

**ANNUAL SURVEY ON INFOCOMM USAGE IN  
BUSINESSES FOR 2003**

**EXECUTIVE SUMMARY**

June 2004

# EXECUTIVE SUMMARY OF ANNUAL SURVEY ON INFOCOMM USAGE IN BUSINESSES FOR 2003

## INTRODUCTION

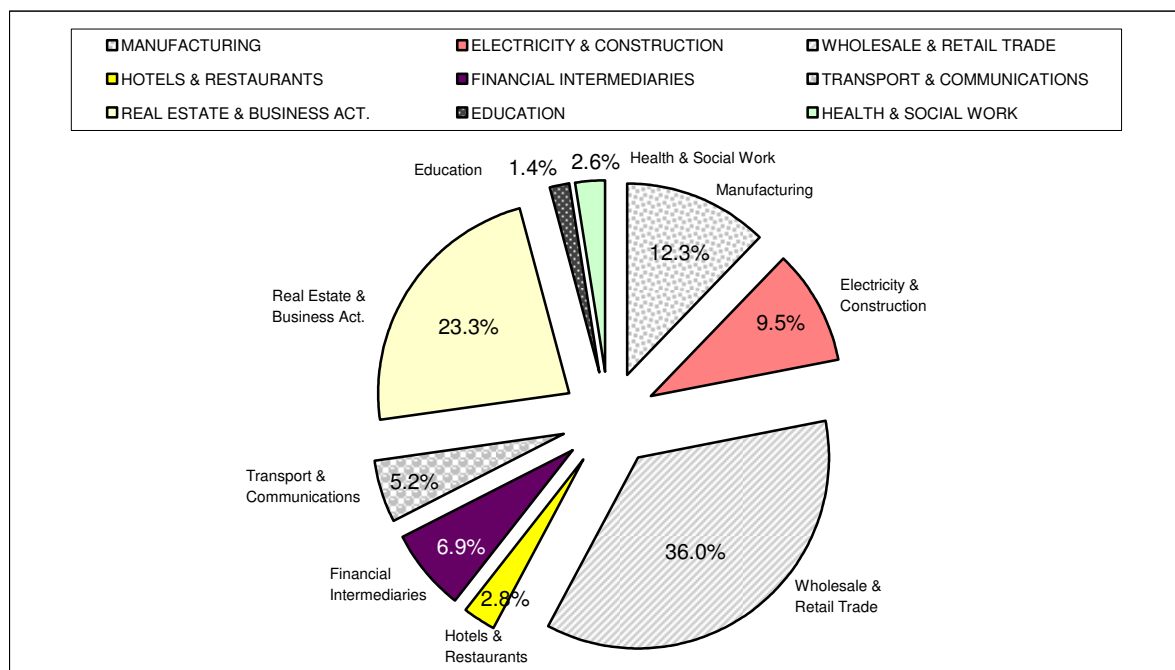
The Annual Survey on Infocomm Usage in Businesses for 2003 is the latest in the annual series to gauge the adoption of Infocomm Technologies by companies in Singapore.

The survey aimed to determine the rate of dispersion of infocomm usage across the major economic sectors, assess their level of adoption, sophistication and spending pattern, and identify the trends, barriers and motivation for the use of Infocomm technologies.

## SURVEY RESEARCH & DESIGN

A stratified sampling method was used to ensure the survey respondents were representative of the major Singapore economic sectors. The profile of the companies surveyed was as follows:

**Figure 1: Profile of Companies Surveyed**



## **KEY FINDINGS**

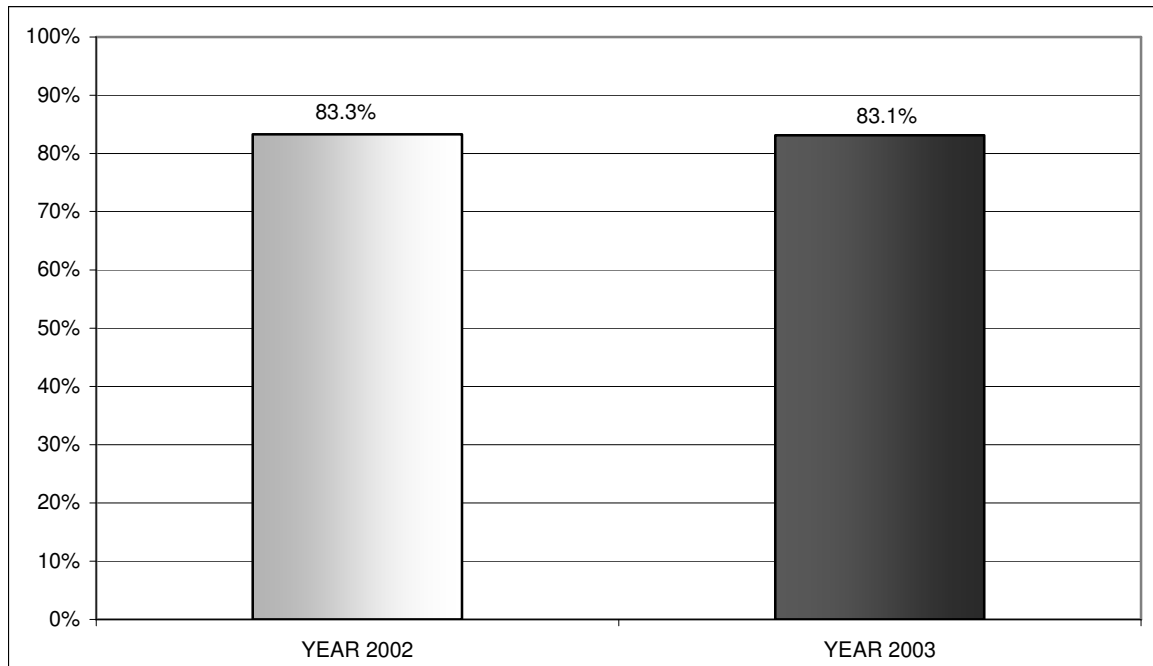
- The percentage of companies adopting Infocomm in year 2003 was estimated at 83.1%. Penetration level remained constant compared to year 2002 when it was approximated to be 83.3%.
- More than three-quarters (75.9%) of companies had access to the Internet in year 2003. Internet penetration remained relatively stable from year 2002 (78.3%) to year 2003.
- Broadband adoption in companies increased from about 41.2% in year 2002 to approximately 54.0% in year 2003.
- Among companies using Infocomm in their business processes, the percentage using Wireless technologies increased from 9.6% in year 2002 to 27.6% in year 2003.
- Adoption of Web Services amongst companies using Infocomm grew from around 7.9% in year 2002 to about 12.5% in year 2003.

## Total Companies

### a. Adoption of Infocomm Appliances<sup>1</sup>

- The percentage of companies using Infocomm appliances (Figure 2) was 83%, this penetration rate remained constant when compared to year 2002.

**Figure 2: Usage of Infocomm Appliances (2003 vs 2002)**

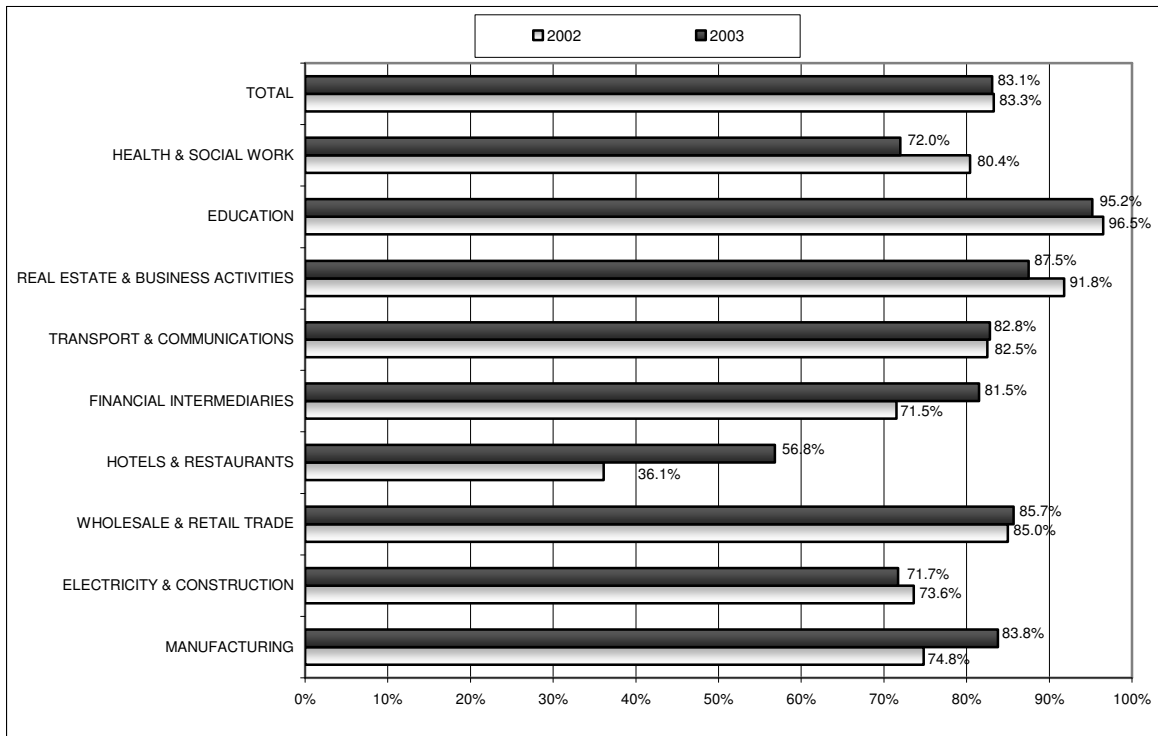


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<sup>1</sup> Infocomm Appliances refers to personal computers, laptops, workstations terminals, personal digital assistants (PDAs) or WAP enabled mobile phones.

- The Education Sector continued to be the top sector with over 95% usage level, while the Hotel & Restaurant Sector grew the fastest with a usage rate of nearly 57%, up from 36% in 2002 (Figure 3).

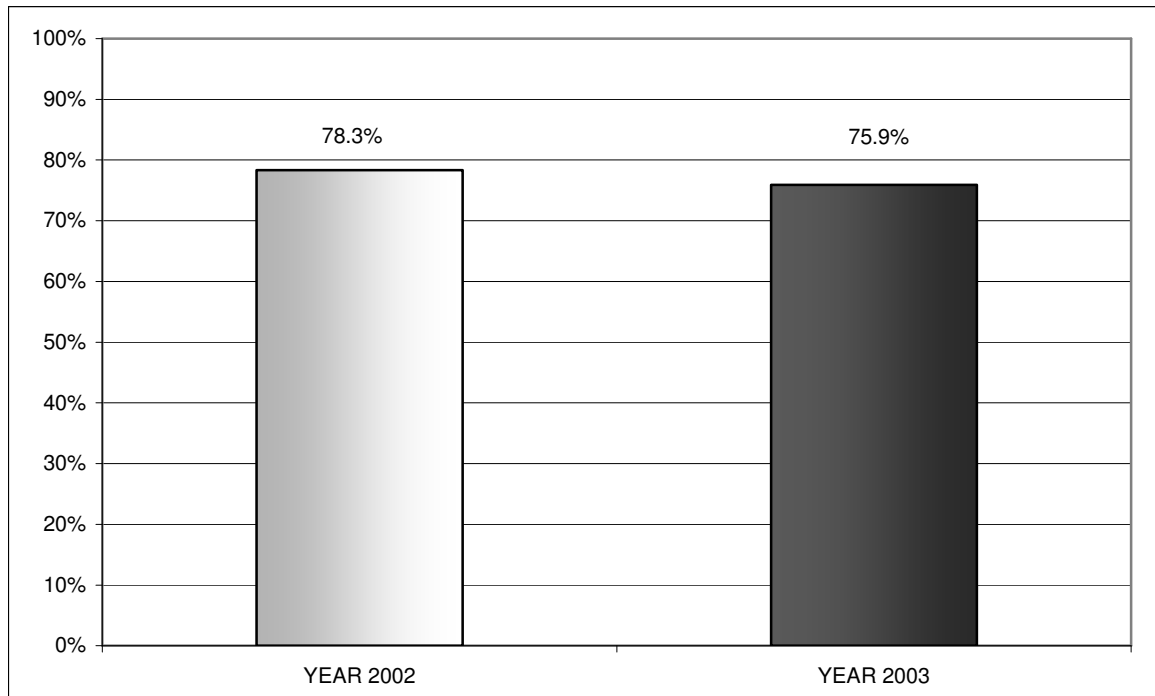
**Figure 3: Usage of Infocomm Appliances by Sectors (2003 vs 2002)**



**b. Internet Technology & Broadband Services**

- Companies' adoption of Internet (Figure 4) remained relatively constant<sup>2</sup> throughout the 2 years, hovering slightly above the three-quarters mark at 76% in year 2003. The Hotel & Restaurant Sector registered the most growth with a doubling of usage rate from 22% in 2002 to 50% in 2003.

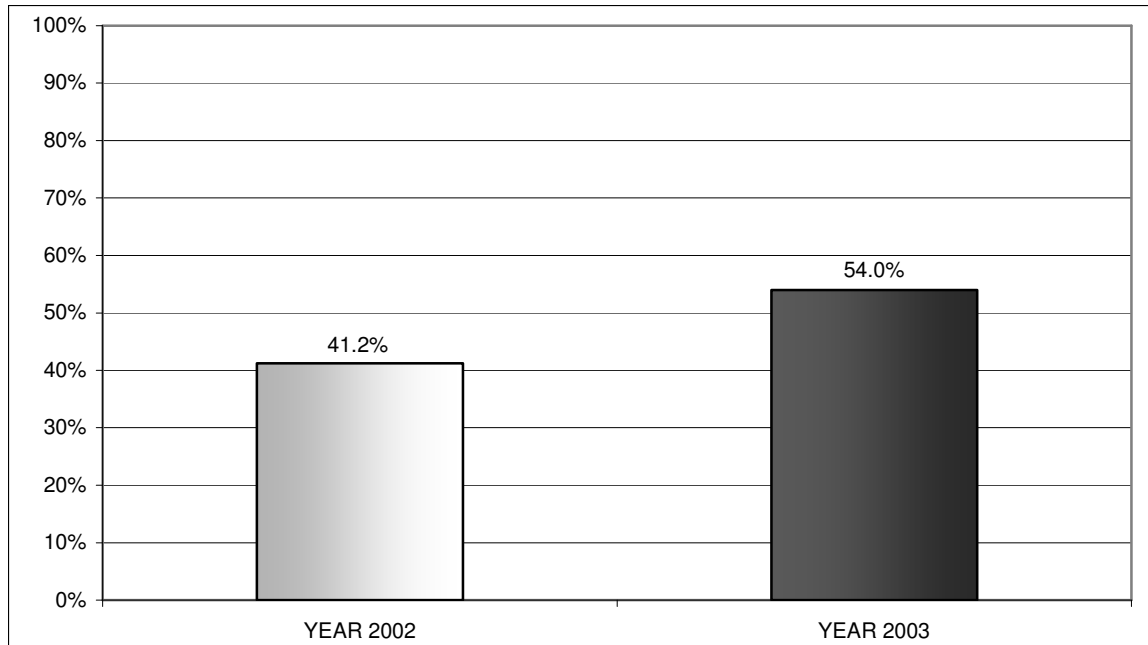
**Figure 4: Internet Penetration Among Companies (2003 vs 2002)**



<sup>2</sup> At 99% Confidence Level, the level of Internet penetration for year 2003 ranges between 73.4% and 78.4%.

- Broadband Internet access (Figure 5) had increased, growing from 41% in 2002 to 54% in 2003 while correspondingly, the narrowband access penetration decreased from nearly 51% to 40%, in the same time period. The migration from narrowband to broadband was probably due to the reduction of broadband prices during this period.

**Figure 5: Companies with Broadband Access (2003 vs 2002)**



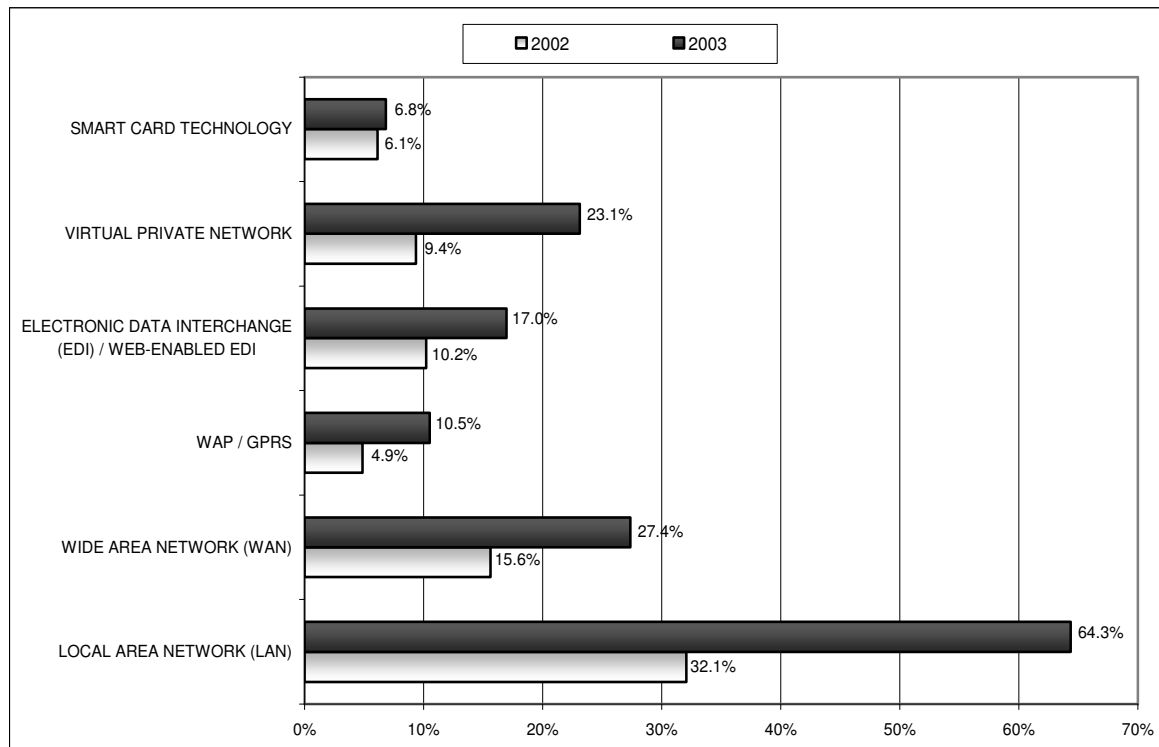
**c. Barriers & Motivations to Infocomm Usage**

- Companies were most concerned about the cost of implementation when deciding to use Infocomm. Over 83.4% indicated a rating of 3 or more, on a scale of 1 to 5, with 5 being most concerned. Security Issues was the next highest concern with 78%.
- The most effective methods to encourage companies to use Infocomm were Assistance in Skills Development and Knowledge Acquisition (80% rating 3 or more, on a scale of 1 to 5, with 5 being the most important) and Financial Assistance and Grant for IT Implementation (80%).

## Companies Using Infocomm

### a. Usage of Infocomm Technologies

**Figure 6: Usage of Infocomm Technologies (2003 vs 2002)**



- Usage of Infocomm Technologies generally increased from year 2002 to year 2003 (Figure 6).
- The most commonly used Infocomm Technology is Local Area Network (64%), followed by Wide Area Network (27%) and Virtual Private Network (23%).

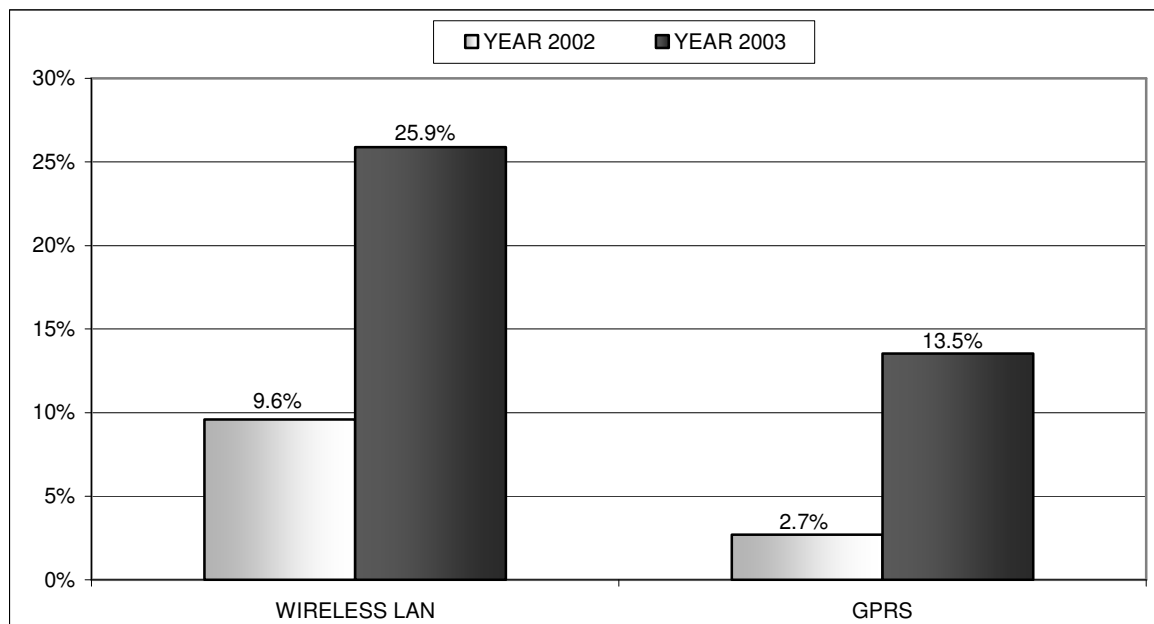
**b. Internet and Broadband Access**

- For companies with Internet access, the use of Internet for Online Research (51%), Internal Communications (48%), and Marketing/Promotion (41%) are the top three uses.
- For companies with broadband Internet, the main uses were Hosting and Hubbing (20%), and Video-conferencing (14%). These were also the main uses in 2002.
- The most important factors for companies deciding to use Broadband, on a scale of 1 to 5 (where 5 is the most important), with a rating of 3 or more, were Reliability or Stability (52%) and Affordability (43%).
- On the same scale and importance rating, companies rated achieving Greater Productivity (23%) and Faster Turn-around and Time-to-Market (18%) as the two most important benefits achieved with broadband.

**c. Wireless Technologies**

- For companies using Infocomm technologies (Figure 7), the usage of wireless technologies had increased substantially over 2002. The use of Wireless LAN jumped from less than 10% to almost 26%, and the use of GPRS increased five-fold from less than 3% to 13.5%.
- The top three uses for Wireless LAN were Information Systems (57%), Sales & Marketing (53%), and Logistics (42%). These three uses were also the top three in 2002, although at much lower penetration rates of 35%, 34%, and 28%, respectively.

**Figure 7: Usage of Wireless Technologies (2003 vs 2002)**

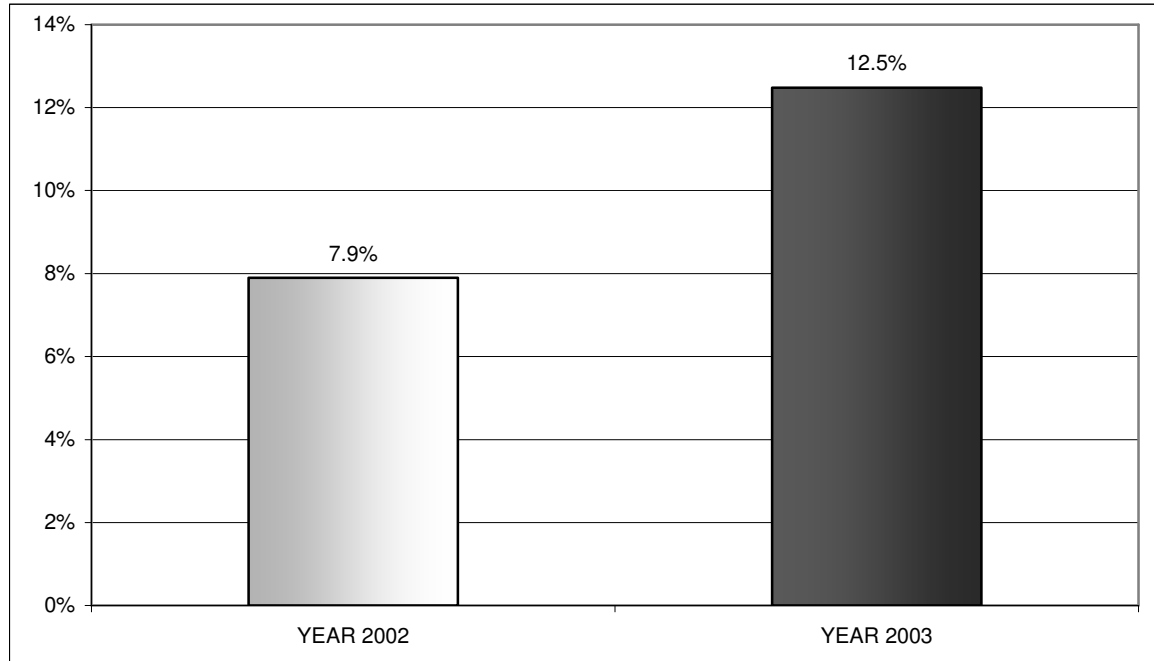


- In the case of GPRS, the three main uses were again, Sales & Marketing (35%), Information Systems (26%), and Logistics (21%). Similarly, these were the top three uses in 2002 with penetration rates of 27%, 19%, and 17%, respectively.
- Overall, the need for wireless access outside office premises increased from 18% in 2002 to 41%. Companies in every sector showed an increase in need for Wireless Access Outside Office Premises. In the case for Health & Social Work and Hotels & Restaurants sectors, there were no indications of the need for Wireless Access Outside Office Premises in 2002. However, in 2003, they indicated some needs.

**d. Web Services**

- Among companies using Infocomm technologies, Web Services (**Figure 8**) grew from 8% in 2002 to nearly 13% in 2003. Most companies were using XML (12%) as compared to other technologies like SOAP (3%), WSDL (2%), and UDDI (1%).

**Figure 8: Adoption of Web Services (2003 vs 2002)**

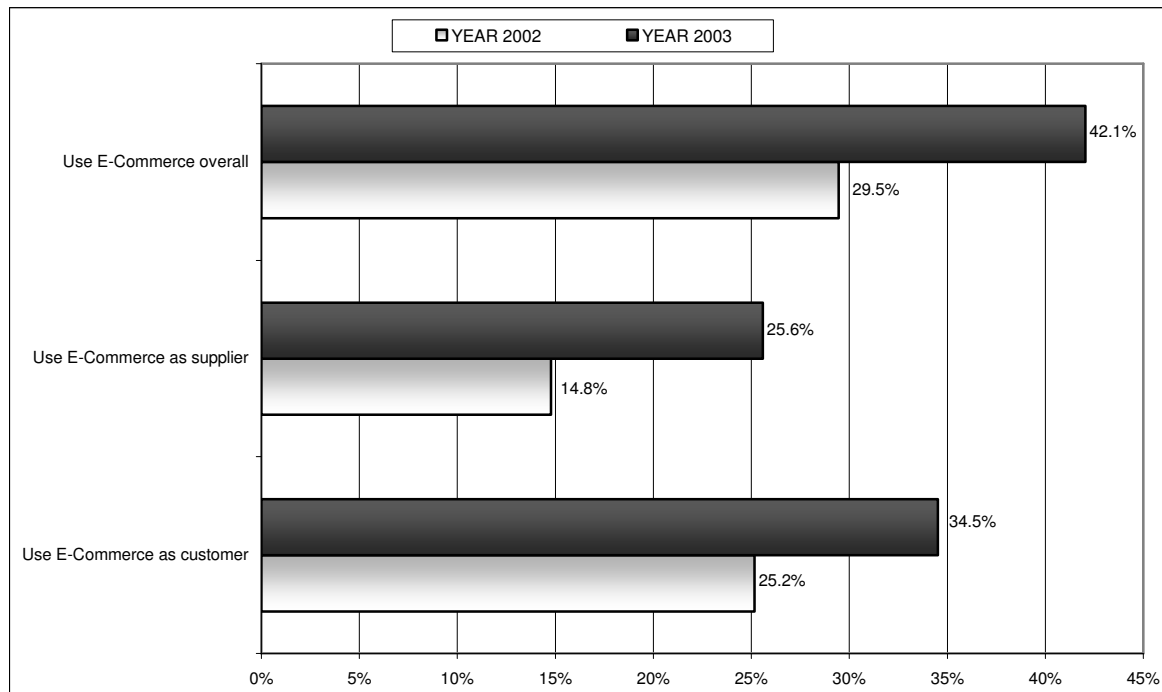


- Like the previous year, Enterprise Web Services was the main use of web services technology with over 75% of companies using web services. In 2002, 69% were using Enterprise Web Services.
- The three top benefits experienced by companies using web services were Improved Customer Service (84%), Ability to Implement New Business Model (83%), and Enabled Better Integration with Business Partners (81%), on a scale of 1 to 5 (5 being the most important) and with ratings of 3 or more.

**e. Electronic Commerce**

- The overall usage of electronic commerce (Figure 9) had increased significantly from 30% in 2002 to 42%. Companies using e-commerce as Supplier increased from 15% in 2002 to 26%, and those using e-commerce as Customer increased from 25% in 2002 to 35%.

**Figure 9: Adoption of Electronic Commerce (2003 vs 2002)**

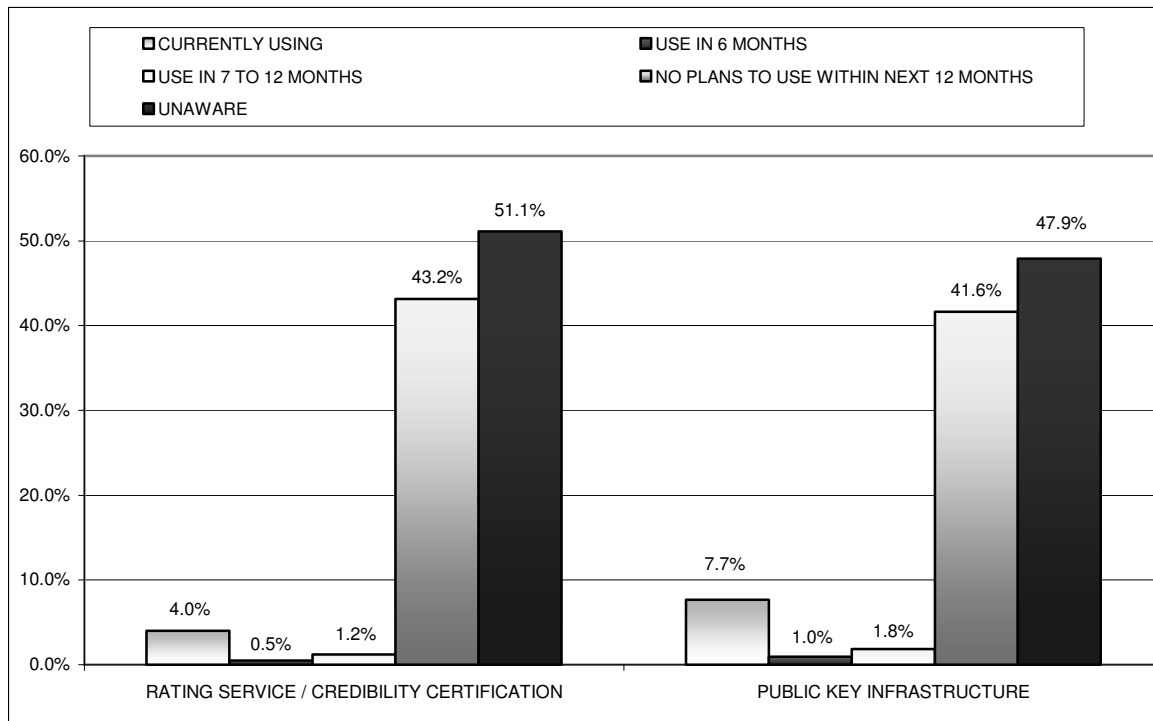


- More than 90% of companies using Infocomm technologies were unaware of E-commerce Best Practices (BBB Online, Truste, VeriSign, and TrustSG).
- For companies that did use E-commerce Best Practices, the most commonly used were VeriSign (less than 8% of all companies using Infocomm) and TrustSG (less than 2%).

**f. Security & Trusted Services**

- The most commonly used forms of Factor Authentication Services were User Password (51%), Smart Card (9%), USB Token and/or Random Number Token (8%).
- At least 45% of companies using Factor Authentication were using two or more types within a particular application.
- The Education Sector has the highest percentage of companies using Multi-factor Authentication at 100%. The other two sectors with the highest number of users were Transport & Communications (62%) and the Electricity, Gas & Water and Construction (57%).
- For Trusted Services (Figure 10), unawareness among companies using Infocomm stood at 48% for Public Key Infrastructure (PKI) and 51% for Rating Service/Credibility Certification.

**Figure 10: Usage of Trusted Services for 2003**



- Correspondingly, the adoption of PKI was nearly 8%, while the adoption of Rating Service/Credibility Certification was 4%.

## CONCLUSION

The adoption of Infocomm by Singapore companies appeared to be reaching saturation at about the 83% penetration level. More than 92% of companies that did not use Infocomm stated that they did not intend to use Infocomm in the future.

Notwithstanding this, for companies currently using Infocomm, many were moving towards the adoption of new technologies and showing signs of increasing sophistication with the view to increase productivity and exploit opportunities in new business models; and to reach out to business partners and customers in order to continue to grow their businesses. Many narrowband Internet users, for instance, had migrated to using broadband for the better advantages the newer and faster broadband technology has to offer. Even for Wireless technologies, it was apparent from the increased adoption figures that more companies were beginning to use new technologies such as Wireless LAN, GPRS and Web Services.

The results of the survey show that Infocomm had become an integral part of doing business in Singapore and that “IT indeed does matter”.