989) with firms reporting that favourable environmental resources do make a difference to start-up success.

ii. Marketing

Firms reported that the effectiveness of marketing programs is limited by several factors:

1. lack of coordination of programs,

2. short-term nature of funding,

3. lack of advertising by government, and

4. underfunding.

Firms indicated that access to marketing programs is limited by lack of coordination of information regarding available programs. Government coordination of distribution of information related to programs would facilitate access. The inefficiency and ineffectiveness of the government's approach is reflected in the following comment of Ron Foxcroft from Fortron:

> *"Finding out about government programs is like getting in on a big secret. Once we were finally on the list, the government people wanted to make their jobs easier by giving us more funds each year which was presumably easier than seeking out new firms that needed help more than we did."*

This suggests that the learning curve for small firms is unnecessarily lengthened and when firms are most in need they may be unaware of available assistance. Some respondents reported that they had applied for government support only to be advised that funds were no longer available through that program.

Respondents indicated that because of the limited size of the Canadian market, they were intent at the time of start-up on selling into world markets. Initial marketing efforts were financed by the firms rather than by the government. Firms such as Trojan, Allen Simpson, Mortice Kern Systems, Sonic Frontiers, Innovator Machine, and Fortron depended on their own resources for entry into the U.S. market and expanded their international efforts only after U.S. market success. Marketing programs of the Government of Canada were used later, after the firms had already achieved initial success with their foreign market penetration.[66]

Firms reported that the PEMD program is not well-designed since it supports only initial entry into foreign markets, while penetration of many sophisticated markets requires extended, comprehensive marketing strategies and long-term support. Respondents also indicated that, while government supports attendance at international trade exhibitions, it does not provide training on how to market effectively. Firms report that valuable contacts are made through attendance at these trade fairs but suggest that firm representatives are not well enough prepared to seize trade opportunities. While marketing support is extensively used by small Canadian firms that export, users consider it to have limited value. Only 33% of the firms studied rated programs in which they had participated as critical to their success. This is consistent with the findings of Baldwin (1994). Results suggest the need

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[66] In a number of instances interesting stories indicate that the firms, out of desperation, looked to the U.S. as the place to sell their goods or to launch their marketing efforts. Previously the experiences of Allen Simpson and his trip to New England with a truckload of his garden tools has been recited. Chris Jensen of Sonic Frontiers participated at Los Vegas shows for sophisticated audio users to extend his firm's sales.

for marketing assistance and the need for program development based on real requirements and defined goals. This study confirms the finding of Bonaccorsi (1992) that the success of small and medium-sized enterprises rests largely on their ability to target well-defined markets. This study also confirms the suggestion of Baldwin (1994) and Wynarczyk, Watson, Storey, Short, and Keasey (1993) that marketing capability is critical to the success of small firms.

iii. Organizational Growth

Support for organizational growth is limited to funding for the construction of new plant facilities in Canada to handle demand in the domestic and foreign markets. While Table 5 indicates that 71.4% (15/21) of the firms in the sample are production-based, Table 14 shows that only 33.3% (7/21) of the firms had used this support. It is important to note that five of these seven firms (71%) evaluated this support as critical to success. This suggests that current programs are effective for users but that they are not well enough advertised or designed in a way that facilitates usage by small firms that export.

iv. Training

These knowledge and skill-based sample firms did not extensively access or highly evaluate state support for training. The government training programs are limited by their narrow focus on technical skills upgrading. Respondents did reflect the need for highly-skilled, well-educated workers and often referred to Canada's education system as an important factor in their success. Results suggest that small firms currently prefer to hire trainable workers and train them as needed. Training is typically informal and job specific. Many respondents did discuss the need for management level training programs as small firms grow.[67] This finding is consistent with the research of Terpstra (1993) that small business needs help in managing the stress of growth and maturity.

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[67] A number of firms indicate a need for government to offer assistance for executives to upgrade their management skills (e.g. Steel Cylinder, Inverpower Controls, Ceeco Machinery, Innovator Machine, Nora Beverages, Agrodev, CRC Sogema, DTI Télécom and Fortron International).

v. Research & Development

While it would be expected that R & D support would be critical to small, innovative firms, results suggest that these firms do not depend on government funding for R & D. Results indicate that these firms are involved in ongoing, applied research and that innovations are typically induced rather than autonomous. The existence of an innovation-based culture appears to be more critical to the success of these firms than formalized R & D. Innovation in R & D is as fundamental to success as innovation in all other aspects of structure, strategy and operations. Firms did pragmatically use R & D funding, with Quadrant 1 firms as the primary users. Results show that 53% of the firms in this study used support for R & D. However, only Battery Technologies indicated that R & D programs had been critical to its success. This study suggests that research is undertaken within firms on an ongoing basis. Firms use government funds to supplement internal funding of R & D. They do not depend on government assistance. Schmidt (1990) argues that small firms are innovation-driven and can benefit from government initiatives establishing environments conducive to fast learning and diffusion of new technologies. This study suggests that incubators did not grow start-ups and the value of incubators to existing firms is not apparent. Firms in this study did not typically attach value to proximity to or involvement in research parks. They did, however, report on the importance of internal environments conducive to fast learning and rapid diffusion of ideas and technology.

6. Summary

While the independence of the entrepreneurial firms stands in stark contrast to the concept of state intervention, results show that small firms are looking to the government in Canada for assistance and do pragmatically participate in government programs. Government support used by small firms that export is predominantly information or knowledge-based. Marketing, R & D, and training programs all extend the knowledge base of the firm. Extensive usage of marketing and R & D programs suggests that they are needed. Although 71% of the sample firms are production-based, limited government support is used to extend the production capacity of these firms. Firms that did use support for organizational growth rated those programs relatively highly. The Government of Canada's industrial policy as outlined by Industry Canada (1994) focuses on the private sector, development of programs to stimulate further growth, innovation, and on small business:

> *The only source of new jobs is a growing private sector. Growth must take place in the context of rapid change in both the global economy and the innovative economy. Global means freer and more intense worldwide trade across national borders. The innovative economy*

> *means the kind of innovation-driven growth in goods and services that is emerging from the technological revolution.*
>
> *...Within the emerging innovative economy, small business is crucial in creating new jobs. The impressive employment growth of small business firms...reflects in no small part their transition to a more knowledge-based economy. Knowledge work gives no special advantage to large firms. The use of computers and factory automation is making it possible to produce goods efficiently in smaller volumes. In many industries, small businesses are proving to be the most innovative. In the l980's they accounted for 87 percent of al employment growth in Canada.* (Industry Canada, 1994)

The policy speaks of the emerging knowledge-based, innovative economy and promotes internationalization through programs that stimulate growth, innovation and small firms. This study has shown that existing state support programs have not accurately responded to the needs of small firms and have had limited impact on their performance in most cases.

Canada's current state support strategy could be described as non-strategic, since programs are established and terminated without apparent evaluation of need or results. The comments of respondents suggest that this approach is ineffective and inefficient for both the users and the government. Small firms cannot depend on government assistance when programs are constantly changing. Small firms are also deterred from using support programs by the government's extensive application and reporting requirements. The informal, pragmatic planning of these firms is incompatible with the formal, rigid administration of state support.

Firms in this study confirm previous research findings that small firms are suitable recipients for government state support initiatives. Magnet (1993a and 1993b) suggested that small firms are more susceptible to government influence than large firms. This finding is confirmed by the reaction of firms in they study which indicated that changes in any program in which they participate affected them immediately (e.g., Thordon Bearings, Trojan Technologies and Agrodev).

Due to their limited financial resources, firms in this study indicated that they cannot easily move from the jurisdiction if government policy offends them. Firms such as Steel Cylinder, Thordon Bearings and Nora Beverages indicated that moving to other countries such as the U.S. is not considered a viable option for small firms. As suggested by Shapiro (1991), these firms report that they do not have earnings sufficient to meet the threshold costs for setting up off-shore arrangements.

These firms also indicate that factor conditions, including the supply of trained employees through government-funded institutions, are a factor affecting their decision to stay in Canada. These firms further state that government influence helps in marketing, in product development and in other subtle ways (e.g., government organizations such as the CCC actively assist Canadian firms when bidding on U.S. military contracts).

The findings of this study contradict the assertion of Christensen (1993) and Porter (1990) that small and medium-sized firms have a perception of increased risk in exporting. The risks of exporting are not as significant as the risk of not exporting since these small firms depend on emerging niche markets rather than on the domestic market. The global efforts of small firms in this study depend primarily on marketing, rather than on investment in foreign countries. As well, these firms are not subject to the risk of loss of their position within their industry which is based on their performance in the domestic market. Large firms do depend on industry for competitive advantage. Foreign activities do not threaten the domestic performance of firms in this study since these firms do not depend on sales in the domestic market.

Since most government support programs require a cash pay-back over time, small firms are very selective in the programs they access. They want to be sure that the anticipated benefits are delivered. Such caution serves to protect any government investment in small firms. Timmons' (1990) statement that small firms have a large percentage of the owner-operator's capital invested, is supported by this research. Also supported is the suggestion by Carter (1990) that the equity commitment of entrepreneurs in their firms at start-up is positively related to the success of the firm.

From this research it is not possible to generalize as to whether or not assistance is better offered at the provincial level as suggested by Moskowitz (1992) or at the federal level as recommended by Sriram and Sapienza (1991). More research is needed into the usage and effectiveness of federal as compared to provincial programs. Government assistance is best offered at the level where it is most cost-effective and most likely to have the greatest impact. Small firms have participated in programs by both levels of government. It appears that clearly designated areas of responsibility and coordination of programs are necessary to prevent confusion and overlap. Sample firms would prefer to see red tape reduced and programs simplified, and administered through one ministerial department. Such recommendations should be considered in future policy development.

This research can be compared to that of Niosi and Rivard (1990). Their research dealt with SMC's involved in technology transfer. They found that the variable "government incentives offered by home country agencies" was not associated with success or failure. Their research studied 27 firms that exported technology to developing countries and 43 firms that exported technology to industrialized countries. The sample studied represents a different group of firms since they export goods manufactured in Canada.[68] However, firms in both studies suggest that state support programs are generally not critical to success. In this study only 7/21 firms evaluate any state support program as critical to success. These findings are consistent with the findings of Baldwin (1994). He states that:

Government aid is not viewed as important by many GSME's[69].

However, Baldwin (1994) suggests that the programs most valued are the ones with clear externalities - government information services and training programs. The results of this study support the value attributed to government information services. Based on frequency of use data, marketing and R & D can be evaluated as most needed. These are information-based programs. In this study the programs rated as critical to success by users are organizational growth and start-up. However, these programs were not extensively used by firms. This study suggests that targeted government assistance can benefit small firms that export. Results indicate that the government should more carefully develop, monitor and evaluate programs to enhance their effectiveness. This challenges the

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68 Only Thordon Bearings is currently in the process of setting up foreign manufacturing. Zeph Technologies is considering doing so within five years. These are the only two firms that may be similar in the future to the firms used in the sample group of Niosi and Rivard (1990).

69 Baldwin (1994) uses the "GSME" as an acronym for *growing small and medium-sized enterprises*.

validity of Baldwin's assertion that:

> *"Governments do not have to pick winners... There is a self-selection process that leads winners to pick effective programs."*

While some successful firms are able to pick some winners, this approach appears to be very inefficient for small firms. Time and effort is wasted as these firms access programs that are not exactly what they need and overlook or reject other programs that could be of benefit to them.

C. Networks

This study explores network involvement as a strategic asset of sample firms. Table 20 indicates that personal and extended networks were used by twelve firms (57%)[70], learning networks by three firms (14%)[71], strategic alliances by four firms (19%)[72], and new organizational structure alliances by two firms (10%)[73]. In this table the most important network involvement of each firm has been listed. Many firms are

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70 Allen Simpson, CRC Sogema, DTI Télécom, Fortron International, Flintshire Farms, Innovator Machine, Inverpower, MediaSoft Telecom, Mortice Kern Systems, Nora Beverages, James Ross, Sonic Frontiers, and Thordon Bearings.

71 Institut Rosell, Steel Cylinder and Trojan Technologies

72 Battery Technologies, Ceeco Machinery, Mortice Kern Systems and Zeph Technologies.

73 Agrodev and Artco

involved in more than one type of network. Sample firms indicate that networking is significant to small Canadian firms but that the types of network used and the extent of networking by the sample firms do not reflect either their age or technological sophistication.

Four of the five types of networks identified in the literature review were found in the sample firms. Most frequently used by firms in this study are personal and extended networks. These are used to establish contacts for acquisition of information related to product development and marketing. A number of firms participated in the WIN (World Information Network) program which is a low-involvement Government of Canada information network. This type of network information system is less sophisticated than anticipated by researchers such as Quinn (1992). No examples of networks as a new form of competition were found in the sample group. No examples of sophisticated learning networks of the diagonal and horizonal distribution type as discussed by Astley and Fombrun (1983) appeared within the sample.

Table 20: *Firm Age and Network Involvement* *(n=21)*

Quadrant	*Firm*	*Age*	*Type of Network*
1	Battery Technologies	7	Strategic Alliance
	MediaSoft Telecom	6	Personal & Extended
	Mortice Kern Systems	9	Strategic Alliance
	Trojan Technologies	16	Learning
2	Ceeco Machinery	33	Strategic Alliance
	Innovator Machine	9	Personal & Extended
	Institut Rosell	61	Learning
	Inverpower	13	Personal & Extended
	James Ross	31	Personal & Extended
	Sonic Frontiers	6	Personal & Extended
	Steel Cylinder	20	Learning
	Thordon Bearings	82	Personal & Extended
	Zeph Technologies	21	Strategic Alliance
3	Flintshire Farms	16	Personal & Extended
	Nora Beverages	7	Personal & Extended
4	Agrodev Canada	21	Organizational Form
	Artco	33	Organizational Form
	DTI Télécom	20	Personal & Extended
	Allen Simpson	14	Personal & Extended
	Fortron International	6	Personal & Extended
	CRC Sogema	12	Personal & Extended

Note: *The types of networks are those listed in Section II (C) (1-5). Personal and extended networks include sales and distribution networks to handle sales in foreign markets.*

The formation or incorporation dates for firms are shown on Tables 16 to 19. The age shown on this chart is calculated to December 1993.

The principal purpose of networking for the firm is shown in Table 21. Networks were used to acquire marketing information by 14 of the firms (66%). R & D is the focus of network involvement for 5 of the firms (24%). Only 2 of the firms (10%) used networks for production.

Table 21: Purpose of Networking *(n=21)*

Marketing	*R & D*	*Production*	*Total*
Agrodev	*Ceeco*	*Artco*	
Allen Simpson	*Institut Rosell*	*Battery Technologies*	
CRC Sogema	*Steel Cylinder*		
DTI Télécom	*Trojan*		
Fortron			
Flintshire Farms			
Inverpower			
MediaSoft Telecom			
Mortice Kern			
Nora Beverages			
James Ross			
Sonic Frontiers			
Thordon Bearings			
Zeph Technologies			
14/21 (66%)	***5/21 (24%)***	***2/21 (10%)***	***21/21***

In Table 20 the types of networks used by firms are considered on a quadrant by quadrant basis. Firms in Quadrant 1 use networks primarily to acquire information from academics, researchers, and people with experience within their industry.

Quadrant 1 firms have high technological skill levels and their interest in networking with highly qualified experts was apparent. The number of contact points is relatively small but interaction is frequent and well-organized. Information is exchanged on subjects of mutual interest. These firms form strategic alliances for research with government, other firms and distributors. Dr. Karl Kordesch, Dr. Frank Parsen and their colleagues at Battery Technologies Inc. depend on both personal and extended networks. They attend academic and professional association meetings and the firm has a number of short-term research relationships for developing applications expertise. However, the firm's strategic production alliance with HiBar is a significant factor in BTI's success and future survival. HiBar produces dedicated equipment for the manufacture of rechargeable alkaline magnesium ("RAM") batteries. This is reflected in Table 20 which lists the principal network of BTI as a strategic alliance. MediaSoft is looking for network partners and considers this to be crucial to its future success. Mortice Kern Systems has recently entered into a strategic alliance with BorderDeck (that may lead to a merger) which it considers to be important for future foreign market penetration. This strategic alliance will permit MKS to market BorderDeck's product and to use a number of its innovations in other MKS products. Trojan Technologies does joint research work with government agencies. This work is conducted both for R & D purposes and to facilitate national and international acceptance of Trojan products. Since its relationships are directed toward product development and testing, learning networks are designated as the principal type of network for this firm.

Table 20 indicates that in Quadrant 1 Trojan is sixteen years of age and the other firms are all between seven and nine years of age. In each case, networking is considered important to the firm and there is no pattern based on age of the firm. Use of networks is important to all of these firms since networks facilitate product development. Much of this networking is dependent on the government's involvement in helping small firms establish network contacts.

Firms in Quadrant 2 use networks to make contacts with the intent of improving and marketing their products. Ceeco has alliances with production firms in Brazil and Mexico. Steel Cylinder Manufacturing reports sixteen alliances for production of specific products and one alliance where the two firms (e.g., Steel Cylinder and Airco) hold a joint patent. The purpose of this alliance is for the development of new processes and products for the specific needs identified by clients. Since this work is done at the client's expense and Steel Cylinder Manufacturing enhances its know-how in the process, Table 19 lists learning as its principal network involvement. Thordon Bearings has a marketing alliance.

Thordon networks through personal and extended networks which include firms that act as distributors and manufacturers under licence. However, the benefits of extended personal networks are significant for small firms since valuable information frequently comes from this source.[74] Firms in Quadrant 2 also use networking to establish long-term business. Zeph Technologies Inc. reports that when Proctor and Gamble opens new plants around the world, P & G refers its bottle-filling machinery requirements to Zeph (a "piggybacking" technology-driven strategic alliance). In other cases, networking is used for locating high-skill employees, for market surveillance, and for recommendations in the preparation of lists of qualified bidders. These firms use networks in different ways to improve and market their products. Firm age is not a critical factor since firms vary from six to eighty-two years.

Firms in Quadrant 3 network with other industry participants and buyers. These firms related experiences where

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[74] George A. (Sandy) Thomson of Thordon Bearing Inc. made an interesting observation which seems to capture the essence of the outlook of many firm participants: "*Recently a contact put me in touch with the Chairman of the Cortis Corporation in Miami, Florida that makes pacemakers. This is a substantial firm with 3,000 employees owned by a very talented person who is both a medical doctor and an engineer. He had experience in restoring a Dutch ship so we had a common interest. I plan to keep in touch with him on a number of matters and access his expertise. At a point it seems that it is not what you know, but who you know.*"

introductions have led to market sales. Flintshire Farms indicated that a government introduction to a firm in Winnipeg led to an informal alliance where the two firms joined together to supply product for large Asian customers. Flintshire Farms also indicated that network contacts had led to the introduction of their products into new markets. Nora Beverages uses networks of the personal and extended type to find distribution outlets in foreign markets. Within Quadrant 3 there is no pattern based on age since Flintshire Farms is sixteen and Nora Beverages is seven years of age.

For Quadrant 4 firms, networking is directed at the establishment and maintenance of relationships with agents and representatives who sell the firm's goods and services. Networking typically includes newsletters to network partners. Firms in this quadrant use network contacts to obtain listings on bidders' lists, to generate sales and to improve customer satisfaction with their products. Although Agrodev does use personal and extended networks, it has been listed as a natural partnership of organizational structure because its principal need is for the funding of its projects which is done through its parent firm. The parent firm provides funding although it is not directly involved with Agrodev's operations. Artco is involved in a network organization where it is the hub firm similar to the models in the Italian knitting industry. Artco indicated that one satisfied hotel chain would often refer a customer in another market. Despite these referrals which reflect personal and extended network involvement, Artco functions mainly as a hub firm and the organizational type of network is listed for Artco in Table 20. For Artco, age has been a definite benefit since the parent firm has been in business since 1908. The contacts of the parent firm and its outstanding reputation have proven to be tacit assets. Artco also benefits from the technological sophistication of its network partners in the production part of its furniture business. DTI Télécom uses personal and extended networks. It owes its entry into international business to a referral by a contact to the African Development Bank for the Guinea project. Since that time, most of its business has come from referrals and recommendations of senior people in government and industry. Allen Simpson is another firm where personal and extended network contacts are the principal form of networking. Through a dealer and distributor network this firm has managed to sell its product in top-line U.S.-based stores such as "The Sharper Image" and "Brookstone". In Asia referrals and contacts have resulted in Allen Simpson products being sold in jewellery stores. Fortron International has relied on recommendations and testimonials from referees in world class sporting events to market its products. In many cases the distributor relationship in foreign countries has come from a referral through a personal or extended network contact. CRC Sogema is similar to Agrodev except that its source of revenue is consulting and, as a result, the firm relies heavily on recommendations from network contacts in order to obtain consulting work in foreign countries.

Firms in Quadrant 4 vary in age from six to thirty-three years. The prime motivation for networking is to increase sales through the acquisition of information related to markets. Networking involves both other firms and government. Many of the introductions come through participation in government programs and services such as WIN.

Every firm has been involved in networking in some form: personal and extended networks for marketing information and for making new partner introductions, organizational networks for production, learning networks to enhance product development, and strategic alliance networks for R & D and production. Age and technological sophistication do not correlate directly to networking. Through networking, the capabilities and competitive advantage of small firms are extended.

Networks are dynamic and small firm participation is pragmatic. Firms become involved to achieve specific goals related to product development, production, and marketing. Their level of commitment to networking varies greatly. The networks are primarily knowledge-based and firms confirm the importance of the government's role in linking firms to network partners. Networks have the potential to enhance product development, production and marketing in Canada's small firms. They can link small firms to other domestic firms, to education and R & D organizations, to international regimes, and to international markets. Because these firms report a lack of domestic competition but very strong competition at the international level, it should be possible to promote networking which would benefit small domestic firms. By bringing these firms together to increase their base of knowledge, these independent firms may become a business sector capable of increased innovation, production,

D. Section Summary

This study reports on regimes, state support and networks as external factors that affect the success of small Canadian firms that export. Firms are studied as independent businesses, as a component of the national economy and as competitors in international markets.

This study confirms that power continues to flow from the top down in the international system. International regimes control nations and firms through the enforcement of rules and regulations. Regime provisions are negotiated by national governments. Domestic regimes are established to promote domestic development and to link domestic firms and national development to the international system. While small firms are responding to consumer-driven market opportunities, international and domestic regimes continue to regulate trade from the top and thereby restrict the growth of bottom-up power.

While small firms have established themselves as significant contributors to the national economy and participants in international trade, their awareness of regimes is limited. Although the power of regimes on firms is evident, they have not been involved in lobbying for change at either the national or international level. Firms in this study have depended primarily on the national government to lobby international regime organizations in matters which concern their trade interests. This study suggests that small Canadian firms operate independently and have not really established themselves as a business sector. They have not actively organized to influence national regime organizations. This is significant because national regimes have traditionally been established and operated in a manner that benefits large firms, these firms having been the most significant contributors to the economy and the most able to lobby national governments. Without proactive participation in national regimes, the small business sector will continue to find itself reacting to policies and programs created to respond to the specific needs of larger firms.

International standardization and protection of intellectual property rights are of significant interest to small Canadian firms that export. Their interest in protecting intellectual property rights reflects the innovative, knowledge-based nature of these firms. It also reflects the need for firms to generate new products or risk decline.

There is a basic paradox in the relationship between small Canadian firms that export and the international system. Along with technology and communications developments, the dynamic nature of the current trade regime has provided a business environment conducive to small firm entry into foreign markets. However, small firms depend on relative stability within this regime. Regime stability allows small firms to establish themselves and realize profits over a longer term. Small firms suggest that they cannot afford constant readjustments to products and processes necessitated by changes in international rules and regulations. These firms are committed to change necessitated by market-driven factors but resist change imposed by regime organizations.

This study suggests that the government can promote the development of small firms through macro, meso and micro initiatives. Through infrastructure and support initiatives, Canada can facilitate the adaptation of firms to emerging opportunities and challenges in global markets. Firms in this study have depended on the government for international trade initiatives (negotiations and enforcement) and for infrastructure that provides factor conditions conducive to business development in Canada. Firms in this study are intent on internationalization and growth and are looking to the government for support in facilitating the achievement of these goals. While small firms expect Canada's targeted support programs to be useful and have pragmatically and extensively participated in support programs, the government's initiatives have not been evaluated as critical to the success of these firms. The value of state support programs to firms in this study has been restricted by access barriers in the form of restrictive criteria, lack of coordination of programs, insufficient advertising and underfunding. Reporting and pay-back requirements have further limited the usage of programs. Other problems reported relate to the short-term nature of support. This is particularly evident in the case of marketing programs that have been set up to assist in market entry but do not provide adequate support for extended market penetration. Government support that is production-based has been limited but critical to firms that have used it. Capital acquisition has been a challenge for these firms. Firms suggested that further funding assistance could be provided through general support from taxation incentives (e.g., tax credits or through community-based capital pools). Few firms used state support for start-up but it was rated as critical to success by users. The programs used featured very restrictive regional criteria. Support for marketing, training, and R & D is not evaluated as critical to success by users.

The dependency of small firms on government for information-based marketing support and networking suggests the importance of the government in ensuring that these initiatives are designed to meet real needs of small firms that export. This implies the need for proactive solicitation of input from firms in the evaluation of policies and programs. Planning by the government has not extensively included small firms and the "*small business sector*" would seem to be a term of convenience rather than a description of the situation that actually exists in Canada. The organization of small firms that export as a sector of the economy is critical to both the firms and the government and should be a priority of both. Through participation in professional and trade associations, government-sponsored organizations, and industry groups, small firms could more effectively work to increase their awareness of both domestic and international industrial developments. With increased awareness of developments, small firms would be better able to respond to emerging opportunities and challenges and to lobby regime organizations to promote and protect their interests.

Results suggest that extending the information base of small firms is critical to success. Information needed relates to innovation in product development and marketing. Networking facilitates the sharing of information between firms and between firms and the national government and international regimes. Government has played a significant role in the development of networking in Canada. Canada must ensure that its commitment to internationalization is reflected in a well-defined industrial development strategy that includes trade initiatives, policies and programs that effectively and efficiently respond to the actual needs of small firms that export. Through an entrepreneurial approach that includes increased input and evaluation by users, Canada can promote the development and influence of small firms that export and thereby increase national economic performance. Like its small firms, Canada has much invested and much to gain from internationalization. Innovative efforts to promote and coordinate small firm and government initiatives are necessary to ensure future economic growth and internationalization.

Chapter VII. Conclusions

A. Contributions of Research

This study provides an analysis of Canada's small firms that export. It is based on existing research suggesting that a country's power depends on its trading capabilities (Ostry, 1990; Porter, 1990; Ohmae, 1991; Quinn, 1992, Astley and Chandrasekaran, 1992; Nadler, Gerstein and Shaw, 1992). The firms are considered as actors at the national and international levels. Through an integrated analysis of external and internal factors this study breaks new ground in understanding the structure, strategy and operations of small Canadian firms that export.

Canada's small firms that export have shown that they can effectively and pragmatically react to opportunities provided in emergent markets. As suggested by Drucker (1989), Toffler (1990), and Naisbitt and Aburdene (1990), the firms studied did carve out defensible market niches dependent on innovative, customized products and rapid response to consumer needs. The firms in this study show that Canada's small firms that export can effectively achieve success in international market niches (Ohmae, 1991). Many small export firms recognize the limitations of the domestic market and depend on global markets from the time of start-up. While the firms studied recognized the opportunity in global markets, results do not fully support the assertion of Bonaccorsi (1992) that export is the path of least resistance for growing small firms. Firms reported that entry and penetration of foreign markets is a challenging process.

The findings challenge the opinion of popular writers (Albrecht and Zemke, 1985; Drucker, 1989; Toffler, 1990; Ohmae, 1990; Naisbitt and Aburdene, 1990) that an increase in international market participation by small firms has been accompanied by a significant change in the flow of power in the international system. The findings support the assertion of Krasner (1985) that, while rules and regulations within the regime are subject to ongoing revision, the fundamental nature of the current international regime has not changed. Power continues to be nation-based and dependent on the four factors defined by Strange (1985). While power is increasingly trade-based (Organski, 1958; Bartlett and Ghoshal, 1987), the results of this study suggest that Canada's small firms that export are relatively unaware of the structure and operations of the international regime. Despite increased world trade and globalization (Prahalad and Hamel, 1994) and an increase in the number of countries negotiating an increasing number of trade agreements (Gilpin, 1987; Yarbrough & Yarbrough 1987, Nye 1990), it appears from this study that small firms are not actively involved in defining the rules and regulations of the international regime.

This study shows the important role the Canadian government has played in supporting small Canadian firms involved in international trade. Firms in this study have depended on national regime organizations to negotiate trade agreements and regime revisions that protect and promote their interests at the international level. The heterogeneity of Canada's small firms that export has significantly restricted the organization of these firms into a business sector capable of exerting influence regarding domestic development and international trade. The firms studied reported very limited experience and intent to influence regimes at either the national or international level.

The inability of small firms to organize along industry lines and to lobby suggests the continuing validity of Ostry's (1990) observation that it is large firms with the financial capability to lobby who acquire power internationally. It also explains the concentration of theory and research on large firms. While the industrial organization approach, product cycle and factor-endowment theories can be used to explain the successful growth and development and internationalization of large firms, they do not adequately explain the success of small firms (Niosi and Rivard, 1990). Similarly, Porter's (1990) *Determinants of National Advantage*

("Diamond") model has limited value in explaining the success of small firms in global markets.

As trade becomes increasingly consumer-driven, with an increasing number of firms in a greater number of countries competing for consumers in ever-increasing international markets, and as the web of contacts Strange (1990) refers to becomes even denser, enforcement in the regime will become even more difficult (Jervis, 1982) and participation in the regime more complex. While such instability may provide increased opportunities for small firms that export, it will also provide increased challenges. This study shows that while small firms have benefitted from the dynamic nature of the current regime in order to gain market entry, they also benefit from regime stability. These firms suggest that limited resources make it difficult for them to constantly adapt to dramatic changes in standards, rules and regulations.

This study supports the assertion of Wright (1993) that countries are becoming increasingly aware of the contribution of small firms and also of the need for governments to promote economic development through state support (Eisinger, 1988; Reich, 1989; Ohmae, 1991). This study also shows that Canada has assumed an interventionist approach that includes general and targeted support at the macro, meso and micro levels. Firms in this study attached value to general state support provided through enhanced national factor conditions and infrastructure initiatives. Canada's recognition of the importance of the contribution of small firms that export to national economic development and growth has not, however, been reflected in government policies and programs that specifically and effectively target these firms.

This study's results suggest that, with its state support programs, the government has not found a satisfactory fit between the environmental context and the needs of firms and markets. Consistent with the suggestion of Eisenger (1988) that the "weak state" approach does not provide adequate support for emerging firms and industries, this study shows that small firms that export are prepared to experiment with government support that is easily accessible, but that the support is not highly valued.

The extent of initiatives for small firms that export (Chrisman, 1989; Moini, 1992; Kathawala, Judd, Monipallil, and Weinrich, 1989) is reflected in the usage of state support programs for marketing. All firms in this study had used state support for marketing, which appears to confirm the findings of Baldwin (1994) and Wynarczyk, Watson, Storey, Short, and Keasey (1993) that marketing capability is a significant factor in the success of small firms that export.

As stated by Niosi and Faucher (1991), this study suggests that the state can play a key role in sustaining the competitive advantage of firms as they become increasingly knowledge-based. It is critical that firms can easily access the information they need, when it is needed. While usage of marketing programs was extensive by firms in this study, the firms attached limited value to them. Lack of advertising and coordination of programs, restrictive criteria, under-funding, reporting and repayment requirements, and short-term provisions were presented as reasons for this lack of effectiveness. From this study it can be concluded that both small firms that export and the government understand the need for market-based knowledge and the limited capability of firms in acquiring adequate and accurate information. However, results indicate that state support for marketing has not effectively met existing firm needs. Contrary to the findings of Baldwin (1994), the firms studied did not do a good job of selecting support programs that target their real needs. Baldwin (1994) suggests that highly successful firms utilize incentives, market information and industrial support programs more intensively than less successful firms. The firms studied do not, however, do a good job of selecting programs that meet their marketing needs. The difficulty with the government's existing approach is that the firms that most need state support are not aware of all programs that are available (see Appendix "E"). Therefore, they cannot easily access support that would be beneficial to them.

State support for R & D was used by 53% of the firms but was reported as critical to success by only one firm. These firms reported that they do depend on innovative product development for success. As suggested by Niosi and Faucher (1991), this study confirms the importance of firm commitment to innovation in product development and marketing in seizing potential opportunities for mature products in new markets. This study supports the "induced" innovation approach as defined by Burgelman (1984). Small firms are typically problem solvers rather than detached laboratory researchers seeking new breakthrough products and processes. While innovation is typically "induced" with research targeting developments in existing processes and products, "autonomous" (new and unexpected) breakthroughs can occur. In such cases, innovation can result in the development of emergent strategies. This study contradicts the findings of Knight (1989) and Goldman (1990) that successful small firms generate and depend on autonomous research for break-through developments. In the sample, only Battery Technologies Inc. did autonomous research.

This study is unable to support the suggestion of Hogan (1991), Raia (1992), Roberts and Mizouchi (1989), and Graff (1991) that small firm development be associated with research parks and incubators. While incubators may be worthwhile in growing start-ups, this study indicates that the growth and development of small firms that export is not dependent on government-based funding in research parks or incubators. Innovation is dependent on the acquisition and sharing of information and appears to be best supported through increased awareness of and access to expertise and information in both the private and public sectors.

Highly-skilled labour is reported as an important requirement of firms in this study and training programs were used by 48% of sample firms. However, government training programs were not highly valued by participating firms, consistent with Baldwin's (1994) finding. Results of this study suggest that small firms do depend on the availability of well-educated workers capable of working in an innovative, informal, continuous learning environment, but training needs are met by informal, in-house programs. This study supports Baldwin's (1994) finding that successful firms depend on their ability to hire employees who have benefitted from previous training programs at larger firms. Formal training programs available through the government do not adequately meet the needs of small firms. Consistent with Terpstra and Olson (1993) is the finding that firms reported a need for and lack of training programs for management. Results indicate that these firms have difficulty managing growth at certain stages of development and do not have the internal capability to handle sophisticated management training.

Government support for organizational growth was used by only 33% of firms studied. Low usage reflects a lack of programs and available support. State support for organizational growth was evaluated highly by users indicating, as did studies by Baldwin (1994) and Mangelsdorf (1991), that capital acquisition for growth can be a substantial challenge for small firms. Although respondents did report on the challenges financing had presented at start-up and for development, only one of the firms studied (e.g., Trojan Technologies Inc.) used venture capital. Comments suggest that sources of capital were not readily available.

Similarly, state support for start-up was not extensively used. However, the two firms that accessed this support reported it as critical to their success. In their interviews respondents indicated that the acquisition of capital did pose a significant challenge for many firms at start-up. Findings suggest that domestic economic policy and programs supportive of new firm formation could facilitate an increase in both the number and success of small firm start-ups.

While existing government support programs have had limited value to firms in this study, it could be argued that one of the major benefits of the government's targeted support programs is indirect. It is often through their involvement in state support programs that small firms become aware of private and public networking opportunities and national and international developments.

As suggested by Manzella (1991) this study shows that government provides an important link between small firms, international trade organizations, and foreign markets. Results of this study indicate that small firms that export become involved in learning networks to achieve specific goals related to product development, production, and marketing. On the other hand, firms in this study had limited involvement in networks as a new form of organization, strategic alliance, or networks as a new form of competition. Networks are primarily knowledge-based and firm participation is pragmatic and contact driven. Firms are involved in and attach value to personal contact networks as defined by Dubini and Aldrich (1991). The sophistication of planned constellations (Jarillo, 1988) and the effectiveness of networks referred to by Hatch (1991) are not evident within these small Canadian firms that export. Results indicate that networking initiatives are typically government-driven, with small firms dependent for contacts on their participation in other government programs. However, the state does not have specific intervention programs that directly target the development of either information or production networks for small firms that export.

This study suggests that there is a fundamental incompatibility between the strategy and operations of these entrepreneurial firms and that of the government. The firms are characterized by strategic thinking rather than by formalized strategic planning. It could be argued that access and reporting requirements deter small firms from using existing programs. However, it could also be argued that, it is not the formal planning and reporting requirements attached to government initiatives that are the prime obstacle to firm usage. Rather, this is the result of the fact that firms are unable to incorporate government support into their strategic thinking because the government's policies and programs are so fragmented and ephemeral.

If the government is committed to growing small firms, as promoted by Ohmae (1990) and Porter (1990), current state intervention and support programs must be reassessed to ensure that initiatives are efficient and effective for both the state and its firms. This study supports Porter's argument that the state has a part to play but not a starring role in the development of international competitiveness. Firms in this study did not attribute their success to government programs. However, results suggest that Canada's small entrepreneurial firms think that success can be enhanced with entrepreneurial state intervention. And, strategy, as defined by Barney (1992) is as critical to the success of the state's intervention initiatives as it is to the success of firms. Government intervention must reflect its recognition of the importance of facilitating both the development and growth of its small firms that export and the linkage of these firms to the international trade regime.

The growth strategy of firms in this study can be seen to exemplify the fundamental premise of contingency theory (Lawrence and Lorsh, 1969) since it reflects the firms' ability to link effectively internal capability with the external environment. The start-up and development of firms in this study confirm the assertion by resource-based view (RBV) theorists (Barney 1986, 1991; Grant, 1991) that a firm's success depends on its ability to assemble internal resources including physical resources, finances, and capabilities. Results show that successful firms depend on different resources and strategic assets. Results support the findings of Black and Baol (1994) that resources must be assembled as they are needed to establish their value as strategic resources allowing firms to achieve sustainable competitive advantage.

Firms in this study represent different sectors and different industries. Strategies of firms in the study are classified into four categories along two dimensions--Technological Skill and Product Maturity. Successful firms are found within each of the four quadrants of the Technological Skill/Product Maturity Typology. The greatest number of firms (42.9%) are in Quadrant 2 (High Technological Skill/High Product Maturity) and depend on applied research capability. Quadrant 4 (Low Technological Skill/High Product Maturity) includes 28.6% of the firms. These firms depend on marketing capability. Quadrant 1 (High Technological Skill/Low Product Maturity) includes 19.0% of the firms and consists of firms that depend on fundamental research capability. Quadrant 3 (Low Technological Skill/Low Product Maturity) includes 9.5% of the firms and is comprised of firms that depend on exploitation of country specific advantages. While the ability to develop and market innovative products and processes is a critical capability of all firms, results suggest that there is potential for success in firms with different capabilities and strategic assets.

Firms in this study were successfully started up under different circumstances, including acquisition, classic, spin-off, and within an established firm. In addition, successful firms include new firms that have new leaders and established products, new firms with new leaders and new products, established firms that have new leaders and new products, and established firms with new leaders and established products. This suggests that the successful firms understand the economic performance implications of their resources as proposed by Barney's (1992) value, rareness, inimitability and organizational orientation (VRIO) framework. Results also support the research of Black and Baol (1994) suggesting that sustained competitive advantage depends on the ability of firms to effectively assemble and deploy resources.

Critical to the linkage of firms to the environment is entrepreneurism. All firms in this study were characterized by entrepreneurial leaders and entrepreneurial strategy, structure, and operations. As trait theorists argue, results of this study suggest that it is the entrepreneurial leader who is responsible for the success of small firms that export. This study confirms research by Burck (1993), Miller (1993), Naman and Slevin (1993), and Guth and Guinsberg (1990) that the entrepreneur's bias for action, risk-taking attitude, values and ethics are reflected in the structure, strategy and activities of the firm. This supports the findings of Mintzberg (1983 and 1990) that, through imprinting, the entrepreneurism of the leader becomes fundamental to the internal capability of the firm. This entrepreneurial orientation is critical to firm success.

Informality and flexibility facilitate the innovation and change that provide strategic advantage for the development of small firms and competitive advantage for small firms as international competitors. As Goldman (1991) suggests, the findings in this study are consistent with the theory that small firms benefit from the connection between the strategist and the implementor. It is particularly significant that in the firms studied the strategist and the implementors share the same entrepreneurial traits. This can be partially explained by the fact that in most of the firms studied the strategist actually plays a role in implementation.

Respondents indicate that value-added products and customer service, reported as critical to competitive advantage for these firms, are dependent on the zealous commitment to values and ethics by the entrepreneurial leaders. This lends support to the importance Hosmer (1994) attributes to ethics and to the research of Ghoshal and Bartlett (1994). The entrepreneurial leaders in the firms studied did shape the organizational context of their firms and this had important implications for firm performance. While respondents discussed ethics in terms of product and customer service excellence, high levels of individual initiative, mutual cooperation, and collective learning are apparent in the firms studied. Ghoshal and Bartlett (1994) link these firm characteristics to discipline, trust, stretch, and support. This study suggests that these fundamental components of effective management are typical of entrepreneurs and are critical to the success of small firms that export.

Based on the results of this study, it can be argued that the imprinting of entrepreneurism on the firm is significant because it is the factor that gives real value to internal resources. As the link between internal and external factors, the entrepreneur establishes the small entrepreneurial firm as an organization capable of achieving success in competitive international markets.

This study supports the finding of McCoy (1989) that creativity, capital, information and persistence are factors critical to firms wanting to successfully compete in global markets. Entrepreneurial leadership, strategy and operations afford small firms in diverse industries, with very different products and strategic advantages the opportunity to compete successfully in international markets. Canada's successful small firms that export have effectively linked their internal resources to the domestic and international economic environments. D'Cruz and Fleck (1988) conclude that:

> *Governments must be prepared to invest the time and effort necessary to maintain ongoing and sensitive familiarity with the global context of competition and bring this expertise to bear in shaping the decisions that affect Canadian-based operations in these industries.*

This study suggests that Canada has had limited success in effectively linking state resources to small firms that export, with the result that the potential for growth in the contribution of these firms to domestic economic performance and international trade has not been realized.

B. Implications of Research

1. This research indicates that small Canadian firms that export have a good strategic fit with a market-driven, innovation and knowledge-based economy. As entrepreneurial organizations, they respond with innovative products, service, and marketing to meet consumer demands in existing and emerging markets.

The study provides evidence for managers of small firms that internationalization is feasible and that success depends on innovation. Innovation in product, process, and promotion have been the strategic focus of small firms that have achieved success in international markets. This study shows that the success of small firms does not depend on start-up circumstances or on strategic assets. Results suggest the importance of management in recognizing and responding to current internal needs and capability, changing market conditions, and technological developments. Managers can benefit from recognition of the value that entrepreneurial management provides for their firms. The flexibility to effectively adapt to changes in consumer demands is critical to competitive advantage. Sustained competitive advantage is realized by firms that are able to effectively assemble and deploy strategic resources. Entrepreneurism can be considered to be fundamental to the internal capability of the successful small firm that exports. The cultivation of entrepreneurism in the structure and operations of these firms can be considered key to successful management. This study suggests that the entrepreneurism of a firm may be valuable as a predictor of firm success.

2. Results of this study show that these firms are committed from start-up to growth through export. They recognize both the limitations of the domestic market and the opportunities of international markets. These firms depend on the national government for information related to international markets and for protection and promotion through international regime organizations.

3. Canada's successful small firms that export represent diverse industries and products and differ in terms of strategic focus. This study provides a Technological Skill and Product Maturity Typology that allows for the analysis of potential needs of firms with different strategic advantages. With innovation in product development and marketing, firms can be successful with both new and mature products. Firms in different quadrants do reflect different needs which suggests

that value attributed to government support could be enhanced if programs were developed to target not only specific needs but also to target firms where the potential for positive results could be predicted.

4. Small Canadian firms that export operate primarily as independent organizations. While networks can link firms to each other and to the domestic and international regimes, networking is used by these firms primarily to satisfy immediate R & D, production or marketing needs. Network involvement is limited, contact-based and dependent to a large extend on government initiative. Networks provide for acquisition of product development and market-based information.

The potential of networks to enhance the resource base of small firms that export and organize these firms into a business sector has not been realized in Canada. This study suggests the need for both firms and government to establish initiatives that will help small firms that export establish themselves as a small business sector capable of influencing change at the national and international level. Small firms can facilitate this development through increased participation in networks, professional and industry associations and through actively responding to government initiatives. This research indicates that government could facilitate the consolidation of these firms through proactive solicitation of their input in policy and program formulation and through promotion and facilitation of networking. Firm managers must be aware of the potential of networks as a strategic asset and actively seek out networking opportunities. Government organizations can play a significant role in facilitating this development.

5. This study has shown that it is ineffective for government to offer an extensive array of support programs to all firms and to depend on the ability of firms to seek out and select the programs that will effectively meet their needs. The current approach of the government, as recognized and promoted by Baldwin (1994), undermines the value of state support programs. It confronts users with inefficiency. Managers must carefully analyze firm needs and extensively search to find programs that will provide the desired results. This study confirms that small firms have difficulty finding the appropriate programs. While they use government support extensively, they do not rate it highly. State support programs with clearly defined goals and restrictive criteria are most effective for users. The results suggest that Canada has not effectively developed support programs dedicated to the growth of small firms that export. There is a need for Canada to conduct user evaluation of existing programs and seek user input in the design and delivery of state support.

All state support initiatives must be evaluated in terms of their results in enhancing the performance of the firms they target.

This research suggests that the following recommendations be given consideration by the Government of Canada:

(a) The establishment of single point access for all government support programs. This "one-stop shop" would make it easier for small firms to find information on all available provincial and federal programs. A single point access system would require co-ordination by government departments. Efficiency for government and firms would be realized through simplification and standardization of application and reporting forms.

(b) Initiatives are needed to make venture capital more available to small firms. This could include equity capital available through increased government funding. Regional capital pools might be considered as a source of venture capital in less-developed regions of the country. Other changes might include new government initiatives in the form of tax credits for investors or revisions to the Bank Act to encourage private enterprises to make loans available for the development of small firms.

(c) The Government of Canada should take a proactive leadership role in extending networking opportunities for small firms and in integrating small firms that export into a recognized business sector. It should consider promoting the organization of industry associations for small firms. This could be achieved through direct funding of industry associations. Industry associations would provide a source of reliable information on what potential users actually require from state policy and programs. These industry associations would increase the ability of small firms to voice their concerns to government and to lobby at both the domestic and international level. They would also facilitate the government's development of effective support programs.

(d) New state support programs should be commenced as pilot projects based on the reported needs of potential users and the goals of the government for economic development. All pilot projects should be thoroughly evaluated for efficiency and effectiveness before the government resources are committed to new state support programs. State support programs should be implemented for a specified period of time and should be subject to comprehensive review by the user firms, industry associations and government.

(e) Due to the limited scope of its resources and the extensive needs of diverse types of firms, the government should develop initiatives to assist specific types of firms. Small firms that export cannot be expected to depend on support programs that have been developed to promote or protect the interests or development of large firms or strictly domestic firms. Targeted programs must clearly define the specific types of firms or industries and the goals they are targeting.

(f) The Government of Canada should work to remove internal barriers to trade. These currently exist in the form of interprovincial regulations, certification and licensing requirements. They are imposed by government, industry and labour organizations.

C. Limitations

1. This research is based on a grounded research case study methodology with a limited number of firms in the sample. Because a larger sample provides more reliable results, it would be worthwhile to undertake a quantitative study with firms from across Canada to determine the validity of the findings.

2. The data collected in this study is based on success

stories. While it is important to understand the experience of successful firms, comparative data based on the experience of less successful or unsuccessful firms would provide further insight into the needs and strategies of small firms that export. It may be that direct funding support would have been useful for less successful firms while information-based support seems to be what successful firms want.

3. The findings of this study related to the entrepreneurism of the firms cannot be directly correlated with export success. Research comparing the management, strategy, and operations of small Canadian firms that are dependent on domestic sales and growth with firms that are dependent on export would provide a means of understanding the extent to which entrepreneurism affects export success.

4. This study suggests that small Canadian firms that export are able to sustain success since a significant majority of firms are found in the high product maturity quadrants and 76% of the firms are over 10 years of age. There is a need to further explore, through a longitudinal study, the ability of firms to sustain success. This would help managers develop growth strategies. It would also provide the government with information needed to develop future strategy.

5. The government must determine whether it is best to

support the growing of existing firms or to support generation of new firms. This study indicates that small firms that export are primarily problem solvers and as such depend on induced (e.g., intended and planned) research for product and process developments that provide competitive advantage. This suggests that R&D funding for autonomous (e.g., new unexpected breakthroughs) research is not necessary to grow existing firms. Only one of the firms studied (e.g., Battery Technologies Inc.) did autonomous laboratory research. Further research is needed to determine if incubators do successfully grow start-ups and to evaluate the cost-effectiveness of this type of funding. Because research parks are a recent development, it is not surprising that firms in this study did not report on success related to involvement in research parks. Future research is necessary to determine the potential of research parks in facilitating both the start-up and growth of small firms that export.

6. This study suggests that current state support programs do not effectively meet the needs of small firms that export. The study does not, however, provide an analysis of the intended results of specific support programs. Further research is needed to determine if government initiatives have been developed to specifically target small firms, export firms, and small firms that export. Evaluation of those programs may be much more favourable than the evaluation of

programs used by sample firms. This study suggests that programs with strict criteria and specific goals are most effective. This suggests that programs developed specifically to meet the needs of small firms that export would be more effective.

7. Further research is necessary to analyze the cost-effectiveness of government intervention initiatives both from the government and firm perspective. Actual costs must be evaluated against measurable goals. This study reports results based on management's subjective evaluation of targeted programs as "critical to success". The development of an instrument which would provide for more objective evaluation would be useful.

8. Results in this study are based primarily on information given by the current leader/manager of the sample firms. Input from staff would provide a more extensive and perhaps more reliable data base for consideration of entrepreneurial leadership, strategy, firm culture and activities.

9. This study suggests the need for firm involvement in the development of government strategy, policy and programs. Further research is necessary to determine a process which would facilitate this participation since firms in this study indicated their inclination and preference to operate

independently.

10. This study has shown that small firms do depend on government intervention in the provision of infrastructure, the establishment and enforcement of trade initiatives, and the development of networks. It suggests that general programs providing financial support through tax incentives would be worthwhile to these firms. Information-based support appears to be most useful to successful small firms that export. Much of the targeted support the government has offered through existing programs has had limited value to users. This suggests the need for further research to determine the type of government intervention firms consider most important to ensure that national resources are deployed to achieve maximum results. This study did not directly address the issue of domestic competition that Porter (1990) considers critical to successful internationalization. It was unable to determine how necessary intense domestic competition might have been or how it could be stimulated. The firms in the sample indicated a growth path where the intent to internationalize was present from start-up and this may be due to the lack of a large internal domestic market and of intense domestic competition. Since several firms in this study reported a lack of domestic competition, further research is necessary to determine to what extent domestic competition is important and whether government action should be taken to stimulate it.

11. The potential of the Technological Skill and Product Maturity Typology as a tool to categorize firms by strategic focus and to predict needs of firms is suggested by this study. Further study of the criteria for categorization would allow for the development of a more refined, reliable tool for predicting firm needs and potential for successful use of support programs.

12. This study suggests that the "entrepreneurism of a firm" may be useful as a predictor of firm success. This suggests the value of further research into the reliability of entrepreneurism as a success factor and the need for the development of an instrument capable of evaluating entrepreneurism. It may be that government support for entrepreneurial firms is the most cost-effective type of funding.

Appendix "A": ISTC Guidelines Published for "Success Stories"

This report on the Success Stories Program section of Industry, Science, Technology (Canada), "ISTC", has been produced on the basis of the most recent guidelines that have been sent to the researcher by Deanna Jamieson, the Manager of the program. The most recent guidelines were sent to the researcher on November 10, 1993.

The mission of the Success Stories Department is:

> ... *to foster business development, efficient markets and Canadian competitiveness.*

By providing information on companies that have succeeded, the federal government hopes to provide role models for other firms, awareness of Canadian companies, and inspiration to entrepreneurs who may be considering establishing a new start-up firm. The success stories are available on one page summary sheets that may be freely accessed by government employees, members of the media, academic researchers, officers of companies, or interested members of the public. The intent of the department is to provide positive advertising for as many of the firms within the data bank as possible. The data bank has been accessed by federal cabinet ministers, deputy ministers, and senior executives for speeches. For foreign visits and trade missions the data bank has been accessed in order to provide access to firms that are willing to open their doors for on-site meetings. The firms in the data bank have been used to create and to illustrate successful strategic alliances, corporate-government-academic collaborations, joint ventures, and expansion of trade initiatives. Numerous government publications including the reference in this research to Small Business and You have used examples drawn from this source.

Media special affairs documentaries have used the Success Stories Data Bank. The CBC Newsworld presentation on December 6, 1992 featured Stone County as a result of a search done through the Success Stories Data Bank. The Toronto Star newspaper accessed the Success Stories Data Bank when it was searching for dynamic companies for a special feature. Spraybake is the firm that the Toronto Star selected for its feature supplement. Costco Corporation produced a two page profile on Riese's Wild Rice Company due to promotion by the Success Stories Program. The Riese's Wild Rice Company has indicated that great interest has been generated by this promotion that is largely due to the Success Stories Data Bank providing information.

The Success Stories Program does not distribute funds, grants or loans. The department sees its role as serving Canadian business and users from the general public. The department projects a partnership approach. From this researcher's point of view the Success Stories personnel have been extremely helpful. Their personnel have willingly shared information, researched issues that have arisen, and have considered suggestions made as a result of this research.

The guidelines for inclusion in the Success Stories Data Bank are published. Firms are normally required to meet at least one of the following criteria:

(1) The firm has demonstrated international or domestic competitiveness. This is often shown by market share in products or by the percentage of sales that is directed to foreign markets.

(2) The firm has invented or found a new application for technology or a production process. In many cases the firms in the data bank hold patents, have registered trade marks or copyrights, or have formal licence agreements that they use to distribute know-how.

(3) The firm has developed new products or services. Several of the firms have an impressive list of project achievements that demonstrate and recognize their success.

(4) The firm has found new techniques that have been introduced to improve management-labour relations.

(5) The firm has been in a successful and profitable strategic alliance, partnership, or collaboration under circumstances that reveal innovative ideas, methods or practices.

(6) The firm has been involved in exporting a product or service that seems noteworthy either because of the method or due to the degree of success experienced by the firm.

(7) Firms that have received awards for best practice either at home or abroad are eligible if the award recognizes a contribution to science, R & D, development of new processes, adds to education or training in a significant manner.

The department has indicated in its guidelines that it prefers firms to have been in business for five years or more in order to demonstrate stability. This five year criteria also indicates an interest by the Success Stories Branch in firms that have learned how to deal with changing markets, firm maturity, and technological developments. The department is particularly interested in firms that have dealt successfully with adverse environments by developing innovative strategic approaches.

The Success Stories Branch has developed a process for generating information on new firms that appear to have the potential for being included in the data bank. Each regional office of ISTC has a co-ordinator who is encouraged to have officers in their region submit company names for consideration. The nomination requires only that the firm be informed and that the firm approve. The nominator is normally requested to prepare some background information on the firm, check for local media coverage, and request literature on the history of the firm from the firm itself. A number of firms have background brochures that are helpful in explaining the business, its start-up and its philosophy. This information as assembled by the nominator is then passed on to a writer at External Affairs (Canada) and International Trade (Canada). The writer prepares a story which is then sent back to the field office that originated the nomination. The field office prepares a background check on the information to verify accuracy. Once the story is approved by the local field office a copy is sent to the company for approval. When a story is approved by both the field office and the firm, then the story is entered into the data bank. Stories are updated on a yearly basis by the department as a matter of general policy. The usage of individual stories is also tracked so that duplication by users can be avoided and to promote publicity for other firms with similar stories in compatible industries or settings.

The Success Stories Branch does have a "red flag system" which is designed to remove firms from the screening process. These red flags have been designed to provide early identification for firms that may have trouble in the future, use questionable trade practices or be involved in reviewable ethical practices. Firms are red flagged on reports that indicate the following problems:

(1) Financial instability,

(2) Excessive subsidization to the extent that the firm is not involved in open market transactions,

(3) Inappropriate practices (e.g. where a firm has achieved success through the use of employee lay-offs, questionable trade practices or quasi-legal dealings),

(4) Environmentally irresponsible actions,

(5) Labour relations problems or infractions (e.g. including racial discrimination, non-equal employer charges. etc.),

(6) Questionable ownership (e.g. links to organized crime, drug cartels or foreign powers that are suspect),

(7) Unfavourable media coverage, and

(8) Any firm that in the judgement of the department could prove to be embarrassing to the government or any department.

Despite these criteria red flags appear to have been raised rarely. Most of the firms that were nominated appeared to be outstanding corporate citizens, having displayed exemplary practices and represented progressive management techniques. Staff members could think of firms that had been excluded but those cases provided glaring examples of where inclusion would have been prevented on several of the criteria as well as on the red flag system. When my search of the data bank was conducted in November of 1992, there were several firms which were eventually excluded due to this study's criteria. It was clear from the data bank that in order to have representatives from areas such as the Yukon, Northwest Territories, Newfoundland and Prince Edward Island that the criteria had been relaxed in several cases. Some firms had been in business for less than five years and had received generous government funding.

At the time of this researcher's search the Success Stories Data Bank consisted of 498 firms. Each firm story was summarized on a one page brief where the left hand side of the page dealt with the industry and the right hand side of the page gave data on the company, a short corporate history and included a quote attributed to the President or C.E.O. In all of the firms considered in this study, no substantial inaccuracies have occurred in the ISTC Success Stories briefs. Additional information has been willingly supplied by the department upon request.

This data bank was chosen for use in this study because the firms were assembled in a manner that permitted verification of the data. The presentation format detailed firm size, length of time the firm had been in business, principal items sold, and contained a break-down of foreign sales for firms that exported. Due to the size of the data bank, it appeared that strenuous efforts had been exerted to identify as many candidates as possible for inclusion. Previous searches through Statistics Canada, university data banks, and private sources such as the Canadian Chamber of Commerce indicated that ISTC had the most comprehensive data bank that applied published criteria. Consequently, this data bank was chosen for the research.

Appendix "B": Potential Firms Selected for Interviews

Firm		Location	Page	Industry
Ontario				
(1)	Thordon Bearings	Burlington		
(2)	Battery Technologies	Mississauga		
(3)	Flintshire Farms	Flinton		
(4)	James Ross Limited	Brockville		
(5)	Emery International	Markham		
(6)	Trojan	London		
(7)	Zeph Technologies	Waterloo		
(8)	Fortron International	Hamilton		
(9)	Glegg Water Conditioning	Guelph		
(10)	Allen Simpson Marketing	Guelph		
(11)	Pro-Eco Limited	Oakville		
(12)	Sonic-Frontiers	Oakville		
(13)	Steel Cylinder Manuf.	Tilbury		
(14)	Inverpower Controls	Burlington		
(15)	Agrodev Canada	Ottawa		
(16)	Artco Inc.	Toronto		
(17)	Mortice Kern Systems	Waterloo		
(18)	CEECO Machinery	Concord		

	Firm	Location
Quebec		
(1)	Nora Beverages	Mirabel
(2)	Institut Rosell	Montreal
(3)	Turbocristal	Quebec
(4)	CRC Sogema	Longueuil
(5)	MediaSoft Télécom	Montreal
(6)	DTI Télécom	Montreal
British Colombia		
(1)	Clearly Canadian Bev.	Vancouver
(2)	Glas-Aire Industries	Langley
(3)	Teleflex (Canada)	Richmond
(4)	Weatherhaven Resources	Vancouver
(5)	Whitewater West Indust.	Richmond
(6)	Knelson Gold	Langley
(7)	Pappa Gepetto's	Victoria
(8)	CTF Systems	Port Coquitlam
(9)	Atlantis Submarines	Vancouver
(10)	McElhanney Geosurveys	Vancouver
(11)	Adventure Network	Vancouver

	Firm	Location
Alberta		
(1)	Alternative Fuel Systems	Calgary
(2)	DB Robinson	Edmonton
(3)	Rebound Rig Intl.	Calgary
(4)	Agriteam Canada	Calgary
(5)	Hyprotech Ltd.	Calgary
(6)	Nortech Surveys	Calgary
(7)	Safety Boss	Calgary
(8)	The Training Group	Edmonton
Saskatchewan		
(1)	Riese's Cdn. Rice	La Ronge
(2)	Del-Air Systems	Humboldt
(3)	Sweep Rite Manuf.	Regina
Manitoba		
(1)	Woodstone Farms	Winnipeg
(2)	Vansco	Winnipeg
New Brunswick		
(1)	Sabian	Meductic

Firm	Location

Nova Scotia

(1)	Schooner Seafoods	Wedgeport
(2)	Nautical Electronic	Halifax
(3)	Tri-Star Industries	Yarmouth

Prince Edward Island

(1)	Abegweit Seafoods	Charlottetown

Newfoundland

(1)	Hi-Point Industries Ltd.	Bishop's Falls

Distribution

British Columbia	11
Alberta	8
Saskatchewan	3
Manitoba	2
Ontario	18
Quebec	6
New Brunswick	1
Nova Scotia	3
Prince Edward Island	1
Newfoundland	1
Total Firms	54

Appendix "C": Semi-Structured Interview Format and Checklist

(1) Currently describe:

	In Canada	In U.S.A.	Other
Number of Locations Number of Employees % of Sales Sale of Principal Product % of Profit			

Forecast your expectations as to how these allocations will change.

Describe your current annual business in Canadian dollars.

What is your current profitability.

What is your principal product today (1993)? Is this the same product that launched the company?

What other products does your firm sell? Are these related to your principal product or unrelated?

Start-Up Phase

(2) How did the idea to offer your initial product originate?
- Was this a new idea?
- Was this idea developed within another firm?
- How much start-up capital did you need ? How did this compare to your expectations?

Describe your start-up experience.

Did your firm start off as a new business initiative or as a spin-off?
Did your firm purchase ideas, patents, or licences from another firm?
Did another firm aid in your start-up in any way? If so, for how long did this support continue?
Is there some form of association between your firm and any other firm?

(3) What factors were critical in your decision to proceed in forming a firm? What led you to believe that this firm if started would be a success? Were any of the following significant:

Patents
Partnerships, Joint Ventures, Licences
Access to R & D through other firms
Government R & D, programs, policies
Financing: Venture Capitalists, Banks
Original Financing versus later financing
Is there a relationship between the financiers and the managers/owners?
Family influence, other Sponsors
Employee investment
Employee profit sharing plans and incentives

(4) Describe significant hurdles you encountered during the start-up period.

Has your firm had - labour problems?
- financial problems?
- regulatory problems?

(5) Once your firm became operational how many employees did it have? How many full-time and part-time employees does your firm have today?

Have any of the following significantly changed: the firm's vision, product(s) or objectives?

Since this early period when the firm first offered its product, has the firm changed significantly. When? How?

Describe your firm's culture: at inception, intermediate periods, now (if different).

(6) Describe your industry and where your firm fits in.

Factors to check:
- Is the industry stable?
- Does the firm operate in a market niche? Is such a niche defendable? Is such a niche sustainable for the firm?
- Is there a threat of competitors in Canada?
- Is there a threat of competitors internationally from other firms including large multinationals?
- Are there concerns about maturity of

the product (life-cycle)?
- Are there concerns about industry maturity?
- Is there unlimited opportunity for growth?

(7) Describe your business strategy: (a) at inception
(b) during intermediate stages
(c) currently
(d) anticipated future changes.

Operational Factors

(8) Describe the Key Success Factors for your firm;
Have they changed significantly over time?
Is there one factor that is paramount?

(9) Have there been identifiable time periods when your firm has matured and its needs have changed? If so, were some needs greater during some time periods: a need for vision or an idea at the beginning, a need for administrative competence to handle complexity later, etc.?

(10) How important are the following factors:
(1) Marketing (to discover customer needs and preferences)
(2) Advertising (to create customer awareness of your product)
(3) Adequate Financial Resources
(4) Financial Controls (including risk management, handling cash flows, forecasting cash requirements, accessing emergency funds for unexpected contingencies, etc.)
(5) Internal Communications
(6) Community support
(7) Demonstrating commitment to your community
(8) Commitment to R & D
(9) Staff Training
(10) Specialized employee job skills
(11) Customer Feedback
(12) Government support, programs, policy.
(13) Your specific location, plant and equipment.
(14) Outside (external) expertise or consultants.

(11) What are the necessary characteristics for a person to succeed in your firm?
- Psychological traits: self-starter versus a follower, innovator

versus a perfector, personal drive and energy versus a non-threatening personality, etc.?

- Interpersonal skills? communication capacity, sense of humour, ability to function in a team versus individual efforts, etc.
- Leadership skills?
- Ethics or morality?
- Technical skills?
- Innovative or creative ability?

Describe your labour force. (include skill levels, minority participation)

- Project your future needs in terms of labour requirements (more or less), changing skill levels and how to meet it (apprentice programs, school-based education, etc.). Is your level of mechanization (commitment of capital versus labour) expected to change?
- Describe your labour relations history? Is the firm unionized? Is unionization an opportunity or a problem?

Domestic Factors

(12) To what extent has your firm used or benefited from the existence of state support programs?

- staff training seminars or subsidies including community college or university programs offered to upgrade skill levels?
- management seminars or training, including subsidies for programs?
- attendance at "best practice" seminars funded by governments
- accessed government grant or loan programs
- subsidy or tax incentive programs for promotion of R & D or business development?
- other direct or indirect subsidy programs that seem significant to you?
- are other social or humanitarian programs a competitive advantage factor for your firm such as the U.I.C. program, universal health care, etc.?

Has your firm struggled due to a lack of government programs? Is so, how?

Are there benefits to being located in Ontario, in Canada? If so, what?

Do country-specific advantages include skill levels (high-skilled, semi-skilled).

Have efforts been made to include visible minorities in your firm (women, different races, etc.)? Has this experience affected your operations?

International Markets

(13) How did your firm launch its products on International Markets?

Did your firm use government or private networks?
Were Chamber of Commerce connections useful?
Did Canadian Embassies, trade offices or other government outlets help?
Were licence or sales organizations helpful?
Does your firm use insurance, guarantees or other services of the Export Development Corporation (Canada)?

How did your firm expand its international market penetration? Was there a firm strategy in place? If so, how was it formulated?

What kind of experience and problems have you had in international dealings?

What kind of support from professional organizations, government, or trade bodies would assist you in the future?

- Does your firm attend International association or professional meetings?
- Are there existing associations, professional bodies, or other organizations that your firm would like to join? If so, why?
- Are there any regime structures such as the World Bank, United Nations agencies, defense bodies (N.A.T.O., N.O.R.A.D., etc.), the G.A.T.T. that affect the operation of your firm and its success?
- Do international standards exist and if so how do they affect your firm?
- How has the Free Trade Agreement and how will N.A.F.T.A. affect your firm?
- Do conventions, tariffs or regulations of other countries affect your firm, if so how?

Have you promoted your firm differently in Canada than in other international markets?

Concluding Questions

What do you see as your firm's greatest strength and greatest weakness?

What do you see as your firm's greatest opportunity?

Are there any areas that you wish to comment on that I have not covered?

Questions for British Columbia and Nova Scotia Firms

(1) How did your firm founder come up with the idea for starting this business?

(2) Describe your start-up experience.
  (a) Date
  (b) Number of employees then and now.
  (c) Financing

(3) Where and how did you make your first sales?

(4) When and where did your firm make its first international sales?
  (a) Were government programs involved?
  (b) Did you use contacts or networks?
  (c) Did you use agents, distributors, your own representatives?

(5) What government programs have you used and when?

(6) Has your firm expanded since start-up?
  (a) When?
  (b) Did your firm access government programs for capital, employee training, management training, marketing?
  (c) Has your management team remained the same since start-up? If not, why?

(7) How could government assist you in expanding your business?
  (a) Program suggestions

Firm Data Sheet

(1) Demographics

Firm: **Company Name** Interview: Date

Number of Employees
Principal product
Other products
Annual business

(2) Start-up:

Date
Idea location New Business Spin-Off Firm

(3) Critical factors in firm formation: (Yes) (No) Comments

Patents__________
Partnerships__________
Joint Ventures__________
Licences__________
Government sponsored R & D__________
R & D through/with other firms__________
Self-financed__________
Outside finance__________
Family financing__________
Employee financing__________
Employee incentives__________
Employee profit sharing/stock plans__________

(4) Start-up problems/hurdles:

Labour
Financial
Regulatory

(5) Change:

Original number of employees
Current number of employees
Is there a vision change?
Is there a product change?
Is there a change of objectives?
Has there been a cultural change?

(6) Industry analysis:

Is the industry stable?
Is the strategy focus (niche player)?
Are there domestic competitors?
Are there international competitors?
Is product maturity an issue?
Is industry maturity an issue?
Is there an opportunity for unlimited growth?

(7) **Strategy**:

At inception
Intermediate stages
Currently
Future

(8) **Key Success Factors**:

Paramount factor
Other factors

(9) **Maturity**: (Yes) (No)

Have there been identifiable life cycles?
Have there been identifiable needs during cycles?

(10) **Important factors**: (Very Important) (Other)

Marketing____________________
Advertising____________________
Adequate financial resources____________________
Financial controls____________________
Internal communications____________________
Community support____________________
Demonstrating community commitment____________________
R & D____________________
Staff training____________________
Specialized employee job skills____________________
Customer feedback____________________
Government support____________________
Specific location____________________
Outside consultants____________________

(11) **Personal success factors**:

Self-starter
Innovation-creativity
Perfection
Non-threatening
Humour
Leadership
Ethics
Technical skills
Description of labour force:

(12) **Domestic factors**:

Has your firm used state programs? If so, which ones?
Staff training seminars?
Community college or university programs?
Management seminars?
Attended "best practice" seminars?
Used government loan/grant programs?
Used government R & D programs?
Benefitted from humanitarian programs?
Benefited due to U.I.C.?

Benefited due to universal health programs?

Are there benefits to be located in Canada? Your province?

(13) <u>International factors</u>:
How did your firm launch itself on international markets?
Did you use networks: Government
Private
Chamber of Commerce
International factors (continued):
Did your firm use Canadian embassies or provincial missicns?
Sales organizations, agents?
CIDA?
PEMB
Did you use EDC insurance, guarantees?
How did you expand your penetration?
Did regime structures help you? GATT
World Bank
United Nations Agencies
FTA
NAFTA
Conventions
Regulations/Standards

(14) <u>Concluding section</u>:
Strengths
Weaknesses
Opportunities
Threats
Other comments:

Appendix "D": Government Support Programs in Canada Acronyms Commonly Used

Number	*Program Name*	*Acronym*
1	Atlantic Canada Opportunities Agency	ACOA
2	Apprenticeship Training Program (Québec)	APEX
3	Business Opportunities Sourcing System	BOSS
4	Canadian Commercial Credit	CCC
5	Canadian International Development Agency	CIDA
6	Canadian Standards Association	CSA
7	Cooperation Agreement on Industrial Development Opportunities	
8	Defence Industries Procurement Program	DIPP
9	Department of Supply and Services Unsolicited Proposals Program	DSS
10	External Affairs and International Trade Canada	EAITC
11	EnerSearch (Ontario)	
12	Environmental Technologies Program (Ontario)	ETP
13	Export Development Corporation (Canada)	EDC
14	Federal Business Development Bank	FBDB
15	Farm Credit Corporation (Canada)	FCC
16	Green Industry Strategy Program (Ontario)	
17	Industry, Science, Technology (Canada)	ISTC
18	International Marketing Initiative Program (Canada)	IMI
19	International Standards Organization	ISO
20	Industrial Promotion Program (Ontario)	IPP
21	Industrial Research Assistance Program	IRAP
22	Innovation Ontario	
23	Ontario Apprenticeship Program	
24	Ontario Development Corporation	OCD

Number	Program Name	Acronym
25	Ontario Idea Corporation	OIC
26	Ontario Regional Development Assistance Program (Canada)	
27	Ontario Regional Development Assistance Bank (Ontario)	
28	Ontario Skills Development Program	
29	New Exporters to Border States Program	NEBS
30	New Exporters to Overseas	NEXOS
31	New Ventures Program (FBDB)	
32	New Ventures Program (Ontario)	
33	Program for Export Market Development (EAITC)	PEMD
34	Quality Assurance Assistance Plan	QAAP
35	Scientific Research and Development Tax Credit Plan (Canada)	SRTC
36	Technical Personnel Program	TPP
37	Renaissance Eastern Europe (EAITC)	REE
38	Western Economic Diversification Program	WD
39	World Information Network for Exports	WIN

Appendix "E": Comparative Experience of B.C. and N.S. Firms

Firms from British Columbia and Nova Scotia are included in this study as a supplementary sample. The firms were selected from the ISTC Success Stories data bank and also meet the researcher's criteria outlined for the core sample firms. Each firm was contacted by telephone and the questions shown in Appendix "C" were used. Not one firm responded and agreed to an interview when the researcher initially indicated a thesis research project was being conducted by a leading Canadian university. In each case additional telephone calls were made at which time the researcher indicated his firm and position in a small Canadian business. Only Glas-Aire Industries insisted on having a fax with the questions before its representative would agree to an interview by telephone. In all other cases, verbal explanations dealing with the subject matter were sufficient. Only three firms used a 800 telephone line to return telephone calls for interview requests (Teleflex, Atlantis Submarines, and Weatherhaven). In all other cases between three and nine return telephone calls were required to line up the actual interview time.

The interviews covered the subjects listed in the interview question list. Notes were made including some statements that were recorded for use as quotations. The interviews lasted for an average of thirty minutes. Since most of the firms knew in advance of the telephone interview that the research dealt with government programs, these respondents were well-prepared.

One firm was deleted from the sample group. Telephone calls indicated that Adventure Network International Inc. of Vancouver, British Columbia had moved. In subsequent conversation with Jack Gin of Weatherhaven Resources Ltd., he confirmed that Adventure Network International Inc. had moved to the State of Connecticut in the U.S. He indicated that the firm is still in business and that his firm continues to sell products to the Adventure Network firm. As a result of the relocation of Adventure Network, the firm was removed from the sample group. Consequently, the sample group consists of ten firms from British Columbia and three from Nova Scotia.

The firms in the supplementary sample group have been placed into quadrants in Table 22 according to the criteria used to categorize firms in the core sample.[75] Results show that in both sample groups the distribution is approximately the same. Quadrant 1 firms represent 19% of the core sample and 15.4% of the supplementary sample. Quadrant 2 firms represent 42.9% of the core sample and 46.1% of the supplementary sample.

[75] Comparisons between the two sample groups are subject to the caveat that site visits yield more accurate classification of firms by quadrants than classification based on the ISTC Success Stories data bank and telephone interviews.

Quadrant 3 firms represent 9.5% of the core sample and 15.4% of the supplementary sample. Quadrant 4 firms represent 28.6% of the core sample and 23.1% of the supplementary sample. Results show that the distribution of firms within the quadrants is similar across the two sample groups. This suggests that the distribution of firms among quadrants is not significantly influenced by regional factors. It does suggest that successful small Canadian exporters tend to be in sectors with high product maturity and high technological skills (Quadrant 2).

Table 22: *Categorization of Sample Firms in Supplementary Survey* (n=13)

Quadrant 1 **High Technological Skill Level** **Low Product Maturity**	**Quadrant 2** **High Technological Skill Level** **High Product Maturity**	**Total:**
CTF Systems Whitewater West Industries N = 2 15.4%	Atlantis Submarines Glas-Aire Industries Knelson Gold Nautel Teleflex (Canada) Weatherhaven N = 6 46.1%	N=8 61.5%
Quadrant 3 **Low Technological Skill Level** **Low Product Maturity**	**Quadrant 4** **Low Technological Skill Level** **High Product Maturity**	
Clearly Canadian Schooner Seafoods N = 21 5.4%	McElhanney Pappa Geppetto's Tri-Star Industries N = 32 3.1%	N=5 38.5%
N = 4 30.8%	N = 9 69.2%	N=13 100%

Note: Firms are listed alphabetically.

A description of these supplementary sample firms and their leadership is contained later in this appendix under start-up circumstances.

The experience of Quadrant 1 firms, shown in Table 23, is consistent with that of the Ontario and Quebec firms. In the supplementary sample there were no firms from Nova Scotia in Quadrant 1. Whitewater and CTF Systems from British Columbia did not use government programs for start-up. Unlike the core sample firms, these two firms did not use government funds for staff training. The British Columbia provincial government does not appear to have as many programs for increasing skill levels and encouraging multi-skilling as do the Provinces of Ontario and Quebec. However, CTF Systems indicated that it did use federal government programs for marketing. The Canadian Commercial Credit Corporation and the Export Development Corporation were used to help handle large contracts. This firm also pointed out that it had participated in a program of the Department of Supply and Services ("DSS") which promoted unsolicited R & D proposals. Although this program was discontinued about 10 years ago, it encouraged firms to suggest research work that should be done for government departments. If the respective departments agreed that the work should be done, the firm that had made the suggestion was hired. Firms were free to use the expertise acquired by participation in such programs for open market sales at the conclusion of the projects. Since the government invariably used the products from the unsolicited proposals research, the firm was provided with highly credible government endorsements for future marketing. CTF Systems indicated that it had also participated in the Scientific Research and Tax Credit ("SRTC") Program and felt that this program should be re-introduced with appropriate safeguards to prevent previous abuses. Obtaining capital for ongoing research has been a challenge for the supplementary sample firms. Government programs for capital expansion have not been used by these firms. As well, these firms indicated that chartered banks would only fund short-term production cash flow needs.

Table 23: *Government Programs Used by Quadrant 1 Firms (n=2/13)*

Firm	*Founding Date*	*Programs Used*
CTF Systems	1970	CCC EDC DSS SRTC
Whitewater	1980	PEMD

As shown in Table 24, Quadrant 2 firms did not access government funds for start-up but did so for marketing (e.g., PEMD, CIDA and WIN) and organizational growth (e.g., the Western Economic Diversification Program and Atlantic Canada Opportunities Agency). These firms discussed the lack of resources for R & D - especially firms like Atlantis Submarines that had expanded largely due to the existence of the SRTC program. These firms did participate in ongoing research assistance programs such as IRAP. Firms in this quadrant had used both federal and provincial programs for job training (B.C. Skills Improvement Program and Employment and Immigration's Industrial Assistance and Employment Promotion Program).

These firms are constantly involved in competition at the leading edge of technology so they naturally are aggressive in trying to find resources for development. An interesting case story was presented by Harold Copping from Teleflex. His firm decided to enter into a strategic alliance with a U.S. firm in order to ease market access to the U.S. and tap the parent firm's financial resources. Government programs actually saved a significant research program:

> *In one instance we got approval from the federal government for $180,000. which saved our bacon. The U.S. firm was going to cut our Canadian research division that was doing that work but the grant was pre-tax and improved the potential for future earnings enough that we saved the research program and eventually made out quite well financially. The money was just enough and at just the right time.*

Two other informative experiences were recounted by respondents. In the first case, the firm had found that although it could bid on U.S. Army procurement jobs, it felt that it was barred from participation since the firm would have to comply with all the requirements of a three-inch thick manual. The firm did not think it could figure out the process and considered itself defeated by a non-tariff barrier. Government help made a substantial contribution:

> *We contacted the Canadian Commercial Credit Corporation and found that they had experts who were used to tendering on these contracts. They explained all the rules and helped us complete our application. Our credibility was increased because the Canadian Government was helping to prepare our bid. The CCC certainly knew how to do business with the U.S. Army and were well-regarded by their experts. Without their help our first few contracts would have been beyond our reach.*

This firm was also involved in the Defence Industries Procurement Program (DIPP) under which the Canadian defence industry invites Canadian firms to submit proposals for products to be tested using the Canadian military. Since Teleflex (Canada) had developed a number of products for steering systems, preheaters for large engines, and specialty fluid control products, this program provided a very important testing opportunity. This program also provides project funding so that a firm can build a plant once orders for products have been received. Loans under this program are repayable over a seven-year period.

The Nautel firm indicated that Canadian marketing and promotion programs had helped them. The firm had done research work with the Government of Canada on AM radio beacons that could be used for marine applications.

> *CIDA helped us out in making our first international sales. They made contacts for us and recommended our products. They introduced us to a British firm that manufactured and distributed marine products on a world-wide basis. We were paid $50,000. up-front on account of future*

royalties. This gave us the money to keep going. CIDA gave our firm instant credibility and we eventually got to learn a great deal from the people to whom they introduced us.

This firm indicated that it had used the Atlantic Canada Opportunities Agency (ACOA) for funding capital projects, had participated in IRAP for R & D, and had used consultants from universities. To firms such as NAUTEL government programs have made a substantial difference. As in the core sample, government support with networking is of critical importance to these small firms. Without government assistance, it is hard to imagine how this business could have survived and grown.

Firms such as Weatherhaven and Teleflex indicated that they had used the CCC. These firms have used federal programs designed to encourage start-up firms in the West and East (Western Economic Diversification and Atlantic Canada Opportunities Agency programs). The usage of these federal programs indicates that the programs were needed and that other alternatives such as provincial support were not as available at that time.

These firms also suggested, as James Ross Limited from Ontario had done, that Canadian foreign aid should be tied to Canadian procurement. In other words, foreign aid should, when possible, be structured in a way that would provide maximum benefits for contributors to the domestic economy. In this instance, Weatherhaven indicated that its shelters that were used in Desert Storm were recommended by the Red Cross for use in Bosnia. Unfortunately, the Government of Canada placed no conditions on funds committed to relief in Bosnia.[76] This made it more difficult for Weatherhaven to obtain contracts. Although the firm does compete well on the basis of its product, it can be argued that the Government of Canada should take a more proactive stance on procurement issues to be certain that work which can be done by Canadian firms is in fact performed by Canadian firms since Canadian taxpayers are providing the funding for efforts such as Bosnian relief.

All core sample firms had indicated participation in PEMD. A number of reservations about the effectiveness of PEMD were expressed by the Ontario and Quebec firms. The supplementary sample firms expressed similar concerns but were less reserved. Their frustration level due to unfortunate experiences was clear. One respondent stated his dissatisfaction with PEMD in unequivocal terms:

> *We no longer attend trade shows by locating ourselves in the Government of Canada section. Most of the firms participating in the Canada section are under-funded. The Government asks for detailed information and often shares it with trade competitors. They try to treat*

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[76] The Government of Canada does have requirements for 80% of bilateral aid to have 66.7% Canadian content but this was apparently not known by the respondent in view of his comments. Emergency aid may have Canadian content requirements relaxed but this was not actually claimed to be a problem in this instance.

everyone equally so that an imitator firm with a copy of ours gets equal billing. We have put on demonstrations that bring people into the Canada Pavilion only to find that they are pushing for one of our competitors. Their reports are time-consuming and it is a nuisance always being chased for repayment on the loans. We are one of the firms that have always paid up and yet we are treated the same as the deadbeats. We now want to be on our own - away from them - and that's it!

In summary, this quadrant seems similar in all respects to the Ontario and Quebec firms but the frustration level did seem higher. Another respondent expressed this sentiment well:

We are a long way away from Ottawa. Their people come out here with $850,000. to distribute during a one week visit. We do not get the same service and they know we are not going to just drop into their office like a central Canada firm can do. We often fail to be included because we are not down in Ottawa agitating. We don't even know what programs are going on so we don't know when to lobby in order to be included. Distance makes a difference and in this case we think we often lose out.

There was disagreement over whether the Federal Government should fund start-up firms. In Ontario and Quebec there was consistent support for this approach. Glas-Aire, Teleflex and Knelson Gold Concentrators preferred to have lower taxes rather than a variety of programs to assist start-up firms. Atlantis Submarines, Nautel and Weatherhaven indicated that support for technological development should remain high priorities for the government.

Table 24: *Government Programs Used by Quadrant 2 Firms (n=6/13)*

Firm	*Founding Date*	*Programs Used*
Atlantis Submarines	1984	IRAP SRTC B.C. Training WD PEMD
Glas-Aire Industries	1985	Employment & Immigration IRAP
Knelson Gold	1982	CIDA PEMD
Nautel	1970	CIDA IRAP ACOA PEMD
Teleflex	1939	Training Fund (Fed.) SRTC Employment & Immigration CCC WD DIPP EDC PEMD
Weatherhaven	1981	IRAP CCC WD PEMD

Only two firms, Clearly Canadian Beverage and Schooner Seafoods, are in Quadrant 3 (i.e., exploitation of country-specific advantages). These firms differed from Ontario and Quebec firms since they did not extensively use government programs. Although both firms had listings on WIN, they stated that the network was used by competitors in the industry to gain access to the kind of trade information that commercial reporting firms like Dunn and Bradstreet provide in the larger provinces. Whereas many of the Ontario and Quebec firms depended on grants and loans to launch their firm's international marketing efforts, these firms did not. Schooner Seafoods did not even use the PEMD program. It stated that the number of firms it would sell through were so limited that participation would not be a benefit.

Quadrant 4 firms are similar in both the core and supplementary sample groups. Specialty products for select market niches have been promoted by entrepreneurial leaders. These firms have used a variety of programs similar to the Quadrant 2 firms. Competition seems to be most rigorous in these two sectors (i.e., Quadrants 2 and 4) which may explain their greater interest in acquiring resources. A particularly interesting comment was made by Keith Condon of Tri-Star:

> *We choose between marketing programs carefully. The provincial program is an outright grant so we use their program when we feel we are likely to succeed. In more marginal cases or when we are just testing out the market, we take part in PEMD. The federal PEMD program requires detailed reports and it is necessary to repay the funds so we select our program participation accordingly.*[77]

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[77] The reasoning in this case is that provincial grant programs should be used in high probability of success instances because there is no need to pay back the money that has been given since it is an outright grant. In cases where there is a risk of failure, federal programs such as PEMD are used because if there is a failure no funds need to be paid back since there are no profits. Under PEMD firms only need to pay back the funds when they generate future profits.

However, like the firms in B.C., Tri-Star found the Canadian Commercial Credit Corporation to be very helpful. Tri-Star also commented that confidentiality leaks from External Affairs officers, personnel in PEMD, and people doing data entry at WIN were all problems that led to reduced enthusiasm for federal programs.

Table 25: *Government Programs Used by Quadrant 4 Firms*

Firm	*Founding Date*	*Programs Used*
McElhanney Geosurveys	1910	CIDA WD WIN PEMD
Pappa Geppetto's	1988	National Research Council WD B.C. Inventory Loan Program SRTC WIN BOSS FBDB Export Receivable Loan Program PEMD
Tri-Star	1973	Nova Scotia Incoming Buyers Program ACOA Canada Employment Centre's Job Upskilling Program WIN PEMD

Firms in the supplementary sample confirm the core study's results. These firms are innovative and prefer independence but they do selectively and pragmatically use state support programs. It must be noted, however, that within the supplementary sample, there is a general consensus that while government does have a role to play in supporting small business, dependency on direct government support should be very limited.

The development path of the supplementary sample firms is similar to the core sample. The supplementary sample firms handled initial product promotion on their own with no outside assistance. Marketing was a critical focus of each firm from inception. When firms had established themselves and moved into an expansion stage, they began to access government programs for R & D and also for international marketing.

The same internal factors were reflected in the responses of firms in both sample groups. The common characteristics (page ?) identified for core firms were also evident in the supplementary sample firms. The entrepreneurial bias for action was even more pronounced in the supplementary firms. At the time of founding, the age of the founders was also between twenty-five and thirty-five. These firms also had pragmatic founders and entrepreneurial managers. The supplementary firms all had managers with risk-taking personalities. The commitment to ethics and moral behaviour was consistent in both sample groups. The same dedication to hard work and action to make sales, develop network contacts, and establish sales distributors was evident in the supplementary sample firms. Their focus on personal contact, customer service, high product quality, and rectification of product defects was similar.

Most of the supplementary firms had launched their firms intent on making sales to the global market rather than focusing on either provincial or national markets. The time lag for using federal government programs was longer in the supplementary sample group due to distance and the lower profile of programs, especially in Western Canada.

The organizational design of firms in both groups is also similar. Both sample groups had flat organizational structures with few layers of authority. All sample firms had hands-on managers who were familiar with all aspects of firm operations. Front-line workers were empowered to make decisions and to commit resources with little need for formal authorization. The lines of communication were short and direct. Information was readily accessible to all employees. Since work forces were small, multi-skilling and task forces were common. The firms in both sample groups had well-defined cultures with a distinct founder's imprint.

All firms in the supplementary sample would clearly qualify as entrepreneurial and were established by founders under circumstances similar to firms in the core sample (Table 10):

(1) The entrepreneur with an acquisition.

(2) Classic start-up.

(3) The spin-off firm.

(4) Within an established firm.

Table 26: *Types of Entrepreneurial Firms based on Start-up Circumstances*

Acquisition	*Classic Start-Up*	*Spin-off*	*Established Firm*
Glas-Aire *Schooner Seafoods*	*Whitewater West Industries* *CTF Systems* *Knelson Gold* *McElhanney Geosurveys* *Pappa Gepetto's*	*Weatherhaven Resources* *Atlantis Submarines* *Teleflex (Canada)*	*Clearly Canadian* *Tri-Star* *Nautel*
2/13 (15%)	5/13 (39%)	3/13 (23%)	3/13 (23%)

The first category of firms includes those where an entrepreneur has purchased an existing firm. Only two firms, Glas-Aire Industries and Schooner Seafoods, are in this category. The founder at Glas-Aire sold his shares in the firm in 1991 as part of a management group sale. The new operating group purchased the firm's patents and particulary its ability to produce automobile accessories for quality-conscious Asian firms. The founder of Schooner Seafoods was the plant manager until the firm was sold to the current management group in 1991. When the fishing industry began to experience difficulties in 1991, the former management group decided to divest. The firm was refocused on a wider range of markets and new kinds of equipment were acquired that permitted the firm to extend its season from ten weeks to nine months. This firm currently sells 65% of its product to Poland which became a new market when the firm was reconfigured in 1984. The current management team were ambitious, entrepreneurial and focused on global markets as a matter of necessity for survival. As in the case of the core sample firms the new management group moved quickly to embrace new technology and moved to sell into the most sophisticated and discriminating foreign markets.

In the second category are firms with entrepreneurial founders who possessed specialized skills and were in a position to see an opening market opportunity. In the case of Whitewater West Industries Ltd., Geoffrey Chutter had unusual experience in designing his own theme park. Eventually, the firm was able to capitalize on its ability to design water systems so that the firm eventually grew into one of the world's foremost designers of wave pool equipment for other theme parks. In the case of CTF Systems Incorporated, its founder Dr. Max Burbank indicated that he came up with the idea of designing a magnetometer system to read magnetic pattern in the human brain when he was a graduate student. To his surprise no one had actually applied available technology to produce a device for which there was demand. Byron Knelson of Knelson Gold Concentrators Inc. indicated that he visited a mine and was amazed at the technology operators were using to retrieve gold. Although his interest in gold recovery had started as a hobby, it grew into a full-time fixation when he started to work on a centrifugal separating device. His first generation of equipment retrieved three to four times as much as conventional systems and newer systems now recover up to 95% of the available gold. In the case of McElhanney Geosurveys, its founder had been trained in survey work just when new aerial techniques for mapping were being developed. Since the firm had done work in difficult terrain, when mapping work was needed in the Mekong River Survey in 1959 the firm was ideally qualified and was hired for work in Laos, Cambodia, Thailand and Vietnam. The final firm in this category has a particularly interesting history since Pappa Geppetto's makes childrens' toys. Peter Bell explains that its products were the result of pure inspiration caused by a need to have safe environmentally friendly toys for very young children. His firm's skwish toy has been not only a huge market success but has also been recognized with an American Museum Award (1991).

The third category includes entrepreneurs who operate spin-off firms. Weatherhaven Resources indicated that equipment available in 1981 was unable to handle the needs of people who wanted to operate in remote adverse environments. Since other firms were not interested in investing to produce equipment for these small specialty markets, Weatherhaven was established as a separate entity. The principals of the firm recruited a number of people with experience in other firms that made the development of their initial product line easier. The camping equipment designed by the firm is used for projects as diverse as scientific study on top of glaciers to the housing of Desert Storm troops in the desert areas of Saudi Arabia and Kuwait. The firm's shelters provide more than reinforced tents. In some cases the insulated fabric structures contain fully-equipped kitchens, washrooms, office and recreation facilities.

Similarly, Atlantis Submarines developed its submarines for research and recovery missions while Dennis Hurd worked for an oil exploration firm. Since the firm did not want to pursue the recreational and tourist-oriented markets, Atlantis Submarines was founded specifically for that purpose.

The situation with Teleflex (Canada) is slightly different in that this firm was established at the outset of World War II by a British parent firm that wanted to locate some of its production outside of the U.K. Since the firm dealt with specialty marine hydraulic steering systems, it established its own direction in Canada. The firm is now a manufacturer of marine autopilots, diesel engine governors, engine preheaters for buses and trucks, and specialty fluid control products. Like the firms from Ontario and Quebec, these firms used their own resources for start-up and used government programs later for development and expansion.

The fourth category includes firms with entrepreneurs who founded firms that operate independently from, but are in some way related to, an existing firm. In most cases, the idea for the start-up of the business was conceived in other firms as an intended strategy.

Nautel does its learning by involving itself in government research at institutions that rely on government grants such as the Bedford Institute. This firm has involved itself with strategic alliances in order to promote learning from and with its research partners. Nautel and Tri-Star are the only firms in the supplementary sample group that used government funding to build facilities (under the Atlantic Canada Opportunities Agency, "ACOA"). Nautel has used government assistance for development and expansion.

Tri-Star is an off-shoot of a firm that was primarily in the automotive business. Since the Tri-Star firm could see that there was a shortage of custom-made specialty vehicles and the firm could acquire all of the necessary competencies, it was able to use the cash flow from the automotive division to provide capital for the start-up of the building of customized vehicles.

Clearly Canadian Beverage Corporation was also created by an intended strategy since the founders felt that the demand world-wide for pure water products provided a new market niche. These firms are similar to those in the core sample in that they were developed pursuant to intended strategies to respond to opportunities available in global markets. These firms used government programs for both marketing and building networks to promote their products throughout the world.

Results of firms in the supplementary sample show that there are differences in enthusiasm for federal programs between firms in the supplementary sample and firms in the core sample. Participation rates seem similar except for Quadrant 3 firms which may not be representative since the telephone sample consists of only two firms. The comments from British Columbia and Nova Scotia appeared more critical of the federal programs and indicated for the first time problems such as confidentiality leaks from PEMD and WIN. As well, these firms did not favour directing support to assist in start-up. By contrast, sample firms in Ontario and Quebec indicated a need and a desire for start-up funding programs, even though few firms had actually used them. The firms in British Columbia and Nova Scotia felt that the reporting requirements of federal programs were too rigorous and should be reviewed to ensure that participation is not inhibited by these requirements. Several of the British Columbia firms felt new loans should be made only pursuant to well-documented business plans that relate to specific projects. Teleflex (Canada) indicated that a number of programs that had been discontinued should be reinstated including SRTC and the Training Trust Fund. The Training Trust Fund was a program under which a firm placed money in trust and the federal government paid 30% of the amount the firm paid into the same trust to pay the expenses of management employees for taking courses. Each employee and each course needed to receive approval from both parties before funds were released from the fund. Several of the British Columbia and Nova Scotia firms felt that the Canadian government should commit itself to defending the Canadian dollar in a pre-set trading range against the U.S. dollar. Since the Canadian dollar was in the $0.82 to $0.85 range when the interviews were conducted, the most commonly mentioned figure was between $0.78 and $0.82 American. Firms preferred a lower Canadian dollar because it makes their goods more price competitive on international markets[78]. A number of the firms in British Columbia expressed the opinion that removal of regulations imposed by organized labour and by government would be a major boost to competitiveness (e.g., the cost of dismissing employees for cause and carrying disputes through lengthy arbitration processes were often mentioned).

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[78] Most firms priced their goods in U.S. dollars and paid for labour and many materials in Canadian dollars. Consequently, the lower the Canadian dollar the better for most of these firms - at least in the short run until Canadian domestic market prices can adjust to reflect the dollar value differentials.

Supplementary firms mentioned that due to barriers imposed by distance, use of government programs was seen as a low priority. Federal support programs were perceived as hard to access and, therefore, relatively incidental to the success of these firms. It was most apparent from these firms that the government should probably apply zero-based budgeting to its support programs, thoroughly evaluate all programs for effectiveness and efficiency, and develop new programs based on current needs.

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