

# ANNUAL SURVEY ON INFOCOMM USAGE BY ENTERPRISES FOR 2016

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# **PART I: SURVEY COVERAGE, METHODOLOGY AND COMPANY PROFILE**

## 1. INTRODUCTION

The annual survey on Infocomm Usage by Enterprises for 2016 is the seventeenth 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.

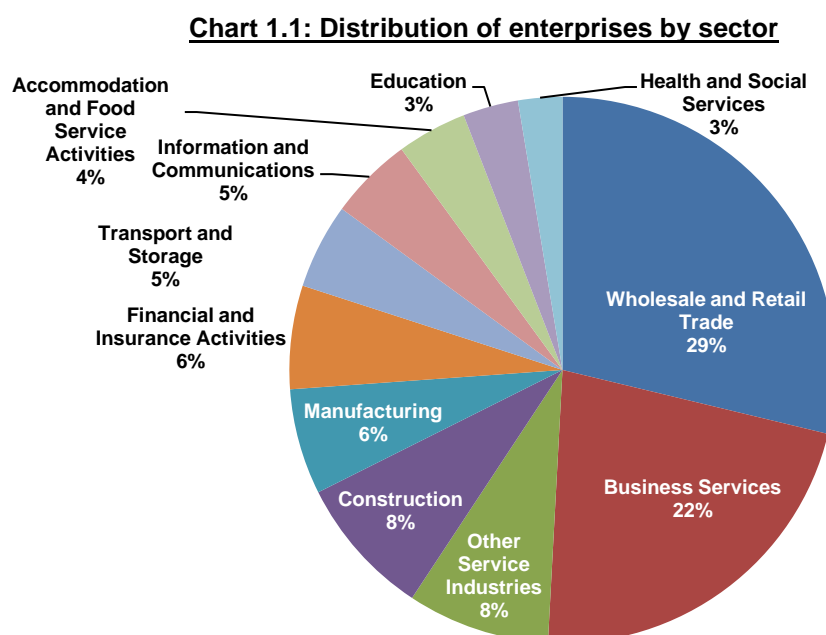
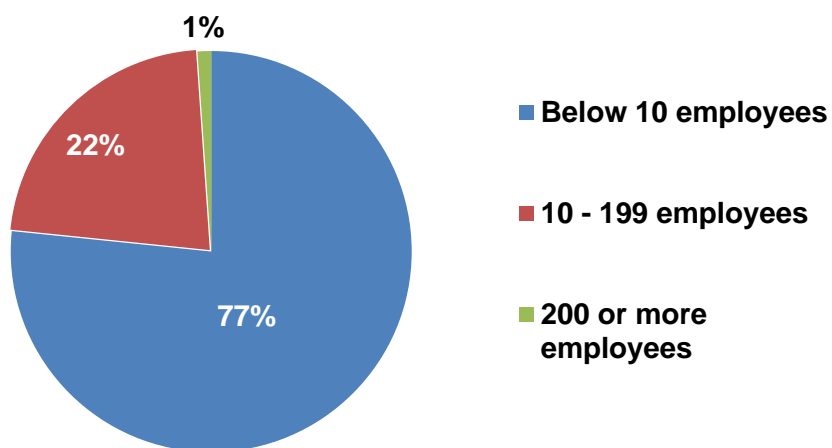


Chart 1.2 provides a profile of the respondents by employment size, with 77% of the enterprises having below 10 employees.

**Chart 1.2: Distribution of enterprises by employment size**



## **PART II: SURVEY FINDINGS**

# 1. SUMMARY

## ***Usage of computers, Internet, and broadband among enterprises continued to increase in 2016***

- Usage of computers, Internet, and broadband among enterprises continued to increase in 2016. The proportion of enterprises that used
  - Computers increased from 87% in 2014 to 90% in 2016
  - Internet increased from 86% in 2014 to 88% in 2016
  - Broadband increased from 86% in 2014 to 87% in 2016
  - Web presence decreased slightly from 46% in 2014 to 45% in 2016
- Education, Information & Communications sectors and Business Services were top three sectors that adopted infocomm in 2016

## ***More enterprises are using mobile devices and services to do business***

- Mobile phones are becoming increasingly popular mode of accessing the Internet with proportion of enterprises accessing the Internet via mobile phone increasing from 59% in 2014 to 65% in 2016.
- While '*Sending and receiving emails*' and '*Information Search*' were two most common Internet activities on computers and mobile equipment, enterprises still prefer to use computers for government transactions (i.e., obtaining information from government organizations, download/request/complete/send government forms).
- Proportion of enterprises that used mobile services to engage customers increased significantly from 49% in 2014 to 61% in 2016. Enterprises used it most commonly to send products and promotional information to their customers.



***Proportion of enterprises that used e-payments for their businesses grew in 2016, with larger enterprises are more likely to use e-payments***

- Enterprises had used e-payments in their businesses grew from 41% in 2014 to 48% in 2016, with higher adoption rates among the larger enterprises.

***Infocomm security adoptions were roughly maintained among enterprises with Virus Checking or Protection Software being the most commonly adopted infocomm security measure among all enterprises***

- Infocomm security adoptions were roughly maintained among enterprises with Virus Checking/Protection Software being the most commonly adopted security measure among all enterprises, followed by Firewall and Anti-Spyware Software.
- About 70% of enterprises who had infocomm security measures in place felt that they had invested sufficiently in infocomm security.

## 2. INFOCOMM USAGE

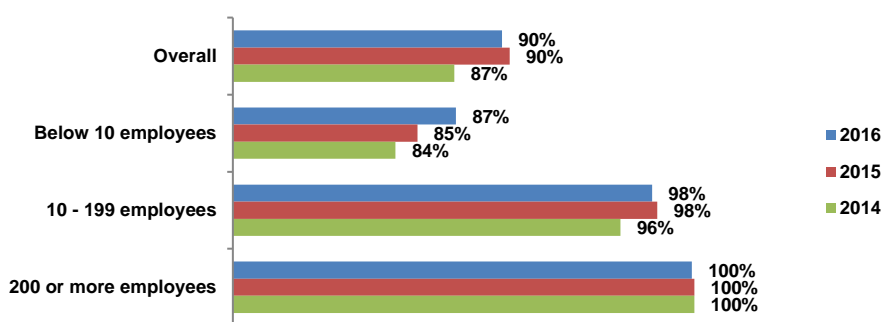
### 2.1 By Employment Size

***Usage of computers<sup>1</sup>, Internet, and broadband among enterprises continued to increase in 2016***

#### Usage of Computers

Computer usage among enterprises remained 90% in 2016 (Chart 2.1). When analysed by employment size, all enterprises with 200 or more employees used computers.

**Chart 2.1: Computer usage by employment size**



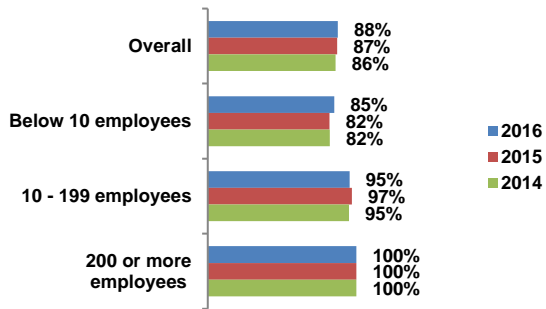
#### Usage of Internet and Broadband

Internet usage amongst enterprises increased from 86% in 2014 to 88% in 2016. Similar to computer usage, all enterprises with 200 or more employees used the Internet (Chart 2.2). Enterprises that connected to the Internet via broadband grew from 86% in 2014 to 87% in 2016 (Chart 2.3). The proportion of enterprises with web presence decreased slightly from 46% in 2014 to 45% in 2016. (Chart 2.4).

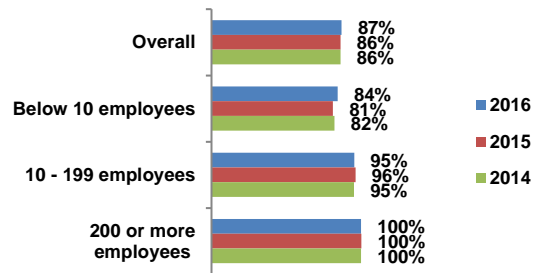
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<sup>1</sup> A computer includes a desktop, laptop, netbook, tablet, tablet computer, portable or handheld computer (e.g. a personal digital assistant), minicomputer, mainframe, workstation. A computer does not include equipment with some embedded computing abilities such as game consoles or TV sets, nor does it include computer-controlled machinery or electronic tills.

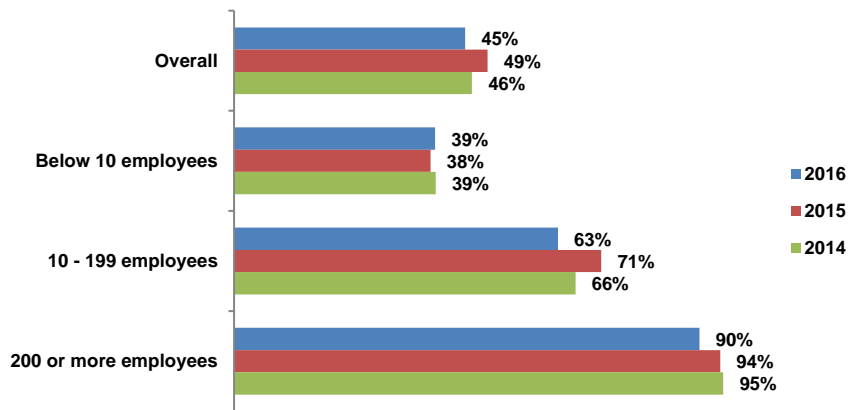
**Chart 2.2: Internet usage by employment size**



**Chart 2.3: Broadband usage by employment size**



**Chart 2.4: Web presence by employment size**

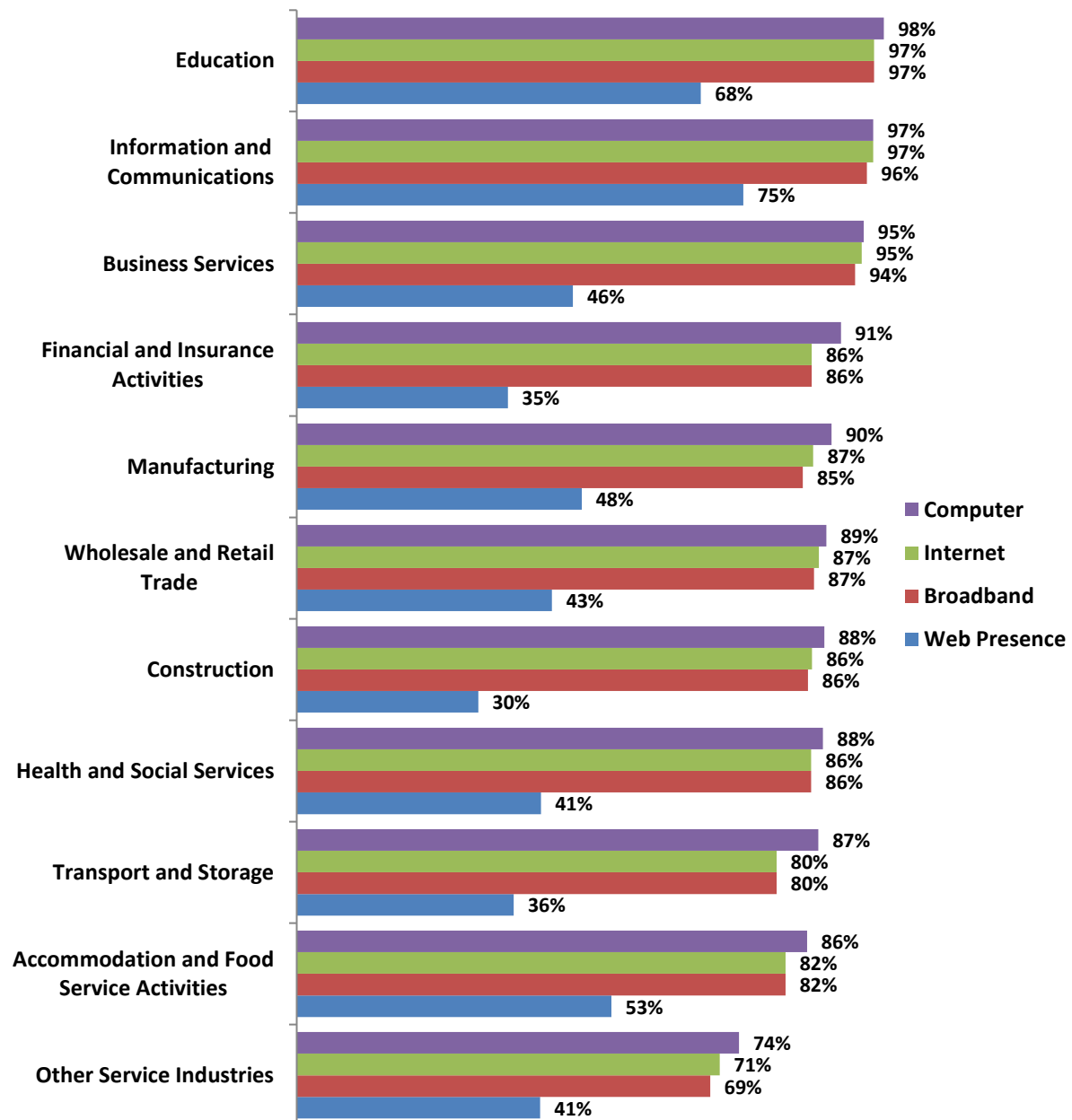


## By Sector

**Education, Information & Communications sectors and Business Services were top three sectors that adopted infocomm in 2016**

The *Education* sector led in infocomm adoption in all aspects, with 98% computer usage and 97% Internet usage ([Chart 2.5](#)). This was followed by *Information and Communications sectors and Business Services*.

**Chart 2.5: Infocomm usage by sector**

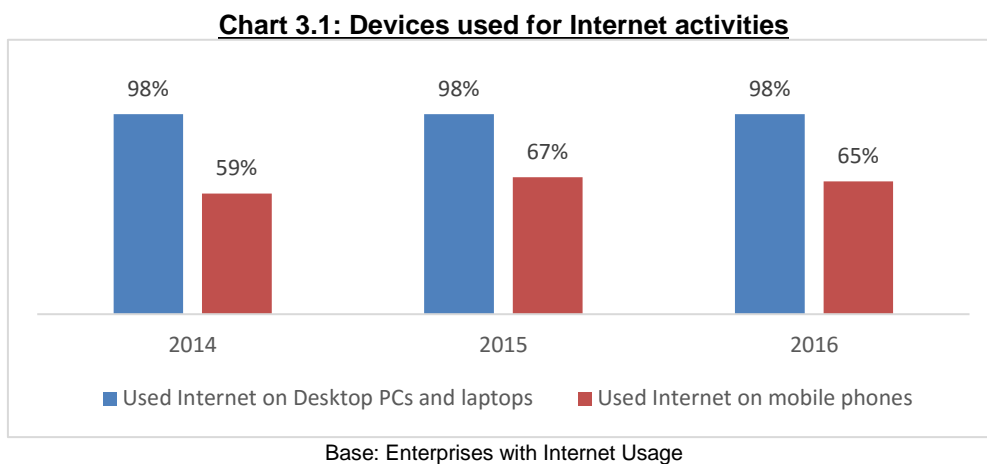


### 3. INTERNET USAGE

#### 3.1 Internet Activities

##### ***Mobile phones becoming increasingly popular mode of accessing the Internet***

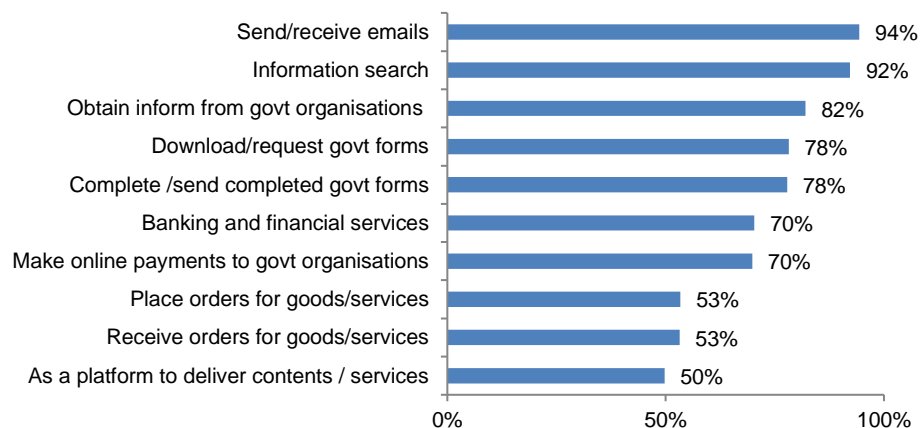
88% of enterprises used the Internet (Chart 2.2) and close to all used computers to go about their Internet activities (Chart 3.1). Increasingly, mobile phones have also been used by enterprises for Internet activities, with 65% doing so, rising sharply from 59% in 2014 (Chart 3.1).



##### ***While sending and receiving emails and Information Search were two most common Internet activities on computers and mobile equipment, enterprises still prefer to use computers for government transactions***

When using the Internet on computers, the most common Internet activities were sending and receiving emails (94%), information search (92%) and getting information from government organizations (82%) (Chart 3.2).

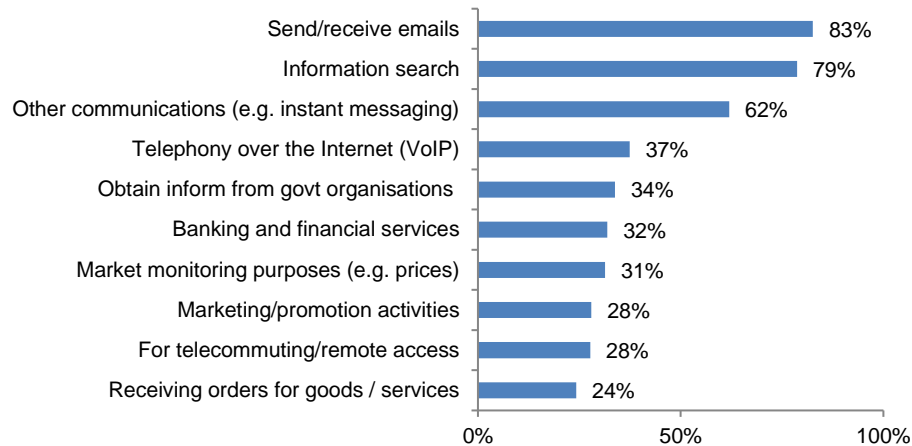
**Chart 3.2: Top 10 Internet Activities on Desktop PCs and Laptops**



Base: Enterprises with Internet Usage on Desktop PCs and laptops

When using the Internet on mobile/smart 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 was also a common Internet activity on mobile/smart phones or tablets ([Chart 3.3](#)).

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



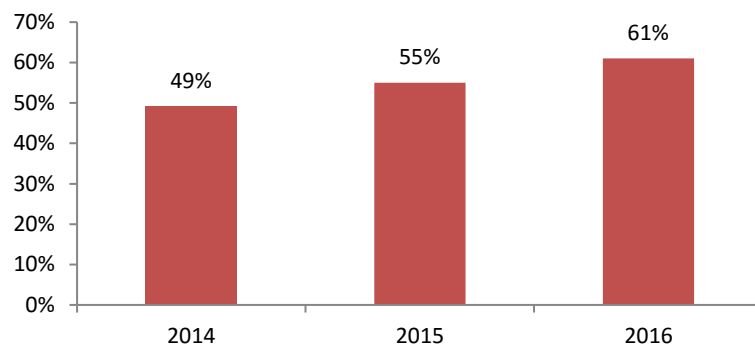
Base: Enterprises with Internet Usage on mobile/smart phones or tablets

### 3.2 Business activities using mobile services

#### ***Higher proportion of enterprises used the mobile services for business***

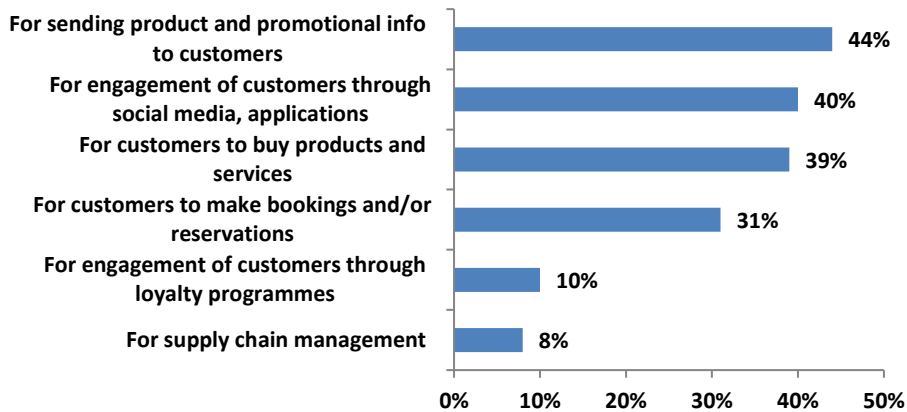
The proportion of enterprises using mobile services (e.g. SMS/MMS, mobile websites, mobile applications) to engage consumers saw a large increase from 49% in 2014 to 61% in 2016 ([Chart 3.4](#)).

**Chart 3.4: Enterprises that use mobile services to engage customers**



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 ([Chart 3.5](#)).

**Chart 3.5 Types of business activities using mobile services**



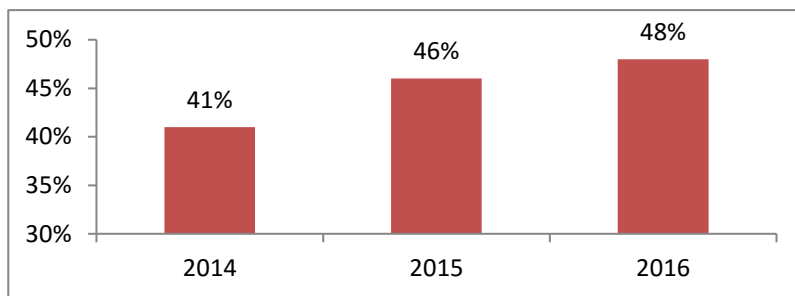
Base: Enterprises which use mobile services

### 3.3 E-payment

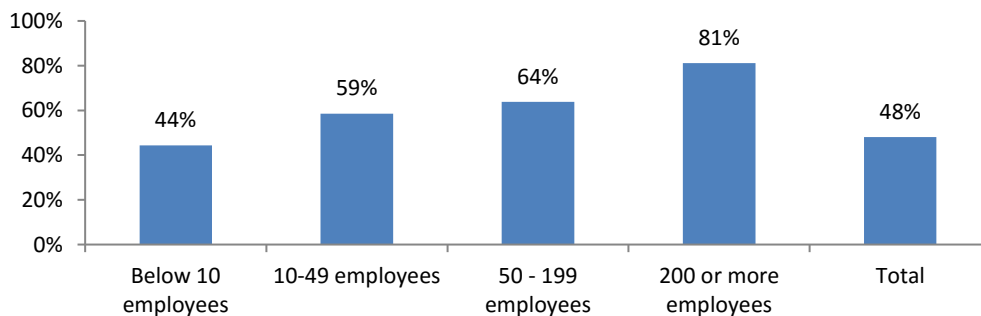
***Proportion of enterprises that used e-payments for their businesses grew in 2016, with larger enterprises are more likely to use e-payments***

Enterprises had used e-payments in their businesses grew from 41% in 2014 to 48% in 2016 (Chart 3.6), with higher adoption rates among the enterprises with more employees (Chart 3.7).

**Chart 3.6: Enterprises that use e-payments**



**Chart 3.7: 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 that enterprises felt that the nature of their business was not a good fit for e-payment (Table 3.1). A high proportion of those from the *Other Service Industries*<sup>2</sup> and *Health and Social Services* sectors did not see their business as needing e-payment.

**Table 3.1: Top five barriers to e-payment adoption**

<b>Barriers to E-payment Adoption<sup>3</sup></b>	2014	2015	2016
Nature of business is not a good fit for e-payment	1	1	1
Not sure of e-payment benefits to business	3	2	2
Poor awareness/understanding of e-payment	5	4	3
Integration costs too high	-	5	4
Cost of transaction fees	2	3	5

Base: Enterprise that do not use e-payment

Note: The option "Integration costs are too high" was added in 2014.

<sup>2</sup> *Other Service Industries* include personal and household services not elsewhere classified such as hairdressing shops, beauty salons and spas, repair and maintenance of motor vehicles, activities of other membership organisations.

<sup>3</sup> Only the top 5 barriers in year 2018 were shown in the table, with their respective rankings in year 2016 and 2017.



## 4. INFOCOMM SECURITY

### 4.1 Infocomm Security adoption

***Infocomm security adoptions were roughly maintained among enterprises with Virus Checking or Protection Software being the most commonly adopted infocomm security measure among all enterprises***

Enterprises had roughly maintained their adoptions 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. About 70% of enterprises who had infocomm security measures in place felt that they had invested sufficiently in infocomm security.

**Table 4.1: Infocomm security measure**

	<b>Infocomm Security Measure</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>
1	Virus checking or protection software	95%	94%	92%
2	Firewall	77%	85%	76%
3	Anti-spyware software	77%	70%	68%
4	Regular backup of critical data	72%	68%	60%
5	Spam filter	65%	64%	61%
6	Access control software/hardware	32%	40%	29%
7	Offsite data backup	33%	36%	31%
8	Encrypted transmission of sensitive information (SSL)	27%	31%	25%
9	Intrusion detection system	21%	27%	20%

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