

A Profile of Canada's Software Products Industry

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1. Highlights

There were 5,330 software products firms in Canada in 1995. Ninety-one percent of these businesses are "micro-businesses" (those with less than 10 employees and revenues of less than \$250,000).

In 1995, the software products industry employed 26,415 people (including self-employed). Total revenues in this industry in 1995 are estimated to be \$2.7 billion. Average revenues for firms in this industry are \$6 million.

Software products firms are largely self-financed, with most of their equity coming from principle shareholders and a significant proportion of their long-term debt coming from owners/shareholders. Businesses are the largest consumers of software products. Nearly two-thirds of the revenues in this industry come from sales to businesses. More than half of this industry's revenues are from foreign sources - 39% are from the US.

The most common strategic alliances in this industry are distribution alliances and these tend to be with other software companies. In planning for the future, software products companies are placing the most emphasis on human resource issues. Software products firms believe that the factor on which they are most able to compete is the quality of their product/service.

In 1995, the software products industry spent over \$260 million in R&D, accounting for 3.4% of total Canadian industrial R&D. On average, 28% of software products firms' revenues go towards R&D.

The vast majority of software products firms had Internet homepages in 1995 and more than two-thirds of employees in this industry had Internet accounts.

2. Introduction

The Canadian software products industry is a rapidly growing and dynamic sector. Until now, most of the Canadian government research has focused on the broader industry group entitled: "Computer and Related Services", or Standard Industrial Classification (SIC) 772. This industrial classification includes, among others, computer services, computer programming, software packages, systems design and computer equipment maintenance and repair.¹ Industry Canada contracted with Statistics Canada to develop a large database of Information Technology (IT) enterprises. The resulting database, entitled "The Business Register of Information Technology Enterprises" (BRITE) was the amalgamation of existing Statistics Canada data holdings combined with a special survey whose goal was to fill gaps in existing Statistics Canada data holdings as well as to gather additional information, both qualitative and quantitative, on Canadian IT firms.

The survey, which was sent out in February 1997 to some 3,200 IT firms with 10 or more employees and revenues of \$250,000 or more, had a response rate of 50%. Firms with less than 10 employees and less than \$250,000 in revenues will be referred in this paper as "micro businesses". One of the key questions in the survey was to determine each firm's percentage of revenues derived from a list of 11 major activities. This allows, for the first time, for a disaggregation of IT activities into their various subsectors and the creation of "pseudo industries". After analyzing the responses to this

question, it was determined that this data allowed for 10 distinct clusters (or "pseudo-industries"). One of the "pseudo-industries" identified by the BRITE project is "sales of software products developed in-house". Results for this industry (ie: the software products industry) are the focus of this paper. Industry totals (eg: total revenues, employment, etc.) have been estimated by Industry Canada using BRITE data in conjunction with other Statistics Canada information.

This paper will examine the results of the BRITE project in four distinct fashions. First, national/aggregate data will be presented. Next, the data has been divided into revenue and profitability tertiles (see table 1). Finally, regional differences will be explored. Tertile analysis examines (i) differences between more successful and less successful companies (in terms of profitability) and (ii) examines differences between small, medium and large firms. Throughout this paper the terms "large", "medium-sized" and "small" firms will refer to those firms in the upper, middle and lower revenue tertiles respectively. Similarly, the terms "most profitable" and "least profitable" will refer to firms in the upper and lower profitability tertiles respectively.

Table 1

Tertile Definitions			
	Lower	Middle	Upper
Revenue	\$250K - \$1.3M	\$1.3M - \$3M	\$3M - \$196M
Profitability	ROA \leq -0.002	-0.002 < ROA < 0.393	ROA \geq 0.393

Where ROA (Return on Assets) is measured as (Earnings Before Interest and Taxes/Total Assets).

This paper will make extensive, but not exclusive, use of information and estimates from the BRITE project.

3. Industry Overview

Canada's software products industry is comprised of many micro-businesses and self employed. Industry Canada estimates that there were approximately 5,330 software companies in Canada in 1995, of these, only 461 (or 9%) had both ten or more employees and revenues of \$250,000 or more. According to the Branham Group, in 1995, the top 100 Canadian software companies accounted for \$1.9 billion, or 71%, of total industry revenues, but employed only some 12,500 people², which accounts for only 47% of total industry employment. In 1995 there were more than 26,400 people employed in the software industry. It is important to note that there are self-employed individuals in this industry, however we are unable to estimate the number of these workers at this time.

Total revenues are estimated to be \$2.7 billion in 1995, while GDP (at factor cost) is estimated at over \$1.1 billion (in 1986 dollars).

Research and development is extremely important to the software products industry. In 1995, five of Canada's top 50 R&D performers were software products firms. They were: Corel Corp., Cognos inc., Eicon Technology Corp., PC DOCS Group International Inc. and GEAC Computer Corp. Ltd.³

Total R&D expenditures in 1995 for this industry is estimated at \$262.6 million, representing 3.4% of total Canadian industrial R&D.

4. The Software Products Industry by Geographic Region

With 3,785 businesses, Quebec and Ontario account for over 71% of the 5,330 software companies in Canada. Figure 1 illustrates the regional distribution of software products companies in Canada.

Figure 1

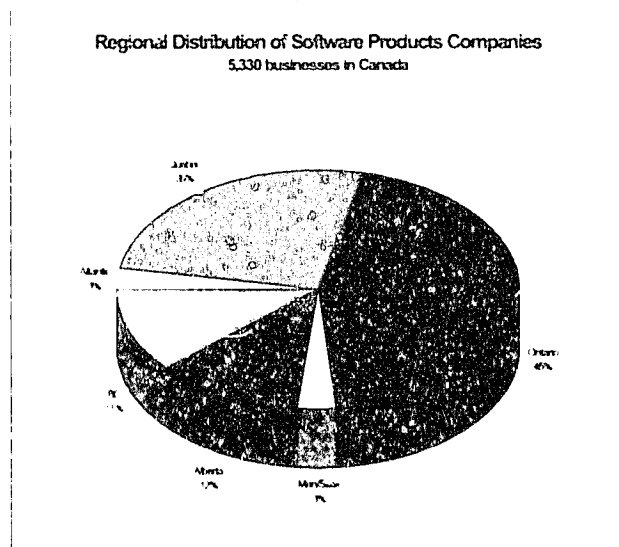


Figure 2

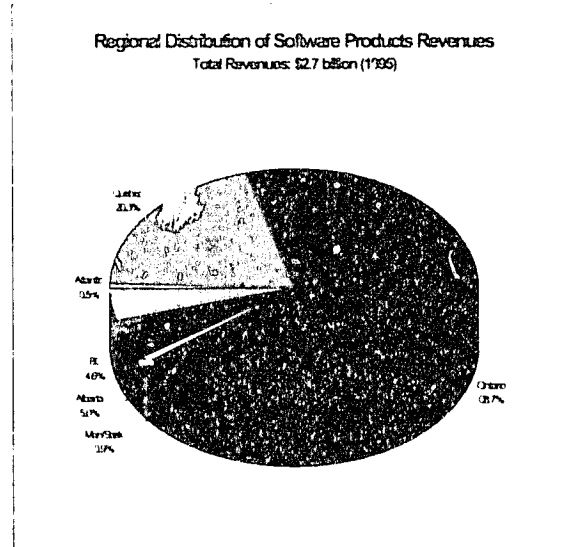
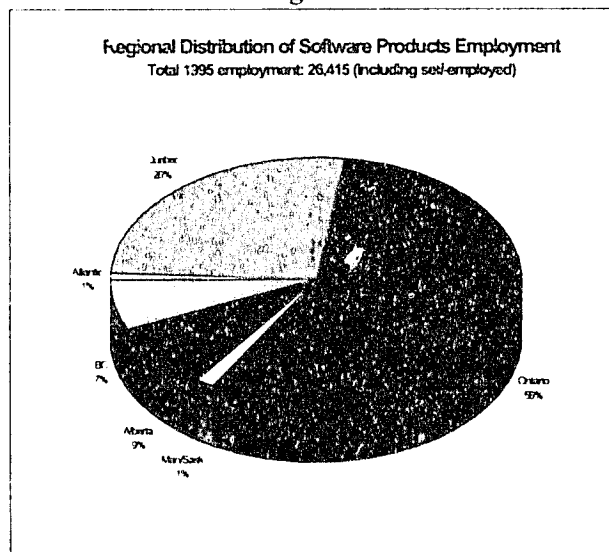


Figure 2 shows how the revenues for the software products industry are distributed geographically. Given that 53 of the top (in terms of revenues) 100 software producers, including the 3 largest, are situated in the province of Ontario⁴, it is not surprising that Ontario firms account for more than two thirds of the entire industry's revenues.

Employment in the software products industry is concentrated in central Canada as demonstrated by Figure 3. Over 82% of the industry's workforce is located in Ontario and Quebec. This is largely due to the high number of self-employed and micro businesses in these provinces which are responsible for 28% of total employment in this industry.

Figure 3



5. Legal Status

In examining firms 10 or more employees and revenues of \$250,000 or more, we see that 82% are privately held incorporated companies while another 13% are publicly traded incorporated firms. Not surprisingly, large companies (those in the upper revenue tertile) have a greater proportion of publicly traded companies (21%).

6. Revenues

Total revenues for the industry are estimated to be \$2.7 billion in 1995. Average revenues for firms in this industry are \$6 million. Firms in the middle profitability tertile have the highest mean revenues at \$8.8 million. This compares with \$5.5 million for the most profitable firms and \$3.7 million for the least profitable ones.

There are significant regional differences with respect to total revenues. Ontario accounts for over two thirds of all the revenues in the industry and, with a mean revenue of nearly \$9.2 million, it is the highest among the regions in Canada. This is not surprising given that the 3 largest software producers (Corel, GEAC and Cognos) are all situated in the province of Ontario⁵. Ontario software firms have, on average, the largest profits in Canada with a mean total profit value of \$186,000. Quebec is the only other region where, on average, firms are profitable (mean total profit of \$140,000). Software firms in Manitoba/Saskatchewan are, on average, the least profitable with average losses in excess of half a million dollars (see Figure 4).

Figure 4

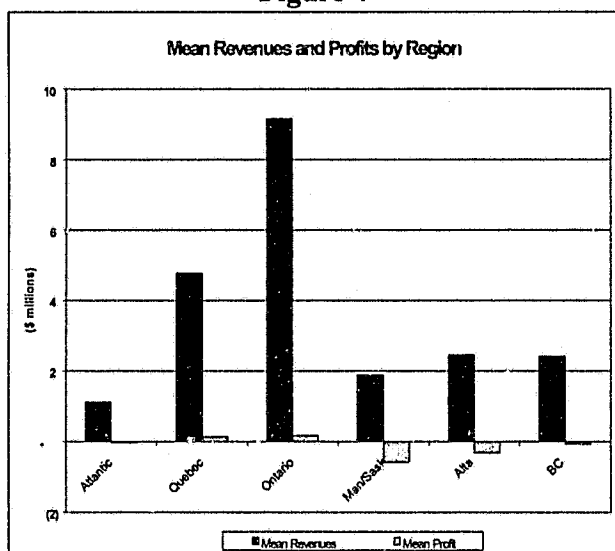
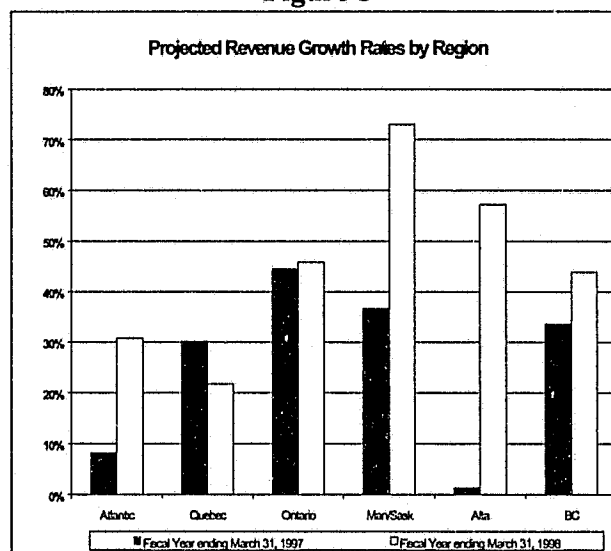


Figure 5



Firms in the industry project that, on average, revenues for the fiscal year ending March 1997 will be 36% higher than in the previous year. These firms also expect revenues to grow another 43% in the following year. Not surprisingly, the most profitable firms expect the highest one-year revenue growth at 70%, however it is the least profitable firms that expect the greatest growth in revenues

for the fiscal year ending March 31, 1998 (74%). When looking at average projected growth by revenue size group, it is not surprising that given their relatively low current revenues, it is the smallest firms which expect the largest revenue growth (48% in the first year and 88% in the second year). Regional projected growth rates are illustrated in Figure 5.

7. Class of Client

Software product firms sell their wares primarily to other businesses. Nearly two thirds of the revenues of this industry comes from businesses. The next most important source of revenues are public institutions (including government, educational institutions and health care institutions) which represent nearly 24% of revenues, while households and other sources make up the remaining 9%. These figures were fairly consistent among the revenue and profitability tertiles, with sales to businesses accounting for more than 70% of revenues for large firms and 62% of revenues for small firms. The most profitable firms only derive 21% of their revenues from sales to public institutions, while the least profitable firms earn more than 28% of their sales from public institutions - there is no significant difference among revenue tertiles.

There are some dramatic regional differences with respect to the industry's primary client (see Figure 6). In the prairie provinces, roughly three quarters of software products firms' revenues are derived from sales to businesses. This is in sharp contrast to firms in the Atlantic provinces which derive 42% of revenues from sales to businesses, 39% from sales to public institutions and 20% from sales to households. Quebec firms get nearly 30% of their revenues from public institutions while Alberta firms rely on this source for only 16% of their revenues.

Businesses are the largest consumers of software products. Nearly two-thirds of the revenues in this industry come from sales to businesses.

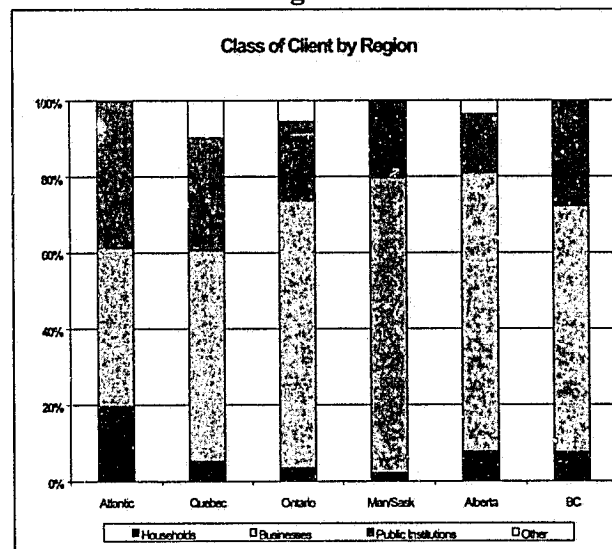
8. Financing

(i) Capital Structure

The mean debt-to-equity ratio for this industry is 0.25. This indicates that creditors supply 25¢ for every dollar of capital supplied by shareholders. Due to the lack of tangible assets, this industry finds it relatively more difficult to obtain debt financing and, as a result, the debt-to-equity ratio is relatively low.

Because the debt-to-equity ratio decreases as total equity increases and because large firms tend to

Figure 6



have more equity that do smaller firms, it is not surprising to find that the debt-to-equity ratio for large firms is lower than that of smaller firms.

The most profitable software products firms also have lower debt-to-equity ratios than other firms because these firms also tend to have more equity than do their less profitable counterparts.

(ii) Sources of External Equity

For the purposes of this analysis, sources of equity financing include: principal shareholders (founding shareholders), venture capitalists, private investors, public equity markets, the Business Development Bank of Canada (also a venture capitalist) and other sources. Software products firms receive the greatest proportion (79%) of their equity from principal shareholders and another 6% from private investors. However these proportions vary greatly among revenue tertiles. Large companies receive only 68% of their equity from principal shareholders while deriving another 10% from private investors. Medium-sized companies, on the other hand, receive over 90% of their equity from principal shareholders while only 1% comes from private investors. Small firms are generally in line with the industry average.

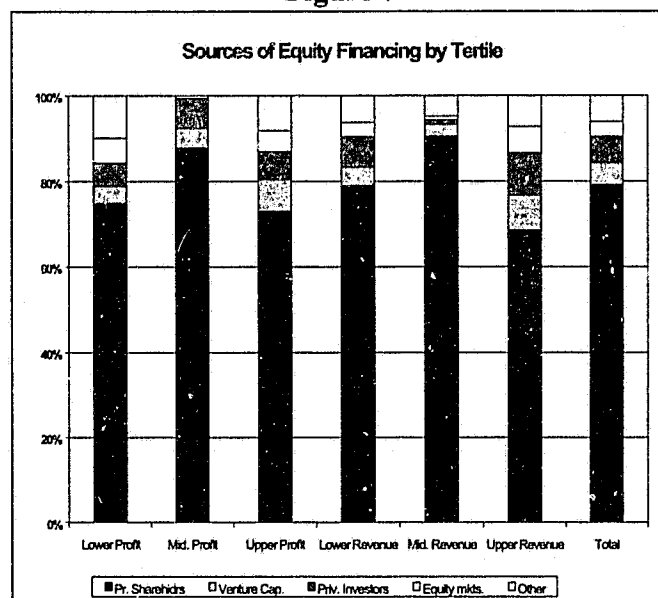
Among profitability tertiles, the most profitable and least profitable firms behave in a similar fashion in that roughly the same proportion of equity comes from private investors (between 73 and 75%), however the secondary source of equity for the least profitable firms is other sources, while it is venture capitalists for the most profitable firms.

Regionally, principal shareholders represent the majority of firms' equity source across the country, ranging from nearly 100% of firms in the Atlantic provinces to 59% in Manitoba/Saskatchewan. The secondary source of equity is not quite as homogeneous. Private investors are the secondary source of equity for Alberta (11%), Manitoba/Saskatchewan (10%) and Ontario (6%), venture capitalists are second in BC (12%), while other sources (11%) are second in Quebec.

(iii) Sources of External Long-Term Debt

Firms were asked to indicate their percentage of long-term debt obtained from the following sources: bank and trust companies, owners/shareholders, private investors, venture capitalists, capital leases, government, public markets and other sources. Software products firms obtain long-term debt from a variety of sources. The main sources are: banks and trust companies (39%), owners/shareholders (29%), government (8%) and capital leases (7%). There is no significant differences between the primary source of long-term debt among revenue tertiles. Worth noting, however, is that large firms have a smaller proportion of long-term debt from owners/shareholders (24%), yet a larger proportion from capital leases (20%) than do other firms. This is probably because larger firms usually have

Figure 7

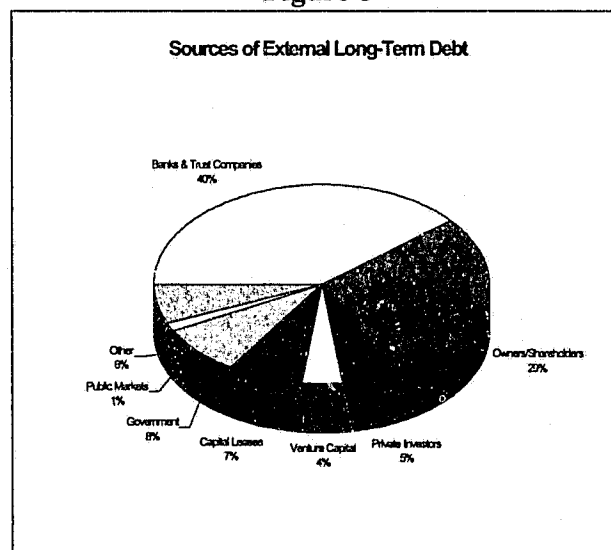


more tangible assets and are able to use these assets to obtain additional financing.

Figure 8

The most profitable firms obtain a larger proportion of their long-term debt from banks and trust companies (48%) than do other firms. As well, capital leases account for some 11% of their debt. Larger firms appear more creditworthy to banks and it is therefore easier for these companies to secure loans from these financial institutions.

There are significant differences in sources of long-term debt among the regions. The percentage from banks and trust companies ranges from roughly 24% for the prairie provinces to nearly 64% in Quebec. While Ontario firms seem to mimic the industry average, others deviate substantially from it. In particular, firms in Manitoba/Saskatchewan obtained 57% of their long-term debt from government, firms in the Atlantic provinces got 35% from government, while Ontario firms secured only 3% of their long-term debt from government. Another notable regional difference is that firms in Ontario, BC, and to a lesser extent, Alberta all used owners/shareholders as significant sources of their long-term debt while Quebec firms relied on this source for only 7% of their long-term debt.



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Software products firms are largely self-financed with most of their equity coming from principal shareholders and a significant proportion of their long-term debt coming from owners/shareholders. The most profitable firms obtain most of their long-term debt from banks and trust companies.

9. Human Resources

(i) Type of Employment

As noted above, the software products industry employed more than 26,400 people in 1995. Of these 26,400 jobs, nearly 7,500, or 28%, are micro-businesses. Of the nearly 19,000 employees in firms with ten or more employees and \$250,000 or more in revenues, 88% were full-time, 7% were contract employees while the remaining 5% were employed on a part-time basis. These proportions remain relatively constant among the various tertiles with the smaller firms having a slightly larger proportion of part-time and contract employees.

There is very little difference in the distribution of type of employee from a regional perspective with the exception of Alberta, where firms rely significantly more on contract workers. In fact, firms in Alberta use, on average, 3 times more contract workers than do firms in the other regions.

(ii) Employee Turn-Over

The software products industry is a net creator of jobs. Between 1994 and 1995, the industry created over 14,000 new jobs. However there was also a loss of some 7,000 positions, thus yielding an increase of 7,000 net new jobs. More than 5,800 (or 83%) of these new jobs were created by micro-businesses. Of the remaining 1,200 jobs, 71% were created by large firms and the remainder were evenly split between small and medium-sized firms. Given the number of firms in Ontario, it is not surprising that Ontario firms accounted for 64% of the net increase in jobs. Firms in Alberta and BC each contributed 16% and 14% respectively, while firms in Quebec, Atlantic Canada and Manitoba/Saskatchewan each accounted for roughly 2% of the net increase.

Figure 9



Another way of examining employee turn-over is to look at each region's percentage increase in net employment. Atlantic Canada's net increase in jobs translates into a growth in employment of better than 16%. BC and Alberta were both over the 10% mark while Quebec's increase represents 0.5% growth in employment in this industry.

The industry employed 26,400 people in 1995 (including self-employed). Between 1994 and 1995, 7,000 net new jobs were created in this industry.

10. Research and Development

Research and Development (R&D) is an important input into the software products industry. Nearly 87% of Canadian software products companies perform R&D in Canada and, in 1995, 57% applied for Canada's Scientific Research and Experimental Development (SR&ED) tax credit. This is not overly surprising given that Canada has one of the most generous R&D tax incentive program in the world. Total R&D expenditures in 1995 for this industry is estimated at \$262.6 million, representing 3.4% of total Canadian industrial R&D. Mean expenditures on R&D by software products companies in 1995 was \$690,500, however there were substantial differences among tertiles.

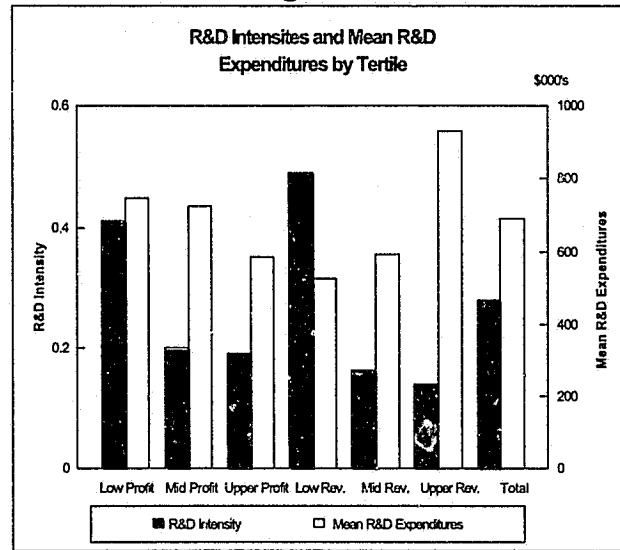
Not surprisingly, the average total expenditures on R&D is related to revenue size. Large companies spend more (\$930,600), on average, on R&D than medium-sized (\$590,800) and small companies (\$526,500). Such large fluctuations are not present among the profitability tertiles however. The most profitable companies spend, on average, \$309,600 on R&D while the least profitable companies spend \$500,600.

Regionally, average R&D expenditures range from \$924,000 in Manitoba/Saskatchewan to \$453,500

in Atlantic Canada.

The importance of R&D in this industry becomes evident when examining R&D intensity. R&D intensity is calculated as the ratio of total R&D expenditures to total revenues and is a good indication of the degree to which an industry invests in R&D. The mean R&D intensity for this industry is 0.28. This means that Canadian software products firms devote, on average, 28% of their revenues to R&D activities. Of interest is the fact that the smallest firms (lowest revenue tertile) dedicate a much larger proportion (nearly half) of their revenues towards R&D. This is consistent with the view that to become a successful company in this industry, one must dedicate significant resources to the development of a unique and top quality product.

Figure 10



From a regional perspective, software products firms in BC are the most R&D intensive with 51% of their revenues going towards R&D; Alberta software firms are the least R&D intensive (13%) (note that, due to confidentiality restrictions, data are not available for Atlantic Canada).

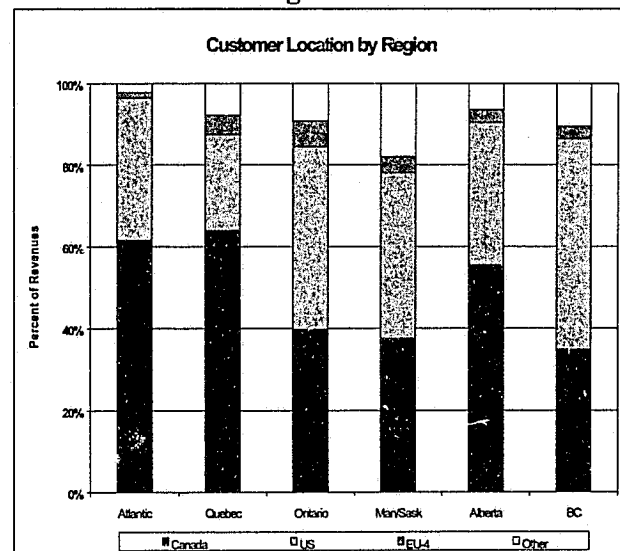
Total R&D expenditures in 1995 for this industry is estimated at \$262.6 million, representing 3.4% of total Canadian industrial R&D. On average, 28% of software products firms' revenues go towards R&D.

11. Customer Location

Ninety-seven percent of Canadian software products companies sell at least some of their wares in Canada. Not surprisingly, the United States is our main foreign destination with 73% of companies receiving some of their revenues from the US.

Large companies have a higher propensity to export than do smaller firms. Eighty-seven percent of large firms export to the US and 44% export to the EU-4 countries (UK, Germany, France, Italy). Only 68% of small and medium-sized firms export to the US and roughly 28% export to the EU-4 countries.

Figure 11



With respect to profitability tertiles, fewer of the

most profitable firms export; only 66% export to the US and 28% to the EU-4 countries. Interestingly, least profitable firms are more likely to export: 74% of firms export to the US and 42% to the EU-4 countries.

The only notable regional difference is that only 54% of Quebec software firms export to the US while 87% of BC firms export to the US.

Although it is interesting to examine the number of companies that derive sales from foreign sources, it is also insightful to examine the percentage of sales derived from export activities. The industry derives an average of only 48% of its sales from Canada; nearly 39% of sales come from the US, while another 5% comes from the EU-4 countries.

One of the most pronounced differences among tertiles is that large firms actually sell more of their products to the US (48%) than they do in Canada (34%). It is not surprising then, that these export-oriented firms also average more than 6% of their sales from the EU-4 countries. Both the smaller and medium-sized firms receive roughly 55% of their sales from Canada and 37% and 30% respectively from the US. Large firms are thus more export oriented than smaller ones.

The most profitable firms derive 54% of their revenues from sales to domestic clients while another 34% comes from the US. The least profitable firms tend to export more (only 42% of their revenues are from domestic sources).

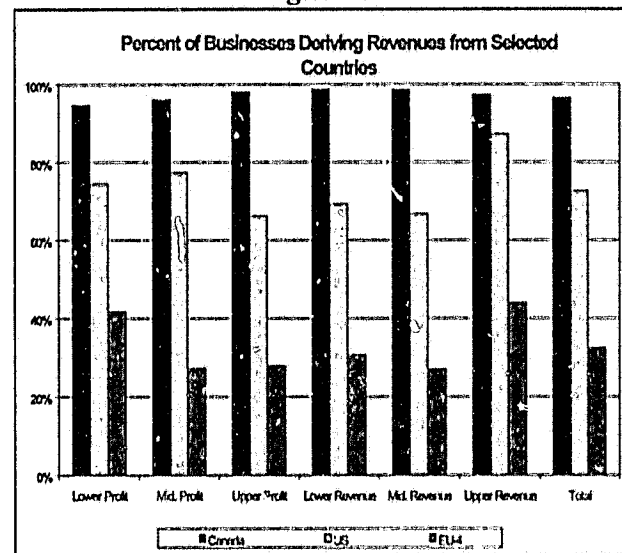
From a regional perspective, Quebec and the Atlantic provinces are the least export oriented with more than 60% of sales coming from domestic sources. Quebec firms also receive only 24% of their sales from the US. BC firms, on the other hand, are the most export oriented, deriving only 35% of their sales from domestic sources and 52% from the US.

More than one half of all revenues in the software products industry comes from foreign sources and 39% of these revenues are from the US.

12. Ability to Compete

Respondents were asked to evaluate, on a scale of 1 to 5 (1 being low and 5 being high), their firm's ability to compete in several areas as they relate to production and marketing of its products and services (see appendix II). With an overall mean score of 4.5, quality of their product/service was, by far, rated as the company's most competitive factor. This highest ranking is consistent among all revenue and profitability tertiles. Respondents also view their firms as very competitive with regards to the skill levels of their employees and customer service; again these are consistent among all

Figure 12



revenue and profitability tertiles.

Firms in the Atlantic provinces rated their company's ability to compete with respect to quality only 5th most important out of 10 factors; for these companies, customer services was rated as the most important factor. For firms in Manitoba/Saskatchewan, quality was more important than customer service and skill level of employees, in fact, the skill level of employees was ranked 6th. Also, although all the other regions ranked introducing new products as the least important factor relating to their companies ability to compete, the Atlantic region rated this factor as number 3.

Software products firms believe that the factor on which they are most able to compete is the quality of their product/service.

13. Planning for the Future

This section examines the emphasis that companies place on a variety of factors in planning for the future. These factors can be grouped into 5 major categories. These are: Alliances and the Internet, Human Resources, R&D and Labour Costs, Markets and Financing (see appendix III). Responses to the survey indicate that the "human resources" category (eg: training, ability to attract/retain qualified personnel), followed closely by the "markets" category (eg: access to markets, expanding into new markets) are the most important in planning for the future.

These findings are fairly consistent among tertiles with the exception that the lower and middle profitability tertile firms rated the "markets" category slightly ahead of the "human resources" category. The lowest mean response among the 5 categories was "financing", (which includes "access to low cost financing", and "financial assistance from government"). Interestingly, all tertiles and all regions chose "financing" as the category that companies are emphasizing the least in planning for the future.

Given the results above, it is not surprising that three of the top five (including the first and second) factors on which companies are placing emphasis in planning for the future pertain to human resources. These are: skill levels of employees, ability to retain qualified personnel and ability to attract qualified personnel. Other factors viewed as being important are: ability to integrate new technology and introducing new products and services.

Conversely, in planning for the future, companies are placing significantly less emphasis on assistance from the government (either financial or non-financial), and on cutting labour costs.

There are only a few differences among the tertiles that are worth noting. One of the factors that varies the most is the ability to attract qualified personnel. Although all tertiles rate this factor quite high, large firms view this factor to be more important in planning for the future than do the most profitable firms. In fact, large firms view this as the most important factor in planning for the future. Another factor that varies among tertiles is the introduction of new product and services.

There are several regional differences worth noting. In the Atlantic region, companies are placing the most emphasis on their ability to integrate new technology, although the skill levels of employees

is still important. In BC, firms are emphasizing their marketing capability most, even more than the skill levels of their employees. Firms in Manitoba/Saskatchewan are emphasizing access to markets the most, followed by marketing capabilities. Finally, in Quebec, firms are placing relatively more emphasis on financial assistance from government than other regions, although this is certainly not viewed as being one of the most important factors. These firms do, however, place more emphasis on this factor than they do on strategic alliances

In planning for the future, software products companies are placing the most emphasis on human resource issues.

14. Use of Internet

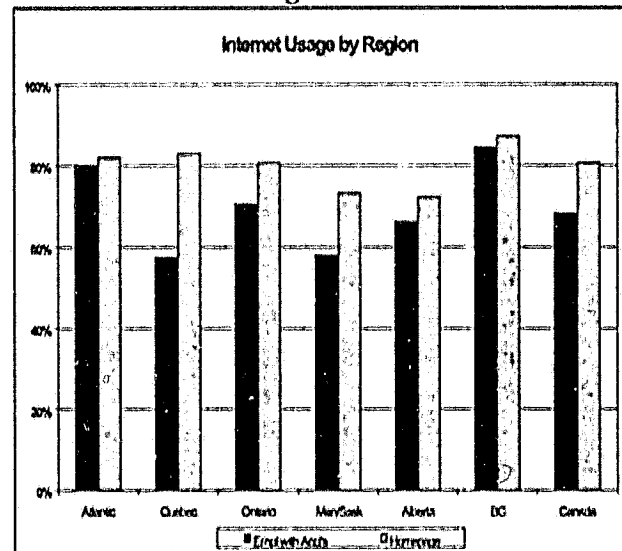
Canada's software products firms are extensive users of the Internet. In 1995, 81% of software products companies had an Internet homepage (although anecdotal evidence suggests that this percentage is now likely significantly higher). This figure ranged from 90% for the large companies to 66% for the small and medium sized companies. The use of an Internet homepage appears to be related to profitability as 85% of the most profitable firms have an Internet homepage versus 79% for the middle and least profitable firms. Regionally, the use of an Internet homepage varies widely from 87% in BC to 72% in Alberta.

On average, 68% of employees in Canada's software products industry had Internet accounts at work (1995). The percentage of employees with Internet accounts seems to be related to the size of the company for whom they work. Eighty-four percent of employees in large companies had Internet accounts compared to 68% in medium sized companies and only 55% in small companies. Employee Internet accounts also seem to be related to profitability, but to a lesser extent than by size. Seventy-six percent of the employees working for the most profitable companies had Internet accounts versus 66% for firms in the middle tertile and 64% for the least profitable firms. As above, the percentage of employees with Internet accounts varies widely from 85% in BC to 58% in Quebec.

The vast majority of software products firms had Internet homepages in 1995 and more than two-thirds of employees in this industry had Internet accounts.

15. Strategic Alliances

Figure 13

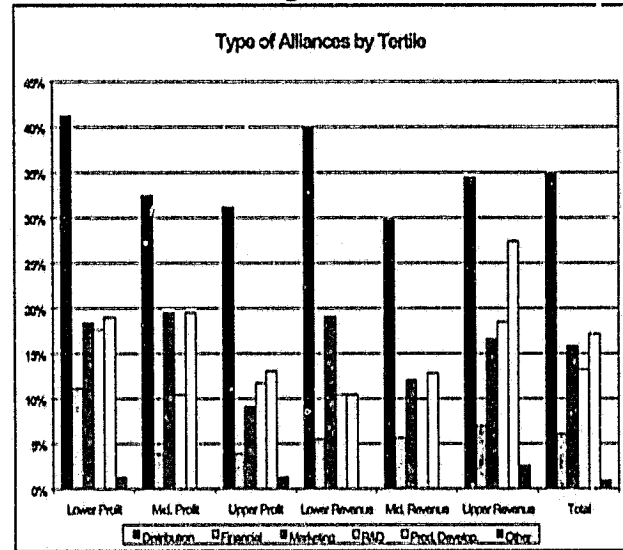


(i) Types of Alliances

Strategic alliances are extremely important to the software products industry. A strategic alliance is defined here as "...a formal long-term agreement with another firm to do business together or share business activities without merging." Distribution alliances are by far the most common (35% of companies), followed by product development (17%), marketing (16%) and R&D (13%).

Regionally, these proportions remain relatively stable, with the notable exception being the Atlantic region where R&D alliances are the most dominant (42%). Interestingly, smaller firms deviate from the industry average outlined above. For these firms, marketing alliances (19%) are much more widely used than R&D or even product development alliances, only distribution alliances are more common (40%). Although distribution alliances are the most common in all the tertiles, there are still some differences among the tertiles (see Figure 14).

Figure 14

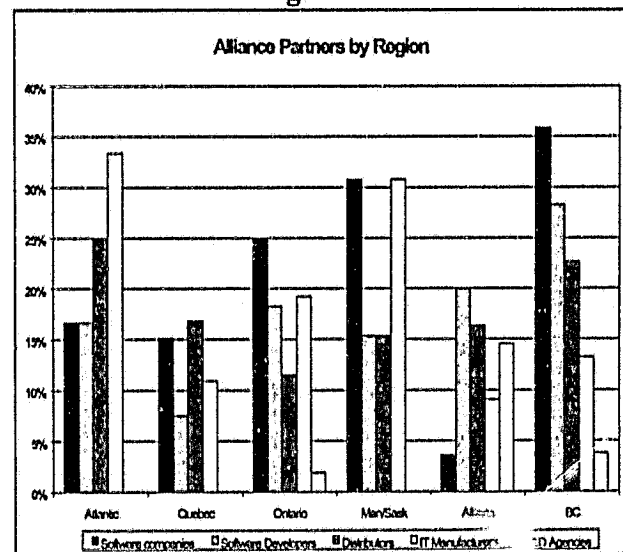


(ii) Alliance Partners

The most common strategic alliance partners among software companies are other software companies. Twenty-three percent of all software product firms have another software company as a strategic alliance partner. Other important alliance partners are software developers, manufacturers of IT products and distributors (roughly 16% each).

There are some regional differences with respect to alliance partners. Firms in the Atlantic region have more alliance partners than those in other regions. Firms in Quebec, on the other hand, have the fewest alliance partners. All regions have a significant proportion of alliances with other software companies, manufacturers of IT products and, to a lesser extent, with distributors. Some 15% of firms in Alberta have an alliance with R&D agencies, whereas there are very few such alliances in the other regions.

Figure 15



One point worth noting with respect to the tertile data is that although the least profitable companies ally themselves primarily with software companies (as is the case with the most profitable firms), their second most preferred ally is manufacturers of IT products (20%), whereas for the most profitable firms it is distributors.

The most common strategic alliances in this industry are distribution alliances and these tend to be with other software companies.

16. Appendix I

Region	Number of companies	Total Employment	Total Revenues (\$M)
Atlantic	140	210	\$12.2
Quebec	1,380	6,990	\$546.4
Ontario	2,405	14,800	\$1,849.7
Man/Sask	155	390	\$25.1
Alberta	640	2,290	\$135.4
BC	610	1,735	\$122.9
Canada	5,330	26,415	\$2,690.8

Source: Industry Canada estimates.

17. Appendix II

Ability to Compete							
Factor	Mean Score	Profitability Tertiles			Revenue Tertiles		
		Lower	Middle	Upper	Lower	Middle	Upper
Price of IT products/services	4.09	4.18	4.14	3.95	4.16	4.18	3.95
Quality of IT products/services	4.54	4.60	4.38	4.65	4.45	4.59	4.61
Ability to attract qualified personnel	3.65	3.73	3.59	3.69	3.47	3.70	3.80
Ability to retain qualified personnel	3.98	3.73	3.51	3.99	3.77	4.07	4.13
Customer service	4.29	4.28	4.22	4.39	4.23	4.44	4.23
Frequency of introducing new products/services	3.58	3.51	3.56	3.69	3.55	3.59	3.59
Costs of production	3.64	3.59	3.55	3.79	3.64	3.76	3.52
Research and development	3.92	4.01	3.89	3.84	3.87	3.85	4.05
Labour relations	3.99	4.20	3.85	3.85	3.90	4.17	3.91
Skill levels of employees	4.29	4.39	4.16	4.29	4.22	4.47	4.19

18. Appendix III

Emphasis on Planning for the Future							
Factor	Mean Score	Profitability Tertiles			Revenue Tertiles		
		Lower	Middle	Upper	Lower	Middle	Upper
Human Resources	4.07	3.98	4.05	4.00	3.98	4.33	4.11
- Training of employees	3.73	3.69	3.86	3.65	3.96	3.80	3.72
- Skill levels of employees	4.36	4.41	4.30	4.36	4.32	4.39	4.37
- Ability to attract qualified personnel	4.27	4.31	4.32	4.18	4.20	4.23	4.39
- Ability to retain qualified personnel	4.29	4.26	4.33	4.30	4.31	4.24	4.31
- Innovative compensation packages	3.58	3.57	3.55	3.61	3.63	3.58	3.52
Markets and Marketing	3.94	4.05	4.12	3.97	3.85	3.80	3.83
- Expanding into new geographic markets	4.05	4.00	4.11	4.05	4.13	4.12	3.90
- Access to markets	3.95	3.88	4.10	3.88	3.93	4.00	3.94
- Marketing capability	4.06	4.08	4.16	3.94	3.97	4.04	4.19
Financing	2.71	2.69	2.83	2.72	2.48	3.29	2.22
- Access to low-cost financial capital	3.27	3.33	3.24	3.21	3.23	3.22	3.34
- Financial assistance from government	2.82	2.68	3.17	2.57	2.85	2.74	2.84
Alliances/Internet	3.66	3.67	3.75	3.66	3.50	3.30	4.07
- Strategic alliances (partnering)	3.57	3.55	3.65	3.50	3.55	3.37	3.78
- Access to on-line resources (eg:Internet)	3.85	3.01	3.95	3.78	3.80	3.81	3.93
- Ability to do business on-line	3.63	3.58	3.65	3.68	3.64	3.51	3.74
R&D/ labour costs	3.42	3.59	3.70	3.47	3.23	3.56	2.98
- Cutting labour costs	2.60	2.46	2.76	2.60	2.54	2.66	2.59
- Ability to commercialize R&D	4.02	4.14	4.11	3.76	4.08	3.95	4.01
- Ability to integrate new technology	4.28	4.26	4.35	4.24	4.25	4.33	4.27

19. References

1. For a detailed description of SIC 772, please refer to "Standard Industrial Classification", Statistics Canada (Cat. no. 12-501), page 233.
2. The Financial Post Magazine, March 1996, "Branham 200, The Biggest Software Companies in Canada".
3. Based on "Canada's Top 100 Corporate R&D Spenders", compiled by Evert Communications Ltd., Ottawa, for the June 26 issue of its newsletter "Re\$earch Money".
4. The Financial Post Magazine, March 1996, "Branham 200, The Biggest Software Companies in Canada".
5. *ibid.*

