

High-Growth Strategies of entrepreneurial firms in technology industries

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ABSTRACT

High-Growth Strategies of entrepreneurial firms in technology industries

Marie-Paule Giguère, M.Sc.

Concordia Université, 2004

The purpose of this research was to enhance our understanding of strategies used by rapid growth firms. This study has attempted to answer the following question: “Which new venture strategies are associated with higher growth?”

More specifically the purpose of this research was to examine the next two arguments:

- HGEFs employ multiple strategic emphases;
- Growth strategy evolves across time.

On one hand, results of this study support the argument that HGEFs use multiple strategic emphases as the largest group identified in this study follow a multi-faceted strategy pattern. Firms tend to employ a minimum of three competitive strategic actions at the same time. Fast-growing firms simultaneously control costs, improve product quality and product offerings. These findings support those of other new venture researchers in that no single strategy appears to always work best (McDougall 1987/ Ostgaard & Birley 1994).

On the other hand, the present study supports the argument that strategy evolves across time. Younger firms tend to be more niche-oriented and innovative. Older and larger firms, on the other hand, tend to have a broad customer and market segmentation basis. In addition, some tendencies seem to characterize all HGEFs. Those strategies emphasize are international focus, innovation, corporate partnerships with large firms, low cost and productivity.

As an exploratory step, this study is useful in illustrating the complexity of strategy patterns and providing good insights for venture capitalists and entrepreneurs to understand what are the different high-growth tactics to use across time.

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Completing my thesis offered me a challenge that I was able to meet with the assistance of special persons as follows.

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A first job, in your thesis domain and in a firm you want to work for, is a gift. I thank SECOR, Taktik Division, a consulting firm, for this opportunity to bring together my ideas with my colleagues' experiences in the realization of my SECOR/Taktik mandates.

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Finally, this work is dedicated to my mother, Monique, my father, Pierre, my sister, Evelyne, for their love and encouragement during the past years.

DEDICATION

My three sources of inspiration:

They were founded at the height of the Internet craze when anything in business was freakishly possible. Then came 2000. The economy went haywire, many dot-com dreams were dashed, and even some established firms had to pack it in.

Source: 2002 Profit Hot 50 Overview. **Kali Pearson**

Then it was the worst of times. Y2K failed to sting, but the overheated economy didn't care. Slowing growth coincided with this brainwave: the Internet wasn't making many people money, and wouldn't anytime soon. After another year of financial uncertainty, the sad events of September 11 took the remaining breeze out of the economy's sails. Then came a war, then another war, and tension between the True North and our largest trading partner. Not to mention SARS.

Source: 2003 Profit Hot 50 Overview. **Ian Portsmouth**

As Quebec provides the third apex of the 'Northern Tech Triangle', understanding high growth strategies at home was definitely a good start.

Source: Deloitte & Touche 2003

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1. Introduction

1.1 RESEARCH OBJECTIVE

The purpose of this research is to enhance our understanding of strategies used by rapid growth firms. This study attempts to answer the following question: “Which new venture strategies are associated with higher growth?” Therefore, this research focuses on high-growth entrepreneurial firms and the strategies that generate successful growth.

Research question: “Which new venture strategies are associated with higher growth?”

More specifically the purpose of this research is to examine the next three questioned areas:

- Strategic directions pursued by high-growth firms;
- Strategic tools employed by high-growth firms;
- Impact of the firm’s size and age on the high-growth firms’ strategy.

Overall, the research attempts to grasp specific knowledge on strategies used by high-growth new ventures in the technology industry.

1.2 SIGNIFICANCE OF THIS RESEARCH PROJECT

The subject of high-growth strategies is particularly relevant to small firms. The two key arguments for this research project are as follows.

First, entrepreneurial activity is the primary economic engine in many countries such as the United States and Canada (Lumpkin & Dess 1996/ Ireland & Hitt 1997). High-growth entrepreneurial firms are significant contributors to job creation: “Rapid-growth firms are often job creators, so ensuring that they prosper rather than stumble in a spectacular manner is of considerable economic importance” (Hambrick & Crozier 1985/ Fisher, Reuber, Hababou,

Johnson & Lee 1997). In fact, approximately 97% of all businesses in the US and Canada are characterized as small (Ibrahim & Ellis 1998). In addition, entrepreneurial firms contribute to the strength of an economy by pressuring for higher quality, lower prices and more choice for customers (Vesper 1984/ McDougall, Robinson, DeNisi 1992). Furthermore, new ventures also play an important role in the development of technological innovations and enhance the competitiveness of a region, both locally and internationally (Vesper 1984/ McDougall & Robinson 1990). Finally, high-growth entrepreneurial firms carry out important goals which have great economic consequences, such as “achieving some viability threshold or in anticipation of becoming a dominant player in their industry” (Covin, Slevin & Covin 1990). These goals are strongly achieved by high-growth ventures. Thus the significant contribution of entrepreneurial firms to the economy, especially those who pursue growth strategies, makes this research project highly valuable.

1st argument: The significant contribution of entrepreneurial firms to the economy, especially those that pursue growth strategies, makes this research project highly valuable.

On the other hand, there is a lack of research in the area of high-growth entrepreneurial firm strategies (Sexton & Smilor 1997/ Hitt & Ireland 1997). This gap can be attributed to the lack of research that integrates and links two particular bodies of literature, that is, entrepreneurship and strategic management. Extensive literature on the importance of appropriate long-term success strategies for mature and large businesses does exist. However, the literature on successful strategies for entrepreneurial young firms is limited.

Many researchers have noticed this lack of research on strategy at the entrepreneurial level. A few examples are presented below. “There has been little explicit examination of their [entrepreneurial firms] strategies” (Cooper, Willard & Woo 1986). “It is still surprising that so

little work has been done in the area of entrepreneurship strategy” (Low & MacMillan 1988/ Ostgaard & Birley 1994). There is “still limited knowledge about why ventures succeed or fail” (McDougall, Robinson, DeNisi 1992). “Yet little help exists in the academic literature in terms of identification of specific business practices ... associated with the pursuit of market share growth” (Covin, Slevin & Covin 1990). Also, there are still limited studies that discuss the content of new venture strategies (Miller & Camp 1985/ McDougall, DeNinsi, Robinson 1992). In addition, there is insufficient literature studying the “relationships between dimensions of strategy for new firms and performance” (Feesser & Willard 1990).

Moreover, research examining high-growth entrepreneurial firm samples is lacking. Only a few researchers have “focused selective attention on the firms that are, judging by the velocity of their sales growth, abnormally successful” (Birch 1987/ Fisher, Reuber, Hababou, Johnson & Lee 1997). As suggested by Cooper (1979), more strategic management researchers should study growth-oriented new ventures and established firms, avoiding “mom and pop” small businesses (Sandberg 1992).

Therefore, further research on strategy at the entrepreneurial level should contribute to our understanding of success in general. Specifically, additional research in entrepreneurship should not only apply general generic strategies to small firms but thoroughly study strategies that seek rapid growth (Covin, Slevin & Covin 1990).

Understanding what type of strategies leads to the success of entrepreneurial firms is critical for academics as well as practitioners. As a result, this research project may generate “practical advice on how to improve relative competitive position” (Covin, Slevin & Covin 1990). This issue is not only significant for entrepreneurs and entrepreneurship researchers, but also banks, venture capitalists, government agencies and entrepreneurial associations.

2nd argument: More strategic management researchers should study growth-oriented new ventures and established firms, avoiding “mom and pop” small businesses (Sandberg 1992).

2. The Concept of Strategy in the Context of Entrepreneurial Firms

2.1 STRATEGY CONCEPTS

STRATEGIC MANAGEMENT

In this study, strategic management literature will be discussed from an entrepreneurial point of view. Strategic management can be defined as “a process that deals with the entrepreneurial work of the organization, with organizational renewal and growth, and more particularly, with developing and utilizing the strategy which is to guide the organization’s operations” (Schendel & Hofer 1979/ Sandberg 1992). More specifically, strategic actions “select and implement the firm’s strategies” (Ireland, Hitt, Camp & Sexton 2001).

STRATEGY

The concept of strategy has been discussed in detail in the literature. However, the strategy concept has become “a catchall term used to mean whatever one wants it to mean” (Hambrick & Fredrickson 2001). Therefore, some clarification is needed.

A pioneer in the field, Chandler (1962), defines strategy as the “formulation of long term goals and objectives of the organization and the implementation of these goals and objectives” (Ibrahim 1993). Later, Andrews (1972), Hofer & Schendel (1978) and Quinn (1980) used the term strategy as a fully integrated plan of actions, policies and objectives (Ibrahim 1993, Hitt, Ireland, Hoskisson, Rowe & Sheppard 2002). In addition, Mintzberg, an influential researcher, expanded the concept of strategy, suggesting that realized strategies include a combination of intended and emergent strategies (Hitt, Ireland, Hoskisson, Rowe & Sheppard 2002). More recently, Hambrick & Fredrickson (2001) conclude that strategy is “an integrated, overarching concept of how the business will achieve its objectives”.

In strategy literature, depending on the researcher, goals and objectives are sometimes considered either as a master part or an additional part of strategy (Sandberg 1992). In addition, structure and process are sometimes considered as “a component of strategy” (Schendel & Hofer 1979/ Sandberg 1992). Some concepts are closely related to strategy, such as competitive advantage and distinctive competence, which signify the cornerstones through which firms can differentiate themselves from the industry average.

In support of the above definitions, strategy is considered a plan of action that lays out how the business will achieve its long-term objectives.

Strategy is a plan of actions that lays out how the business will achieve its long-term objectives.

STRATEGY CONTENT

This research project will analyze strategy patterns. Strategy patterns are combinations of strategic actions or tactics used by a group of firms. Different types of strategies are discussed in the literature. The development of a strategy in an organization depends on its hierarchical level to which it applies: corporate, enterprise, business or functional (Sandberg 1992). For example, corporate strategy can be differentiated from business strategy. On the one hand, corporate strategy involves defining “the firm’s mission and the business in which it should be in” (Ibrahim & Ellis, 1990). On the other hand, the objective of business strategy is to exploit core competencies and gain a competitive advance in specific, individual product markets (Hitt, Ireland, Hoskisson, Rowe & Sheppard 2002). Michael Porter (1980) identified three generic business strategies: cost leadership strategy, differentiation strategy and focus strategy. In more recent literature, combining low-cost and differentiation strategies constitutes an option for managers (Hitt, Ireland, Hoskisson, Rowe & Sheppard 2002). Porter also identified five

competitive forces that influence the strategic orientation of a firm. These forces will be discussed further.

Notice that the strategy formulation and process, such as growth planning or the number of stages that best depicts the growth process, will not be discussed in this report. This study focuses specifically on strategy content, the core substance of strategy, of high-growth entrepreneurs.

THE CROSSING POINT: ENTREPRENEURSHIP AND STRATEGY

For Schendel & Hofer (1979), “entrepreneurial choice is at the heart of strategy” and entrepreneurial businesses represent the best example to understand the true entrepreneurial character of strategic management (Sandberg 1992). In fact, entrepreneurship research focuses on growth and innovation, while strategic management literature focuses on competitive advantage (Ireland, Hitt, Camp & Sexton 2001). However, the two bodies of literature have multiple overlapping elements, such as growth and innovation, two critical factors of wealth creation (Ireland, Hitt, Camp & Sexton 2001). “Creating wealth is at the heart of both entrepreneurship and strategic management” (Ireland, Hitt, Camp & Sexton 2001).

In order to get a better understanding of what type of strategy leads to the success of entrepreneurial firms, this research covers three types of literatures: new venture strategy literature, strategic management literature and entrepreneurship research.

3.2 THE CONCEPT OF ENTREPRENEURSHIP

To understand strategy at the entrepreneurial level, some clarification on the concepts entrepreneurship and the entrepreneur is needed.

ENTREPRENEURSHIP

What exactly is entrepreneurship? Defining who is an entrepreneur is a difficult process as there is no generic definition yet in the literature. Entrepreneurship can be defined as “the gathering and integration of resources to take advantage of identified opportunities” (Stearns & Hillis 1996, Stevenson & Gumpert 1985/ Hitt & Ireland 1997). As a result, entrepreneurship consists of a “context-dependent social process through which individuals and teams created wealth by bringing together unique packages of resources to exploit marketplace opportunities” (Morris 1988/ Ireland, Hitt, Camp & Sexton 2001).

Four themes are central: resource organization, opportunity, innovation and coping with uncertainty.

Entrepreneurship involves two elements: sensing and exploiting an opportunity (Ibrahim 1995). An entrepreneurial action is a “fundamental behaviour of firms by which they [entrepreneurs] move into new markets, seize new customers and/or combine (existing) resources in new ways” (Smith & De Gregorio 2000/ Ireland, Hitt, Camp & Sexton 2001). The entrepreneurial process is achieved in uncertain condition. In an entrepreneurial context, uncertainty should not be denied but rather embraced (Jelinek & Litterer 1995/ Hitt & Ireland 1997).

As suggested above, entrepreneurship is defined differently among researchers. There also may be more than one entrepreneurial archetype (Ibrahim & Ellis 1998). Various schools of thought have emerged in the past. As a result, each school has its own view of what entrepreneurship is and who is an entrepreneur.

THE ENTREPRENEUR: DIFFERENT SCHOOLS OF THOUGHT

In the following section, a selected review portrays the entrepreneur according to different schools of thought, which are: the trait, environmental, behavioural, ecology, economical and contingency schools. In some schools of thought, various approaches are debated.

Trait school of thought

First of all, the trait school of thought focuses on the individual, the entrepreneur, to understand the entrepreneurial behaviour. “If we can just find out who the entrepreneur is, then we’ll know what entrepreneurship is” (Gartner 1988/ Sandberg 1992).

For example, the psychological approach, also called “need approach”, is the most important and popular view of the trait school of thought. Focusing on the motives and needs of entrepreneurs, numerous studies have analyzed the effects of entrepreneurial posture on entrepreneurial behaviour. Entrepreneurial posture is built upon three important motives: need for achievement, need for control and motive regarding risk (composed of the risk-taking propensity and tolerance for ambiguity). Each motive is discussed below.

McClelland (1965) characterizes “high need achievers” as individuals who have more responsibility for initiating and making decisions, a desire for feedback on performance and more risks or challenges in their work. According to McClelland (1965), entrepreneurs have a higher need for achievement than the general population. In addition, some researchers suggest that a high internal locus of control is more likely to be found in successful entrepreneurs than in entrepreneurs who fail. Thus, an internal locus of control is associated with the use of higher efforts to run a business enhancing the chances for success (Brockhaus 1982). Furthermore, entrepreneurial behaviour is characterized by high propensity for risk-taking: “Entrepreneurial functions entail coping with a less structured, more uncertain set of possibilities and bearing with the ultimate responsibility for decision” (Stewart & Roth 2001). However, not all researchers agree on this view. Some researchers have shown that most entrepreneurs do not seek risk but rather accept the risk inherent in the opportunities they sense (Brockhaus 1982). A supporter of this idea, Bird (1989) argues that more important than risk preference is the tolerance for ambiguity.

Environment school of thought

Another important approach is the environmental school of thought, which highlights the importance of the personal, present and past context of the entrepreneur, crucial for his development. The determinants of entrepreneurial behaviour are family background, education and past work experiences. For example, Cooper (1971) found that entrepreneurs who have past entrepreneurial experiences have less difficulty starting a second business (Shapero & Sokol 1982). Furthermore, Kets de Vries (1977) characterizes the entrepreneurial process as a reactive one, claiming that the perceptions of rejection and control, anger, hostility, guilt and confusion all have an impact on the entrepreneurial process.

Furthermore, the analysis of the nature and social context of the entrepreneur is important to understand why an individual with a certain personality, education or family background actually becomes an entrepreneur (Bird 1989). The social theory is based on the “push and pull” theory and allows for a good understanding of the personal immediate context of the entrepreneur. Some entrepreneurs are pulled into venturing activities; others are pushed. On the one hand, negative displacements that push a person to become an entrepreneur are expatriation, immigration, unemployment, job dissatisfaction, “being between things”, psychological displacement, divorce, irritation, depression, etc. These detracting forces attract an individual from a state of inertia to entrepreneurial activity (Shapero & Sokol 1982). On the other hand, positive displacements pull the individual into entrepreneurial action. Examples are extremely attractive opportunities, encouragement by existing organizations (spin-offs and incubators) or persuasion by a partner, mentor, investor or customer (Shapero & Sokol 1982). However, not all entrepreneurs are pushed or pulled; some may plan and choose the entrepreneurial career (Bird 1989).

Behavioural school of thought

The behavioural approach is fundamental to the understanding of entrepreneurial behaviour. For instance, Gartner (1985) describes entrepreneurial behaviour as an “opportunistic, value-driven, value-adding, risk-accepting, creative activity where ideas take the form of organizational birth, growth, transformation” (Gartner 1985). This approach generally considers the organization as the level of analysis and attempts to understand the process involved in creating new organizations (Sandberg 1992). For example, Covin & Slevin (1991) define entrepreneurship as a “dimension of strategic posture represented by a firm’s risk-taking propensity, tendency to act in competitively aggressive, proactive manners, and reliance on frequent and extensive product innovation”. One advantage of this firm-behaviour perspective compared to traditional entrepreneurship models is that behaviours, such as the entrepreneurial posture, are easier to measure and manage than traits (Covin & Slevin 1991).

Ecology school of thought

In addition, the ecology approach is concerned with the inability of organizations to adapt or change and the creation and death of organizations within a population of organizations (Amit & al. 1993). As a result, by assessing the turbulence associated with the nature of the business population, this theory assumes that the entrepreneur has very limited power (Aldrich 1990).

Economic school of thought

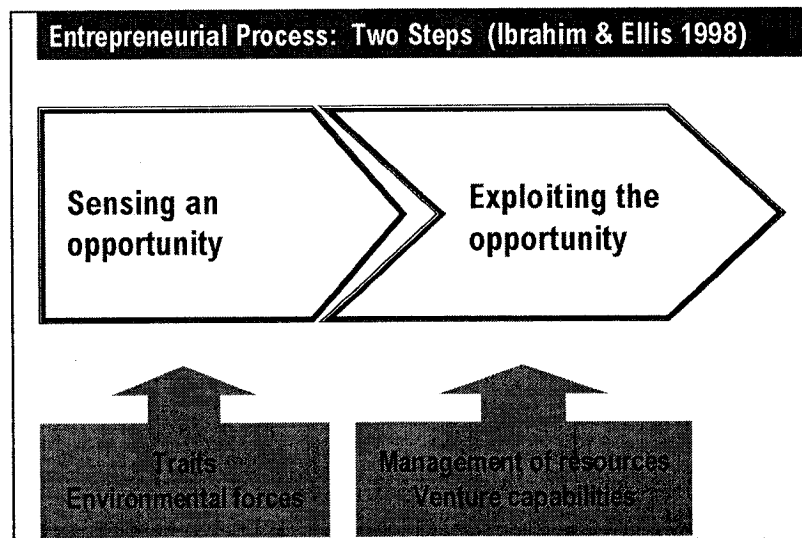
In contrast, the classical economic approach focuses on innovation and new production processes, and assumes that the entrepreneur is a complete rational actor (Amit & al. 1993). Essentially, the theory holds that entrepreneurs correct the waste of resources created by market imperfections. From this point of view, entrepreneurship is perceived as “the ability to bring together consumers and innovation in order to satisfy a need” (Ibrahim & Ellis 1998).

Contingency school of thought

Finally, the contingency approach is a more recent school of thought, which draws attention to the opportunity concept. The literature is divided based on the unit of analysis used, that is, the entrepreneur and the entrepreneurial firm.

In the entrepreneurial-based literature, Ibrahim (1990) suggests that entrepreneurship involves two critical elements: sensing and exploiting an opportunity. See Figure 1. The process of sensing an opportunity is influenced by the entrepreneur's family background, education, past work experiences, culture, displacements, etc. The exploitation of an opportunity depends on the management capabilities and resources of the entrepreneur (Ibrahim & Ellis 1998). The entrepreneur is defined as "an individual who sees an opportunity that others do not and marshals the resources to exploit it" (Ibrahim & Elis 1998). Notice that this approach integrates most of the schools presented above.

FIGURE 1: ENTREPRENEURIAL PROCESS



In the same way, Blawatt's model (1998) exploits Ibrahim's idea, suggesting that the entrepreneur creates something of value at a time and place where there was nothing before. The entrepreneurial process is composed of three steps: perception of the opportunity, verification of

the potential opportunity and organization of resources (Blawatt 1998). This model distinguishes four types of entrepreneurs: the inventor, the innovator, the marketer and the opportunist. Blawatt's (1998) idea about an entrepreneur consists of identifying whether the entrepreneur is actually looking for a "lifestyle, a self-determined employment, or whether it is a continued drive to build a larger enterprise". In this approach, the franchisee entrepreneur is not considered an entrepreneur.

In addition, Stevenson & Gumpert (1985) have discussed the opportunity concept at the entrepreneur level. An entrepreneurial opportunity must meet two conditions: "It must represent a desirable future state, involving growth or at least change; and the individual must believe it is possible to reach that state." Some external pressures stimulate opportunity recognition, such as technology, consumer economics, social values and political action. Furthermore, opportunities appear closely related to the entrepreneur's individual needs. Stevenson & Gumpert (1985) have differentiated the entrepreneur from the satisfied manager, the frustrated potential entrepreneur and the consummate bureaucratic functionary.

On the other hand, contingency models at the firm level have been developed. Stevenson & Gumpert (1985) consider that entrepreneurial cultures sense opportunities. In addition, the entrepreneurial process is characterized by multiple stages of short-length, episodic use or rent of required resources and a flat structure with multiple informal networks.

In conclusion, the various schools of thought have different views and emphasis. The debate between partisans of the different schools is based on different convictions as to "which type of business or manager is entrepreneurial" (Sandberg 1992). As a result, one major problematic in the literature is the lack of precision in defining the entrepreneur. This shortcoming contributes to the weakness of entrepreneurship models (Bull & Willard 1993). Furthermore, this review suggests and confirms that there is more than one entrepreneurial archetype (Ibrahim & Ellis

1998). Entrepreneurship remains a complex phenomenon. However, one should remember that common themes of research on entrepreneurship deal with the entrepreneur, owner-manager, innovation, opportunity, uncertainty, resources, uniqueness, organization creation, value creation and growth.

Each school of thought has its own view of what entrepreneurship is and who is an entrepreneur. The most recent school of thought (contingency approach) characterizes entrepreneurship using two critical elements: the perception and the exploitation of an opportunity.

3. Growth: The Essence of Entrepreneurship

3.1 GROWTH, A CRITICAL FACTOR FOR NEW VENTURE

Growth is one of the most important themes in entrepreneurship literature. “Growth is the very essence of entrepreneurship” (Sexton & Smilor 1997/ Ireland & Hitt 1997). Growth is important since it is a “crucial indicator of venture success” (Colvin & Slevin 1997, Low & Macmillan 1988/ Baum, Locke & Smith 2001). If a business does not grow, it will die (Margretta 1997/ Hitt & Ireland 1997). As a result, the firm growth is a sign of sustained entrepreneurship.

In addition, growth is the “primary distinguishing factor between small business and entrepreneurship” (Hitt & Ireland 1997). Even though very large established firms can seek growth, entrepreneurial ventures view growth as a key, vital objective (Ireland, Hitt, Camp & Sexton 2001).

ENTREPRENEURS VERSUS SMALL BUSINESS OWNERS

Entrepreneurs are different from small business owners. On the one hand, entrepreneurs are owner-managers “who desire to grow their business more rapidly” (Gundry & Welsch 2001). Ambitious entrepreneurs actively seek growth and expansion opportunities (Gundry & Welsch 2001). These entrepreneurs “demonstrate intensity and have effective and powerful visions of the wealth they can create” (Ireland, Hitt, Camp & Sexton 2001). Also, high-growth entrepreneurs believe that their actions can shape industry conditions in their favour (Kim & Mauborgne 1997/ Hitt & Ireland 1997). Firms that are “entrepreneurially-intense” demonstrate competitive aggressiveness on the market, which enhances growth potential (Lumpkin & Dess 1996, Morris & Sexton 1996/ Hitt & Ireland 1997).

As opposed to entrepreneurs, small business owners are those “who are satisfied with the status quo” (Gundry & Welsch 2001). Their desire for growth and their ability to manage growth are

limited. They are less involved with product or process innovation and use less planning techniques (Sexton & Bowman-Upton 1991/ Camp & Sexton 1992).

Entrepreneurs seek growth; small business owners are satisfied with the status quo.

DIFFERENT LEVELS OF GROWTH

Depending on entrepreneurial growth aspirations and “growth-enabling factors”, such as market constraints, “growth may be achieved quickly, slowly, or not at all” (Covin & Slevin 1997). Different owner-managers seek different levels of growth. As such, we can define three types of owner-managers, i.e., small business owners, moderate growth entrepreneurs and fast-growing entrepreneurs (Ginn & Sexton 1990/ Gundry & Welsch 2001). In addition, different entrepreneurs will use different growth strategies although they may seek the same level of growth.

The literature has distinguished high-growth from low-growth entrepreneurs. For example, Delmar & Per Davidsson (1998) surveyed 5000 Swedish firms and distinguished types of entrepreneurs on the basis of growth: employment growers, acquisition growers, sales growers, super growers, one-shot growers, steady sales growers, steady overall growers and erratic sales growers. In addition, Davidsson (1989) surveyed 400 Swedish entrepreneurs and identified the characteristics of high-growth entrepreneurs (Gundry & Welsch 2001). Expected outcomes, generally other than money, are found to motivate high-growth entrepreneurs. In addition, employment growth and sales growth are highly desirable goals for high-growth entrepreneurs. They also generally take into account the firm’s external conditions when making strategic decisions.

Furthermore, Gundry & Welsch (2001) surveyed 832 women entrepreneurs and found that high-growth entrepreneurs among them have “strategic intentions that emphasize market growth and

technological change”. High-growth entrepreneurs are strongly committed to the success of their firm. They have a high need for achievement and a “greater willingness to sacrifice on behalf of the business”. Exercising a strong sense of leadership, high-growth women entrepreneurs choose to work within a “team-based form of organization design”. In addition, they plan their firm growth (employment and sales) in advance and get access to appropriate capitalization and financing resources. These ambitious entrepreneurs are also concerned with their reputation and quality.

Not only are there different levels of growth, but there is little agreement in the existing literature as to what factors affect growth, or how growth should be measured (Delmar 1997/ Delmar & Per Davidsson 1998).

HIGH-GROWTH ENTREPRENEURIAL FIRM (HGEF)

Trying to define what is considered a high-growth entrepreneurial firm remaining an issue. As suggested by Ireland & Hitt (1997), a high-growth entrepreneurial firm (HGEF) “is willing to take risks, to be innovative, and to initiate aggressive competitive actions”. This entrepreneurial orientation supports the firm in identifying “attractive product-market opportunities while pursuing superior financial performance” (Zahra & Covin 1995/ Ireland & Hitt 1997).

In addition, HGEFs are characterized by the “accelerated pace at which they evolve relative to other firms that seem comparable” (Fisher, Reuber, Hababou, Johnson & Lee 1997). In terms of growth, HGEFs can be characterized by an annual sales growth rate of at least 20% for a five-year period (Gartner, Bird & Starr 1992 / Fisher, Reuber, Hababou, Johnson & Lee 1997). In addition, according to Gupta & Govindarajan (1984), HGEF strategy is based on a build strategy (increase market share) at a minimum rate of 60%. Also, HGEFs are “more likely to utilize new, advanced technology than slow-growers” (Siegel, Siegel & MacMillan 1993).

Entrepreneurs may pursue a high-growth strategy for many reasons such as becoming an international firm, entering new markets or commercializing new products. Compared to larger firms, one main advantage of seeking growth for entrepreneurial firms is flexibility (Jarillo 1989). However, “new-venture founders often find themselves unprepared to manage growth-related transitions effectively” (Galbraith 1982; Meyer, Lenoir & Dean 1988/ Hanks, Watson, Jansen & Chandler 1993). Managing growth is complex and growth realization is said to contribute to managerial complexity, which is defined as “an indicator of the challenge faced by managers as a function of the number, variety, and interrelationships among tasks required to effectively and efficiently administer the operations of a firm” (Slevin & Covin 1997). Problems faced by rapid-growing firms are based on people (new employees, skills problems), processes (decision-making, communication, structure (Fombrun & Wally 1989)) and resources (cash flow and qualified new staff) (Hambrick & Crozier 1985, Kotter & Sather 1978/ Fisher, Reuber, Hababou, Johnson & Lee 1997). As a result, no matter what is reason behind a growth strategy, effective managerial skills and key resources are important to achieve higher growth.

PARTICULARITIES OF TECHNOLOGY-BASED HGEFS

Defining a Technology-Based Firm

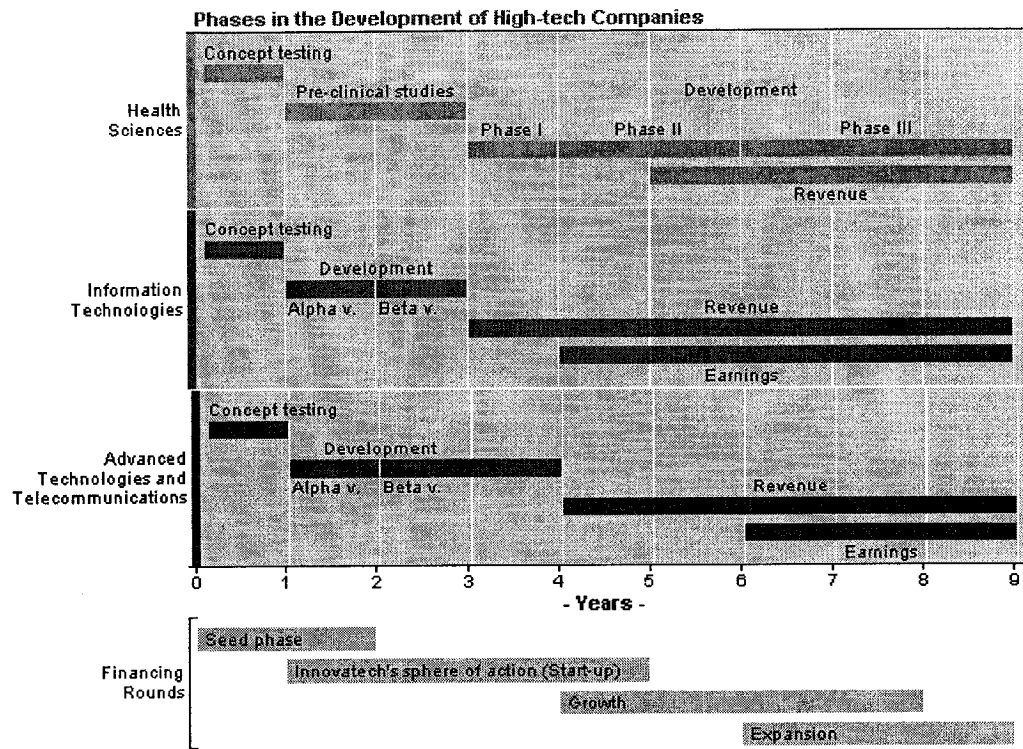
Technology-based firms evolve in very rapidly changing environments, which “require highly flexible and rapid strategic moves” (Bantel 1996). The pace of change in the market due to technology innovation is high. High-tech firms can be characterized as encompassing three elements (Riche, Hecker & Burgan 1980): relatively high level of R&D expenditure, fairly high percentage of scientific and technical personnel relative to total employment, and product sophistication (McCarthy, Spital & Lauensteing 1987). The elements can be seen in both product and market development (McCarthy, Spital & Lauensteing 1987).

With regards to innovation, technology plays a key role in the innovation process in the new knowledge-based economy (Ibrahim & Ellis 1998). An innovation process generally follows

these stages: idea generation, development and incubation, concept and market testing and commercialization. In health sciences, information technologies and advanced technologies and telecommunication, the development stages of the technology involves phases such as concept testing, alpha and beta development, and other phases depending on the technology. Innovation is also very important to service industries as “it allows the entrepreneur to build areas of distinctive competence that are hard to erode” (Ibrahim & Ellis 1998). The innovation process always involves going beyond customer needs. It allows the entrepreneur to build a competitive advantage. This advantage depends on certain factors, such as timing of entry, uniqueness, customer needs, etc... (Ibrahim & Ellis 1998).

Figure 2 presents the development phases that characterize technology-based firms.

FIGURE 2: PHASES IN THE DEVELOPMENT OF TECHNOLOGY-BASED COMPANIES¹



Fine Line between Technology-Based Firms and HGEF

There is a fine line between HGEFs and technology-based firms.

On the one hand, technology-based firms are generally considered entrepreneurial firms as opposed to small businesses, since they are characterized by a “short product life-cycle, R&D cost and delays, specialized and volatile markets, strong international position, and potential for growth” (Doutriaux 1992). Also, some technology-based firms are defined as HGEFs. For example, “Compaq Computers exceeded \$100 million in sales in its first full year of operation. Eight years after its founding, Apple computers was a multibillion-dollar international corporation” (McCarthy, Spital & Lauensteing 1987). On the other hand, technology-based firms do not always achieve high growth. Examples of unsuccessful technology-based firms are Osborne Computer, Sinclair, Coleco’s Adam Computer and Digital Equipment Corp., HP.

¹ Source: Innovatech Grand Montréal (<http://www.innovatech.qc.ca>)

McCarthy, Spital & Lauensteing (1987) suggest that lack of managerial experience accounted for most of these failures.

The growth determinant for both HGEF and technology-based firms are fairly similar. HGEFs and technology-based firms' winning strategies depend on industry structure, type of industry and stage of firm development (McDougall & Robinson 1988, Covin & Slevin 1988/ Doutriaux 1992). However, specific success determinants of technology-based firms consist of the stage of development of the technology used by the firm (Doutriaux 1992) and incubator factors, such as the incubator's technology specializations (Feeser & Willard 1989).

The implications of this research should not be generalized and applied to other industries. Generalization must be done carefully.

Defining the line between HGEFs and technology-based firms is hard. Generalization must be done carefully.

3.2 NEW VENTURE GROWTH MODELS: LINKING STRATEGY TO HIGHER GROWTH

Since growth is considered "the very essence of entrepreneurship" (Sexton & Smilor 1997/ Ireland & Hitt 1997), venture growth models have received much attention in the literature and are useful to understand the relationship between strategy and growth. These models integrate strategic management theories, industrial organizational concepts and entrepreneurship models by bringing together strategy, industry and entrepreneurship variables. The following section reviews the different models discussed in the literature.

NEW VENTURE PERFORMANCE MODEL: ENTREPRENEUR FACTOR, $NVP = F(E)$

The earliest new venture performance model (NVP) developed in the literature is based on a single determinant, the entrepreneur (E). This model suggests that new venture performance

relies on the entrepreneur ($NVP = f(E)$); more specifically, the characteristics of the founder such as his/her parents, education, experience, entrepreneurial orientation and age (Shapiro & Sokol 1982/ Sapienza & Grimm 1997). For example, personality traits and personal predispositions (McClelland 1965/ Baum, Locke & Smith 2001), entrepreneurial competencies, technical and industry knowledge, ability to sense opportunities and manage them (Chandler & Jansen 1992, Baum, Locke & Smith 2001) are crucial factors contributing to venture growth. In addition, the entrepreneur's vision, aspiration and growth goals are also determinants of growth: "challenging goals lead to higher performance" (Locke & Latham 1990/ Baum, Locke & Smith 2001).

However, concrete empirical support for the $NVP = f(E)$ model is limited: "The results of this stream were disappointing at best" (Cooper & Bascon 1992/ McDougall, Robinson, DeNisi 1992). For example, Brockhaus' (1980) research failed to establish causal relationship between psychological variables and new venture performance (McDougall, Robinson, DeNisi 1992). In addition, Sandberg & Hofer (1987) found that the entrepreneur's personal predispositions and biographical characteristics (education, managerial experience, prior entrepreneurial experience) are not positively linked to venture performance. Furthermore, Baum, Locke & Smith (2001) have demonstrated that entrepreneur traits contribute to new venture success only in combination with other factors and have an indirect effect on venture performance (Baum, Locke & Smith 2001). One reason for the lack of consensus lies in methodological issues, such as the use of different samples and different meanings for the same variables (Sapienza & Grimm 1997).

NEW VENTURE PERFORMANCE MODEL: INDUSTRY STRUCTURE FACTOR, $NVP = f(IS)$

The industrial organizational model of new venture performance is based on the industry structure (IS). The way the industry is structured directly influences the new venture performance: $NVP = f(IS)$. A strong supporter of this model, Porter (1980) has identified five competitive forces to assess the industry: rivalry among competitors, buyer power, customer

power, threats of substitutes and threats of new entrants in the industry (Ireland, Hitt, Camp & Sexton 2001). For example, significant barriers to entry for new entrants increase the difficulty for new ventures to entry and succeed in an industry (McDougall, Robinson, DeNisi 1992). Thus, Porter suggests that industry forces directly affect the firm growth.

From this point of view, some types of environments are more favourable to higher growth. Growing industries contribute positively to a firm performance. Entering a developing or growth stage in an industry is more promising for growth than later stages (McDougall & al. 1994, Sandberg 1986/ Levie 1995). Furthermore, the degree of competition among firms is a determinant of firm performance (Cooper & Gascon, 1992, Sapienza & Grimm 1997). In addition, dynamic environments also encourage entrepreneurial activities (Miller, Droge & Toulouse 1988/ Covin & Slevin 1991) as well as high munificence (environment supports) (Bantel 1996) and high hostility (Dess & Beard 1984/ Baum, Locke & Smith 2001). Finally, low level of industry complexity reduces the concentration of organizations and makes it easier for entrepreneurs to perform (Aldrich & Wiedenmayer 1993/ Baum, Locke & Smith 2001).

The literature support for this model is mixed. Application of the industrial organizational model to new ventures is still rare in the research. On the one hand, Sandberg (1986) studied the effects of industry structure on the performance of growth-oriented new ventures and found that superior performance is associated with “industry disequilibrium, subsequently rising entry barriers, early stages of industry evolution, and industries that offer non-commodity products” (Sandberg 1986/ Sandberg 1992). In addition, Sandberg & Hofer (1987) demonstrated empirically that, by ignoring the interactive effects, the industry structure has a greater impact on new venture performance than either strategy or the entrepreneur. On the other hand, Baum, Locke & Smith (2001) found limited support for industry’s strong effect on venture growth. They suggest that “CEOs of small firms may have more control of their ventures’ growth” than larger and more mature organizations.

Compared to the entrepreneurial model ($NVP=f(E)$), the industrial organizational model is supported more in the literature, even though divergences in the results exist. Since the industry structure has some impact on a firm's performance, an analysis based on a narrow industry is more appropriate to examine the impact of other variables, such as strategy, on performance.

NEW VENTURE PERFORMANCE MODEL: STRATEGY FACTOR, $NVP= F(S)$

The strategic management performance model suggests that new venture performance is based on the firm's strategy: $NVP=f(S)$. As opposed to the previous models presented above, this model is at an earlier stage of development (McDougall, Robinson & DeNisi 1992). The different strategies suggested in the literature are leadership cost strategy (efficient stake facilities, cost reduction and minimization, product offering to sensitive customers), niche/focus strategy (target customers, segment or geographic market) and differentiation strategy (innovative, high-quality products or services) (Porter 1980/ Baum, Locke & Smith 2001). For Porter (1980), a firm must choose a single strategy and not be "stuck in the middle" in order to be successful (Baum, Locke & Smith 2001).

Porter's Strategies

Porter (1980) has developed three well-accepted generic strategies that need further discussion and that have been tested at the entrepreneurial level:

- Cost leadership strategy;
- Differentiation strategy;
- Focus strategy.

Each one is briefly discussed below.

The goal of **cost leadership strategy** is the production of goods and services at the lowest cost, in relation to competitors, and that possess features acceptable to customers (Hitt & Ireland 1997). This strategy requires "excessive construction of efficient-scale facilities, vigorous pursuit

of cost reductions from experience, tight cost and overhead control, cost minimization in R&D, service, sales force, advertising, and so on” (Porter 1980/ Chaganti, Chaganti & Mahajan 1989). Buzzel, Gale & Sultan (1975), Henderson (1979), Miles & Snow (1978) and Miller & Friesen (1984) have discussed different variants of the cost leadership strategy (Miller 1986). A major challenge for entrepreneurial firms in becoming cost leaders is their small size, which makes it difficult for them to gain economies of scale (Ireland & Hitt 1997). Furthermore, small businesses, as they enter a market, are at the beginning of the learning curves, which makes it difficult for them to differentiate themselves on a cost basis.

In contrast, the **differentiation strategy** involves the choice of a “unique product or service that allows the small firm to charge a premium price” (Porter 1980/ Ibrahim 1993). Entrepreneurs have at least two ways to implement a differentiation strategy: innovation and marketing. The innovation emphasis arises when a firm wants to differentiate itself with new products and technologies (Miller 1986). This strategy is similar to the prospector type discussed by Miles & Snow (1978) (Miller 1986). The marketing emphasis is achieved by offering an “attractive package, good service, convenient locations, and good product/service reliability” (Miller 1986). This high-quality strategy is deployed when a firm wants to meet or even exceed customer expectations (Dean & Evans 1994/ Ireland & Hitt 1997). The focus on quality leads to product performance, high reliability or additional features valued by customers (Hackman & Wageman 1995/ Ireland & Hitt 1997).

On the other hand, the **focus strategy** is chosen when a firm wants to satisfy the needs of a specific “buyer group, segment of the product line, or geographic market” (Porter 1980/ Chaganti, Chaganti & Mahajan 1989). This strategy can be used to discuss business or corporate level strategy. At the business level, focus strategy is defined as the “degree to which a firm covers one specific industry” (Miller 1986). At the corporate level, it is described as “the extent to which the firm has diversified into different industries” (Miller 1986). Porter’s business niche

strategy is characterized by a narrow market generally ignored by competitors, high knowledge and expertise, and specialized production capacity. Niche strategies are implemented either through low cost or differentiation strategy. This strategy is executed to achieve efficient use of resources (Teplensky & al. 1993) and quick decision-making (Bray, Kerr & Atkin 1978), which are two critical factors for entrepreneurial firms (Bantel 1996). However, this strategy is not without risk (Bantel 1996). Competitors can arrive in the market segment and technology or customer preferences can change (Bantel 1996). Empirical research has shown that most entrepreneurial firms actually use the focus strategy, but, it is not strongly associated with high growth.

Which strategy is linked to high growth?

Which strategy is linked to high growth? Baum, Locke & Smith (2001) found that differentiation strategies are positively linked to growth. Dess & Davis (1984) found that both differentiation and cost leadership strategies lead to higher performance potential. Also, higher performance was found to be associated “with several combinations of strategy and industry structural conditions, including broad-scope strategies pursued in early stage industries” (Sandberg 1986/ Sandberg 1992). The literature also shows that entrepreneurial strategies may differ under different stages of growth (Ibrahim & Ellis 1998).

The strategy literature identifies some limitations to this model. First, the use of strategy as a determinant of growth is not unanimously supported. For example, Von Hippel (1977) found that the choice of strategy does not significantly affect the firm’s performance level (McDougall, Robinson, DeNisi 1992). In addition, Covin & Slevin (1988) found no significant difference in terms of performance level between different strategic clusters (Ostgaard & Birley 1994). Furthermore, the new venture strategic management literature offers “limited conceptual schemes by which to classify strategies and theoretical support for a strategy-performance relationship” (McDougall, Robinson, DeNisi 1992).

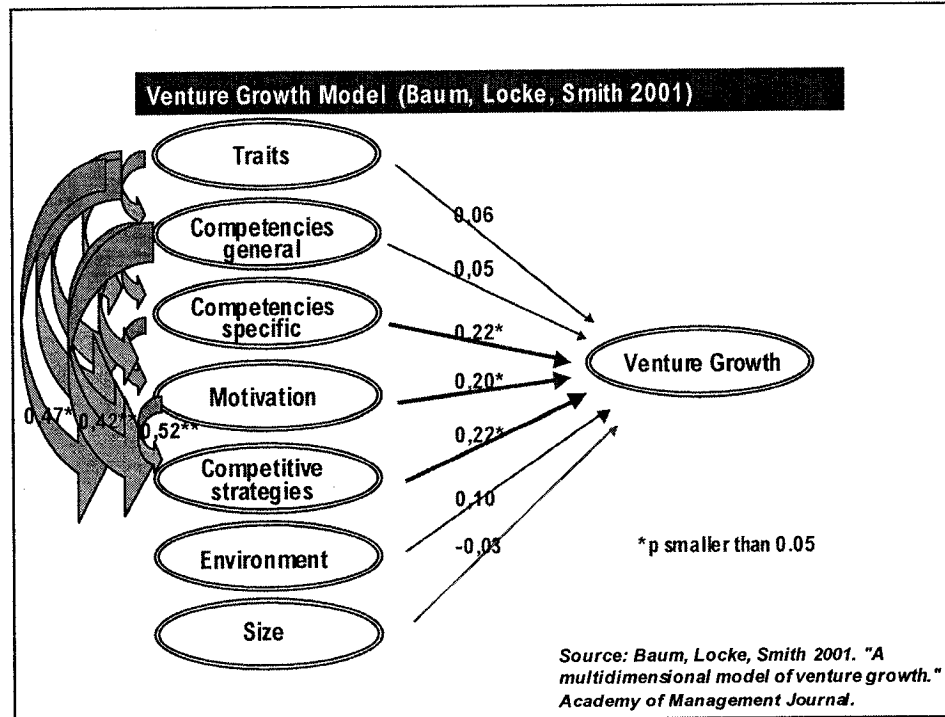
NEW VENTURE PERFORMANCE MODEL: INTEGRATING MODELS

Early literature considers the different variables as “isolated causes of venture performance” (Baum, Locke & Smith 2001). However, most new venture performance models in the literature combine multiple variables to get the most complete prediction of venture growth than any one isolated dimension.

Sandberg (1984/1986) proposed a model where new venture performance depends on the entrepreneur, industry structure and firm strategy: $NVP = f(E, IS, S)$. He included the entrepreneur factor in the model even though he found no significant support for the entrepreneur factor as a determinant of performance. From a strategy perspective, the results suggest that “differentiated strategies outperformed focused strategies” (Sandberg & Hofer 1987). In addition, Sandberg & Hofer (1987) found that “the interactive effects of industry structure, strategy, and the entrepreneur had a far greater impact on new venture performance than any of these variables in isolation.” This result suggests that variables are interactive and their interrelations enhance the “explanatory power” of venture performance.

In addition, Baum, Locke & Smith (2001) tested the same integrated model. They tested multiple components for each variable and used venture growth as a measure of venture performance. The results, presented at Figure 3, suggest that three core variables contribute significantly to new venture growth: competitive strategies, general motivations and specific competencies of the entrepreneur. In terms of competitive strategies, only differentiation by innovation or quality/service was found to be an effective strategic option for higher growth.

FIGURE 3: VENTURE GROWTH MODEL



Baum, Locke & Smith (2001) also found that interaction effects between variables are important. For example, they observed that that entrepreneur traits affect the chosen strategy. Specifically, entrepreneur traits and competencies significantly explained the choice and implementation of competitive strategies by 0.47 and 0.42 (both $p < 0.05$) respectively. This result suggests that people plan in accordance with “what they are predisposed to do”, “what they are motivated to do” and “what they think they can do” (Bandura 1986, Hollenbeck & Whitener 1988/ Baum, Locke & Smith 2001).

This interaction effect also exists between the industry structure and strategy. Industry structure analysis is essential to strategy formulation. Some entrepreneurship research believes that “new venture strategies are formed in response to environmental forces” (McDougall & al. 1992; Sandberg 1986/ Baum, Locke & Smith 2001). Depending on the stage of the industry, different strategies are recommended. For example, differentiation strategy is better for entering growing markets; focus strategy, for more mature markets (Abell 1980/ Camp & Sexton 1992). Another

example from Chaganti, Chaganti & Mahajan's (1989) research underlines the importance of matching the strategy with the type of industry and the individual's market position and resources. On one hand, the broad product scope strategy leads to high growth under a low price intensity and promotion competition, price competition or high price intensity and promotion competition. On the other hand, differentiation strategy centred on image quality is most profitable under a promotion competition-type environment. In addition, strategy also impacts the industry. Entrepreneur strategies also contribute to the level of vigour and hostility in an environment (Miller & Friesen 1982/ Covin & Slevin 1991).

As a result, the environment and strategy factors entertain a bi-directional relationship. However, the environment's influence on strategy is considered stronger.

McDougall, Robinson & DeNisi (1992) proposed the following model: $NVP: f(O, S, IS, S \times IS)$ (O= origin, S x IS = fit between S and IS). Taking into consideration the limited support for the entrepreneur factor as an explanatory variable, they eliminated the entrepreneur factor and tested for the origin of the firm. Origin refers to the way in which the new venture was created: by a large or small established firm, independent organization or joint venture. Their results suggest that origin is not a significant explainer of profitability (McDougall, Robinson, DeNisi 1992). In addition, they found that "new venture strategy and industry structure and their interaction are essential for understanding new venture performance" (McDougall, Robinson, DeNisi 1992). Specifically, strategy, industry and their interaction accounted for 80% of the performance variance. However, the "variability in new venture performance was better "accounted for" when all three factors were included in a statistical model" (McDougall, Robinson, DeNisi 1992).

In conclusion, multiple models are supported in the literature. Some divergence in the results may be explained by the use of different samples and research measures (McDougall, Robinson, DeNisi 1992). Overall, McDougall, Robinson & DeNisi (1992) suggest that "greater insights into

NVP should emerge by examining NVP as a function of origin, strategy, industry structure and strategy-industry structure interaction.” Further research on new venture performance “must either more carefully limit their domains or be built on contingency models of performance” (Sandberg & Hofer 1987).

Multiple models of growth are supported in the literature. As recent literature suggests, variables can hardly be examined in isolation.

4. Strategies of High-Growth Entrepreneurial Firms

The previous section has emphasized the importance of growth. The objective of the following section is to answer what the literature has identified as high-growth strategies for new ventures.

4.1 STRATEGY: A CHALLENGE

Strategy is challenging at the entrepreneurial level. The entrepreneurial firm has to seek opportunities and build a strategy with very limited resources and no reputation in an industry where large players dominate (Cooper, Willard & Woo 1986). The globalization and technology revolution are new forces in the competitive landscape in which entrepreneurs must compete. This new environment creates new, significant economic opportunities for entrepreneurs to seek growth. In this new landscape, to achieve high growth, firms must “increase their financial performance by choosing an appropriate strategy and implementing it effectively” (Ireland & Hitt 1997). Also, the entrepreneur should continuously answer the following questions to review and evolve its strategy: “Has my firm selected the right strategy? Can we execute our strategy effectively and efficiently?” (Bhide 1996/ Ireland & Hitt 1997).

The ultimate purpose of a competitive strategy is the achievement of sustainable competitive advantage (Hitt et al. 1997/ Ireland & Hitt 1997). A competitive strategy requires that the entrepreneurial firm “choose a set of activities that differ from those selected by rivals in order to deliver a unique value to the marketplace” (Porter, 1996/ Ireland & Hitt 1997). The choice and implementation of the competitive strategy is vital, since it directly influences the venture performance (Zahra 1996/ Ireland & Hitt 1997).

In the context of high-growth firms, strategy is not stable. For example, Maidique & Haye (1984) analyzed a sample of 250 high-tech firms and found that growth strategies are characterized by “alternate periods of consolidation and continuity with sharp orientations that

can lead to dramatic changes in the firm's strategies, structure, controls and distribution of power, followed by a period of consolidation" (Covin, Slevin & Covin 1990). In addition, HGEFs use multiple strategic emphases at the same time (Ostgaard & Birley 1994).

4.2 WHICH STRATEGY LEADS TO HIGH GROWTH?

Which strategy leads to high growth? The most relevant part of the literature to answer this research question uses the approach based on "taxonomies of new venture strategies" and attempts to truly comprehend how rapid-growing firms can ensure their success by developing strategy clusters (Fisher, Reuber, Hababou, Johnson & Lee 1997). In addition, firms achieve high levels of performance when they choose the right strategy and implement it well (Picken & Dess 1997/ Ireland & Hitt 1997). As previously discussed, different strategies are available to the entrepreneur.

Determining what strategy leads to high growth is quite complex, as there is still a debate in the literature as to what entry strategy is best: niche or broad strategy (Carter & al. 1994/ Bantel 1996). To enter an industry, entrepreneurs must decide on the scope of entry which determines "the choices of customer groups to be served, customer needs to be met, and technologies to be used" (Feesard & Willard 1990). Early entrepreneurship research supports the niche strategy, and recent literature is generally in favour of a broad or aggressive strategy.

The following section gives an overview of new venture strategy literature, covering early entrepreneurship research as well as recent literature.

For a short summary, skip the following pages and see Table 1 on p. 35.

The following strategies are discussed below:

- Niche-oriented strategy;
- Differentiation strategy;

- Time-based strategy;
- Aggressive, rapid-growth strategies using a broad-scale entry;
- Balanced strategic orientation;
- Product-market strategy;
- Specific elements regarding technology-based firms.

NICHE-ORIENTED STRATEGY

The early body of entrepreneurship literature favours niche strategies (Covin, Slevin & Covin 1990). “Small firms are urged to compete at the fringe of the market” (Cooper, Willard & Woo 1986). This literature recommends that new ventures pursue niche strategies to avoid direct competition with large firms. Other supporters include Broom and Longenecker (1979), Buchele (1967), Katz (1970) (Cooper, Willard & Woo 1986).

The underlying principle of the niche strategy is that “specialized, high-quality products that are targeted to overlooked market segments avoid the issue of competing on price” (Cohn & Lindberg 1974, Deeks 1976/ Bantel 1996). In fact, a focus strategy involves concentrating on a specific market group of consumers and a specific product/service offer (Ibrahim & Ellis 1998). Entrepreneurs must choose market segments where customization and a high level of customer service are advantages and opportunities for large firms of small interest (Cohn Lindberg 1972/ McDougall & Robinson 1990). Many researchers support this idea. A few examples are presented below.

Katz (1970) stated that, “direct confrontation should be avoided” (Cooper, Willard & Woo 1986). Buchele (1967) added, “it is clear that a wise competitive strategy will avoid direct competition with big, strong firms” (Cooper, Willard & Woo 1986). Broom & al. (1983) found that “it is preferable for the small firm... to operate in the crack between larger businesses” (Cooper, Willard & Woo 1986).

In order to implement the niche strategy, entrepreneurial firms need specific knowledge and skills, specialized products, localized business operations and high levels of craftsmanship (Hosmer 1957, Gross 1967/ McDougall & Robinson 1990). This strategy can be conducted through cost leadership or differentiation strategy.

Profitability linked to the niche strategy is debated in the literature. On the one hand, Vesper (1980), based on personal observations and previous entrepreneurship findings, found that entrepreneurial businesses “offering industrial niche may offer higher rewards” (McDougall & Robinson 1990). Hobson & Morrison (1983) found that winning start-ups are those that invest substantially in marketing and R&D with a limited customer base (McDougall & Robinson 1990). In addition, Ibrahim (1993) studied 220 entrepreneurial firms and noticed that, among them, niche strategy is not only the most used but also the most high-growth strategy. Finally, Levie observed that firms using a narrow-breadth market entry strategy in growth industry combinations had a higher success rate (53%) and a lower failure rate (12%).

On the other hand, Baum, Locke & Smith (2001) found that the focus strategy is negatively related to growth and that its profitability is outperformed or equalled by the differentiation and cost leadership strategies. In addition, Dess & Davis (1984), Miller & Camp (1985) and Sandberg & Hofer (1987) suggest that focus strategies perform less well than differentiation strategies (McDougall & Robinson 1990).

Particularities of Technology-based HGEF

The literature is more limited when it comes to examining technology-based firm samples.

After conducting ten interviews with CEOs of small high-tech firms, McCarthy, Spiral and Lauenstein (1987) found that successful high-tech firms identify and exploit market niches created by new technologies. This observation supports the early entrepreneurship literature. In addition, Bantel (1996) studied 166 adolescent [5-12 year old] high-tech firms and found that,

even though the quality/service niche strategy involved some risks, such as the arrival of competitors in the market segment, change in technology and customer preferences, “its high degree of focus, specialization, and efficiency [of the niche strategy] facilitates firm performance in the early, resource-constrained stages of the firm’s life.” Combined with a focused planning process, the niche strategy can lead to high growth.

HGEFs appear to use the niche strategy the most. However, its potential for growth is still debated in the literature. Further research is needed.

DIFFERENTIATION STRATEGY

Some researchers suggest that the differentiation strategy is the most successful option for entrepreneurs. This strategy involves offering a unique product/service offering with characteristics that allow the firm to differentiate itself on the market. For example, Sandberg & Hofer (1987) stated that “differentiation strategy could be more effective than focus-type strategy.” In addition, Miller & Camp (1985) found that differentiation strategies outperformed low-cost strategies (McDougall & Robinson 1990). Recently, Baum, Locke & Smith (2001) found that the differentiation strategy, through innovation or quality/service, is positively linked to high growth.

Chaganti, Chaganti & Mahajan (1989) studied 192 Canadian small manufacturing firms and found that two strategies are highly successful: broad product scope strategy (as opposed to niche strategy) and quality image orientation strategy. Specifically, Chaganti, Chaganti & Mahajan (1989) found that broad differentiation strategy centred on quality image is most profitable under a promotion competition type of environment (Chaganti, Chaganti & Mahajan 1989). Furthermore, Chaganti (1987) found that the “differentiation-type strategy is more effective for small firms during an industry’s declining stage” (Ibrahim 1993).

However, Chaganti, Chaganti & Mahajan (1989) suggested that their results would not necessarily apply to high-tech firms: “Small high-tech businesses may enjoy more slack and be able to employ more typical strategies of differentiation through similarity to the results obtained for larger businesses”.

Particularities of Technology-based HGEF

To identify the best high-growth strategies, Ireland & Hitt (1997) analyzed HGEFs from a random sample of 118 firms. They found that only cost leaders and high-quality strategies were positively linked to growth. Supporting the above results, Upton, Teal & Felan’s (2001) found that out of 65 fast-growth family firms, over 66% have selected high-quality product strategy (differentiation).

In addition, comparing 57 high-tech and low-tech small manufacturing firms, Covin, Slevin & Covin (1990) observed that most high-tech firms are grouped in one cluster that “aggressively pursues market share gains”, that uses a differentiation and high-price strategy. However, they found no significant performance differences between the four strategy types tested (Covin, Slevin & Covin 1990).

It is not clear in the literature whether new ventures should pursue a differentiation strategy on a focus or broad level. Emphasis on high quality and innovation is the most high-growth differentiation strategy. Further research is needed.

TIME-BASED STRATEGY (TBS)

The issue of timing in technology-based industries is critical to strategy. Many elements are important when implementing a strategy; timing is especially so (Ireland & Hitt 1997). A firm can be either first-to-market, an early follower, in step with the majority of competitors, or a late follower (Upton, Teal & Felan 2001). Time-based strategies (TBS) rely on speed as an important

competitive weapon and resource (Sheriden, 1994/ Ireland & Hitt 1997). The first-mover position may be risky, but there are some advantages to it, such as market share, customer loyalty, and making the competitive advantage more difficult to imitate. On the one hand, “in high-tech, pioneers get arrows in their backs”, on the other hand, “pioneers get patents for their breakthroughs.” Kneale (1987) suggests that “being first-to-market with a high-technology product does not necessarily guarantee first-mover advantages”. The technology may change and other products may be introduced (Feeser & Willard 1990).

A second-mover position is less risky: the firm can gain insights from the reaction of the market to the first-mover (Ireland & Hitt 1997). However, besides the intention, these timing tactics may not be possible if the entrepreneurial firm lacks resources. First-mover, early second-mover, and competitive parity implementation actions were found to be all related positively related to ROS (Ireland & Hitt 1997). A high-quality strategy was found to be more likely to gain significant performance-related benefits when used by a first or early second mover (Ireland & Hitt 1997). Low-cost strategy did not yield to the same result. Entrepreneurs who employ TBS are also likely to gain performance benefits if competing as a first or second mover (Ireland & Hitt 1997). This observation was supported by Upton, Teal & Felan (2001) who demonstrated that 81% of their high-growth sample followed a fairly rapid entry strategy. However, HGEF and low-growth firms did not differ overall in their timing strategy, both firms used first-mover strategy.

Some research suggests that TBS may not lead to high growth. However, HGEFs can gain multiple benefits through speedy new products or technology launched, such as surprising the competitor, exploiting a rival's weakness, helping to build on its competitive momentum, gaining market share and greater legitimacy, customer loyalty, improving access to capital (Deeds & Hill 1996/ Ireland & Hitt 1997). This observation supports Covin & Slevin's (1997) “complexity management model of firm growth”, which suggests the “need for quick and broad-based actions that reestablish their firms' fit with the environment as well as create effective

internal organizational system alignments” (Covin & Slevin 1997). A negative correlation to performance may be explained by the risk of speed: “There may be a trade-off between the speed with which change is pursued and the risk accompanying this change” (Covin & Slevin 1997). Furthermore, compared to large firms, small businesses may lack critical resources to compete on speed.

Timing is certainly crucial for technology-based HGEFs. Time-based strategies need further testing and may need to be refined.

AGGRESSIVE, RAPID-GROWTH STRATEGIES USING A BROAD-SCALE ENTRY

A more recent group of researchers proposed a different perspective, suggesting that aggressive share objective strategy leads to high growth (Allen, 1968, Vesper 1980, Hannan 1976/ McDougall & Robinson 1990). Entrepreneurial firms should implement aggressive strategies to directly confront the large established market leaders. This HGEF strategy is “aggressive, broad-minded and opportunistic” and requires a broadly defined market and large span of product lines (Miller & Camp 1985/ McDougall & Robinson 1990).

Broad-breadth strategies are “strategies which aim to serve a broadly-defined market in terms of number, sizes, and types of customers, as well as a broad product line and many channels of distribution” (Levie 1995). Porter (1985) has developed three aggressive strategies to achieve new venture success: (1) the firm reconfigures and does things differently; (2) the firm redefines its products, market, channels or geographic scope; (3) the firm tries to outspend industry leaders (McDougall & Robinson 1990). Porter (1985) suggests that “formidable competitors might decide to pursue a previously ignored market segment, offering product advantages the niche firm cannot match, such as lower price” (Bantel 1996). Through case studies, Cooper, Willard & Woo (1986) observed that even though the niche strategy is the most chosen by the majority of small firms, “it does not describe the strategies of some of the most successful new and small

companies". Successful entrepreneurial firms directly confront large established firms using a broad-based strategy.

In addition, Cooper, Willard & Woo (1986) suggest that to be a successful venture, a direct confrontation strategy must meet three conditions. First, opportunities are required. Industry changes offer opportunities to differentiate a product or service or develop different technologies for standardized products. Second, even if the entrepreneur senses an opportunity, the firm must respond correctly. This second condition underlines the need for important financial and managerial resources. Finally, the small firm should not overestimate the viability of its competitive advantage. Competitor responses or changes in the industry may affect the sustainability of the competitive advantage.

Implementing such strategies can be achieved in many ways. New ventures should choose a "large scale entry, and an aggressive and broad scope" and invest heavily in marketing and investment (Biggadike 1976/ McDougall, Robinson, DeNisi 1992). More specifically, new ventures can emphasize both low prices and high value-added items in stable, low-growth markets (Cooper & Woo 1981/ Cooper, Willard & Woo 1986). The use of a niche strategy is expanded from serving markets of no interest for larger players to competing directly with larger players (Copper, Willard & Woo 1986). In other words, "if the firm fails to enter aggressively and broadly, it risks lacking the wide appeal of its competitors" (Bantel 1996). As a result, the most successful businesses are aggressive firms, which rely on a "high capacity/served market, high relative sales promotions, high service quality, high relative advertising, and high relative sales force expenditures" (MacMillan & Day 1987/ McDougall & Robinson 1990). Differentiation and cost leadership are two approaches to implementing an aggressive, rapid-growth strategy.

However, there is yet little research that precisely defines the competitive weapons involved in an aggressive strategy. However, McDougall & Robinson (1990) and Ostgaard & Birley (1994) are worth discussing.

After studying 247 new ventures in computer and communications-related equipment, McDougall & Robinson (1990) demonstrated that aggressive growth can only be achieved through an aggressive strategy that uses broad or narrow market coverage. In contrast, entrepreneurs who use a niche strategy, with narrow or broad market coverage, achieve limited growth, controlled growth or average growth. In a broad market target, the aggressive strategy can be executed with “commodity-type products and numerous markets with small customer orders” or with “price competitive new products to large customers”. In a narrow market, the aggressive strategy is implemented with “narrow, special products priced competitively to a few large buyers”. This aggressive entry targeting few customers (narrow market) supports Biggdike (1976), MacMillan & Day (1987) and Miller & Camp’s (1985) recommendations. At this point, McDougall & Robinson (1990) introduced a new direction as they suggested the possibility of pursuing an aggressive strategy using a focus-based approach.

After studying 159 new ventures in manufacturing, engineering or software development, Ostgaard & Birley (1994) identified six clusters: (1) patented and focused product innovation, (2) distributors, (3) cost leaders or simply firms in trouble, (4) aggressive innovation and marketing firms, (5) product offering and (6) balanced strategic orientation. The two first clusters of entrepreneurs employ a focus strategy (small entry scale and few customers). The patented and focused product innovation (1st Factor) achieves a high overall level of performance. The cost leaders’ strategy (3rd Factor) is characterized by large-scale entry, outside capital, low innovation, low differentiation, acceptable product quality and small number of customers. The aggressive innovation and marketing firms (4th Factor) compete with an aggressive strategy based on a broad geographic market, large-scale entry, growth objectives, innovation and

marketing. These firms achieve the highest sales and profit growth. The firms in the 5th Factor offer “a broad range of tried and true products... to a large number of customers”. Again, their findings support the strategic orientation discussed above.

Other empirical research is mixed. On the one hand, McDougall & al. (1994) studied 173 new high-tech firms and demonstrated that broad-breadth strategies lead to sales growth in growing industries (Levie 1995). Romanelli’s (1987) research suggests that ““aggressive” generalists entering at the growth phase of the US minicomputer industry had a 100% survival rate and included the most successful firms in their industry” (Levie 1995).

On the other hand, Romanelli (1987) found that specialists outperform generalists overall in all types of industries (McDougall, Robinson, DeNisi 1992). Also, in mature industries, Levie (1995) demonstrated that firms using a broad-breadth market entry strategy had a lower success rate (19%) and higher failure rate (39%). Finally, Sandberg (1986) found that using a broadly defined strategy is not promising in terms of survival (Levie 1995).

The last results highlight that the broad-breadth strategy is not without risk. A broad-based strategy requires intensive use of resource to develop the necessary capabilities and involves high manufacturing costs (Stalk 1988), R&D and marketing (Bantel 1996). In addition, the firm’s image is more diffuse (Teplensky & al. 1993/ Bantel 1996). Decision-making is more complex reducing the speed of action (Bray, Kerr & Atkin 1978/ Bantel 1996). Finally, increased coordination and duplication efforts sometimes become unavoidable (Bantel 1996).

The aggressive, rapid-growth strategy using a broad-scale entry is a new avenue of research. The debate needs to be resolved regarding its implementation.

BALANCED STRATEGIC ORIENTATION

After studying 159 new ventures in manufacturing, engineering or software development, Ostgaard & Birley (1994) found that new ventures do not use one but several strategies. They found that the largest group of firms employs a balanced strategic orientation. Their strategy consists in a balanced emphasis on different competitive weapons or is “stuck in the middle”. This part of the group achieved the highest employment growth. The results suggest that fast-growing firms simultaneously control costs, improve product quality and product offerings. As such, these results directly question Porter theory which recommends that firms choose a single strategy to grow.

In conclusion, the balanced strategic orientation was found to be a growth strategy. However, “the results appear to be somewhat dependent upon the performance/growth measure used.”

PRODUCT-MARKET STRATEGIES

Another continuous debate in new venture strategy research asks, what product-market strategy leads to high growth?

Product-market strategy seems to play a determining role in business growth (Cardozo, Reynolds, Miller & Ardishvili 1993). Product-market strategies are defined as “a set of decisions involving the choice of product-market combinations from one of these matrices (or an adaptation of them)” (Cardozo, Reynolds, Miller & Ardishvili 1993). Cooper (1984), Roberts (1990) and Buskirk (1993) found empirical support for “the role of product-market strategies in sales growth of a fledgling firm” (Cardozo & Ardishvili 1994). Ansoff’s (1957) product-market matrix summarizes the different market/product combinations available: penetration (current market, current product), line extension (current market, new product), market expansion (new market, current product) and diversification (new market, new product) (Cardozo, Reynolds, Miller & Ardishvili 1993).

Even though most research supports the claim that product-market strategies contribute to firm growth, it is yet unclear what product-market strategy leads to the highest growth. Some researchers have attempted to solve the problem. Many researchers support the narrow product-market strategy supporting the niche strategy presented previously. Examples are given below.

Meyer & Roberts (1984) found that firms with limited products and markets grow more rapidly than firms that focus only on their original product/market combination and more rapidly than firms that diversify into unrelated products and markets (Cardozo, Reynolds, Miller & Ardishvili 1993). In addition, the defender strategy, “narrow product/market niche and the erection of barriers to protect it”, was found to be the 2nd most used and 2nd most profitable in a sample of 220 small firms (Ibrahim 1993). Furthermore, Feeser & Willard (1990) studied 39 high-growth and 39 low-growth small firms in the electronic computing equipment sector. Their results support the claim that the focus on product-market strategy has a high potential for growth. They also found that “founding strategies of high and low growth firms differ systematically among the firms studied”. Specifically, high-growth firms are more likely to keep their original product/market focus and to derive significant revenues from foreign markets than low-growth firms are. Furthermore, Siegel, Siegel, MacMillan’s (1993) research supports that HGEFs are more likely to use product-market-related strategies, as they are “more focused than their low-growth counterparts, with more revenue being generated by a single product”.

From the above empirical research, two limitations, which reduce the validity of the results, should be considered. No detailed information on the product or market newness exists and there is no date or explanation for a strategy shift (Cardozo & Ardishvili 1994).

To overcome these limitations, Cardozo & Ardishvili (1994) studied 38 in-depth real cases of entrepreneurial firms of different sizes, industries and growth rates. Their results suggest that younger firms choose geographic expansion and older firms, demographic expansion. Thus, new

ventures follow observable product-market strategies: “market first geographically and then demographically”.

Another concept debated in the research consists of understanding when (the best timing) firms should introduce a second product. A wave of growth product strategy suggests that the introduction of a new product occurs after the first major product line reaches a saturation point (Cardozo & Ardishvili 1994). Supporting this idea, Tyebjee (1983) recommends that new venture should first build sales volume with their first product until its marginal cost equals its marginal revenue and then expand into new products and markets (Cardozo & Ardishvili 1994). However, Cardozo & Ardishvili (1994) found that new ventures do not follow a wave of product growth strategy. Instead, new ventures “moved fast to the stage of simultaneously producing two major product lines” (Cardozo & Ardishvili 1994).

Finally, studying 100 startups, Cardozo, Reynolds, Miller, Ardishvili’s (1993) suggest that “growth is associated with addition of and change in markets, but is not related to changes in product lines alone.” In addition, the study reveals that there is not a single best product-market strategy for growth. The potential for high-growth for a product-market strategy depends on the stage the firm has reached. However, Pavia (1990) found no relationship between product-market strategies and growth (Cardozo & Ardishvili 1994).

Particularities of Technology-based HGEFs

In the technology-based industries, product-market strategies are particularly important. Competitive technology strategies are defined as the “way technical skills and capacities are brought to market” more rapidly (Friar and Horwitch 1985, Mansfield 1988/ McCann 1991).

One common recommendation given to high-tech entrepreneurs is to enter new businesses with existing technology (McCann 1991). Studying 10 small high-tech firms, Meyers & Roberts (1986) found that successful, growing high-tech firms are those that choose to leverage existing

technologies when introducing a new product (Covin, Slevin & Covin 1990). Other researchers argue that high-tech firms should attempt “breakthrough innovations”, which are entirely new products or services either in existing or new businesses (McCann 1991). McCann’s (1991) results from studying 100 high-tech firms show that “highest performing ventures were found to be pursuing internal innovation through R&D for product breakthroughs”.

On the other hand, some researchers found that winning strategies in the high-tech industry depend on the technology stage of development, and whether the market being a demander or a supplier (Doutriaux 1992).

Using a sample of 14 high-tech firms, Easingwood & Beard (1989) identified four generic market entry strategies (Covin, Slevin & Covin 1990). The firm can “cooperate with other producers” by sharing its technologies, “position the product in the market” by adopting some innovation, “win market support” by establishing a winner reputation or “reduce the risk of adoption” by making trial without purchasing. Depending on the way a firm diversifies its core technology, Rumelt (1974) identified three generic types of firms: dominant-business firms, related-business firms and unrelated-business firms (Feeser & Willard 1989).

The research reveals that most growing high-tech firms compete in markets and/or technologies that are closely related to the technology specializations of their incubators, as compared to high-tech low-growth firms. The reason why “technical entrepreneurs often start businesses closely related to their previous employment” is that primary knowledge in high-tech in terms of market, resources and technologies is critical (Cooper 1986/ Feeser & Willard 1990). For example, studying 39 high-growth firms and 39 low-growers in the electronic computing equipment industry, Feeser & Willard (1989) found that the performance of high-tech firms is related to the “degree and strength of the relatedness of the various diversification efforts to the core technology of the parent company”. In 1990, these researchers found that stability in the initial

focus in terms of product/market combination led to higher growth. In addition, Robert & Berry (1985) analyzed the strategies of 10 high-tech firms and found that that “successful growth firms concentrated on their initial product/focus/technology and introduced product enhancements related to those areas” (Feeser & Willard 1989). As a result, related business technology strategy yields the best performance. Consequently, the “sticking to the knitting” strategy is best in the high-tech industry (Peters and Waterman 1982/ Feeser & Willard 1989).

To conclude, researchers generally support the use of narrow or related product-market strategies to pursue high growth.

Many product-market strategies may lead to high growth. Research suggests that geographic expansion, narrow product-market focus and related product-service development are shared by HGEFs. In high-tech firms, other elements become important, such as the technology’s development stage.

OTHER STRATEGIC DETERMINANTS OF TECHNOLOGY-BASED HGEFs

Some strategy items of technology-based HGEF were not discussed in the above strategies. The following section examines some key factors which are important for high-tech entrepreneurs who must make quick decisions and focus on technology performance (McCarthy, Spital & Lauensteing 1987):

- Incubator factors;
- Marketing;
- Commercialization.

Incubator Factors

First of all, specific determinants of success for high-tech firms are the stage of development of the technology used by the firm (Doutriaux 1992) and incubators factors (Feeser & Willard 1989). For instance, research has stressed the importance of the incubator (company or

university) for the high-tech venture as a determinant of performance. The relatedness between the incubator and the full ledged firm's knowledge of technology determines future success. As a result, high-tech entrepreneurs are more likely to build a business upon knowledge acquired from a company or university "already active in this technology" or "closely related to what they did before" (Cooper 1986/ Feeser & Willard 1989).

Another determinant of high-tech firm performance is the initial location of the incubator. After studying 98 high-tech firms, Galbraith (1985) found that high-tech HGEFs generally start their business close to the initial location of their incubator in order to have access to "professional/technical skilled workers", "community attitudes toward business" and "proximity to customers and suppliers" (Feeser & Willard 1989). Feeser & Willard's research (1989) did not support these last results.

Marketing

Once products and services are developed, customer response becomes the real test. A marketing strategy established through optimal fit between promotion, distribution, price, and product/service mix allows the firm to differentiate from competitors and position itself. High-tech firms are sensitive to growth opportunities on the global market (Feeser & Willard 1990). In the high-tech industry, marketing offensiveness, technological offensiveness and extent of product specialization are three determinants of high performance (Vanden Abeele & Christiaens 1986/ Covin, Slevin & Covin 1990). Following an analysis of 57 small high-tech and low-tech manufacturing firms, Covin, Slevin & Covin (1990) characterized growth-seeking firms in high-technology industries, relative to those in low-technology industries: These firms "rely more on advertising", "place more emphasis on product-related issues... as a basis for building market share"; [...they] "rely more heavily on formal planning activities", "place more emphasis on customer service/support", "rely more heavily on external financing... and on premium pricing strategies" and "have more entrepreneurial strategic postures".

Commercialization

To achieve high growth, high-tech firms have multiple strategic choices such as establishing licensing arrangements, corporate partnering, joint ventures, acquisitions, or being acquired (Roberts & Berry 1985/ McCann 1991). In the high-tech sector, commercialization has to be planned in parallel with product/service development. Through cooperative arrangements, the firm can gain two important advantages: accelerated commercialization and being the first-mover (strong incentive in the high-tech sector) (Shan 1990). The literature on inter-firm cooperative relationships established to commercialize new technologies is quite recent (Shan 1990). Shan (1990) research demonstrates that “the organizational mode of cooperative arrangements is predominantly selected by the high-tech, start-up firm in commercializing their new products in foreign markets.” In addition, McCann (1991) also found that “joint ventures and alliances were the number-one choice being pursued to gain access to distribution channels and new markets.” In addition, McGee & Dowling’s (1994) research shows that “sales growth was associated with the use of R&D cooperative arrangements” when both firms have similar past industry/market experience and similar technology or technical experience.

SUMMARY & CONCLUSION

Table 1 presents a summary of the different strategies discussed above.

TABLE 1: SUMMARY OF STRATEGIES OF ENTREPRENEURIAL FIRMS

	OBJECTIVES	IMPLEMENTATION	GROWTH/ PROFITABILITY	SUPPORTERS
NICHE-ORIENTED STRATEGY	Narrow scope of customers, targeted segment of geographic market to avoid competition of large players	Cost or differentiation strategy. Specific knowledge, specialized products, localized business operations and high levels of craftsmanship Facilitates early stage of the	Debate regarding its profitability: May not be linked to the most profitable businesses but employed by most small businesses	Katz (1970); Buchele (1967); Broom & al. (1983)

	OBJECTIVES	IMPLEMENTATION	GROWTH/ PROFITABILITY	SUPPORTERS
		firm		
DIFFERENTIATION STRATEGY	Innovative, high-quality products or services	Quality of services Quality image Innovation May be linked to aggressive market shares	High-tech businesses may enjoy more slack and be able to employ more typical strategies of differentiation	Sandberg & Hofer (1987); Miller & Camp (1985); Baum, Locke & Smith (2001); Chaganti, Chaganti & Mahajan (1989)
TIME BASED STRATEGY	Timing is critical	First to market, early follower, in step with majority of competitors or late follower	Not clear in terms of growth potential. Linked to ROS	Ireland & Hitt 1997; Upton, Teal & Felan 2001
AGGRESSIVE, RAPID-GROWTH STRATEGIES: BROAD-SCALE ENTRY	Broad scope of product and broad market; aggressive share objectives to confront large player	Direct confrontation High capacity/served market, high relative sales promotions, high services quality, high relative advertising, high investment in R&D and high relative sales force expenditures Broad approach Requires more resources	May lead to the most successful growing businesses. Limited research that precisely defines the competitive weapons involved in an aggressive strategy Some risks to consider	McDougall & Robinson (1990) and Ostgaard & Birley (1994)
PRODUCT MARKET STRATEGIES	Product-market combinations	Geographic expansion before demographic Limited product/market (focus)	Support mix Depends on the stage of the firm technology	Cardozo & Ardishvili 1994; Cardozo, Reynolds, Miller & Ardishvili 1993
NEW AVENUES	Balanced strategic orientation	Simultaneously control costs, improve product quality and product offerings	More research needed	Ostgaard & Birley (1994)
SPECIFIC TECHNOLOGY-BASED DETERMINANTS	Incubator factors, Marketing & Commercialization elements	Technology-related, highly intensive marketing, cooperative arrangement for commercialization	More research needed	McCann 1991; Feeser & Willard 1989; Doutriaux 1992

In conclusion, empirical research has demonstrated that most entrepreneurial firms choose the niche strategy. However, an aggressive strategy with large-scale entry, high investment in R&D and marketing, leads to higher growth. In addition, McDougall, Robinson & DeNisi (1992) suggest that “no one strategy is always the best new venture strategy”. In the same line of reasoning, Sandberg, Vesper and Cooper have argued that new ventures have multiple strategic choices and will be more or less effective under different conditions, such as the industry environment (McDougall, Robinson & DeNisi 1992). Also, new ventures grow in different ways at different times (Ostgaard & Birley 1994).

After analyzing a sample of 100 CEOs of young, independent, technology-based firms across three industries, McCann (1991) found that high-tech firms have “an increasingly complex array of strategic choices about how they can grow while simultaneously competing on the basis of their technological capacity and skills in their markets.” The reason for this large range of choices is that these firms have more early capital through joint venturing and alliances and the products have a short life-cycle (McCann 1991). However, an important limitation for high-tech entrepreneurs may be that they are limited in terms of skill and capacity “in comparison with the richness and complexity of the available choices” (McCann 1991). In addition, their financial strategy in terms of access to capital can expand or restrain the number of strategic choices.

In addition, for this industry, “strategy may be reveal best through the pattern or set of choices taken at a point in time and over time” (McCann 1991).

Trying to demonstrate the existence of a unique growth strategy among high-growth firms may be inappropriate since new venture strategic options are diverse. The use of multiple strategies and the changes in strategy across time may need to be considered.

5. Methodological Approaches in Entrepreneurship Literature

This research attempts to answer the following question: “Which new venture strategies are associated with higher growth?” To answer this question, a review of the various research approaches utilized in the entrepreneurship literature was first conducted.

These include:

- Identification of success factors;
- Generic strategy typologies;
- New venture strategy taxonomies.

Each approach uses a specific method to understand and measure strategy (Ostgaard & Birley 1994). The third method, which is taxonomy-oriented, is the most relevant method for this research.

5.1 IDENTIFICATION OF SUCCESS FACTORS

The first approach to strategy identifies success factors of entrepreneurial firms (Ostgaard & Birley 1994). This important body of literature assumes that predictors of success for high-growth entrepreneurial firms are different from those of “mom-and-pop” businesses (Fisher, Reuber, Hababou, Johnson & Lee 1997). For example, a high level of education, industry-specific know-how and initial financial resources have been recognized as predictors of rapid growth as opposed to marginal growth (Fisher, Reuber, Hababou, Johnson & Lee 1997). The range and intensity of business networks is also positively linked to high growth (Ostgaard & Birley 1994). All these factors, especially business networks, help the entrepreneur to gain access to key resources, enhancing the potential for growth (Fisher, Reuber, Hababou, Johnson & Lee 1997).

A major limitation in this approach is that success factors “do not capture the broader concept being measured [strategy]” (Nunnally 1967/ Ostgaard & Birley 1994). This approach assumes that there is no interaction between strategy variables. In addition, according to Ostgaard & Birley (1994), most studies are characterized by limited sample size, descriptive value (as opposed to prescriptive) and small use of statistical techniques.

In summary, the “identification of success factors” is not a helpful method to answer the present research question since it does not expressly measure strategy content.

5.2 GENERIC STRATEGY TYPOLOGIES

The second approach used to measure strategy is based on strategy typologies. Strategy typologies are generic types of strategies commonly used in large business research that are relevant to new venture research (Vesper 1980, Porter 1980, Drucker 1985/ Ostgaard & Birley 1994). This approach is often employed in the entrepreneurship literature. It attempts to identify the high-growth strategies for small firms by prescribing broad strategy types (Covin, Slevin & Covin 1990).

Limitations of the Generic Strategy Typology Approach

Some researchers question the relevance and even the possibility of generalizing these broad-based qualitative characterizations of strategies at the entrepreneurial firm level (Feesser & Williard 1990, Carter & al. 1991, Mullins et al. 1991, Stearns et al. 1992/ Ostgaard & Birley 1994). In addition, empirical support for the application of broad-type strategy typologies to new ventures is lacking (Ostgaard & Birley 1994). To a certain extent, strategy is dependent on the firm’s objectives, which are different for all organizations (Galbraith & Schendel 1983/ Ostgaard & Birley 1994).

As a result, the “generic strategy typology” is not a helpful method to answer the research question since it generalizes and applies broad strategies (top-down approach) which are not directly specific to entrepreneurial firms.

5.3 NEW VENTURE STRATEGY TAXONOMIES

A more recent approach to strategy is taxonomy-oriented. This bottom-up approach requires two steps: (1) Identification of strategy items or “competitive weapons” and (2) Development of potential strategic groups or clusters.

The first step is the identification of numerous strategy items or “competitive weapons” that are commonly used in the literature (often 20 or more). For example, some researchers can apply Miller’s (1986) or Hofer & Sandberg’s (1987) dimensions of strategy content. On the one hand, Miller (1986) identified specific configurations such as niche marketers, innovators, marketers, cost leaders and conglomerates, all of which were developed through a review of Porter (1980), Hofer & Schendel (1978), Miles and Snow (1978), Dess & Davis (1984) and Hambrick’s (1983) work. On the other hand, Hofer & Sandberg’s (1987) suggest that strategy determinants for the success of new venture consist of product differentiation, quality, service & price, market and/or segment domination, innovation and methods of growth (Ostgaard & Birley 1994).

According to Miller (1986), all items of strategy content should meet four criteria, which are:

- (1) Relevant to content strategy rather than strategy-making;
- (2) “Sufficiently specific to be both identifiable and controllable by managers, and general enough to apply to most industries”;
- (3) Present a large range of possibilities;
- (4) Common in new venture strategy literature (Ostgaard & Birley 1994).

The second step requires analysing the strategy items and the development of potential strategic groups or clusters typically generated by factor or cluster analysis (Ostgaard & Birley 1994).

This more recent approach “represents a significant development in business strategy content research” (Fahey & Christensen 1986/ Ostgaard & Birley 1994). Feeser & Willard (1990), Robinson & Pearce (1988), McDougall (1987), Chaganti, Chaganti, Mahajan (1989), McDougall & Robinson (1990) and Ostgaard & Birley (1994) have used this method. However, research is not yet conclusive, and there is little convergence in the results (Fahey & Christensen 1986/ Ostgaard & Birley 1994). One reason for this divergence is the use of diverse samples to understand successful strategies. Only a few authors have specifically analyzed strategies of independent, new high-growth ventures.

In summary, the “new venture taxonomy” approach is the most relevant method to answer the present research question, since it attempts to determine through a bottom-up approach the strategic factors and potential clusters that are specific to entrepreneurial firms.

6. Research Methodology

6.1 METHODOLOGICAL APPROACH

This section presents the methodological approach employed in this study.

This study attempts to answer the following question: “Which new venture strategies are associated with higher growth?” As discussed earlier, defining what a new venture strategy consists of is a complex issue.

More specifically this study examines the following three questioned areas:

- Strategic directions pursued by HGEFs;
- Strategic tools employed by HGEFs;
- Impact of the firm’s size and age on the HGEF’s strategy.

HGEFs strategic directions and tools were examined separately. Strategic directions are the strategic orientations pursued by a firm, such as niche and differentiation strategy. Strategic tools are tactics employed to achieve one strategy, such as entering first a market or establishing partnerships with other firms.

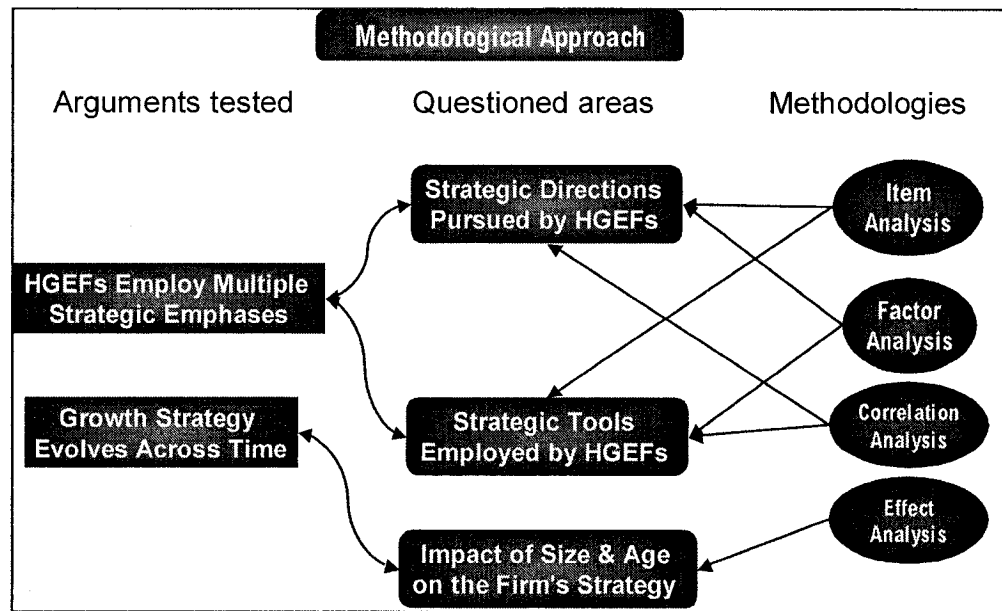
In an attempt to answer those questions, this study was guided by results of previous studies, in particular, Ostgaard & Birley (1994), which reported the following two arguments:

- HGEFs employ multiple strategic emphases;
- Growth strategy evolves across time.

The methodology employed to examine the three questioned area is based on the new venture strategy taxonomy approach. This approach relies on two steps: the identification of strategy items and the development of potential strategic groups or clusters.

Specifically, to answer the three questions, the following methodologies were employed.

FIGURE 4: METHODOLOGICAL APPROACH



6.2 DATA ANALYSIS TECHNIQUES

This section presents the major steps and the data analysis techniques employed to examine the three question areas.

STRATEGIC DIRECTIONS PURSUED BY HGEFS

First, a total of 26 strategy items that are commonly used in the literature were identified. Specifically, the most reliable strategy items from Ostgaard & Birley (1994) and Covin, Slevin & Covin (1990) were combined. Those items met Miller (1986) criteria:

- (1) Relevant to content strategy rather than strategy-making;
- (2) “Sufficiently specific to be both identifiable and controllable by managers, and general enough to apply to most industries”;
- (3) Present a large range of possibilities;
- (4) Common in new venture strategy literature (Ostgaard & Birley 1994).

The items were relevant to content strategy rather than strategy-making, were sufficiently specific to be both identifiable and controllable by managers, and general enough to apply to most industries, presented a large range of possibilities and common in new venture strategy literature.

Then, for each of the 26 items, participants were asked to describe their strategic orientation in the past five years based on a comparison with their competitors.

To get a better insight of strategic directions pursued by HGEFs, the following three methodologies were used.

Item Analysis:

The item analysis allowed the researcher to identify the strategic dimensions most pursued by HGEFs, in comparison with their competition. The mean and median of each strategy item were used to determine the strategic directions mostly pursued by HGEFs.

Factor Analysis:

The factor analysis was used to identify potential strategic clusters and strategic orientation typically generated by factor analysis. Factor analysis is used to “identify subsets of variables that are correlated with each other but that are relatively uncorrelated with the variables in the other subsets” (Whitley 2001). These subsets are called factors. Specifically, this technique made it possible to identify the factor structure underlying the strategy variables and to examine patterns of correlations among a set of variables.

The R-Mode Principal Components Analysis (PCA) was utilized following the procedures used by Ostgaard & Birley (1994). A varimax rotation (each item is considered independent) was conducted to reduce the data and test the convergent validity of meaningful constructs. The

eigenvalue-one criterion was used to determine the number of components to extract for further analysis.

Using the factors identified, an exploratory cluster analysis was conducted to potentially identify strategic clusters (i.e. firms that follow a similar strategic pattern). It allowed the development of strategy patterns used by highly performing firms in the high tech industry.

Factor analysis generally requires the use of a large sample. Therefore, due to the small sample size, this study is exploratory.

Simple Correlational Analysis:

To determine potential relationships between some strategic directions and any other factors or controlled variables, simple correlational analysis was conducted. Results from the correlational analysis are presented graphically to visually identify potential trends and correlations between two or three variables. The most interesting graphs are presented in the results section.

STRATEGIC TOOLS EMPLOYED BY HGEFS

To further understand the strategic directions identified by HGEF, strategic tools associated with different strategies were examined. The tools were categorized as growth tools and product-market tools.

To examine growth tools, 8 measures from McCann's (1991) were used to measure growth tools. Growth tools are strategic actions related to expansion, technology tactics, partnerships and integration of the firm. Very few adjustments were made to ensure that all questions were relevant to the technology sector.

To measure product-market strategies, 11 product-market items (e.g. entering first a market) from Cardozo & al. (1993) and Feeser & Willard (1990) were used. Product-market strategies are defined as "a set of decisions involving the choice of product-market combinations from one

of these matrices (or an adaptation of them)” (Cardozo, Reynolds, Miller & Ardishvili 1993). Time-based strategy is related to the speed used by the organization to enter new products and services into a new market.

To identify the tools that were most employed by HGEFs, the three methodologies presented above were employed: item analysis, factor analysis and correlational analysis.

IMPACT OF SIZE & AGE ON THE HGEF’S STRATEGY

This last questioned area is analysed throughout all the results section. To identify the impact of age and size, the sample was split at median point. Noticed that other factors such as sector and financing were also analyzed.

Effect Analysis Using Split Sample

Effect analysis examined Ostgaard & Birley’s (1994) argument: “new ventures grow in different ways at different times”. Specifically, the effect analysis concerns the impact of age, size, business sector and financing sources.

- **Size:** The sample was split in two groups at the median figure of 35 employees. Group 1 consisted of the smaller firms, from 1-35 employees, and Group 2, the larger firms, from 35 to 250 employees. Larger ventures were compared to smaller ventures.
- **Age:** The sample was split to test the effect of age at the median figure. Group 1 is aged from 1-6 years; group 2, from 7-14 years.
- **Sector:** The sample was split between the telecom industry and the computer system, software and hardware industries and the rest of the technology sectors (health sciences, environment etc...). This split allowed to test the hypothesis whether technology firms in computer system, software, hardware and telecom industries employ different strategies than firms in other industries as they evolve and compete in very changing environment.

- Financing sources: The sample was split to examine the effect of venture capital financing on venture's strategy compared to other types of financing.

6.3 QUESTIONNAIRE DESIGN AND ADMINISTRATION

The data collection is based on a structured questionnaire with some open ended questions. Since there is a lack of research in this area, qualitative data through open ended questions were included to explore and get a thorough understanding of the contextual factors. This study directly involved surveying entrepreneurs of HGEFs in the technology-based sector.

The questionnaire used for the survey can be found in the appendices. It includes the next sections:

- Introduction: Purpose of the research, instructions, confidentiality
- Section A) Business demographics
- Section B) Environment conditions
- Section C) Strategic actions
- Section D) Economic performance

VARIABLE MEASUREMENTS

The survey was designed to measure several variables such as strategy, growth and control measures (e.g. general demographics and business environment conditions). Researchers in the field were very helpful and four of them have accepted to send me their original questionnaire. In the following section, the evaluation method to decide upon the best research measures and the different research measures chosen by variable are presented.

Evaluating Measures

To choose the best measures for growth and strategy, several criteria which have been discussed in the literature were used. Robinson & al. (1991) suggested using multiple criteria such as

theoretical background, quality of development, measures of validity and reliability and freedom from response bias (Whitley 2001).

As a result, the first step was to identify the content of each construct to be measured (e.g. product-market strategy). Then, a complete literature review allowed to identify some measures based on theory. This step was followed by an analysis of the quality of their development (e.g. examine the nature of the sample in terms of respondents). To ensure the relevance of the measures, validity and reliability were analyzed.

Reliability and Validity Issues

Before discussing the measures for different variables used in the survey, the reliability (degree of consistency) and validity (consistency among items) of question items was assessed. Many small business researchers have developed high quality research measures and have already undergone the validation process.

Most questionnaire items were based on previous research by Covin, Slevin & Covin (1990), Ostgaard & Birley (1994) which had established reliability and validity. For some studies that did not provide validity and reliability, researchers were contacted and values were obtained. In evaluating the existing measures, a minimum internal consistency coefficient of .70 was used².

As some measures were slightly adapted to the context of the present study, the final survey has been validated through a pilot study with two entrepreneurs and academics in the field. The pilot results were useful for choosing the most relevant questions for a particular sector and adapting some measures to the specific characteristics of the sample.

² “J.P. Robinson, Shaver, and Wrightsman (1991) suggest a minimum internal consistency coefficient of .70” (Whitley 2001).

Business Demographics Measures– Control Variables

Previous research suggested the need to control for certain demographic characteristics (McCann 1991, Hanks 1993).

These demographic measures included the size of the firm (number of employees), the firm's age and ownership (privately or publicly held) (Feeser & Willard 1989), origin (start-up, new venture, spin-off from larger firm) (McCann 1991).

In addition, this study controlled for industry effects although the sample was selected from a single industry, the technology industry. However, the technology industry is a very large industry, and some sectors such as telecommunications, health sciences and high technology are quite different in terms of their reaction to environment factors. While narrowing down the sample to one specific sub-industry could have minimize potential industry effects, it would have led to a considerable reduction of the sample and the ability to collect data.

Environment Condition Measures

Environment conditions represent the external business environment in which the firm evolves. An external analysis allows for understanding what opportunities and risk areas may affect the firm's strategy and performance. By conducting an external diagnosis, a firm has a better understanding of the resources and capabilities it should have. To assess environment conditions measures, question items from Covin, Slevin & Covin (1990) and McCann (1991), who have tested sample, similar to the one considered in the present research, were employed. The items were then adapted, utilizing other relevant research as well as feedback from the pilot test. Table 2 presents an overview of the measures analyzed.

TABLE 2: ENVIRONMENT CONDITIONS MEASURES

STUDY	MEASURE- COMPONENTS	THEORETICAL BACKGROUND	QUALITY OF DEVELOPMENT	VALIDITY / RELIABILITY
<p>Covin, Slevin & Covin 1990 Covin & Slevin 1989</p> <p>Looked at different strategic competitive items and then factorized them into 10 chosen strategic factors</p>	<p>How severe are the following challenges to the performance of your firm? (Using a five likert scale)</p> <ul style="list-style-type: none"> ■ A. Tough price competition ■ B. Competition based on product/ service quality ■ C. Competition based on product/service innovation ■ D. Dwindling markets for products/services ■ E. Scarce supply of labour/material ■ F. Government interference /regulation 	<p>Conducted a review of the pertinent literature un strategy and business management</p>	<p>HGEF sample: 57 small manufacturin g firms “whose mission strategies were to aggressively increase sale and market share”</p>	<p>List approved by 10 managers and academics with expertise in small business</p>
<p>McCann 1991</p> <p>Looked at different strategic competitive items and then factorized them</p>	<p>How positive is the overall <u>business climate</u> for your area? (Using a five likert scale)</p> <ul style="list-style-type: none"> ■ A. Skilled, available work force ■ B. Pace of new business creation ■ C. Adequacy of professional/ technical assistance of new ventures ■ D. Viable market opportunities for start-ups ■ E. Low costs for essential services, labour, etc. ■ F. Access to technology/business incubators ■ G. Active entrepreneurial groups/ networks to join ■ H. Active organized groups/councils to attract technology ventures ■ I. Availability of capital for financing later growth ■ J. Access to “affordable” start-up or 	<p>Highly methodolo- gical</p>	<p>Sample: 100 CEOs of young, independent, technology- based firms across three industries. – Arthur Anderson survey</p>	<p>Not clearly defined</p>

STUDY	MEASURE- COMPONENTS	THEORETICAL BACKGROUND	QUALITY OF DEVELOPMENT	VALIDITY / RELIABILITY
	seed capital ■ K. Supportive local and state policies/programs (e.g., tax incentives) Where is most of your competition encountered? ■ Local ■ Regional ■ National ■ International			

Strategy measures

As discussed in the literature review, strategy content should not be confounded to the formulation, intention, stages of strategy. In this research, strategic directions and tools were examined. The review of relevant literature on strategies of small businesses provided an overall picture of the different measures of strategy items used in research.

To identify strategic components, question items from many researchers presented below were utilized and grouped under strategic directions and strategic tools.

Strategic directions

Table 3 presents an evaluation of the strategic directions components used by researchers in the field. The most reliable strategy items from Ostgaard & Birley (1994) and Covin, Slevin & Covin (1990) were combined. The items were then adapted, utilizing other relevant research as well as feedback from the pilot test.

TABLE 3: STRATEGIC DIRECTIONS ITEMS

STUDY	MEASURE OF COMPONENTS	THEORETICAL BACKGROUND	QUALITY OF DEVELOPMENT	VALIDITY / RELIABILITY
Covin & Slevin & Covin 1990 Looked at	32 statements were factorized to form 10 strategic factors. The ones retained for this study: Advertising – .83	Review of the pertinent literature in	HGEF sample: 57 small manufacturing	List approved by 10 managers and

STUDY	MEASURE OF COMPONENTS	THEORETICAL BACKGROUND	QUALITY OF DEVELOPMENT	VALIDITY / RELIABILITY
<p>different strategic competitive items and then factorized them</p> <p>Covin & Slevin 1989</p>	<ul style="list-style-type: none"> ■ Use frequent advertising ■ Use sharply-focused advertising ■ Use advertising which differentiates our products/services from those of competitors <p>Customer support – .59</p> <ul style="list-style-type: none"> ■ Provide extensive customer service/support) ■ Encourage new customers to enter the market ■ Actively attempt to predict customer requirements/tastes <p>Efficiency and quality concerns (.66)</p> <ul style="list-style-type: none"> ■ Emphasize cost reduction in all facets of business operations ■ Emphasize the improvement of employee productivity and operations efficiency ■ Emphasize strict quality control <p>Industry awareness (.71)</p> <ul style="list-style-type: none"> ■ Engage in “networking” activities to reduce environmental uncertainty ■ Actively attempt to predict competitors’ moves ■ Actively attempt to predict industry trends <p>External independence (.62)</p> <ul style="list-style-type: none"> ■ Actively attempt to minimize our dependence on any single supplier ■ Actively attempt to minimize our dependence on any single customer <p>Enter with a big bang using outside funding and subcontracting to achieve rapid growth objectives [0.45-0.7]</p> <ul style="list-style-type: none"> ■ High capacity utilization ■ Generate capital through parent or operations ■ Entered the market(s) on a small scale with steady, incremental growth objectives ■ Subcontracting or sourcing of production <p>Backward integration to support long-term buyer</p>	<p>strategy and business management</p>	<p>firms “whose mission strategies were to aggressively increase sale and market share”</p>	<p>academics with expertise in small business</p> <p>See column measure of components for specific reliabilities (left)</p>

STUDY	MEASURE OF COMPONENTS	THEORETICAL BACKGROUND	QUALITY OF DEVELOPMENT	VALIDITY / RELIABILITY
	contracts [0.45-0.7] <ul style="list-style-type: none"> ■ Flexible, short-term buyer contracts ■ No backward integration toward raw materials 			
Ostgaard & Birley 1994 Looked at different strategic competitive items and then factorized them	Use Sandberg & Hofer's dimensions with 23 variables: Cronbach's alpha = .8062 Cluster characteristics (result from factorization). The following are the ones retained. Respondents were asked to indicate on a five-point bipolar scale Marketing differentiation alpha= .8 <ul style="list-style-type: none"> ■ Extensive use of internal sales force =.794 ■ High level of advertising and promotion =.775 ■ Innovation in marketing techniques and methods =.616 ■ Developing a brand identification and name recognition =.576 ■ Developing new distribution channels =.431 Product innovation alpha= .79 <ul style="list-style-type: none"> ■ R&D, technological leadership and innovation =.837 ■ Dramatic changes in product or service =.752 ■ Securing product-related patents =.749 ■ Constant product development =.662 Broad market segmentation alpha= .57 <ul style="list-style-type: none"> ■ Selling products to numerous market segments =.748 ■ Large number of customers =.633 ■ Broad product range =.537 ■ Entering markets on a large scale with rapid immediate growth objectives =.434 Distribution alpha= .6 <ul style="list-style-type: none"> ■ Numerous distribution channels =.861 ■ Serving broad geographic markets =.587 ■ Developing new distribution channels =.544 Differentiation through quality alpha= .NA**	Review of the literature Good measure to identify taxonomies of new venture strategies	Sample: <ul style="list-style-type: none"> ■ 159 owner-managers firms ■ 2-10 years ■ Less than 50 employees ■ From 2 English counties ■ Industries: manufacturing, engineering and software developers 	See values in components column Cronbach's alpha = .8062

STUDY	MEASURE OF COMPONENTS	THEORETICAL BACKGROUND	QUALITY OF DEVELOP-MENT	VALIDITY / RELIABILITY
	<ul style="list-style-type: none"> ■ Superior product quality: =0.802 ■ Highest price offering =0.612 			

Strategic tools

To identify components of strategic tools employed by HGEFs, a complete literature review was conducted.

McCann’s (1991) measures of strategic tools to achieve growth were utilized and proved to be very useful. McCann’s different growth tools are strategic actions related to expansion, technology tactics, partnerships and integration of the firm. Very few adjustments were made to ensure that all questions were relevant to the technology sector.

Some other categories of strategic tools concern the product-market strategic mix and timing (market entry). Product-market tools, based on Cardozo, Reynolds, Miller & Ardishvili (1993), consist of the optimal mix of product-market focus pursued by the firm. Time-based tools are related to the speed used by the organization to enter new products and services into a new market. Based on Upton, Teal & Felan (2001) and Feeser & Willard (1990), a firm can be either first-to-market, an early follower, in step with the majority of competitors, or a late follower. Yet, the reliability and validity of these measures were still questionable. Therefore, the pilot test of the present research has tested the measures and ensured that they were consistent.

Tables 4 presents an evaluation of the strategic tools components used by researchers in the field.

TABLE 4: STRATEGIC TOOLS

STUDY	MEASURE OF COMPONENTS	THEORETICAL BACKGROUND	QUALITY OF DEVELOP-MENT	VALIDITY / RELIABILITY
McCann 1991 Looked at different strategic competitive items and then factorized them	To what extent will you emphasize the following growth choices over the following 3 years? (Using a five likert scale) <ul style="list-style-type: none"> ▪ A. Internal venturing via R&D for new products/services ▪ B. Launching formal joint ventures with other firms ▪ C. Using corporate partnering with larger firms 	Quite difficult article to understand – highly methodological	Sample: 100 CEOs of young, independent, technology-based firms across three industries. –	Simple validity analysis conducted, no data available

STUDY	MEASURE OF COMPONENTS	THEORETICAL BACKGROUND	QUALITY OF DEVELOP-MENT	VALIDITY / RELIABILITY
	<ul style="list-style-type: none"> ■ D. Licensing technology to/from other firms ■ E. Acquiring firms in closely related businesses ■ F. Acquiring firms in unrelated businesses ■ G. Being acquired by another firm <p>In terms of your competitive strategy for your products/services, how did you emphasize the following strategies in the past 5 years?</p> <ul style="list-style-type: none"> ■ A. Emphasizing enhancement extensions to existing products/services ■ B. Vertically integrating backward toward our suppliers ■ C. Vertically integrating forward toward our customers ■ D. Entering new businesses or markets with existing products/services ■ E. Emphasizing innovations or breakthroughs for entirely new products 		<p>Arthur Anderson survey</p>	

STUDY	MEASURE OF COMPONENTS	THEORETICAL BACKGROUND	QUALITY OF DEVELOP-MENT	VALIDITY / RELIABILITY
Cardozo & al. 1993 Cardozo & al. 1994 In depth case studies	<p>Product market strategies (1993)</p> <p>Change in number of product lines or markets in terms of top three products or markets that differed from the first year of operation to the most recent year:</p> <ul style="list-style-type: none"> ■ Original only ■ Original & New ■ All new <p>Product changes (1994)</p> <ul style="list-style-type: none"> ■ (0) No change from the venture's initial offering ■ (1) Change in product appearance or packaging only ■ (2) Minor product upgrades, or different applications of the same product with no significant changes in function ■ (3) Product with substantially different functions ■ Geographic changes (1994) : (1) Local expansion (2) Regional expansion (3) National expansion 	<p>Really specific to product market strategy</p> <p>Good lit review</p>	<p>Sample: 116 out of 550 firms from Dun & Bradstreet in retail and consumer services</p>	<p>No validity analysis-simple questions</p>
Feeser & Willard 1990 Founding strategies, regarding product market strategies	<p>Timing of the market entry: No support</p> <ul style="list-style-type: none"> ■ (a) The first firm in the market with your products ■ (b) One of the first few firms in the market ■ (c) Was not one of the first nor close to the last ■ (d) One of the later firms to enter the market ■ (e) One of the last firms to enter the market 	<p>Good lit review</p> <p>Specific to founding strategies</p>	<p>Sample: 24/39 very high-growth firms and 18/39 low-growth firms</p> <p>SIC 3573 – electronic computing equipment industry</p>	<p>No validity analysis-simple questions</p>

Growth Measures

For many researchers in the small business field, deciding upon the best measure of a firm performance is difficult. There is “no commonly accepted set of performance variables or

methods by which new ventures should be evaluated” (Biggadike 1976/ McGee & Dowling 1994). One reason for this ongoing debate is that “measurement of performance for relatively young, small firms is more complex and difficult than for large, established firms...” For instance, when a young venture survives the first critical years, different performance issues become important (Bantel 1995). Table 5 presents the most common measures of growth.

TABLE 5: GROWTH MEASURES

MEASURES	STUDY
Sales growth	<ul style="list-style-type: none"> ▪ Kazanjian & Drazin 1990 ▪ Cardozo & al. 1993 ▪ McGee & Dowling 1994 ▪ Neck, Welbourne, Meyer 2000 ▪ Baum, Locke & Smith 2001 ▪ Gundry & Welsch 2001 ▪ Ostgaard & Birley 1994
ROI (return on investment)	<ul style="list-style-type: none"> ▪ Ibrahim 1993
Employment growth	<ul style="list-style-type: none"> ▪ McGee & Dowling 1994 ▪ Baum, Locke & Smith 2001 ▪ Ostgaard & Birley 1994
Return on assets	<ul style="list-style-type: none"> ▪ McGee & Dowling 1994
ROS (net profit after taxes divided by total annual sales)	<ul style="list-style-type: none"> ▪ Ireland & Hitt 1997
Average annual percent profit growth	<ul style="list-style-type: none"> ▪ McGee & Dowling 1994 ▪ Baum, Locke & Smith 2001 ▪ Ostgaard & Birley 1994
Average annualized growth rates of the industrial sectors: in comparison with industry average (Dsouza 1990)	<ul style="list-style-type: none"> ▪ Gundry & Welsch 2001

As Table 5 demonstrates, many researchers use, on average, a combination of different growth measures such as annual sales growth, annual employment growth, asset growth and annual profit growth. Other researchers use only one measure, such as return on sales (Ireland & Hitt 1997), market value added (Ireland, Hitt, Camp & Sexton 2001), return on investment (Ibrahim 1993). The use of sales growth as a valid indicator of firm growth has been well documented in

entrepreneurship research (Ginn & Sexton 1989; Hoy, McDougall, Dsouza 1992/ Gundry & Welsch 2001). It must be noted that accounting performance measures such as ROI, ROA, or ROS, may not be appropriate under the dynamic conditions of the firm performance since the latter fluctuates considerably in the first critical years (Feesser & Willard 1990). Other researchers compare a firm growth rate to the industry average; if a firm performance is higher than average, the firm is considered a “high growth firm” (Dsouza 1990/ Gundry & Welsch 2001).

Some specific issues related to the technology-based sector need to be pointed out. First of all, high-tech ventures “do not have profit histories and are usually not expected to show much profit during the early years” (Mosakowski 1988/ McGee & Dowling 1994). Profit may also considerably fluctuate from one year to another (Bantel 1995). Thus, profitability measures should be analyzed carefully. In addition, the use of employment growth in the high-tech industry is unique. High-tech firms need “well trained/educated employees”, so analyzing the types of employees and jobs created are more important than analysing volume of jobs created (McGee & Dowling 1994). Finally, high-tech firms need “specialized assets”; thus, using asset growth may be inappropriate (McGee & Dowling 1994).

To measure an average growth on a five-year period, the following performance indicators were utilized:

- Total employees;
- New products/services;
- R&D expenses;
- Market shares;
- Total sales;
- Pretax Profit;
- ROI.

QUESTIONNAIRE ADMINISTRATION

Delivered in French or English, questionnaires were e-mailed to nearly 60 entrepreneurs between February and March 2003. The respondent was the owner, president, CEO or the highest authority in the company. For each survey, the researcher guaranteed the confidentiality of the information volunteered by the participants in the research project. Respondents were also asked if they would like to receive a final report at the end of the research project. No financial or award was offered to participants,

Personal contact by phone or in-person provided high respondent motivation and high sample quality; however, it offered a high potential response bias (Whitley 2001). To deal with this weakness, some measures of growth, when possible, were validated using the survey information or available public information.

The following steps were taken for each respondent entrepreneur in the respective order:

- Entrepreneurs, or their partner/assistant/secretary, were contacted by phone or in person;
- Those who agreed received a personalized e-mail using a standard message with an attached electronic questionnaire;
- Two follow-up mailings (emails) were sent to those who did not respond;
- A second personal phone call to the entrepreneur or assistant/secretary;
- A final follow-up email was sent to the entrepreneur using a standard message (if no answer from the previous steps);
- Entrepreneurs were promised a final executive report will be sent following the completion of this research project.

DATA ENTRY

A graduate research student, external to the project team, entered the data. A complete validation of the data entry work was done.

6.4 POPULATION TARGETED

REASONS FOR A TECHNOLOGY SAMPLE

The technology-based sector was selected for the following reasons. Researchers in the past decades have selected the technology industry for “the dramatic anticipated growth rates in many sectors of this broader industry, and the stated belief that this industry was at a stage rich in opportunity for entrepreneurs” (McDougall & Robinson 1990). However, in our day, this belief has diminished to a certain extent. The volatile and unpredictable environment of the high-tech industry has led to a high failure rate among entrepreneurs (Bantel 1996). It has become a real challenge to be successful in this industry. “We’ve seen many companies implode as a result of mismanaging their success” (Technology Fast 500 CEOs). Therefore, it is even more important to understand how entrepreneurs can strategically succeed in the 2000s. This research has thus chosen to investigate those strategies that so far have made their companies less vulnerable to the risks associated with exponential growth.

CRITERIA FOR THE TARGETED POPULATION AND SOURCES

To select the targeted population, the following criteria were employed.

Technology-based Firm

To accurately identify technology-based firms, McCann’s (1991) broad definition of high technology was used. The technology-based sector includes the following sub-industries:

- Biotechnology;
- Healthcare products/services;
- Electronics fabrication and manufacturing;
- Industrial equipment/technology;
- Computer systems, software and hardware;
- Instrumentation;

- Environmental services;
- Telecommunications and information technologies.

One of the above industries had to be the primary industry of the firm. This relatively broad range of technology industries was selected to have access to a relatively large sample and achieve a more generalized and broad understanding of the high-growth strategies analyzed in this research.

High-Growth Entrepreneurial Firm Sources

This study used two main sources: surveys on regional or national winners, that is entrepreneurs/leaders of the year, and venture capital firms. A company had to come from one of those source to be part of a potential sample. The sample was primarily developed from Internet and survey research. In a second step, most information on the criteria was found using public information available on websites. Some surveys, such as PME Magazine, provided the names and contact information of the president and CEO of some firms. In the case where some information was not available on the website, calls were made or emails sent to complete the required information.

A subset of data was derived from the surveys. These surveys specifically awarded firms for their high growth in the past year or over another period of time. The sources are:

- North American Technology Fast 500;
- Quebec Ernst & Young Entrepreneurs of the Year;
- PME Magazine;
- Profit Magazine.

Growth is a primary criterion in selecting a fast-growing firm award. Each firm selected as “the fast-growing firm of the year” in a survey was automatically identified as a HGEF since the firm reached, on average, a revenue growth over a five-year of 6.772%, or a growth rate on a two-

year period of 1 388%, or because it had the highest growth values from a large population of firms.

Table 6 presents the selection criteria for the awards of the different surveys noted above.

TABLE 6: SELECTION CRITERIA : BASED ON AWARDS

	OBJECTIVE	CRITERIA
NORTH AMERICAN TECHNOLOGY FAST 500	The Deloitte & Touche Technology Fast 500 program is a ranking of the 500 fastest-growing technology companies in North America. It includes all areas of technology, from Internet to life sciences, computers to semiconductors.	<ul style="list-style-type: none"> ■ 1997 operating revenues of at least \$50,000 USD and \$75,000 CD for the United States and Canada, respectively. ■ Entrants are public or private companies headquartered in North America. ■ Each entrant must be a "technology company," defined as a company owning proprietary technology that contributes to a significant portion of the company's operating revenues or devotes a high percentage of effort to research and development of technology. ■ Top 500 average percent growth in revenue, which indicates speed growth: overall five-year growth rates for all 2002 Fast 500 companies is 6,772 %, an increase over 2001 (6,184 %) and 2000 (3,956 %). Growth rates for the 2002 Fast 500 winners ranged from 614 % to 293,493 %. Combined, the top five winners' average growth rate is 196,762 %, more than double 2001 (93,496 %) and a significantly higher than 2000 (59,367 %).
ERNST & YOUNG ENTREPRENEURS OF THE YEAR	Fast 500; this survey indicates the leaders of fastest growing technology-based companies in Canada and United States.	<p>Nominee must be either:</p> <ul style="list-style-type: none"> ■ A business owner or found primarily responsible for the recent performance of a privately held company that is at least two years old, or ■ A founder of a public company who is still active in top management. <p>Nominee's motivation and demonstrated leadership.</p> <ul style="list-style-type: none"> ■ The company's "story," with consideration of industry obstacles that had to be overcome. ■ Unique or innovative characteristics of the company. ■ Financial performance and company growth. ■ Socially responsible initiatives that demonstrate "giving back" to the community.

	OBJECTIVE	CRITERIA
		<ul style="list-style-type: none"> ■ Current performance: the award honours the best entrepreneurs "of The Year."
PME MAGAZINE	Identify the best 50 Quebec small business leaders in terms of growth in all sectors	Growth rate at different levels : employees, revenues
PROFIT MAGAZINE	Canada's authoritative ranking of high-growth companies	<ul style="list-style-type: none"> ■ Firms were founded in 1999 or 2000; ■ Firms are headquartered and have significant operations in Canada; ■ Firms are Canadian-owned; if private, Canadians must own at least 50% of the firm; publicly traded companies with less than 50% Canadian ownership will be judged by PROFIT on a case-by-case basis. ■ Percentage revenue growth over two years: in 2002, the average growth is 1,388% ■ Qualifying companies must report a minimum of \$50,000 gross revenues in the base year (i.e., 2000).

The second source was venture capital firms investing in the Montreal technology sector. This selection assumed that firms in which venture capital invest have a potential for growth.

This study assumes that venture capitalists conduct a complete and thorough analysis of firms (team, financials, vision, innovation potential, growth potential) before they invest. In fact, venture capital provides considerable growth objectives for firms to meet in order to ensure further financing.

Table 7 demonstrates that only high potential growth firms are selected by venture capitalists. The names of the companies invested in being public, information was taken directly from the websites of the following venture capitalist firms:

- Technocap;
- Desjardins Venture Capital;
- Société Capimont;

- Innovatech;
- Inno-centre;
- Development Bank of Canada;
- GTI Capital.

TABLE 7: SELECTION CRITERIA: VENTURE CAPITAL

	OBJECTIVE	CRITERIA FOR INVESTMENT
TECHNOCAP	TechnoCap invests in extreme performance technology companies, particularly networking hardware and enterprise software and services.	The companies we are seeking possess: <ul style="list-style-type: none"> ■ A complete management team with previous experience ■ Product offering that meets some criteria such as an R&D engine with 6-month product launch cycle ■ Potential revenue to build company of \$100,000,000 in sales & can easily see \$20,000,000 in sales within 3 years ■ Disinvestments: have identified 5 possible purchasers
DESJARDINS VENTURES CAPITAL	Desjardins Venture Capital Limited Partnership is a venture capital fund that invests in the industrial, life sciences, telecommunications and information technology sectors.	The companies we are seeking possess: <ul style="list-style-type: none"> ■ A visionary and dynamic management team ■ An articulate and realistic business plan ■ Excellent potential for growth ■ A competitive advantage ■ A product for which a large market exists
SOCIÉTÉ CAPIMONT	The Société Capimont invests in industrial technologies of a different nature.	The companies possess <ul style="list-style-type: none"> ■ A balanced team to meet challenges ■ An innovative advanced and differentiated technology ■ A growth market, and accessible to new players ■ An articulate and realistic business plan ■ Excellent potential for growth ■ A competitive advantage and realistic business model.

	OBJECTIVE	CRITERIA FOR INVESTMENT
INNOVATECH	Innovatech Montréal has one of the major VC portfolio in Canada. It owns 138 companies in three areas: health sciences, information technology, advanced technologies and telecom	<ul style="list-style-type: none"> ■ All projects accepted for funding by Innovatech Montréal must meet its selection criteria for quality and degree of innovation, project feasibility, ability of the team in place, and commercial potential of the product or service.
INNO-CENTRE	<p>Inno-centre invests in advanced technology start-ups in the following sectors:</p> <ul style="list-style-type: none"> ■ Information Technologies: <ul style="list-style-type: none"> Telecommunications - Microelectronics - Multimedia Solutions – Software - Optics/ Photonics - Geomatics ■ Biosciences: - Biotechnologies - Pharmaceuticals - Nutraceuticals - Diagnostic Products - Medical Devices - Agrifood ■ Industrial Technologies: - Materials - Automation/Robotization - Processes - Nanomaterials 	<p>No criteria specifically defined over the Net but the following results are significant:</p> <ul style="list-style-type: none"> ■ Over 175 new companies established to date ■ \$400 million in annual sales ■ 20% reinvested in R&D ■ Over 4,000 jobs created ■ \$35.5 million in financing raised in 2001 by companies under contract
DEVELOPMENT BANK OF CANADA	BDC Venture Capital is a major venture capital investor in Canada, active at every stage of a company's development cycle, from start-up through expansion. Its focus is on technology-based businesses with high growth potential that are positioned to become dominant players in their markets.	<p>In order to be eligible for the Venture Capital program, a business must have the following:</p> <ul style="list-style-type: none"> ■ A distinct, sustainable, and competitive advantage; ■ A technological platform; ■ A highly-skilled and committed management team with entrepreneurial flair; ■ A clearly-defined and realistic business plan; ■ A market opportunity to support fast and long-term growth; ■ Dominant leadership in the marketplace; ■ A readily-perceivable, constructive exit strategy; ■ A syndicate of venture capital investors.

	OBJECTIVE	CRITERIA FOR INVESTMENT
GTI CAPITAL	<p>Therefore, with this vision of business in mind, we select companies operating in the sectors listed below while showing high-growth potential:</p> <ul style="list-style-type: none"> ■ Network solutions and convergence technologies (wired/wireless telecommunication, corporate data networks); ■ B-2-B e-commerce; ■ Knowledge management; ■ Enterprise applications integration; and ■ Electronics, photonics. 	<p>GTI Capital will invest in businesses selected according to the following fundamental criteria:</p> <ul style="list-style-type: none"> ■ Competent and committed management team ■ State-of-the-art technology ■ Large and identifiable market ■ Profitability ■ Exit strategy ■ Investment size and structure

As a result, two sub-samples are examined comparing officially high-growth firms (survey sub-sample) to potentially fast-growing firm (venture capitalist sub-sample).

The sample was drawn from a sub-group of entrepreneurs and has a natural restriction of range in terms of its growth variable. As such, this restriction reduces the strength of some conclusions that could be found with a more balanced sample composed of low and fast-growth firms.

Other Criteria

To qualify for the survey, HGEFs in the high-technology sector had to meet several criteria.

- The venture must be headquartered in Montreal and not be owned or controlled by a firm outside the area;
- The venture must have less than 250 employees;
- The firm must be an independent venture, as opposed to a corporate-sponsored venture, since “research has revealed substantial performance differences between the two” (Fast 1981; Weiss 1981/ McGee & Dowling 1994);
- Owner-managers must have been actively involved in the business for more than one year;
- The venture must have an operating/sales history of at least two years;

- The venture must have been founded more than two years, or less than 14 years prior to the survey.

The last criterion requires elaboration. As yet, there is no common theory that indicate when a new venture is not considered “new”; for some researchers, age ranges from two to nine years (Dunkleberg & al. 1987, Sandberg 1986/ Ostgaard & Birley 1994). In addition, research has shown that “new ventures take at least eight years to achieve the same performance level as mature firms” (Biggadike 1976; Weiss 1981/ McGee & Dowling 1994). For some researchers, adolescent firms can be differentiated from new ventures. As opposed to new ventures, strategies of adolescent firms are more likely to demonstrate some potential for long-term viability. In addition, studying unstable strategies of new venture is more difficult to understand and reduce chances of getting further understanding (Bantel 1996). As long as the discussion continues, paralleling prior research, two to eight years of existence is chosen as a criterion to select “new” ventures. Choosing a sample of firms aged between eight and 14 allowed the researcher to have a better understanding of what happens after a firm becomes mature and to see how strategy evolves across time. However, the average age of the research sample was seven years old, a relatively “new” venture sample.

7. RESULTS

7.1 BUSINESS DEMOGRAPHICS

RESPONSE RATE

Table 8 presents the number of technology-based HGEF contacted and the number of questionnaires received. The response rate of 60% is relatively high for this type of research if we consider the difficulties in dealing with very busy entrepreneurs. This high response rate is due partly to the great convenience of electronic questionnaires for technology-based entrepreneurs.

TABLE 8: RESPONSE RATE

NUMBER OF COMPANIES CONTACTED	NUMBER OF QUESTIONNAIRE RECEIVED
60	36

SAMPLE SIZE

Similar studies on strategy of entrepreneurial firms were based on the following samples:

- Covin, Slevin & Covin (1990): 57 high-growth small manufacturing firms (26 in high technology, 31 in low technology)
- Ostgaard & Birley (1994): 159 entrepreneurs in multiple industries in two countries

Since this study uses a relatively smaller sample than comparable studies, the analysis is more at an exploratory level, and therefore no causality relationship can be claimed.

SAMPLE PROFILE

Two sub-samples were examined by differentiating the two sample sources. The first sub-sample consisted of 23 firms from venture capital portfolios (with high potential to becoming a HGEF);

the second, consisted of 13 firms from surveys on regional or national winners, that is entrepreneurs/leaders of the year (identified HGEF).

The firms selected through venture capital portfolios are highly potential to becoming a fast-growing firm if we consider all the criteria and selection process those firms must go through in order for a venture capital company to invest in them. In this study, both sub-samples are considered HGEF, however differences, if any, will be examined.

TABLE 9: SAMPLE SOURCES

SURVEY AWARD	VENTURE CAPITAL
13	23

Table 10 presents a summary of the sample profile, more details follow.

TABLE 10: SAMPLE PROFILE

BUSINESS DEMOGRAPHICS	NUMBER	PERCENTAGE
Age of the firm		
1-4 years	5	13.9%
5-8 years	22	61.1%
9-14 years	9	25.0%
Ownership		
Publicly held	1	2.8%
Privately held	35	97.2%
Origin of the firm		
Start-up or new venture	27	75.0%
Spin-off (2 from a university or 3 from a company)	5	13.9%
Purchase of an existing firm	3	8.3%
Other	1	2.8%
Product/service type (<i>one company can cover more than one sector</i>)		
Computer systems, software and hardware	16	34.8%
Telecommunications and information technologies	7	15.2%
Healthcare products/services	6	13.0%
Biotechnology	4	8.7%

BUSINESS DEMOGRAPHICS	NUMBER	PERCENTAGE
Industrial equipment	1	2.2%
Instrumentation	1	2.2%
Environmental services	1	2.2%
Services	1	2.2%
Other sectors: Analog semiconductor chips, Transportation, Crime solving through innovative technology, Software for electronic approvals, and e-contracting, Food, Aerospace	6	13.0%
Current number of employees		
0-10 employees	4	11.1%
11-30 employees	9	25.0%
30-50 employees	10	27.8%
50-100 employees	8	22.2%
100-250 employees	5	13.9%

All respondents occupied executive positions in their respective organization (see Table 11). On average, respondents have worked for 5.98 years in their organization.

TABLE 11: RESPONDENTS STATUS

PRESIDENT/CEO	PARTNER	COMMUNICATION/ MARKETING DIRECTOR
32	2	2

Some of the surveyed firms were still in their first years of operation and development. On average, the age of the surveyed firms was 7.28 years old; the number of employees, 56.83 employees (with a median of 35 employees).

With regards to the origin of the firm, 75% were start-ups; 13% were developed through spin offs; 8.3% were purchased from another firm.

Thirty-five out of thirty-six respondents were privately held organizations. On average, privately held firms have 8.38 owners (individual, groups of individuals or firms).

In the first years of a firm's life, money matters. Seventy percent of the firms used a single financing source. Raising capital is quite a challenge to a young venture at this stage. Overall, 55% get their financing from venture capital sources. On the one hand, this high percentage may be linked to the source of the sample, since 64% of the sample was derived from venture capital portfolios. On the other hand, financing from venture capitalists may represent a key factor for growth. Other sources of funding such as savings and private funding were found to be very important in terms of financing.

In terms of sector coverage, the top covered industries were (1) computer systems, software and hardware, (2) telecommunications and information technologies, (3) healthcare products/services and (4) biotechnology.

7.2 BUSINESS EXTERNAL ENVIRONMENT

The firm's business environment is important to grasp as it affects the firm's performance and strategy.

How many competitors compete in the firm's niche?

In terms of number of competitors, 58% of entrepreneurs reported that less than 10 firms compete directly in their niche, while around 30% of the sample found that more than 20 firms compete in their niche.

TABLE 12: NUMBER OF COMPETITORS IN THE COMPANY'S NICHE

NUMBER OF COMPETITORS IN THE COMPANY'S NICHE	NUMBER	PERCENTAGE
1-5	14	38.9%
5-10	7	19.4%
10-20	4	11.1%
20-50	4	11.1%
More than 50	7	19.4%

Table 12 suggests that some firms may be competing on a narrow based level; others, on a broad based level. In addition, new ventures at different phase of development may perceive their business environment differently. A younger venture may attempt to enter a market using a narrow niche with a smaller number of competitors than older ventures which can compete on a broader scale. Also, different industries may have numerous competitors and strategic groups. For example, the health sector has a smaller number of players than the telecomm and information technology industry.

Where does the competition operate?

As Table 13 shows, most companies, 89% consider that their competition is centred at an international level. Despite its young age, a high-growth firm clearly view its market on a worldwide level. An entrepreneur must keep its firm abreast of new technologies and potential competition. In summary, this finding seems to indicate that high-growth firms rapidly view their competition at an international level.

TABLE 13: COMPETITION LOCALIZATION

COMPETITION LOCALIZATION	NUMBER	PERCENTAGE
Local	3	8.3%
International	25	69.4%
Local & International	7	19.4%

How positive is the firm's business environment?

Entrepreneurs were asked to rate on a five-point likert scale how positive was their business environment on the following aspects (*scale (1) Not at all (2) A little (3) Some (4) Quite a lot (5) Very much*). Results (Table 14) suggest that the two most highly positively rated aspects are available skilled work force and supportive local and state policies/programs. While the two most rated negative aspects are access to technology/business incubators and access to affordable start-up funds or seed capital.

TABLE 14: BUSINESS ENVIRONMENT

ASPECT	MEAN	MEDIAN
Available skilled work force	3.94	4
Supportive local and state policies/programs (e.g. tax incentives)	3.56	4
Viable market opportunities for start-ups	3.31	3
Access to venture capital funds for high technology	3.17	3
Availability of capital for financing later growth	3.17	3
Active entrepreneurial groups/networks to join	3.14	3
Active organized groups/associations to attract technology ventures	3.06	3
Access to technology/business incubators	2.89	3
Access to "affordable" start-up funds or seed capital	2.69	3

What challenges are most critical (severe) to the company's performance?

Participants were also asked to rate the challenges that may hamper the firm's performance on a seven-point likert scale: (1) Not a threat (4) Somewhat of a threat (7) A very substantial threat.

Results, as shown in Table 15, suggest that competition based on products/service innovation and quality are critical to the company's performance.

TABLE 15: FACTORS CRITICAL TO THE COMPANY'S PERFORMANCE

ASPECT	MEAN	MEDIAN
Competition based on product/service innovation	5.19	6
Competition based on product/service quality	5.17	6
Competition based on promotion and marketing practices	4.78	5
Competition based on price	4.66	5
Economic downturn	4.33	4
Government interference/regulation	3.22	3
Declining markets for products/services	3.08	3
Scarcity of supply of labour /material	2.47	2

7.3 STRATEGIC DIRECTIONS PURSUED BY HGEFS

Participants were asked to describe their strategic orientation in the past five years based on a comparison with their competitors, based on strategy items from Ostgaard & Birley (1994) and

Covin, Slevin & Covin (1990). Respondents rated on a five-point bi-polar scale the emphasis their business had placed in the past five years on different strategy items in establishing their competitive orientation and relative to their competitors. The extremities of the scale indicates a stronger or smaller emphasis than the industry average (3 = industry average). A total of 26 managerially controlled variables, regrouped in the following dimensions, were selected from the review of the literature and tested in the survey:

- Market differentiation;
- Advertising;
- Customer Support;
- Product innovation;
- Differentiation through quality;
- Efficiency and Quality concerns;
- Broad market segmentation;
- Distribution;
- Industry awareness;
- External Independence;
- Funding, subcontracting and buyer contracts.

Table 16 shows the scores of the respondents for the 26 variables.

TABLE 16: STRATEGIC ACTIONS

ITEM NUMBER	STRATEGY ITEM	MEAN	MEDIAN
1	Range of products	2.72	3
2	Number of customers	2.56	2
3	Market segment	2.81	3
4	Product development	3.61	4
5	Product-related patents	3.00	2.5
6	Changes in product	3.58	4
7	R&D leadership	4.17	4
8	After sale service	4.22	4
9	Price offering	3.50	3.5
10	Advertising and promotion	2.26	2
11	Differentiating advertising	2.47	2.5
12	Brand identification	3.37	4
13	Internal sales force	3.69	4
14	Product / service quality	4.44	4.5
15	Warranties	3.67	4
16	Marketing techniques	3.36	3
17	Control on quality	4.25	4
18	Distribution channels	3.50	4
19	Scale and rapid growth objectives	2.53	2
20	Funds generation	2.76	2.5
21	Cost per unit	2.80	3
22	Productivity and efficiency	4.06	4
23	Capacity utilization	2.86	3
24	Technology innovation	3.83	4
25	Outsourcing	3.20	3
26	Buyer contracts	2.88	3

All strategy component variables were included in the analysis since a maximum of 2 missing values per variable was reported.

To get a better insight of strategic actions, the study further examined the following three aspects:

- Strategy dimensions;

- Effects of age, size, sector, financing sources within the sample;
- Strategic directions associated with HGEFs.

STRATEGY DIMENSIONS

The purpose of this initial phase is to identify the strategy directions of HGEFs, used in the past five years, comparing to the industry average.

The item analysis allowed for identifying the strategic dimensions most emphasized by HGEFs, in comparison with the industry average. The mean and median of each strategy item are used to determine the strategic directions mostly pursued by HGEFs.

Market scope and urgency of growth objectives

In terms of market scope, relative to their competitors a slightly larger number of firms choose to focus on a small number of customers, the rest of the sample focused on a larger number of customers (item #2; 2.56 mean; 2 median). This result seems to demonstrate that success may come faster to firms that can create a niche and exploit an underserved market.

In fact, HGEFs rated themselves slightly lower than the industry average on two strategic items: selling products to limited market segments (item #3; mean 2.81) and using a narrow range of products/services (item #1; mean 2.72). This result suggests that HGEFs seem to emphasize niche strategy, as they tend to focus more than their competitors on narrow market segments and small range of products/services.

However, this study also indicates that firms reaching broader market and offering a broader range of products may also grow at a fast rate. In fact, 12 firms out of 36 sell products/services to larger number of segments than their competitors. Most of those firms were older firms. Age effect will be discussed further.

Concerning the scale of market entry and the urgency of growth objectives, HGEFs seem, on average, to enter slightly (item #19; mean 2.53) more at a small scale with gradual growth objectives than the industry. This result seems to indicate that incremental growth objectives are most popular among HGEFs.

In conclusion, the findings seem to indicate that niche strategy, focusing on a smaller number of customers and entering in markets on a small scale with gradual growth objectives, seems to remain the most popular strategy among HGEFs. However, pursuing a broad strategy and offering a broad range of products that is similar to the industry can also lead to growth, particularly for older firms.

Product innovation

Concerning product innovation, on average, HGEFs seem to bring more important dramatic changes to their products/services than the industry (item #6; 3.58 mean, 4 median). HGEFs are clearly more focused than their competitors on highly innovative products/services. In fact, most respondents have rated their continuous attention to product/service development to be higher than the industry average (item #4; mean 3.61, median 4). As a result, HGEFs seem to position their firm strategically as R&D, technology and innovation leaders in a market. In terms of securing product-related patents, HGEF are aligned with the industry average.

In summary, HGEFs seem to be definitely R&D and innovation leaders as compared to competitors. This pattern of strategy is emphasized through a continuous product or services development and dramatic changes to product/services offer.

Marketing differentiation

To position their organization on the market, HGEF are more likely than average firms to make an extensive use of internal sales force (item #13; mean 3.69) and develop new distribution channels (item #18; mean 3.50). Concerning the development of brand identification (item #12;

mean 3.37) and innovative marketing techniques (item #16; mean 3.36), HGEFs were slightly above the industry. This result seems to demonstrate that technology-based HGEFs give more strategic importance to marketing.

However, HGEFs rated their level of advertising and use of advertising that differentiates their products/services from those of competitors to be lower than that of the industry (item #10; mean 2.26 and item #11; 2.47 respectively). This may be due to their small customer basis and their niche strategy.

In summary, concerning marketing emphasis, HGEFs are more likely than the industry average to use internal sales force and develop new distribution channels and are less likely to make extensively use of promotion.

Differentiation through quality

Differentiation through quality seems to characterize HGEFs. For instance, emphasize on superior product/service quality (item #14; mean 4.44) was the most highly rated strategy item. In addition, tactics such as highest price offering (item #9; mean 3.50), and superior product/services warranties (item #15; mean 3.67), strict quality control (item #17; mean 4.25), maximal after-sales service (item #8; mean 4.22) were additional tactics that seem to be extensively employed by HGEFs.

As a result, differentiation through quality seems to emerge as a key strategy item among HGEFs.

Efficiency concerns

In terms of efficiency concerns, HGEFs seem to emphasize employee's productivity and operations efficiency (item #22; mean 4.06). This item is strongly above the industry. Through

the risks and aggressive competitive actions that HGEFs take, HGEFs seem to strongly emphasize efficiency and productivity.

Funding, subcontracting and buyer contracts

HGEFs generate funds through outside investors just like the industry average (item #20; mean 2.76). However, this sample is biased since most firms are already financed by venture capital.

In addition, outsourcing or the use of buyer contracts is also not significantly different from the industry (item #25; mean 3.20, item #26; mean 2.88). This is unusual due to the size of these firms. In summary, outsourcing and buyer contracts are not used more by HGEFs than the industry as these firms tend to be small.

EFFECTS OF AGE, SIZE, SECTOR, FINANCING SOURCES WITHIN THE SAMPLE

Size

The operational definition of small firms is generally fewer than 250 employees. However, this definition clearly allows for a large variation in terms of HGEF's size. In order to address this question, the sample was split in two groups at the median figure of 35 employees. Group 1 consist of the smaller firms of the sample, from 1-35 employees, and group 2, the larger firms, from 35 to 250 employees.

The larger firms, group 2, tend to offer a larger number of products and services (item #1; group 1: 2.47, group 2: 3.00). Interestingly, larger firms seem to be much more oriented on after-sales services (item #8; group 1: 4.00, group 2: 4.47), more focused on brand identification (item #12; group 1: 3.16, group 2: 3.62), more focused on internal sales force (item 13; group 1: 3.42, group 2: 4.00) than the first group, the smaller firms.

Furthermore, larger ventures (group 2) are more likely to use generated internal fund (item #20; (value for external generation) group 1: 3.17, group 2: 2.31) and are more likely to tolerate

excess capacity in anticipation of future growth (item #23; group 1: 2.42, group 2: 3.35) than smaller firms.

Finally, the smaller firms, group 1, tend to be more focused on product-related issues such as patents (item #5; group 1: 3.37, group 2: 2.59). Smaller firms are at earlier stage of development and may more likely to be concerned of protecting their products legally. In fact, smaller firms tend to be more focused on technology innovation (item #24; group 1: 4.11, group 2: 3.53).

Age

In this sample, the firm's age varies. Therefore, the sample was split to test the effect of age at the median figure. Group 1 is aged from 1-6 years; group 2, from 7-14 years.

The effect of age analysis shows that marketing tactics are more likely to be used by older firms. This result may be explained by the fact that older ventures are more likely to be in their commercialization phase, which is an aggressive growth stage in the firm's life-cycle. Tactics such as distribution (item #18; group 1: 3.28, group 2: 3.72), after-sales service (item #8; group 1: 3.94, group 2: 4.12), internal sales force (item #13; group 1: 3.33, group 2: 4.06), brand identification (item #12; group 1: 3.06, group 2: 3.67) seem to be also more frequently employed by older firms. This result is coherent with the size effects previously discussed.

Younger firms tend to be more focused on R&D activities. For instance, the following items were rated higher: product-related patents (item #5; group 1: 3.33, group 2: 2.67), total innovation of products & services (item #24; group 1: 4.12, group 2: 3.56). Again, this result corroborates with the size effects previously discussed.

In addition, when examining funds generation tactics, younger high-growth firms tend to obtain substantial external sources (item #20; group 1: 3.35, group 2: 2.18). Financing needs are very significant at early stage. Furthermore, concerning growth objectives, both younger and older

firms seem to penetrate markets with incremental objectives for growth (item #19; group 1: 2.56, group 2: 2.50).

Sector

In this sample, the sample was split between the telecom industry and the computer system, software and hardware industries and the rest of the technology sectors (health sciences, environment etc...). No significant differences were found between both sub samples.

Financing sources

The sample was split to examine the effect of venture capital financing to other types of financing. Some differences were noted:

HGEFs, initially financed with venture capital, seem to employ a product-related patents strategy (item #5; group 1: 3.25, group 2: 2.69). They also as expected use substantial external sources of funding (item #20; group 1: 3.21, group 2: 2.20).

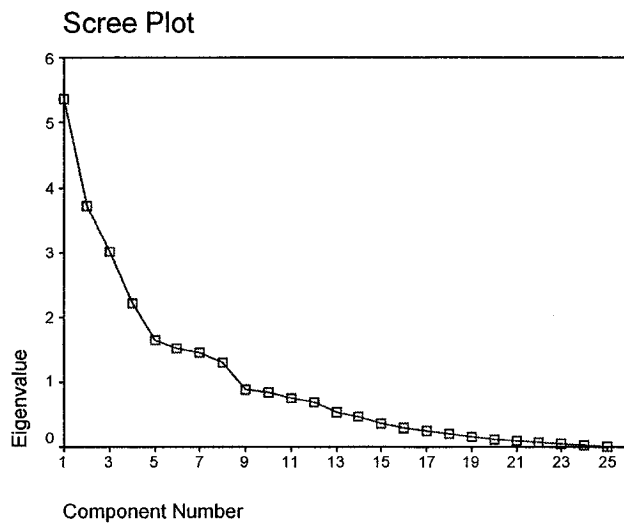
In addition, HGEFs, financed with venture capital, seem to be more tempted to strategically enter on a small scale using incremental objectives (item #19; group 1: 2.40, group 2: 2.69) and are less focused on capacity utilization (item #23; group 1: 2.40, group 2: 3.44).

IDENTIFYING STRATEGIC DIRECTIONS ASSOCIATED WITH HGEF USING FACTOR ANALYSIS

An R-Mode Principal Components Analysis (PCA) was utilized following the procedures used by Ostgaard & Birley (1994). A varimax rotation (each item is considered independent) was conducted to reduce the data and test the convergent validity of meaningful constructs. The scree plot (Figure 5) allowed researchers to identify up to seven factors that are potentially possible. The eigenvalue-one criterion was used to determine the number of components to extract for

further analysis. However, due to the small size of the sample, we limited the extraction to five principal components, which contributed the most to the variance.

FIGURE 5: SCREE PLOT



The rotation of items allowed the identification of five main factors. More factors could have been identified, but due to the limited size of the sample, a restrained number of factors was selected. The principal component analysis (PCA) provided five components. Using the varimax rotation, the first five components accounted for 61.5% of the total variance.

Factor identification

Each strategic factor loaded on at least one component with a minimum component loading of 0.50. A 0.5 value is very conservative since most studies used 0.4. Also, items that were not unique to a single factor were eliminated. Table 17 presents the variables listed in order of the magnitude of their corresponding component loading and the five factors.

TABLE 17: STRATEGIC VARIABLES ASSOCIATED WITH EACH FACTOR

FACTOR	ITEMS + LOADING	STANDARDIZED ALPHA
Factor 1 Marketing & quality differentiation	High use of advertising which differentiates products/services (item 11; 0.849) High level of advertising & promotion (item 10; 0.846) Strict quality control (item #17; 0.787) Entering the market(s) on a large scale with rapid immediate growth objectives (item #19; 0.700) Developing a brand identification and name recognition (item #12; 0.600)	0.8579
Factor 2 Broad market segmentation & Customer focus	Generating funds through internal operations (item #20; -0.758) Constant product/service development (item #4; 0.707) Large number of customers (item #2; 0.668) Superior products/services warranties (item #15; 0.659) Providing high level of after-sales services (item #8; 0.626)	0.7314
Factor 3 Innovation	Dramatic changes in products/services (item #6; 0.836) R&D, technological leadership and innovation (item #7; 0.699) Total innovation in technologies (item #24; 0.633) Securing product-related patents (item #5; 0.617)	0.6610
Factor 4 Distribution	Long-term buyer contracts (item #26; 0.688) Developing new distribution channels (item #18; 0.615)	0.6766
Factor 5 Low cost & Efficiency concern	Overriding concern for lowest cost per unit (item #21; 0.825) Concern for improving employee productivity and operations efficiency (item #22; 0.711)	0.5720

Each alpha coefficient exceeds the value of 0.5 suggested by Nunnally (1970) for scales in the early stages of development (Covin, Slevin & Covin 1990). The scales are sufficiently reliable for data analysis purposes.

The strategy patterns identified depict combinations of strategic factors associated with high-growth firms.

The examination of the component loadings shows that the factor analysis mostly grouped together items that, on a priori grounds, are very similar. This allowed describing the pattern of each factor separately; an intuitive classification was attempted.

A second analysis attempted to identify potential clusters. This second step was very difficult because of the small sample size. Respondents who scored higher than the mean were considered to emphasize a particular strategy. The scores were added up by cluster. Results are presented in Table 18.

TABLE 18: FACTOR SCORING

FACTOR	RESPONDENTS
Factor 1: Marketing & quality differentiation	15
Factor 2: Broad market segmentation & Customer focus	17
Factor 3: Innovation	15
Factor 4: Distribution	9
Factor 5: Low cost & Efficiency concern	13

Cluster analysis

As Table 19 shows, respondents who scored high on one factor, generally scored high on a second factor. Ten firms actually scored high on more than three factors. There seems to emerge a strategic pattern: high-growth entrepreneurs pursue a multi-faceted strategy. These firms have more than three competitive strategies that are used in concert. This result supports Ostgaard & Birley (1994), Sandberg (1986), Robinson & Pearce (1985), McDougall (1987), Carter & al. (1991). As a result, the argument that most firms emphasize only one strategic pattern is not supported by this analysis.

On the other hand, three firms scored low on the five factors. These high-growth firms do not have a clear strategic orientation and seems to be opportunity driven.

TABLE 19: CUSTOMER IDENTIFICATION

CLUSTERS CHARACTERISTICS	RESPONDENTS
Cluster 1: Emphasize more than three factors	10
Cluster 2: Broad market segmentation & customer focus	4
Cluster 3: Innovation	5
Cluster 4: Broad market & low cost and efficiency concerns	3
Cluster 5: No clear emphasize	3

TEST FOR AGE, SIZE, SECTOR, FINANCING SOURCES EFFECT WITHIN THE SAMPLE

Effect of size

Using the same sample split size as discussed previously, some factors seem to differ slightly depending on the size of the firm. Larger firms are more likely to use a broad market and customer focus strategy (Factor 2- group 1: 16.61; group 2: 17.94). This makes sense since larger firms are more likely to be involved in an aggressive growth phase and have multiple products. On the other hand, smaller firms are more likely to employ an innovation strategy pattern (Factor 3- group 1: 15.22; group 2: 13.88).

Effect of age

The age effect reinforces the results of size effects. Firms 8 years or older are more likely to employ a broad market and customer focus strategy pattern (Factor 2- group 1: 15.94; group 2: 18.53). Furthermore, older firms are more likely to use a distribution strategy (Factor 4- group 1: 5.44; group 2: 7.11). Again, this corroborates with the fact that larger ventures are more likely to emphasize marketing strategies since they are in their aggressive growth phase.

Effect of sector

The present study suggest that firms in the computer, software, hardware or telecommunication or information technology industry are more likely to use broad market segmentation and

customer focus strategy than other industries such as health sciences and environment (Factor 2- group 1: 17.91; group 2: 16.00).

Effect of initial financing source

The study suggest that firms initially financed by venture capital are less likely to use a broad market segmentation and customer focus strategy pattern (Factor 2) than firms financed through savings or banks (Factor 2- group 1: 16.16, group 2: 18.60). More research is needed to get further understanding.

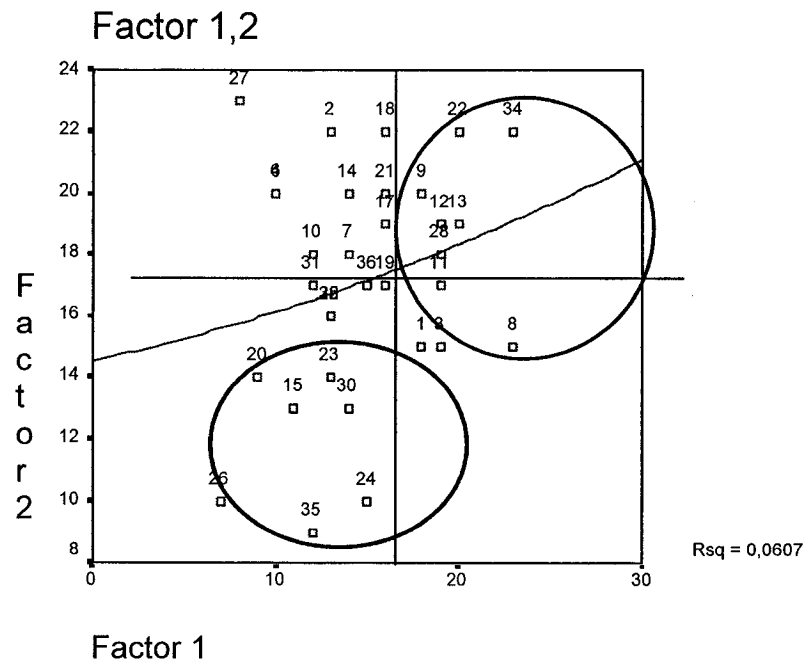
INTERRELATIONSHIPS ANALYSIS

To determine potential relationships between some strategic directions and any other factors or controlled variables, simple correlational analysis was conducted. Results from the correlational analysis are presented graphically to visually identify potential trends and correlation between two or three variables.

All factors were examined in pairs and then in group of three. The relevant results are presented in the following figures. Please note that in the following figures, the average score for each factor is indicated by two lines crossing at the centre, a simple linear regression (simple linear regression fits a straight line to X-Y data by the method of least squares) or non-linear regression (non-linear regression fits a non-linear function to X-Y data by the method of least squares) is represented by a third line, and some circles are drawn to help illustrate some findings.

Factor 1 & 2

FIGURE 6: FACTOR 1 & 2



Implications:

- Factor 1: Marketing & quality differentiation
- Factor 2: Broad market segmentation

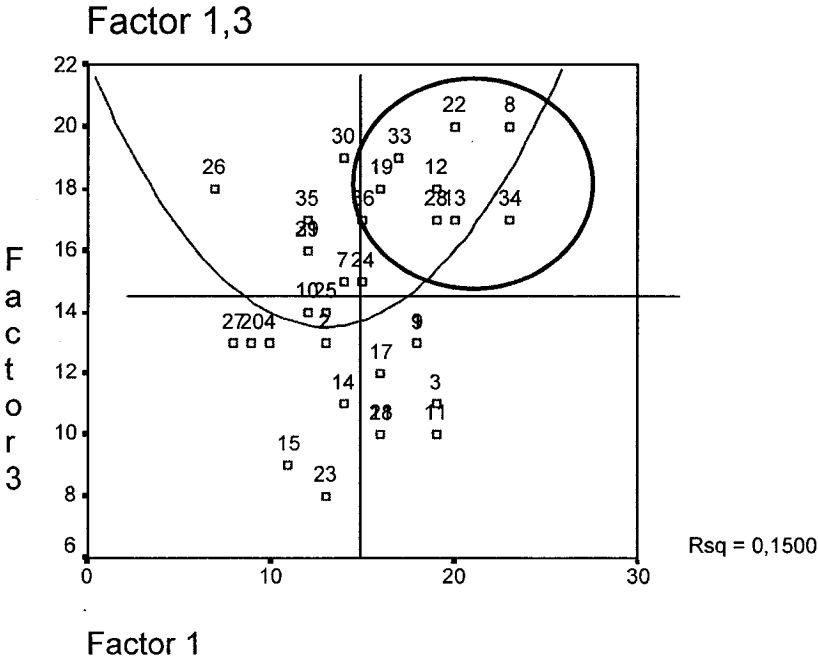
As shown on Figure 6, HGEFs that pursue a high-growth strategy, based on a narrow market segment and a small number of customers, tend to emphasize less than the average marketing and quality differentiation (see lower circle on Figure 7). In other words, firms that compete lower than average on marketing and quality differentiation tend to focus on a narrow market. This may be due to their small customer based and their niche strategy.

On the other hand, firms pursuing a high growth strategy, based on a broad market segment and a large number of customers, tend to compete higher than the average on marketing and quality

differentiation. This result suggests that larger number of costumers require more emphasis on marketing and quality differentiation.

Factor 1 & 3

FIGURE 7: FACTOR 1 & 3



Implications:

- Factor 1: Marketing & quality differentiation
- Factor 3: Innovation

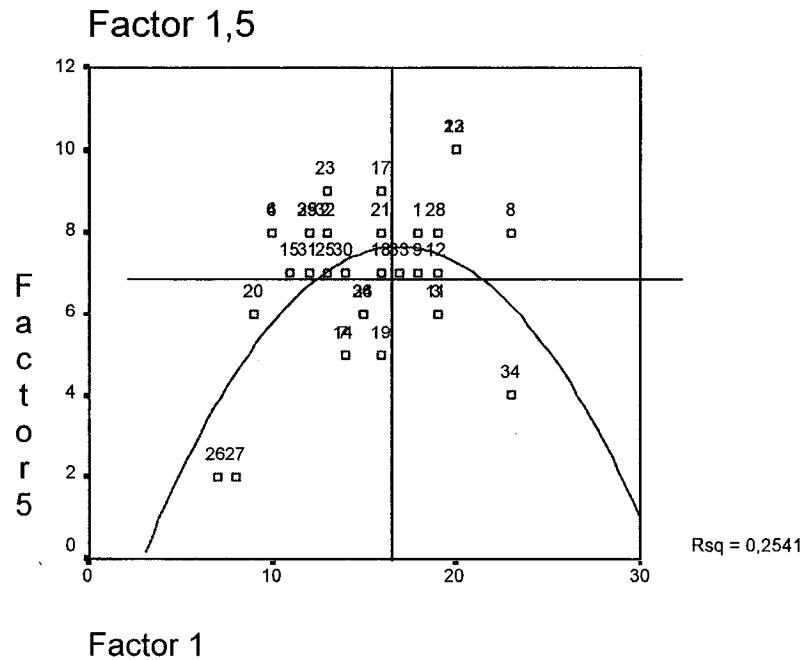
In this case, Figure 7 is less obvious. There seems to be a tendency that highly innovative firms seem to also emphasize marketing and quality.

However, this result may depend on the development phase of the firm. A start-up firm still in its development phase of its first technology will be more oriented on innovation than marketing. As shown in the above figure, firms located in the above left quadrant are in fact very young firms: Firm 26 (1999), Firm 35 (2002), Firm 29 (1998), Firm 7 (2000). Those firms that focus

only on innovation in comparison to marketing may tend to be younger firms, in their research development phase. When the firm pursue more an aggressive growth, a marketing and quality differentiation may be emphasised.

Factor 1 & 5

FIGURE 8: FACTOR 1 & 5



Implications:

- Factor 1: Marketing & quality differentiation
- Factor 5: Low cost & Efficiency concern

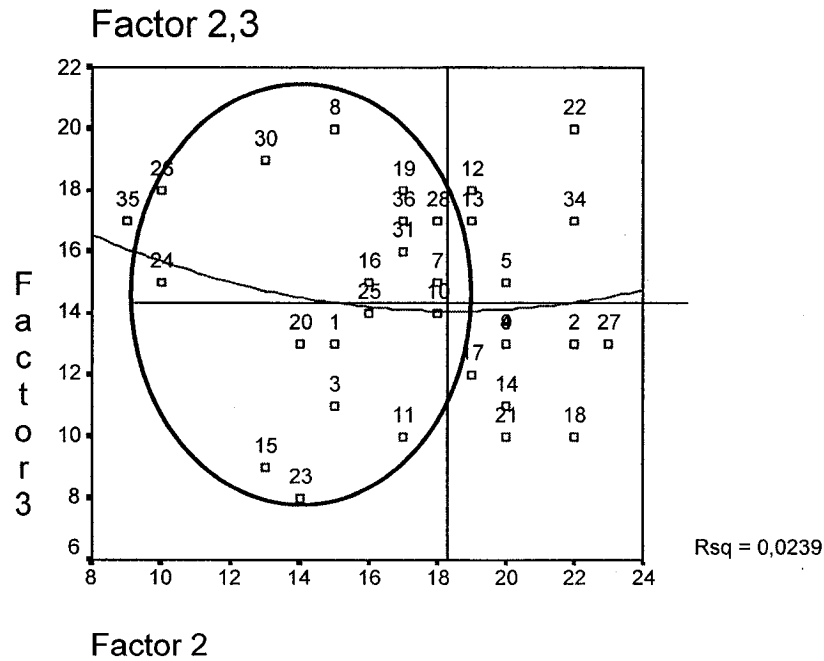
Figure 8 shows that most firms compete (on average, or slightly above average) on low cost and efficiency basis. This concern is critical for all start-up phases.

Figure 8 suggests that no matter the type of marketing strategy being pursued by HGEFs, all these firms tend to emphasize low cost and efficiency as a key element of their strategy. Interestingly, those firms that are rated the lowest on low cost and efficiency concerns are not

financed by venture capital (HGEF 26: loan, HGEF 27: small savings, HGEF 34, family). Perhaps, those firms may be working with limited resources. Venture capitalist may stress the importance and influence the emphasis given to low cost and efficiency.

Factor 2 & 3

FIGURE 9: FACTOR 2 & 3



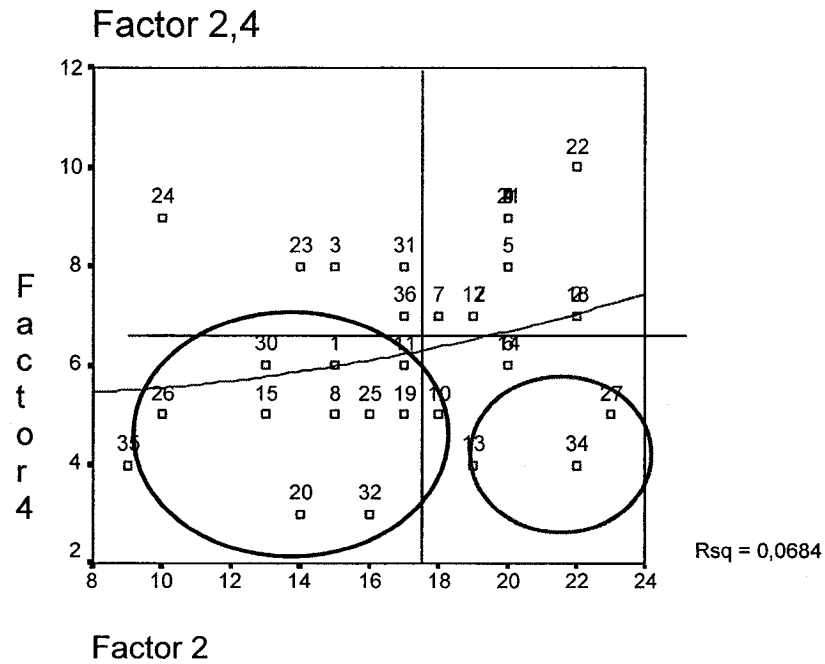
Implications:

- Factor 2 Broad market segmentation
- Factor 3 Innovation

As shown on Figure 9, firms that have smaller market segment (niches) tend to be the most innovative firms. Those with a broader market segment and a larger number of customers also tend to emphasize innovation. However, as the figure demonstrates, there is no clear-cut rule. Perhaps, other factors such as the industry and product development stage may have an impact on the chosen emphasis.

Factor 2 & 4

FIGURE 10: FACTOR 2 & 4



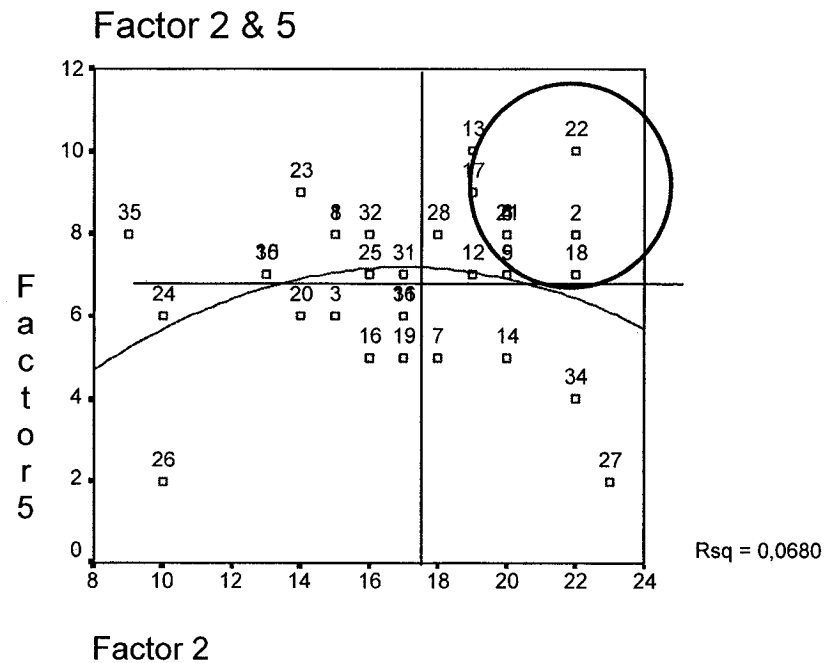
Implications:

- Factor 2: Broad market segmentation
- Factor 4: Buyer contract & Distribution

As shown in the above figure (Figure 10), there seems to be a tendency among firms centred on a narrow market based (niche strategy) to place less emphasis on distribution channels. Logically, larger markets require more emphasis on distribution channels and buyer contracts. However, the development of channels may be also linked to the product it self.

Factor 2 & 5

FIGURE 11: FACTOR 2 & 5



Implications:

- Factor 2: Broad market segmentation
- Factor 5: Low cost & Efficiency concern

The low cost and efficiency concerns seems to be slightly more important to those firms competing on a broad market segment than those pursuing a niche market. Firms that employ a broader market segment generally place above average emphasis on low cost and efficiency. Targeting a larger number of customers may be a more risky option and successful firms must focus on low cost and efficiency.

Conclusions of Factor characteristics

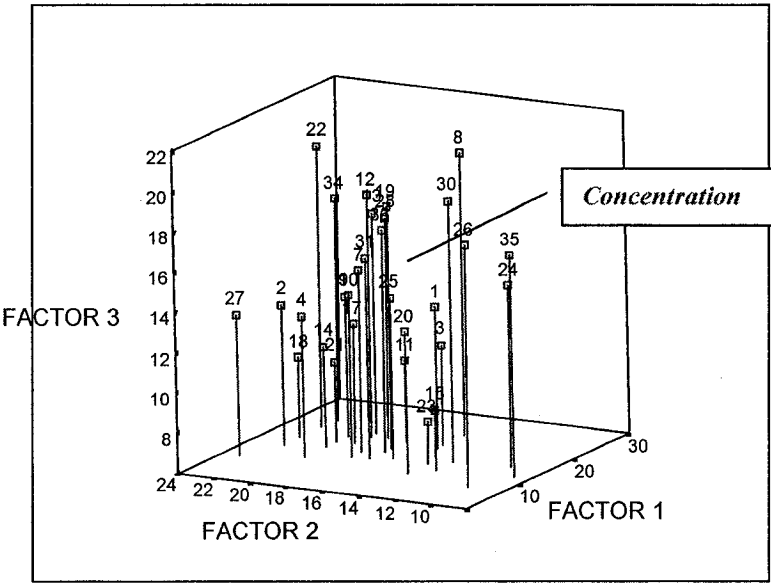
In conclusions, the previous results suggest the existence of some interrelationships between the various strategic factors. However, because the sample is relatively small, generalization should be carefully made.

INTERRELATIONSHIPS BETWEEN THREE VARIABLES

All possibilities of interrelationships were analyzed. Two interrelationships came more apparent.

Factor 1,2,3

FIGURE 12: FACTOR 1 & 2 & 3

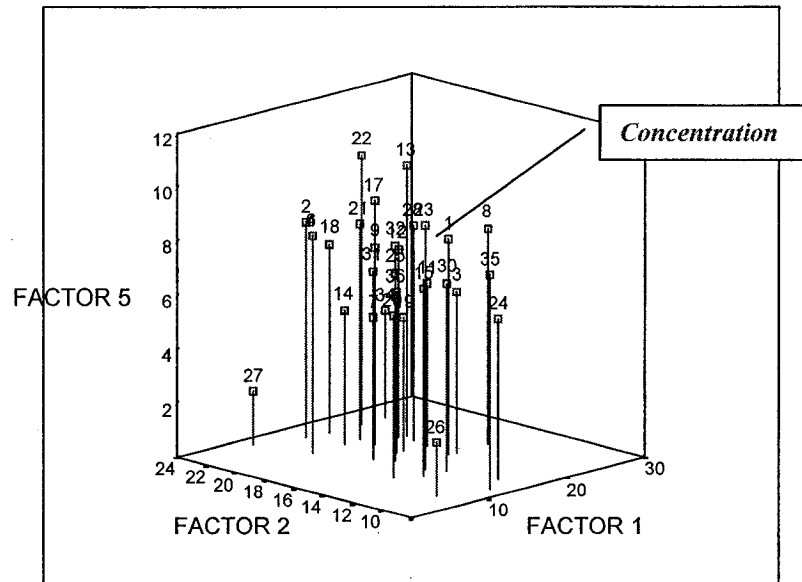


- Factor 1 Marketing & quality differentiation
- Factor 2 Broad market segmentation
- Factor 3 Innovation

A dense concentration is represented by a group of firms that are relatively high marketers, with broad market segment, and moderate to high innovators.

Factor 1,2,5

FIGURE 13: FACTOR 1 & 2 & 5



- Factor 1 Marketing & quality differentiation
- Factor 2 Broad market segmentation
- Factor 5 Low cost and efficiency concerns

A dense concentration of firms is represented by relatively high marketers, with broader market segment basis than the industry and is concerned with low cost ad efficiency.

7.4 STRATEGIC TOOLS EMPLOYED BY HGEFS

EXTERNAL DEPENDENCE, CUSTOMER AND INDUSTRY AWARENESS

With regards to their current strategy, entrepreneurs were asked the following question: “To what extent did each strategic action pertain to the company’s overall growth strategy?”

Strategic tools in this regard included the following issues:

- customer awareness;
- industry awareness;
- external dependence.

TABLE 20: STRATEGIC TOOLS

ACTIONS	MEAN	MEDIAN
Engaging in “networking” activities to reduce environmental uncertainty	3.06	3
Actively attempting to predict competitors’ moves	3.19	3.5
Actively attempting to predict customers’ requirements/tastes/preferences	4.37	5.0
Actively attempting to predict industry trends	4.25	4
Actively attempting to encourage new customers to enter the market	3.47	4
Keeping our firm abreast of relevant new technology	4.31	4
Actively attempting to minimize our dependence on any single supplier	3.19	3.5
Actively attempting to minimize our dependence on any single customer	3.64	4

Table 20 highlights that HGEFs actively attempt to predict customer requirements and tastes (mean 4.37, median 5). Focusing on the needs and enhancing the product to meet customer requirement is the most highly rated growth tactic employed by the sample firms. When examining the potential effect of age, this tactic is slightly more popular among older firms, 8 years or more (group 1: 4.11; group 2: 4.65).

In addition, when examining their current strategy, HGEFs seem to pay more attention to understanding industry responsiveness. HGEFs tend to differentiate themselves from other small businesses by proactively attempting to predict industry trends (mean 4.25) and by keeping their firm abreast of relevant new technology (mean 4.31). This very last tactic is most popular among

older firms (group 1: 4.06; group 2: 4.56). Finally, concerning their external independence, HGEFs seem to actively attempt to minimize their dependence on any customer (mean 3.64). Overall, results indicate that these strategies are generally more popular among both older and larger firms.

On the other hand, results suggest that the following tactics were less pursued by HGEFs:

- Encouraging new customers to enter the market (mean 3.47);
- Engaging in “networking” activities to reduce environmental uncertainty (mean 3.06);
- Actively attempting to predict competitors’ moves (mean 3.19);
- Minimizing the organizations’ dependence on any single supplier (mean 3.19).

However, the older and larger the firm, the more they tend to employ the above strategic tools. For example, older firms attempt to be more actively engaged in predicting competitor’s moves than younger firms (group 1: 2.78; group 2: 3.61)

In summary, customer awareness, industry awareness and external dependence to one customer are three tactics that pertains well to the overall strategy pursued by HGEFs.

COMPETITIVE TOOLS

In addition, participants were asked the following question: “To what extent did the company emphasize the following growth and competitive strategies for their services and products in the past five years?”

TABLE 21: COMPETITIVE TOOLS

ACTIONS	MEAN	MEDIAN
New products/services development via R&D	4.49	5
Launching formal joint ventures with other firms	2.47	2
Using corporate partnering with larger firms	3.64	4
Licensing technology to/from other firms	2.56	2
Acquiring firms in closely related businesses	1.92	1

ACTIONS	MEAN	MEDIAN
Acquiring firms in unrelated businesses	1.14	1
Emphasizing innovations or breakthroughs for entirely new products	4.17	5
Emphasizing technological modifications to existing products/services offered	3.69	4
Vertically integrating backward toward our suppliers	2.26	2
Vertically integrating forward toward our customers	3.17	4
Entering new businesses or markets with existing products/services	3.32	4

Product innovation and product entry

Overall, Table 21 suggests that the most frequent emphasized growth strategy by HGEFs is new products/services development via R&D (mean 4.49, median 5).

In addition, entrepreneurs were asked to rate their level of emphasis in regards to breakthroughs of entirely new products or technological modifications to existent products. HGEFs were found to employ both, but emphasized more breakthroughs of entirely new products (mean 4.17) than technological modifications to existent products (mean 3.69). It is interesting to note that firms that scored high on the innovation Factor emphasised breakthrough of entirely new products.

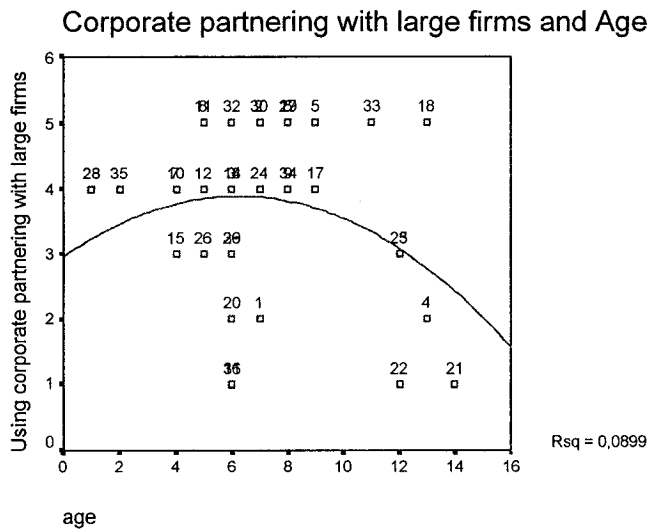
Results also suggest that firms who scored high on breakthrough variable compete in all sectors. However, firms that emphasize the most technological modifications to existing products tend to compete in the computer systems, software and hardware and health care industry. Firm's age was not a factor.

In addition, results also suggest that HGEFs do enter new markets with existing products/services (mean 3.32). While they emphasize the development of entirely new products, they enter their existing products in new markets. This strategy is highly used by firms which scored high on the Factor 2, "broad market segmentation".

Corporate partnerships with large firms

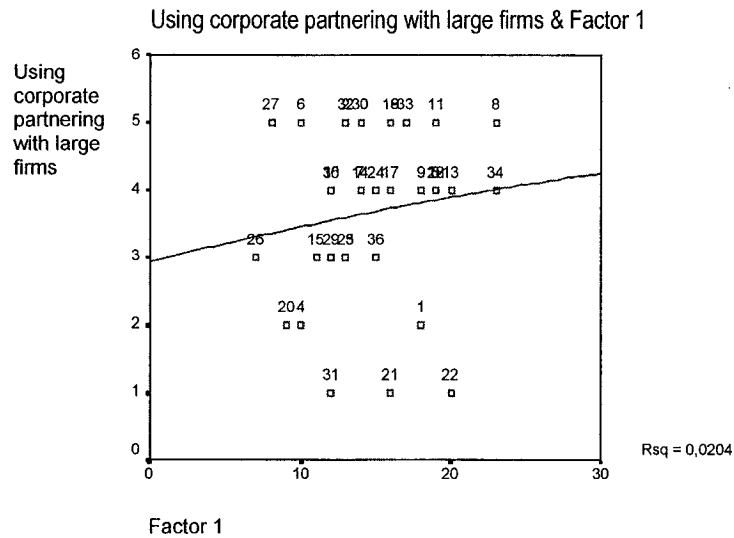
Table 21 proposes that another important growth tool employed by HGEFs is using partnering with larger firms (mean 3.64, median 4). The firm’s age and size were not a factor.

FIGURE 14: INTERRELATIONSHIP BETWEEN CORPORATE PARTNERSHIP & AGE



Corporate partnering strategy is a tactic linked to firms that scored high on Factor 1 “marketing and differentiating”. This result suggests that to commercialize and promote new products, most HGEFs establish strategic partnership.

FIGURE 15: INTERRELATIONSHIP BETWEEN CORPORATE PARTNERSHIP AND FACTOR 1



According to the present study, setting up a partnership with a large firm is a tactic more employed than launching formal joint ventures with other firms (mean 2.47, median 2). Interestingly, those firms who launch formal joint ventures with other firms tend to be older (minimum of 8 years) and compete in computer systems, software and hardware industry.

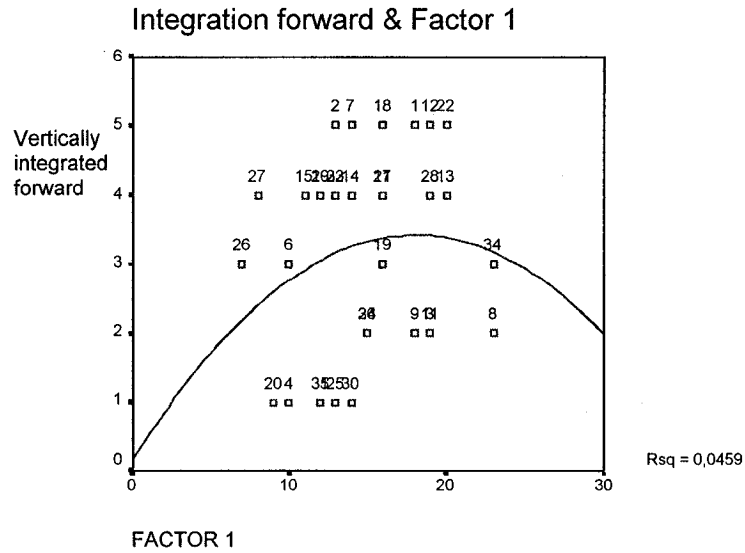
Also, the results reveal the majority of the firms did not acquire firms in closely related businesses or unrelated businesses to grow. Again, corporate partnership is more popular than acquisition strategy, as the acquisition requires too important resources for a relatively young firm.

Vertical integration

This previous result is consistent with another tactic, vertical integration. Forward integration toward customers (mean 3.17) was found to be a tactic more frequently employed by HGEFs than backward integration toward suppliers (mean 2.26) (see Table 21). Forward integration toward customers was highly rated most by firms in the computer system, software and hardware, telecommunications and information technologies industries. In addition, HGEFs, who

rated high on Factor 1 (marketing and differentiation), are most likely to use this strategy (see Figure 16).

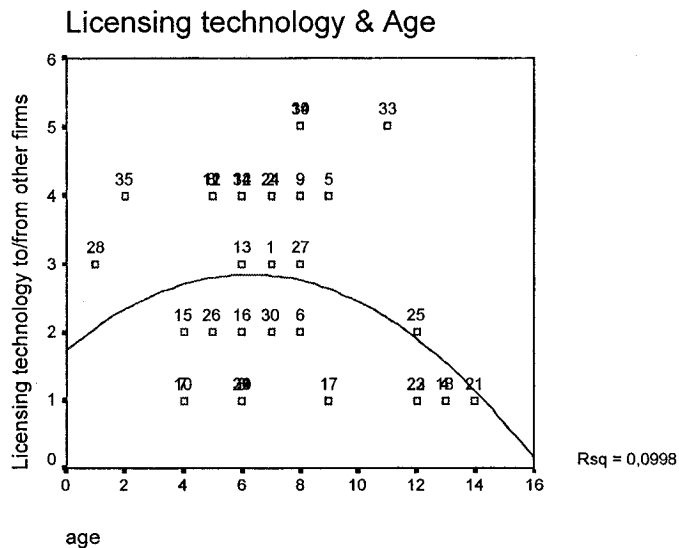
FIGURE 16 : INTERRELATIONSHIP BETWEEN INTEGRATION FORWARD AND FACTOR 1



Technology licensing

Finally, the results show that entrepreneurs on average use rarely technology licensing developed internally or by other firms (mean 2.56, median 2) to accelerate growth (see Table 21). Again, firms that employ such a tactic tend to have passed their early development phase (see Figure 17).

FIGURE 17: INTERRELATIONSHIP BETWEEN LICENSING TECHNOLOGY AND AGE



TIME-BASED STRATEGIES

The entry tactic that most HGEFs employ since the inception of the business is to be the first in the market to introduce their new products/services and technologies in order to enjoy first-mover advantage as shown in Table 22.

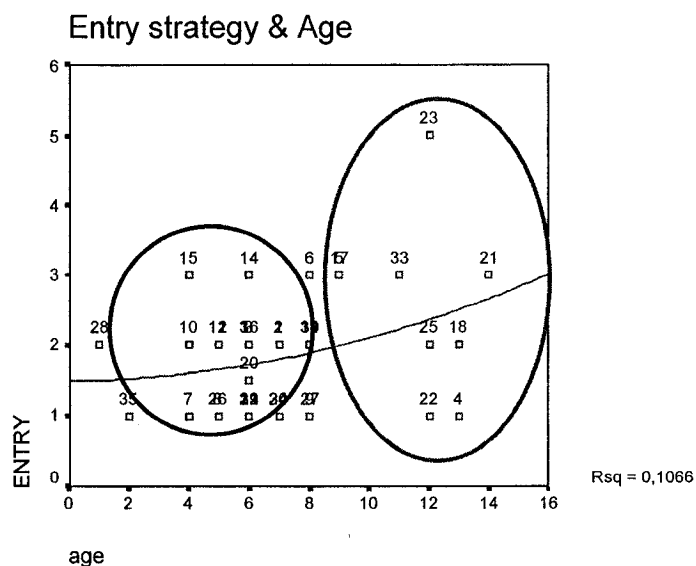
TABLE 22 : TIMING OF MARKET ENTRY

TIMING OF MARKET ENTRY	SAMPLE DISTRIBUTION
First company in the market	38.9%
One of the first few companies in the market	36.1%
Middle position: not one of the first nor close to the last	19.4%
One of the later companies to enter the market	0%
One of the last companies to enter the market	2.8%

Age effect

There is a tendency as described by Figure 19 that younger successful ventures enter the market first or one of the first. This competitive strategy is less common among older ventures. The business sector’s type of the firm was not a factor.

FIGURE 18: INTERRELATIONSHIP BETWEEN ENTRY STRATEGY & AGE



When analyzing the effect of age on Figure 18, there is a clear difference between the younger group of firms (left circle) and the older group (right circle). On the one hand, younger firms tend on average to use a first-mover tactic (group 1: 1.64; group 2: 2.11). On the other hand, older firms seem to enter a market in the middle (not one of the first, nor close to the last). This may suggest that older firms are well established in the market and can take advantage of their position to access later the market.

Size effect

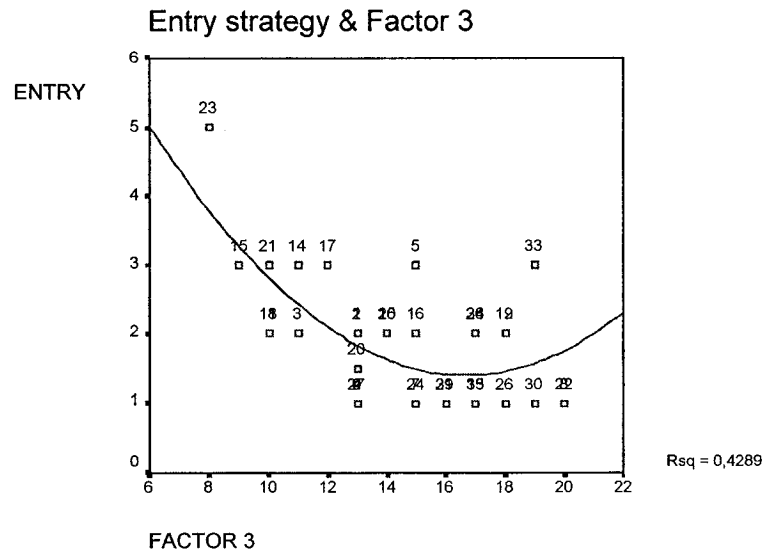
The size effects are very similar to the effects of age. Large organizations are less tempted to employ a first-mover tactic to introduce new products/services and technology in the market (group 1: 1.50; group 2: 2.29).

Factor effect

Results (see Figure 19) show that firms that scored high on the “innovation” Factor are more likely to enter a market first. They may have fewer risks with their very advanced innovative products. These firms tend to compete in the computer, software and hardware industry and were

initially financed by savings. Curiously, the firm that followed a last-mover tactic scored very low on the “innovation” Factor and high, on the “distribution” Factor.

FIGURE 19: INTERRELATIONSHIP BETWEEN ENTRY STRATEGY & FACTOR 3



STABILITY OF INITIAL PRODUCT FOCUS

Entrepreneurs were asked if their firms had marketed lines of products that are very much new lines, a mix of original and new lines, or original lines since the inception.

As Table 23 demonstrates, most technology-based HGEFs offer, on average, a mix of original and new line (61.1% of the firms).

TABLE 23: PRODUCTS/SERVICES LINES

PRODUCT/SERVICES LINES	SAMPLE DISTRIBUTION
Original lines (no new lines)	22.2%
Original and new lines	61.1%
Very many new lines	16%

Using Ansoff’s (1957) product-market matrix, most firms seem to employ a product extension strategies, in which original and new products are sold in their original markets. 22.2% of the

HGEFs use a penetration strategy (current market, current product) or market expansion (new market, current product) and a smaller portion (16 %) employ a diversification strategy (new products, new markets) or line extension (current market, new product).

The firm's age, type of business sector or factor was not an issue.

In addition, since the start of the business, participants were asked the following question: "How has the products changed?" Table 24 presents the sample distribution.

TABLE 24: PRODUCT CHANGES

PRODUCT CHANGES	SAMPLE DISTRIBUTION
No change from the venture's initial offering	0%
Change in product appearance or packaging only	0%
Minor product upgrades, or different applications of the same product with no significant changes in function	25%
Product with substantially changes in technologies	66.7%
Not applicable to the company	8.3%

As the table describes, most HGEFs tend to make substantial changes in the technologies of their products (66.7%). No firm has indicated that they had only change its products in terms of appearance or packaging alone or had conducted no changes at all. For three firms, the question did not applied since they only offer services.

As a result, continuously improving and changing technologies is associated to a pattern of HGEF strategy.

The firm's age, type of business sector or factor was not an issue.

GEOGRAPHIC SCOPE

In addition, since the start of the business, participants were asked the following question: "How has the initial market focus evolved geographically?" Table 25 describes the sample distribution.

TABLE 25: GEOGRAPHIC SCOPE

GEOGRAPHIC FOCUS	SAMPLE DISTRIBUTION
Local expansion (Montreal and surroundings)	5.6%
Regional expansion (Quebec)	5.6%
National expansion	8.3%
National and international expansion	2.8%
International expansion	77.8%

The results, as shown in the table, suggest that most firms have pursued an international expansion strategy (77.8%). The computer, software and hardware industry is certainly an industry that requires that a firm competes on an international level since most competitors and suppliers are foreign-based. In addition, there may be a correlation between where the firm considers its competition to be located and the geographic expansion strategy. The results suggest that firms will at least follow an expansion strategy that goes beyond the location of their competition. For example, firms that indicated that the competition is at a local level have minimally expanded their market focus regionally, or nationally, and even internationally.

Age effect

The firm's age was not a factor. No matter the age of the firm, international expansion strategy is the most chosen strategy.

Factor effect

The two firms that compete locally also scored moderately high on Factor 5 (low cost) and Factor 2 (broad market segmentation). A HGEF can compete locally on a broad scale. For example, one of those firms that expand locally is a firm that has major large clients in Montreal.

7.5 GROWTH

Growth values were very hard to compile. Some small firms were reluctant to provide hard financial data. Those information could not be validated. However, all firms of the sample were

considered high-growth firms, based on the way they were selected, i.e. financed by venture capitalists or award winning firm.

Further research in analysing growth of those successful firms by ages will be very interesting. McCann and Cornelius (1985) found that age, venture origin, ownership, and industry of young venture affect significantly profitability and growth rates (McCann 1991).

8. Discussion

This study attempts to answer the following question: “Which new venture strategies are associated with higher growth?” The discussion provides an attempt to understand the strategy patterns and tools (tactics) pursued by HGEFs.

As discussed earlier, defining what a new venture strategy consists of is a complex issue. Many reasons encourage entrepreneurs to pursue high growth strategy. Since the sample studied is technology-based, some specific findings are drawn and highlighted in the following paragraphs.

In addition, new venture performance models are still debated in the literature. Identifying which strategy leads to high growth and what its impact will be is still a mystery for many researchers. Some researchers have recently studied high-growth strategies and recent hypotheses have been highlighted in the literature review.

More specifically the study examines the following questioned areas:

- Strategic directions pursued by HGEFs;
- Strategic tools employed by HGEFs;
- The impact of size and age on the HGEF’s strategy.

In an attempt to answer those questions, the study was guided by results of previous study, in particular, Ostgaard & Birley (1994), which reported the following two arguments:

- HGEFs employ multiple strategic emphases;
- Growth strategy evolves across time.

This section will deal with those question areas in detail and provide a discussion framework for the results to determine whether the latter support the literature, or not.

8.1 STRATEGY DIRECTIONS PURSUED BY HGEFS

One argument tested concerns whether or not this study supports that HGEFs use multiple strategic emphases. This study's results support the argument that emphasize multiple strategic orientations represents a strategic pattern pursued by many HGEFs.

In the following section, the above finding is discussed.

NICHE-ORIENTED STRATEGY... A POPULAR STRATEGY FOR EARLY GROWTH

This research has suggested that niche strategy is very popular among HGEFs in technology-based industries. Entering markets on a small scale with gradual objectives and using a niche strategy seems to be the most popular approach. The niche strategy focuses on a smaller number of customers, selling products and services to limited market segments and offering a narrow range of products and services. Fifty-eight percent of respondents indicated that less than 10 firms compete in their niche, suggesting that their niche is rather narrow. This finding supports early research by Katz (1970), Buchele (1967), Broom & al. (1983), and Covin, Slevin & Covin's (1990) in the strategy entrepreneurship literature.

However, this study also suggests that HGEFs pursue successfully broad-oriented strategy. Thirty percent of respondents indicated that more than 20 firms compete in their niche, suggesting that their niche is rather broad. In addition, broad market strategy has been identified as a popular cluster and 12 firms out of 36 sell products/services to a larger number of segments than their competitors. This strategic cluster "broad market segmentation & customer focus" combines the following tactics: (1) generating funds through external operations; (2) constant product/service development; (3) large number of customers; (4) superior products/service warranties; (5) high-level after-sales services.

It is interesting to note that HGEFs, initially financed by venture capital funds, are less likely to score high on the "broad market segmentation and customer focus" Factor, when compared to

firms financed by savings and private funds. This result may suggest that venture capitalists consider the niche/focus strategy as the most successful. In addition, firms in computer, software, hardware, telecom and information technology are more likely to use a broader market approach as they scored higher on the “broad market segmentation & customer focus” Factor than firms in health sciences and environmental industries.

The results seem to demonstrate that pursuing a broad or narrow strategy and offering a broad/narrow range of products that is similar to those in the industry can lead to growth.

However, more specifically, when examining the effect of age, the results show that smaller and younger firms tend to mostly employ the niche strategy. The study supports Bantel's (1996) results which have demonstrated that the niche strategy facilitates firm performance in the early resource-constrained stages of the firm's life. In fact, larger and more established firms tend to employ a broad strategy.

In summary, this study reinforces the idea that the niche strategy may be mostly employed by smaller and younger firms. Recently, many researchers have questioned the ability of niche strategy to achieve profitability, although most have agreed on its popularity.

DIFFERENTIATION STRATEGY... INNOVATION, QUALITY AND MARKETING

The study suggests that many HGEFs pursue a differentiation strategy. The factor analysis has revealed that three out of five factors are linked to differentiation, suggesting that differentiation tactics are central to many HGEF strategies. This finding supports previous research by Sandberg & Hofer (1987), Miller & Camp (1985) and Baum, Locke & Smith (2001), which suggests that differentiation strategy is the most successful option for entrepreneurs. The differentiation strategy seems to outperform many strategies.

More specifically, this research identified three key areas of differentiation, innovation, marketing and quality, and stressed the importance of marketing, less discussed in earlier studies.

Innovation emphasis

With regards to product innovation, HGEFs are definitely R&D and innovation leaders. As Schumpeter, the well-known economist, suggested, “innovation is a key activity that most successful entrepreneurs must perform” (Ibrahim & Ellis 1998). The innovation pattern is played out through a continuous product or service development as well as dramatic changes to the product/services offer. Innovation is certainly an area where HGEFs seem to outperform their competitors.

In addition, the “innovation” Factor is quite popular; 42% of the firms out of the sample employed this strategy alone or in combination with other strategies. The innovation Factor include the following strategic actions: (1) dramatic changes in products/services; (2) R&D, technological leadership and innovation; (3) total innovation in technologies; and (4) securing product-related patents. The popularity of this Factor supports Baum, Locke & Smith’s (2001) recent study which shows that differentiation strategies employ innovation as a key element.

In addition, when HGEFs were asked to what extent the company emphasize multiple growth and competitive strategies for their services and products in the past five years, the study revealed that most entrepreneurs emphasize new products/services development via R&D. This result is consistent with these companies’ technology development phase in which concept testing and multiple development phases (alpha/beta) are carried out.

It is interesting to note that HGEFs initially financed with venture capital funds are more likely to use product-related patents than those financed through savings and bank loans. It may be possible that venture capitalists are highly concerned with intellectual property and require that firms protect their technologies.

Quality emphasis

Concerning differentiation through quality, HGEFs seem to emphasize four quality tactics: product/service quality, high price offering, after-sales service and warranties. This emphasis on quality seems higher for HGEFs than the industry average. Quality is a strategy that allows the firm to position it self above its competitors. This result supports previous research by Chaganti, Chaganti & Mahajan (1989), Ireland & Hitt (1997) and Upton, Teal & Felan (2001). In addition, using a sample similar to this study, Ireland & Hitt (1997) found that high-quality strategies were linked positively to growth. Furthermore, research by Upton, Teal & Felan's (2001) found that out of 65 fast-growth family firms, over 66% choose differentiation strategy through high-quality product/service.

Marketing emphasis

This study also suggests that a differentiation strategy based on marketing is used by many technology-based HGEFs. HGEFs are more likely than their competitors to use an internal sales force and develop new distribution channels and less likely to make extensive use of promotion. Marketing is definitely a strategic tool for new ventures.

The "distribution" Factor used by 19% of the participants (alone or in combination with other strategies) combined two tactics: (1) long-term buyer contracts and (2) developing new distribution channels. This strategy is less popular than differentiation strategy through high-quality product/service but has shown its popularity and importance through the item analysis. Examining correlations between Factor 2 (broad market segmentation) and Factor 4 (buyer contract & distribution), there seems to be a tendency whereby HGEFs develop a smaller number of distribution channels on a narrow market base (niche strategy). In fact, it is only logical that larger markets require more distribution channels.

Not many studies have examined this type of differentiation. One reason for this gap may be that this strategy is more relevant and specific to technology-based firms. In fact, in the high-tech industry, marketing offensiveness has been found to be a determinant of high performance (Vanden Abeele & Christiaens 1986/ Covin, Slevin & Covin 1990). Analyzing 57 small high-tech manufacturing firms, Covin, Slevin & Covin (1990) characterized growth-seeking firms in high-technology industries as firms that “rely more on advertising”, “place more emphasis on customer service/support”, “rely more heavily on premium pricing strategies” and “have more entrepreneurial strategic postures”.

In addition, marketing emphasis is more popular among older firms, once they become focused on commercializing and promoting their products. In summary, results of this study suggest that marketing is definitely an important strategic action in the technology-based sector.

Combining differentiation tactics

The factor analysis has demonstrated that HGEFs use a combination of differentiation tactics. For example, Factor 1 (marketing and quality differentiation), used by 42% of the firms in the sample (alone or in combination with other strategies), relies on (1) high use of advertising to differentiate products/services; (2) a high level of advertising & promotion; (3) strict quality control; (4) entering the market(s) on a large scale with rapid growth objectives; (5) developing a brand identification and name recognition. This Factor suggests that those firms who emphasize marketing and quality strategy tend to enter the market(s) on a large scale with rapid growth objectives in mind.

It is important to note that as discussed previously, this last tactic is not generally employed by smaller HGEFs, which seem, on average, to enter slightly (item #19; mean 2.53) more at a small scale with gradual growth objectives than the industry. To a certain extent, this result supports

Covin, Slevin & Covin's (1990) research, which suggests that differentiation, aggressive market shares and high pricing are strategies that go well together.

Furthermore, when examining correlations between "marketing & quality differentiation" and "innovation" Factors, there seems to be a tendency that highly innovative firms are also highly competitive in terms of marketing and quality. However, there is no clear-cut rule. In addition, when examining correlations between the "marketing & quality differentiation" and "buyer contract & distribution" Factors, the study suggests that low marketers are less involved in developing new distribution channels.

In summary, this study indicates that not only is differentiation strategy popular among HGEFs, but that three areas of differentiation are often employed: innovation, quality, and marketing. As suggested by Chaganti, Chaganti & Mahajan (1989), high-tech businesses may enjoy more slack and be able to employ more typical strategies of differentiation. This may explain why, in other samples, from other industries, differentiation is less employed. In addition, this study stresses the importance of marketing differentiation. Finally, the combination of these strategies was found to be popular among HGEFs.

BALANCED STRATEGIC ORIENTATION... COMBINATION OF STRATEGIC ACTIONS

The largest group of firms in this study is the most difficult to characterize as it shows strong emphasis on many of the strategic variables. However, the following strategic pattern appears to have emerged: high-growth entrepreneurs pursue a multi-faceted strategy. 28% of the firms actually scored higher than average on more than three competitive strategies. These firms appear to have multiple patterns of strategic behaviour. Their strategy has a balanced emphasis on various competitive weapons. This finding is supported by other studies, such as Ostgaard & Birley (1994), Sandberg (1986), Robinson & Pearce (1985), McDougall (1987), and Carter & al. (1991).

In addition, based on the results, two strategic groups can be identified. One strategic orientation combines Factor 1 (marketing & quality differentiation), Factor 2 (broad market segmentation) and Factor 3 (innovation). This group of firms are high-marketers, broad marketers, and moderately high innovators. Another strategic orientation combines Factor 1 (marketing & quality differentiation), Factor 2 (broad market segmentation) and Factor 5 (low cost and efficiency concerns). This group of firms can be characterized as relatively high marketers, moderately higher than the industry in terms of using broad market segment and being highly concerned with low cost and efficiency.

The results suggest that fast-growing firms simultaneously control costs, improve product quality and product offerings, a result that may be surprising for some. In fact, this finding directly questions Porter's theory, which recommends that firms choose a single strategy to grow. As a result, the argument that most firms emphasize only one strategic pattern is not supported by this study.

Ostgaard & Birley (1994) found a similar group of high-growth firms, the largest cluster of the sample, which also had no clear strategic orientation. However, those firms did not score higher than the average, but centred on the global average of many strategic tools. In this study, 8% of the firms scored on the average of more than three competitive strategies, suggesting that they may follow an opportunity-driven strategy.

In summary, the results suggest that HGEFs tend to pursue a multi-faceted strategy to achieve high growth. Fast-growing firms simultaneously control costs, improve product quality and product offerings.

8.2 STRATEGIC TOOLS EMPLOYED BY HGEFS

PIONEER IN PRODUCTS/SERVICES MARKET ENTRY

This study suggests that most new ventures enter the market using a first-mover strategy. HGEFS are most likely to be pioneers in their products/markets.

Highly innovative HGEFS tend to be one of the first to enter a market. Firms that scored high in the “innovation” Factor are more likely to enter market first. They may have fewer risks with very advanced innovative products.

This finding seems to support earlier studies that timing is critical for new ventures. Ireland & Hitt (1997) and Upton, Teal & Felan (2001) have found first and second-movers to be linked to higher ROS. In addition, this result may suggest that the advantages of entering a market first outweigh the drawbacks. Some major advantages for HGEFS when employing a first-mover strategy is getting patents for their breakthroughs and fighting against followers for profits (Kneale, 1987/ Feeser & Willard 1990). First-mover advantages also include higher customer awareness, creation of barriers and experience curve considerations (Feeser & Willard 1990).

In summary, this research suggests that HGEFS strategically enter the market first or one of the first. In previous literature, the link between time-based strategies and high growth is still debated. For example, Feeser & Willard (1990) found that there is no difference between a high-growth and a low-growth group of firms, suggesting that there are both advantages and disadvantages to being a first-mover. This study could not support this argument since the sample only consisted of HGEFS.

GRADUAL GROWTH OBJECTIVES USING A SMALL-SCALE ENTRY

Concerning the scale of market entry and the urgency of growth objectives, on average, HGEFS seem to enter a market using a small scale and following gradual growth objectives. This result

does not provide support for a group of researchers, Allen (1968), Vesper (1980), Hannan (1976), McDougall & Robinson (1990), Ostgaard & Birley (1994), who proposed that aggressive share objective strategy is the most profitable strategy for new ventures and may lead to the most successful business growth.

Specifically, results of the present research suggest that HGEFs, initially financed by venture capitalists, are more tempted to strategically enter a market on a small scale using an incremental approach. This result may suggest that venture capitalists consider a gradual, as opposed to aggressive, approach to be more appropriate to high growth and less risky.

On the other hand, this study has demonstrated that an aggressive strategy is usually used in combination with other tactics or strategy. For instance, entering on a large scale with rapid, immediate growth objectives is a tactic that was found to be used in combination with other quality and marketing differentiation tactics. This result supports research by Biggdike (1976) whereby new ventures were found to choose a “large scale entry, aggressive and broad scope” and invest heavily in marketing and investment (McDougall, Robinson, DeNisi 1992). Furthermore, a study by Ostgaard & Birley (1994) identified a similar strategic Factor, “aggressive innovation and marketing firms” that competes with an aggressive strategy based on broad geographic market, large-scale entry, growth objectives, innovation and marketing. This group of firms achieved the highest sales and profit growth.

There is little research reported on the competitive weapons involved in an aggressive growth strategy.

Overall, results of the present study suggest that most HGEFs tend to enter the market on small scale following gradual growth objectives. However, aggressive growth strategy seems to be employed by some HGEFs, that use this strategy in combination with other tactics aimed at achieving marketing and quality differentiation.

PRODUCT-MARKET STRATEGY

Product mix... Original and new products

As product-market strategies are critical for growth, this study examined what product and market combination is used most by HGEFs. The findings suggest that, since their inception, technology-based HGEFs offer, on average, a product/service mix of original and new lines. Using Ansoff's (1957) product-market matrix, 22.2% of the HGEFs use a penetration strategy (current market, current product) or market expansion (new market, current product) (the market element was not tested).

These findings are somewhat different than Cardozo, Reynolds, Miller & Ardishvili's (1993) study, which found that penetration and diversification strategies were the most popular. However, growth was greater with market expansion and diversification strategy.

Results support Meyer & Robert's (1984) findings that firms with limited products and markets grow more rapidly than 1) firms focusing only on their original product/market combination; and 2) firms diversifying into unrelated products and markets (Cardozo, Reynolds, Miller & Ardishvili 1993). Thus, HGEFs tend to offer a mix of original and new lines and tend to preserve their initial product/service focus.

These findings also support Roberts & Berry's (1985) study which found that successful growth firms concentrate on their initial product/focus/technology and introduce product enhancements in these areas (Feeser & Willard 1989). HGEFs were found to evaluate the potential demand and needs of their customers so that they do not have to drastically change their original product focus. This idea supports Feeser & Willard's (1989) study which compared high-growth and low-growth firms and showed that HGEFs have a more stable product/market focus than low-growth firms.

With regards to product development, HGEFs make substantial changes on average in their product technologies. Leveraging a current product offering is critical in the technology-based sector. This result supports McCann's (1991) study. Continuously improving products is definitely a pattern to be included in a HGEF strategy. The research does not allow us to say if product extensions are products offering that stick to their knitting or not. More research is needed as to when products should be introduced.

When HGEFs were asked to what extent the company emphasized the following growth and competitive strategies for their services and products in the past five years, this study revealed that the most frequently used growth strategy among HGEFs is to emphasize new product/service development via R&D. This certainly proves to be coherent with their development phase in which technologies are first developed to get an alpha.

This study further reveals that HGEFs emphasize breakthroughs of entirely new products and technological modifications to existing products (though emphasis remains greater on breakthroughs of entirely new products.) This result is aligned with McCann's (1991) study which revealed that "highest performing ventures were found to be pursuing internal innovation through R&D for breakthrough." This argument is further supported by the fact that HGEFs that scored highly on Factor 3 (innovation) intensively use general breakthrough for entirely new products.

While HGEFs emphasize developing entirely new products, they integrate their existing products on new markets. This strategy is most used by firms that have already developed some products and highly used by Factor 2 (broad market segmentation). As a result, the age effect emerges as being linked to the stage of development of the firm. Testing relatedness of the products should be done in further research.

In summary, results of the present study suggest that HGEFs maintain their original product/market focus across time while adding new products/services. This is done by emphasizing breakthroughs of entirely new products and technological modifications to existing products. Thus, HGEFs highly emphasize innovation, and R&D.

Geographic scope... Global view

With regards to the geographic score, results of this study suggest that, for a large majority of HGEFs, the initial market focus evolves geographically through international expansion. This result supports Cardozo and Ardishvili's (1994) findings that younger firms choose geographic expansion, while older firms tend to pursue demographic expansion. This result can also be explained by the fact that the technology sector tend to be more global.

This finding also supports Feeser & Willard's (1989) study which suggests that HGEFs derive significant revenue from non-domestic sales and may rely much more heavily on foreign sales than do low-growth firms (nearly seven times more). HGEFs tend to adopt a more global perspective.

According to Feeser & Willard (1990), high-tech firms tend to be sensitive to growth opportunities on the global market. Pursuing international strategies allow for sensing new opportunities, reducing uncertainty, taking part to globalization, and building and maintaining a firm profitability. Overall, HGEFs seem to see the international window as a source of growth. This result supports Ibrahim & Ellis (1998) who suggest that "going international is increasingly seen as an opportunity for small business growth."

In summary, results of this study suggest that technology-based HGEFs highly promote the international expansion strategy. Market focus evolves from a local to an international level very rapidly.

LOW COST AND EFFICIENCY CONCERNS

This study reveals that the emphasis on low cost and efficiency is an important growth strategy. Low cost and efficiency emphasis is essentially concerned with high control over operations and tightly controlled financials and budgets. In this case, low cost concern should not be confused with a cost leadership strategy.

The factor analysis has suggested that low cost and efficiency is a popular tactic among HGEFs, involving (1) overriding concern for lowest cost per unit and (2) concern for improving employee productivity and operational efficiency.

In terms of efficiency concerns, this study suggests that HGEFs emphasize improving employee productivity and operational efficiency than industry average. Because the risks and aggressive competitive actions HGEFs take, entrepreneurs must control their operations and continuously emphasize productivity and efficiency. This finding supports Covin, Slevin and Covin's (1989) cluster "prudently managed, financially secure firms" that "exhibit a balanced strategic emphasis on high promotion, low prices, customer service, and efficient and tightly controlled solid operations".

In terms of financial concerns, external financing is not considered critical for HGEFs. However, the study sample is biased, since half of the sample was taken from venture capital portfolios. HGEFs seem to rely more on internal financing. Outsourcing and buyer contracts are not used more by HGEFs than the industry average. However, financial and efficiency concerns come out as strong growth strategy elements despite the fact that it has generated limited discussion in strategy entrepreneurship literature. Nevertheless, these concerns have been well outlined in more practical press releases.

It is interesting to note the following results:

- When examining the correlations between Factor 1 (marketing & quality differentiation) and Factor 5 (low cost & efficiency concern), results of this study suggest that no matter what differentiation strategy is chosen, low cost and efficiency concerns are always very important.
- When examining correlations between Factor 2 (broad market segmentation) and Factor 5 (low cost & efficiency concern), this study demonstrates that low cost and efficiency concerns are more important in a broad market segment than in a niche focus. Targeting a larger number of customers may be a riskier option, and an emphasis on low cost and efficiency becomes necessary for success.

In summary, financial concerns and efficiency comes out as strong tools of a growth strategy elements despite the fact that is has generated limited discussion in the literature. This finding may concur with Ibrahim and Ellis's (1998) statement that "lack of financial skills has been cited as a major contributing factor to the high failure rate of small businesses". Thus, financial skills are required. Further research is also needed.

INDUSTRY AND CUSTOMER AWARENESS

This study suggests that customer and industry awareness is another critical strategic tool. When entrepreneurs were asked to what extent each strategic action pertained to the company's overall strategy, this study revealed that HGEFs actively attempt to predict customer requirements and tastes. HGEFs are attentive to and knowledgeable about their customers needs and, as discussed earlier, they substantially enhance their products to meet customer requirements.

Similar results were found in relation to industry awareness. HGEFs are alert and pay much attention to industry trends, changes and transformations. They proactively attempt to predict industry trends and keep their firm abreast of relevant new technology. This industry awareness allows firms to create technologies that meet upcoming trends and needs in the industry.

These tactics were found to be used more by older established ventures, a phenomenon that may be explained by the older ventures' stronger emphasis on commercialization and marketing, other than innovation and R&D.

Finally, HGEFs actively attempt to minimize their dependence on any customer to ensure that they are financially secure.

In summary, industry and customer awareness as well as maximizing external independence from customers and suppliers are strategic tools for growth by HGEFs.

PARTNERSHIP WITH LARGER FIRMS ... A POPULAR STRATEGY AMONG HGEFs

To achieve high growth, high-tech firms employ multiple tactics such as establishing licensing arrangements, corporate partnering, joint ventures, acquisitions, or mergers (Roberts & Berry 1985/ McCann 1991). Among all these strategic tools, results of this study suggest that HGEFs of all ages use corporate partnerships with larger firms. Such partnerships may occur more frequently in the high-tech sector, since this sector requires rapid and planned commercialization.

This finding supports recent literature on inter-firm cooperative relationships aimed at commercializing new technologies. For example, Shan (1990) suggests that, through cooperative arrangements, the firm can gain two important advantages: accelerated commercialization and being a first-mover (strong incentive in the high-tech sector) (Shan 1990).

As previously discussed, HGEFs view their competition on an international level and most of them pursue international expansion strategies very rapidly. It is possible that corporate partnership is the best optimal strategy to expand worldwide. This idea supports Shan's (1990) research which explains that "the organizational mode of cooperative arrangements is

predominantly selected by the high-tech, start-up firms in commercializing their new products in foreign markets”.

In fact, this partnership strategy is strongly associated with Factor 1 (marketing & quality differentiation), suggesting that establishing important strategic partners is part of this commercial strategy. McCann (1991) supports the idea that alliances are the number-one choice to pursue to gain access to distribution channels and new markets. The purposes of these partnerships are especially linked to commercialization for market entry with a well-known brand name or research purposes (funding for research project) at different R&D development phases.

Results of this study suggest that HGEFs pursue setting up partnership with large firms to accelerate this growth more than launching formal joint ventures or licensing technology to or from other firms. This may be explained by the fact that developing joint-venture alliances is mostly employed by older new ventures. In addition, product innovation seems to be sought through internal innovation and not through technology licensing.

However, not all cooperative partnerships are fruitful. Sales growth, as proposed by McGee & Dowling (1994), is associated with the use of R&D cooperative arrangements only when both firms have similar past industry/market experience and similar technology or technical experience.

In summary, the findings reveal that setting up partnerships with large firms is pursued to accelerate growth more than any other tools such as formal joint ventures with other firms or license technology to or from other firms. This strategic tool is employed by firms of all ages, suggesting that the need for partnerships may evolve as research and marketing focus evolve.

VERTICAL INTEGRATION

Another tactic tested with the participants was whether firms tend to vertically integrate backward (suppliers) or forward (customers). Forward integration toward customers was found to be more frequently employed than backward integration toward suppliers.

It is interesting to note that forward integration toward customers was rated higher by firms in the computer system, software, hardware, telecommunications and information technologies industries than firms in other industries such as health sciences. In addition, HGEFs who were rated high on Factor 1 (marketing & quality differentiation) are most likely to use this strategy.

In summary, forward integration to customers is a popular strategic tool for entrepreneur growth.

8.3 THE IMPACT OF AGE AND SIZE ON THE FIRM'S STRATEGY

A second argument to be discussed in the following section is whether or not this study supports the idea that growth strategy evolves across time. The findings support this notion.

This research provides a step forward in emphasizing the effects of age and size as the HGEFs grow. The results are quite significant. The effect of age reinforces the results of the effect of size. Not many studies have examined this type of relationship using a HGEF sample.

Some new venture models consider that firm growth strategies and choices are made in parallel to the life-cycle (stages) of the entrepreneurial firm: startup, rapid growth, maturity and ulterior stages (decline or revival). For example, Kazanjian (1988) views life-cycle models with very limited application in technology-based firms (McCann 1991). In addition, stages are characterized by points in time where problems are confronted. Different firms encounter

different problems, and some strategic choices are not applicable (Kimberly 1980, Romanelli and Tushman 1986, and Kazanjian 1988).

With regards to the firm's age and size, the sample was split to test the different effects.

Niche market

Results of this study suggest that:

- **Age:** Firms aged less than eight years are more likely to employ a narrow market and customer focus strategy pattern.
- **Size:** Smaller firms seem to offer a smaller number of products.

Differentiation strategy

Results of this study suggest that:

- **Age:** The age effect analysis shows that older firms use marketing tactics more, since these tactics are more likely to be pursued in a pre or full commercialization phase. Tactics, such as distribution, after-sales service, internal sales force and brand identification, are more frequent among older firms. These results are coherent with the previous size effect. Younger firms are more focused on R&D activities. For instance, younger firms rated the following items higher: product-related patents, total innovation of products and services. Again, this observation corroborates with previously identified size effects. Further, older firms were found to be more likely to employ a distribution strategy (Factor 4). This finding is consistent with the fact that older and larger ventures are more likely to focus on marketing strategies than younger and smaller firms.
- **Size:** Interestingly, larger firms were found to be more focused on brand identification and after-sales services. Large firms seem, on average, to be more "marketers". This may be explained by their larger pool of resources or by the fact that older ventures are less focused on research, but more on commercialization. On the other hand, smaller firms are more

likely to use an innovation strategy pattern (Factor 3). In addition, they are tend to be more focused on product-related patents. The reason may be that smaller firms are at earlier stage of development and are more likely to be concerned with patents. In fact, smaller firms were found to more emphasize innovation than larger firms.

Time-based strategic tools

Results of this study suggest that:

- **Age:** Younger successful ventures are more likely to introduce products/services and technology into a market first or one of the first. This competitive strategy is less universal for older ventures. Older firms may enter a market using a “middle” position (not one of the first, nor one of the last) since they are well established in a market and can take advantage of their position in accessing later the market.
- **Size:** The effect of size is very similar to the age effect. Large organizations are less tempted to introduce products/services and technology into a market first or one of the first.

Aggressive, Rapid-growth strategies, Broad-scale entry

Results of this study suggest that:

- **Age:** Concerning growth objectives, younger firms seem to penetrate markets with more incremental objectives and on a small scale, while firms aged a minimum of eight years are more likely to employ a broad market and customer focus strategy (Factor 2).
- **Size:** Larger firms are more likely to use a broad market and customer focus strategy (Factor 2). This makes sense, since larger firms are more likely to be involved in commercialization and growth stage.

Financing

Results of this study suggest that:

- **Age:** When examining funds generation, younger HGEFs are more encouraged to obtain external sources. This observation supports Covin, Slevin & Covin (1990) who found that to act quickly, HGEFs are encouraged to seek external financial resources.
- **Size:** Larger ventures are more likely to generate internal funds than smaller organizations and to tolerate excess capacity in anticipation of future growth.

Other strategic tools

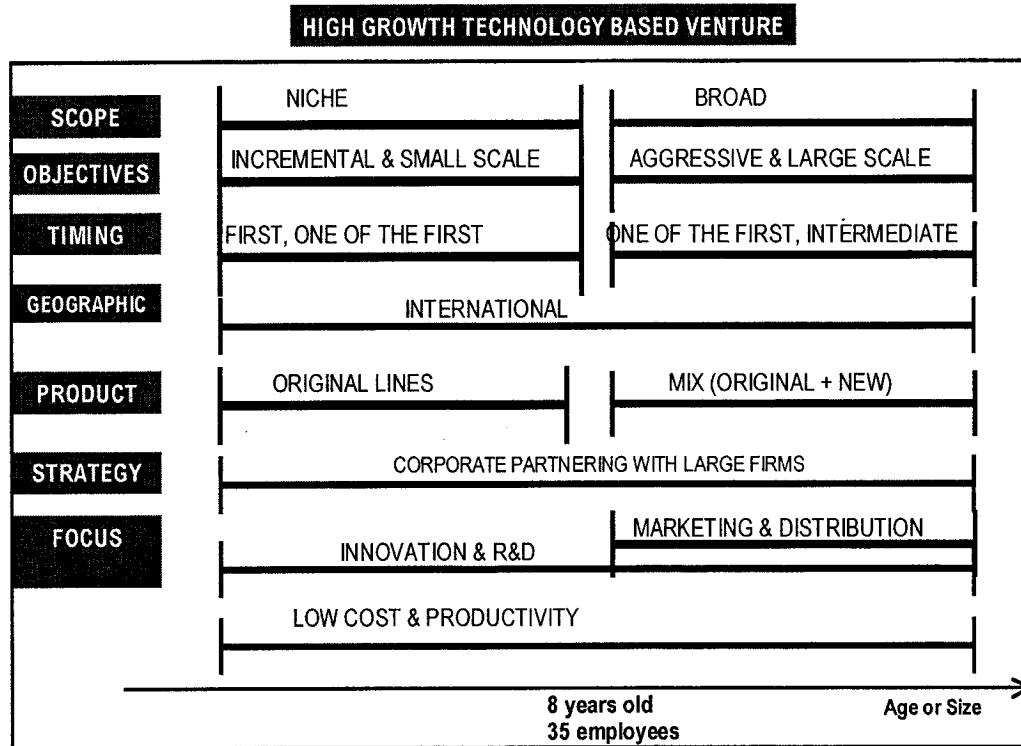
This study shows that there is no significant effect of age or size on the following tools:

- Partnerships with larger firms;
- Product-market strategies;
- Low cost & Efficiency concerns.

In summary, only few models examining life-cycle strategies have been discussed in the literature such as McCann's (1991) model which is presented below. McCann (1991) tested a model under four different stages (start-up, take-off, maturity and decline) and found little support for the argument that the firm's life-cycle is a device for guiding choice taking.

This research suggests that in the first fifteen years of a life's entrepreneurial firm in a technology-based industry, high-growth strategy evolves quite clearly. The next model is graphically presented in Figure 20. The graph shows two different growth stages at a cutting point of 35 employees and 8 years old. Some high-growth strategies are successful through all phases. Other high-growth strategies are more important at some specific stages of the firm's life.

FIGURE 20: HGEF LIFE-CYCLE EMPHASIS



This model does not suggest that every firm younger than 7 years old and smaller than 35 employees should follow those strategies. A firm has to make a strategy choice when a problem is encountered. Not all firms encounter the same problems.

As previously discussed, HGEFs pursue a multi-faceted pattern of strategies to meet their goals and achieve high growth.

However, there are some tendencies that characterize HGEFs. “**New ventures grow in different ways at different times**” (Ostgaard & Birley 1994). There are some strategy directions and strategic tools that seem to be very popular among very successful firms in technology-based sectors no matter what problem is encountered. Those strategies emphasize are:

- international focus (global perspective);
- innovation;
- corporate partnerships with large firms;

- low cost and productivity.

It seems also striking and logical that older ventures focus, on average, more on marketing and distribution. One important strategic action that allows them to commercialize is corporate partnerships with large firms. Those partnerships allow the firm to gain access to distribution channels, large customers and reliable resources of lower-cost inputs (McCann 1991). Research on the merits of partnerships is still emerging (Killing 1978, Roberts & Berry 1985).

In summary, the exploratory model seems to demonstrate that there are some tendencies that characterize HGEFs and that HGEFs grow in different ways at different times.

8.4 CONCLUSION

As an exploratory step, this study is useful in illustrating the complexity of strategy patterns in technology-based industries. This research also provides good insights for venture capitalists and entrepreneurs to understand what are the different tactics used by very successful young ventures across time.

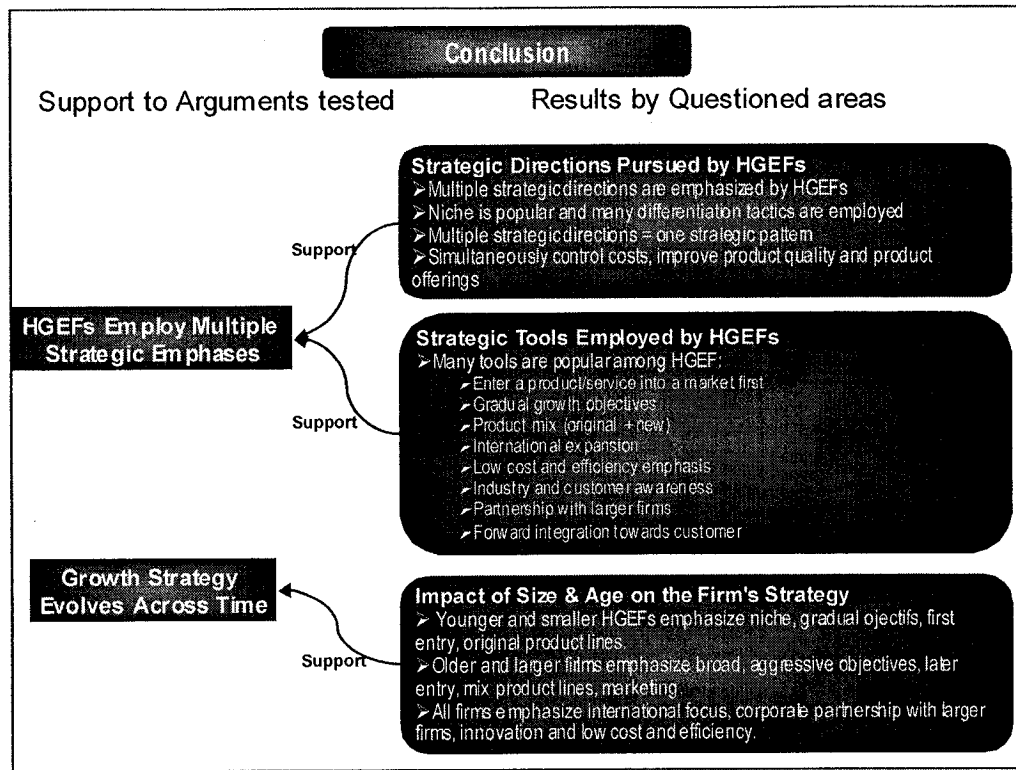
The discussion has analyzed into three questioned areas: strategic directions, strategic tools and impact of age and size on the firm's growth strategy.

The results of this study support two arguments, stated by Ostgaard & Birley (1994):

- **HGEFs use multiple strategic emphases;**
- **Strategy evolves across time.**

The results are presented at Figure 21.

FIGURE 21: CONCLUSION



On the one hand, results of this study support the argument that HGEFs use multiple strategic emphases as the largest group identified in this study follow a multi-faceted strategy pattern. Firms tend to employ a minimum of three competitive strategic actions at the same time. Fast-growing firms simultaneously control costs, improve product quality and product offerings.

Not one single strategy direction was identified as the “strategy pattern”, rather various strategic combinations were identified as different strategic patterns used by HGEFs in technology-based sector. These findings support those of other new venture researchers in that no single strategy appears to always work best (McDougall 1987/ Ostgaard & Birley 1994).

Overall, this study reinforces the following ideas:

- the niche strategy may be mostly employed by smaller and younger firms;
- three areas of differentiation are often employed: innovation, quality, and marketing;

- the combination of differentiation strategies is popular among HGEFs;
- most HGEFs tend to enter the market on small scale following gradual growth objectives.
- aggressive growth strategy seems to be employed by some HGEFs, that use this strategy in combination with other tactics aimed at achieving marketing and quality differentiation;
- HGEFs tend to maintain their original product/market focus across time while adding new products/services;
- HGEF tend to emphasize breakthroughs of entirely new products and technological modifications to existing products;
- technology-based HGEFs highly promote the international expansion strategy;
- financial concerns and efficiency comes out as strong tools for HGEFs;
- industry and customer awareness as well as maximizing external independence from customers and suppliers are other strategic tools for growth;
- setting up partnerships with large firms is highly employed by HGEF to accelerate growth;
- forward integration to customers is a popular strategic tool for entrepreneur growth.

On the other hand, the present study also supports the argument that strategy evolves across time.

“New ventures grow in different ways at different times” (Ostgaard & Birley 1994).

Younger firms tend to be more niche-oriented and innovative. Older and larger firms, on the other hand, tend to have a broad customer and market segmentation basis. As such, they tend to emphasize market and distribution.

As the exploratory developed model demonstrates, some tendencies seem to characterize HGEFs. Those strategies emphasize are international focus (global perspective), innovation, corporate partnerships with large firms, low cost and productivity.

9. Limitations and Practical Implications

9.1 LIMITATIONS

A major limitation of this research concerns the small size of the sample. The data analysis and more specifically the factor analysis, is very exploratory, since it is based on a small sample. In addition, this research does not compare a low and high-growth group, further research is required to prove that those characteristics are specific to high-growth firms only (rather than all firms).

9.2 PRACTICAL IMPLICATIONS

Research results suggest that technology-based HGEFs competing in Montreal view and consider Montreal a technopolis offering good skilled labour and support programs.

MONTREAL, A TECHNOLIS

Research results suggest that entrepreneurs in technology-based industries in Montreal are satisfied with the available skilled work force and the supportive local and state policies/programs in place. However, the two most negative elements perceived by technology entrepreneurs are access to technology/business incubators and access to “affordable” start-up funds or seed capital.

This finding suggests that Montreal may not yet be considered a silicon valley as it struggles to recover from one of the worst downturn in its history, though it is certainly considered a “technopolis”. Quebec with its main city, Montreal, provides the third apex in the “Northern Tech Triangle”. A “technopolis” is a city where innovative and creative ideas take form. As proposed by Smilor, Gibson & Kozmetsky (1989), the high-technology development process in a city and its economic growth require that research universities play a key role in R&D

development, attracting talented students and professors, spinning off companies, and developing creative research centres. Montreal's well-known universities may certainly contribute to providing a skilled work force to entrepreneurs.

To optimize a high-technology development in a city, federal and local government must participate in setting priorities for start-ups, education and programs. Participants responding to the survey view this participation as favourable.

However, as the results suggest, the HGEF sample considers that the technopolis of Montreal needs further cooperation from some key players: support groups (associations or incubators) and investors to give access to affordable funds. More specifically, one respondent pointed out the importance of the "need for additional venture capital funds that would accept a higher risk and a longer period to recover their investment."

COMPETITION: INNOVATION, QUALITY, MARKETING

Results of this study suggest that, in technology-based industries, entrepreneurs face three major challenges: innovation, quality, marketing. Competition based on product/service emerged as the most critical challenge. This challenge is common to all technology industries as all players are continuously put to the test by the development of superior, advanced or simply cheaper equivalent technologies. The second challenge concerns the quality of products and services. The quality is a critical feature for technological products/services. A third challenge is linked to promotion, marketing and pricing practices. Once entrepreneurs have quality products and services to offer, the competition relies on tactics such as price and promotion. Finally, numerous technology industries have suffered substantially from the economic downturn. Trying to survive and succeed in a downturn period definitely remains a critical challenge. One good example connected with this downturn was the decline of the dot-coms in 2000.

RECOMMENDATIONS TO ACHIEVE HIGH GROWTH

In conclusion, this research implies that high growth entrepreneurs employ similar strategic directions and tools which are:

- Niche strategy is the most popular strategy. However, broad-market strategy should be consider at older stages.
- An international focus must be emphasized in technology-based industries. International focus means that very early in the firm's development, a firm should get knowledgeable of its international competitors and international opportunities. International focus may require establishing partnerships with large corporations which is frequently used by firms of all ages. Results of this study suggest that most new ventures consider that going international is an opportunity for growth. This implication does not exclude the possibility that a small number of entrepreneurs in some specific technology-based industries may have to first establish their market credibility locally before pursuing an international expansion strategy.
- Corporate partnership with large firms is a good option as opposed to joint ventures or acquisitions. It seems to be used by a majority of firms.
- Low cost and efficiency should be emphasized. Low cost emphasis necessary means that a young firm needs to manage very tightly its costs on a short term basis rather than long term. On the other hand, efficiency in operations means establishing targets and monitoring the firm's research and development to constantly review processes, improve them and looking at better ways to do things.
- Firms should emphasize innovation. Innovation requires high level of R&D, new product/service breakthroughs, a high qualified research team, a high understanding of the customers needs to develop and bring innovative solutions and a strong vision that incorporates innovation at all levels.

10. Appendices

APPENDIX A- QUESTIONNAIRE

QUESTIONNAIRE

RESEARCH PROJECT:

**“STRATEGIES OF HIGH GROWTH
ENTREPRENEURIAL FIRMS
IN THE HIGH TECH SECTOR”**



Research project



“Strategies Of High Growth Entrepreneurial Firms”

Instructions

The purpose of this research project is to identify the strategies that are most effective for small-to-medium sized entrepreneurial firms that operate in the technology sector.

Data generated from the survey will be treated confidentially. The name of your company is not requested. As a result, data from this survey will only be presented in a research report in summary forms without any identifying information (e.g., your name or that of your company).

Your company has been carefully selected for this research project. Therefore, each completed questionnaire is important to the success of the study and we truly appreciate the time you will spend to answer the questionnaire. There are no correct or incorrect answers to the various questions in this questionnaire, please respond as objectively as possible.

To thank you for your time and collaboration, a summary of the research report will be returned to you. This report will include a thorough analysis on specific highly performing strategy actions used by high growth entrepreneurial firms in the technology sector in Montreal.

The time required to answer the questionnaire is approximately 20 minutes. The two first sections of the questionnaire seek general information about your company and industry. A section about your strategic actions follows. The last part of the questionnaire seeks to determine approximately the level of your company's performance in percentage.

To fill out this questionnaire, you can either:

- Check and write in the boxes and save the document in a new Word document when the questionnaire is completed;
- Complete the questionnaire by hand on the printed version sent to you by mail.

Finally, please take note completed questionnaire must be returned before **April 10th 2003.**

To return the questionnaire, you can either:

- Mail it back to Dr. A. Bakr Ibrahim
The John Molson School of Business
1455 de Maisonneuve Blvd. West,
Suite GM 403-15
Montreal, Canada H3G 1M8;
- E-mail it back to Marie-Paule Giguère at mari_gig@jmsb.concordia.ca.

Thank you for participating in this research project.

Sincerely,

Marie-Paule Giguère

Dr. A. Bakr Ibrahim Ph.D.

SECTION A- BUSINESS DEMOGRAPHICS

Write or check the box that best describes the company.

1. The year of foundation:	
2. Current number of employees:	Employees
3. Title of person completing survey:	<input type="checkbox"/> President/ CEO <input type="checkbox"/> Partner <input type="checkbox"/> Other (Specify):
4. Time worked for this company:	
5. The origin of the company is:	<input type="checkbox"/> Start-up or new venture <input type="checkbox"/> Spin-off <input type="checkbox"/> Purchased an existing firm <input type="checkbox"/> Other (Specify):
6. If answer to question 7 is spin-off, name the organization from which the company evolved:	<input type="checkbox"/> Company: <input type="checkbox"/> University:
7. Is the company:	<input type="checkbox"/> Public <input type="checkbox"/> Private (Specify number of owners):
8. How was the company initially financed:	<input type="checkbox"/> Venture Capital Name: <input type="checkbox"/> Debt Financing <input type="checkbox"/> Savings <input type="checkbox"/> Other (Specify):

SECTION B- ENVIRONMENTAL CONDITIONS

Check the box that best describes the environment in which the company competes.

How many companies compete directly in your niche? (Approximation)	<input type="checkbox"/> 1-5	<input type="checkbox"/> 5-10	<input type="checkbox"/> 10-20
	<input type="checkbox"/> 20-50	<input type="checkbox"/> 50 and over	
Where does the competition operate?	<input type="checkbox"/> Local	<input type="checkbox"/> International	

How positive is the overall company's environment? Use the scale below:
(1) Not at all (2) A little (3) Some (4) Quite a bit (5) Very much

	Not at all	A little	Some	Quite a bit	Very much
	1	2	3	4	5
A. Available skilled work force	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Viable market opportunities for start-ups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Access to technology/business incubators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Active entrepreneurial groups/networks to join	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Active organized groups/associations to attract technology ventures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. Availability of capital for financing later growth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. Access to "affordable" start-up funds or seed capital	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Supportive local and state policies/programs (e.g. tax incentives)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Access to venture capital funds for high technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How critical (severe) are the following challenges to the performance of the company? Use the scale below:

(1) Not a threat (4) Somewhat of a threat (7) A very substantial threat

	Not a threat	Somewhat of a threat					A very substantial threat
	1	2	3	4	5	6	7
A. Competition based on <u>price</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B. Competition based on <u>product/service quality</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
C. Competition based on <u>product/service innovation</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Competition based on <u>promotion and marketing practices</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. <u>Declining markets</u> for products/services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
F. <u>Scarcity of supply</u> of labor /material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
G. <u>Government</u> interference/regulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION C- STRATEGIC ACTIONS

Each of the following pair of statements represents two extremes on different methods by which businesses may compete. Please consider each statement and check the box on the scale that best describes the emphasis the company has placed on each in establishing its competitive orientation during the last five years relative to competitors. Answer those questions applicable to your company.

For example:

<i>Emphasis on:</i>	<i>Industry average</i>	<i>Emphasis on:</i>
<i>Lowest price offering</i>	1 2 3 4 5 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<i>Highest price offering</i>

The answer chosen (4) indicates that your business charges prices that are somewhat higher than most competitors in the industry sector(s) in which the business competes. There are however other competitors that charge even higher prices than our business.

<i>Emphasis on:</i>	<i>Industry average</i>	<i>Emphasis on:</i>
	1 2 3 4 5	
Narrow range of products/services	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Broad range of products/services
Small number of customers	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Large number of customers
Selling products/services to one market segment	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Selling products/services to numerous market segments
Limited product/service development	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Constant product/service development
No use of product-related patents	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Securing product-related patents
Mostly minor changes in products/services	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Dramatic changes in products/services
Marketing of tried and true? products/services	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	R&D, technological leadership and innovation
Providing minimal or no after sale service	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Providing high level of after sale service
Lowest price offering	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Highest price offering
Minimal level of advertising & promotion	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	High level of advertising & promotion
No or limited use of advertising which differentiates products/services	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	High use of advertising which differentiates products/services
Let brand identification & name recognition take care of themselves	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Developing a brand identification and name recognition
Minimal use of internal sales force	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Extensive use of internal sales force
Minimum acceptable product/service quality	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Superior product/service quality
No or limited products/services warranties	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Superior products/services warranties
Reliance on proven & existing marketing techniques	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Innovation in marketing techniques & methods
Limited control on quality	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Strict quality control
Use of existing channels of distribution	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Developing new channels of distribution
Entering market(s) on a small scale with	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Entering the market(s) on a large scale with

<i>Emphasis on:</i>	<i>Industry average</i>	<i>Emphasis on:</i>
	1 2 3 4 5	
Lowest cost per unit not an overriding concern	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Overriding concern for lowest cost per unit
No concern for improving employee productivity and operations efficiency	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Concern for improving employee productivity and operations efficiency
High capacity utilization emphasized	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Excess capacity tolerated in anticipation of future growth
Reliance on proven and existing technologies	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Total innovation in technologies
Sub-contracting or sourcing of production	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Fully integrated production
Flexible, short-term buyer contracts	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Long-term buyer contracts

Please check the box at the position on the scale that best describes the company's strategy. Use the scale below: <i>(1) Not at all (2) A little (3) Some (4) Quite a bit (5) Very much</i>	<i>Not at all</i>	<i>A little</i>	<i>Some</i>	<i>Quite a bit</i>	<i>Very much</i>
	1	2	3	4	5
To what extent does each statement pertain to the company's current overall business strategy?					
1. Engaging in "networking" activities to reduce environmental uncertainty	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Actively attempting to predict competitors' moves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Actively attempting to predict customers' requirements/tastes/preferences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Actively attempting to predict industry trends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Actively attempting to encourage new customers to enter the market	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Keeping our firm abreast of relevant new technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Actively attempting to minimize our dependence on any single supplier	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Actively attempting to minimize our dependence on any single customer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
To what extent did the company emphasize the following growth strategies <u>in the past 5 years</u> ?	1	2	3	4	5
9. New products/services development via R&D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Launching formal joint ventures with other firms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Using corporate partnering with larger firms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Licensing technology to/from other firms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Acquiring firms in closely related businesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Acquiring firms in unrelated businesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In terms of competitive strategy for the products/services, how did the company emphasize the following strategies <u>in the past 5 years</u> ?	1	2	3	4	5
15. Emphasizing innovations or breakthroughs for entirely new products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SECTION C- STRATEGIC ACTIONS (CONTINUED)

Please check the box that best describes the company's strategy.

<p>Since the start of the business, which entry strategy does the company use to introduce new products/services and technologies?</p>	<p><input type="checkbox"/> <u>First</u> company in the market</p> <p><input type="checkbox"/> <u>One of the first</u> few companies in the market</p> <p><input type="checkbox"/> <u>Middle position</u>: not one of the first nor close to the last</p> <p><input type="checkbox"/> <u>One of the later</u> companies to enter the market</p> <p><input type="checkbox"/> One of the <u>last</u> companies to enter the market</p>
<p>Since the start of the business, the company has marketed lines of products/services which are:</p>	<p><input type="checkbox"/> <u>Original lines</u> (no new lines)</p> <p><input type="checkbox"/> <u>Original and new lines</u></p> <p><input type="checkbox"/> <u>Very many new lines</u></p>
<p>Since the start of the business, how has the company changed its products?</p>	<p><input type="checkbox"/> <u>No change</u> from the venture's initial offering</p> <p><input type="checkbox"/> Change in product <u>appearance</u> or packaging only</p> <p><input type="checkbox"/> <u>Minor</u> product upgrades, or different applications of the same product with no significant changes in function</p> <p><input type="checkbox"/> Product with substantially <u>changes in technologies</u></p> <p><input type="checkbox"/> Does not apply to my company</p>
<p>Since the start of the business, the initial market focus has evolved geographically by:</p>	<p><input type="checkbox"/> <u>Local</u> expansion (Montreal and surroundings)</p> <p><input type="checkbox"/> <u>Regional</u> expansion (Quebec)</p> <p><input type="checkbox"/> <u>National</u> expansion</p> <p><input type="checkbox"/> <u>International</u> expansion</p>

SECTION D- ECONOMIC PERFORMANCE

This is the last section.

Please indicate the growth level in terms of percentage increase for the past 5 years. We understand that these numbers are hard to generate with any precision therefore approximations are expected. This information is important to this survey.

	% Increase from 1998 to 2002
Percentage Increase of <u>Total Employees</u>	%
Percentage of <u>number of new products/services / number of total products/services</u>	%
Percentage Increase of <u>R&D Expenses</u>	%
Percentage Increase of <u>Market Shares</u>	%
Percentage Increase of <u>Total Sales</u>	%
Percentage Increase of <u>Pretax Profit</u>	%
Percentage Increase of <u>ROI</u> (Return on investment)	%

At this point, we would appreciate if you could provide us with your comments on this survey or on strategies that you think are crucial to achieve high growth:

If you wish to get the research report, please leave your contact information:

Thank you for your time and cooperation!

APPENDIX B - REFERENCES

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