Technological Innovation Studies Program

Research Report

WRECKING GROUND FOR INNOVATION

by

Blair Little
School of Business Administration,
University of Western Ontario.
February, 1973

Rapport de recherche

Programme des études sur les innovations techniques

Industry, Trade and Commerce
Office of Science and Technology
Ottawa, Canada

Industrie et Commerce
Direction des sciences et de la technologie
Ottawa, Canada

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The views and opinions expressed in this report are those of the author and are not necessarily endorsed by the Department of Industry, Trade and Commerce.

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TECHNOLOGICAL INNOVATION STUDIES PROGRAM

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"Wrecking Ground for Innovation"
Dr. Blair Little, Associate Professor, School of Business Administration, University of Western Ontario
February 15, 1973

Executive Summary

Some cases of Canadian experience involving the successful development of technology, in which there was no subsequent commercialization due to a failure in market analysis, are presented.

It was found that in many technically oriented Canadian firms the weakest link in the innovation process is that of marketing. It is suggested in the paper that market research studies should be an early step - if not the first one - in the innovation process.

Firms which do little new product marketing tend to rely on published statistical data, when undertaking market research. In contrast, firms which do a lot of new product marketing tend to obtain first-hand information from potential customers. When a company states that marketing research isn't necessary because the market is fully understood, this is a sure sign that the company does not understand the market!

Some methods are suggested by which a company, which has not previously undertaken market research, can find out how to do so.

A. Vanterpool
Office of Science and Technology
March 20, 1973

WRECKING GROUND FOR INNOVATION

Blair Little

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Weak marketing is the wrecking ground of countless promising Canadian technological innovations. That is the conclusion I've reached after a one and a half year study of new product development by industrial goods firms in Canada.

The study turned up a bushel of new product "horror stories" which revolve around some important oversight in assessing the market. Newspapers and magazines document similar stories every week and most managers have their own repertoire of case histories on marketing failures. Time and again, the failures are linked to the problem of assessing the market for new products.

Consider the situation of a Canadian manufacturer of electronic process control equipment (which I will call Ripley Electronics Company Limited -- a fictitious name). Just a few years ago, Ripley gained access to a significant technological breakthrough for a very low R&D investment. The firm's good fortune was enhanced by the acquisition of a brilliant applications engineer who could translate the new technology into effective operating hardware. Ripley's management was truly excited by the prospects for the new technology. The expectation was that a whole new product line would be developed which would, within a few years, be the company's major business base. What happened within a few years, however, was that expectations were dashed on the reality of the market place and Ripley Electronics Company Limited was unloaded to a U.S. buyer at a distress price.

The tragedy of this case lies not just in the broken dreams and pocket books of the company owners and managers, and not just in another loss of Canadian ownership to a foreign based parent, and not just in the transfer of control of developed-in-

Canada technology to foreign territory. The real tragedy lies in the fact that the company needn't have failed; the new technology needn't have foundered. Ripley Electronics might today have been a profitable, growing, Canadian-owned, technologically sophisticated, export oriented, labour intensive manufacturer of process control equipment. What shareholder, manager, worker, or politician would not call such a failure tragic?

What happened was that Ripley's promising and innovative technology lost its life on the wrecking ground of weak marketing. The same end has come to the technological innovations of too many Canadian firms, and it is only small consolation to know that the same problems have struck many firms in other countries. What happened to Ripley Electronics provides support to the proposition that the stronger the technical orientation in a firm, the weaker its marketing orientation. This proposition sometimes takes the form of, "The more engineers in a firm, the fewer marketers in the firm", or "The more we are enraptured by our product's technology, the less we understand our customer's problems". The proposition holds because it's hard for parents to ask for, let alone hear any criticism of the new product baby.

The facts of the Ripley Electronics situation illustrate the effects of the strong technology, weak marketing syndrome. When the company initially sought outside funding to exploit the new technology and expand operations, it included no estimate of sales revenue in its funds request. When questioned on this point, Ripley's management could give no answer other than that, "The market potential is fantastic; in North America there are literally hundreds of customers." This exchange led to the hiring of a consultant to prepare an estimate of the sales potential for the new product line. Ripley's managers and engineers listed forty different industries which they felt had production processes that could utilize their proposed new product line. Through visits to companies in all of these industries, the consultant

very quickly found that the new product line had a chance of being used in only ten processes, and furthermore, that only half of these were really promising, at least in the short run.

Optimism still prevailed within Ripley's management ranks but the sales potential was toned down from "fantastic" to "excellent". The outside funds were obtained and development work began. Prototype units for two of the most promising industries were developed and built with the expectation that potential customers could be found who would participate on a shared cost basis in testing the units under operational conditions. Unfortunately, market data once again was overlooked. Development engineers did not determine the real operating needs of the potential customer's process engineers and wound up with prototypes that customers found unacceptable. After design modification, two customers accepted the prototypes for trial but not until Ripley agreed to shoulder the full costs of the test. In test, the prototypes worked as the developers originally intended, but sales of the test units didn't materialize. The companies doing the testing had other capital equipment plans well established and the benefits of the equipment being tested were not dramatic enough to upset those plans.

Faith in the new technology sustained the project through further requests for funds and further development efforts. Ripley managers began to realize during the prototype testing stage that they would have to develop different versions of their product units for virtually every customer, not just for every industry. They began to undertake the development of the several different versions, in each case in consultation with process engineers. Sales continued to elude them, however, because they continued to ignore the problem of understanding the customer buying processes with which they had to deal. It seemed to escape Ripley managers that their customers had to justify the purchase of new equipment on an economic basis, that purchases

were subject to complex group decision processes, that customers had strong ties with existing suppliers, and that customers had requirements of their suppliers such as delivery, servicing, and so on, in addition to technological performance specifications.

Ripley Electronics missed the mark completely on three aspects of new product marketing information:

1) the size of the market, in terms that would be useful for the new product investment decision;

2) the nature of product performance requirements, in terms that would be useful for developing the product;

3) the nature of customer buying processes, in terms that would be useful for sales and promotion planning.

Although Ripley Electronics did not survive long enough to enter markets in Europe and Japan, it seems likely if it had that the company would have missed still another type of market information, namely,

4) the nature of foreign market systems, in terms relevant for establishing foreign distribution, licensing agreements, and so on.

A great many of the new product failures in Canada are not the result of bad market assessment but are rather the result of management simply not thinking it was necessary to assess the market explicitly. Consider the following examples:

Company A Millions of dollar were spent to build a plant to produce a raw material that it was thought would be substituted for an existing material in a very large manufacturing industry. It turned out the material was useful in only

a minute segment of that industry and the plant had to be totally converted to another use.

Company B Design engineers came up with a new product that exceeded the specifications of a competitor's product which most customers were then using. They discovered only when they tried to sell the new product that customers had no particular desire for the "better" performance.

Company C Substantial R&D dollars resulted in a product which customers acknowledged had a number of advantages. Only when sales were attempted were the product's several disadvantages discovered.

Company D The company entered a market it hadn't worked in before with a product it felt would be at least equal to the competition. After two years of concentrated selling effort, the company withdrew because it could not break the strong loyalty developed by existing suppliers. Customers had no good reason to switch to an unknown supplier.

Company E When the company entered a new foreign market with an old product, it failed totally to understand the amount of time and engineering assistance that the new segment of customers would require to switch to the new product. The sales force that the company had built was totally inadequate.

In all of these examples, the company developing the new product missed on at least one of the four basic elements of marketing information necessary for new product development and new market development. The reason for failure was, notice, not bad market assessment but rather no market assessment.

Millions are spent by corporations, research institutions

and governments to generate new technology with the expectation, apparently, that valuable new products will somehow emerge at the end of the R&D pipeline. But little is spent determining how the market might value the new products. For example, in one firm examined in my research, the manager saw no incongruity in having budgeted $2,000 for Marketing Research for a project calling for an investment of $20 Million for R&D, plant and equipment. On another level, there is no National Marketing Research Council to parallel the National Research Council.

My research shows that, more often than not, the role of marketing in technically oriented companies is a minor one. In fact, it is probably the weakest link in the new product process of such companies. What stands out is that the market assessment task is the particular area of marketing that fails to receive a fair share of the company resources. A fairly common sentiment among smaller companies was that, "Big companies can afford computers and marketing research; we are only small and can afford neither." But large companies often showed a similar reluctance to engage in marketing research activities. When companies did report doing market research studies, it usually turned out that the studies were an analysis of secondary data--statistics from governments, trade associations and so on. This was true even though the research study's definition of market assessment included such common information gathering activities as reports by salesmen, informal customer surveys, and meetings with customer managers.

The research showed that companies that were more active in new product development and had developed more new products in recent years were more likely to use primary data sources--that is, first hand information from customers or potential customers. The same was true of companies with a high proportion of their sales generated by new products. Some firms have somehow developed a habit of engaging in marketing research when faced with new

product decisions; others have never acquired the habit. At the same time, the more technically oriented the personnel of the firm, the more likely any marketing research that was conducted would be involved with secondary rather than primary sources of information. Thus, there seems to be a bias toward inward looking marketing analysis in a firm dominated by technical people.

The reasons offered for the lack of market assessment activities were many and varied, but all were essentially some variation of the following:

1. Cost of market studies was thought to be high (although almost none of those interviewed could suggest what costs might be).

2. There was fear of exposure of upcoming new products to competitors, customers and salesmen.

3. Market studies were thought to be difficult to do since industrial goods buyers are not so easily assessed.

4. Few companies had people with market research experience and few managers knew of outside research services that might be purchased.

5. The market value of technically advanced products was felt to be so great that analysing the market wouldn't be useful.

6. There was some tendency to "go ahead anyway", regardless of the market position possibilities, because so much had already been spent on R&D costs.

The decisions that led to little or no new product market

assessment in the firms studied seldom stood up to thorough examination. Much of the concern for technology security was obviously well founded, but even in these situations, there was usually an opportunity for acquiring better market information without undue risk. Moreover, better market information often permits earlier market introduction, and market lead time is frequently the strongest security for new technology.

Fears of research costs, ideas about research difficulties and ignorance of research services were products of marketing research inexperience. Where a firm had, even once or twice, utilized a well-formulated study of buyers in a new product project, the question for all new projects was no longer whether to do research but, rather, what research to do. Unfortunately, in many other firms, no one even asked the question of whether, and technical development proceeded on blissful assumptions about the new product's market acceptance. As one executive suggested, "Many people involved in new product development don't know what they don't know."

To discover what you don't know about new product development usually requires a departure from existing procedures and habits. It probably means a deliberate plan to make contact with new people, new ideas, new techniques. It means checking and challenging your most comfortable assumptions about the major components of the new product development process. New departures involve a cost in time and psychic energy: many engineers have said they find it tiresome to seek out new and different personal contacts; most managers claim they are too busy to become sidetracked from immediate operational concerns. The question is whether seeking new departure efforts are worthwhile. For many Canadian firms, the answer from my research is a resounding "yes!"

There are several ways to find out about marketing research

for new product development. For example:

1. Ask managers who have used special market assessment studies. They are excellent information sources but are a rather rare species.

2. Talk to professional marketing research agencies. Marketing research in Canada is essentially a consumer goods activity but you can find industrial goods agencies if you look carefully. Management consultants often include special market studies among their lines of service.

3. Keep a look-out for courses, seminars, articles, books, speeches, meetings, etc. If you are unable to attend a course, at least contact the organizers, seminar leaders, participants, and look for ideas.

4. Try it. Try to formulate and carry out a small but formal study on some aspect of a new product project. Experience is not nessarily the best teacher but it sharpens the understanding of what one needs to be taught.

A judgement that marketing research isn't necessary because the market is fully understood is almost a sure sign that it is necessary. Surely every manager concerned with new product development can automatically, on every project, ask for a formal, unbiased assessment of the market for the proposed product, including a systematic examination, using primary data, of the potential buyers' product needs and buying processes. Such an analysis ought to be an integral part of every internal budget request and every external financing proposal.

It is time for everyone concerned with new product development--engineers, venture capitalists, presidents, administrators

of government incentive programs, marketing researchers--to start thinking of marketing research studies as an early step, even the beginning step, in the innovation process, not as the post-mortem examination. Perhaps, while we wait for and ponder our national industrial strategies and our national science po'icies, we can put to work some tools that are already at hand. Tested marketing techniques are available. What is still required for successful innovation in Canada is a total commitment by management to develop stronger marketing in the firm.