



Net Impact Study Canada
Strategies for Increasing
SME Engagement in the e-Economy

Final Report

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Canadian e-Business Initiative

Productivity, Leadership and Innovation for Canadian Business

Net Impact Canada IV: Strategies for Increasing SME Engagement in the e-Economy

Executive Summary

With the business media's attention being placed on the transformation of large, well-known firms into exemplars of the new e-economy, is the plight of the over 99% of Canadian firms that are small and medium-sized enterprises (SMEs) being over-looked?¹ SMEs created 36% of net new jobs in the Canadian economy between 2002 and 2003.² Unfortunately, they also lagged large firms in the adoption of Internet Business Solutions (IBS).³ A lukewarm SME response to IBS adoption may weaken any national strategy to bolster Canada's international competitiveness. The challenge for industry leaders and policy makers is to bring lagging SMEs online and deepen the capabilities of those already online. The cost of inaction is to have this vital sector of the economy stall at current levels of engagement while other nations catch up or increase their lead. The focus of this report is to summarize what has been learned over the last two years about the adoption and use of IBS by Canadian SMEs.

The Status of IBS Adoption Amongst Canadian SMEs

Four research studies have been conducted since 2002 examining IBS adoption by SMEs in Canada and internationally: 3 large sample surveys (one international) and 1 focus group study involving 56 SMEs. These studies involved multiple industries and organizations ranging in size from 20 to 500 employees. The Net Impact research team has identified strengths, weaknesses, opportunities and threats in the ability of SMEs to conduct business using Internet business solutions.

Strengths

- SMEs have been relatively assertive in promoting their products and services online domestically. They have seen the advantages of customer contact and support through the Internet.
- IBS adoption has increased customer satisfaction.
- IBS adoption has resulted in better control of supply relationships.
- SMEs who have adopted IBS have been satisfied with their financial returns, particularly related to increases in revenue.
- SMEs believe they are achieving sustainable competitive advantages through the use of IBS.
- External help related to IBS adoption and use is accessible to SMEs at a reasonable cost.

Weaknesses

- IBS adoption by SMEs in Canada is stalling, or has stalled, particularly in the retail, wholesale, and manufacturing sectors.
- SMEs have widely adopted stand-alone solutions (such as Websites and email), which are relatively easy to implement, but have been slower to adopt integrated solutions (such as online selling or supply chain solutions), that are more difficult to implement.

¹ Statistics Canada, Business Register, June 2003, and Industry Canada, Key Small Business Statistics May 2003.

² Industry Canada, Small Business Quarterly, Vol. 5 No. 4, February 2004.

³ Statistics Canada, Survey of Electronic Commerce and Technology 2002, April 2003.

- The costs savings from IBS adoption are not uniformly realized by SMEs across all size and industry segments.
- Many SMEs do not understand the business case for IBS adoption.
- Lack of internal capability for IBS implementation is problematic for small SMEs.
- Smaller SMEs (<100 employees) lag larger SMEs (between 100 and 500 employees) across a number of dimensions, including adoption rates, internal capabilities, and cost reduction benefits. Smaller SMEs appear to be the hardest to convince of the benefits of IBS adoption. From the perspective of engagement, smaller SMEs are also the most numerous, fragmented, and hard to reach.
- SMEs do not have a clear strategy for implementing IBS. Planning is non-existent or ad hoc.
- Widespread availability of IBS specifically designed for the SME market is lacking.
- The quality of external consultants is uneven.

Opportunities

- 50% of SMEs have adopted IBS.
- The lack of both internal and external skills is a more significant concern for smaller versus larger SMEs. Programs could be more finely targeted to this group of SMEs.
- There are benchmark industries, such as the financial services industry and the public sector, which can be used as exemplars for less advanced sectors.
- Basic telecommunications infrastructure is not a barrier to IBS adoption except in remote parts of the country.
- Solutions and technical solution providers are not in short supply.

Threats

- 50% of SMEs have not adopted an IBS.
- There are significant differences between industries and firm sizes in their adoption rates and the magnitude of their financial results. Online selling is still low in manufacturing. Cost savings associated with IBS adoption are not evident for smaller SMEs.
- Canadian SMEs lag behind the U.S. and the E.U. in the adoption of operationally-focused IBS.
- Canadian SMEs have not achieved the same level of revenue improvement as U.S. SMEs.
- The majority of sales by SMEs over the Internet are domestic. Only 33% of IBS adopters who export use the Internet for that purpose.
- No centralized, trusted source of information on IBS capabilities and technology solution providers exists.

A Call for Action: Engagement at the Individual SME and Industry Level

The research supports a two-pronged strategy of engagement to increase SME first-time adoption of IBS, encourage subsequent adoptions, and expand the reach and range of business conducted through IBS. The first recommended strategy is to develop a detailed repository of examples of success (and failure) stories to aid SMEs in making low risk decisions about adopting and implementing IBS. This would include impartial and trustworthy information on where to find IBS, how to implement them, and what to expect

in terms of results. The second recommended strategy is to create a supportive networked environment for increased trade and integration between SMEs. This focus includes international trade and improved supply chain coordination. There is a prominent role for government, industry and professional associations, as well as educational institutions to act as trusted brokers between technology solution providers and SMEs. These parties can also assist in bringing greater focus to industry sector-specific solutions.

1) Providing Compelling Examples of IBS Success Stories Accessible to SMEs

Our research indicates that SMEs do not have sufficient time or money to make informed decisions about IBS adoption and use. SMEs vary enormously depending on their size, and the industry sector to which they belong. Pro forma business cases for different IBS, both individually and in combination (e.g., an ERP system) need to be developed for different SME segments. One size will not fit all. These segments should not just reflect industry but also organizational lifecycle. Examples should focus on the capabilities of IBS to achieve and sustain operational benefits and support key business relationships.

Call to Action:

- *The Federal Government could provide annual benchmarks by industry sector of the financial impact of IBS adoption and use for different types of IBS.*
- *The Federal Government, in cooperation with industry associations, could provide industry specific roadmaps for SMEs to progress beyond early stage IBS adoption to develop an enterprise wide platform for increased online business.*
- *Educational institutions could assist in preparing detailed case studies of successful and unsuccessful IBS implementation. Furthermore, they could conduct studies comparing the efficacy of alternative IBS products and alternative strategies for implementation.*
- *Trade associations could disseminate not only benchmarks and case studies but also advice on issues and conditions unique to each industry that may impact the average firm.*
- *The Federal Government could initiate a central Website organized by industry for use by interested SMEs. For example, SMEs have problems finding “trusted partners” to assist in IBS adoption. The Website could provide central information portals that could bring together SMEs and firms capable of assisting in industry-specific IBS implementations.*
- *Technology providers should be encouraged to supply information about their products and services using common specifications and terminology that can be understood by the SME audience. Technology providers should be given all available public domain research to assist in their product development and marketing.*

2) Integrating SMEs into the Greater e-Economy

SMEs must be integrated into a networked economy populated by other SMEs, large companies, and institutions with diverse technologies and procedures for doing business domestically and internationally. More specifically, supply chains of customers and suppliers are developing common standards for exchanging information and creating inter-organizational “virtual” processes for managing business operations. SMEs have to be part of these supply networks in order to grow. Canada’s trading partners are also bringing their business organizations online. SMEs have to be ready to buy, sell and coordinate across borders in order to export and import effectively.

Call to Action:

- *Industry associations should develop specific strategies for engaging SMEs in industry supply chain integration efforts. Online processing should not be a barrier to entry for new or existing firms.*
- *Industry associations and governments represent significant purchasers in supply chains. Advocating the use of e-procurement and online operational coordination pulls adoption of compatible IBS through the supply chain.*
- *The Federal Government could present coordinated and consistent guidance to SMEs as to how to conduct business internationally over the Internet.*
- *Lending institutions and other financial service providers should be made aware of the issues and conditions of SME business online in order to provide “SME-friendly” advice on risk management for investments in infrastructure and online transactions.*
- *Existing technology providers and entrepreneurs should be encouraged to develop and disseminate sustainable business models for IBS adoption and use.*

Introduction

Net Impact Canada IV: Strategies for Increasing SME Engagement in the e-Economy (Net Impact IV) is a publication of the Canadian e-Business Initiative (CeBI, www.cebi.ca), a private sector-led partnership that aims to further Canada's e-business success by focusing on productivity, leadership and innovation. CeBI's membership includes senior representatives from Government, industry and academia. Much of CeBI's work occurs through product-driven teams that aim to further movement in key areas of impact for accelerated e-business adoption in Canada.

The primary sources of information for *Net Impact IV* were three rounds of data collection on the adoption and use of Internet Business Solutions (IBS) by Canadian small and medium-sized enterprises (SMEs). Data were collected on behalf of CeBI with support from Industry Canada, Cisco Systems, Telus and York University. For purposes of this study, IBS were 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. Definitions of IBS categories used in the studies can be found in Appendix 1.

The first round of data collection was conducted during the summer of 2002 and consisted of a survey of 398 SMEs. The findings of this survey were reported in two documents. The first document, *Net Impact Canada: The SME Experience (Net Impact I)*, was published in November 2002, and reported on how Canadian SMEs were using IBS to improve their business processes. The second document, *Net Impact Canada II: The International Experience (Net Impact II)*, was published in May 2003, and explored how Canadian SMEs compared with similar firms in the United States (U.S.) and three leading European Union (E.U.) countries: the United Kingdom, France and Germany. The comparative data for the U.S. and E.U. firms were gathered by other studies similar to *Net Impact I*.⁴

The second round of data collection was in the form of seven focus group sessions with a total of 56 SME owners and managers. Results from this research were published in September 2003, in the document, *Net Impact III: Overcoming the Barriers (Net Impact III)*. The research explored and extended the findings of earlier Net Impact Canada reports, by fleshing out the quantitative findings with more qualitative information.

The third round of data collection was a survey of 952 Canadian SMEs conducted in March 2004. The survey was modified from earlier Net Impact Canada surveys to take into consideration recent trends and findings. All in all, these studies provide a rich and robust source of information upon which to base this report.

This report synthesizes the data and results from these three phases of data collection (a brief description of the methodology used for these studies is provided in Appendix 2). To augment the Canadian data, the report also draws on additional Net Impact studies conducted in the U.S. and Europe, as well as other relevant information from domestic and international sources.

This report is divided into two main sections. The first section, *Where we are now: Signs of progress*, outlines the substantial accomplishments achieved by Canadian SMEs to date. The second section, *Challenges and Solutions: Barriers to further SME engagement in the e-economy*, presents areas of concern, where SMEs have failed to make progress. The section then proposes a set of strategies aimed to address these areas of concern.

⁴ Varian, H. RE Litan, A. Elder, J. 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. www.netimpactstudy.com.

Section 1 – Where We Are Now: Signs of Progress

In this section, we explore the current state of IBS adoption and use by Canadian SMEs. In many ways, the progress made by SMEs in Canada is remarkable. As this section will show, IBS adoption levels among some sectors of the SME population are high. In addition, the Net Impact data clearly show that tangible financial benefits accrue to those SMEs that adopt IBS. Further, those benefits contribute to a competitive advantage that is sustained over successive periods. The Net Impact data echo the conclusions of *Fast Forward 5* in suggesting that SMEs have enjoyed substantial gains from the adoption and usage of IBS.

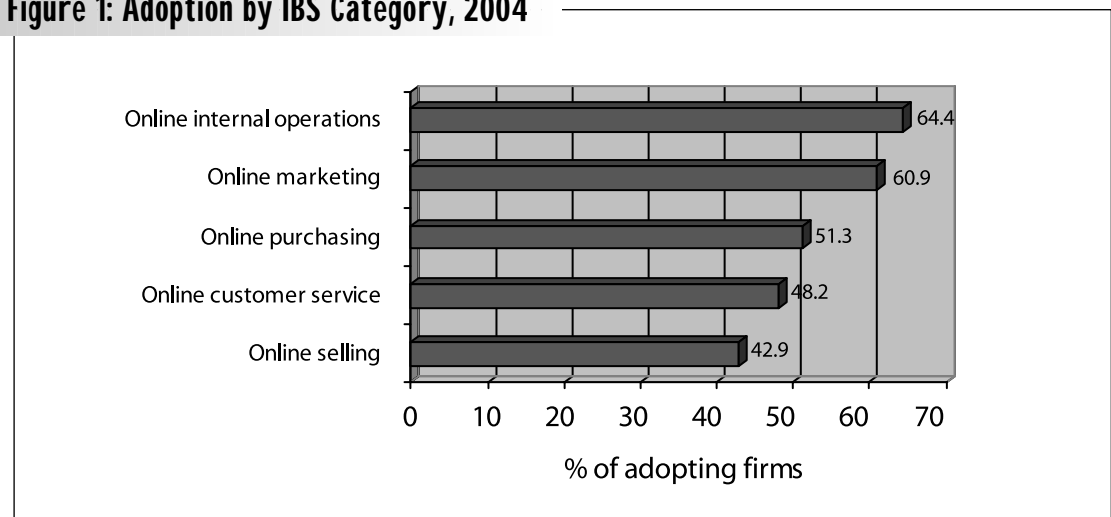
IBS Adoption by Canadian SMEs

Overall adoption of IBS by SMEs in Canada showed no improvement between 2002 and 2004. In *Net Impact I*, 50% of SMEs (with between 50 and 500 employees, and in 5 broad industry sectors) responded positively to the question, “Does your company currently use Internet Business Solutions?”. The most recent survey (which concentrated on the poorer performing sectors of retail, wholesale and manufacturing) showed 42% of those firms sized between 50 and 500, and 38% of smaller firms between 20 and 50 have adopted IBS. The results suggest that there has been significant penetration of IBS in Canadian SMEs. However, there is also an indication that IBS adoption has slowed, or perhaps stalled. That possibility will be further explored in section II.

Adoption by IBS category

Figure 1 shows how adoption breaks down by IBS category using 2004 data. Of the SMEs that adopted some form of IBS, 64% used the technology to support internal operations, like e-mail, and 60% used it to support online marketing, typically a Website. Fewer SMEs utilized IBS to support purchasing or customer service—both more technically complex applications. The least common application of IBS was to support online selling. These data are broadly consistent with the data collected in 2002.

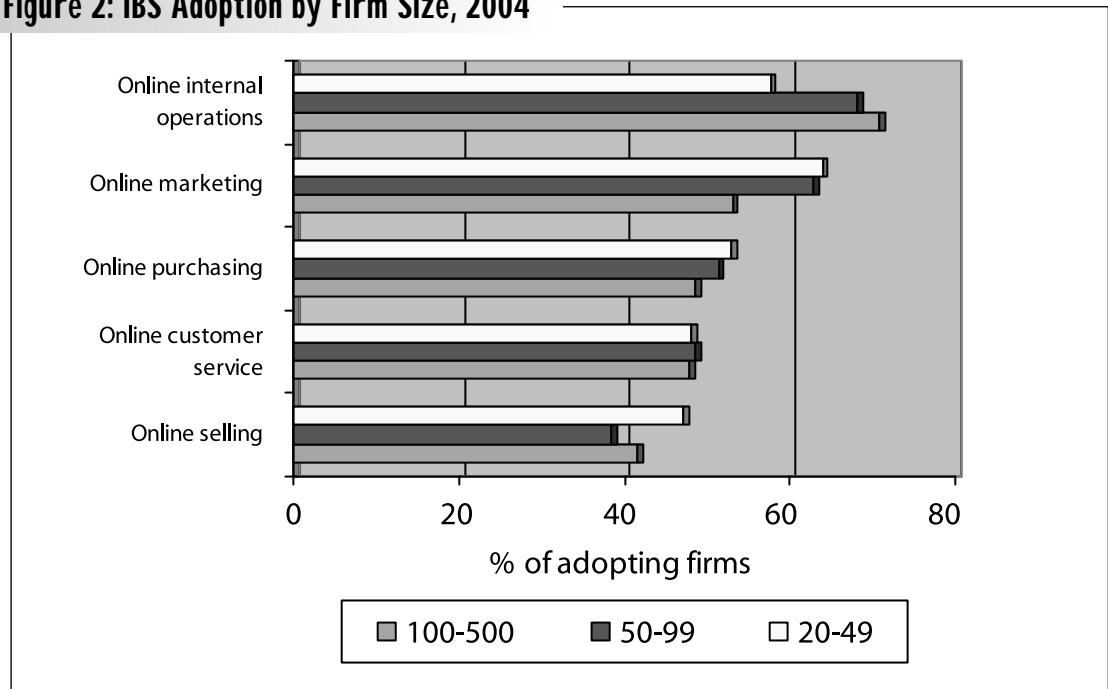
Figure 1: Adoption by IBS Category, 2004



IBS Adoption by Firm Size

Figure 2 breaks down IBS adoption by SME size. SMEs in all three size categories adopted IBS to support business functions in similar proportions. There were no statistically significant differences in IBS adoption by SME size. Proportionally, a larger number of small SMEs (20-49 employees) engaged in online selling, while a higher proportion of medium SMEs (50-99) and large-sized SMEs (100-500 employees) used IBS to support internal operations. This result supports a staged IBS adoption process from online marketing, to more integrated and complex solutions.

Figure 2: IBS Adoption by Firm Size, 2004

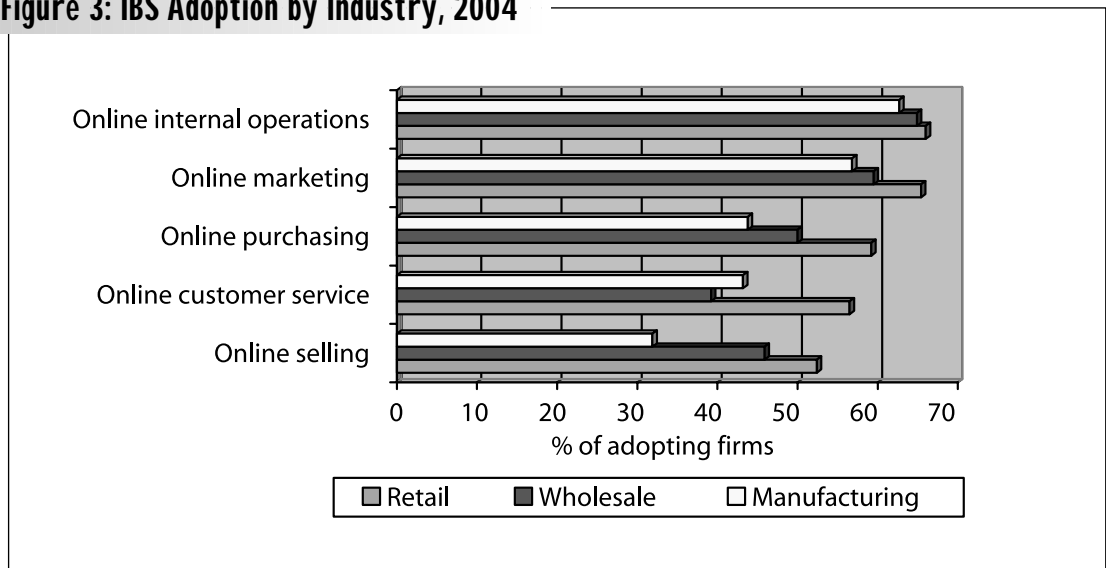


IBS Adoption by Industry Sector

Net Impact II found that some sectors of the Canadian economy had advanced further along the IBS adoption curve than others. Specifically, the financial services sector, the communications sector, and the public sector showed relatively high adoption levels. By contrast, the manufacturing, wholesale and retail sectors were found to be IBS adoption 'laggards'. As a consequence, the 2004 survey examined only these three sectors. Figure 3 shows IBS adoption by industry sector in 2004.

The data reveal that all three industry sectors showed high levels of adoption for IBS that supported internal operations. Retailers tended to be more frequent adopters of IBS to assist with all business functions, compared to wholesalers and manufacturers. Only 30% of manufacturers who adopted IBS used them to support online selling, and less than 50% used IBS to facilitate online purchasing or supply chain management.

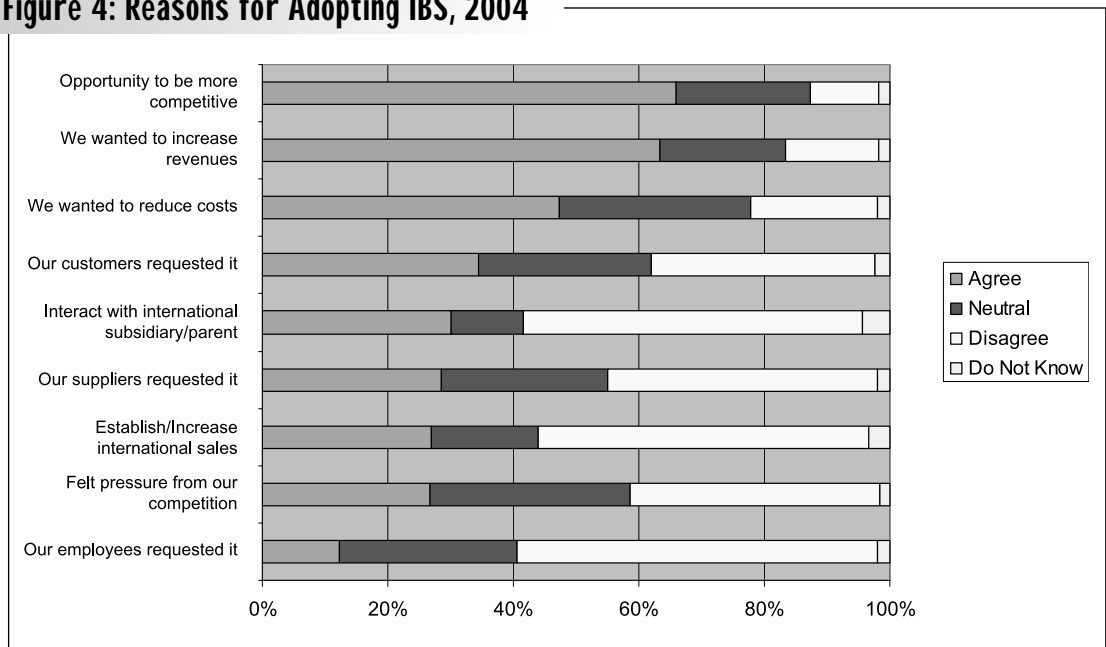
Figure 3: IBS Adoption by Industry, 2004



Reasons for IBS Adoption

Net Impact I and II showed that Canadian SMEs were experimenting with, and adopting, Internet business solutions. However, very little was known about the motivations behind this adoption. In *Net Impact III*, and the 2004 survey, the question of why SMEs choose to adopt (or not adopt) IBS was examined. Figure 4 shows that two justifications for IBS adoption predominated. First, SMEs wanted to use IBS to make themselves more competitive. Second, IBS were adopted to increase SME revenues. Cost reduction was also deemed to be an important consideration by just under half of SMEs. Surprisingly, some commonly cited justifications for IBS adoption were not deemed to be important. For example, SMEs did not cite pressure from competitors or suppliers as a reason for adopting IBS.

Figure 4: Reasons for Adopting IBS, 2004



The reasons for IBS adoption differed somewhat by firm size and industry sector. Manufacturers were compelled more by export opportunities than retailers. Manufacturers were also more heavily influenced to adopt IBS by their customers than were retailers. Interestingly, retailers felt pressure from suppliers to adopt IBS. These two results align to support the premise that technological changes in supply chains can affect both upstream and downstream SMEs.

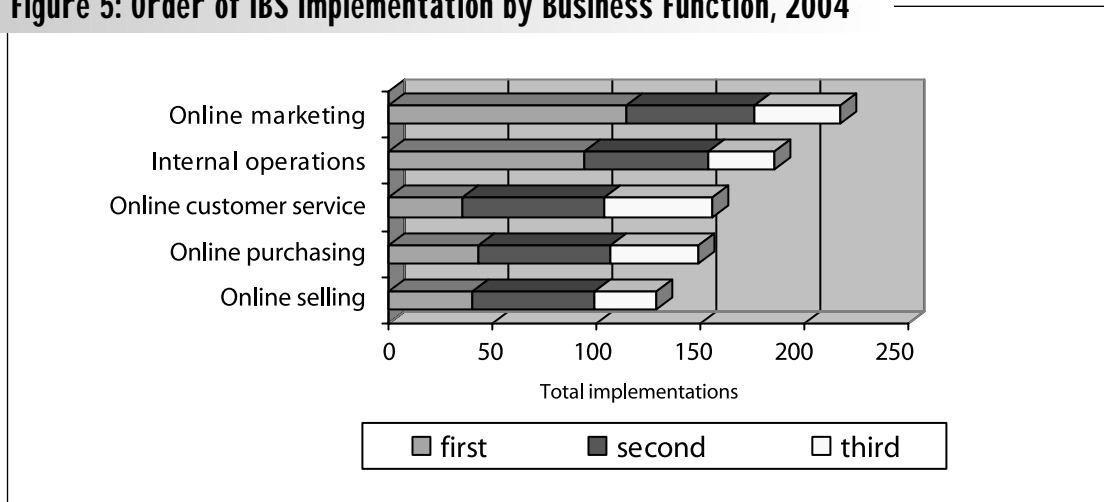
Larger SMEs tended to believe more strongly than smaller SMEs that the primary goal of IBS adoption was to reduce costs. It is likely that larger SMEs represent maturing enterprises looking to control costs, while smaller SMEs are more concerned with enhancing competition and increasing revenues.

Multiple IBS Adoption

A key concern raised in *Net Impact II* was that SMEs were not progressing 'beyond the Website'. That is, SMEs were successful in adopting basic, stand alone applications, like email and Websites, but had not progressed to more complex, integrated solutions. The 2004 survey reexamined this question and found that more than 83% of IBS adopters had adopted Internet technologies to support multiple business functions. That is, they had implemented more than one IBS.

Figure 5 supports the notion that SMEs adopt certain kinds of IBS before others. SMEs most frequently adopt online marketing applications first (typically a static Website), then over time graduate to using IBS to support more integrated and complex business functions. As IBS are integrated into existing business processes, as opposed to standing alone, their potential value and risk to the firm increases. The fact that half of larger SMEs (100-500 employees) reported implementing their IBS as part of Enterprise Resource Planning (ERP) system implementation, suggests that some IBS adoption was a component of a larger IT system acquisition.

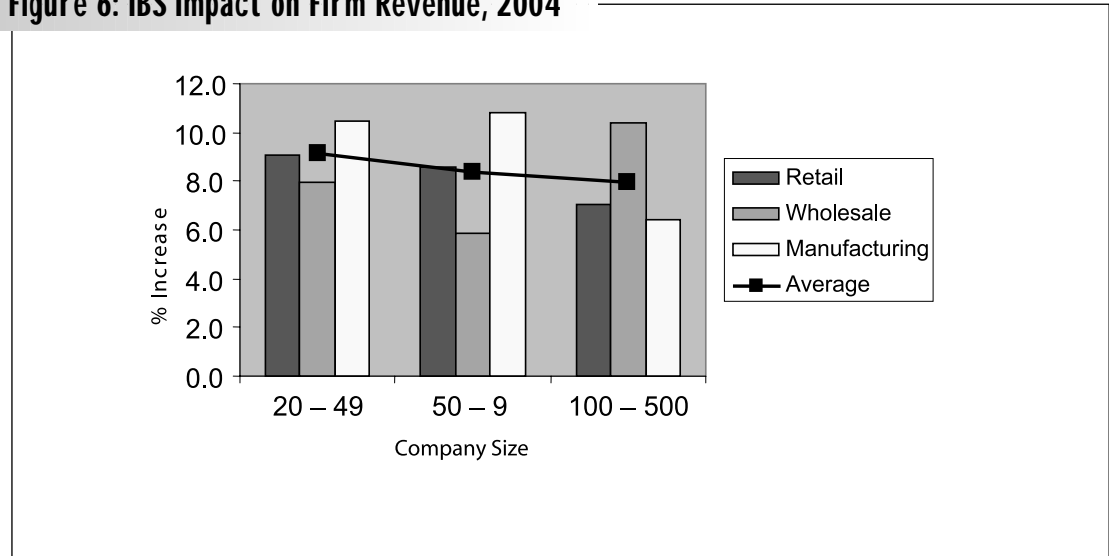
Figure 5: Order of IBS Implementation by Business Function, 2004



Financial Impacts of IBS Adoption

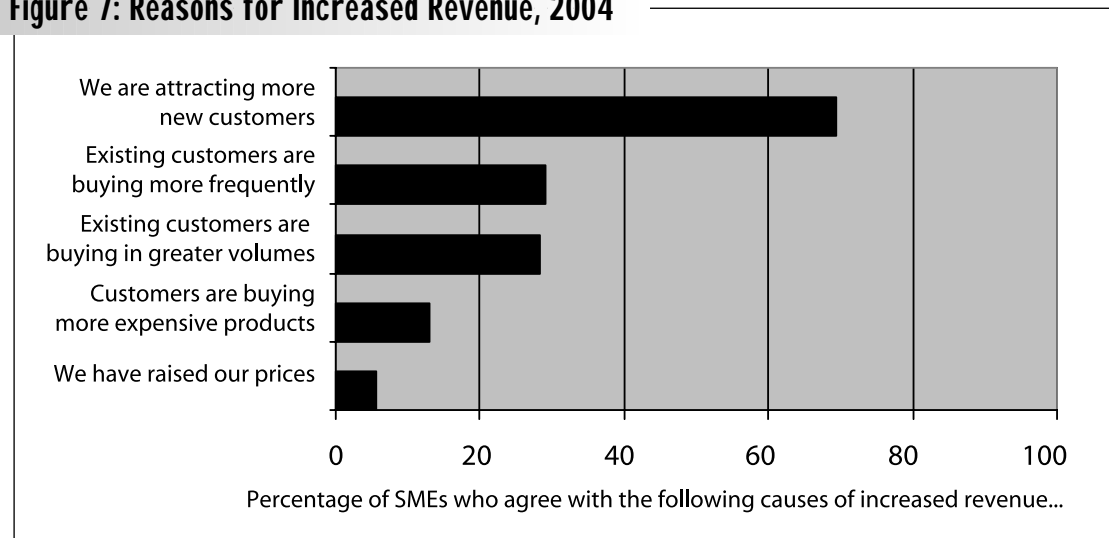
A key finding of *Net Impact I, II, and III* was that all SMEs, regardless of size or industry sector, experienced substantial gains in financial performance as a consequence of IBS adoption. Data from the 2004 survey reconfirmed this finding, as shown in Figure 6. SMEs across all sectors and size categories reported a substantial increase in revenue as a consequence of IBS adoption, with an average revenue gain of over 8%.

Figure 6: IBS Impact on Firm Revenue, 2004



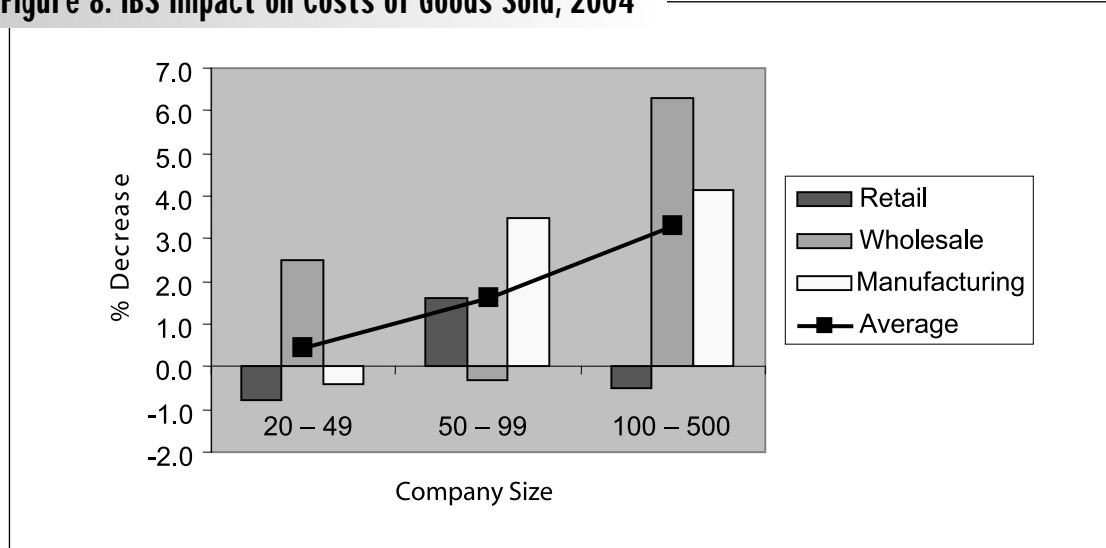
In the 2004 survey, we asked SMEs to provide reasons for their increased revenue. By far the most common reason cited was that SMEs were using IBS to attract new customers (see Figure 7). These new customers were, in turn, providing SMEs with increased revenues. Other reasons, such as an increase in the volume or frequency of purchases, were less prominent.

Figure 7: Reasons for Increased Revenue, 2004



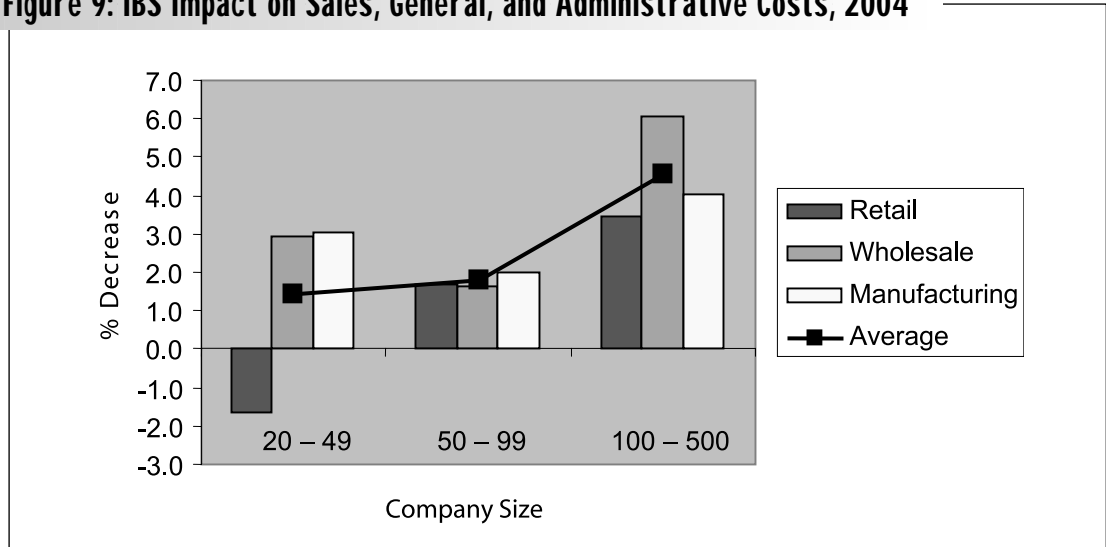
The 2004 survey also found that SMEs reduced costs as a result of IBS adoption, although the effect was less pronounced than in the case of revenue. As Figure 8 shows, reductions in costs of goods sold (COGS) were more pronounced as SMEs increased in size. For small SME retailers and manufacturers, IBS adoption actually resulted in a net COGS increase. Larger SMEs were able to realize a decrease in COGS. Evidence gathered in *Net Impact III* suggested that larger SMEs were able to reduce COGS by leveraging their buying power and negotiating position with suppliers to reduce purchasing costs. Furthermore, larger SMEs, particularly in the manufacturing and wholesale sectors, were able to use IBS to reduce communication and coordination costs across multiple locations (i.e., multi plant networks, warehouses).

Figure 8: IBS Impact on Costs of Goods Sold, 2004



The 2004 data showed a decline in sales, general and administrative (SGA) costs as a result of IBS adoption. While some categories of SGA costs increased, such as IT expenses, a net decline across SME size categories was found (see Figure 9).

Figure 9: IBS Impact on Sales, General, and Administrative Costs, 2004



Net Impact III found that SMEs were able to quantify revenue increases much more easily than they were able to specify reductions in costs. In many cases, cost savings were intangible, hard to measure, or difficult to attribute to specific investments. Smaller SMEs, in particular, had difficulty quantifying specific financial benefits associated with IBS adoption. However, SMEs of all size categories, and within all sectors, expressed high levels of satisfaction with their IBS investments.

The Financial Impact of IBS Adoption on the Average Firm

As in *Net Impact I* and *II*, a simple hypothetical firm is employed to illustrate how bottom line financial results can be affected by the adoption of IBS by SMEs in Canada. The results presented in Table 1 draw on the 2004 survey data.

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 Good 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).

The following are average increases in Revenues and decreases in COGS and SGA. Both overall averages, and those broken down by the size of firm are shown.

Table 1: Average Financial Impact of IBS Adoption by SME Size

	Overall	Size in Canada		
		20-49	50-99	100-500
% Revenue Increase	8.5	9.2	8.4	7.9
% COGS Decrease	1.8	0.4	1.6	3.3
% SGA Decrease	2.6	1.4	1.8	4.5

Applying these average benefits, a hypothetical firm would achieve the following increases in *Net Profit* (see Table 2):

Table 2: Average Impact on Net Profit of IBS Adoption by SME Size

	Base Case	Overall	Size in Canada		
			20-49	50-99	100-500
Revenue	\$10.00	\$10.85	\$10.92	\$10.84	\$10.79
COGS	8.00	7.86	7.96	7.87	7.73
Gross Profit	2.00	2.99	2.95	2.97	3.06
SGA	1.00	0.97	0.99	0.98	0.95
Net Profit	1.00	2.02	1.96	1.98	2.10

Each column represents a comparable average firm. The base case is a hypothetical SME that has not adopted an IBS. The second column provides the average overall improvements for SMEs that adopt IBS, while the next three columns show these improvements broken down by SME size. It is clear that the financial benefits are dramatic—increases in Net Profit of around 100%. These results are particularly remarkable given that the three sectors studied in 2004 (retail, wholesale, and manufacturing) were found to be the poorest performers in previous *Net Impact Canada* studies. Further, the benefits extended to small SMEs (20-49 employees) to a greater extent than in earlier studies. This begs the question; “If the financial rewards are so positive, why has the adoption rate overall for SME stalled at 50%?”

The effects of firm size are clearly evident in these results. Although revenue improvements shrink slightly as firm size increases (although they are still large and substantial), they are more than offset by improved reductions in cost, i.e. COGS and SGA. In particular, there are substantial cost improvements seen in large SMEs (>100 employees). Data from Net Impact III suggested that larger SMEs have additional capabilities to implement the more complex, back-office IBS that reduce costs, whereas small SMEs focus solely on the simpler, customer-facing and market-increasing Websites that increase revenues.

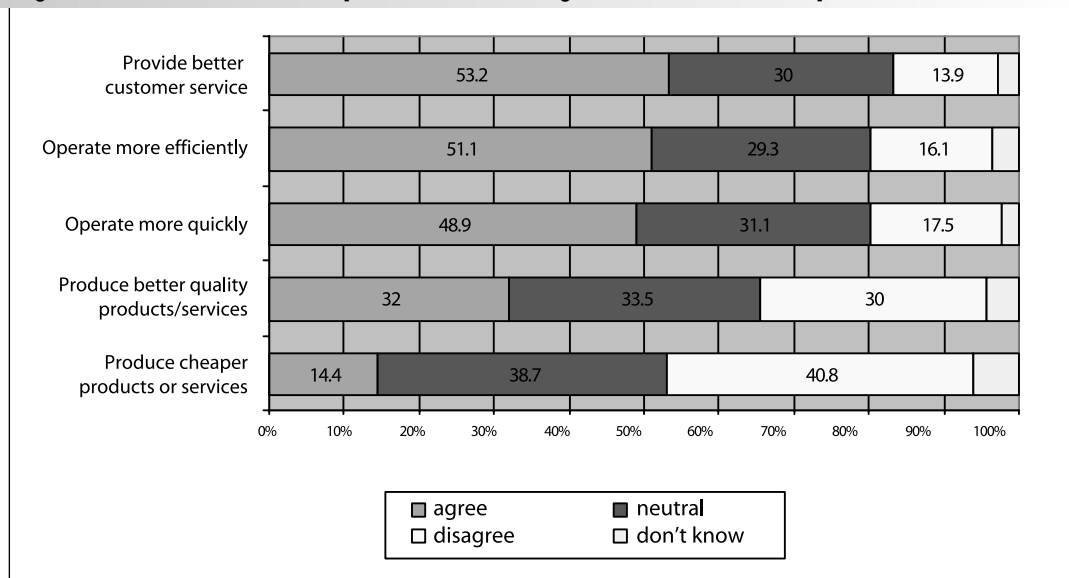
Sustainable Competitive Advantage

In 2004, SMEs were asked if the use of IBS led their company to a position of competitive advantage. 56.7% of 450 respondents answered yes, compared to 39.3% who answered no. Since most Internet technologies are widely available and able to be imitated, competitive advantages typically only last for a short period. However, when firms were asked whether they were able to sustain the IBS-enabled competitive advantage for at least one year, 67.8% answered yes, versus only 6.4% who answered no (the remainder were not sure). This finding suggests that many firms are able to improve their competitive position both in the short and longer term using IBS.

SMEs were asked to identify the source of this competitive advantage. The most common response was that IBS-enabled SMEs were able to provide better customer service than their competitors (see Figure 10). Close behind were two other reasons that suggested improvements in internal factors. Around half of the firms who achieved a competitive advantage attributed that success to being able to operate more efficiently, or more quickly than their competitors.

Surprisingly, some common sources of success did not contribute to competitive advantage. Relatively few firms felt that IBS allowed them to either produce better or cheaper products or services. This result suggests that IBS do not affect a firm's products or services directly, but instead enhance business processes that support the marketing, manufacturing, and delivery of products and services.

Figure 10: Sources of Competitive Advantage Based on the Adoption and Use of IBS

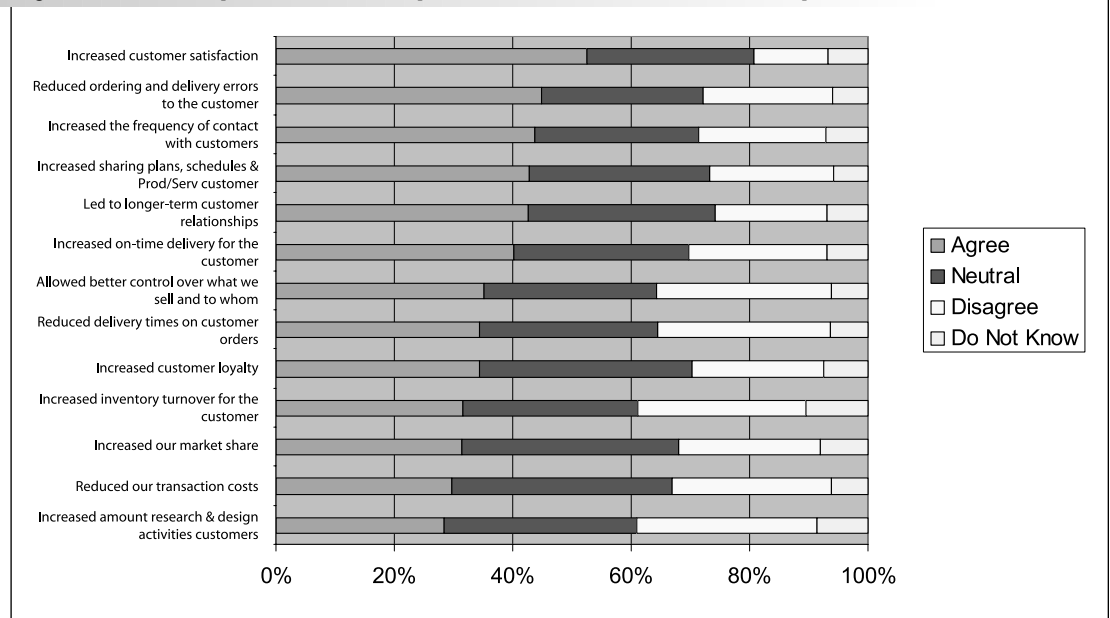


Impacts of IBS Adoption on Supply Chain Relationships

Customer Relationships

Results from the 2004 survey suggest that IBS adoption by Canadian SMEs has resulted in a positive impact on customer relationships in at least two ways (see Figure 11). First, IBS adoption has advanced the scope of the customer relationship. Second, IBS adoption has improved the operational performance of the customer relationship. Both of these benefits are positively related to one another. This finding is interesting since it suggests that firms are experiencing longer term benefits of improving the scale and scope of the customer relationship (i.e., with new product development, information sharing, and longer term relationships) in addition to the financial and competitive benefits discussed above.

Figure 11: The Impact of IBS Adoption on Customer Relationships, 2004



A close examination of Figure 11 reveals that customer impacts are not realized equally. For example, while most SMEs agreed that IBS contributed to increased customer satisfaction, there was no agreement on the impact on cost reduction, delivery times, or increased control.

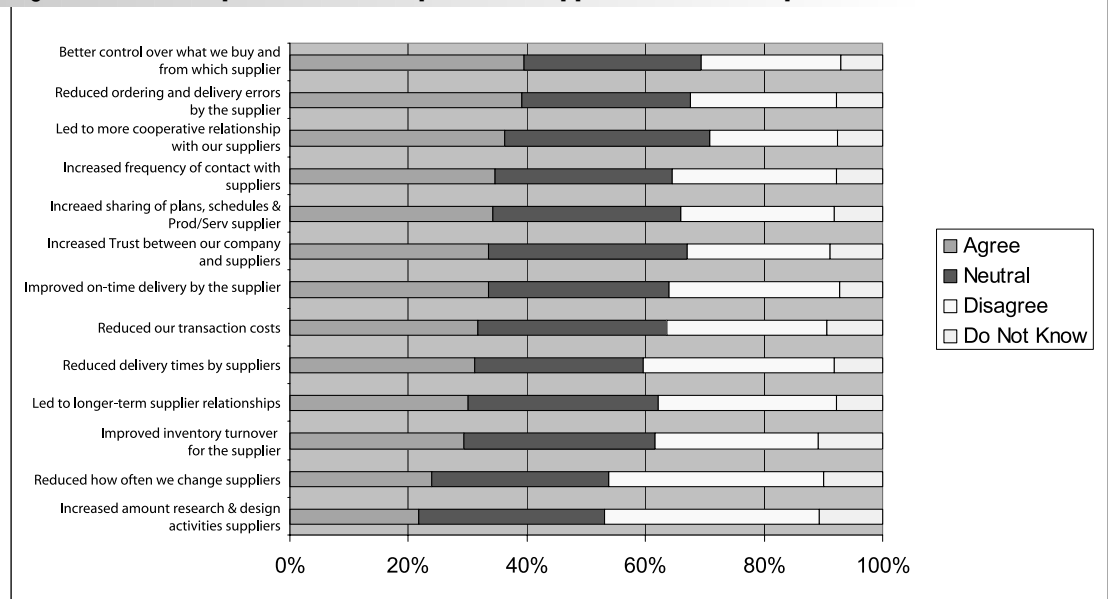
Larger SMEs, and those in the manufacturing sector believed that IBS adoption increased the sharing of information with customers (i.e., plans and schedules). This result can be attributed to the greater demand to co-ordinate operationally, particularly among manufacturers in integrated supply chains. Wholesalers tended to be less positive about the effect of IBS adoption on customer relationships than either retailers or manufacturers.

Larger SMEs also believed that IBS adoption increased customer loyalty and contributed to longer term customer relationships. Smaller SMEs were generally more ambiguous about the ability of IBS to positively affect customer relationships.

Supplier Relationships

SMEs were generally positive about how IBS adoption affected supplier relationships, although the effect was less strong than with customer relationships (see Figure 12). SMEs tended to agree that IBS adoption led to better control of their supplier relationships. This may be attributable to the widespread adoption of e-procurement and supply chain management software, which helps firms to increase operating efficiencies by monitoring spending and reducing or eliminating waste. However, there was no agreement on the effect of IBS on reducing transaction costs, or providing better delivery times.

Figure 12: The Impact of IBS Adoption on Supplier Relationships, 2004



There were a number of significant differences between industry segments in terms of supplier relationships. Retailers believed more strongly than wholesalers that IBS adoption reduced transaction costs such as ordering, and increased on-time delivery from suppliers. Further, retailers believed more strongly than wholesalers or manufacturers that IBS adoption reduced ordering and delivery errors from suppliers, and led to more cooperative relationships with suppliers. It is possible that the relative power of retailers over wholesalers and manufacturers has allowed them to control the implementation of solutions of their own choosing and thus contributed to their more positive view of the impact of IBS on supplier relationships.

Larger SMEs felt more strongly than smaller SMEs that IBS adoption reduced delivery times. This result may reflect the greater power of larger firms in the buying relationship to get suppliers to conform to online processing through their proprietary systems. This is further supported by the fact that the smaller SMEs did not agree that they achieved better control of their purchasing as a result of IBS adoption.

Section 1 – Summary

Net Impacts I, II, and III, along with new survey data from 2004 suggest that the impact of IBS adoption on the Canadian SME population has been positive. SMEs that adopt IBS have realized substantial increases in revenue. Operating costs have also been reduced, particularly among larger SMEs. The data suggest that SMEs can use IBS to achieve and sustain a competitive advantage in their industry segments. Further, there is evidence to suggest that IBS adoption can enhance supplier and customer relationships.

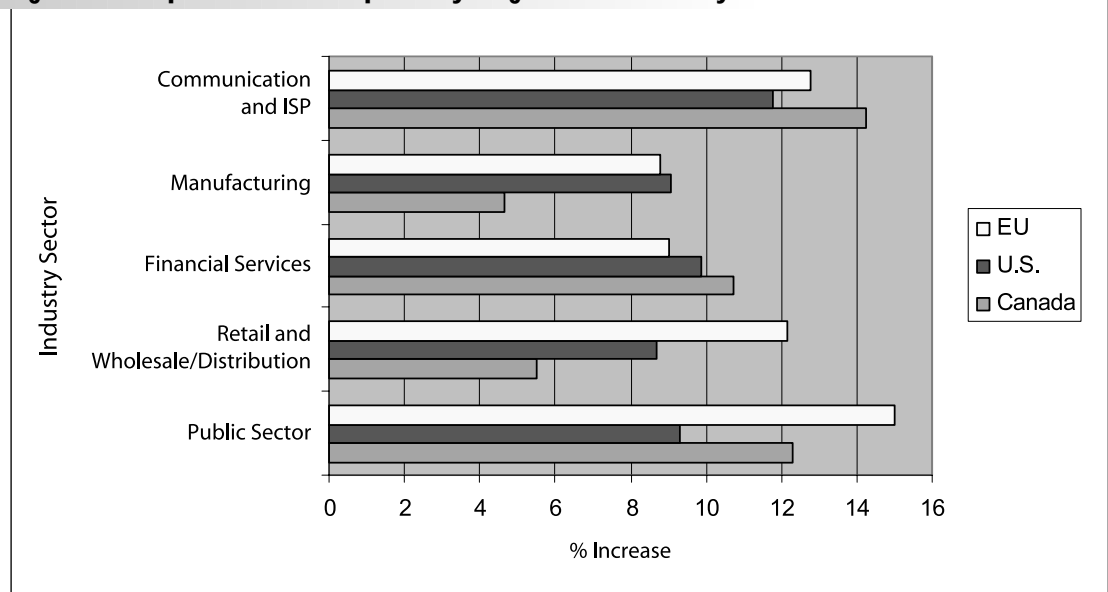
While a good deal of progress has been made, the data suggest cause for caution. In the next section, we focus on the gaps and challenges facing Canadian SMEs, and outline possible courses of action to address these issues.

Section 2 – Challenges and Solutions: Barriers to Further SME Engagement in the e-Economy

Section 1 showed that significant progress has been made by Canadian SMEs in terms of the adoption and productive use of IBS. While SMEs that adopt and use IBS enjoy substantial financial benefits, both the 2002 and 2004 data show that at least 50% of SMEs have failed to adopt a single IBS. It appears that IBS adoption is stalling, a conclusion echoed in *Fast Forward 5*. In 2004, only 10% of SMEs indicated that they had plans to adopt an IBS for the first time, and only 11% of adopters indicated they would adopt an additional type of IBS in the next 12 months.

While it was at one time a world leader, Canadian industry is now lagging comparable countries on many important dimensions, as reported in *Net Impact II*. As Figure 13 shows, certain sectors, including retail, wholesale and manufacturing, appear to have fallen behind the U.S. and E.U.

Figure 13: Impact of IBS Adoption by Region and Industry

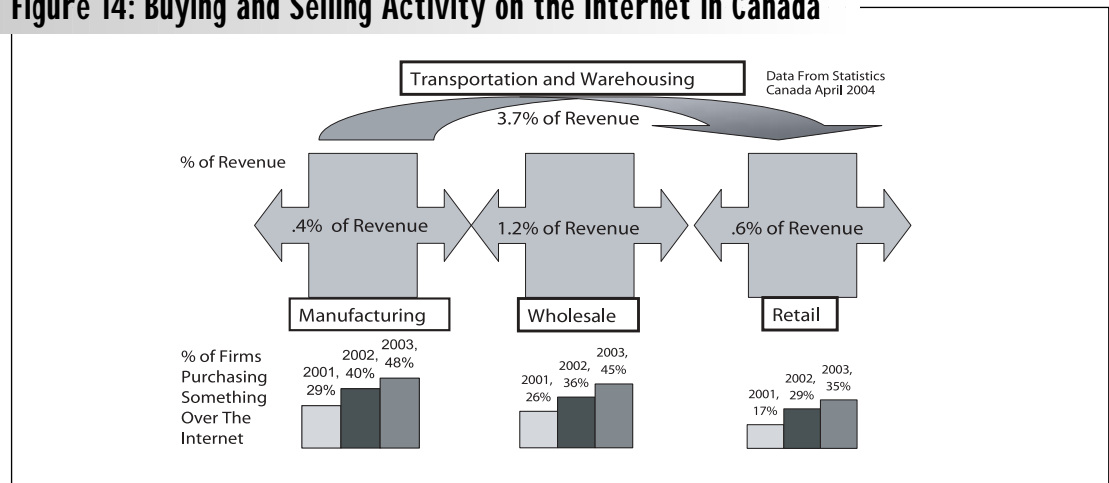


In this section, four gaps are identified that need to be addressed by industry leaders and policy makers. First, IBS adoption should be further increased beyond the current level of 50%. Second, small SMEs (20-49 employees) need to use IBS more productively, as they lag medium-sized SMEs (50-99 employees) and particularly large SMEs (100-500 employees) across a variety of dimensions. Third, SMEs need to be encouraged to continue to adopt IBS beyond basic applications. Many Canadian SMEs have not ventured 'beyond the Website' in the pattern of their IBS adoption. Therefore, many benefits, most notably those associated with cost reduction and more efficient supply chains, are being under-realized. Fourth, SMEs should be encouraged to apply IBS to more customer and supplier relationships both domestically and internationally.

Reality Check on the Nature of e-Business in Canada and SME Priorities

While many SMEs have tried buying and to a lesser extent selling online, it still is not central to the way they do business. As indicated in Figure 14, SMEs in this regard reflect the overall state of B2B Internet usage by all business organizations in Canada. Supply chains of manufacturers buying and selling to wholesalers, who in turn buy and sell to retailers, transact only a small portion of their revenues through the Internet. In fact, the transportation and physical distribution sectors that connect these trading partners do a comparatively larger portion of their business online. The good news is that the small portion of activity between trading partners in supply chains has been growing consistently on an annual basis. That experience though is dominated by buying which often involves adoption of technology no more sophisticated than a Web browser. This activity represents the low hanging fruit of IBS use and more lucrative but complex investments in IBS are possible. In the following discussion of gaps in the adoption of IBS, it is important to note that SMEs are part of a larger economic trend where organizations are emerging from a period of experimentation with IBS to its mainstream use in their operations. The future growth curve of IBS usage by SMEs in Canada is therefore to be shaped by the policies and actions of various stakeholders in the Canadian economy.

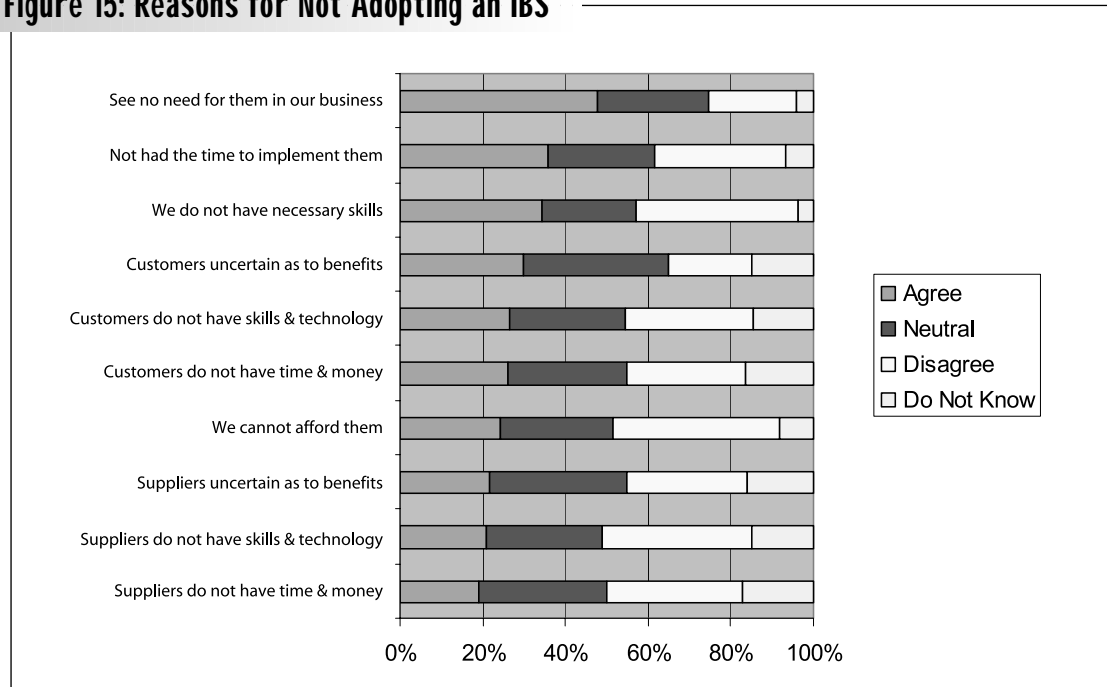
Figure 14: Buying and Selling Activity on the Internet in Canada



Gap 1: Engaging the Non-adopters

As mentioned above, half of all Canadian SMEs have not adopted Internet business solutions. Until recently, very little was known about why these firms have chosen to stay away from IBS. In the 2004 survey, 500 non-adopters were asked about the reasons for their non-adoption. These reasons are shown in Figure 15. Of the reasons cited, one dominated: the business case for an IBS was uncertain. *Net Impact III* suggested that in many instances, this may be true. There is a segment of SMEs for whom the business case for IBS simply does not exist, and will probably never exist. For example, SMEs in service-oriented businesses with predominantly local customers and suppliers (i.e. hairdressers, car washes), may have limited use for IBS. Interestingly, IBS cost and lack of internal capabilities were not mentioned as impediments to adoption.

Figure 15: Reasons for Not Adopting an IBS



Net Impact III suggested that IBS non-adoption may be linked to a number of factors, beyond the lack of a business case. First, SME owners and managers do not have the time to explore the benefits of IBS adoption. Second, SME owners and managers are conservative in nature, and are thus unwilling to experiment with new technologies and approaches. Third, there is a limited availability of tools offered by technology vendors that target the SME sector. Fourth, there is an uneven supply of external consultants to implement IBS solutions. Further, there is a high variance in the quality of these consultants. Finally, some SMEs do not require IBS adoption to do business over the Internet, preferring instead to use proxy services. For example, eBay auctioned 8 billion US dollars of merchandise in the second quarter of 2004, much of it by small business using only a Web browser.⁵

⁵ "Our High Tech Relationships", *Wall Street Journal*, August 9, 2004.

Bridging Gap 1

As noted in the *Calls to Action*, there needs to be a clear strategy to communicate the benefits of IBS adoption to Canadian SMEs. Some SMEs may never need to use IBS, but the Net Impact data clearly show that for the majority of SMEs, IBS adoption results in substantial financial and operational benefits. A coordinated effort by Government and industry to communicate the benefits of IBS adoption, to offer case studies, and to provide tools and services to SMEs, is required to bridge this gap. As with other technologies, the large population of late adopters requires a different (often more proactive) communication and support strategy than with early adopters.

Gap 2: Engaging Small SMEs

Given the evolving state of e-business and the naturally conservative disposition of SMEs with regards to new technology, it is perhaps not surprising that many firms have taken a wait-and-see attitude. *Net Impact III* found that SMEs are inherently cautious about new initiatives, particularly in areas that may be unfamiliar to them. It appears that this is particularly evident for small SMEs (20-49 employees). Smaller SMEs lag larger ones along a number of dimensions including IBS adoption, multiple IBS adoption, and cost benefits, such as reduced COGS and SGA.

All of the Net Impact studies indicate that small SMEs are cautious and conservative. The 2004 survey indicated that small SMEs are less confident than larger SMEs that they have the skills to implement IBS. This result may reflect a lack of in-house IT staff within small SMEs. *Net Impact III* suggested that small SMEs are different enough from larger SMEs that they may require a special approach to promote adoption and use of IBS (see Table 3). For example, small SMEs tend to be relentlessly market-oriented, and thus are first driven by the acquisition of new customers. Apart from resource and skill constraints that impact the capability to use IBS, entrepreneurs value autonomy, risk and relationships differently. SMEs need information to answer questions that address their specific concerns. Many SMEs are in the process of transitioning from small to larger firms and thus the IBS adoption decision must be considered within a larger context of organizational change and growth. To some SMEs, IBS can represent an enabler of change, while to others, they are little more than another low priority operational burden.

Table 3: The Nature of Small Versus Large Businesses

	Large Firms	Small Firms
Motivation	profit maximization	lifestyle, growth
Resources	access to capital	limited access to capital
Skills	functional professionals	entrepreneurial
Attitude to Risk	low tolerance	high tolerance
Value of Relationship	lower	higher
Supply Chain Orientation	customer and supplier	customer
Source of Power in Business Relationships	volume	uniqueness
Kinds of Relationships	likes dependence	seeks independence
How They Trust	institutionally, contractually	Individual by individual, social pressure

Bridging Gap 2

In order to bridge this gap, there needs to be a coordinated effort between Government, technology product vendors, and technology consultants. First, a portal could be created (as an extension of the general communication strategy outlined above) that specifically addresses the needs of small SMEs. Case studies could be developed in a variety of industry segments that relate to different issues faced by small SMEs. These case studies would encompass both successes and failures. The case studies should provide practical guidance on how to integrate the technology into day to day activities with concerns of growth, maintaining an entrepreneurial culture, and managing risk. Second, technology vendors could be encouraged to develop tools and/or services specifically designed to meet the needs of small SMEs. At the moment, most IBS-based tools are targeted at large firms, or larger SMEs. Third, there should be a process by which technology consultants are certified to ensure a consistent and predictable level of service quality. The Net Impact data showed that the uneven level of consultant quality affected the ability of small SMEs to adopt, and upgrade, their IBS capability.

Gap 3: Further Adoption of IBS by All Functions of the Firm

As noted earlier, many SMEs have adopted multiple IBS to support different business functions. These firms have achieved a rapid increase in revenue primarily by attracting new customers, reflecting a customer-first focus in use of the technology. However, fewer SMEs have realized cost benefits from reductions in COGS or SGA where internally focused IBS tend to have their greatest impact. Small SMEs, in particular, seem to have difficulty achieving positive financial results, beyond an increase in revenue. Results from *Net Impact I* showed that multiple IBS adoption was correlated with better financial results, but *Net Impact III* suggested that many firms were having difficulty graduating from simple to more complex IBS. One reason for this difficulty is that firms do not have the capabilities in-house to implement complex IBS, and have encountered difficulty using external consultants to help them.

On average, SMEs reported that they were ambivalent about internal capabilities and the availability of external help being a problem. As indicated in Table 4, 40 to 50% of all SMEs had problems with their internal capability to implement an initial IBS. If they needed help, 35% had significant trouble finding it from external sources. Only larger SMEs seemed to experience a learning curve benefit in the retention of capabilities for subsequent IBS implementations. Interestingly, SMEs reported that they did not perceive there to be a shortage of available trusted advisors. Examination of focus group comments indicated though that many found their “trusted” advisor from friends and family and that they were effective for simple implementations. More problematic were the concerns expressed by some participants that they were often faced with the choice between expensive consulting companies or less established and less dependable vendors. One participant referred to these vendors as “gypsies” (see Figure 16 for a selection of quotes from SME owners and managers).

Table 4: Portion of SME Adopters Experiencing Significant Capability Problems

	Firm Size		
	20–50	50–100	100–500
Lack of Appropriate, Internal Skills and Capabilities	49% / 42%*	55% / 56%	43% / 27%
Lack of Easily Accessible External Skills and Capabilities	35% / 29%	36% / 25%	26% / 24%
*First IBS adoption/Subsequent IBS adoptions			

Most SMEs studied in *Net Impact III* did not have a plan for managing the development of an online capability. Often there was no formal business case and therefore IBS adoptions were largely ad hoc, speculative, and episodic. SMEs with little IBS experience are limited in their ability to assess the risks and benefits of IBS adoption.

Figure 16: Examples of IBS Implementations Problems Faced by SMEs

“Now I have hindsight, I would have picked better people to do this. But you go with who has worked in the past.”

“Initially it was disastrous, and we went with one guy that was proportionally priced, and we had an awful experience.”

“I went to the people who did our software for business, and they wanted big bucks. So I went through a friend. Our Web site was done in two weeks and it looked great. Then we went with the same guy for ecommerce and it was terrible.”

“We were selecting someone, and we didn’t have the knowledge to get the right person for the job.”

There is a potential hidden benefit from IBS adoption that may make SMEs more capable of implementing subsequent IBS. SMEs reported that implementing an IBS improved their market responsiveness, internal collaboration, business planning and change management, IT infrastructure and technical/development skills and internal cost efficiency. For many small firms this was their first occasion to adopt business practices that required the design of efficient information processing, accessible databases and timely reporting.

Bridging Gap 3

The proposals for bridging Gaps 1 and 2 will also help to address this gap. For example, a database of case studies detailing the transition from simple to more complex IBS would be extremely helpful to SMEs wishing to move beyond Websites and email. The provision of sample planning tools such as technology roadmaps and simple risk and scenario evaluation techniques would also help SMEs to justify the costs associated with multiple IBS adoption. The currently available literature for small SMEs through Government agencies and lending institutions should include links to these tools and cases studies. The skill level required of consultants to implement sophisticated IBS such as supply chain solutions is markedly higher than to implement simple solutions like an e-marketing Website. Therefore, a process by which consultants could be certified at different levels of technical ability would be useful to SMEs. Consultants should be encouraged not only to become familiar with the IT components of IBS, but also the business processes and culture of SMEs.

Gap 4: Extending IBS Usage to More Business Relationships

The vast majority of business transactions are not done online. But as indicated in Figure 14, this is changing rapidly. Economic growth from online business will be driven fundamentally by the rate that SMEs can become comfortable and competent in the application of IBS to all business processes for all customers. Currently IBS use for the average SME is restricted to a minority of their customers, and then primarily for domestic sales.

Surprisingly, the overall adoption rate for online selling is low given the popularity of online marketing. In the 2004 survey, online selling was only adopted by 30% of manufacturers. This low number reflects a number of causes. Selling requires the implementation of both an online store and back office processing capability to support the store. The killer application for SMEs, especially smaller firms, has been creating market awareness online through a Website, then reverting to e-mail to begin the business transaction. In another study of 173 Canadian SMEs in the retail, wholesale and manufacturing sectors, the largest barrier to dealing with suppliers and customers online was the lack of closeness in the relationship required to design, develop and service products (i.e., 30% of comments).⁶ The study also found that IBS adoption by SMEs was not an impediment to a business relationship with larger companies. In fact, the opposite was frequently true—larger customers and suppliers induced SMEs to work online. *Net Impact III* indicated that many manufacturers were reluctant to compete through online processes. In some cases, they felt that they were too busy servicing customers to experiment with the technology. For some SMEs, they would only adopt IBS if dragged “kicking and screaming” by powerful supply chain partners.

Online purchasing was adopted by more SMEs than online selling, though the adoption levels have stagnated at around 50% of adopting firms in retail, wholesale and manufacturing. Interestingly, the most frequently cited impact for these adopters was not lower transaction costs. In procurement, transaction costs are a small percentage of the purchase price of an item and only become significant with sufficient volume. Furthermore, IBS adoption by itself does not lower the cost of what is bought. We suspect that a key benefit of purchasing by SMEs is the ability to collect business intelligence on potential suppliers and pricing through a browser. Very few firms use e-auctions to reduce the COGS sold. International surveys of purchasing indicate that only 22% of small firms intend to use e-auctions as a direct means of impacting the COGS and then only for about 10% of what is purchased.⁷ A Canadian study of e-procurement implementation indicates that SMEs are conservative adopters; frequently concerned with the cost of systems that attempt to integrate all activities of the purchasing function. They prefer to rely on trusted personal connections with suppliers to achieve performance.⁸ More SMEs in *Net Impact 2004* were positive about the ability of IBS to help them better control their relationships and reduce errors in their interactions. For some SMEs, an IBS creates the opportunity to have some form of centralized database of supplier information, to systematically track procurement for improvement.

The use of IBS to support international business activities by Canadian SMEs is low. According to the 2004 survey data, of the 51% of SMEs that exported, only 33% sold internationally through the Internet. Further, of the 68% of SMEs that imported goods and services, only 45% purchased these goods online. As indicated in Figure 17, SMEs were not motivated by the prospect of international sales in their justification for adopting an IBS. International studies of connectivity and e-business use indicate that not all of Canada's

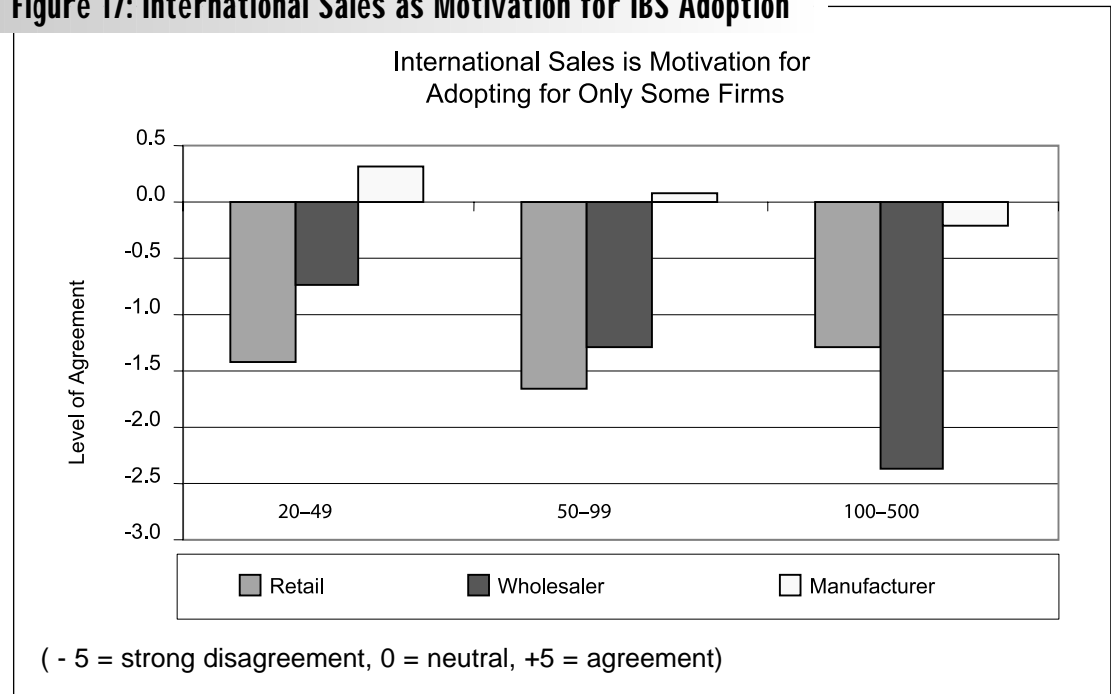
⁶ Barriers to Canadian SME Adoption of Internet Solutions for Procurement and Supply Chain Interactions. “Norm Archer, Shan Wang and Claire Kang, McMaster eBusiness Research Centre (MeRC), DeGroote School of Business, MeRC Working Paper No. 5, August 2003.

⁷ “Executive Briefing: Connecting Purchasing and Supplier Strategies to Shareholder Value”, The Future Purchasing Alliance, 2003.

⁸ “E-procurement Case Studies”, Conference Board of Canada and Purchasing Management Association of Canada (PMAC), 2004.

trading partners are equally sophisticated in their use of the Internet.⁹ Furthermore, some cultures still require high levels of physical interaction to resolve trust and security issues before exchanging goods and money.¹⁰ Sensitivity to these issues is an important prelude to the use of IBS in an international context.

Figure 17: International Sales as Motivation for IBS Adoption



As indicated in the previous analysis of the impact of IBS adoption on customer and supplier relationships, IBS can be said to be having a positive net impact. The data suggest that there are mixed feelings as to whether IBS are dependable in executing sales and managing delivery. On the purchasing side, there are legitimate concerns about the stability of supply (i.e., long term supplier relationships) and the actual operating savings from reduced transaction costs and inventory and logistics. Survey results indicate that increased customer/supplier collaboration on R&D is not yet mainstream.

Bridging Gap 4

It is well known that new technology adoptions often reach a so called 'tipping point'. Prior to this point, adoption is fragmented and benefits are limited to a select number of firms. Once a critical mass of users understand and adopt a technology, then a series of network effects are realized by all parties, and further adoption increases rapidly. The benefits to SMEs of IBS adoption increase as more buyers and sellers adopt the technologies. The spread of IBS is aided by individual firms pushing the use of the technology to all participants in their business relationships. In Canada, SMEs have yet to reach the tipping point for IBS adoption; however the evidence suggests that we may be close to reaching that level.

⁹ "Measuring the Information Economy" OECD, 2002.

¹⁰ "The e-Business Capability of Small-Economy and Medium-Sized Firms in International Supply Chains." David A. Johnston and Lorna Wright, *Information Systems and e-Business Management*. Forthcoming June 2004.

In order to reach the tipping point for IBS adoption, the Federal Government, in cooperation with trade organizations, should ensure that an SME engagement strategy is put in place. This strategy should build a strong focus on the development of IBS within industry-wide supply chains. Further, the strategy should focus on drawing the SME segment into international supply chain relationships normally dominated by larger firms. Once again, communication strategies need to be tightly linked to the information available on any central portal for SMEs.

Section II Summary

The adoption and use of IBS by SMEs in Canada appears to be stalling. SMEs that have adopted IBS have realized substantial returns in terms of financial, operational and strategic benefits. However, 50% of SMEs have failed to adopt IBS, and a substantial proportion of these firms do not understand the business case for adoption. Furthermore, there is room for SMEs to further adopt IBS as well as expand the type and scope of business relationships that they impact. Because of this situation, the Canadian economy is forgoing a major source of economic growth. The gaps related to IBS adoption and use can be remedied through a coordinated effort by Government and industry as outlined above, and in the *Calls to Action*.

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Appendix 1

Internet Business Solutions Definitions

Internet Business Solutions (IBS) combine the Internet with networking, hardware, and software technologies to enhance or improve existing business processes or to create new business opportunities. For the purpose of the Net Impact studies, five categories of IBS have been identified.

Online Marketing

Promotes products and/or services through a company Website, Web advertising, or e-mail direct marketing.

Online Customer Service

Provides customer service such as online databases with manuals product updates, fixes and recalls, and/or help functions such as online troubleshooting or repair and servicing information.

Online Selling

Facilitates online sales orders, online inquiries about product availability, payment processing mechanisms, and tracking of customer orders.

Online Internal Operations

Supports internal business processes such as company banking, government reporting, accounting, coordination of sales people, production scheduling and inventory control, scheduling of operations. May help coordinate multiple sites or offices of the same company.

Online Purchasing and Supply Management

Supports purchasing and delivery of products/services from suppliers such as links to supplier product databases and electronic marketplaces, online purchase orders, and online supplier payment mechanisms. May provide scheduling and tracking of orders and shipments between purchaser and supplier.

Appendix 2

Methods Used in Net Impact Canada Studies

Net Impact Canada I and II

The first Net Impact Canada study was conducted in the summer of 2002. The study was a replication of the original Net Impact study conducted in the United States in 2001. Net Impact studies were also conducted in the U.K., France, Germany, and Italy. While the international Net Impact studies looked at firms of all sizes, the Canadian Net Impact study focused exclusively on the SME population.

The Canadian study concentrated on firms having between 50 and 500 full-time employees. A stratified random sample was taken from five broad industry sectors:

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

A total of 1968 Canadian firms were contacted by telephone. After filtering for firm size and industry sector, 398 firms were randomly selected to participate in the interview.

Two reports were produced based on this data. *Net Impact I: The SME Experience* was written in November 2002, and reported on the adoption and use of IBS by Canadian SMEs. A second report, *Net Impact II: The International SME Experience* was released in May 2003, and compared the experience of Canadian SMEs to similarly sized firms across the the U.S. and Europe. The final dataset for this report consisted of 1666 organizations—398 from Canada, 1,011 from the U.S. and 257 from the E.U.

Net Impact III

The goal of *Net Impact Part III: Overcoming the Barriers* was to build upon the quantitative insights from *Net Impact I*, and *II*, by conducting qualitative analysis to better understand how SMEs can engage in successful e-business practices.

The study contained three main objectives. First, to speak with successful IBS adopters to understand how they were able to overcome barriers to IBS adoption, as identified in *Net Impact I* and *II*, and to understand how they accessed enablers. Second, to speak with SMEs who have not yet decided to adopt IBS, or who have not yet been successful in doing so, in order to understand what enablers they require to ensure their success. Third, to understand the most effective delivery mechanisms for the identified enablers. In order to aid the development of the study, three specific concepts were developed for evaluation; a portal website, a practicum program model, and a resource centre.

In order to achieve these objectives, focus group research was conducted in Toronto in September, 2003. Seven focus groups met for two hour sessions, each with 6-9 participants. The respondents were segmented into distinct cells based on their success or non-success in adopting IBS, and their specific industry sector.

2004 Net Impact Survey

A large scale telephone survey of Canadian SMEs was conducted in March 2004. The survey was based on the original Net Impact Canada survey but was augmented with additional items arising from *Net Impact III*. SME owners or managers were contacted by telephone and completed a 25 minute interview following a survey script. Responses were received from 952 firms—450 IBS adopters and 502 non-adopters. SMEs were divided into three industry sectors: retail, wholesale, and manufacturing, as well as three size categories: small (20-49 employees), medium-sized (50-99 employees), and large (100-500 employees). Responses were received from across Canada.



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