U.S. ELECTRONICS COMPANIES OPERATING IN CANADA

An Overview

Includes two case studies:
Tandem Computers Incorporated and Digital Equipment Corp.

Prepared by Franson & Associates Inc.
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I. U.S. COMPANIES IN CANADA

Good neighbors and good friends. That statement typifies Canadian/American relations. Increasingly though, American companies are recognizing that our northern neighbors also make good business partners. Why else would 471 of the U.S. FORTUNE 500 have operations in Canada? More specifically, electronics firms, both large and small, are discovering the dynamics of this profitable market.

Companies such as Hewlett Packard, IBM, Digital Equipment, Xerox, Motorola, Tandem Computers, Apple and NCR discovered early on that the best way to penetrate the Canadian market is from a Canadian base. Instead of just trying to ship products across the border, they set up operations there. Today, many of these firms have built major Canadian-based subsidiaries with R&D facilities, joint venture agreements, strategic alliances, manufacturing sites, marketing/sales and distribution centers and research contracts with Canadian universities. The end-result: Many are scoring worldwide product mandates -- the right to make products in Canada for worldwide consumption.

These companies and hundreds of others now operating in Canada have uncovered one of Canada's best-kept secrets: a hungry demand for electronics products. In fact, increasing demand has consistently outpaced the country's supply of products.

Some of the larger U.S. firms operating in Canada include:

IBM Canada operates two large manufacturing plants and a large R&D center in Canada and recently completed a major investment at its Bromont, Quebec facility to manufacture ceramic

memory subsystems for mainframe computers.

Control Data operates two manufacturing plants in Canada. In Toronto, it develops and manufactures small mainframe computers and in Ottawa, it designs and develops military electronics systems -- sonar and artillery computers.

NCR designs and manufactures check-handling equipment for the banking industry at its plant in Waterloo, Ontario. Its latest technology is able to read human handwriting.

Motorola has two major operations in Canada where it designs and manufactures mobile communications equipment and data communications products.

In addition to these and many other established companies, there are a number of rapidly growing technology companies who now have a base of operations in Canada as well. For instance, Sun Microsystems, 3Com and Silicon Graphics all sell into the Canadian market from their base sales and marketing headquarters in Toronto. Other young companies operating in Canada include Pyramid Technology and Sytek.

In addition to sales and marketing activities, a number of rapidly growing companies manufacture there. For instance, Tie/Communications produces PBXs, Scientific Atlanta produces equipment for direct broadcast satellite transmission and M/A Com produces microwave components.

II. CANADIAN OPERATIONS: U.S. COMPANIES FIND MANY ADVANTAGES

A Skilled Labor Force and Sophisticated University System

Many U.S. companies operating in Canada have discovered another little-known fact about the Canadian market -- a large, highly educated base of engineers and scientists from which to draw upon. At last count, technologists in Canada numbered 515,000. Science and engineering enrollment in the Canadian University system totalled more than 177,000 in 1986.

In addition to being highly skilled, Canadian workers are extremely loyal to the organization. Turnover at electronics companies in Canada averages less than 5 percent a year, according to the Canadian Engineering Manpower Council. Further, fewer than 0.2 percent of total person-days have been lost due to work stoppages for the whole industry in Canada over the last five years.

Canada's highly sophisticated university system and technological infrastructure rivals the U.S.'s in many respects. This is true particularly as it relates to the role Canadian universities play in helping to spawn new companies. The University of Waterloo already has a number of spin-off companies underway in diverse areas of technology including software and artificial intelligence.

Easy market entry -- few regulations

There are relatively few barriers to entry into the Canadian market. U.S. companies find they have much in common with their Canadian counterparts: Common time zones, language and cultural simularities and common communications and transportation linkages.

Further, the government has reduced intervention and is liberalizing many of its investment policies in an effort to make the investment climate more attractive. Currently, Canadian and U.S. tariffs on the imports and exports of computer parts and equipment are either zero or range between 3.8 percent and 5.1 percent.

Further, because there are no foreign exchange restrictions whatsoever, companies are free to remit profits wherever and whenever they choose. This includes both dividends and royalties.

Corporate Income Tax

In the wake of tax reform by a number of Canada's trading partners, Canada too has examined its tax structure with an eye toward making it more attractive for corporations to do business in Canada. Currently, Canada's corporate tax rates are higher than in the U.S. or the United Kingdom, although this is offset to some degree by generous tax incentives for capital investment, R&D and manufacturing. In addition, tax rates will change with new tax laws coming into effect in January 1988.

Specifically, in 1988 the general federal tax rate will drop from 36% to 28%, the rate for manufacturing will drop from 30% to 23% and the small business rate will drop from 15% to 12%.

Lower rates overall will help keep Canada's economy strong and competitive by providing incentives for business investment and activity. In addition, Canada's corporate tax rates will be competitive with the U.S. and other countries, keeping Canada attractive to foreign investment, which creates growth and jobs.

Geography and Resources

A Canadian location offers many investors lower input costs. This makes the export of Canadian-manufactured goods and services very competitive in the thriving North American market.

Canada has an extensive road, rail, marine and air transportation network. More than 250 million consumers in the North American market can be reached from most Canadian locations. Some 151 million persons are within one trucking day of the Canada/U.S. border.

Further, Canada has significantly lower prices for electricity and natural gas than the United States. Electricity for industrial use in Toronto, Vancouver and Montreal costs almost 70 percent to 80 percent less than in New York and about 50 percent to 60 percent less than in Chicago and San Francisco -- a 55 percent average cost advantage, according to the Federal Department of Regional Industrial Expansion (DRIE) in Ottawa.

Land, office and plant space is significantly less expensive -- 30 percent average when compared with U.S. rates.

And wages average 10 percent less when compared with rates in the U.S.

Government Assistance

The government assists companies in finding locations and/or identifying potential strategic partners, and is very helpful in supporting technological development that provides a net benefit to the Canadian economy.

Canada offers a generous R&D tax treatment. Canadian taxpaying corporations are permitted to deduct all current and capital expenditures for R&D in the year they are incurred. In addition, there are substantial R&D tax credits -- up to 30 percent of total costs depending on the province.

The Canadian industry is committed to further strengthening its relationship with the United States. Most recently, the Canadian Advanced Technology Association (CATA) in Ottawa, the trade association for some 300 electronics firms in Canada, signed a cooperative pact with its counterpart in the United States, the American Electronics Association. The two organizations hope to swap policy developments on everything from taxes to trade issues and public policy.

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III. CASE STUDY
DIGITAL EQUIPMENT CORP. IN CANADA

Six years after Digital Equipment Corp. was founded in 1957 in Maynard, Massachusetts, it set up a two-person sales outlet in Ottawa. That move proved to be very smart.

Most recently, Digital Canada reported revenues of $582 million (C$772 million) for fiscal 1987, up 22 percent from last year's revenues of $477 million (C$632 million), up 34 percent from 1985. This spectacular performance, year after year, makes Digital Canada one of the company's most profitable foreign-based arms. Further, Digital Canada is outbidding sister subsidiaries from around the globe for the rights to make products for the worldwide market.

Founded in 1963, Digital Canada's initial challenge was to make interconnect modules or "backplanes" and other computer components for the corporation worldwide. All other Digital Equipment products were produced and assembled abroad and simply imported and marketed in Canada. In the 1970s, Digital Canada began handling final assembly and test of computer systems for the Canadian market. This helped the Canadian company get its feet wet in full-scale computer system manufacturing.

Then in 1981, when one of Canada's largest grain cooperatives, the Saskatchewan Wheat Pool, began looking for ways to automate its more than 500-grain elevator systems, Digital Canada decided to vie for the contract and proposed that it would seek the right to assemble one of its minicomputers here in

Maynard if it were chosen as the supplier. It not only won this contract for the manufacture of the PDP-11/23 16-bit computer processor but it soon began receiving hundreds of other computer orders from other grain companies.

When Digital Canada's new president, Ken Copeland, joined in early 1980, he made an about-face in the unit's strategy.

Explains Copeland: "Competition for Canadian manufacturers was intensifying as tariffs were reduced worldwide and the newly industrialized nations in the Far East were posing a far greater threat to us. For Digital Canada to continue to be successful, we recognized that we must re-orient our manufacturing capabilities from building small volumes of a large range of products for Canada to building selected volumes of products and components for export worldwide."

Copeland based his thinking in part on a government study by the Ontario Ministry of Industry and Tourism (1980) which stated: "Multinationals in Canada are most successful when they adopt some form of specialized mission strategy -- this permits the affiliate to achieve the expertise and economies of scale needed to compete not only in its own markets, but internationally as well."

Not long after that, in 1984, the company secured its first two product mandates. After outbidding some 70 other Digital plants worldwide, it was given product mandate for 70 percent of the worldwide production of the PDP-11/14 minicomputer. In July 1986, it began producing the PRO 380 personal computer for the worldwide market and in April of 1987, Digital Canada earned the product mandate to produce two of

Digital's most advanced VAX minicomputers, the 8250 and 8350.

Through an extensive cost analysis process, Digital Canada has consistently convinced its parent company that it can produce products in Canada for less or the same as in the States -- but with many additional benefits. For instance, once Digital began manufacturing in Canada, it became eligible to compete for more government contracts than previously possible. The Canadian government is one of the electronics industry's biggest customers. In 1986, the federal government purchased some $300 million of computers and equipment.

Digital Canada also benefitted from relatively lower energy costs in its plants, which on average cost two to five cents per kilowatt hour. And the company's location in Ontario, Canada's heartland, gave it access to millions of consumers in both Canada and the United States as well. Finding and keeping technical talent hasn't posed any problems for the Canadian arm, which reports an industry average turnover rate of 5 percent.

The bottom line: Sales, R&D expenditures and employment have nearly tripled in three years. R&D expenditures now total $25 million a year, having shot-up from just $7 million since 1982. At its 370,000 square-foot manufacturing site in Kanata, just outside Ottawa, Digital Canada employs 1,000. Two thousand other employees work at the 39 sales and service offices throughout Canada. Buoyed by its record sales, Digital Canada built a 500,000 square-foot distribution center in 1985 to house products destined for foreign markets.

For years now, Digital Canada has had a "buy Canadian policy" and in 1986, bought some $107 million worth of goods and

services from more than 600 different Canadian vendors. Digital also works with domestic vendors in technology transfer programs. And most recently, it completed a $25 million five-year contract with the University of Waterloo for research in artificial intelligence, satellite image analysis, computer graphics, robotics and networking research. Digital is currently working with 14 other universities in Canada.

Next on its agenda, Digital Canada wants to break the $1-billion sales mark.

IV. CASE STUDY
TANDEM COMPUTERS INCORPORATED

Tandem Computers Incorporated realized there was no realistic way to penetrate the Canadian market without looking and acting like a Canadian-run company. Before setting up even a sales office, the computer manufacturer established a support office in Toronto in 1978 to service a client it had secured through its marketing channels in the U.S. -- Radio Shack in Canada. This experience convinced Tandem of the market's potential. Tandem immediately supplemented its support staff with sales and marketing people and within two years, sales had reached $754,000 (C$1 million). By the end of fiscal 1987, Tandem Canada expects revenues of between $50 million and $60 million (C$70-80 million), making it one of the most profitable subsidiaries out of 36 worldwide.

The Cupertino, Calif.-based company makes non-stop, fault tolerant computers sold primarily to the banking, communications and government markets. Tandem Canada does about 15 percent of its business with the Canadian government, 30 percent with financial institutions, 20 percent with telephone companies (Bell Canada is Tandem Canada's largest single customer) and another 20 percent with Canadian third-parties -- software houses and systems integrators.

Mike Moore, vice president of Tandem's intercontinental division, says "Canada has the highest productivity within the corporation and is the fastest growing."

He attributes the subsidiary's success to some unique characteristics of the Canadian labor force -- low turnover and loyalty. Tandem Canada reports less than 4 percent turnover each year, compared with Tandem's 10 percent turnover in the United States and 16 percent for the average electronics company in the United States. That means out of 175 employees, no more than seven leave the company each year.

For the last several years, the subsidiary has averaged a 40 percent growth rate each year through its 11 sales and support offices scattered across Canada in cities like Vancouver, British Columbia; Edmonton, Alberta; Halifax, Nova Scotia; Winipeg, Manitoba; Ottawa and Toronto in Ontario; and Montreal in Quebec.

Moore attributes the productivity to the high moral and excellent technical skills the company draws on in the Canadian market. Tandem is working with the University of Quebec at Montreal in a cooperative program where it provides on-the-job training and pay for students enrolled in engineering programs.

Tandem Canada is also an active participant in a number of joint ventures, including a $1.25-million contract with Bell Canada to develop the X.400 telecommunications protocol. Tandem computers are used by the Canadian government's Atmospheric Environment Ministry to run weather information systems and by the provincial government in British Columbia to manage its real estate business.

In addition, Tandem has teamed with UTLAS International Canada, a subsidiary of International Thomson, to provide library automation systems.

Most recently, Tandem Canada inked a $13-million contract with SHL System House Inc., a Canadian software company, to produce jointly a system that will automate Canada's federal police force -- the Royal Canadian Mounted Police.

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Note: Based on conversion rate of 1.3263 Canadian dollars to the U.S. dollar as of August 10, 1987.