



Corporate Innovation and Entrepreneurship: A Canadian Study

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In his study of 112 corporate innovations, Russell Knight describes how 100 large Canadian corporations identified innovative ideas, evaluated them, and allocated resources to support their development. These innovations ranged from new product introductions to new processes or systems within these firms. He conducted a series of interviews with managers to explore both the role of corporate entrepreneurs and top management in creating a favorable environment for innovation within the firms, examining the roles of marketing research, research and development, production planning and finance in the process. The article reports several general conclusions regarding the practices of the more successful firms and presents several recommendations concerning how firms should organize to explore, develop and produce new innovative ventures within the corporation. These results are also contrasted with those of an earlier article Knight published in this Journal.

Introduction

The literature exploring the issue of intrapreneurship, or corporate entrepreneurship, is growing at a rapid rate, especially in the United States [16]. However, this has not been the case in Canada, which has lagged significantly behind much of the Western world in terms of industrial research and innovation [17]. Whereas studies of new venture or small business entrepreneurs are the subject of much research in both countries, the issue of corporate entrepreneurship has not been studied extensively in Canada. The primary exceptions are the new product work of Cooper [4] and Little [14].

However, where once large corporations were known for their avoidance of entrepreneurs, and their efforts to either cure them of it or force them out of the firm, today we see a movement by these same corporations to hire and encourage entrepreneurs within their ranks. They are trying to do this by recruiting creative people, encouraging them to be innovative within the corporation and creating an atmosphere where these individuals can be as entrepreneurial as possible. Vesper [24] has done perhaps the best job of profiling several of these categories of entrepreneurs, both inside and outside the corporation [25]. Knight [12] suggests a range of entrepreneur types by their degree of independence.

We therefore decided to embark upon this exploratory study of corporate entrepreneurship in Canada by studying corporate innovations by the 500 largest firms in Canada, as listed by the *Financial Post*.

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BIOGRAPHICAL SKETCH

Russell Knight is currently Associate Professor of Business Administration at The University of Western Ontario in London, Ontario, Canada. He holds a B.S.E.E. from McGill, a Master's in Industrial Management from the Sloan School at M.I.T., and a Doctorate in Business Administration from Harvard. His research interests lie in the areas of entrepreneurship, venture capital and new venture development. He has written a text entitled *Small Business Management in Canada* and is the author of over 100 cases in the new venture area. His recent publications include "The Financing of Small High-Technology Firms in Canada" in the *Journal of Small Business and Entrepreneurship*, and "Franchising from the Franchisor and Franchisee Point of View" in the *Journal of Small Business Management*, July, 1986. He has recently co-authored a new text entitled *Entrepreneurship and New Venture Management: Readings and Cases*, published in 1986 by Prentice Hall.

Previous Research

This author has previously described a number of studies of corporate innovation which have approached the issue by studying subsets of the various innovation categories [13]. Others examined start-ups by Fortune 500 companies [2]; identified major obstacles to corporations starting new businesses [8]; concentrated on the joint venture approach to innovation [19] and examined the acquisition mode [11]. Weiss compared independent start-ups backed by venture capitalists to corporate start-ups [26], and concluded the independents out-performed the corporations on every dimension. Others questioned whether corporate venturing could ever succeed [3]; while still others suggested ways in which corporations could innovate [6].

There have also been a number of popular books on the subject. Even Peter Drucker [7] has entered the fray, claiming he invented the whole subject in his earlier books. Other books have discussed the variety of corporate cultures [5] needed for innovation, how to find and keep corporate entrepreneurs [10], and various models of corporate entrepreneurship [21].

Venture Types

Vesper [25] has done a good job of establishing a typology of corporate entrepreneurship. His categories, described previously by this author in this Journal [13], are shown in Exhibit 1.

Various combinations of these types are possible, and most work on corporate ventures does

not discriminate among the types. We decided to pursue in this article mainly innovations of the first four categories. But we did end up with several which could best be described as joint ventures; others became corporate spin-offs, as shown in Exhibit 1.

Definition of an Intrapreneur

The term Intrapreneur or Corporate Entrepreneur is a difficult term to define, as is the Independent Entrepreneur. We shall use the following definition:

"An Intrapreneur is a corporate employee who introduces and manages an innovative project within the corporate environment, as if he or she were an independent entrepreneur."

Many feel this individual should be the Chief Executive Officer, or at least at the corporate level. We shall refer to champions of an innovative project at any level within the firm; as well as mentors, who are more likely in top management, where they encourage, foster and protect champions lower down the corporate ladder.

Research Methodology

The method chosen was to approach the CEOs of the largest 500 firms in Canada by mail, asking for suggestions of innovations within their firms, both successful and unsuccessful. We hoped to compare the more successful strategies with the unsuccessful approaches in order to make recommendations on how to avoid mistakes made, and suggest methods of improving the corporate innovation process.

The CEOs were asked to provide information about the innovations, plus the names of people in their organizations best able to provide information about the subject. Interviews were then arranged with these people, usually by phone; in several cases personal interviews were arranged to get a better feeling for the personal aspects, such as personalities, etc.

In total, 112 innovations have been investigated in 100 different firms. But the responses were not easily segmented into successful or unsuccessful innovations, for several reasons. (1) The firms were reluctant to report on their failures. (2) Many of the innovations discussed were

Exhibit 1. A Typology of Corporate Innovation

	% Of Sample
1. NEW STRATEGIC DIRECTION. This is the Strategic Planning Institute [22] definition for new corporate ventures. It is an innovation representing newness to management in any two of (a) product, (b) market and (c) technology, plus the notion of current investment return. It is not simply a product line extension.	14
2. INITIATIVE FROM BELOW. This is defined as employee initiative from down in the organization to undertake something new. The innovation is often created by subordinates without being asked, expected or even being given permission by higher management. The notion of bootleg projects or skunk works is often used to describe this phenomenon. Kanter [9] concentrates largely on this type, although only five of 34 examples she cites involve new products, or market or technology changes.	26
3. AUTONOMOUS BUSINESS UNIT OPERATION [23]. The concept of the strategic business unit, a decentralized form of introducing innovation, is characterized by IBM in developing and introducing its personal computer. It includes partially parent-owned corporate spin-offs.	6
4. ORDINARY NEW PRODUCT DEVELOPMENT. This is the traditional approach, where various specialists play roles in a sequence from market research or brainstorming to a pilot R & D project, to a larger group approach. It may also be a technology push idea which is market researched and planned and budgeted through its introduction.	47
5. ACQUISITION. The corporation may take over an entire company rather than creating a new one, or it may acquire part of it, such as technology, people, a license or franchise rights.	0
6. JOINT VENTURE. Two firms may contribute the necessary elements to create an innovation. An example would be a large firm providing the resources to commercialize a small firm's high technology invention.	5
7. VENTURE GROUPS OR DIVISIONS. These are formal organizations set up as greenhouses for the cultivation of new ventures. While separate, autonomous entities, they are usually seen as a means to an end rather than the achievement itself.	0
8. INDEPENDENT SPIN-OFFS OR NEW START-UPS. This type may vary in ownership from the corporation sponsoring individuals to set up their own firm to wholly independent companies, usually owned and operated by individuals who have left the corporation because of frustration over its rules, regulations and conservative approach to innovation. Often the basis for this firm is an idea from within the corporation.	2
	100

still in process, so it was too early to decide how successful they were. (3) Success is not black or white. Many of the innovations were relatively successful, but not as successful as originally envisioned. We will therefore, refer to the more successful innovative companies as those with more innovations, which had developed a procedure for handling innovations and for whom innovation was a fairly common process.

Replies were often (17 cases) received from firms which stated that they had no innovations to consider. Other firms declined for lack of management time (31 cases) although it is suspected many of these would not admit they had no innovations. Several other firms (11 cases), subsidiaries of foreign owned firms, stated that all inno-

vation activity was undertaken by the parent firm. Companies outside Canada were not interviewed.

Research Issues

An interview guide was constructed which covered the research issues shown in Exhibit 2. These are the primary issues covered in the interview. Since the innovation was different in each firm, the process and the specific questions varied considerably. The previous framework was followed as closely as possible. Only a few of these issues will be discussed in this article; future articles will cover additional topics.

Exhibit 2. Research Issues Discussed During Interviews

1. What type of innovation was involved? An attempt was made to classify responses into the classification discussed previously.
2. How did the idea originate? Did it come from someone down in the organization, or was it a top level innovation?
3. Was the idea a "market pull" or "technology push" situation?
4. Is this the usual process for new ideas in your firm? How is it different?
5. What sort of research and development effort was involved? Was a prototype developed?
6. Was a business plan prepared for the idea? What areas did it cover?
7. Were detailed budgets prepared for each phase of the plan? How is the money allocated?
8. How are other resources allocated? Can people choose to be involved or not?
9. Who is the champion of the innovation? Is this a necessary condition? What characteristics should he/she have?
10. Who makes the Go, No-Go decision? At what stage(s) is it made?
11. Was there a top management mentor or sponsor for the innovation? Is there a favourable environment or climate fostered by top management which enhances the innovation process in your firm?
12. Is there a separate start-up organization? Does it hand the idea on to regular departments or does it continue to form a new group, department or division within the firm?
13. What market research was done on the idea? By whom? Was a market plan prepared for the innovation? What did it involve?
14. How was manufacturing handled?
15. How are issues like patenting, copywriting or trademarking handled?
16. What competitive analysis was done?
17. Were other companies involved? How?
18. Are the people involved with this idea really entrepreneurs? How are they handled, motivated, promoted, etc.?
19. Does your firm have a standard process for developing innovations?
20. How are new ideas phased in and out of your regular operations?
21. What obstacles were encountered to successful corporate innovation?

Innovation Types

Of the 112 innovations studied, the two predominant forms of innovation were the new product development type (47%) and the initiative from below type (26%), as shown in Exhibit 1. These two types total 73% of the innovations studied and when combined with the new strategic direction, at 14%, these three main categories total 87% of all 112 innovations studied. Several judgement calls were made when categories overlapped; but innovations were categorized as one type only.

No innovations of the Acquisition or Venture Group variety were encountered, although many companies had an individual in charge of New Business Development or New Product Development. Only five of the joint venture variety were encountered, which involved the large firm cooperating with a smaller firm to develop innovations of the small firm entrepreneur. These may eventually become acquisitions of the large firm. The two independent spin-offs were both innovations which were terminated within the large firm; but the individuals involved quit the company and formed their own ventures based on that innovation. The six autonomous business units were all separate divisions set up to handle products very different from the firm's current product line; they were sold to very different markets and involved distinctly different technology.

Environment for Innovation

Perhaps the overriding concern that was raised over and over again throughout the interviews was the creation of an entrepreneurial or innovative environment within the firm. This environment, climate, or atmosphere is more of an attitude, or culture, which must be fostered by top management and must eventually permeate downward throughout the whole organization. This does not mean that everyone in the corporation *must* be an entrepreneur, but rather that anyone in the firm *can* become an entrepreneur within the corporation. When this attitude does not prevail at the corporate level, but does exist at the divisional level, many good ideas are going to surface in the divisions. However, they will likely die, if they are of a magnitude which requires corporate approval of funding beyond divi-

sional limits. On the other hand, if divisional management doesn't foster this innovative attitude, many ideas will never move beyond the divisional level.

Most of the more dramatic innovations, which involve changes in more than one of product, market or technology, require support beyond the divisional level, for reasons of financing or strategic direction of the firm. Several examples were encountered where innovative ideas were rejected at the divisional level, but were eventually brought to the attention of the corporate level and were approved. In a few of these instances, divisional management has since been changed.

In addition, many of the individuals interviewed stressed the need for a top management mentor or sponsor, who played the role of running interference for the innovative idea. This was necessary when it encountered many of the obstacles thrown up to discourage the idea, either intentionally or unintentionally. The knowledge that an idea became known as being under the sponsorship of certain top management people was often in itself sufficient to clear many obstacles.

This need for top management sponsorship was also especially necessary for ideas which arose well down in the level of the organization. A general rule is that the further down in the organization an idea originates, the more top management support is likely to be required.

In general, the role of top management is to both reassure the intrapreneur that he/she has corporate support, while deflecting most opposition within the firm. This opposition can take several forms, including political, "defense of turf" and "nervous money" reactions. "Defense of turf" refers to one department, such as market research, claiming jurisdiction over activities like marketing research being done by another department, such as research and development. The "nervous money" reaction refers to investors, or corporate financial managers, who are continually monitoring an innovation project, expecting daily reports of progress, ready to pull the plug at the first hint of failure.

The mentor's or sponsor's role in the process within the corporation has the following objectives:

1. Cure the lack of resources.
2. Overcome the "Nervous Money" reaction.

3. Fight the political battles.
4. Put the rewards and incentives in place.
5. Create the right environment for innovation.

Role of the Champion

Another issue discussed with all people interviewed was the role of the project leader, manager or champion. The term champion arose again and again in the conversations. In general, interviewees were adamant that the innovation champion should be the individual whose original idea it was. This means even the janitor should be able to champion an idea all the way through its development. Of course, this individual should be able to call on other skills and resources throughout the organization as the idea develops. This choice should be left up to the champion, who is really the corporate entrepreneur in most of these innovation scenarios.

If the person generating the idea is not the person who gets to run with it as champion, the chances for success are decreased dramatically; perhaps, by as much as 50%! The champion should also be able to choose those people whom he wishes to work with him on the project team. Having them allocated by upper management, is another way of increasing the chances for failure.

The corporate entrepreneur, like outside independent entrepreneurs, is often a doer rather than a planner or an analytical person. He or she is definitely not a documenter, who prepares good documentation of every phase of the project on the way along. For example; if the idea is a patentable product, don't expect the champion to prepare the patent application. He must be provided with other people who are more expert at such tasks, either from inside the firm, or outsiders, such as patent attorneys. Even in the preparation of business plans and materials for presentation to various management committees for approval at various stages, the entrepreneur likely lacks the skills and the personality to prepare detailed documentation of the project or idea. The necessity of providing outlines of business plans or guides to financial projections, market research, etc. was often stressed. But interviewees emphasized the improvement in the process when people who were more skilled in these areas undertook such tasks.

The champion or shepherd has the following

prescriptive requirements suggested by people interviewed, in terms of an environment in which to operate:

1. He/she is ideally chosen by self-selection. He should choose himself, rather than being delegated.
2. There are no hand-offs. He runs with the idea all the way, but with support from team members.
3. The doer decides. He has the final say and does it his way.
4. Resources should be discretionary to provide for new ideas, experimentation, pilot projects, test markets, etc.
5. He is evaluated more as a good singles hitter than a home run slugger. Home runs are rare in this business!
6. There must be a tolerance of risk and failure. No one bats 1000!
7. He must be supported by "Patient Money", as innovation usually takes longer than planned.
8. Top management must provide an environment free from "Defense of Turf". Other managers may claim jurisdiction over various aspects of the project, (e.g., Market Research).
9. Innovation requires cross-functional teams as the entrepreneur seldom has all the necessary skills.
10. The entrepreneur must have multiple options. For example, he should be free to use outside sources, as well as internal resources.

Resource Allocation

All of the firms interviewed have various hurdles for the prospective entrepreneur, usually in the form of management committees which pass judgment on proposals for new ideas. The more successful innovating firms seem to be those which are willing to devote time and resources to any idea, no matter how harebrained it may seem at first. They do not restrict innovations to their current line of business, and definitely not their current product line. Perhaps, one phrase which has done more harm than any other to the innovation process is the "stick to the knitting" quote from *In Search of Excellence* [16]. Those man-

agers who translate this as sticking to the products, markets and technology familiar to the firm have killed many good ideas using this phrase.

In addition, the more experienced firms suggested that once projects were approved with budgets prepared and funds allocated, the control exercised over the entrepreneur and his group should be relatively loose.

This "loose leash", as one corporate entrepreneur called it, allows plans to be changed relatively easily, with the entrepreneur's discretion being used to allocate funds to special activities, such as test marketing, hiring outside market research skills, etc. In instances where the control exercised was very tight and constraining to the entrepreneur, the project was more likely to fail; often, because the people involved left the company in frustration. This parallels the simultaneous tight-loose monitoring suggested by Peters and Waterman [16].

So resources should be allocated in general terms for overall phases of the project, such as market analysis, rather than specific, detailed tasks within each phase. In addition, the roles of the various people involved with the project will likely change over time, so that expectations should not be that specific individuals will be involved in specific phases of the innovation. People tend to change jobs as the innovation evolves, often because they are interested in areas beyond their own speciality.

Financial Decisions

Again, those firms more successful at innovating; seem to be willing to allocate small amounts of money to very radical, new, not fully thought through ideas. They are willing to allocate amounts up to \$50,000 to explore ideas which have some merit. In fact, they prefer the entrepreneur himself to come back saying it's no go, because . . . , rather than have a committee trying to find 101 reasons why it won't work.

Most entrepreneurs, even those within the corporation, are not very skilled at documenting project proposals or presenting them to management. This task can often be fulfilled, at least partially, by the mentor or sponsor, who is usually more skilled in these areas.

The more successful firms tend to give the champion a very loose leash. That is, tight con-

trols of spending tend to frustrate entrepreneurial personalities. Perhaps, the best solution is to regularly review the progress of the project, usually at intervals when more money is requested. If the project progresses well between reviews, meeting objectives, milestones, etc., the best policy is not to interfere.

Corporate Groups

In seeking various types of corporate innovations, we found that specialized corporate venture groups have gone the way of the dinosaur. They were popular during the 1970s; but, corporations found they could not designate people as entrepreneurs or innovators.

It is a matter of self-selection, as mentioned above. However, various support groups can be designated who specialize in doing some of the tasks that are common to most innovative ideas. Examples would include patenting, market research, prototype development and costing.

In fact, in many organizations, we found most of the development was done by a tightly-knit small group assembled by the entrepreneur himself. This group resembles the "skunkworks", often described in the literature on corporate innovation [19].

This group is usually organized separately for each innovation, although it may contain some of the same people who gain a reputation within the firm as being very good at what they do. Obviously, they are chosen again and again to be on the innovation teams, so some members of the team serve on these specialized groups frequently. However, top management is unlikely to be able to preselect them. The entrepreneur will see it as top management interference if they do impose certain people on him, which will reduce the likelihood of success for the venture.

We did discover approximately ten examples of the notorious skunkworks phenomenon where a person with a good idea works alone or with a group of friends, usually in their spare time outside regular working hours, to develop an idea that has not been approved yet by any upper management committee or process. In several cases, the idea had been dismissed by higher management as "not our type of business". However, the idea found its way to top management, who approved the idea and allocated funds to its development.

If an environment conducive to innovation is developed within the firm, there is usually no need for the skunkworks approach to innovation, at least not on a secretive basis.

Obstacles to Innovation

The types of obstacles encountered were many and varied. To give some consistency to this list, we used the categories and specific problems suggested by MacMillan, et al. [15]. The categories include:

1. Misreading of the Market
2. Inadequate Corporate Support
3. Unrealistic Corporate Expectations
4. Inadequate Planning
5. Operational Difficulties

The specific checklist of obstacles is detailed in Table 1, with the number of corporate innovations in which they were cited as problem issues. One final category has been added to Table 1, which we shall call People Problems. These were not proposed by MacMillan, et al., but may overlap with several of their categories. Particular terms may need further explanation. Innovation envy refers to those who tend to be envious of people involved in innovation projects, to the extreme that they sometimes even try their best to derail or sabotage the project. Closely coupled to this is defense of turf, where certain groups within the firm, for example, the market research department, claim the project team cannot do their own market research.

The bandwagon effect is really the reverse effect, whereby so many people want to get involved and be identified with the project that they climb aboard uninvited or conduct their own skunkworks, unknown to the original members of the team.

Debugging time within the operational difficulties section refers to both working the bugs out of a prototype, to obtain a functioning product, and to ironing out difficulties of manufacturing such products. Moving from producing one or two prototypes, to mass producing a product usually meant considerable engineering and manufacturing problems.

The final category is really the unwillingness to admit failure, which is closely tied to the last issue in category four, no clear definition of failure. Policies like, "If the product does not achieve

Table 1. Obstacles to Corporate Innovation

Category	Number of respondents	% of Sample of 112
1. Market Research		
Misreading of the Market		
a. Imperfect market analysis	63	56
b. Underestimation of competition	28	26
c. Underestimation of selling effort needed initially	17	15
d. Underestimation of customer's risk in supporting venture	9	8
e. Underestimation of barriers to entry to market	27	24
f. Unexpected customer education and training requirements	12	11
2. Corporate Support		
Inadequate Corporate Support		
a. Lack of real commitment to the venture	35	31
b. Lack of clear mission for new unit	26	23
c. Lack of entrepreneurial talents in company	58	52
d. Competition for resources inside company	46	41
e. Lack of fit with corporate strategy	55	49
3. Corporate Expectations		
Unrealistic Corporate Expectations		
a. Impatience in company to get results	36	32
b. Unrealistic payback criteria	29	26
c. Overcontrol by corporate level	18	16
d. Excessive corporate cost allocations	19	17
e. Underestimation of riskiness of venture	35	31
f. Refusal to acknowledge weakness	49	44
4. Planning Adequacy		
Inadequate Planning		
a. Poor cost estimation	35	31
b. Underestimation of funds needed	58	52
c. Unanticipated regulation problems	13	12
d. Lack of contingency plans	22	20
e. No clear definition of failure	33	29

Table 1. (Continued)

Category	Number of respondents	% of Sample of 112
5. Operational Difficulties		
a. Debugging time underestimated	58	52
b. Quality control maintenance	33	29
c. Disruption of ongoing operations	19	17
d. Incorporation of new unit into ongoing operations	13	12
e. Venture incurred excess fixed cost	38	34
6. People Problems		
a. Unwillingness to consider alternative approaches	48	43
b. Unwillingness to bring needed skills on board	39	35
c. Innovation envy or sabotage effect	27	24
d. Defense of turf	35	31
e. Bandwagon effect	19	17
f. Unwillingness to kill an idea	58	52

sales of at least \$100,000 in the test market, we will discontinue it", were seldom encountered, but are necessary for any innovation project. Such definite, measurable milestones must be defined or the project may muddle along, being called the Living Dead or Walking Wounded, never lying down and expiring quietly, but never taking off either!

Origination of Ideas

No consistent pattern of idea sources was encountered. The more experienced companies suggested that ideas should come from anywhere and everywhere. Several firms had people whose job was to continually scan the environment for new ideas, which the firm could use. These people usually monitored industry resources, both within Canada and internationally.

The most progressive corporate cultures suggested that anyone in the firm, or even from outside, could be the source of the innovative idea. Joint ventures usually arose from outside sources, once the corporation had put out the word that they were interested in such ideas.

Both market pull and technology push were investigated as sources of ideas, with most ideas being of the latter type (63%), an invention or technical innovation from within the engineering, manufacturing, research and development or other technical departments of the corporation. These ideas were less likely to succeed, however, since they usually lacked the market need dimension so important to innovation. In addition, they were often championed and staffed by technical people, who lacked the market awareness to do even preliminary market research to see if there was a market or what potential customers thought of the idea.

Innovations which were the result of market pull (37%), were more likely to succeed, partially because the market was identified in advance. Customers often were the source of such ideas, approaching the corporation with a request for a product, system or process. Often, this customer would pay much of the development cost of the innovative idea, increasing its chances for success and the likely profitability once the idea was sold to other customers.

Several corporations stated they would not develop an innovation unless there was at least one customer, supplier or outside corporation willing to sponsor the idea financially, in advance. The extreme example of this was several joint venture oriented corporations who sought smaller entrepreneurial firms with an improved product, scoured university engineering and science laboratories and sought acquisitions of new innovative ideas. These firms were then willing to use their resources to commercialize the innovations. Licensing arrangements, purchase of patents, or sharing of revenues were several different ways encountered where such joint ventures were achieved.

Corporate Entrepreneurs

Most of the corporate innovation champions studied were really entrepreneurs in all senses of the word, except ownership. They tend to behave very much like independent entrepreneurs, especially in terms of their desire for independence, their unwillingness to admit failure and their willingness to devote all their time and effort to their idea.

However, they are often unreasonable in their expectation that other people involved with the innovation should have the same characteristics. Their tendency is to surround themselves with other people like themselves, rather than people whose skills are very different, but equally necessary for the development of the innovation. This was perhaps the greatest difficulty expressed by those interviewed, their inability to get the entrepreneurs or champions to behave as team players, to interact with other functional area personnel and recognize the importance of all of these skills in the success of the innovation.

Several firms had developed guidelines of the various skills which had to be represented within the innovation team, usually in very general terms such as marketing, financial, manufacturing and engineering. The champion could borrow resources from these functional areas, choosing for himself the actual personnel to join the team, but being required to include people with skills in certain functional areas.

In terms of reporting requirements, those firms more experienced at innovation suggested that monitoring should not be too close. They suggested instead that the champion should be treated by top management, or review committees in a similar manner to how the bank monitors an independent entrepreneur, receiving regular reports on a monthly or quarterly basis, but not interfering on a day-to-day basis. This approach was also suggested by Shapero [20]. He emphasizes that corporate ventures cannot be realistically evaluated on how closely they adhere to the plan. New venture plans change daily, with an emphasis on adapting to an opportunity, and responding to unanticipated events. In a word, new venture plans must be flexible.

In fact, several companies had developed a network of people who had gained a reputation of working well in innovative situations, who were good team players and who could be called on by an entrepreneur or champion to join his team.

No examples of female champions were encountered. All of the innovation champions in the corporations interviewed were male and the vast majority (95%) of the innovation team members were male. The few examples (four) of female team members tended to be in areas such as market research, finance and product management,

rather than the original source of the idea or the champion of it.

When asked how these entrepreneurs and team members were rewarded, all of the firms emphasized that the necessary rewards extended far beyond the financial. In fact, the financial rewards tended to be via promotion, rather than bonuses or direct rewards based on the success of the venture.

Other rewards suggested by those interviewed included prestige, self-fulfillment, independence and increased responsibility and authority. These were cited as being the primary motivators to the entrepreneurs or champions involved. In fact, the financial motivation was usually seen as incidental. Most firms did not have a direct financial reward based on the success of the venture.

A Comparison of Corporate and Independent Entrepreneurs

It is interesting to note that both the respondents in this study and a sample of 124 independent, high technology entrepreneurs surveyed earlier [13] rated marketing problems high on their priority list. For corporate entrepreneurs, these marketing problems were usually in reference to issues outside the firm such as, imperfect market analysis, barriers to entry to the market and competition, etc. For the independent entrepreneurs, problem issues were more internal to the firm such as hiring salesmen, lack of marketing skills and resources and a bias towards the technical side of the innovation rather than the market.

This is likely because the management team present in the smaller high technology ventures were usually technical in both training and experience. They lacked the marketing orientation needed to assess the market for their product innovations, which were mostly of the technology push variety, rather than market pull. Large corporations, on the other hand, seemed to have sufficient marketing resources internally, but were not familiar with the new markets at which their innovations were aimed, the competition in that new market or the barriers to entry.

Corporate market research departments existed in most of the firms surveyed, but they were usually unfamiliar with markets for many of the innovations being developed. There was also a tendency for conflict between an existing market

research department and a project team for an innovation, which usually wanted to do its own market research.

One possible recommendation for both types of companies is that they should get together and cooperate on the introduction of innovations to the market place. Most large corporations which wish to become more innovative, in terms of new products and services to add to their existing lines, often lack both entrepreneurial skills within their organizations and the environment within which entrepreneurs can survive and flourish. Smaller entrepreneurial firms usually possess these skills and the environment necessary for entrepreneurs to thrive. What they do lack are the general management skills and superior resources of the larger corporations.

What is possible is an opportunity for a marriage of the two types of firms through either a joint venture, or a partially corporate owned spinoff venture. Examples of each will illustrate the concept. A large corporation had several office equipment items in its product line, which it distributed through a vast nationwide network, although it did not carry any computer equipment or software. After a campaign to locate small, innovative firms with computer products which the corporation could distribute via its network, a firm was located which had developed a complex computer gate, part hardware and part software, which prevented illegal access to corporate computer networks. Both firms benefitted from the joint venture which resulted, one by adding innovations to its product line, and the other by using a superior distribution network which it could not develop on its own.

The other example was a large firm which had decided to terminate development of an innovation, because the market was believed to be small and difficult for the corporation to enter. However, the entrepreneur who was heading the development believed he could make it succeed. He left the large firm to establish his own firm. But, he persuaded his large former employer that, in return for a minority equity share in his new company, he could use some of the superior resources of the large firm, such as laboratory facilities, manufacturing equipment and market expertise to help him launch the venture. He gained resources which he could not otherwise afford, and the large corporation had gained a share of

his success. Both firms have also investigated several other innovative product ideas through the same arrangement. Sponsorship by the large firm has given the entrepreneur much credibility with outside sources of funds, suppliers, and customers.

The option exists for considerable cooperation between large and small firms on entrepreneurial ventures.

Conclusions and Recommendations

Perhaps the first and most important observation is that corporate innovation and entrepreneurship can be effectively managed (and mismanaged), like every aspect of corporate activity. First, it can be encouraged (and discouraged) by the attitude that is projected through the corporation, usually by top management.

The first step in creating innovation within the firm is to create an environment, climate or atmosphere, where, everyone in the firm believes that they can be an intrapreneur. This may be by broadcasting requests throughout the corporation for innovative ideas and promoting examples of successful innovations within the firm, along with the people responsible for the success. This also means an environment where failure is not only tolerated, but expected in some cases. If heads roll and failure is viewed totally in a negative light, innovation will be completely discouraged. So corporations should make folk heroes out of their intrapreneurs, even the less successful examples.

A procedure should be set up to screen all ideas, both from within the corporation and from outside. This does not mean to give a go or no-go decision, but rather to instruct people on how to proceed with their ideas. Suggestions might include information on how to put together a brief business plan to present to a management committee, people to consult who have been champions or team members involved with past innovations. Role models can be developed within the firm for these potential champions.

The committee which reviews these proposals and business plans should be constructed very carefully, with people who are supportive rather than destructive, encouraging rather than discouraging and those experienced in removing obstacles, rather than creating them. Guidelines

should be developed for these committees, but they should be very broad rather than too restrictive.

By this we mean that areas which the corporation will consider for innovation should not be too restrictive, at least in the early stages. "Sticking to the knitting" should probably not be one of the criteria used, since many committee members will interpret this to mean only the products, markets and technology currently being pursued by the firm. Instead, this criterion should be used to ask whether the firm should be moving away from its current specialities, whether it possesses any expertise or distinctive advantages in the new area, and whether the new venture holds the promise of a good return on investment.

The major obstacles which managers interviewed during the study encountered were, as rated by respondents in Table 1:

1. Imperfect market analysis.
2. Lack of entrepreneurial talent in the company.
3. Lack of fit with the corporate strategy.
4. Underestimation of the funds needed.
5. Underestimation of the debugging time required.
6. Unwillingness to kill an idea.
7. Refusal to acknowledge a weakness.

The solutions recommend by executives interviewed to these problems are as follows, in the same order:

1. Market analysis must be completed by people skilled in marketing, not technical people. Giving preference to ideas which come from the market, rather than from the research labs is one possible focus. Building certain market research requirements into the planning process is another.
2. Entrepreneurial talent may exist within the firm, but must be encouraged by the creation of role models within the company; illustrative ideas which are being considered and a process which is open-minded, not rejecting any suggestion without due consideration. Another alternative is to approach entrepreneurs outside the firm for new ideas which can fit with the firm's strategy and resources. These can lead to joint ventures between corporations and outside independent entrepreneurs. A third alternative is to interview people re-

signing from the firm about their reasons. Budding entrepreneurs can often be discovered among them, with a deal being made for them to pursue their idea, either within the firm or as a joint venture.

3. The problem is more often that the corporate strategy is so narrow, in the "stick to the knitting" sense, that no new idea could possibly fit! Broadening that strategy to consider all new ideas is usually the solution.
- 4 and 5. Experience in innovative projects will usually improve the ability to estimate both costs and time. But, corporations shouldn't expect adherence to budgets and deadlines for things that haven't been done before.
6. Firm milestones and performance guidelines should be established which will terminate the project if not met. Near misses can obviously be given a second chance; but, country mile misses should be dropped! The firm must be willing to terminate ventures.
7. All weaknesses of a project should not only be admitted, but addressed in regular reviews of the proposal, especially in terms of how they are being addressed, or cured.

The role of the mentor or sponsor, who should be a member of top management of the firm, should include the following functions:

1. Curing the need for resources by defending proposals in evaluation meetings, allocating initial exploration funding to new ideas and permitting flexibility in budgets in terms of money, people and equipment.
2. Overcoming the "nervous money" reaction of many other members of top management regarding risky ventures, both in initial review procedures and future follow-up evaluations. Establishing firm milestones and performance guidelines will help to soothe this intolerance of uncertainty.
3. Fighting the political battles includes such issues as "defense of turf", hoarding of resources in one's department, "empire building", and the people problems listed in Table 1.
4. Placing the incentives and rewards in place is really part of the creation of the environment to encourage innovation. Permitting champions to manage an innovation through all of its development and sharing in its profits, repre-

sents one way of doing this, making them role models for others to follow.

5. Creating the right environment for innovation includes many of the responsibilities listed above, as well as the initial encouragement of new ideas, establishing a review and evaluation process and broadening the perspective of the entire firm beyond its current lines of business.

The mentor, and others like him throughout the firm, have as much or more responsibility and importance in establishing a reputation for entrepreneurship and innovation within a firm as do its resident entrepreneurs. Without these people, most entrepreneurs will quickly become frustrated and abandon their innovative ideas or leave the firm. Indeed, many of them will never emerge without the encouragement of the mentor.

Once a champion has emerged, however, he too has certain responsibilities including:

1. He or she should be self-selected by the presentation of his or her innovative idea, rather than being delegated by upper management. The degree of commitment, enthusiasm, energy, drive and pride in the project is infinitely enhanced if the idea is the champion's own, and he/she chooses to start it and to run with it to completion.
2. The champion should manage the idea all the way to its completion. He should not be required to hand it over to a more senior manager, but should be able (and encouraged) to add members to his team whose skills complement those of the champion.
3. The champion should make all the major decisions during the development of the innovation, except, of course, whether it receives approval or not. But, he has all possible opportunity to influence the approval process by the thoroughness of his plans and proposals to management. Once approved, the project should be managed and developed the champion's way.
4. Resources should be available on a discretionary, or as needed basis, since all resource needs cannot be anticipated during the planning process. Whereas most corporation managers are evaluated on their ability to minimize variations from the plan and budget, an entre-

preneur should be evaluated more on his ability to adapt to variations in the plan. Flexibility is his watchword!

5. Many corporations try to make their innovations of the home run, earth shaking (or at least industry shaking), variety. These ideas are obviously the most difficult to bring to fruition, so it is advisable to stick to smaller scale innovations and the champion should be evaluated as a good singles hitter, rather than a home run slugger!
6. There must be a tolerance of risk and failure within the firm. No one bats 1,000 in the innovation game, but home run hitters strike out more often. Even breaking an innovation down into several more manageable projects is often advisable, to permit several small successes along the way, possibly as phases of the overall development.
7. The champion needs patient money as the innovation process usually takes longer and requires more money than initially planned. As a firm becomes more practiced and skilled at the innovation process, this estimation procedure usually improves with experience.
8. Top management must take responsibility for providing an environment for the champion to be free from "defense of turf" problems. This means breaking down the "empire building" syndrome of many corporate managers, which inhibits innovation.
9. Cross-functional teams are usually a necessity in corporate innovation, so the champion must be able to, and encouraged to, borrow resources from various areas of the firm, especially people who possess skills which he does not possess.
10. The champion should have multiple options, such as using resources hired from outside the firm if the need arises.

Large corporations have in the past become more successful in creating independent entrepreneurs outside the firm by forcing them to leave and form their own businesses. In many cases, these independent businesses could have been developed and retained within the firm, rather than lost forever. Several reasons for the loss are usually evident. The corporation may have no mechanism for recognizing or encouraging entrepreneurs, who leave in frustration. The early

death of an entrepreneur's pet project within the firm may encourage him to leave, if only to prove his former company wrong by making the project succeed on his own.

This phenomenon can often be avoided by many of the suggestions contained in this article. Even if the entrepreneur does leave, the corporation can often remain involved by establishing a joint venture with the independent entrepreneur. This has the added advantage that the independent entrepreneur can often raise additional resources, beyond those which the corporation has provided, for the development of the innovation.

In this article, we have attempted to examine 112 corporate innovations from large firms across Canada. We have tried to classify them by the type of innovation, the manner in which it was managed within the corporation, and the role of corporate entrepreneurs, intrapreneurs or champions within this process. In addition, we have examined the need for top management to create a favourable environment for innovation within the firm and to serve as sponsors or mentors for innovations as they proceed through the pitfalls of the typical large corporation.

We have also included a brief comparison of corporate entrepreneurs with independent entrepreneurs from a previous article. This comparison has merely started the process and much more work needs to be done in this area.

Nevertheless, we have only scratched the surface of this topic and future articles are planned which will explore many of the other issues raised in this discussion. Feedback on the ideas discussed and further examples of corporate innovations for the study would be appreciated. Areas for further study include contrasting corporate entrepreneurs with independent entrepreneurs, to explore similarities and differences, joint ventures between corporations and entrepreneurs, and spinoff entrepreneurs who leave corporations to start their own independent business.

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