ANNUAL SURVEY ON INFOCOMM USAGE BY ENTERPRISES FOR 2012

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PART I: SURVEY COVERAGE, METHODOLOGY AND COMPANY PROFILE

1. INTRODUCTION

The annual survey on Infocomm Usage by Enterprises for 2012 is the fourteenth in the series of such annual surveys carried out by the Research and Statistics Unit of the Infocomm Development Authority of Singapore since 1999. This survey is conducted under the Statistics Act (Chapter 317) which empowers the Director of the Research and Statistics Unit to collect data on the infocomm activities in Singapore. The Act also guarantees the confidentiality of individual information obtained from the survey.

2. SURVEY OBJECTIVE AND COVERAGE

This survey aims to gauge the levels and types of infocomm adoption and usage in enterprises in Singapore; and identify the barriers to infocomm adoption. Representative samples of infocomm and end-user enterprises were selected from the Department of Statistics' (DOS) Establishment Sampling Frame.

3. NOTES ON DATA

Past years' data are included for comparison purposes where available. Due to the rounding of numbers, the sum of individual figures may not add up to the total or 100%.

4. INDUSTRY PROFILE

Chart 1.1 provides a profile of the respondents by sector, with *Wholesale and Retail Trade* comprising about a third of all sectors.

Chart 1.1: Distribution of enterprises by sector

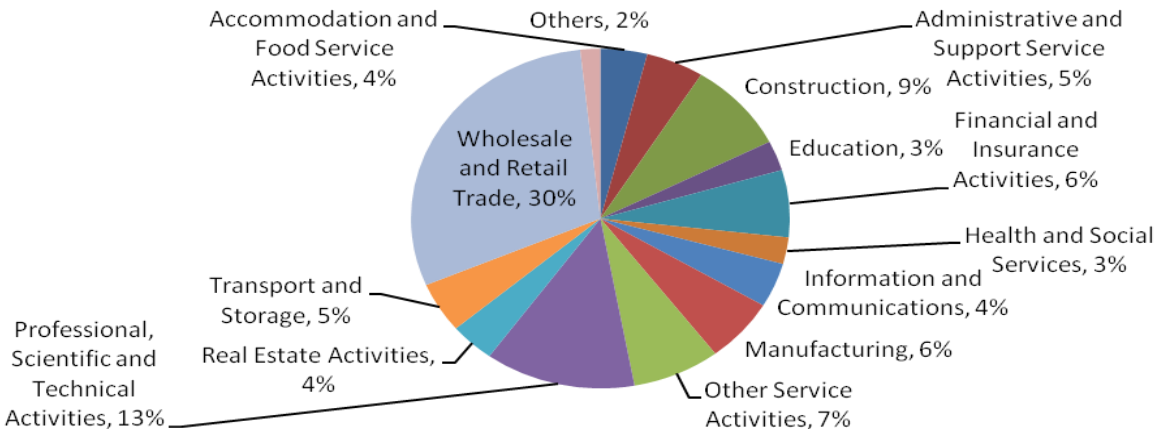
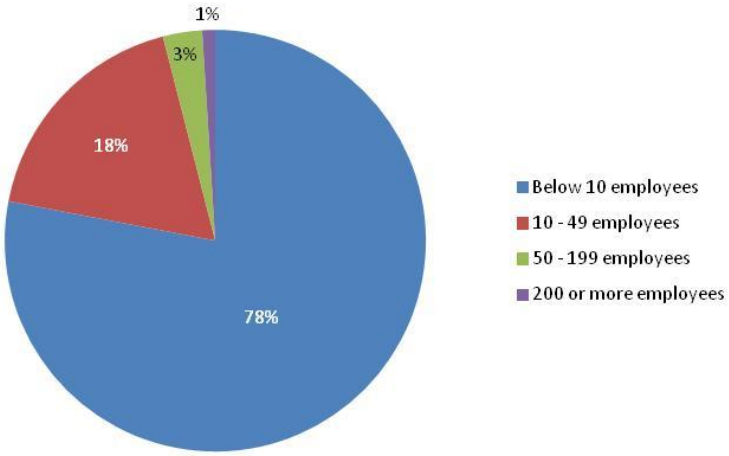


Chart 1.2 provides a profile of the respondents by employment size, with 78% of the enterprises having below 10 employees.

Chart 1.2: Distribution of enterprises by employment size



PART II: SURVEY FINDINGS

1. SUMMARY

- In 2012, the usage of computers, Internet, broadband and web presence among enterprises continued to increase. The proportion of enterprises that used computers and the Internet increased from 79% in 2010 to 84% in 2012 and from 77% in 2010 to 82% in 2012 respectively. The proportion of enterprises that used broadband increased from 77% in 2010 to 80% in 2012 and 46% of enterprises had web presence, up from 41% in 2010.

- Infocomm usage was the most prevalent in the *Information & Communications*; *Financial and Insurance Activities; and Administrative and Support Service Activities* sectors.

- While almost all enterprises that used the Internet did so via desktop PCs and laptops, more enterprises were accessing Internet via mobile phones. *Sending and receiving emails* and *Information Search* were two most common Internet activities on computers and mobile equipments.

- Higher proportions of enterprises used the Internet and mobile equipments to conduct business. More enterprises used mobile services to engage customers, mostly for sending products and promotional information to them.

- Infocomm security adoption was on the rise amongst enterprises with *Virus Checking/Protection Software being* the most commonly adopted security measure among all enterprises, followed by *Firewall* and *Anti-Spyware Software*.

2. INFOCOMM USAGE

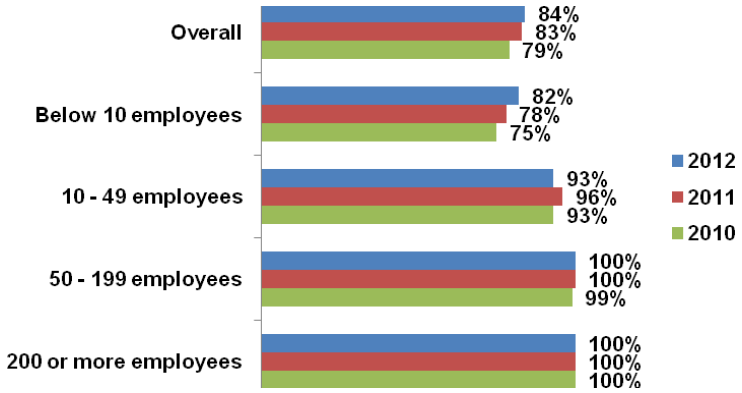
2.1 By Employment Size

Usage of computers, Internet, broadband and web presence among enterprises continue to increase

Usage of Computers

Computer usage among enterprises continue to increase to reach 84% in 2012 (Chart 2.1). When analysed by employment size, all enterprises with 50 or more employees used computers.

Chart 2.1: Computer usage by employment size



Usage of Internet and Broadband

Similar to computer usage, all enterprises with 50 or more employees used the Internet (Chart 2.2). Enterprises that connected to the Internet via broadband grew from 78% in 2011 to 80% in 2012 (Chart 2.3), and enterprise with web presence[1] grew from 44% in 2011 to 46% in 2012 (Chart 2.4). The increase in

[1] A web presence can be in the format of a:
a) website,
b) home page or presence on another entity's website (including a related business),
c) blogsites, or
d) webpage(s) listed at an online directory that satisfies all the criteria below:
- webpage(s) with company name, contact number, office address and the products/services offered by the company;
- webpage(s) with pictures of the company, products or services;

broadband usage could be attributed to the increase in adoption by the smaller enterprises.

Chart 2.2: Internet usage by employment size

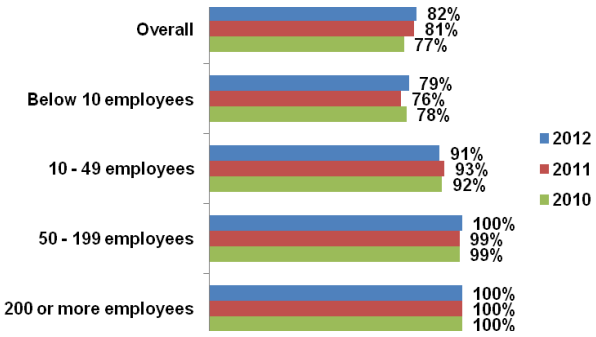


Chart 2.3: Broadband usage by employment size

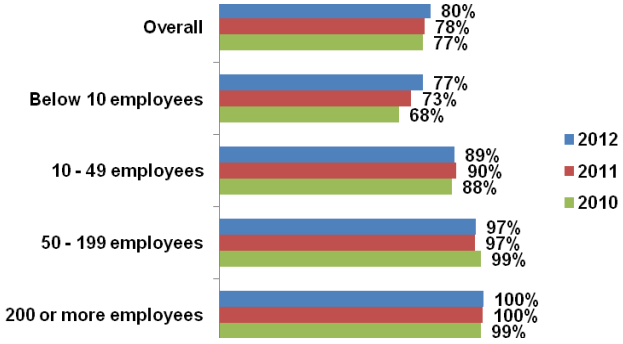
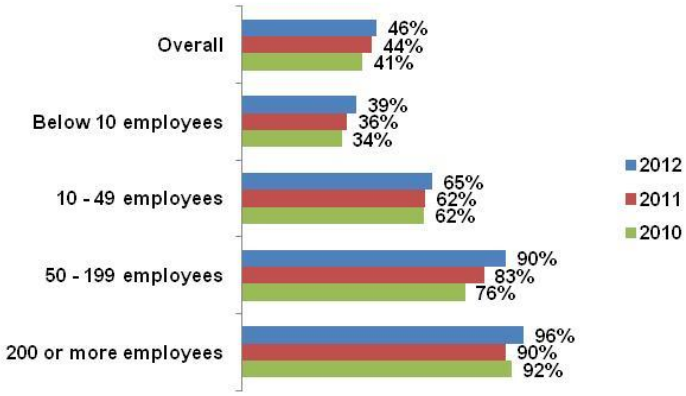


Chart 2.4: Web presence by employment size



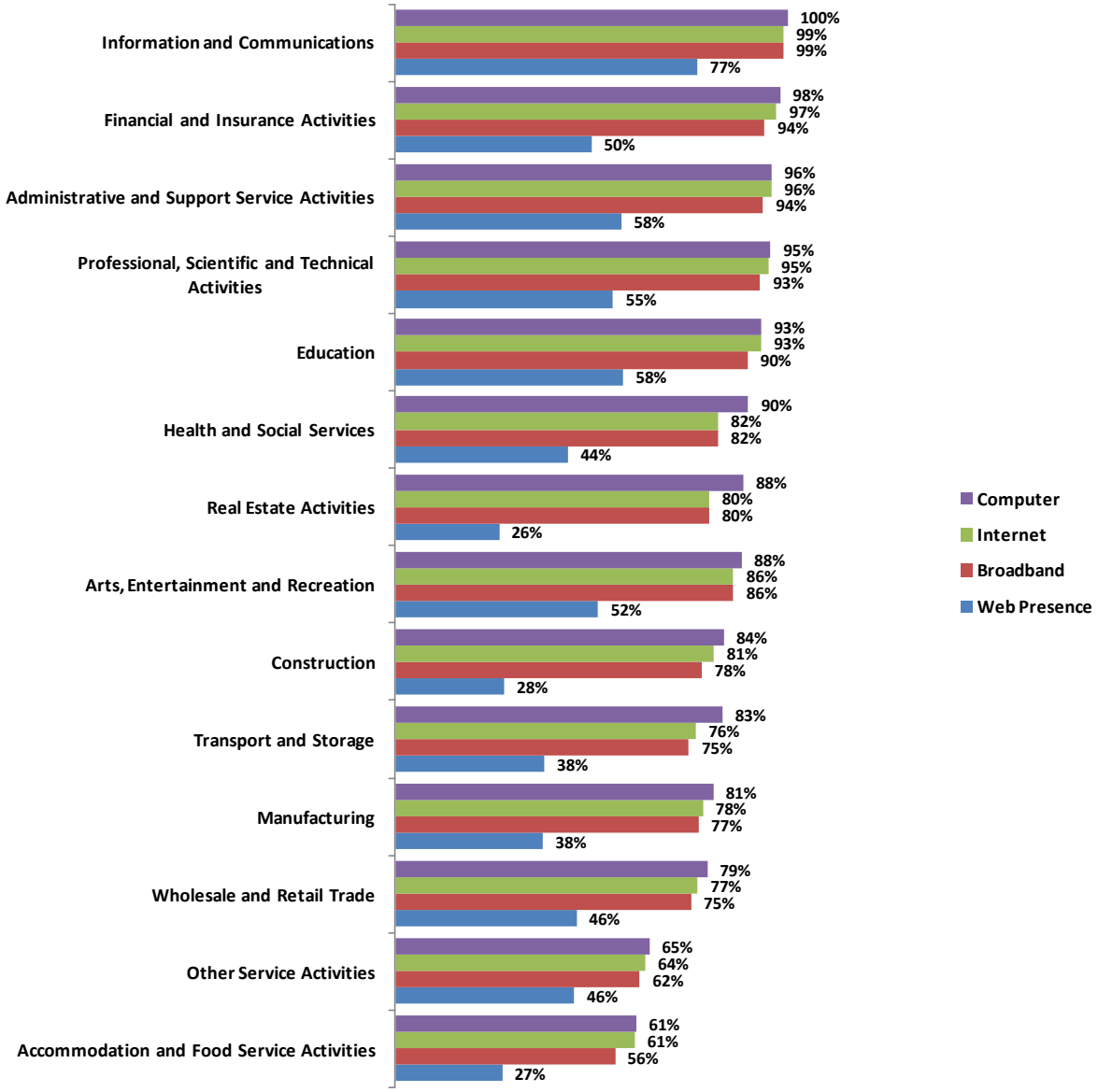
- company has control over the content of the webpage(s) and is able to update the content of the webpage(s) either on their own or via a third party.

2.2 By Sector

Information & Communications; Financial and Insurance; and Administrative and Support Service sectors were top three sectors that adopted infocomm in 2012

The *Information and Communications* sector led in infocomm adoption in all aspects, with 100% computer usage and 99% Internet usage (Chart 2.5). This is followed by *Financial and Insurance* and *Administrative Support Service* sectors.

Chart 2.5: Infocomm use by sector



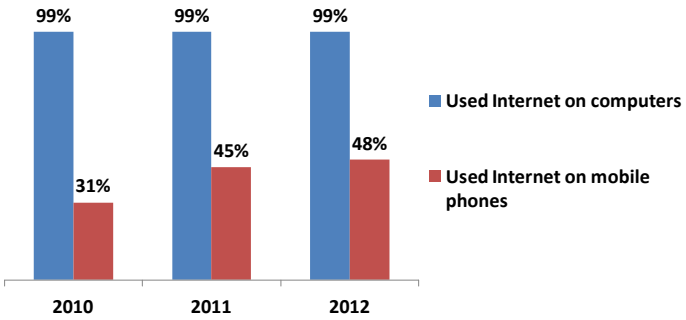
3. INTERNET USAGE

3.1 Internet Activities

While almost all enterprises that used the Internet did so via desktop PCs and laptops, mobile phones have become increasingly popular for accessing the Internet

82% of enterprises used the Internet (Chart 2.2) and close to all used computers to go about their Internet activities (Chart 3.1). Increasingly, mobile phones have also been used by enterprises for Internet activities, with 48% doing so, an increase from 31% in 2010 (Chart 3.1).

Chart 3.1: Devices used for Internet activities



Base: Enterprises with Internet Usage

Sending and receiving emails and information search remained the most common Internet activities even on mobile equipments

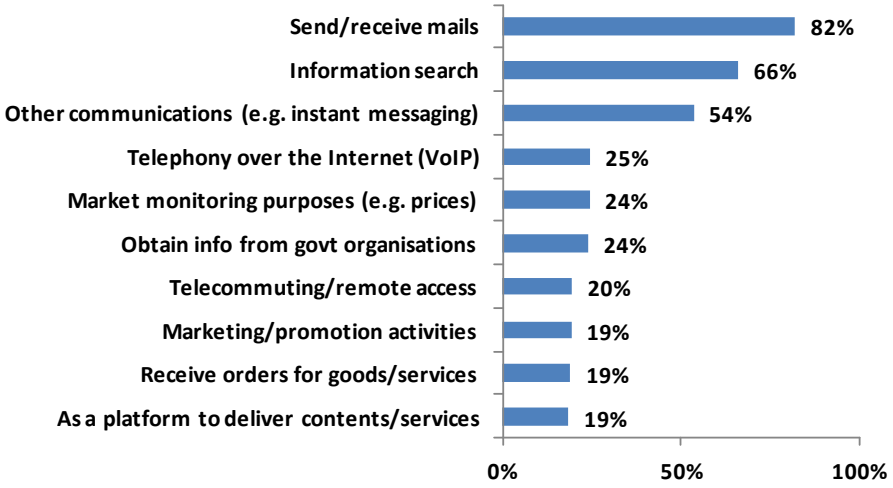
When using the Internet on computers, the most common Internet activities were sending and receiving emails (95%), information search (92%) and getting information from government organizations (77%) (Chart 3.2).

Chart 3.2: Top 10 Internet Activities on Computers

Base: Enterprises with Internet Usage on Computers

When using the Internet on mobile phones or tablets, sending and receiving mails and information search remained the most common activities. Due to the mobile nature of the devices, instant messaging and telephony over the Internet were also common Internet activities on mobile/smart phones or tablets (Chart 3.3).

Chart 3.3: Top 10 Internet Activities on Mobile/Smart Phones or Tablets



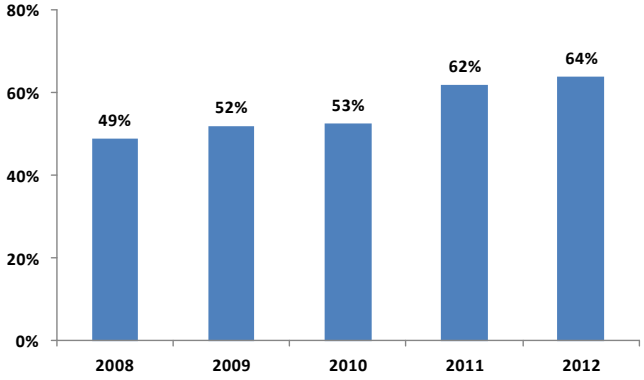
Base: Enterprises with Internet Usage on mobile/smart phones or tablets

3.2 E-commerce and mobile services usage

Higher proportion of enterprises used the Internet and mobile equipments to do business

The use of Internet among enterprises for e-commerce[2] increased from 62% in 2011 to 64% in 2012 (Chart 3.4). Similarly, the proportion of enterprises using mobile services (e.g. SMS/MMS, mobile websites, mobile applications) to engage consumers increased from 14% in 2011 to about 27% in 2012 (Chart 3.5).

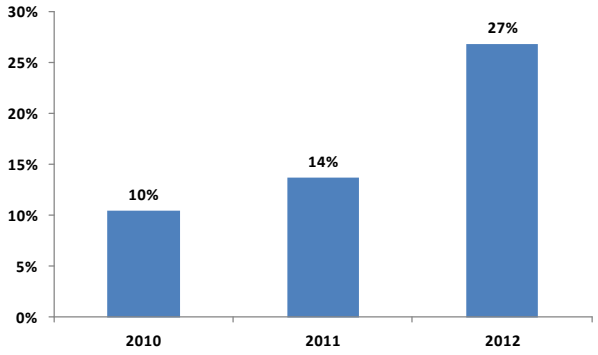
Chart 3.4: Enterprises that use the Internet for e-commerce, 2008 - 2012



Base: Enterprises with Internet usage

[2] E-commerce activities include: Receiving orders for goods/services; placing orders for goods/services; receiving payment of goods/services; and making payment of goods/services.

Chart 3.5: Enterprises that use mobile services to engage customers, 2010 - 2012



Enterprises that used mobile services (e.g. SMS/MMS, mobile websites, mobile applications) to engage their customers mainly used it to send product and promotional information (Table 3.1).

Table 3.1: Business activities by enterprises, 2010 - 2012

	Business Activities	2012	2011	2010
1	For sending product and promotional info to customers	67%	68%	58%
2	For customers to make bookings and/or reservations	35%	32%	32%
3	For customers to buy products and services	31%	36%	32%
4	For engagement of customers through loyalty programmes	13%	15%	9%
5	For supply chain management	8%	7%	-

Base: Enterprises which use mobile services

While many enterprises were aware of the benefits to using mobile services, they did not see the need to adopt them (Table 3.2).

Table 3.2: Top five barriers to using mobile services, 2010 - 2012

Barriers to using mobile services	2012 Ranking	2011 Ranking	2010 Ranking
Aware of benefits but no need for my company	1	1	1
Lack of internal resources to implement mobile services	2	2	2
Unaware of benefits to using mobile services	3	4	5
Cost of implementation is too high	4	3	3
Unable to find a suitable solution to meet business requirements	5	5	4

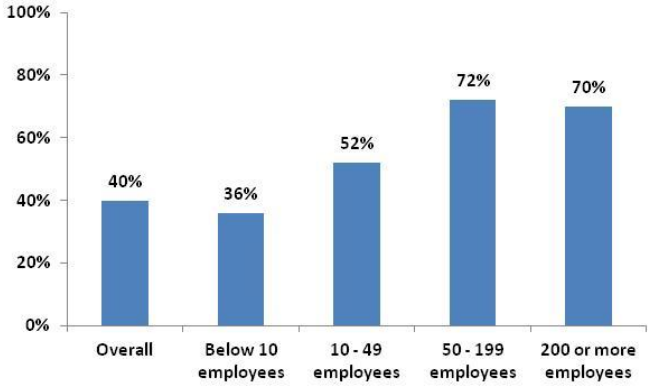
Base: Enterprises that do not use mobile services

3.3 Customised Infocomm Solutions

Larger enterprises are more likely to use e-payments, while local SMEs[3] have higher adoption in infocomm solutions

About 40% of all enterprises used e-payments in their businesses, with higher adoption rates among the enterprises with more employees (Chart 3.6).

Chart 3.6: Enterprises that use e-payments by employment size



Base: Enterprises that use e-payment

Amongst enterprises that did not use e-payments, the top reason for not using e-payment was because enterprises felt that the nature of their business was not a good fit for e-payment (Table 3.3).

Table 3.3: Top five barriers to e-payment adoption, 2010 - 2012

Barriers to E-payment Adoption	2012	2011	2010
Nature of business is not a good fit for e-payment	1	1	1
Cost of transaction fees	2	2	5
Not sure of e-payment benefits to business	3	5	6
Poor awareness/understanding of e-payment	4	6	3
Limited resources/capability/knowledge to adopt and operate e-payment system	5	3	2

Base: Enterprise that do not use e-payment

Accounting & Finance software was the most common infocomm solution adopted by local SMEs, followed by *Payroll* and *Human Resource Management* solutions (Table 3.4).

[3] The definition of local SMEs since 1st April 2011 is as follows:

- At least 30% local equity
- Less than $100m turnover
- Less than 200 employees

Prior to 1st April 2011, the definition of local SMEs was:

- At least 30% local equity
- Less than $15m fixed assets investment
- Less than 200 employees (for the non-manufacturing sectors)

Table 3.4: Infocomm Solutions used by Local SMEs

	Infocomm Solutions	Yes, currently using	No	
			Planning to use in the next 12 months	No plans to use
1	Accounting and Finance	44%	8%	48%
2	Payroll	23%	7%	70%
3	Human Resource Management (excl payroll & leave)	13%	6%	81%
4	Point of Sales (POS)	10%	5%	84%
5	Customer Relationship Management (CRM)	8%	6%	86%
6	Video Conferencing	7%	5%	89%
7	Software Development Tools	6%	3%	91%
8	Enterprise Resource Planning (ERP)	5%	4%	90%
9	Supply Chain Management	5%	4%	91%
10	Software Testing Tools	4%	4%	92%
11	Events Management	4%	4%	93%
12	Mobility Solutions (wireless menu ordering, inventory management)	4%	5%	92%
13	Healthcare Management	3%	3%	94%
14	Software Lifecycle Management Tools	3%	4%	93%
15	Fleet Management	3%	3%	94%
16	Augmented Reality	2%	3%	95%

Base: All Local SMEs

For local SMEs not adopting infocomm solutions, a lack of perceived benefits was ranked as the top barrier (Table 3.4).

Table 3.4: Top five barriers to infocomm usage in general, 2010 - 2012

Barriers to Infocomm Usage	2012 Ranking	2011 Ranking	2010 Ranking
Lack of perceived benefits	1	1	2
Technology is too complicated	2	3	1
Cost of infocomm expenditure is too high	3	2	3
Supply of infocomm technology does not match the infocomm needs of the organisation	4	4	4
The level of infocomm skills is too low among the employed personnel	5	5	5

Base: All local SMEs which do not use infocomm solutions

4. INFOCOMM SECURITY

4.1 Infocomm Security adoption

Infocomm security adoption on the rise among enterprises with Virus Checking or Protection Software being most commonly adopted infocomm security measure among all enterprises

Enterprises have increased their adoption of the various infocomm security measures across the years (Table 4.1). *Virus Checking or Protection Software* was the most pervasive infocomm security measure among all enterprises; with *Firewall* and *Anti-spyware* being the next most commonly deployed infocomm security measures.

Table 4.1: Infocomm security measure, 2009 - 2012

	Infocomm Security Measure	2012	2011	2010	2009
1	Virus checking or protection software	94%	95%	69%	67%
2	Firewall	73%	71%	58%	53%
3	Anti-spyware software	68%	71%	59%	56%
4	Regular backup of critical data	64%	58%	51%	45%
5	Spam filter	53%	54%	49%	46%
6	Offsite data backup	23%	21%	19%	17%
7	Access control software/hardware	23%	24%	24%	24%
8	Encrypted transmission of sensitive information (SSL)	21%	22%	17%	15%
9	Intrusion detection system	14%	15%	16%	13%

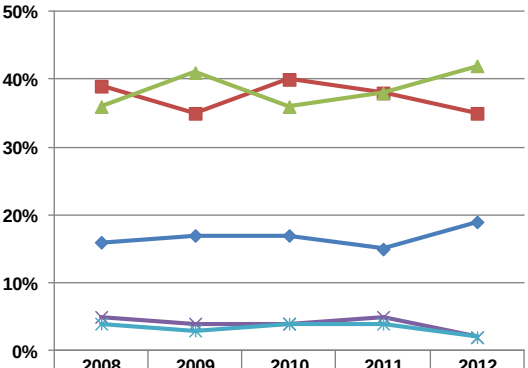
Base: All enterprises who adopt infocomm security measures and computer usage

4.2 Confidence Level in Singapore as a Trusted Hub

More than half indicated their confidence in Singapore as a trusted hub to conduct business in cyberspace

For enterprises that used computers, about 54% indicated “Highly Confident” or “Confident” in Singapore as a trusted environment to conduct business in cyberspace (Chart 4.1).

Chart 4.1: Confidence level in Singapore as a trusted environment to conduct business in cyberspace, by employment size



	2008	2009	2010	2011	2012
Highly Confident	16%	17%	17%	15%	19%
Confident	39%	35%	40%	38%	35%
Neutral	36%	41%	36%	38%	42%
Less Confident	5%	4%	4%	5%	2%
Not Confident	4%	3%	4%	4%	2%

Base: All enterprises with computer usage

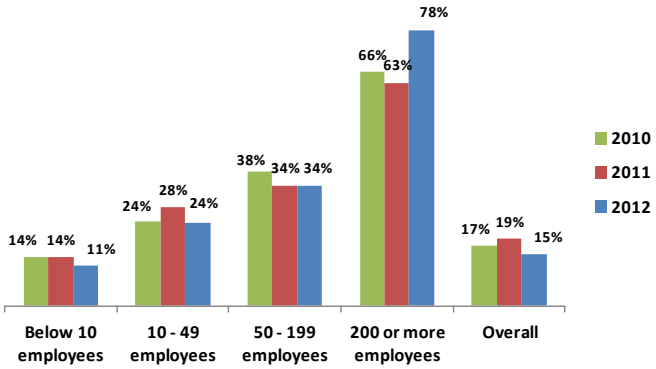
4.3 Infocomm Security Education

Larger enterprises more likely to educate employees on infocomm security; spend more on infocomm security education

About 15% of enterprises invested in educating their employees on infocomm security[4] in 2012; with the larger enterprises having a higher tendency to invest in infocomm security education compared to smaller enterprises (Chart 4.2).

Chart 4.2: Infocomm security education by employment size

(Includes seminars, courses, newsletters and email bulletins)

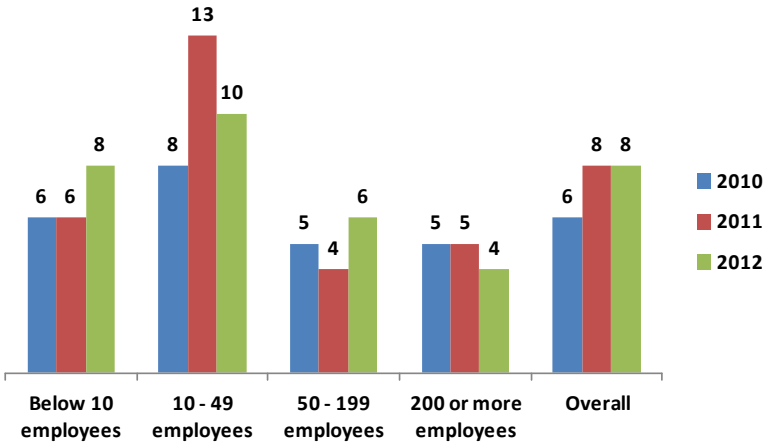


Enterprises spent an average of 8 days on infocomm education for each of their staff (Chart 4.3) and the amount spent on educating employees on infocomm

[4] Infocomm security education includes education for employees on the security habits and practices to protect the enterprise's information and computers.

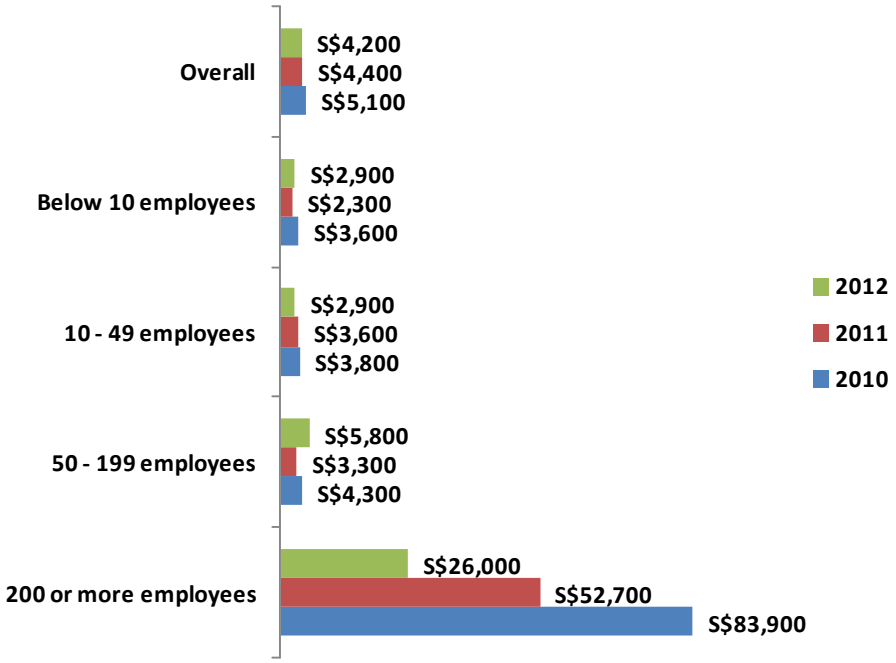
security was S$4200 (Chart 4.4). Due to the larger pool of manpower, enterprises with 200 or more employees spent an average of S$26,000 per year, per enterprise, to educate employees on infocomm security.

Chart 4.3: Average number of days received per employee on infocomm security education, by employment size



Base: Enterprises with infocomm security education and non-zero responses to this question

Chart 4.4: Estimated amount spent in educating employees on infocomm security education per enterprise by employment size



Base: Enterprises with infocomm security education and non-zero responses to this question

Difficulty in measuring the benefits of infocomm security was the main impediment cited by enterprises that did not use infocomm security measures (Table 4.2).

Table 4.2: Impediments/constraints enterprises faced in educating employees on infocomm security, 2010 - 2012

Rank	Constraints	2012	2011	2010
1	Difficulty in measuring the benefits	1	1	3
2	Lack of internal resources	2	2	1
3	Cost of implementation	3	3	2
4	Lack of external Suppliers	4	4	4

Base: Enterprises which do not adopt infocomm security measures

PART III: ADDITIONAL STATISTICAL CHARTS & TABLES

1. CHARTS FOR ALL ENTERPRISES – ALTERNATIVE EMPLOYMENT SIZE BREAKDOWN

Chart SC01: Computer usage by employment size

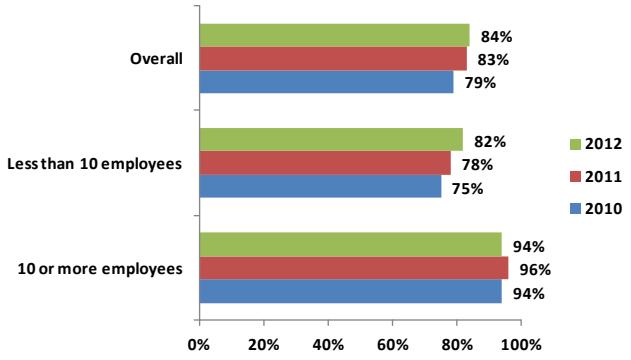


Chart SC02: Internet usage by employment size

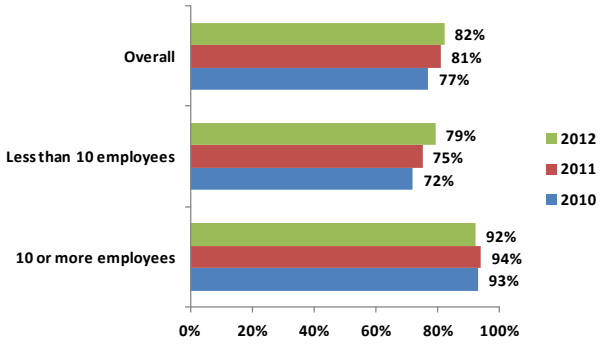


Chart SC03: Broadband usage by employment size

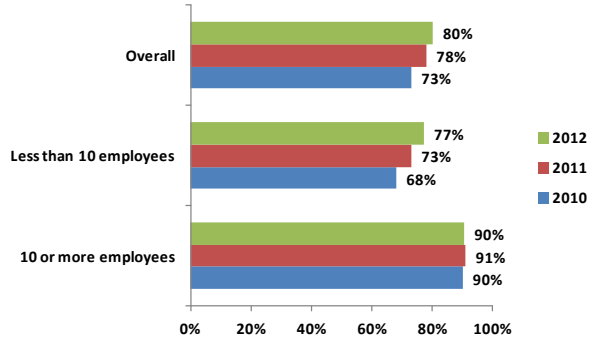
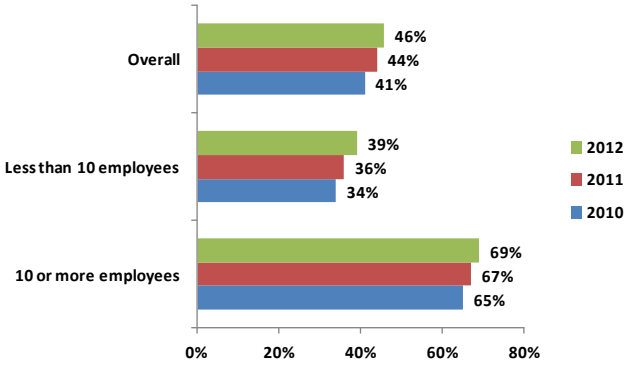
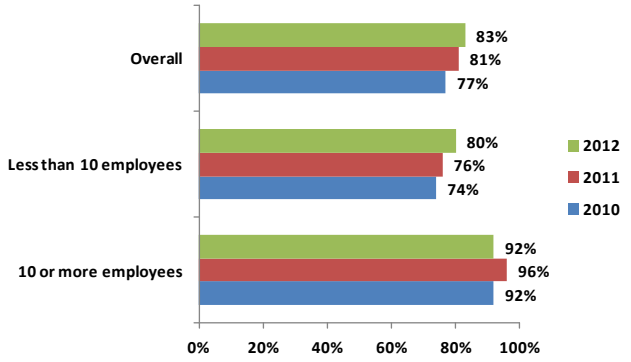


Chart SC04: Web presence by employment size



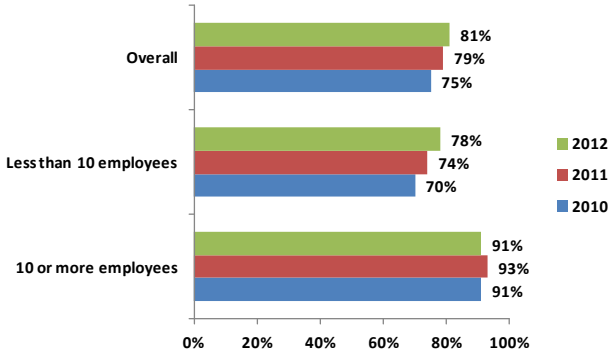
2. CHARTS AND TABLE FOR LOCAL SMEs

Chart SC05: Computer usage among local SMEs by employment size



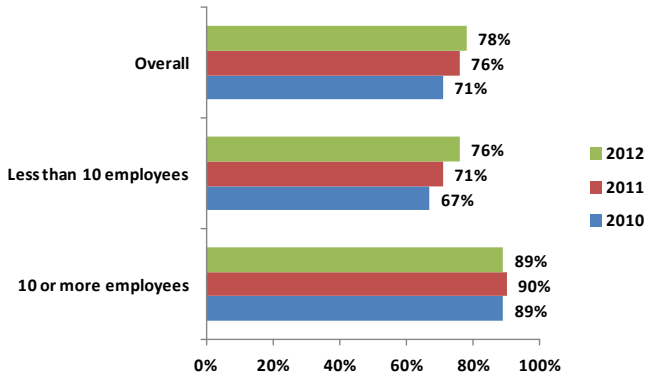
Base: All local SMEs

Chart SC06: Internet usage among local SMEs by employment size



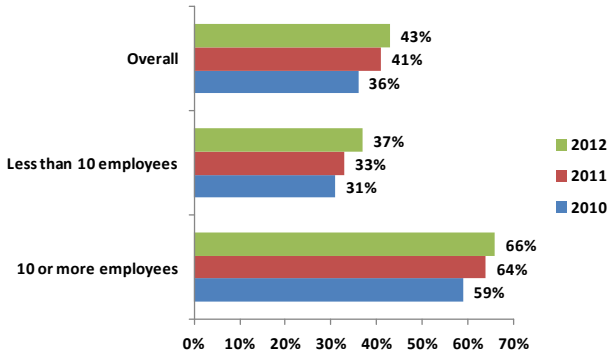
Base: All local SMEs

Chart SC07: Broadband usage among local SMEs by employment size



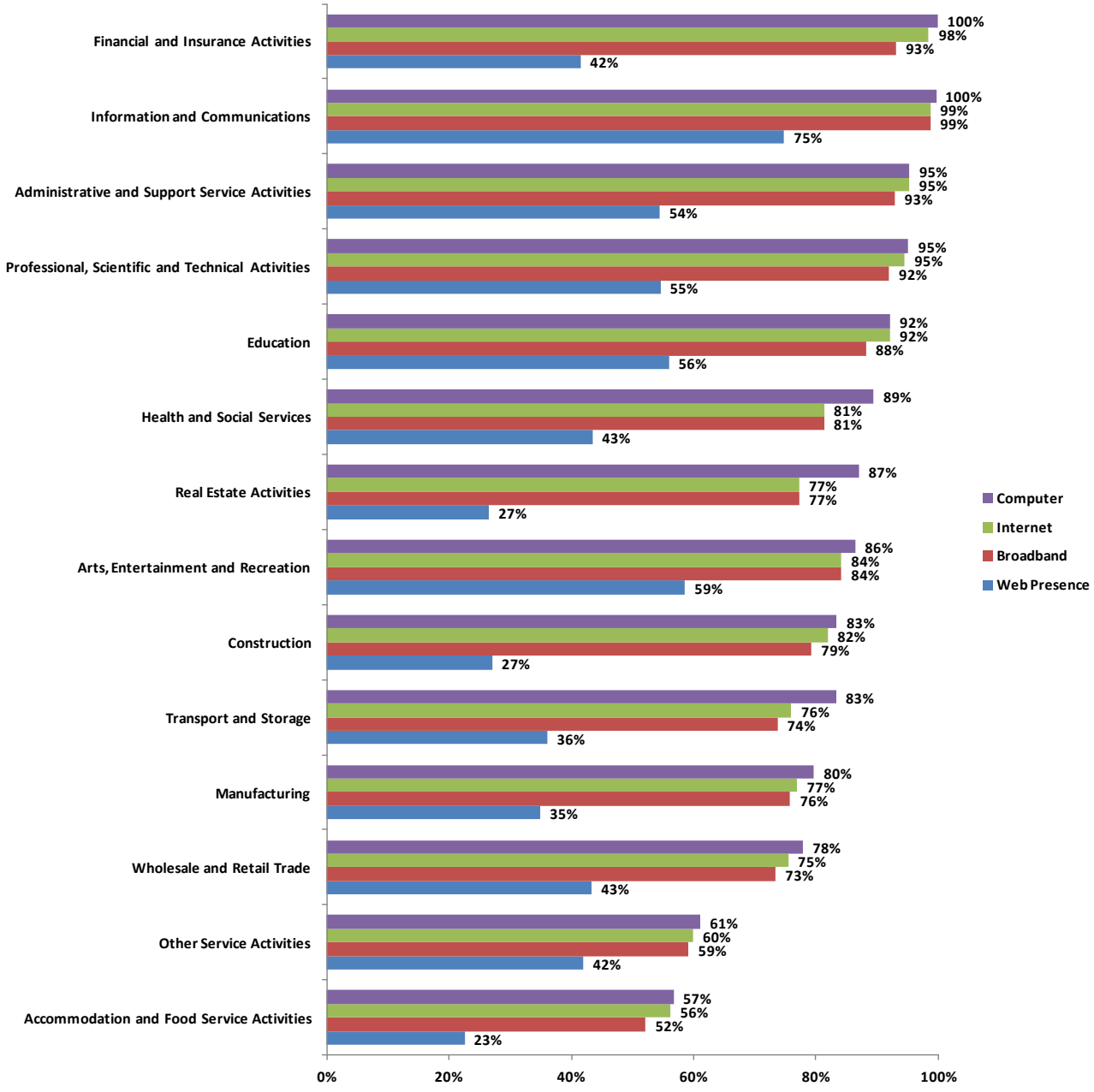
Base: All local SMEs

Chart SC08: Web presence among local SMEs by employment size



Base: All local SMEs

Chart SC09: Infocomm use among local SMEs by sector



Base: All local SMEs

Table ST01: Top Ten Internet Activities by Local SMEs, 2010 - 2012

	Internet Activities	Proportion of Local SMEs		
		2012	2011	2010
1	For sending or receiving mails	96%	97%	97%
2	For information search	93%	93%	92%
3	For obtaining information from government organisations (e.g. from web sites or via e-mail)	79%	79%	78%
4	For downloading or requesting government forms	74%	74%	72%
5	For completing government forms online or sending completed government forms	72%	72%	69%
6	For banking and financial services	65%	64%	56%
7	For making online payments to government organisations	63%	60%	57%
8	For placing orders for goods/services	53%	50%	43%
9	For receiving orders for goods/services	53%	38%	42%
10	For market monitoring purposes (e.g. prices)	50%	43%	42%

Base: Local SMEs with Internet usage