

## CASE STUDY

### MITEL CORPORATION:

#### THRIVING ON CHANGE IN THE R&D DIVISION

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About to leave, Geoff Smith, Vice President of Product Development and Support, Mitel Corporation, cast a pleased glance around the office of Steve Quesnelle, Head of Quality Programs, where from every wall and every corner, pictures of cows of different shapes and sizes were staring broodily at the inhabitant of the room. "Well," said Geoff. "In three weeks, we are having our 'Town Hall' with all R&D people. I would like you to prepare a brief presentation of the achievements of Phase I of the change process and the major milestones of the next phase. But before that we should talk in greater detail about our Phase II alternatives and their implications. Could we get together in a week's time to summarize the ideas we have exchanged over the last couple of months and think about the priorities and the steps we could start with?" Steve nodded in agreement. "Sure," he said, "I have a plan in my mind already."

The Research and Development (R&D) division had been in the 'sacred cow hunting' business for two years, and Steve has been called the principal 'cowman' of the company. "The change process in R&D is in good hands," thought Geoff. It had been a smart idea of Steve's to declare war on the conventional ways of doing things at Mitel and refer to them as 'sacred cows'.

Geoff remembered too well how it all started. R&D had acquired a bad image within the company. The quality of existing products was declining. Several dealers threatened to stop doing business with Mitel. For anything that went wrong, R&D was blamed. One day a dealer called the CEO of the company and insisted that the head of R&D be fired because the department was releasing poor products. Although it was not entirely in R&D's hands to decide the products that were to be released, and as such the dealer's request seemed unfair, it was nevertheless a wake-up call for Geoff. He realized that irrespective of internal processes, if customers perceived R&D as a poor quality performer, then the only way to change that perception of R&D was to actually change

how R&D functioned, how products were released and supported, as well as how different divisions collaborated to achieve best solutions for the customers.

Now the first phase of the change process - changing values and attitudes, breaking the old ways of doing things, making R&D customer facing - was approaching its end. It was time to think about how to lead R&D through the next phase, which was bound to be less glamorous and emotional, but nevertheless as important as the first revolutionary push. Geoff understood that without hard work the achievements of the 'sacred cow phase' would not be sustained.

## **Company Background**

In 1971, two enterprising Canadian high-tech innovators, Michael Cowpland and Terry Mathews, incorporated a company to import and sell electric lawnmowers: hence the name of the company MITEL - Mike and Terry's Electric Lawnmowers. The lawnmower business was not a success, however, at about that time, public telephone systems around the world were introducing touch-tone telephones that would replace rotary dial phones. Michael Cowpland's engineering background had made him familiar with the technology and he began developing ideas for products to detect and decode the tones. He also began exploring methods of translating tones into pulses and vice versa. Terry Mathews envisioned commercial potential in selling such products to telephone companies. In June 1973, they started their telecommunication business with a tone receiver which translated musical tones received from touch tone telephones into electronic signals for telephone systems. They realized that there were considerable opportunities to upgrade old telephone technologies with new features and solutions. This gave rise to Mitel's entry into the telecommunication business.

In 1998, Mitel looked back at 25 years of technological innovation and leadership in communications. Today Mitel is a designer and manufacturer of semiconductors, sub-systems and systems for the global communication industry. It ranks among the world's top five private branch exchange (PBX) suppliers and top ten networking and telecommunications semiconductor companies. Mitel is also a leader in the convergence of voice and data. In connection with the 25th anniversary celebrations, Dr. John Millard, President and CEO, stated, "25 years ago the company was founded with a vision, and Mitel has never taken its eye off the ball."

During this period, Mitel established itself at the forefront of technological innovation. Competition for digital PBX technology was non-existent in the beginning but increased dramatically over the years as others caught up to Mitel's first mover advantage in digital PBX's. Given its mission to distinguish itself as a global leader by creating communication solutions that offer customers high quality products at good value, Mitel placed a special emphasis on research and development to bring its products to market in a timely fashion. In 1997, Mitel was awarded more patents than in any other year of its 25-year history.

In its 25 years, Mitel's product portfolio evolved from dialers and PBXs to voice communication systems, LAN / WAN networking solutions, computer telephony (CT) products, networked voice and data systems (NeVaDa), telephony-enabled servers, public switching systems and remote access products.. The company vertically integrated into

the integrated circuit (IC) business and products today include IC's for wired and wireless applications, applications-specific integrated circuits (ASIC), opto-electronic devices and custom silicon wafers.

In 1976, the company bought its first integrated circuit manufacturing facility in Bromont, Quebec and Mitel Semiconductor was born. In 1978 Mitel Communication Systems launched its first PBX, the SX200, for small offices which became the most widely installed of all PBXs. In subsequent years, Mitel added a number of PBX products and a second, larger and more powerful line, the SX2000 to the Systems business. The PBX product family is still one of the core businesses of the company. Through a series of strategic acquisitions, Mitel continued to strengthen its position. The 1996 acquisition of ABB Hafo in Jarfalla Sweden gave Mitel a solid foothold on opto-electronics. In 1997, Mitel acquired the remote access technology business of Gandalf Technologies which had recently declared bankruptcy. Gandalf's products were known for their high integrity encryption and high volume remote access technology. Mitel intended to integrate this technology into their products to facilitate high volume data and voice communication between a company's corporate office and its local branches and for teleworking applications. In 1998 came the acquisition of the troubled GPS Plessey Semiconductor business and three more plants in the U.K. With this purchase Mitel placed itself among the world leaders in the telecommunication semiconductor business. The Customer Premises Equipment (CPE) Business Unit of Centigram Communications Corporation was also acquired by Mitel Systems in 1998 to contribute to the communications portfolio with voice mail messaging.

In today's telecommunication industry, all roads lead to the convergence of the voice and data worlds. Research firms are stressing the value of uniting telephone and computer technologies over a single network. Computer Telephony Integration (CTI) combines the computer's information management strength with the telephone's communicating power to give businesses new and better ways to reduce costs and enhance customer interface. This technology is still not widely adopted due to its cost and sophistication, but also due to unreliability and incompatibility of computers. However, these are seen as only temporary technical challenges. Mitel's Networked Voice and Data (NeVaDa) multi-media product (voice, data and video) was launched in 1996. It allows existing disparate voice and data networks within a business premise to be combined and managed as a single network. With NeVaDa, Mitel was setting the pace for the whole industry in the challenging field of telecommunications technology.

As a result of its acquisitions of smaller high-tech businesses, Mitel is structured by product as well as by geography. In 1996, the company was reorganized into two major divisions: Business Communications Systems and Semiconductors (see organizational chart, Exhibit 1). Both divisions share Finance, Human Resource and other core services, but due to the unique nature of the technologies involved in the two major lines of products, each division has its own R&D, Marketing & Sales, and Manufacturing staff as well as General Managers who report to the CEO.

## **Research and Development Division**

In high-tech companies, R&D is the driving engine of the entire business. With a mandate from the senior management to release new products at an increasingly faster rate than the competition, the R&D division of Mitel's Business Communications Division put all its energy into new product development. The new world of computer-telephony integration (CTI) was exciting, the industry was definitely moving in that direction, and the development strategy of the company was oriented towards a CTI future. Designers put most of their efforts into developing new products for future markets. R&D for current product lines, namely PBXs, received limited attention.

R&D expenses had been increasing steadily. In 1994, Mitel spent 7.5% of its revenue on R&D. In 1998, R&D expenses amounted to 10.4% (see Exhibit 3 for a chart of R&D expenses). R&D activities comprised upgrade initiatives for existing products and development work in emerging technologies such as CTI, multimedia components and applications, networked voice and data, client server telecom, and remote access, microelectronic components for real-time applications in the communications, media and medical industries. Unfortunately, the new technological innovations were not adopted by the marketplace as quickly as Mitel expected them to be. Businesses continued to demand support for existing products. This led to increasing dissatisfaction on the part of dealers and customers with Mitel's products because the product quality did not satisfy their current needs, and particularly because the company did not put enough effort into upgrading PBX's and developing new features for them. Some proposed changes were delayed because resources and effort were shifted toward CTI.

Nevertheless, the financial statements kept showing growth in sales revenue, although 1997 showed a fall in net income (see Exhibit 2). It was at this point that the dealer's call opened Geoff Smith's eyes and he realized that something had to be done.

### **Looking behind the growth**

Geoff Smith set out to understand why the growth and seemingly successful innovation resulted in customer dissatisfaction. He wanted to understand why he and his R&D division were blamed for what was happening within the organization. Knowing that he was not the only decision maker on strategic product development issues, why did the dealer single him out for firing and not someone else? It was painful to realize that he was made a company 'scapegoat'.

Irrespective of how he himself saw things from the inside, R&D was seen as the driving force of the product release, and if anything went wrong, it was perceived as R&D's fault. It was not only an outsider perception. Many within the company looked at R&D in the same way. R&D was perceived as lethargic, lacking motivation and energy, without excitement or enthusiasm, inwardly focused, and beaten down by the criticism of poor quality. There was no sense of urgency, and no one cared much if some projects dragged on and on. Worth and cost of projects were not an issue. Geoff began to believe that he himself should be more involved in the whole process of product development, manufacturing, testing and releasing, and what was even more important, everybody in R&D should understand the process and have a sense of ownership of the entire process from start to finish. However, it was not how most people in R&D thought. Geoff

realized that changing mindsets would be more difficult and time consuming than putting technical quality issues in place.

Geoff remembered a time a few years ago when he worked on software development. He asked one of the designers about the new product she had recently finished and submitted for testing. The designer was sure everything was fine because no one had called or e-mailed her about the product. When Geoff went down to the testing area and asked the engineer how the new product was going, the response was: "Why do you want to know?" Confused by the request, Geoff tried to explain that he was concerned about the product because it had been developed in his division and that he wanted to make sure it worked. It turned out that the product was not working well, that there was problems getting the software to function. When asked why he did not call the designer for help, the engineer said that it was entirely their problem and they would figure it out by themselves. Geoff looked at the partitions in the testing area and sadly concluded that the invisible partitions separating divisions and people were even higher than the formal structures. And they were barely surmountable. That was the culture that reigned in the company - trying to figure out everything by themselves no matter how much time it took, and not talking to other people who could easily solve the problem.

### **Tomorrow versus today**

Asked about the balance between today's and tomorrow's business, Geoff Smith said:

"Voice and data convergence is going to happen. The big question is - when? Two and a half years ago we thought it would happen a lot sooner than it is really happening. We made a mistake in terms of the balance of our where we invested our R&D effort. We put too much into the future and not enough in today. As a result, we had to look at how to rebalance R&D and make it more nimble in terms of changing the focus of the marketplace."

Telephone products released today were built 15 years ago, and they all are proprietary in nature. They work on their own operating systems and have their own languages. Because of the high degree of complex software in the product, it can take a up to a year to get new releases to market. However, the benchmark is being shifted by nontraditional competition such as data communication companies like Netscape who release new products every three months.

Threats from competitors as well as customer concerns about quality pushed Mitel's R&D to clarify for themselves the two major objectives in their further development - quality and time to market. The head of R&D also realized that he would not be able to cope with the new objectives alone. He started looking for a person who had strength in technical quality standards as well as in organizational development. It was a courageous step, in an R&D organization with an established and very traditional telecommunications culture, to place such emphasis on the organizational development aspect.

## Head of Quality Programs

Steve Quesnelle came from Bell Canada where he had worked for the last six years - first, as an Engineering Manager, then with the TQM group. Steve had a College Diploma in Electronics Technology, a Bachelor's degree in Mechanical Engineering and an MBA majoring in Business Strategy and Organizational Development. He appeared to be a good fit for the new position, which required knowledge and experience in TQM as well as organizational development. He was to wear two hats: one as an internal organizational development consultant and the other as head of technical quality. Steve commented:

“Sometimes balancing line responsibility for the technical quality side and the staff function of organizational development is hard, but most of the time, these two functions complement each other. In larger organizations, there are two people each dealing with one role, but here I am combining both of them, and it works fine.”

In fact, as the new Head of Quality Programs, Steve was hired for a thankless task: to get everyone to understand that they were not doing a good job, and to change their old and convenient ways of doing things. Asked about gaining credibility with R&D people, Steve said:

“With the support that I have from the top in Geoff Smith, credibility is not an issue. Geoff wants change, he knows what needs to be done. Having been with the organization for a long time, he knows the culture, he can tell where the hotbeds are. Working with him is really easy. It is rather a matter of diagnostics and finding out where to begin. There is support from the top, and we build the change from the bottom.”

Steve began by showing R&D where they stood. He knew that the most convincing method here would not be shaking his finger at designers and engineers but rather presenting them with evidence - data and facts - because that was the language they were most comfortable with. During an annual international meeting for its dealers outside the country, Steve arranged to interview some of the dealers on videotape and brought the tapes back to Kanata for viewing by the R&D Division. The comments were not flattering, and they made R&D people angry and defensive. Many took the news personally. They felt that the dealers did not understand R&D's efforts. It took a while to bring home to everyone that it didn't matter if they were right or wrong, but that what was most important was the customers' perceptions. R&D had to work in such a way that, outside the company, people perceived the results in a desirable way. The factual dealer feedback material had had a significant emotional impact. That was exactly what Steve wanted to achieve – a visceral dissatisfaction with the status quo.

Steve turned out to be a real generator of ideas. Geoff Smith described their interaction:

“Steve comes up to me with an idea, and we discuss if it will work. Sometimes I am hesitant, but then Steve tries to convince me of the benefits of the initiative and we both work at it, modify it, and then get out and implement it.”

To raise the awareness of the importance of meeting deadlines, Steve designed an enormous digital clock and placed it on the wall just outside the cafeteria. The seven foot

long clock display counts from a 10th of a second to days in a year. A large bulletin board was attached to it where all R&D projects were identified along with their deadlines. The message was: "Time is passing. Where is your project?" As soon as a deadline was missed, Steve marked it in red. In the beginning, people were upset that now everyone would see their failures. However, the message was clear: "If you did not want to be on the board, don't miss your deadline".

Dale Sequin, Manager of New Product Introduction Unit, commented:

"I cannot recall exactly when Steve joined the company, but since the 3-day sacred cow workshop and employee attitude surveys were introduced, everybody knows who Steve is and what he is doing. He is doing a great job. The workshops were fun. We learned a lot, and everyone had a ball. We worked till 11 o'clock at night, and it was hard, but it was fun! His electronic clock does not allow us to forget the deadlines for a single minute. And this is how things really get done!"

A year later, another dealer meeting was videotaped and shown to R&D. Everyone saw how dealers had noticed and appreciated the positive change. This recognition made everyone in R&D feel important and proud of the changes they had carried out. The designers and engineers began to appreciate that the dealers were part of the process, no matter how far away they were located, and that R&D was a very visible activity.

### **Change Process in R&D**

With the success of the dealer videos, Steve turned to the next initiative. The R&D culture at Mitel was a traditional telecom culture developed over a 20 year period and relatively set in its ways. Steve was well aware of the fact that to change those old ways of doing things he would have to create an environment conducive to change. To begin on this journey he designed and culture intervention workshop for all R&D employees, including managers, designers and the administrative staff. Representatives from other areas were also invited, especially those from manufacturing, marketing, and product line management who had close working relationships with R&D.

With Mike Miles, an Organizational Development consultant in Ottawa, Steve developed themes for the workshop that would help people see the urgency of culture change. A day and a half long simulation exercise was used in which people had to act jointly and pass the right information to the right people to enable them to make an urgent decision in a crisis situation. Geoff was aware of the risks of trying to involve scientists and engineers in business simulation. If the exercise failed, the whole workshop would lose credibility, and the investment in the workshops would be wasted. To the relief of Geoff, the simulation was well received and the rest of the workshop went well. A customer was brought in each time the workshop was run to relate their impressions of R&D. In addition, everyone was given a copy of an article from the Financial Post in which Mitel's R&D was characterized as the company's stumbling block that was dragging down the entire business.

Geoff participated in the workshop each time it was run and communicated his vision of R&D's future to each group. There were three major messages he wanted everyone to hear. First, everyone had to understand that management was serious, and the change

process was irreversible. People were taken out of their jobs and everyday settings for three days to undergo a series of experiences and a simulation exercise. Even Kirk Mandy, then General Manager of the Business Communication Systems and now CEO of the company, participated in each of the workshops to communicate the company vision and to share ideas with R&D. Kirk presented a detailed overview of the financial standing of the company, and the contribution of each area. It was a revelation for many to hear that R&D was a money-loser for the company.

Second, everyone had to understand why the current ways of doing things had to change. Non-traditional competitors were releasing products three times faster than Mitel and were becoming more prominent in the marketplace. If there was no response, they would soon eat into Mitel's share of the business. Quality and time to market were going to be the only things that mattered. They were not an "or-function", they were an "and-function" and this message was continuously reinforced. Geoff was absolutely sure that there was no one in the Division who did not now know the two major objectives of R&D.

Third, everyone had to realize that communication and sharing of information was desirable, in fact, necessary. To prevent some groups from reinventing the wheel, people were encouraged to share software, hardware, designs and algorithms, and not perceive sharing as a sign of weakness. Pooling together the skills and knowledge in R&D would shorten the time to market. It would be good to know what others were working at so as not to duplicate work or spend time on things that had been discovered already. Furthermore, instead of sitting in their offices and waiting for information to arrive through formal channels, designers were encouraged to get closer to dealers and customers, to directly ask customers what they thought of Mitel's products and what they were expecting from R&D.

Dale Sequin described the workshops:

"We were taken out of the jobs for three days which was a big cost to the company. But the impact of these days was enormous! We came back turbo-charged and empowered, with a feeling that we could now conquer the world. We are valuable. Our opinions count. We can make a difference without Geoff being beside us every day of the week. Kirk Mandy had said: "If you need something, let me know." Soon afterwards, I had a problem with moving some of the internal users onto the new system in order to get it tested internally. Many people did not want to move because their extension numbers would change. I needed help. My boss Brian Niebuhr, Head of Validation and Verification, was not in and Geoff was not in. I went to Kirk Mandy's office and laid the numbers down in front of him. He said: "What do you want from me?" I said: "An e-mail to the users." Within 15 minutes, he sent out two e-mails, and within the next 10 minutes I received two phone calls from two directors asking how they could help. The problem was solved. We got the system tested, and the project was a success. It was as if he opened the door and let me run. We get every support if we know what we want to get done and ask management for concrete things rather than wailing that nothing works.

"Geoff and Steve had laid the groundwork for getting people to think about how we could do things better, how we could get ahead of the competition rather than struggle internally. It is good to have a person like Steve in the company to make us think about

our behaviors and culture and the need to change. Now an environment has been created where change is welcome. Geoff got us all looking in the same direction, and now he can rely on the seeds he has planted.”

## **Sacred Cows**

It was during these workshops that Steve introduced the metaphor of ‘sacred cows’, in other words, barriers that everyone knew about but no one did anything about. These were attitudes and rules that did not add any value and stood in the way of doing things well and fast. All the participants were asked to identify things that got in their way and slowed them down. As was expected, at first all the ‘cows’ were found in management’s yard. Steve wanted more: everyone had to find their own ‘cows’ in their own backyards and write them down on paper. At the end of the workshop, the pooled list of sacred cows filled 71 pages on the company intranet. To identify cows was the first step. What to do about them was the next step, namely, to ‘kill the cows’. During the workshop, people were encouraged to think about how they were going to the kill the cows, and subsequently were rewarded for every killed cow with recognition and movie tickets. Pictures of cows - posters, calendars, postcards and figurines could be spotted throughout R&D. Steve was convinced it would be easier to deal with the complicated task of attitude change if it was done in a lighthearted way.

“Cow hunting” was not just a workshop campaign. People were expected to remain alert after the workshops were over and get rid of unnecessary obstacles and silly procedures they might notice in their day-to-day work. While it was communicated to everyone that breaking barriers that isolated R&D from customers wherever they were was a good thing, arranging for travel was a slow and painstaking process. To show that he practiced what he preached, and was in the “cow-hunting” business himself, Geoff pre-signed 50 travel requisitions. Anyone from R&D who needed to see customers anywhere in the world could at any time arrange their travel without anyone asking questions.

People started questioning whether all the routine practices add value. Are all the weekly reports to management necessary if the same information is available elsewhere? Do we need the same budgets as last year? Budgets could be cut if managers looked more carefully at things they purchased. In the same way, people could not understand why it was still necessary to sign out at 6 o’clock in the evening and return all books and work materials before leaving the work place. Such procedures just interfered with creative work and placed unnecessary restrictions on employees. Geoff killed that “cow” too. Now no one had to return materials before leaving, and it was not necessary to sign out until 9 o’clock in the evening.

Margaret Keily, Director of Manufacturing, commented:

Now people definitely feel more recognition and authority, more power. I see it. What I remember about the workshops most - was the simulation exercise and the cow hunt. But most important was the fact that people were brought together, taken out of their environment. Geoff brought in customers right in front of R&D people. He got the future CEO in front of R&D people. To me, with the strong leadership in R&D, the entire Division bought the message. I came back and tried to tell about my experience, but how

can you tell about it all without that particular forum, that energy that was there? How can you deliver the imprint that the dealer makes on you? It was so far reaching!

When communication in the organization improved, and people started sharing their concerns and suggestions, the pool of ideas expanded, and it became easier to arrive at new initiatives. As a result of such 'brainstorming', Geoff supported Steve's decision to organize an internal trade show within R&D where groups explained their projects and shared ideas to avoid duplication. It had been the case that people often knew little about what their colleagues in other groups were doing. They shared project information that had never been shared before.

Steve's belief was if you want to get something, you have to give it away; if you want people to communicate, you have to be a good communicator yourself; if you want people to trust you, you have to trust other people. How can you expect people to communicate among themselves when even some managers did not know each other? This spawned the quarterly All Managers Meetings where all the managers were taken off site for a whole day. They were brought together to talk among themselves and get to know each other better. When exposed to these new communication and collaboration experiences, managers went back to their groups and were more open and encouraged all their employees to do the same. 'Walk the talk' was to become a common practice at Mitel's R&D.

In addition to making things more visible and encouraging communication within the division, 'Town Halls' of R&D personnel were held on a quarterly basis. These were big staff meetings where all R&D employees were informed of the success of the division and of the whole company, of strategic plans and of budgets. Everyone could ask questions and express their opinions. The 'Town Halls' were an opportunity to meet with senior management and clarify the future vision of the company.

To be more specific about customer satisfaction measures, R&D developed a Customer Dissatisfaction Index (CDI). The index made the quality of the products extremely visible. When a customer reported a problem, a multiplier was assigned to it depending on the number of sites it affected, severity of the problem and how long the problem had been outstanding. The higher the index, the more troublesome the product was to more of the customers. The index was made public so that everybody in the company could see it. R&D management succeeded in using this algorithm to pareto problems based upon this index. Two and a half years earlier, the index was 600,000. Now it was below 10,000. It was not only due to the hard work of people but also because people could see the progress when the index started to decline. Everyone knew which problems were the most important to fix in order to get the largest reduction in the CDI.

Apart from formal events - workshops and Town Halls - to create an environment for change, Geoff made use of every opportunity to talk to people and convey the idea that company was under pressure to do things faster and to be more focused on customer needs. When meeting anyone at the coffee station in the lounge, Geoff asked: "What are you working on today?" And his follow-up question at the end of the day was: "What have you accomplished today?"

Steve commented:

“I subscribe to Dick Beckhard’s theory that change is a function of four things. First, is the level of dissatisfaction within the system with the ways things are now. That is why we started that ‘sacred cows hunt’. Second, it is the clarity of future vision, and Geoff is making that very clear. Third, is the clarity of first steps toward the future state. Fourth, all of this is divided by the cost – personal or financial – attached to the change.”

Not everyone in R&D management was ready to get on the change bandwagon. Some said so explicitly. Since there was only one direction to go, namely, forward, Geoff Smith had to terminate those who were not prepared to go along. Steve Quesnelle joined the company with a clear mandate to be a change agent. He came to Mitel without the baggage of a long history in the company. In the context of Mitel, change was as natural for Steve as the air he breathed. Geoff Smith, in contrast, had been with Mitel for 20 years and had lived with its traditional culture. He had always been responsive to people’s needs and sensed their moods, but as Mike Miles noted, now he was confronted with a situation where he had to make tough decisions.. Asked about his personal change, Geoff replied:

“Yes, I think I have changed myself. Now I am much more responsive to what our customers and dealers are saying. I make regular visits to our customers. I go around and ask customers what they like and what they dislike. I tell them about our future vision of moving forward. I do it more now than I used to. I used to be more inward-oriented and looked at schedules and processes. Now I am more externally focused.”

## **R&D and Marketing**

In a traditional organizational culture, R&D designs products and passes them over to marketing people to communicate with customers about the products. At Mitel, R&D was encouraged to communicate with customers and dealers directly, visit them and ask questions to have a better understanding of what they expected from the products. R&D’s direct customer contact appeared to undermine the marketing-customer relationship. The benefits of R&D visiting customers outweighed marketing’s concerns about potential disclosure of confidential information. However, because of marketing concern about designers inappropriately pre-announcing new products, a protocol was established that when R&D design personnel met with customers, they were accompanied by a marketing account manager, wherever they went.

R&D and Marketing began to understand each other better as they acquired a common language. Now, when a marketer asks for technical help from R&D, he or she is more able to appreciate the response. In addition, R&D had a better appreciation of the business aspects of the organization. Developing new technologies was not just a challenging intellectual exercise; designers had to develop products that could sell and provide a reasonable return to the shareholders. Geoff Smith remarked:

“There is a business aspect in R&D. R&D people have to understand why they are here. They are not here to create interesting algorithms or scientific research. If this is what they think their job is, they should go back to university and work there. They are here to produce products that will sell. They need to have this business understanding.”

## **R&D and Manufacturing**

In high-tech organizations, the status of designers is usually high while manufacturing's status is comparatively low. It was also the situation at Mitel. Geoff Smith agreed, "I myself used to be one of those designers who looked down on manufacturers." This was another attitude that Geoff had to change in himself and in others. Earlier on, he had an opportunity to spend a year and a half in manufacturing and it provided him with a new perspective. It was revealing to see how R&D, with its high-brow attitude towards manufacturing, appeared from manufacturing's point of view. Steve designed a program called "Life on the line" (LOL). to send every new designer to work on the assembly line for a day to appreciate what it was like to be in manufacturing. The intent of the program was to smooth over the invisible demarcation line that had developed between manufacturing and R&D. Designers who spent time in manufacturing became more sensitive to the impact of their product design choices on manufacturing. While the program was open to all existing employees as well, LOL wasn't for everyone. There were some who had been with the company for many years who did not believe they had anything new to learn.

Nevertheless, during the past three years, manufacturing and R&D had increasingly become more interested in each other. There were several different ways to increase mutual understanding. Some manufacturing people participated in the R&D Town Halls to see how R&D had succeeded in bringing about major change in their division. It was a competence they too had to acquire. The Director of Manufacturing recognized the value of R&D's openness and the encouragement given to R&D personnel to question their own ways of doing things. He felt that manufacturing could learn from R&D's approach. In terms of schedules and hard metrics, manufacturing had always been more disciplined than R&D. So in addition to "Life on the line", R&D was also interested in learning from manufacturing about the development of specific measures of performance.

## **The Product Development Process**

Traditional ways of developing and manufacturing products meant that R&D tossed the product over the wall to the test engineers who in turn passed it over to manufacturing who placed it in the hands of marketing. In an environment of fast-moving competition and increasing market demands, this sequential process was no longer effective. To increase quality and reduce the time to market, all areas had to work together at an early stage of the product development cycle and assume joint responsibility for the release of the product to the customer.

Two years earlier, Mitel had introduced a new Product Development Process (PDP) under the guidance of a consulting firm. Since then it had become a recognized form of collaborative effort towards a common goal. When the Product Approval Committee (PAC), consisting of VP's of major areas and General Directors, had given the green light to a new idea, a core product development team was formed to drive the product through the development process. It comprised representatives of the core business areas - engineering, manufacturing, marketing and sales, and product line management (PLM).

Information about product specifications and customer requirements were presented by PLM and marketing. These were translated into product designs by R&D. Since R&D, or the engineering side of product development was the unit that had been most energized through the training sessions, the increased communications, the new vision, and a raised awareness of the urgency and quality issues, it was team members from R&D who served as catalysts for the core team. When the core team members needed additional information, people from other support units were invited to participate. In the same manner, if some support unit felt they needed to know more about what was going on, a representative was welcome to join the core team meeting.

The new cross-functional business approach greatly enhanced team work. Sally Brown, a Project Manager, commented that the company was not going to go back to the old functional division of work. People had learned how to work together and that had generated opportunities for new creativity and competitive advantage for the company.

### **What Next?**

The ‘sacred cow hunting’ phase was approaching its end. There were no longer questions about the need to remove obstacles that hindered quality improvement or that reduced time to market. As a result of management’s initiatives and the contribution of every single person in R&D, the quality level of Mitel’s products increased considerably. It was important to maintain this level so that the CDI would stay below the 10,000 mark.

Time to market had also improved, but was still not yet where Geoff Smith wanted it to be. A culture change was necessary within R&D to appreciate that time to market was important while still maintaining the pace of quality improvements. It was a culture change that would set the stage for implementing the “hard” quality aspects: metrics, processes, charts, etc. People needed more training in technical skills, e.g., using more advanced computer programs, understanding marketing, etc. Managers started attending “mini-MBA” courses organized on site to increase their managerial knowledge. Surveys of employee attitudes towards their managers showed that some managers were more competent in the technical aspects of their job than in the people management part. Balancing managerial perspectives - technical expertise, administration and leadership - was considered the next step in consolidating the initiatives that had been undertaken to date to create a new organization culture in Mitel’s R&D Division.

Looking back at the accomplished attitude change and thinking about the next steps, Geoff commented:

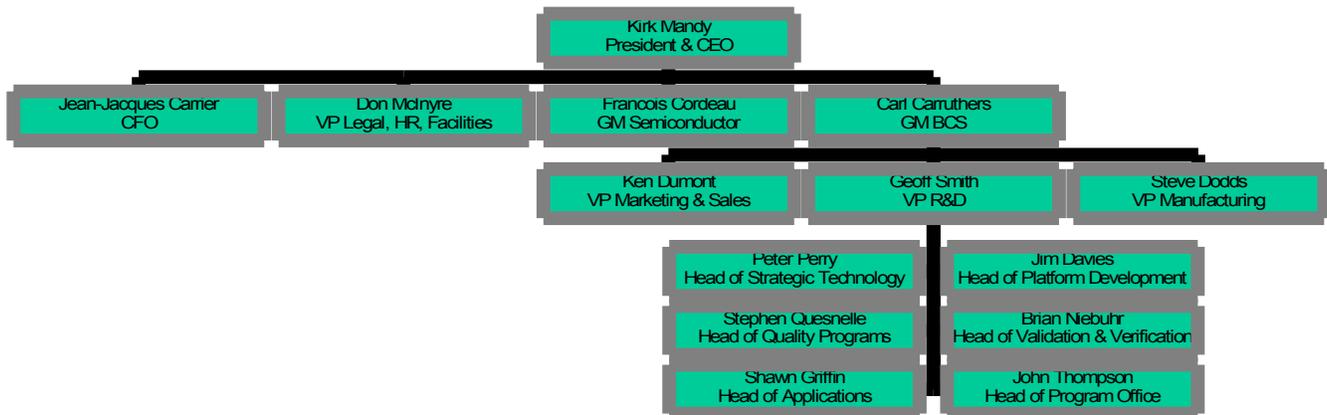
“I am a strong proponent that whatever we do must be replicable. We must use a structured development and adjustment process: change one parameter, see how it works, measure the results and make a decision whether to keep it that way or do it differently. Even if we fundamentally believe that a particular aspect will change the whole process, we cannot expect that with a single move everything will suddenly work together properly.”

### Questions for discussion

1. What were the major driving forces for change in Mitel's R&D division? Can the changes implemented at Mitel be called strategic (revolutionary) or incremental (evolutionary)?
2. What were the major issues that R&D at Mitel Corporation focused on in their change process?
3. Given the facts of the change process the R&D division has gone through, develop a change model that would reflect the milestones of the process. Compare this model to other models known to you. What is similar, what is different?
4. Comment on the leadership issues in the R&D division. What is the leader's role in an organization that is undergoing change?
5. If you were in Steve Quesnelle's position, what steps could you recommend to lead R&D through the next phase of change?

### **Exhibit 1. Excerpt from Organizational Chart of Mitel Corporation**

## Mitel

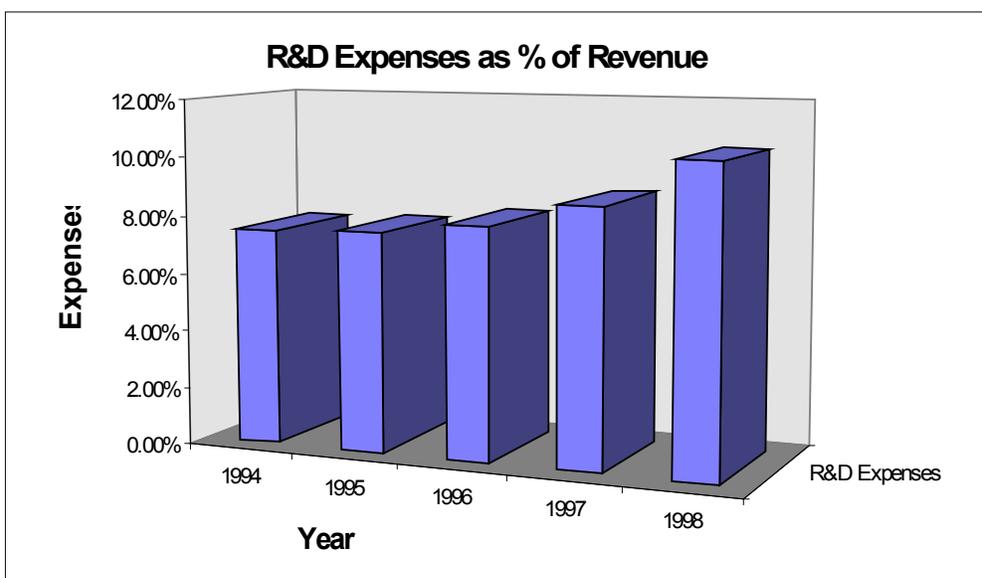


**Exhibit 2. Selected data from the Income Statement  
(Annual Report, 1998)**

in millions of Canadian \$

Income Statement data	1998	1997	1996	1995	1994
Revenue	888.5	695.5	576.4	589.4	496.4
Gross R&D expense	92.4	61.5	46.5	44.9	37.1
Operating income	124.4	51.4	57.7	28.3	22.0
Net income	91.9	38.0	51.0	31.8	20.7
Net income per common share	0.82	0.32	0.45	0.27	0.16

**Exhibit 3. R&D Expense Chart**



Source: Mitel Corporation Annual Report, 1998