



E-Commerce: A Mile Wide and an Inch Deep

Global E-Commerce Survey: Report of Results Overall and by Industry Sector¹

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The use of electronic commerce has been expected to spread rapidly around the world with the growth of the Internet. Although e-commerce existed before the Internet, through EDI for example, e-commerce was expected to spread more rapidly with the Internet because of its openness, lower costs, wider availability and greater network effects as compared to private networks. Two key issues are the extent to which firms are adopting Internet-based e-commerce, and the impacts on those that do adopt. Therefore, this study sought to benchmark the use of the Internet for e-commerce in different countries in order to get an understanding of the state of its use and impacts in 2002.

The survey was planned to provide insights into adoption and usage of the Internet and e-commerce by country, industry and firm. Hence, the study was not concerned with measuring overall levels of e-commerce use within countries or globally, but rather with how the Internet is being used for business among relatively more technologically advanced businesses in each country. We surveyed 2,139 establishments in 10 countries—Brazil, China, Denmark, France, Germany, Japan, Mexico, Singapore, Taiwan and the United States—that “use the Internet to buy, sell or support products and services.” Countries were selected to include developed, newly industrializing and developing nations. We included establishments in three major industry sectors that are known to be more extensive and have advanced users of e-commerce—manufacturing, distribution (wholesale and retail), and finance (banking and insurance). The sample breaks down into approximately 300 establishments in the U.S. and 200 in each of the other countries, and is evenly split by industry as well as firm size (from 25 to 250 and over 250 employees) in each country. Weights based on the actual distribution of establishments in each country for each sector were applied. The results in this report are based on the weighted sample.

This report focuses on the differences and similarities by industry sector, and covers the following topics:

- Influence of Globalization
- Use of E-commerce Related Technologies
- Enterprise Integration Strategy

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- Mobiles and the Internet
- Drivers for Internet Use
- Barriers/Difficulties to Doing Business on the Internet
- Uses of the Internet
- The Internet as a Distribution Channel
- On-line Sales
- On-line Services
- On-line Procurement
- Impacts of Doing Business On-line

Future reports will focus on differences and similarities by country, firm size and other significant comparisons.

Key Findings

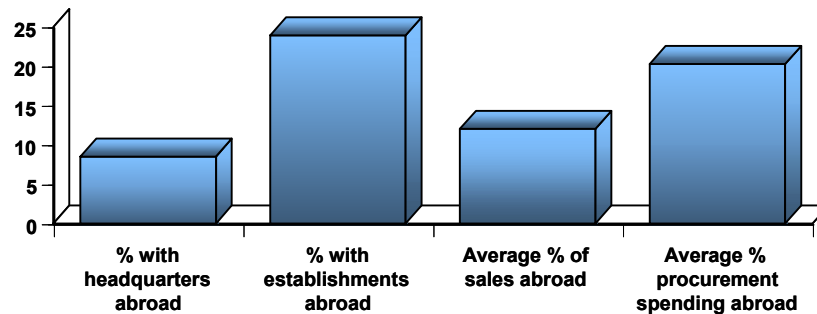
- The most frequent use of the Internet is for **advertising and marketing** purposes, cited by 57% of establishments surveyed.
- The next most common use of the Internet is for **exchanging information** with suppliers and customers, each of which was mentioned by about half of all respondents. On the other hand, only a third of respondents use the Internet to **formally integrate business processes** with suppliers or partners.
- Nearly half of all respondents (47%) use the Internet to **make purchases on-line**.
- **Customer services** are provided on-line by 44% of establishments.
- **Selling on-line** is still not a primary use of the Internet for most businesses. Only 30% of respondents make sales online. Of those establishments, only about one-third support on-line payment. On-line sales account for a small share of total sales. Among all establishments, on-line sales account for roughly 4% of sales to both businesses and consumers.
- The **banking and insurance sector** leads in use of the Internet for advertising and marketing, making sales on-line, making purchases on-line, and is tied with manufacturing in using the Internet for customer service and support.
- **Manufacturing establishments** are leaders in exchanging information with suppliers and customers.
- **Wholesale/retail distribution establishments** are leaders in integrating business processes with suppliers and partners.
- The most important **drivers** of Internet use are the desire to **expand markets** for existing products/services (48% of respondents), to **improve coordination** with customers and suppliers (44%), and to **enter new businesses or markets** (42%).
- The biggest **barrier** to doing business on the Internet was concern over **privacy and security issues**, mentioned by 44% of all respondents, and 62% of banking and insurance establishments.
- The biggest **impacts** of doing business on-line are **improved customer service**, **more efficient internal processes** and **widened sales area**, each mentioned by 30-35% of respondents.

I. ENVIRONMENT

Influence of Globalization

One factor that has been playing an increasingly important role in the use of the Internet for business is the movement toward a global marketplace. To what extent are establishments, which currently use the Internet for business, global in their orientation? Across the three sectors in the survey, nearly one-quarter are part of companies with establishments located outside of the country; 8% have the headquarters outside the country. A higher percentage of procurement spending (20%) than sales (12%) is from outside the country (Figure 1, Table 1).

Figure 1. Indicators of Globalization: All Establishments



There are some important industry sector differences:

- More than one-quarter of the Manufacturing sector establishments are part of companies with *establishments abroad* and 12% have the *headquarters* of the company abroad. Both the Wholesale/Retail Distribution sector and the Banking & Insurance sector are less global than Manufacturing in terms of establishments abroad. The Banking & Insurance sector, however, is similar to Manufacturing in the percentage of headquarters abroad.
- The three sectors significantly differ in terms of *selling abroad* with Manufacturing, on average, reporting about 15% of total sales abroad, followed by Wholesale/Retail at 11% and Banking & Insurance at 8%. A similar pattern is shown for total *procurement spending abroad*.
- Where the sectors differ significantly is in terms of the pressure of *international competition* with nearly one-third of Manufacturing establishments reporting high affect in contrast to less than 10% of establishments in the Wholesale/Retail Distribution and Banking & Insurance sectors.

Table 1. Indicators of Globalization

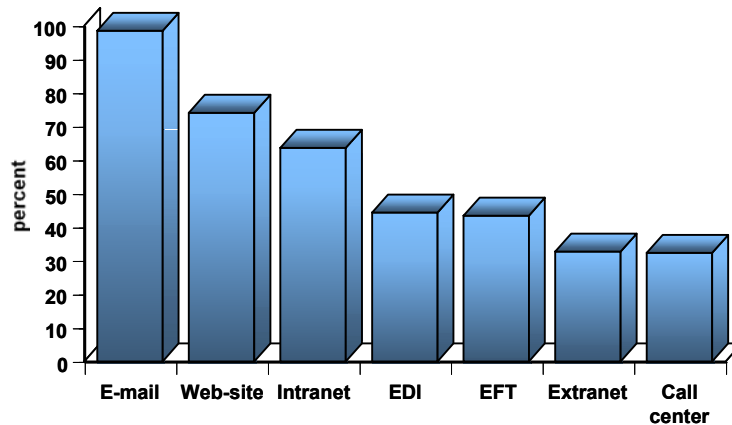
Globalization	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
Percent with establishments abroad	27.6	22.2	23.3	23.9
Percent with headquarters abroad	12.0	6.4	11.0	8.5
Percent of total sales from abroad	14.6	11.4	8.1	12.1
Percent of total procurement spending from abroad	24.0	20.8	4.6	20.3
Degree establishment is affected by competitors from abroad				
Low	47.3	77.2	82.8	68.3
Moderate	20.8	14.2	7.7	15.7
High	31.9	8.6	9.5	18.0

II. TECHNOLOGY READINESS

Use of E-Commerce Related Technologies

There are a number of significant technologies that are used by businesses in conducting business on the Internet. Seven technologies were identified as a part of e-business infrastructure. Figure 2 displays the frequency of use of these technologies while Table 2 provides the breakdown of use by sector. Some technologies clearly are used across industry sectors while others are more specific to sector.

Figure 2. Electronic Technologies



The significant industry differences and similarities are:

- **E-mail** is universally used with 99% of all establishments in the sample reporting use.
- A **Web site** that is accessible by the public is used by nearly three-quarters of the establishments. Those in the Manufacturing and Banking & Insurance sectors are more likely to have Web sites than establishments in the Wholesale/Retail Distribution sector.
- **Intranet** use is also very high in all three sectors with nearly two-thirds of the establishments using a private, internally accessible Web site that provides information about the firm to employees. There are no differences by industry sector.
- **Extranets**, on the other hand, are not as frequent with approximately one-third of the establishments reporting the use of a private Web site accessible by external organizations, such as clients, business partners, and suppliers, but not by the general public. Whether the extranet is accessible by suppliers/business partners or by customers appears to be evenly divided and similar across the three sectors. Roughly 20% of all establishments use an extranet accessible by suppliers/business partners while 18% use one accessible by customers also.
- **EDI** (Electronic Data Interchange) is used by 45% of the establishments. Overall, the three sectors do not vary substantially in terms of the percent using EDI. There is higher frequency of EDI use over private networks by the Wholesale/Retail Distribution sector (39%) versus the Manufacturing and Banking & Insurance sectors (30%). **Internet-based EDI** is more frequent for the Manufacturing and Banking & Insurance sectors in contrast to the Wholesale/Retail Distribution sector.

- **EFT** (Electronic Funds Transfer) is most frequently used by the Banking & Insurance sector (62%), but a significant portion of establishments in both the Manufacturing and the Wholesale/Retail Distribution sectors (40%) report using EFT.
- The use of a **call center**, that is, a unit whose primary purpose is sales, technical support or services to customers is more frequent in the Banking & Insurance sector (39%), although nearly one-third of establishments in both the Manufacturing and the Wholesale/Retail Distribution sectors also report use.

Table 2. Use of E-Commerce Technologies

Use of E-Commerce Technologies	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
Percent use e-mail	95.5	99.9	99.2	98.5
Percent with a Web site	80.5	69.9	81.5	74.1
Percent using an intranet	63.5	63.3	66.5	63.6
Percent using an extranet	31.4	33.4	32.4	32.7
Percent with an extranet accessible by suppliers or business partners	18.7	21.8	21.7	20.9
Percent with an extranet accessible by customers	18.5	17.0	20.8	17.8
Percent using EDI	43.0	45.2	42.2	44.3
Percent using EDI over private networks	29.7	38.7	30.4	35.3
Percent using Internet-based EDI	27.8	22.0	27.7	24.3
Percent using EFT	40.7	42.1	62.3	43.4
Percent using a call center	32.6	31.3	38.6	32.3

Enterprise Integration Strategy

An important area of concern is the extent to which the new technologies and new ways of doing business have been integrated into the existing electronic processes in the organization. A pressing need of many companies is the integration of their on-line activities with their back-end systems and off-line sales channels. Overall, the degree to which organizations have successfully integrated Internet technologies, processes and practices with their internal company databases is low (Figure 3, Table 3).

Figure 3. Degree of Enterprise Integration



Specific industry differences are:

- The electronic integration of the **Web site** with internal corporate databases and information systems is infrequently done in Manufacturing—only 16% report high integration. The percent rises to 26% among Wholesale/Retail Distribution establishments. Banking & Insurance, however, reports much higher levels of integration with 40% of those establishments with a Web site indicating high electronic integration.
- **Supply chain** integration, specifically electronic integration of company databases with those of suppliers and business customers is very much in its infancy with less than 10% of Manufacturing and Wholesale/Retail Distribution establishments reporting a lot or a great deal in integration. Banking & Insurance is also low (18%) although significantly higher than the other two sectors.

Table 3. Enterprise Application Strategy

Enterprise Application Strategy	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
Extent Internet applications are electronically integrated with internal databases and information systems				
Percent little to none	60.6	49.8	39.4	52.5
Percent some	23.8	23.9	20.6	23.6
Percent a great deal	15.6	26.3	40.0	23.9
Extent company databases and information systems are electronically integrated with those of suppliers and business customers				
Percent a little to none	72.6	72.6	66.2	72.1
Percent some	19.1	18.2	15.8	18.3
Percent a great deal	8.3	9.1	17.9	9.6

Mobiles and the Internet

Mobile Internet use is still in its infancy as of 13.7% of businesses provide content or services for mobile customers and 18.2% plan to provide such within the next year.

- The Banking & Insurance sector appears to be ahead of the other two sectors in its use for business (Table 4). Over one-fifth of Banking & Insurance establishments currently provide content or services that mobile customers can access (in contrast to 13% Wholesale/Retail Distribution and 14% Manufacturing) and a further 18% plan to add such functionality within the next year.

Table 4. Percent providing or planning to provide content or services for mobile customers

Mobile services/content	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
Already available	14.2	12.5	21.2	13.7
Plan to add within the next year	17.7	18.4	18.9	18.2

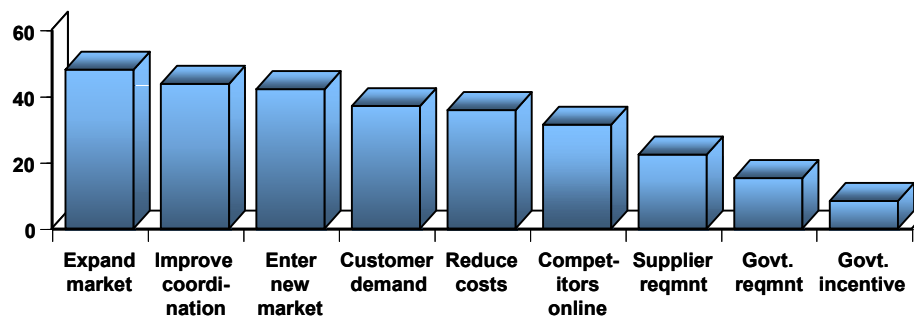
III. BARRIERS AND INCENTIVES

There are a number of factors that might influence or deter a company in using the Internet for business. These barriers and incentives might involve internal business processes, commerce considerations or external factors. This section will address the major drivers and obstacles to doing business on the Internet that are common across industries as well as the significant differences found among the three industry sectors.

Drivers For Internet Use

Which factors are most important in directing an establishment toward the use of the Internet for doing business? Establishments were asked to assess the extent to which a number of drivers were influential in the decision to adopt the Internet for doing business. The factors most frequently rated as highly important were market expansion (48%) and the need to improve coordination with either suppliers or business customers (44%) (Figure 4, Table 5).

Figure 4. Drivers for Internet Use



The major industry sector differences are:

- The drivers for Internet use differ among the three sectors. While there is similarity among the sectors for some drivers, the mix of drivers differs significantly. For Manufacturing, **market expansion** for existing products and services (51%) and **improved coordination** with customers and suppliers (51%) are combined with **cost reduction** (43%). Wholesale/Retail Distribution establishments most frequently cite market expansion (46%) and improved coordination (41%), but also include entry into **new businesses or markets** (44%). Banking & Insurance also emphasize market expansion (53%) and improved coordination (40%), but are also driven by their on-line **major competitors** (48%).
- **Government-provided incentive** is not a major driver. However, manufacturing is significantly more likely than the other two sectors to cite government procurement requirements (19%) as incentives for adopting Internet use.

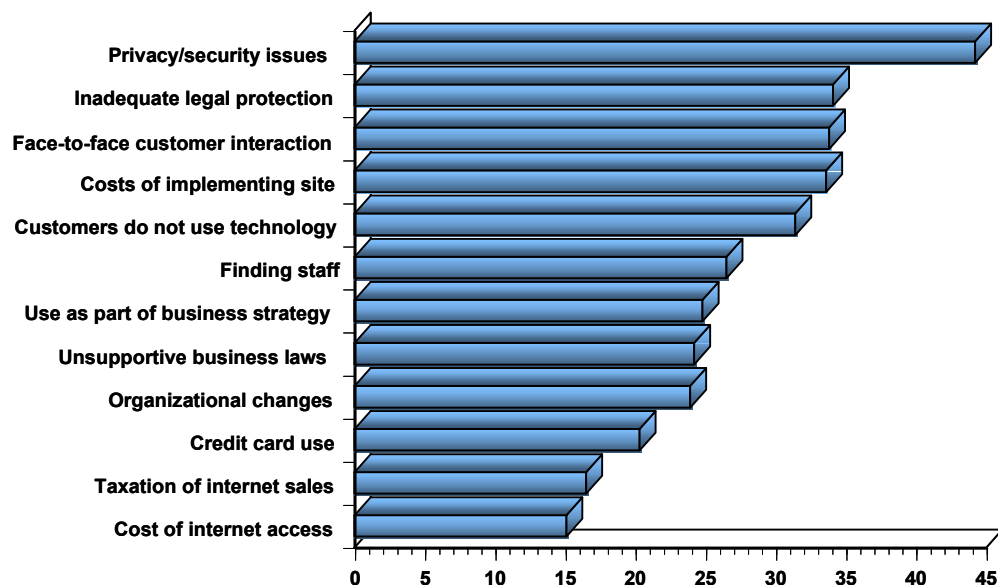
Table 5. Internet Use Drivers: Percent of Establishments Indicating Driver is a Significant Factor

Drivers for Internet Use (% indicating a significant factor)	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
Customers demanded it	35.4	37.6	36.7	36.9
Major competitors were on-line	31.2	29.2	47.6	31.3
Suppliers required it	26.5	21.3	12.6	22.3
To reduce costs	42.8	32.3	34.3	35.7
To expand market for existing product/services	51.0	45.6	53.0	47.9
To enter new businesses or markets	39.2	44.4	35.6	42.0
To improve coordination with customers and suppliers	50.8	40.5	39.9	43.7
Required for government procurement	19.1	13.7	11.4	15.2
Government provided incentives	10.5	7.4	6.7	8.3

Barriers/Difficulties to Doing Business on the Internet

Informants in the surveyed establishments were asked to assess the extent to which a series of factors are important obstacles in the establishments' abilities to do business on-line. Privacy and security issues are by far the most frequently mentioned obstacles. Forty-four percent of the establishments indicated that concern about privacy of data or a security issue was a significant obstacle (Figure 5, Table 6). Next in line are issues regarding inadequate legal protection for Internet purchases (34%), a need for face-to-face customer interaction to sell products (34%), and the costs of implementing an e-commerce site (34%).

Figure 5. Obstacles to Doing Business on the Internet



As would be expected, the significance of the obstacles to doing business on the Internet varied by industry sector:

- While for all three sectors, the most frequently cited barrier was concern about *privacy of data or security issues*, it is particularly salient for the Banking & Insurance sector where 62% of the establishments cited it as a significant obstacle.
- Over one-third of the establishments in the Manufacturing and the Wholesale/Retail Distribution sectors cited *inadequate legal protection* for Internet purchases as a significant barrier.
- For 40% of the establishments in Banking & Insurance the *need for face-to-face customer interaction* to sell products is considered a significant barrier to doing business on the Internet.
- The two issues least cited as being a significant barrier to conducting business on the Internet are the *cost of Internet access* (15%) and taxation of Internet sales (17%). Internet access cost barriers were similar across the three sectors, while more than twice as many Wholesale/Retail Distribution establishments (19%) cited *taxation* issues compared to establishments in Banking & Insurance (8%).

**Table 6. Barriers/Difficulties to Doing Business On the Internet:
Percent of Establishments Indicating Factor is a Significant Obstacle**

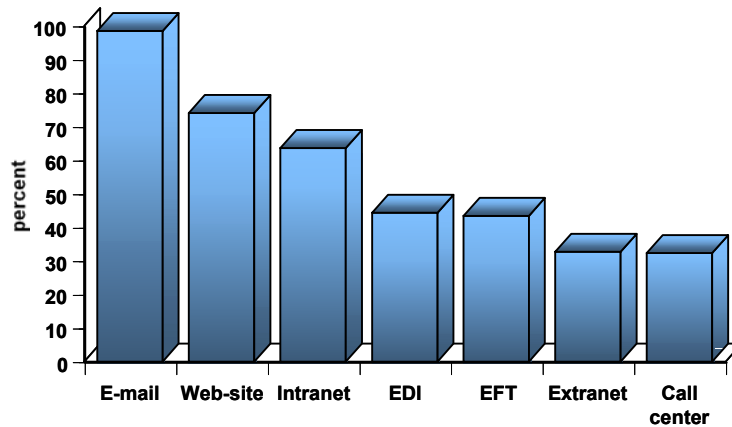
	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
Need for face-to-face customer interaction to sell products	31.5	34.2	40.1	33.8
Concern about privacy of data or security issues	47.1	40.4	62.0	44.2
Customers do not use the technology	30.3	33.1	23.2	31.4
Finding staff with e-commerce expertise	23.8	28.8	19.9	26.5
Prevalence of credit card use in the country	22.4	19.9	15.4	20.3
Costs of implementing an e-commerce site	32.6	34.9	27.6	33.6
Making needed organizational changes	23.8	24.8	17.5	23.9
Level of ability to use the Internet as part of business strategy	28.0	23.7	20.8	24.8
Cost of Internet access	13.5	16.3	12.7	15.1
Business laws do not support e-commerce	27.6	22.6	23.3	24.2
Taxation of Internet sales	14.0	18.8	8.2	16.5
Inadequate legal protection for Internet purchases	37.3	33.6	26.0	34.1

IV. INTERNET USE

Uses of the Internet

Interestingly, there is no single use that clearly dominates business use of the Internet among the three industry sectors in the survey (Figure 6, Table 7).

Figure 6. Uses of the Internet for Business: All Establishments



- For all three sectors, the most frequent use of the Internet is for *advertising and marketing* purposes, although the three sectors still differed significantly. Over two-thirds of the Banking & Insurance sector used the Internet for this purpose in contrast to 56% of the Manufacturing sector and 57% of the Wholesale/Retail Distribution sector.
- Use of the Internet for *exchanging operational data with business customers and with suppliers* was similar in magnitude for both Manufacturing and Wholesale/Retail Distribution.
- Over half of Banking & Insurance establishments use the Internet for *making purchases on-line*, followed by 48% in Wholesale/Retail Distribution and 43% in Manufacturing.
- *Selling on-line* is still not a primary use of the Internet for businesses with only one-quarter of Manufacturing establishments, 32% of Wholesale/Retail Distribution and 33% of Banking & Insurance reporting making sales on-line.

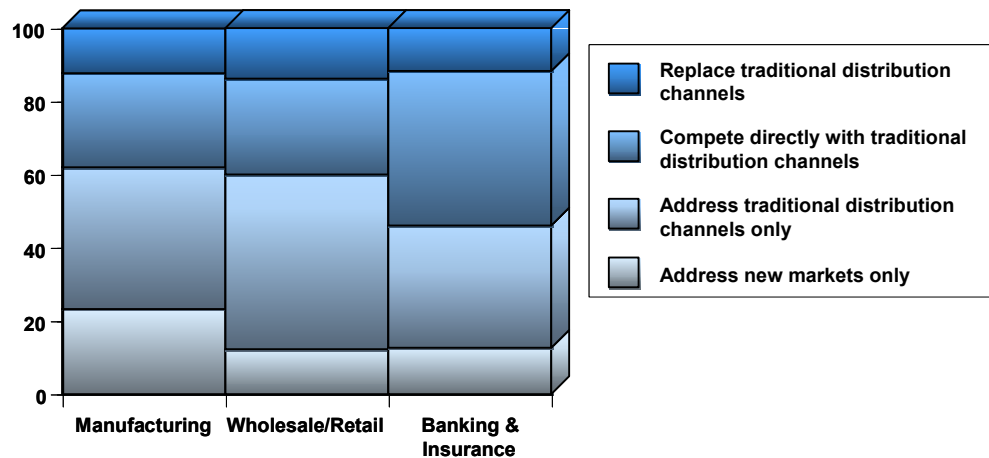
Table 7. Uses of the Internet

Uses of the Internet	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
Advertising and marketing purposes	55.8	57.1	68.3	57.6
Making sales on-line	25.1	31.9	33.0	29.9
After sales customer service & support	48.4	40.7	48.3	43.7
Making purchases on-line	43.4	47.8	52.2	46.8
Exchanging ops. data with suppliers	49.9	48.0	41.9	48.1
Exchanging ops. data with customers	53.4	49.0	52.5	50.7
Formally integrating the same business processes with suppliers/partners	26.8	37.5	33.5	33.9

The Internet as a Distribution Channel

When a business begins using the Internet as a distribution channel, there is a question of how the business plans to integrate the new channel into its existing channels. Overall, nearly half of the establishments that are selling on-line view the Internet sales as another means of addressing traditional distribution channels rather than replacing or competing with those channels (Figure 7, Table 8).

Figure 7. How Internet is Used For Business



- Sector differences are pronounced when it comes to the purposes those selling products and services see for the Internet in relation to non-Internet **distribution channels** (Figure 7). Almost half of the Wholesale/Retail Distribution sector establishments view the Internet as an enhancement of their traditional distribution channels. In contrast, while one-third of the Banking & Insurance sector establishments utilize the Internet in a similar manner, 42% also perceive the Internet to be in direct competition with traditional distribution channels.

Table 8. Internet Use as a Distribution Channel

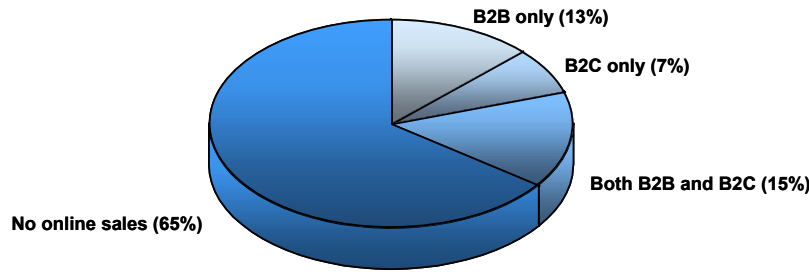
	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
Addresses new markets only	23.2	12.2	12.6	15.3
Addresses traditional distribution channels only	38.8	47.8	33.4	44.1
Competes directly with traditional distribution channels	25.7	26.2	42.3	27.4
Replaces traditional distribution channels	12.2	13.8	11.8	13.2

V. E-COMMERCE

On-line Sales

Directly selling on the Internet is still in its infancy. Among all the establishments only 35% report engaging in on-line sales. Business-to-business (B2B) sales are more frequent (28%) than Business-to-commerce (B2C) sales (22%) (Figure 8, Table 9).

Figure 8. Distribution of Type of On-line Sales



There are some important differences between industry sectors in using the Internet for sales.

- Establishments in Manufacturing are roughly twice as likely to engage in B2B than B2C sales (28% vs. 15%). In Wholesale/Retail Distribution, they are about equally likely to engage in B2B than B2C sales (29% vs. 25%), although there is a leaning toward B2B sales that probably reflects the major difference between wholesale (business) and retail (consumer). In Banking & Insurance, the ratio reverses with 30% of establishments engaging in B2C sales and 22% in B2B sales.
- Percent of on-line sales among all establishments and among only those establishments who sell on-line are both low. Among all establishments, percent of on-line sales of all sales is roughly 4% for both B2B and B2C. But even among those who sell on-line, the percentages increase only to 15% (B2B) and 19% (B2C).
- Only about one-third of all of the establishments who sell online support online payment. Within the Manufacturing sector, the percent drops to 25%, which is most likely because those establishments do very little B2C sales.

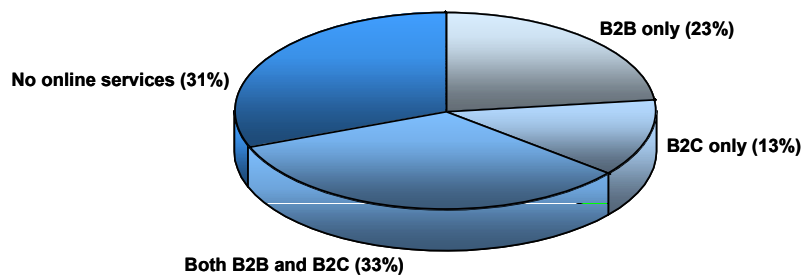
Table 9. On-line Sales

On-Line Sales	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
% doing on-line B2B sales	16.3	12.0	6.7	12.9
% doing on-line B2C sales	4.0	7.7	14.3	7.1
% doing both B2B and B2C sales	11.2	16.9	15.5	15.0
% on-line sales (all establishments)				
B2B	3.2	4.4	4.0	3.9
B2C	2.1	4.5	5.0	3.8
% on-line sales (those selling on-line)				
B2B	12.2	16.1	21.9	15.2
B2C	15.3	19.5	19.6	18.6
% of Web sites supporting on-line payment (those with a Web site)	25.0	36.7	37.4	33.6

On-line Services

In contrast to on-line sales, on-line services are provided by a substantial number of the establishments as part of the business activities channeled through the Internet. Sixty-nine percent of the establishments surveyed provide some type of on-line service (Figure 9, Tables 10, 11). Provision of on-line services is high in all three industry sectors. Approximately 77% of Manufacturing, 65% of Wholesale/Retail Distribution, and 76% of Banking & Insurance establishments provide some type of service on the publicly accessible Web site.

Figure 9. Distribution of Type of On-line Services



The types of services provided are different for the three sectors (Tables 10, 11).

- Among Manufacturing establishments, 70% provide some type of on-line service to businesses and 43% to consumers on the Web site (Table 10). The most common services are product specification (80%), product configuration (55%) and service and technical support (54%). Order tracking and account information is much less frequently provided (Table 11).
- Among Wholesale/Retail Distribution establishments, about 51% provide services to businesses and 45% provide services to consumers on the Web site (Table 10). The most frequently provided services are product catalogue (70%) and product reviews (49%) (Table 11).
- Among Banking & Insurance establishments about 44% provide on-line services to businesses and 46% on-line services to consumers on the Web site (Table 10). More than half provide access to account information (57%), services such as filing applications, filing claims, paying bills, and transferring funds (54%), and tools such as research tools, planning tools, etc. (52%) (Table 11).

Table 10. On-line Services to Business and Consumers on Web-Site

On-Line Services	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
On-line services provided to ...				
Businesses	33.7	19.1	10.5	23.1
Consumers	7.0	13.8	30.6	12.9
Both	36.1	31.6	35.0	33.3
Total	76.8	64.5	76.1	69.3

Table 11. Types of On-line Services Provided on Web Sites by Industry Sector

On-Line Services	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
% Web sites which support...				
Product configuration	54.7			
Order tracking	21.5			
Service and technical support	54.4			
Product specifications	79.9			
Account information	17.0			
% Web sites supporting ...				
Gift certificates and/or registry		20.6		
Product catalogue		69.8		
Product reviews		48.6		
Individual customization		21.3		
Account information		21.7		
% Web sites supporting ...				
On-line services			53.9	
Access to account information			57.3	
On-line tools			52.0	

- Despite a high frequency of providing on-line services to consumers, the percentage of total services provided on-line is small—on average, about 7% of total services for Manufacturing and for Wholesale/Retail Distribution and 12% for Banking & Insurance. If we look at just those establishments who provide services on-line, the percentages increase but not substantially (Table 12).
- Similar modest percents of total services provide on-line for businesses are shown—16% in Manufacturing, 9% in Wholesale/Retail Distribution, and 10% in Banking & Insurance (Table 12).

Table 12. On-line Services

On-line Services	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
Mean percent of total services to consumers conducted on-line? (of all establishments)	7.0	7.4	11.6	7.6
% of only those providing services to consumers on-line	17.5	17.3	18.8	17.5
Mean percent of total services to businesses conducted on-line? (of all establishments)	15.5	9.1	8.9	11.0
% of only those providing services to businesses on-line	23.1	19.1	21.6	20.8

On-line Procurement

Overall, about 50% of the establishments procure some goods on-line although the percent of money spent for such goods is not very high and varies considerably by industry sector (Table 13).

- The Banking & Insurance sector is highest in on-line procurement with 56%, while the Manufacturing sector is lowest with 47% making purchases on-line. The Wholesale/Retail Sector lies between the two other sectors—more than half of the Wholesale/Retail Distribution sector made purchases on-line.
- Within the Banking & Insurance sector, over one-quarter of *supplies and equipment* for doing business on average is purchased online. In contrast, just over 10% is the average for the Manufacturing sector.
- For Manufacturing establishments, on average, 7% of the money spent on *direct goods for production* was ordered on-line. And, among Wholesale/Retail Distribution establishments, roughly 5% of the money spent on *goods for resale* was ordered on-line.

Table 13. On-Line Procurement

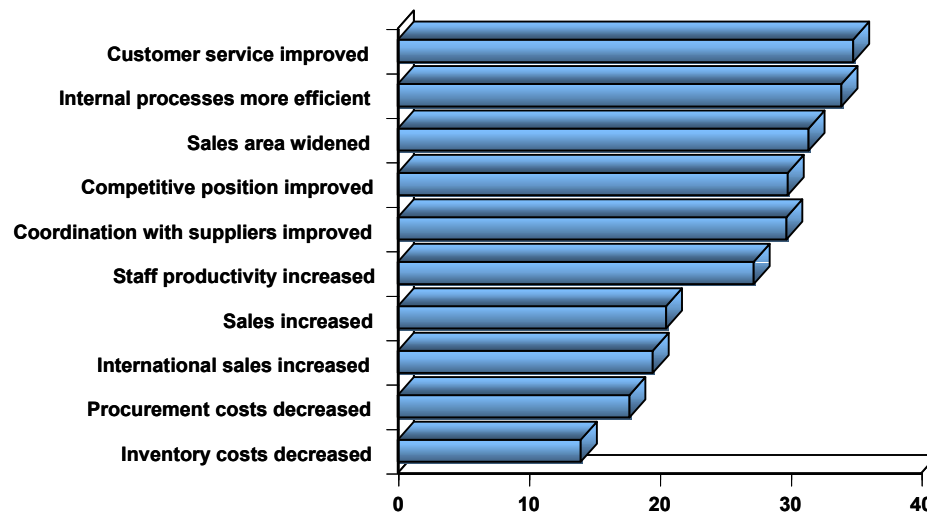
On-Line Procurement	Manufacturing	Wholesale/ Retail Distribution	Banking & Insurance	Total
% of establishments which do on-line purchasing	46.5	52.3	55.7	50.8
Mean % of money spent on direct goods for production, such as parts and components which is ordered on-line (among all establishments)	6.7			
Among only on-line procurement establishments (mean)	19.5			
Mean % of the money spent on goods for resale that is ordered on-line (among all establishments)		4.6		
Among only on-line procurement establishments (mean)		12.8		
Mean % of the money spent on supplies and equipment for doing business that are ordered on-line (among all establishments)	12.2	17.8	25.9	6.2
Among only on-line procurement establishments (mean)	13.6	23.5	28.1	20.9

VI. IMPACTS

Impacts of Doing Business On-line

There are a number of impacts of doing business on-line that were identified in the survey. A number of factors, for example degree and type of e-commerce conducted, might affect the degree to which a business experiences positive effects from doing business on-line. The survey focused on the extent to which efficiency, coordination, and market-based impacts have been achieved since the establishment began using the Internet for business (Figure 10, Table 14).

Figure 10. Impacts Of Doing Business On-line



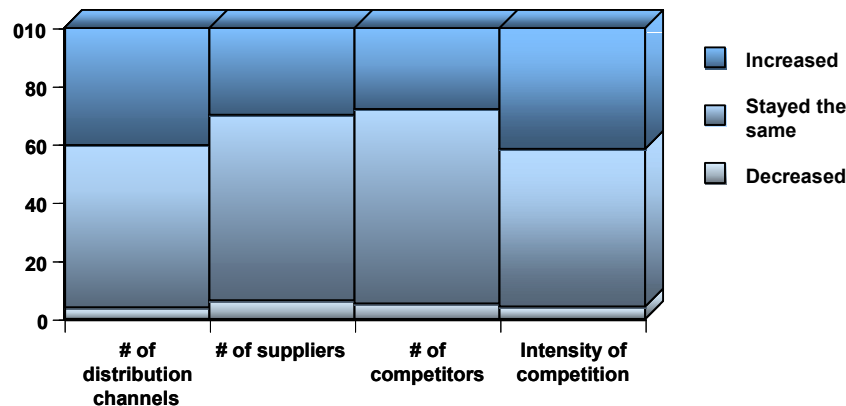
- There are major variations in the kinds of impacts experienced by the establishments since beginning the use of the Internet for business. And, there is no impact that can as yet be considered universal, i.e., experienced by a clear majority of users.
- A frequently cited impact of doing business on-line centers on the internal processes of the establishments—34% rated the degree to which the establishment experienced *efficiency in internal processes* as “a lot or a great deal”. Coupled with this, 30% reported *improved coordination with suppliers*, especially in the Manufacturing sector.
- Impacts on *customer service improvements* were also cited by 35% of the establishments. Significantly fewer establishments in the Wholesale/Retail Distribution sector compared to the Manufacturing and Banking & Insurance sectors rated customer service improvements as impacted a great deal (31% versus 40%).
- Interestingly, the relative impacts on sales were similar across the three sectors. Establishments reported a higher impact on *widening of the sales area* than on actual *increase in sales* both in general and international sales. In the Manufacturing sector, 34% reported high impacts on sales area widened, while only 19% reported increased sales and 24% reported increased *international sales*. Similarly, for Wholesale/Retail Distribution, while 30% reported sales area widened, 22% reported increased sales and 19% reported increased international sales. The same pattern is shown for Banking & Insurance with 30%, 20% and 9% respectively.

**Table 14. Impacts of Doing Business On-line:
Percent of Establishments Indicating Significant Impact**

Impacts of Doing Business On-line, percent indicating impact is a great deal	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
Internal processes more efficient	37.5	32.2	33.8	33.9
Staff productivity increased	25.9	27.6	29.6	27.2
Sales increased	18.8	21.5	19.5	20.5
Sales area widened	33.7	30.3	30.8	31.4
Customer service improved	40.8	31.1	39.7	34.8
International sales increased	24.0	18.5	9.1	19.5
Procurement costs decreased	23.5	15.2	13.8	17.7
Inventory costs decreased	16.0	13.1	12.8	14.0
Coordination with suppliers improved	32.7	28.9	25.2	29.8
Competitive position improved	34.1	27.5	30.9	29.8

The set of impacts above all posit the direction of the impact; the respondent was asked to assess the degree to which the establishment experienced the impact. However, another set of impacts focused on whether the establishment experienced an increase or a decrease in such areas as the number of distribution channels, suppliers, and competitors, as well as the intensity of competition, since it began using the Internet for business. In all four areas, establishments either experienced no change or an increase; very few establishments experienced a decrease in these areas (Figure 11, Table 15). Indeed, the data show that for many establishments, using the Internet for business did not affect the number of suppliers, distribution channels, and suppliers.

Figure 11. Impacts of Doing Business On-line



- In all three sectors, more than two-fifths of the establishments reported that *intensity of competition* increased since beginning use of the Internet for business.
- Wholesale/Retail Distribution (42%) and Banking and Insurance (40%) were more likely to experience an increase in **number of distribution channels**, than Manufacturing (37%). However, the differences were not that great.
- The **number of suppliers** was more likely to increase for establishments in Manufacturing sector (37%) than in Banking and Insurance (30%) and Wholesale/Retail Distribution (26%).

**Table 15. Impacts of Doing Business On-line:
Percent Indicating an Increase since Doing Business On-line**

Percent indicating increase in ...	Manufacturing	Wholesale/Retail Distribution	Banking & Insurance	Total
Number of distribution channels	36.6	42.1	39.8	40.2
Number of suppliers	37.7	26.1	29.9	29.9
Number of competitors	28.9	27.3	28.8	27.9
Intensity of competition	40.4	42.0	42.3	41.5

About the Survey

This report is based on the responses to a telephone survey conducted in 10 countries (United States, Mexico, Brazil, Denmark, France, Germany, Taiwan, Singapore, China and Japan) during the period February 18, 2002 – April 5, 2002. Except for Japan, all surveys were conducted by Market Probe (subcontracted and managed by the International Data Corporation (IDC) located in Framingham, MA). The questionnaire was designed by researchers at the University of California, Irvine and reviewed/critiqued by IDC consultants. The questionnaire was translated into Spanish, Portuguese, Chinese, French, German, Japanese and Danish; translations were reviewed by country experts selected by IDC and by CRITO.

The establishment (site) was the sampling unit and is the unit of the database. An establishment is defined as the physical location. The sampling was a stratified random sample; stratified by size (large – 250 or more employees and small – between 25 and 250 employees) and by industry (manufacturing -- SIC 20-39, wholesale/retail distribution -- SIC 50-54,56-57, 59; and banking & insurance -- SIC 60-65). A stratified sampling method without replacement was used, with sites selected randomly within each vertical/size cell.

The sample frame was obtained from a list source representative of the entire local market, regardless of computerization or Web access. Dun & Bradstreet was used for the United States, Denmark, France and Germany. Kompas was used for Brazil, Mexico, Taiwan and Singapore. The Census of Enterprises and Yellow Pages was used for China. The Teikoku Data Bank was used for Japan.

A predetermined number of interviews were completed in each establishment size and industry category to ensure an adequate sample to report on for each establishment size and industry group for each country at the 95% confidence interval. Interviews were conducted only with those companies that make use of the Internet in conducting its business. Target completes were a minimum of 200 interviews per country (except for 300 interviews in the U.S.) equally divided by size (large/small) and sector (manufacturing/wholesale & retail distribution/banking & insurance).

A national sampling approach was used in data collection for all countries except China. That is, sites were selected regardless of geographic location within the country. In China (PRC), however, the sites were selected from the following cities: Beijing, Shanghai, Guangzhou, and Chengdu.

Eligible respondents were the individuals at each site best qualified to speak about the site's overall computing activities. For medium/large sites, the respondent was the CIO, an IT Director, or IT Manager. For small sites, it was an IT Manager or Owner.