# = = Net Impact Study Canada The SME Experience

## **A Preliminary Report** November 2002



**Canadian e-Business Initiative**Productivity, Leadership and Innovation for Canadian Business

## The Adoption Imperative

E-Business is an innovation that is improving the productivity of Canadian small and medium sized enterprises (SME) and raising the competitiveness of the Canadian economy. Through the "dot-bomb" and rumours of the death of the Internet, many SMEs continued to transform their key business processes and leverage the Internet for improving their business and enhancing their competitive edge. These firms "got it"; they understand that e-business adoption is about improving customer relationship management and implementing other Internet business solutions (IBS) that help them save money and expand their business with new and existing customers.

Canadian SMEs deliver 60% of Canada's economic output, generate 80% of national employment and 85% of new jobs. SMEs, more than any other area of the Canadian economy, have the greatest potential for productivity gains through adoption of e-business. Yet the Canadian e-Business Opportunities Roundtable, in its *Fast Forward 3.0* report, stated that "small Canadian businesses still lag well behind their U.S. counterparts in e-business adoption". Some SMEs are still reluctant to embrace sophisticated e-business applications, in part because they remain unconvinced of the return on their investment. Because of the impact of SMEs on the Canadian economy, it is crucial to enhance our understanding of the impact of IBS.

The Canadian e-Business Initiative (CeBI), following in the footsteps of the Roundtable, is working with businesses, governments, institutions, entrepreneurs and consumers to enhance e-business understanding and to accelerate the adoption of e-business amongst Canadian SMEs. The challenge is to demonstrate that IBS adoption makes good business sense and that it is critical to Canada's economic well-being, by providing evidence of bottom-line impact on firms.

Net Impact Study Canada is based on the original Net Impact Study,<sup>3</sup> which was first completed in the U.S. and subsequently, in the U.K., Germany, France and Italy. The Canadian study summarizes the results from a survey of 398 SMEs during the summer of 2002. This report presents some of the preliminary results of the Canadian research. The results suggest a call to action for government and industry to achieve the full benefits of IBS; they also address some of the perceived barriers to adoption.

## Methodology

The first Net Impact study project was developed by Hal Varian of the University of California-Berkeley, Robert E. Litan of The Brookings Institution and Momentum Research Group, and was sponsored by Cisco Systems. It was designed to measure the current and anticipated cost savings and revenue increases that organizations believe have been created by their investment in Internet business solutions. For purposes of the Net Impact studies, Internet business solutions are defined as initiatives that combine the Internet with networking, software and computing hardware technologies to enhance or improve existing business processes or to create new business opportunities. These Internet business solutions are categorized as:

- · Customer Development and e-Marketing
- · Customer Service and Support
- E-Commerce

Statistics Canada (SEPH) and Industry Canada survey

 $<sup>^{2}</sup>$  Canadian E-Business Opportunities Roundtable, *Fast Forward 3.0: Maintaining the Momentum*, March 2002.

Varian, Hal, Robert E. Litan, Andrew Elder, Jay Shutter, The Net Impact Study: The Projected Economic Benefits of the Internet In the United States, United Kingdom, France and Germany, V2.0, January 2002,

- · Finance and Accounting
- · Human Resources
- Procurement and Maintenance, Repair and Operation (MRO)
- Sales Force Automation
- Supply Chain Management
- · Enterprise Information Portal

(See appendix 1 for definitions of these categories).

The Canadian study concentrated on assessing the impact of IBS on small and mediumsized enterprises, defined as those having between 50 and 500 full-time employees. A stratified random sample was taken from five industry sectors:

- Manufacturing
- Financial Services
- Retail, Wholesale and Distribution
- Communications & Internet Service Provider (ISP)
- Public Service

A total of 1968 firms were contacted by telephone during the summer of 2002. After filtering for firm size and industry sector, 398 firms were randomly selected to participate in the interview. The resulting data were weighted by firm size and industry segment to reflect the overall Canadian SME population.

## **Key Findings**

- 50.2 % of Canadian SMEs are currently using or implementing IBS. A further 20.3% intend to adopt IBS within the next 3 years, while 28.4% have no intention of adopting IBS.
- Firms that adopted IBS have realized substantial financial benefits. On average, revenues increased by 7%, and costs decreased by 9.5 % in the case of cost of goods sold and 7.5 % for sales, general and administrative costs. Furthermore, satisfaction with IBS among adopters was high.

As an illustration, a firm with \$10M in revenues, with a 20% gross margin and 10% net margin, can achieve increases in net profit of up to 154% in the "best case" scenario with these changes in revenues and costs.

- IBS relating to the acquisition and management of customers such as Customer
  Development and e-Marketing delivered the highest revenue increases and the biggest
  cost savings.
- Though all sectors showed gains in revenue, the impact of IBS adoption varied significantly by industry sector. For example, SMEs in the Financial Services sector realized an increase in revenue of 12.7% while firms in the Retailing/Wholesaling and Distribution industry showed a gain of 4.4%.
- Adoption of IBS varied significantly among industry sectors. For example, Manufacturing firms are slow to adopt IBS to improve sales and reduce costs in customer-focused operations. However, they were the largest adopters of e-procurement systems.

- A number of barriers to adoption were identified. These include cost of technology, time required to implement IBS, uncertainty over return on IBS investment, and management attitudes.
- The growth in adoption of IBS peaked between 2000 and 2001 and slowed in 2002.
- 30% of Canadian SMEs instituted formal metrics to track the performance of their IBS.

#### A Call to Action

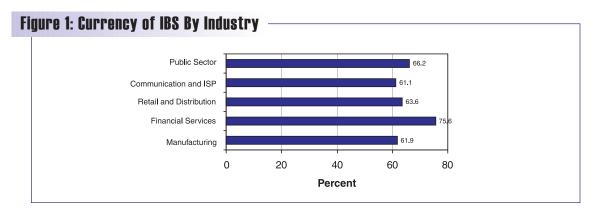
- SMEs in general A majority of SMEs have realized significant positive results directly related to the adoption of IBS. SMEs should evaluate whether they are missing opportunities for business growth and increased profitability by not leveraging available technologies.
- Manufacturers Additional investment needs to be made in high return customerfocused IBS.
- Retailers, Distributors and Wholesalers Investment is needed in supply chain enabling IBS to complement existing customer-focused solutions.
- **Public Service sector** Continued implementations of IBS across all levels of government will help to magnify already encouraging performance results.
- **Financial Services sector** Significant gains have already been realized. Investment in back-office IBS may help to further extend those gains.
- Communication and ISP industry Low adoption rates in the sector are surprising given the high returns realized by other IBS users.
- IBS vendors SMEs are concerned with financial and long term viability associated with IBS. Better co-operation, training, and solution scalability is required.
- **Government** SMEs that use IBS have realized impressive returns, yet almost 50% of firms have yet to adopt. Better outreach and improved access to training is required.

## **Internet Business Solution Adoption**

Of all the firms contacted, 50.2% were using or currently implementing IBS. A further 20.3% were planning to implement IBS within the next three years. Fully 28.4% of firms either had no plans to implement IBS, or planned to do so beyond three years.

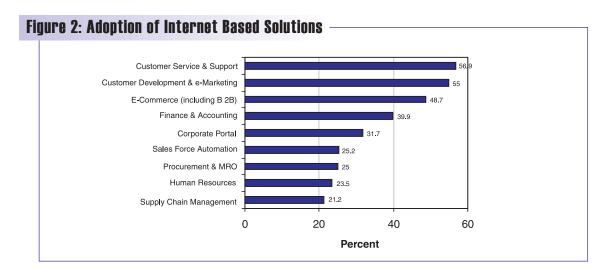
Complete surveys were conducted with organizations that fit within the firm size and industry sector stratification targets. Results showed that the overall currency of IBS was relatively consistent across industry segments. Each of the five segments had a currency<sup>4</sup> rate above 60%. The Financial Services sector had the highest rate of 75.6%. This was followed by the Public Service sector at 66.2%, and the Retail and Distribution industry at 63.6%. The sectors with the lowest currency rates among Canadian SMEs were the Manufacturing sector at 61.9%, and somewhat unexpectedly, the Communications and ISP industry at 61.1%.

<sup>&</sup>lt;sup>4</sup> Currency is defined as currently using or implementing IBS vs. planning to implement IBS within the next 3 years.



## **Adoption of Specific Internet Business Solutions**

The IBS with the most widespread adoption was Customer Service and Support solutions with 56.9% adopting. Other 'customer-focused' IBS such as Customer Development & e-Marketing also had high adoption rates. By contrast, the adoption of IBS focusing on 'back-office' operations such as e-Procurement, Human Resources and Supply Chain Management solutions tended to have lower adoption rates. Supply Chain Management solutions, for example, were adopted by only 21.2% of Canadian SMEs.



## Adoption of Specific Internet Business Solutions by Industry Sector

The prevalence of customer-focused IBS as opposed to back-office IBS is evident across most industry sectors (Manufacturing sector excepted). For example, 71% of Financial Services firms adopted Customer Service and Support solutions while only 19.4% of the same firms adopted e-Procurement solutions. The Manufacturing sector lagged the field in five of the nine categories but lead in the adoption of e-procurement solutions. The fact that few firms adopted Supply Chain Management solutions may be explained by the relatively small size of the firms surveyed.

Table 1: Percentage of Organizations Adopting an IBS by Industry

	Manuf.	Financial services	Wholesale/ Retail Trade	Com/ ISP	Public sector		
Customer Development & e-Marketing	38.5	63.5	68.8	63.6	55.8		
Customer Service & Support	40.4	71	62.5	54.2	68.2		
E-Commerce (including B2B)	42.5	38.7	67.3	45.5	39.5		
Finance & Accounting	35.8	58.1	33.3	35.7	51.2		
Human Resources	13.5	25.8	16.7	43.6	37.2		
Procurement & MRO	30.8	19.4	22.9	20	23.3		
Sales Force Automation	25	30.2	34.7	25.5	9.3		
Supply Chain Management	17.3	22.6	18.8	25.2	30.2		
Corporate Portal	11.5	50.8	32.7	67.3	44.2		

### Overall Financial Results Attributable to the Adoption of Internet Business Solutions

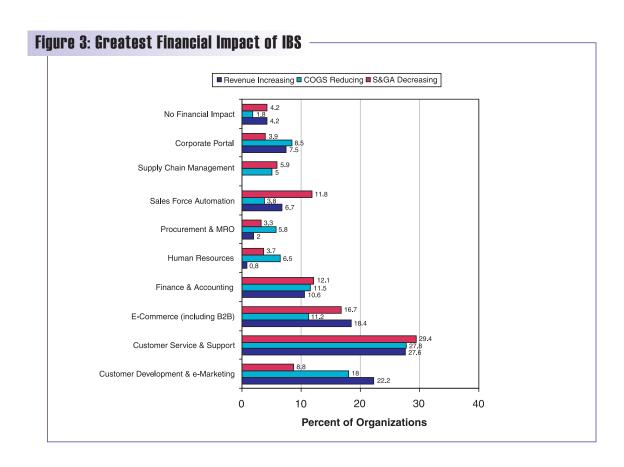
Average revenue gains realized by all sectors, attributable to IBS were 7%; further, when all projected IBS implementation projects are complete, firms expect to see average revenue increases of 12.7%. In addition to rising revenue, firms adopting IBS indicated that they also benefited by realizing reduced organizational costs. For example, SMEs indicated that costs of goods sold (COGS) decreased by an average 9.5% due to IBS. This cost saving is expected to increase to 10.2% when the implementation is complete in 1-3 years. Sales, general and administrative (SGA) costs also decreased as a consequence of IBS investment, by an average of 7.5% now, and 9.6% when IBS implementation is complete. Only 4% of firms reported no financial impact related to IBS adoption.

#### **An Illustrative Firm**

For purposes of illustrating the potential financial impact of implementing IBS, a hypothetical firm will be used. This firm has annual Revenues of \$10M, from which it deducts \$8M in Cost of Goods Sold (80%) for a gross profit of \$2M (a 20% gross margin). It then deducts a further \$1M in Sales, General and Administrative expenses, for a net profit of \$1M (a 10% net margin).

- If the average revenue gain of 7% were realized (all other costs being equal), revenue would increase to \$10.7M, and net profit would increase to \$1.7M. This represents a 70% increase in net profit.
- If the average savings of 9.5% were achieved for COGS, gross profit would increase to \$2.76 million, and net profit would increase to \$1.76M. The net margin would be 17.6%, for an increase of 76%.
- If the average savings of 7.5% were achieved in SGA expenses, net profit would increase to \$1.08M. The net margin would be 10.8%, an increase of 8%.
- If the "best case" scenario were to be realized, whereby the illustrative firm achieved the average revenue increase and the average cost reductions, then:
  - Net revenue would increase to \$10.7M
  - COGS would decrease to \$7.24M
  - SGA Expenses would decrease to \$.92M
  - Net Profit would increase to \$2.54M. Net margin would be 23.7%, an increase of 154%.

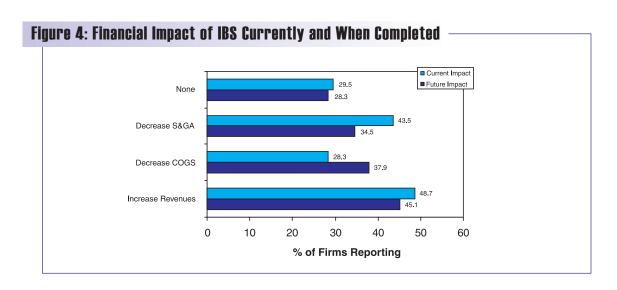
Firms were more likely to realize financial benefits from customer-focused solutions than from other IBS. Almost 30% of organizations reported increased revenue, reduced COGS and reduced SGA attributable to Customer Service and Support solutions. A relatively high number of firms also indicated gains from E-Commerce solutions and Customer Development and e-Marketing solutions. Fewer than 5% of firms reported financial benefits from back-office solutions such as Human Resources and e-Procurement solutions. In most cases, firms reported both reductions in costs and gains in revenue attributable to IBS, thus providing a multiple benefit.



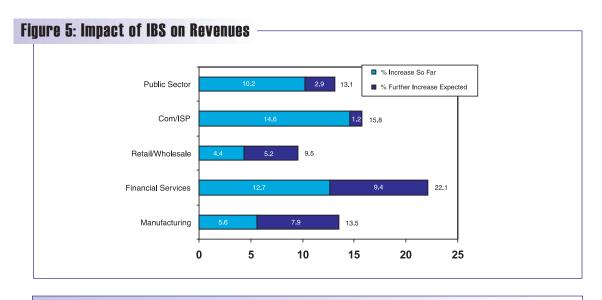
## Differences in Anticipated and Experienced Financial Results by Industry Sector Revenue

Improved revenue was both the highest anticipated and experienced benefit of IBS adoption. 48.8% of firms currently using or implementing noted an increase in revenue, 45.3% anticipated improved revenues when IBS implementations are fully completed in 1-3 years. However reductions in cost of goods sold (COGS) was unique among financial impacts in that the percentage of firms anticipating future benefits exceeded those that had experienced them to this point. This finding suggests that increased revenue and reduced SGA costs are relatively quick-hit benefits of IBS adoption, while reduced COGS is achieved over the longer term.

When broken down by industry sector, Communications and Financial Services clearly achieved the best results in terms of increased revenue, followed closely by a surprisingly strong Public Service sector performance. In the future, firms in the Financial Services sector expected to sustain revenue gains. Firms in the Manufacturing sector achieved modest revenue growth compared to other sectors, yet anticipated strong future gains. The Retail and Distribution industry fell behind the other sectors both in current and anticipated total revenue growth.



Revenue gains appear to be driven primarily by the capability of IBS to attract new customers. Two sectors, the Financial Services sector and the Public Service sector also benefited by increasing sales to existing customers. The Financial Services sector was the only sector able to pass the cost of IBS adoption along to the customer in the form of higher prices.



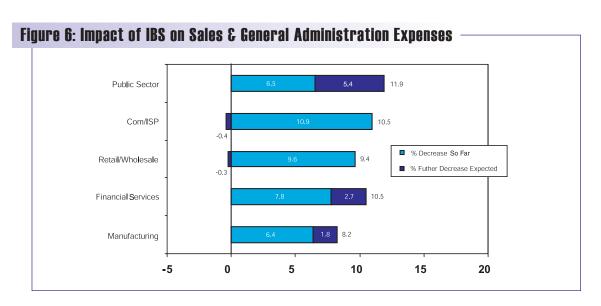
Note: Average % Increase So Far is based on reports from firms who are currently using IBS. % Further Increase Expected is based on reports from a larger number of firms who will be completing implementations within 3 years.

Table 2: Reasons for Increase in Revenue

	Manuf.	Financial services	Wholesale/ Retail Trade	Com/ ISP	Public sector
Existing customers buy more frequently	27 %	37 %	33 %	29 %	40 %
Existing customers buy in greater volume	28 %	11 %	30 %	38 %	15 %
Existing customers buy more expensive products or services	5 %	16 %	17 %	31 %	4 %
Attracting new customers	79 %	69 %	75 %	84 %	91 %
Ability to raise prices	11 %	34 %	16 %	22 %	4 %
Don't Know/Refuse	9 %	16 %	22 %	5 %	

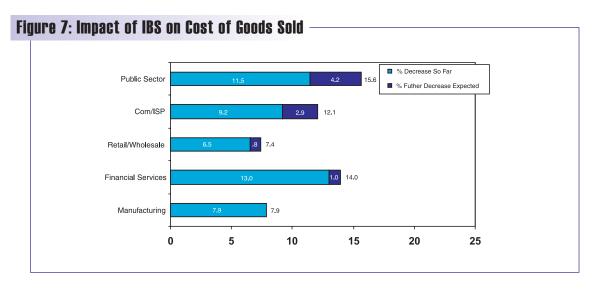
## Sales, General and Administrative Expenses

Reduction in SGA expenses was the second most frequently noted financial benefit associated with IBS adoption. Most of the SGA benefit had already been realized by adopting firms, with little additional future benefit expected (with the exception of the Public Service sector). In two sectors Communications and Retail, Distribution and Wholesale, expected gains in the next 1-3 years were actually slightly less than the gains already realized by current adopters.



#### **Costs of Goods Sold**

Reduced COGS was mentioned less often than increased revenue or decreased SGA. The Public Service sector and the Financial Services sector both claimed significantly reduced COGS. As with SGA, most of the expected savings in COGS have already occurred.



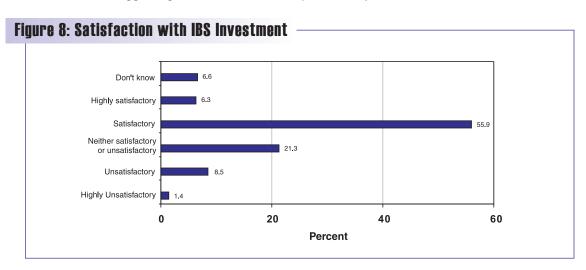
## **Other Financial Impacts**

The interaction between industry sector and benefits realized by the adoption of IBS is complex. One general conclusion to emerge from the study is that the adoption of customer-focused IBS such as Customer Relationship Management (CMR) tends to correlate highly with robust financial benefits in sectors such as Financial Services. The benefits by back-office IBS such as e-procurement appear to be modest in sectors such as Manufacturing.

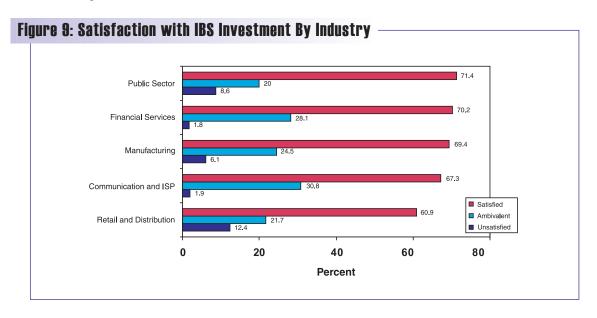
A key to understanding why some firms or sectors have high returns while others have low returns may lie in the motivation for IBS adoption. Organizations achieving higher revenue growth tended to concentrate on getting existing customers to buy more with the aid of IBS. By contrast, organizations with lower revenue growth rates tended to focus more on attracting new customers. Both revenue strategies have different implications for reducing COGS and SGA expenses. These results suggest that each organization must examine how an IBS fits with their overall strategy for revenue enhancement and cost containment.

#### Satisfaction with Internet Business Solutions

The results of the study indicated that 62.2% of Canadian SMEs who adopted an IBS were either satisfied or highly satisfied with their investments. Less than one sixth of that number (9.9%) felt that their investments in IBS had been either unsatisfactory or highly unsatisfactory. A relatively large percentage of respondents (21.3%) indicated neither satisfaction nor dissatisfaction, suggesting that the effects of adoption have yet to be determined.

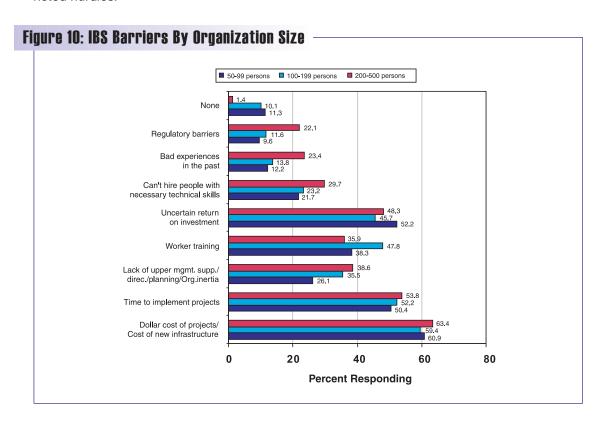


Interestingly, the sectors with the highest levels of IBS adoption — the Public Service sector and the Financial Services sector — also had the highest levels of satisfaction with IBS investments. The Retail and Distribution sector had both the lowest level of satisfaction, and the highest level of dissatisfaction with IBS investments.



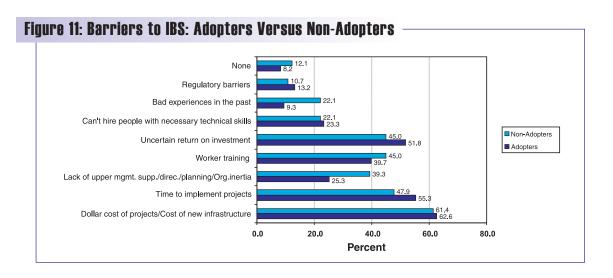
## **Barriers to Internet Business Solution Adoption**

The study identified a number of barriers to IBS adoption. The most common barrier was the cost of new infrastructure (about 60% of firms). The time to implement solutions (about 55% of firms) and uncertain return on investment (about 50% of firms) were also frequently noted hurdles.



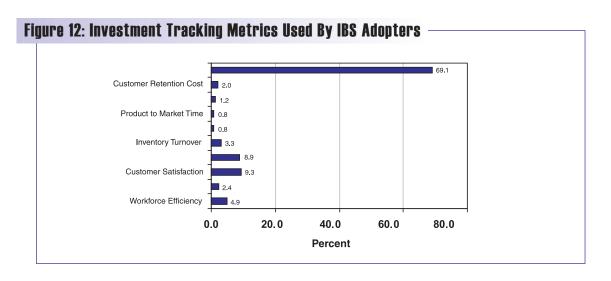
Some interesting results surfaced when barriers to adoption were matched between adopters and non-adopters of IBS. To non-adopters, barriers amount to *perceived* impediments to adoption. By contrast, those firms that had already adopted IBS, the barriers represent *actual* impediments encountered during the adoption process. The agreement between the two groups was high with two exceptions — non-adopters were influenced by bad experiences to a much greater degree than adopters, and adopters were much less likely to be held back by a lack of upper management support than non-adopters.

A prominent concern for 50% of all SMEs, was the uncertainty of the financial returns from investments in IBS. As indicated in the next section, the uncertainty is exacerbated by a lack of reliable measurement. Thus, there is a need to clarify the costs and benefits of IBS for SMEs.



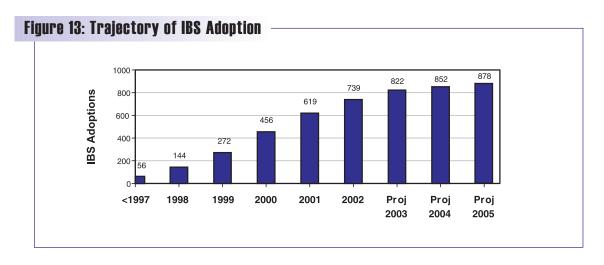
## Measurement of the Impact of Internet Business Solutions

Very few Canadian SMEs employed tangible metrics to measure the performance of IBS. The most common metrics — Customer Satisfaction and Revenue per Customer — were only used by 9.3% and 8.9% of firms respectively. The remaining metrics were used by fewer than 5% of firms.



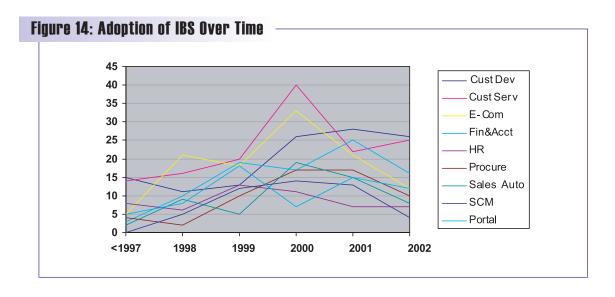
## **Internet Business Solution Adoption Over Time**

The adoption of IBS has followed a predictable growth curve. The total number of IBS adopted by Canadian SMEs rose (along with the Internet itself) as systems and technologies became cheaper and more widely available. An interesting finding to emerge from the study is that the rate of adoption now appears to be slowing. In fact, when projected out to 2005, the rate of IBS adoption becomes stagnant. This finding implies that there is a saturation point after which further adoption of IBS is negligible, and may actually decline.



The slowing growth in IBS adoption can also be seen when absolute adoption numbers are sub-divided by specific solution. Adoption of most IBS peaked in 2000 or 2001. Since that time, the number of specific IBS' adopted has either stayed the same or fallen.

It is unclear from the data whether the slowing adoption rates are a result of general macro-economic conditions (adoption of all technologies are declining), or whether they are a function of the IBS themselves (IBS adoption is falling while adoption of other technologies is not). The economic climate surrounding the technology sector in 2001 suggests the former. However, to pinpoint the cause of the adoption slowdown, further analysis is required.



#### **Call to Action**

#### · SMEs in general

- Significant positive results are possible from IBS. SMEs need to redouble efforts to evaluate their adoption and use.
- SMEs need to document and measure the costs and benefits of past IBS implementation in order to enhance future implementations.

#### Manufacturers

Showing initiative in the adoption of cost reducing 'supplier-focused' IBS, needs to pay greater attention to the revenue enhancement opportunities of 'customer focused' IBS. The adoption of e-Procurement is not sufficient. Manufacturers need to work with suppliers, customers and solution providers to realize the advantages for improved Supply Chain Management and the potential impacts in areas such as inventory investment and logistical costs.

#### · Retail, Distribution and Wholesale

While penetration of IBS adoption was high, the sector achieved only modest gains. Given the importance of Supply Chain Management in Retailing, there has been relatively little penetration in this sector. This may require industry-wide co-operation to adopt common standards and platforms to facilitate the exchange of goods along the supply chain. There is also an opportunity for retailers, distributors and wholesalers to learn from other sectors that achieved higher penetration rates and superior gains from customer focused IBS.

#### Public Service

 We are impressed with the progress relative to other sectors. As indicated by their plans to adopt further IBS, the momentum to offer more services to the public with greater quality and cost performance will continue. Best practices need to be shared between institutions to continue this drive.

#### Financial Services and the Communication and ISP

 Both sectors have shown impressive financial returns. In the case of Communication and ISPs, the question is where can future gains be realized? The data suggest that enhanced use of back-office IBS solutions may be the answer.

#### IBS Industry

- Clearly SME customers are concerned with the cost of solutions and the time it takes to implement them. The need for solutions that are scalable to the size of SME operations is critical.
- The absence of metrics means a lack of a persuasive business case for future sales
  of IBS and support services. Cooperation with customers, competitors and interested
  third parties such as business researchers to develop measurement models and case
  studies is an important step in overcoming this barrier.
- The penetration of many IBS, such as Supply Chain Management solutions, among SMEs is very low. The IBS industry must do a better job of articulating the benefits of IBS that are not primarily customer-focused.

#### Government

- The low hanging fruit for promotion of IBS has been picked. Increased effort will be required to convince the half of non-adopting organizations that IBS are a worthy investment.
- Government at all levels need to prepare the workforce for a knowledge-based economy. More specific incentives and support are required for educators and private industry in order to improve the training of IBS users.
- Future research on IBS must explore how organizational strategy at both a firm and sector level can be matched to the capabilities of IBS. For SMEs, this specifically means being clear as to how IBS are scalable to their growth and adaptable to the resulting changes in competitive strategy.

This report provides summary results of the Net Impact Study Canada. Detailed results will be published in a subsequent report, to be released in February 2003. The next report will include:

- extensive productivity analysis
- comprehensive sector by sector comparisons
- comparisons between Canadian results and results of Net Impact Studies in the United States, the United Kingdom, France, Germany and Italy.

## **Appendix 1**

#### Internet Based Business Solution (IBS) Definitions

#### **Customer Development and e-Marketing**

Marketing applications automate activities such as marketing campaign management and planning, campaign execution, customer segmentation, list management, database marketing, direct marketing, telemarketing, marketing encyclopedia, electronic catalog, Web activity analysis, Web advertising, and personalization functions.

#### **Customer Service and Support**

A combination of technological development (the Internet being a primary factor), call centers and the Internet medium to maximize customer calls and requests to handle multiple modes of communication such as fax, email, and Internet in both live agent and automated formats, often integrated with customer databases.

#### **E-Commerce**

Solutions that enable the end user to sell products and services over the Internet. This could be Web-based selling, using digital television or a mobile telephone, or increasingly, machine-to-machine transactions using the Internet.

#### **Finance and Accounting**

Internet-enabled enterprise resource planning applications that enable enterprises to manage financial and accounting information across the organization and interact with business partners, suppliers, and customers.

#### **Human Resources**

Internet-enabled enterprise resource planning applications that enable enterprises to manage human resource information across the organization.

#### Procurement and Maintenance, Repair and Operation (MRO)

Range of solutions which use the Internet to manage internal procurement processes and maintenance & repair operations, such as authorization and billing, and order generation and management to external suppliers.

#### **Sales Force Automation**

Internet-enabled sales automation applications help the sales professional organize and collect information about territories, customers, products, competitors, marketing campaigns, and pricing. Features include some combination of a customer database, lead qualification, integrated word processor, report writer, address and phone card system. In addition, many products now offer an opportunity management system, sales order or sales configuration tools, marketing encyclopedia, reporting and forecasting, and some kind of Internet or Web access, allowing rapid and global information sharing within a company and between companies.

## **Supply Chain Management**

SCM solutions are organized around the specific business processes, technologies and physical architectures that connect an organization to its suppliers and trading partners using Internet technologies

## **Enterprise Information Portal**

Enterprise Information Portals integrate access to information and applications from the company's IT systems and present it to the user (employees, partners or suppliers) in a Web browser interface.

The Net Impact Canada Study was produced by the Benchmarking and Metrics team of the Canadian e-Business Initiative (CeBI), in collaboration with:

Industry Canada Cisco Canada Cisco Systems The Momentum Research Group IDC Canada York University.

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