SMALL COMPANY
INTRAPRENEURSHIP:
DEVELOPING A NEW
HIGH-TECH PRODUCT

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Many issues surface when a company decides to foster entrepreneurial activity within the company (known as intrapreneurship). These issues include methods to encourage this type of activity; the implementation, management, and control of an intrapreneurial venture; the desired traits and characteristics of the people who will run the venture; the place of the venture within the organization’s structure; and the effect of the company’s culture on venture activities.

This case study describes the factors that motivated SMI, a small, high-technology company, to use the intrapreneurial process to grow. It also describes the issues SMI faced when it implemented this decision by forming a fifth division, the communications products division. Many of the intrapreneurial concepts illustrated in this chapter are discussed in the context of events taking place in other segments of the company. The success of the ventures was due in part to the fact that management allowed the division to act autonomously, while, at the same time, helping it to overcome major obstacles in its path.

COMPANY BACKGROUND AND DESCRIPTION

SMI, which has been in business for about 20 years, provides security products. The security market is an $8.8 billion worldwide industry with applications ranging from inexpensive consumer products for homes to sophisticated security systems for large commercial and government facilities. Most manufacturers of security products are small- to medium-sized
companies with an expertise or product specialization in one or more market segments. SMI’s business initially involved the use of microwave circuits to detect intrusions at military, nuclear, correctional, and commercial facilities.

The security industry manufactures products that range from low-tech fences to sophisticated intrusion systems using high-tech motion and vibration detectors, infrared detectors, lasers, and video assessment systems with digital storage. SMI offers a considerable array of security products and services ranging from standard intrusion products to sophisticated systems and installations.

SMI’s top executives purchased the small security business from a larger electronics firm with roots in military communications and integrated circuits. The core group of employees consisted primarily of top-notch technologists and salesmen who developed and marketed new products. To reduce product costs and maintain adequate margins, they emphasized in-house expertise. The sales force very successfully developed a widespread and effective network of manufacturers’ representatives (i.e., agents) who were qualified security products salespeople. Over the years, the relationship between SMI and their representatives became very close, and SMI developed the reputation of producing reliable, innovative products, accompanied by strong technical support.

Since its inception, the business has been steadily growing, and it continues to maintain a strong presence in the security market. Over the past several years, SMI expanded its product line and diversified into other related markets through intrapreneurship and acquisitions. To complement its total security offerings, SMI started a small connector business and purchased a non-microwave-related security business. Both businesses have been successful and continue to grow at a steady pace.

SMI is made up of the following five divisions:

1. Industrial security products
2. Component products
3. Commercial products
4. Communications products
5. Correctional security products

The divisional structure of SMI, which is shown in Exhibit 1, is discussed in the following sections. Industrial Security Products and Correctional Products

Many of the security products initially developed in the industrial security products division were high frequency microwave devices operating in the 10 GHz to 23 GHz range that were used as microwave sensors for detecting intrusions. The products operated on the principles of radar, presenting an invisible microwave beam that set off an alarm when it was broken. These products initially attracted the large military market, which was interested in perimeter security around sensitive military installations and facilities. Because of their low cost, dependability, and portability, these products
became very successful. The microwave sensor business eventually grew into the nonmilitary markets, and newer, state-of-the-art designs were developed and marketed.

The correctional products division (a business acquired within the past seven years) supplied newer products and provided a total system solution for many of the security markets. Correctional products pulled together the various aspects of security and integrated them into a complete package, including installation and service. This move made SMI an even more formidable competitor in the security business.

**Component Products**

The component products division, the oldest of SMI's intrapreneural ventures, was formed five years ago. It is currently a complete division with its own fiscal responsibilities. This division mainly focuses on high-performance microwave connectors for the test equipment industry. It has just become profitable in the last year and shows great promise for growth and continued profitability.

**Commercial Products**

The commercial products division, another intrapreneural venture, is about a year old. This division has been developing an exciting product for the industrial and commercial security market based on state-of-the-art technologies. By employing a unique patented technology, this division intends to
Communications Products

The two-year-old communications products division, the focus of this chapter, is SMI's latest intrapreneurial venture. This division differs from the commercial products division in that it is developing a product for three existing markets: telecommunications, data communications, and professional wireless video. The technology is consistent with products that are currently available. The division is a market-follower whose objective is to pursue markets that are too small for the larger communications companies, but yet are sufficient to sustain a business attractive to SMI's management. Its products are low-cost wireless communication devices capable of transporting data and video with simple interface changes.

WHY A NEW INTRAPRENEURIAL COMMUNICATION PRODUCTS DIVISION WAS NEEDED

As previously noted, SMI was familiar with starting a successful intrapreneurial venture. Of SMI's five divisions, one was the initial entrepreneurial startup, one was a purchased business, and the rest were intrapreneurial in origin.

The need for communication products stemmed primarily from the security market. While selling microwave security sensors, SMI security market representatives uncovered a customer need for wireless means to transport video images and low-speed camera control data from one point to another. Video assessment was a major component in the total security solution. Video cameras were positioned at the sensor locations, and bundled cabling and wires brought the images back to a central monitoring station. Laying cable over long distances—miles in many cases—was extremely costly. The costs increased even more if the cabled systems had to traverse city streets, private property, and other structures.

The microwave sensor technology that the industrial security products division developed provided a bridge to a related product line in wireless data and video communication equipment. Through the in-house expertise attained in developing high-frequency oscillators, antennas, and other components, SMI could develop cost-effective high-frequency microwave video and data communications equipment. These products were very well received in the security market.

At about this time, other microwave companies were manufacturing and selling wireless equipment to the telecommunications market for transporting high-speed data over these same frequency bands. Telephone companies, public utilities, and other large commercial businesses were the primary customer base for these products, which were typically expensive, high-end products with sophisticated components and features. Based on the comments
of customers, SMI felt that a niche might exist for a low-cost product that it could sell to smaller companies with smaller budgets.

**An Unsatisfactory First Step to Meeting the Market Need**

SMI was an expert in the radio frequency side of microwave communications, but it had limited knowledge on the data side. Through its industrial security products division, SMI sought out a partner that developed and manufactured high-speed data modems. Once the partnership was founded, the two companies started to market the high speed data modem and microwave radio combination to the telecommunications market and smaller businesses. The sales efforts were unsuccessful. The microwave radios were not sophisticated enough for the telecommunications market, and neither company had the marketing expertise to sell the package effectively. The data modem partner could not sell the microwave radio side of the combination, and SMI's industrial security products division did not have the proper market channel arrangement. That division's rep network only called on security customers, and they were not interested in high-speed telecommunications equipment.

**Tracking the Market Niche and the Competition**

SMI management was still convinced that a good opportunity in the telecommunications market existed. Companies were consistently asking for high-speed wireless data communication solutions for applications ranging from bypassing the monthly fees for dedicated telephone lines to needs arising from expanding businesses. To address these needs, SMI believed, an autonomous group needed to be established. This group would have the expertise and experience to focus specifically on product development and marketing for this type of market. The group was expected to be independent and uninfluenced by the attitudes and philosophies of the existing security business.

However, before investing more time and money in a new venture, SMI needed to know if its expectations about the market were justified. Was there really a market niche in which SMI could effectively compete? What did the total market look like? Who were the competitors and how aggressively would they react to a new entrant? Exactly what type of products were required to sell in this market?

SMI hired a marketing consultant with extensive background in the microwave communications industry to address these and other issues. With a clear knowledge of the type of markets, competitors, and products in this industry, the consultant presented SMI with a report that reinforced internal opinions about the business.

The report found that most traditional microwave competitors were focusing on providing solutions for the rapidly growing cellular and personal communication service (PCS) markets. Their products were becoming more sophisticated and expensive. As such, a small-market niche in need of
low-cost wireless solutions was present. There was also a massive movement to deregulate on the part of post, telephone, and telegraph (PTT) services run by international governments. This move allowed other telecommunications companies to sell products in these governments’ countries. Research showed that the major microwave manufacturers were moving toward the higher-volume, higher-speed, more sophisticated areas of the business.

In their move toward greater volume and profits, these rapidly expanding microwave companies were leaving the smaller opportunities aside. Essentially, the larger firms were prevented from addressing the smaller businesses effectively because of the lack of economy of scale. The smaller businesses requiring only one, two, or three microwave links were not getting the service and support given to the larger telephone and cellular service providers that required from tens to hundreds of microwave links. These smaller market segments that SMI could address appeared to consist of small, rapidly growing high-tech companies, hospitals, health organizations, schools, and universities.

Although this was good news, the consultant’s report identified a few key issues that SMI would need to address before it could become a viable competitor in this niche market. The first problem was that the existing wireless products that SMI manufactured were not suited for the new market. Although SMI's wireless security products were somewhat sophisticated, the required video/data products were much more advanced than SMI had intended to produce for this market. The second problem was that SMI had very little experience in selling in the telecommunications market.

**MAKING THE INTRAPRENEURIAL DECISION**

SMI management began to seriously address the market niche for wireless point-to-point applications. The company was familiar with the general technology required to develop and market the desired wireless products. Management felt it had the capital and manufacturing resources to create the critical components for the types of products needed to address this market. However, it had to deal with the following questions:

- Did it want to expend the considerable effort necessary to expand SMI's business into a new market?
- Would these efforts be rewarded with reasonable profits and growth, considering SMI's relative unfamiliarity with the market?
- How much time would be needed to develop new products suited for the market niche and how much would it cost?
- How long would it take for profits to start flowing once the products were marketed?
- Could management afford to pull resources from its already busy security products efforts to develop a product that it estimated to take at least a year to complete?
- If SMI were to address the market, should the development effort be kept separate from the security products efforts?
Most of SMI’s engineering effort was focused on new-product development and existing product support for the industrial security products division. This was the only division that had any cross-functional expertise to apply to this new market. The division was already spending 15 to 20% of its time on the wireless point-to-point efforts and it appeared that this effort was interfering with its normal ongoing product-development efforts.

**Organizing an Intrapreneurial Business**

Taking all of the preceding factors into account, SMI management decided to address this telecommunications opportunity. It felt that the most effective way to do this was to hire individuals from within the telecommunications industry. These individuals would work autonomously within a new division, focusing their efforts on the telecommunications market. In this way, these key individuals’ specific strengths could be directed at creating the new business while the efforts of the other groups could continue relatively undeterred. The groups could share such common resources such as manufacturing, accounting, and purchasing. It was expected that these resources would not be heavily demanded until the new venture was well past the early efforts of new product and market development. The new communication products division would then be large enough to sustain a small organization of its own.

SMI management believed that the early intrapreneurial venture’s success would substantially depend on the characteristics and market experience of the individuals. A marketer and an engineer were hired to start the communications business, and they were to achieve the goals of developing a new product and introducing it to the target market. To get the job done, they would work independently while operating within the organizational structure as much as possible. The company would commit itself to the intrapreneurship by providing a budget and resource support. SMI would allow a certain flexibility in the organization to provide some needed freedom to reach the goal of successfully producing and marketing their new products. The venture could develop the new product without having to follow the rigid guidelines defined for the entire organization. The team would be given some leeway if it did not achieve timetables and budgets precisely as forecast.

**Clarifying the Intrapreneur/Company Management Relationship**

Although SMI’s management defined the business arrangement, the new team had to define the product, market niche, and process needed to achieve a profitable market position. The process included a business plan with profit figures based on the market study. These figures were to be adjusted according to market responses to the new products when they were released. The management and the new intrapreneurs felt that although this task was achievable, they would have to agree on basic working arrangements from the beginning.
Two of the most important arrangements involved autonomy and resource availability. The marketer and engineer felt that management should strictly maintain a position of observer over the business’s activities. Ideally, the intrapreneurship would work autonomously within the organization, sharing the required resources from the various departments as needed. SMI’s management structure would be a buffer for political and bureaucratic activities and act as a watchdog over the intrapreneurial process. More important, management would be available to remove obstacles to obtaining shared resources that the business required.

SMI’s management agreed not to directly intervene in the actual development process, but it still required updates on progress. Management also reserved the final authority for capital budget disbursements and required that the new intrapreneurship adhere to company policy as much as possible. From management’s perspective, it was in a good position to offer constructive criticism.

**THE ROLE OF THE INTRAPRENEUR**

The individuals selected to start an intrapreneurial venture in a company such as SMI accept a large amount of responsibility. To make the venture successful, these intrapreneurs must be proficient in many areas of the business environment. They must contribute directly to the new product’s design in the initial stages, perform market research, write up business plans, coordinate manufacturing processes, and sell the product. These activities are coupled with the main function—coordinating the overall direction of the new venture and overcoming obstacles, both anticipated and unknown. Intrapreneurs must manage both dedicated and shared resources, always ensuring that the tasks performed are relevant to the venture’s activities. Most important, the new intrapreneurs must have the disciplined intellectual honesty to understand what their strengths and limitations are. They must also understand what can be reasonably achieved without being deceived by the strength of their optimism.

In the initial stages, the intrapreneur is given the independence to perform the tasks that will result in a successful outcome. The company justifies these independent intrapreneurial efforts primarily on its confidence that the intrapreneur will effectively work through the obstacles. The intrapreneur is often directly involved in the day-to-day activities and directly controls the team’s efforts. The organization is willing to accept a certain amount of risk, because the intrapreneurial venture is usually working in new territories with new technologies or methods.

A summary of the roles of intrapreneurs compared with traditional managers is provided in Exhibit 2. An intrapreneurship within a company like SMI has two major advantages. The company can have an effective “skunk works” environment that is focused on a particular market or product without significant cost or risk impact. The manpower and equipment costs
are intentionally kept low until the real potential is immediately perceived or realized, usually during the early stages of product marketing and sales. Second, the intrapreneurship has only minimal impact on the activities of the other business units or divisions. The greatest impact is in manpower resources, but they can be effectively managed with priority given to the established business. The acquisition and efficiency of manpower and capital resources are left up to the creativity and innovativeness of the intrapreneurs.

The necessity for creativity on the part of the intrapreneurs may be unique to small companies such as SMI, where most resources and funds are generally limited. However, it is this environment that fosters the innovative spirit. Larger companies may provide significant funds and resources, thereby effectively forming a business unit before the potential is realized. The innovative spirit of the business, however, may be somewhat dampened by the availability of relatively unlimited resources.

**PRODUCT DEVELOPMENT GROUND RULES AND GUIDELINES**

The company’s goal was to develop a low-cost product that would provide a wireless connection between separate sites in the same general location. This product would connect to the customer’s telecommunications equipment at each premises and transport data, voice, or video information at microwave frequencies. The product would be functional, reliable, and simple in design. The development process would make use of both shared resources from within the company’s divisions and controlled funding for equipment, supplies, and material. The market research results helped define the product features. The intrapreneurial team made no promises to management about specific development costs, development time, or expected results. It was understood, however, that costs were to be kept to a minimum. Capital expenditures for equipment would be made only when necessary, and were not to exceed the planned budget. The team was expected to run a frugal
business, using some creativity in holding costs down. No time deadline was imposed for meeting the market requirements in the development phase.

**Developing a Plan for Product Development and Marketing**

The intrapreneurial team determined the process for meeting this goal by using a rough plan that was adjusted as the activities proceeded. The work to be done in the initial stages of the intrapreneurship was quite well defined. The new team needed to identify the opportunities, define the market and the product, and develop and market the product. The unexpected obstacles that cropped up regularly were, of course, absent in the planning of these activities.

The communications division approached the development and marketing of the required products by using a series of tasks that are discussed in the following sections.

**Task 1: Expanding Marketing Research.** The marketing consultant’s initial research provided a sufficient basis for identifying the general market, the opportunities, and the product type. However, the marketing intrapreneur needed to delve considerably more into the market to obtain specific information to help define specifications and features for the product. The marketer needed to look at the types of existing products, pricing, and requirements of the targeted domestic and international markets. What features and specifications would customers be willing to trade off for lower cost? Did the various vertical markets such as hospitals, high-technology business campuses, airports, and schools have different product requirements? Why would people buy this product instead of some other? To find the answers to these questions with a minimum expenditure of funds, marketing was forced to be creative.

One method that worked well for marketing was to set up an independent consulting firm that surveyed current microwave users, collected publicly available information on competitive products, and attended related trade shows directed at the vertical markets. Past and current SMI customers were also talked to in order to find the areas that posed significant problems and concerns. Because these answers did not immediately surface, marketing had to update the development process regularly and redirect some of the efforts. Help from within the established SMI sales staff proved very useful, because the staff was very willing to open doors and offer contacts to current and past customers.

**Task 2: Defining the Initial Product.** The engineering and marketing members of the intrapreneurial team worked closely to outline the product features and functions that would meet the market’s requirements. It was found that the market needed a radio that could effectively transport digital data from several hundred feet to over 10 miles at microwave frequencies, meet necessary standards to interface readily with various customer telecommunication equipment, provide the minimal amount of diagnostics and
alarms, and be easy to install and align. Once the design was committed to paper, the company had to ensure that there was a match between its technology and manufacturing capabilities and the market requirements. Engineering had to consider ways to capitalize on SMI’s knowledge and current manufacturing capabilities to develop a low-cost microwave radio that would meet marketing’s requirements. Once engineering sufficiently understood the company’s current capabilities, it had to work on defining the cost expectations and time frame to develop this new product.

**Task 3: Starting the Development Process.** Once the general idea for the product was developed, engineering developed an engineering plan that encompassed issues such as circuit material requirements, manpower resources, and capital equipment. The plan also described a schedule from prototype to pilot to final product. Management was very supportive in directing the activities of technical resources toward the program. Higher technical staff members were often approached for assistance and guidance, which they gave with absolutely no resistance. Bench-level technicians were made available whenever the need arose.

Within three months, a first prototype was demonstrated to management and marketing. The prototype met most of the performance targets, and it was understood that more effort would be spent on getting the rest of the performance numbers to meet the initial design requirements.

At this stage, company management carefully scrutinized the product. Was it manufacturable? Because it was built in the lab, how difficult would it be to build within the company’s manufacturing environment? Would the product be reliable? Did it have enough features? Was it easily serviceable? Could it be manufactured within the cost goal? After addressing most of these issues, the development process continued toward the next task.

**Task 4: Beginning Product Marketing.** After reviewing the product, the marketing member of the team put together some literature on the product with highlights on the features and specifications based on the prototype results. The marketer primarily tried to get a response from the market and possible leads for field testing and future sales that could be used once the new product was released. This testing would provide feedback to the intrapreneurial team on how the product was working in the field and any changes that might be necessary. The engineering member of the team often accompanied his marketing counterpart to provide strong technical support and draw out any needed product modifications.

Marketing also started to look at the distribution channels. What type of operation could effectively sell the microwave product? Manufacturers’ representatives, dealers, or both? Marketing also needed to know if the existing SMI reps and dealers would be interested in selling this type of product, and whether they were the right type of people to sell a communication division product, considering that their primary focus was the security industry.
**Task 5: Changing the Product Based on Field Responses.**

During the intrapreneural team’s “in-the-field” meetings, the team recognized that the demand in the wireless telecommunications market for their new microwave product was not as large as in the data communications market. There was significantly more interest in the ability to transmit local area network (LAN) traffic by microwaves than by telephone lines. Small- to medium-sized businesses were spending considerable amounts of money to lease high bandwidth phone lines from the telephone companies to interconnect their LANs. SMI felt that its new low-cost product could, with some design changes, accommodate these requirements and provide a payback period for the customer of less than one year.

After more market study and discussions with SMI’s management, the development efforts were redirected toward a product aimed at this new market. It was decided that the microwave radio’s general configuration could stay the same, but the interface circuits would all have to be new designs. Although this effort would delay the introduction of the first design, SMI could then introduce both a telecommunications microwave radio and an LAN microwave radio at the same time.

Eight months had already been spent from product inception to near completion. The engineer figured this change would delay product release by about another three months. SMI then agreed to add more resources to the effort to minimize slippage. An extra engineer was assigned on loan from the industrial security division to wrap up the existing telecommunication design while efforts focused on developing the LAN interface design.

Pilot runs were scheduled for the product as soon as the interface designs were prototyped. These units would be used to monitor manufacturing capabilities and provide marketing with demo units for customers set up as beta sites, and as well as for trade shows and dealers.

**Task 6: Submitting a Business Plan.** At this point, the marketer and engineer presented a business plan for addressing the intended markets to the board of directors. The strategy was to focus on selling directly to small- and medium-sized businesses and to recruit resellers throughout the local region. After the local markets were satisfied, regional and then national expansion was planned. The communications division agreed to carry existing security video products along with the new product. The board of directors accepted the strategy and the sales forecast.

**Task 7: Completing a Marketing Program.** Marketing submitted a trade show schedule that emphasized premiering the new products. This program would provide some added visibility, because press releases would be generated when the shows were held, and it would start to bring in much-desired sales leads. However, because of delays in LAN interface development, only the telecommunications radios would be available for sale.
Engineering could only provide lab-built prototypes for the LAN radio demonstrations, because the production boards would not be ready for a few more months.

Anticipating the increase in sales leads, marketing requested and was granted permission to hire a salesperson. The search started for salespeople knowledgeable in the telecommunications, LAN, and microwave areas. This was a tall order, and the position continued to go unfilled as candidate after candidate was interviewed.

The sales generated for new products did not meet projections, but the sales of security video products exceeded plan. The intrapreneurial team felt that carrying the security video products was a mixed blessing. More time was being spent on these efforts than planned, but the security video products were the major portion of the revenue stream. The team was encouraged by the support and patience of SMI’s management despite the slow sales of the new products. To assist temporarily in the security video product sales, SMI’s management provided some added shared resources. Management felt that SMI was a new name in the telecommunications and data communications markets and that it would take some time for the market to accept the new products.

**Task 8: Continuing to Fine-Tune the Business.** Eighteen months after new-product inception, the intrapreneurial team was still short on projected sales. However, new dealers were being signed up and the new products were capturing the interest of major manufacturers of data communications products. Two companies in the industry decided to integrate the new microwave radios with their products. SMI slowly realized that the sales would increasingly be produced by contacts in the industry, rather than by direct sales efforts. Arranging technical partnerships as well as reseller and original equipment manufacturer (OEM) agreements would become paramount in the sales and marketing arena. It was recognized that these other organizations could multiply the SMI sales team’s efforts in many ways by selling the new products through their extensive sales teams, who had a much better understanding of the customers in their locale or industry.

Marketing looked at proposing product features that were designed to outdo those of competitors. Features that were instrumental in competing in bid business included package size, power consumption, and specific product performances. Responses regarding serviceability, performance, and other features were fed back to engineering. The business started to look at the next products to be designed to complement or replace current product. A new product, it was thought, might be designed and built that would intercept the current technology growth curve, becoming an innovator instead of a market follower.

**LESSONS THAT WERE LEARNED**
The intrapreneurial team at SMI covered a lot of ground in the 18 months that it took to define, develop, and begin marketing their new product.
During this period, the team recorded a number of observations and encountered several obstacles. One notable observation involved how the organizational structure and culture of a small company such as SMI allowed the team to address and resolve problems and issues quickly. Other observations dealt with the team’s make-up, the need to listen to the marketplace during the development phase, the role of marketing research, and the give and take of the cost/technology/design relationships. These observations and obstacles are discussed in the following sections.

**Organizational Structure and Culture**

The SMI intrapreneurial venture took place within a relatively small corporate structure. In such an environment, there are fewer players than in a larger corporation. The differences in perception between the intrapreneurs and the other corporate business groups can be identified more easily, and these differences can be minimized or eliminated. The significant advantage of working in this environment is that the culture, being already accustomed to intrapreneurial procedures from past experience, is able to view the various functional groups as support organizations that can be pulled into the product development picture as needed and removed (or deemphasized) at the end of their involvement. In other words, options are available to the venture that might not be available if the venture was performed within a large company division or business unit.

At SMI, the intrapreneurial team could share corporate resources, hire its own salespeople, and take certain manufacturing functions “outside.” Note that the intrapreneurship in the model in Exhibit 3 can represent multiple intrapreneurial ventures as demonstrated by SMI’s division structure.

The SMI experience indicates that the ideal intrapreneurial venture should function as a true entrepreneurial business activity within the corporate structure. In the ideal arrangement, the intrapreneurial venture would operate autonomously within the organization and be able to share required resources from various departments as needed. Management would function as a buffer for political and bureaucratic activities and act as observers and advisers in the intrapreneurial process. The management function is depicted in Exhibit 3 as the dotted border between the intrapreneurship and the rest of the organization. More important, management would work at removing obstacles to obtaining shared resources needed by the intrapreneurship. Although management would not ordinarily intervene in the actual development process, it would still receive necessary updates as any capital investor would in an entrepreneurial arrangement.

**Market Definition**

Most high-tech businesses are accustomed to experimenting in the laboratory, where results are often achieved through trial and error. The market is like the
laboratory; it contains many unknowns that only thorough trial and error can uncover. What is needed is an experimental attitude toward exploring business opportunities. The key is to get the basic product into customers' hands. They will tell you whether, and how, to change it.

Marketing research is and should be used to determine how the offering can be unique and appealing. It helps describe major competitors' products, volume, market share, competitive strengths and weaknesses, and distribution, as well as the technology issues. Marketing research, however, must be tempered with experimentation to discover the best way to present a product to customers or reveal how to turn an innovation into a market success. Marketing research can produce false negative results, resulting in the rejection of new products that might have been successful. A key to market
research is eliciting customer response and feedback to make modifications and ensure that the company is still on the right path. The problem is that most companies view unpredicted marketplace results as a sign of a poor development activity. Unexpected negative results should be viewed as part of a series of experimental actions that lead a company to better understand new opportunities.

It is very important for the venture to maintain an opportunistic outlook. Although the intrapreneurial team can follow a structured plan in the beginning, it must be alert to changes in the environment and the new opportunities this may represent. SMI’s efforts represent a case in point. During the initial stages of marketing the new telecommunications version microwave product, SMI was faced with an unexpected situation. The original market plan had laid out a process whereby a version of the microwave radio would be developed to sell to the telecommunications market. During the development activity, SMI discovered a significant opportunity for a data communications version of the microwave radio. The small- to medium-size businesses that were targeted as the market for low-cost telecommunications radios were more interested in saving costs by using low-cost microwave radios to extend their LANs. These LANs used high-speed solutions to connect data communications applications adequately. However, because of the prohibitive cost of these solutions, low-speed solutions were often used. Although the prototype product offered an alternative to existing telecommunication services, it was determined that with minimal changes, a product could be offered to accommodate a high-speed need that did not yet widely exist for this application.

Would the venture, and SMI management, be willing to modify the marketing plan to address this new discovery? To take advantage of this strong signal from the market, SMI decided to delay the original product introduction in order to develop the data communications version of the microwave radio.

Entrepreneurs must be willing to evaluate, reevaluate, and change course to find and develop a better product or locate a new market. They cannot fall into the trap of believing that the original direction is the only direction, but must maintain an open-minded perspective. Entrepreneurs must allow themselves to assess a situation or market response and make appropriate corrections. To increase the venture’s probability of success, business plans must be flexible.

**Fielding the Appropriate Venture Team**

Intrapreneurs and their co-workers have to understand their markets extremely well. The closer they are to day-to-day business activities, the more aware they will be of market needs. Many intrapreneurs find it easy to describe their product or service, but harder to identify customers and their needs. SMI has found that an intrapreneurial team consisting of product
development and marketing can effectively address many of the issues involved in developing and marketing a product successfully.

Because the marketing and engineering principals of the SMI intrapreneurship had the same background in the industry, they could clearly relate to each other in the industry’s terms and language characteristics. The engineer had previously developed the kinds of products that were typical of the industry, and this background allowed him to identify critical design and development areas that needed to be addressed. The marketing member, on the other hand, understood all the technical details of the products sold in that industry’s market. He was able to discover whether the products needed improvement and whether changes were needed to meet the market requirements. This two-person team operated symbiotically to fulfill their goal of developing and marketing a new product.

**Listening to Customers**

It is of paramount importance that the intrapreneurial team listen to their customers when developing a new product. Market feedback is critical to learning what is needed to make the product successful. SMI's communications division has invited existing and potential customers to its facilities to assist in new-product evaluation. These customers both reaffirm the appropriateness of the decisions made on the product's features and ensure that the intrapreneurial team has not missed something that would reduce the product's marketability.

While SMI was developing the new telecommunications microwave radio, it had an important customer in house to discuss some extended problems with an existing microwave video product in the field. The customer was having difficulty getting some preliminary systems on line, and the sales engineer had visited the customer’s site several times to try to correct the problems. One of the customer’s major complaints was that problems with the microwave video product were difficult to diagnose. The new intrapreneurial team showed the customer that it was focussing on reliability and serviceability. The customer was quite impressed with the features that the team was designing into the new product, especially the serviceability aspects. He was shown the accelerated life tests used to stress test the design for reliability, as well as a new telecommunications product running on a bench with all the system features. The customer made several remarks and suggestions, all of which the team noted. This encounter greatly encouraged the team, because as a result, they felt they were on the right track with the new data product, and they picked up a few more ideas for further improvements.

**Defining and Developing a Marketable Product**

The success of the intrapreneurial venture depends on whether the intrapreneurs develop a marketable product. With a minimum number of restrictions
on the product’s requirements, the product’s design can be defined based on
the venture team’s experience and the marketplace’s continuous input.

Several major factors, such as cost and technology, can influence the choice
of appearance features. The design of the new product is often determined by
compromises struck between groups of individuals with radically different per-
spectives. The marketing function typically wants the product to be equipped
with as many attractive features as possible, such as sleek molded plastic
housings and colorful diagnostic displays. This is certainly understandable.
The market usually demands that a product carry such features, but it often
balks at the added cost compared with the cost of a purely functional product.

The real test of compromise occurs when the forces that make these
decisions attempt to work out a feasible design. Manufacturing will
emphasize the manufacturability of the design more than its appearance.
Engineering will concentrate on the performance aspects, and marketing will
be interested in promoting innovation as much as possible within the design
process. Unfortunately, large organizations are famous for having an immense
numbers of decision levels, which often causes the design phase to lengthen
greatly to accommodate the points of view of all of the participants involved
in the decision process.

An intrapreneurial environment has the advantage of defining a product
design in less time than in a standard development group within a large orga-
nization. At SMI, the marketing and engineering intrapreneurs were both
interested in keeping the costs low to attain the desired profit margins in the
business plan. Usually, the marketing individual expresses customer require-
ments and market factors based on studies and direct sales efforts. The
engineer champions manufacturability because the company must be able to
design a product that it can manufacture. Because fewer interfaces need to be
involved in an intrapreneurial environment, discussions and compromises are
reached in record time.

**OBSTACLES**

The new intrapreneurial team at SMI’s communications division faced several
obstacles during their venture. The company anticipated many of the
problems encountered from the beginning, including capital equipment needs,
limited sales funding, manufacturing technology limitations, and manpower
resource shortages. Other obstacles arose later, and they had to be addressed
to prevent them from affecting the forward progress of the activities. Unantic-
ipated obstacles that can have a noticeable effect on the timely success of a
project include the sales department’s view of the product line, company
culture, and personality conflicts.

**Environments in Large and Small Organizations**

There is a significant difference between running an intrapreneurial venture
within a small company and within a large corporation. Intuitively, it would
seem that intrapreneuring can be more easily applied within a small company, but each type of organization has its own set of debilitating problems. Differences between the organizational styles of small and large companies that can significantly affect an intrapreneurship are shown in Exhibit 4.

A smaller organization tends to interfere less with the intrapreneurial venture, because its more compressed structure provides less of a possibility for interference. However, the smaller organization may have a more limited availability of resources and funding. A larger corporation may have the resources, but it is often mired down in the bureaucracy that inherently develops from trying to control and manage these resources.

In a small company, the organizational structure tends to be much less formalized. There are fewer levels between the major decision makers and the lower-level employees. In many cases, the managers have multiple responsibilities, and there is a need to be more productive with fewer resources. In a flat organizational structure, the management has been groomed to accept greater responsibility and to react quickly in making a wider range of critical decisions. This kind of structure can more easily set the stage for intrapreneurship.

On the other hand, the obstacles encountered in a small company might be destructive to the intrapreneurship’s success. The cultural environment in a small company, which usually has been developed over time, is tailored to the type of products manufactured, the nature of the industry, and the attitude of the founders. This environment often dictates the level of formality with which a company operates and how effectively the internal departments operate. An informal culture is often accepted as part of running a small business, but it can either create obstacles or, if viewed positively, become a benefit to the intrapreneurship.

Differences Between Past and Current Markets

Despite the opportunity for an intrapreneurship to benefit from an organization’s informalities, other factors tend to impede the intrapreneurial process. Major difficulties arise when the markets that the company has previously addressed are vastly different from the market the intrapreneur is attempting to address.

At SMI, it was discovered that the initial intrapreneurial process was made difficult primarily because the structure of the manufacturing and sales organizations had been developed to service the security market. It was quickly recognized that the major differences between the security and telecommunications markets required these markets to be addressed differently. The security market was price-driven and tended to be less sophisticated. The sales organization focused on providing this market with simple solutions for the customer. The manufacturing organization, which was not required to be oriented toward high quality, focused on building products that just met market needs. The market needs of the telecommunication industry, however, were considerably different. Exhibit 5 compares the principal differences between the requirements of the two markets.
### Exhibit 4
Comparison of Organizational Styles

<table>
<thead>
<tr>
<th></th>
<th>Formality</th>
<th>Autonomy</th>
<th>Resources</th>
<th>Funding</th>
<th>Management Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Companies</td>
<td>High</td>
<td>Low, need to control resources</td>
<td>Highly available</td>
<td>High</td>
<td>Typically focused</td>
</tr>
<tr>
<td>Small Companies</td>
<td>Low, established</td>
<td>High</td>
<td>Low, usually shared</td>
<td>Low</td>
<td>Diverse</td>
</tr>
<tr>
<td>Entrepreneurships</td>
<td>Low in the beginning</td>
<td>High</td>
<td>Usually low. Depends on funding.</td>
<td>Usually low. Depends on financial backing.</td>
<td>Diverse</td>
</tr>
</tbody>
</table>

### Exhibit 5
Comparison of Security and Telecommunications Market Requirements

<table>
<thead>
<tr>
<th>Market</th>
<th>Price</th>
<th>Quality</th>
<th>Complexity</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless Security Market</td>
<td>Low</td>
<td>Low-Medium</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Wireless Telecommunications Market</td>
<td>High</td>
<td>High</td>
<td>Medium-High</td>
<td>High</td>
</tr>
</tbody>
</table>
A difficulty arises when the intrapreneur’s market is more sophisticated and demanding than the parent company’s customary markets. Even when this is recognized quickly, it is still difficult to agree on the solution. It is difficult to give up or change what has worked well in the past and is currently working. Because the intrapreneurs are still sharing resources at this point, they have to work hard to get those who control the resources to develop an understanding of the market requirements. Of course, different companies resolve this issue in different ways, depending on their resource availability, funding, and general attitude toward intrapreneurship.

For SMI, the solutions arrived at were sufficient, but not ideal. The venture’s sales and marketing function was to consist only of people with a telecommunications background. The security sales and marketing functions and the distribution channels were to refrain from handling telecommunication markets. Although this strategy placed the market in the right hands, it reduced the national exposure that the new product could have received.

**Communications**

Communications is a very important aspect of running a day-to-day business, especially in an intrapreneurial environment. The means of communicating between organizations must be addressed from the very beginning. Internal memos or telecons can bridge the communications gap if used diligently. In addition, networked PC and electronic mail, one of the most effective tools for maintaining communication, not only allows communications to be kept up internally, but also globally. A memo sent to several individuals through a computer allows a company to more easily pass on the latest in customer and competitor information, update its sales force on product or specification changes, and get proper feedback.

Most of the SMI organization was not electronically connected. Only a few areas (the purchasing and accounting departments) were believed to require a computer network. However, SMI’s philosophy is slowly changing. Its management has approved an LAN for the communications division and is considering extending the network to incorporate the company’s other divisions. SMI is starting to recognize the benefits of keeping the standard of operations up to date with the current technologies.

**Manufacturing Technology**

In the manufacturing arena, production people, while being quality-minded, were accustomed to building a product that did not require special attention to performance and quality. Quality was not a major customer demand. It was agreed that specific individuals within manufacturing, including individuals from assembly, test, and inspection, would be adequately trained to handle the production of the new products. This was a conservative approach to addressing a new product whose success was unknown. Obviously, as the
volumes increased, the requirements would change and a new solution would be necessary. Had the funds been available and a more aggressive approach been taken, a new production line could have been established to build the new product.

The manufacturing technologies available in a small company may not be suitable for the needs of a new product line. An entrepreneurial environment often requires state-of-the-art technologies. Convincing manufacturing that they either need to revamp the current process or install a new, albeit small, production line can be very difficult. These problems can be resolved by outside contracting at least temporarily, but care must be taken. There are contractors that offer to do almost anything needed, but because most contractors want to deal in high volume, they will make the company pay more than expected if the company comes to them with small quantities.

In general, major changes to a production environment are not made until the product and market are proven. Once the intrapreneurial activity is at a stage in the business cycle where revenues are in sight, budgets can be formulated and plans to expand or move can be made. For example, when the sales for the communications division wireless telecommunication products start to meet or exceed forecast, the current manufacturing facilities will not be able to maintain both those lines and the company’s other production lines. The communication division will probably need to consider creating another separate production line either within the plant or in a new building.

**Resource Availability**

In a small company, the availability of resources can have a major impact on intrapreneurial success. People are the hardest resource to acquire. A company generally has a strong commitment to providing continued work for an employee, and it will resist hiring resources for a venture that may be unsuccessful. Therefore, a great amount of resource sharing must take place. Obviously, the most capable people to work on a particular division’s projects will be the ones in most demand in other parts of the company. However, aside from management dictates, there are ways to make this dilemma work.

The most important element is to get the needed people interested and involved in the intrapreneurial process. This includes managers of departments, clerical people, line workers, and even people not directly assigned to the intrapreneurial venture. These people can contribute to forming a company culture that supports and fosters innovation and creativity.

Second, when a resource must be shared for an extended duration, it is best be very specific about when and how long a resource will be used. If the venture adheres to time agreements, the other division will be less reluctant to lend the resource out again. Also, managers like to have the written assurance that something will be accomplished by a certain time.

Third, resources must be used effectively. People need to know that they are working on a task that directly contributes to the venture’s outcome. The
borrowed resources should not be assigned to a project that is not related to the intrapreneurial venture.

In an intrapreneurial environment, resources are intentionally kept to a minimum. The whole idea is to have all the individuals share as many responsibilities as possible, allowing these experiences to mesh together and produce as many constructive solutions as possible. This is the creative angle that promotes the concept of intrapreneurship.

RESULTS OF THE SMI PROJECT

The intrapreneurial team at SMI’s communication division succeeded in meeting several expectations. It developed a new wireless product that addressed two major wireless markets: the telecommunication and data communications markets. The team was able keep the development costs under budget and meet the target product cost.

The new product sales, however, did not meet the forecast goals, at least not in the first year. This can be attributed to slow acceptance of the new name in the industry, late hiring of the sales team, and an inaccurate initial estimate of the market potential. Some of the shortcomings of the first year may be offset by how well the new team focuses on the market in the next year.

Management, which exhibited a great amount of patience during the new product’s development, is now working closely with the new division. It is offering support in the sales and marketing areas, as well as experience from the other older divisions. The new communications division is expected to become a significant part of SMI’s business.

SMI will continue to use the intrapreneurial method to develop new markets and products. It may not require the intrapreneur to set up a new division, but the idea of using the entrepreneurial spirit in-house has a bright future.

CONCLUSION

SMI learned several key lessons in the 18-month development of a business through intrapreneurial activities. These lessons were arrived at through direct related experiences during all facets of the business venture (i.e., market research, product development, manufacturing, business planning, marketing and promotion, and sales). The one key result from this venture is that the intrapreneurial process worked for SMI in the development of a new product for a new market. This process is being used at SMI in other aspects of the business for other products in other markets. There is no guarantee that this process will always succeed, and clearly it may not be appropriate for all types of businesses. The intrapreneurial process, however, provides a way for a small business to attempt a new idea or product without losing a lot of money if the venture is unsuccessful.
The intrapreneurial team must have direct experience in the product and market. The years of experience of a particular individual or even group of individuals in a field eliminates many of the mistakes and delays that can occur early in a product development cycle. The intrapreneurial team may understand customer needs better because the experience of managers, engineers, and marketing people associated with the product is long-term experience in the technology and/or market. In such a situation, the team can make required minimal changes to the product and marketing, because it has been close to the customer and the dynamics of the customer’s changing requirements.

However, when changes in the marketing plan, product design, or even the business plan are needed, the company must be flexible enough to allow these changes to occur. It should be recognized that a change should only be made if new information or recent discoveries show that the fundamental reason for the original plan is flawed.

The intrapreneurial team requires independence and risk tolerance. It will function better if it is allowed to perform its function without the typical constraints of the organizational structure. It must be clear that the team can maintain its autonomy as long as it does not affect the operation of the other business units. The team should also be allowed to pursue new concepts and ideas. Any failure is a part of the learning cycle, and as long as the failure's impact is negligible to the rest of the company, a stronger, more marketable product will eventually be generated.

The tradeoff for independence and risk tolerance is that the intrapreneurial team is provided limited resources. Creativity and innovative thinking, however, can overcome capital and manpower resource limitations. The intrapreneurial team can find ways around funding limitations up to a point, but the funding should be available if all creative ideas are exhausted and the funds are sufficiently justified.

The biggest lesson is that no matter how well the market has been defined and the product was developed, the product cannot sell itself. The intrapreneurial team, including engineering, must get out and sell the product. Product demonstrations, trade shows, and face-to-face meetings provide the exposure needed to sell the product.

**EPILOGUE**

Two new products were developed and released two years after the release of the first telecommunications radio product. These products were developed and marketed exclusively for the wireless data communication niche. The new products were announced at national trade shows, released to the trade press, and demonstrated at potential customer sites.

The response from the data communications market has been extremely positive. Six months into the current fiscal year, sales are exceeding forecast by 150%. Orders are accepted on a regular weekly basis, and new partner-
ships (i.e., resellers, OEMs, and the like) are being established monthly. Company management has now recognized the potential of this market and the division’s ability to address the market needs successfully. Management has stated that it will support all necessary activities to achieve the growth the market is capable of providing. It will continue to eliminate resistance within the organization and do as much as possible to maintain the communications division’s freedom to develop and market new products.

A complete, autonomous manufacturing line staffed with supervisors, technicians, and assemblers has been established to address the manufacturing requirements for the new products. New inside salespeople have been hired into the sales organization, and engineers and technicians have been moved into the new division’s engineering department.

Research and development efforts are currently underway at SMI to develop new products using leading-edge technology. These products will be strategically designed to place SMI and the communications division in the front of the marketplace as true technology leaders.