

# ANNUAL SURVEY ON INFOCOMM USAGE BY ENTERPRISES FOR 2018

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

## 1. INTRODUCTION

The Annual Survey on Infocomm Usage by Enterprises for 2018 is the nineteenth in the series of annual surveys conducted by the Research and Statistics Unit of the Infocomm Development Authority of Singapore since 1999, and the second edition since the formation of the Infocomm Media Development Authority of Singapore in 2016. 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 among enterprises in Singapore and identify the barriers to infocomm adoption. Representative samples of infocomm media and end-user enterprises were selected from the Department of Statistics' (DOS) Establishment Sampling Frame.

## 3. NOTES ON DATA

Past years' data were 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 quarter of all sectors.

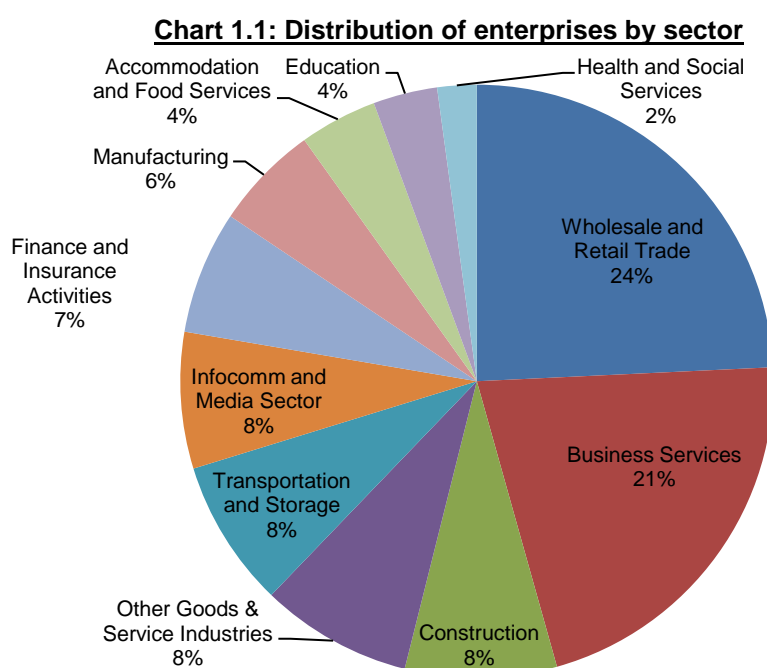
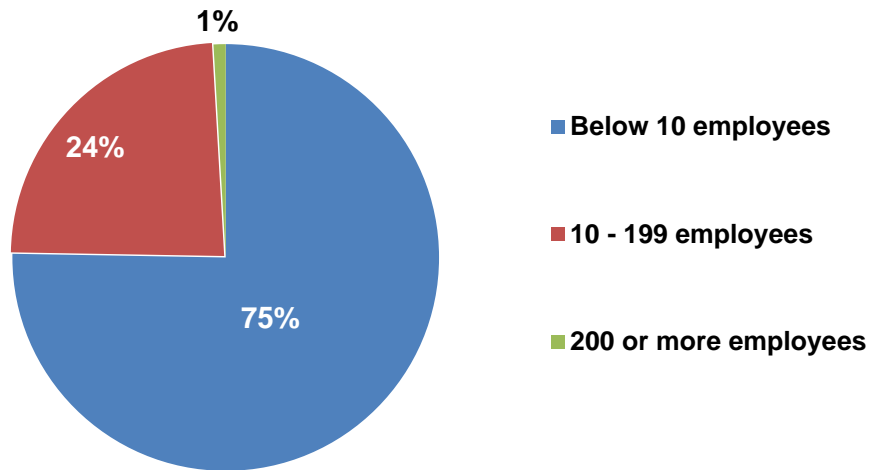


Chart 1.2 provides a profile of the respondents by employment size, with 75% of the enterprises having fewer than 10 employees.

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



## **PART II: SURVEY FINDINGS**

# 1. SUMMARY

## ***Usage of Computer, Internet, and Broadband among enterprises continued to increase in 2018***

- The proportion of enterprises that used:
  - Computer increased from 90% in 2016 to 91% in 2018
  - Internet increased from 88% in 2016 to 91% in 2018
  - Broadband increased from 87% in 2016 to 90% in 2018
  - Cloud computing service was around 23% in 2018
- *Infocomm and Media, Business Services and Education* were the three sectors with the highest infocomm adoption in 2018

## ***More enterprises used mobile devices to do business***

- Mobile phones was more commonly used among enterprises to access the Internet, increasing from 65% in 2016 to 74% in 2018.
- While ‘*Sending and receiving emails*’ and ‘*Information Search*’ were still common Internet activities on computers and mobile equipment, enterprises still preferred to use computers for government transactions (i.e. obtaining information from government organizations, download/request/complete/send government forms), and use mobile equipment for communications.

## ***Usage of e-payments in enterprises continued to grow in 2018, with larger enterprises leading the pack***

- Enterprises that used e-payments in their businesses grew from 48% in 2016 to 60% in 2018, with higher adoption rates among larger enterprises.
- The most common reason for not adopting e-payment service was that cash and cheque are still the preferred modes of payment, of which a higher proportion was from the *Accommodation and Food Services, Construction, and Manufacturing* sectors.



***The proportion of enterprises engaged in e-commerce activities increased to 21% in 2018 from an average of 13% in the previous three years***

- The engagement of e-commerce activities among enterprises increased to 21% in 2018 after it maintained at around 13% in the previous 3 years.
- Enterprises from the *Accommodation and Food Services*, and *Infocomm and Media* sector were more likely to engage in e-commerce activities compared to enterprises in the other sectors.
- The most common reason was that e-commerce was not a good fit for their business nature, and with a higher proportion of enterprises from *Health and Social Services*, *Finance and Insurance Activities* and *Business Services* sectors indicating so.

***Cybersecurity adoption trends remained similar (from 46% in 2016 to 45% in 2018), with Virus Checking or Protection Software being the most commonly adopted cybersecurity measure among all enterprises.***

- The adoption of cybersecurity measures by enterprises who used computer for work remained similar (46% in 2016 to 45% in 2018).
- Virus Checking or Protection Software (92%) was the most pervasive cybersecurity measure among all enterprises, followed by Firewall (78%).
- Approximately 23% of all enterprises felt that they were at risk of a cyber attack, regardless of their implementation of cybersecurity measures.
- 65% of enterprises who had cybersecurity measures in place indicated that they were adequately prepared to respond to a cyber attack.

## 2. INFOCOMM USAGE

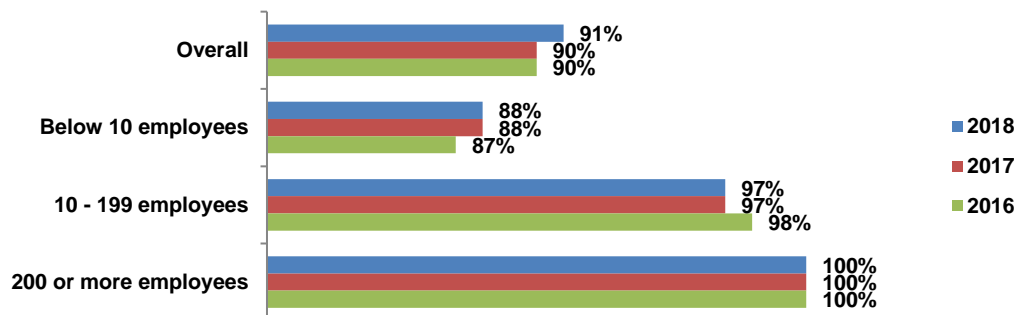
### 2.1 By Employment Size

***Usage of Computer, Internet, and Broadband among enterprises continued to increase in 2018***

#### Usage of Computers<sup>1</sup>

Computer usage among enterprises increased to 91% in 2018 (Chart 2.1). When analyzed by employment size, all enterprises with 200 or more employees used computers.

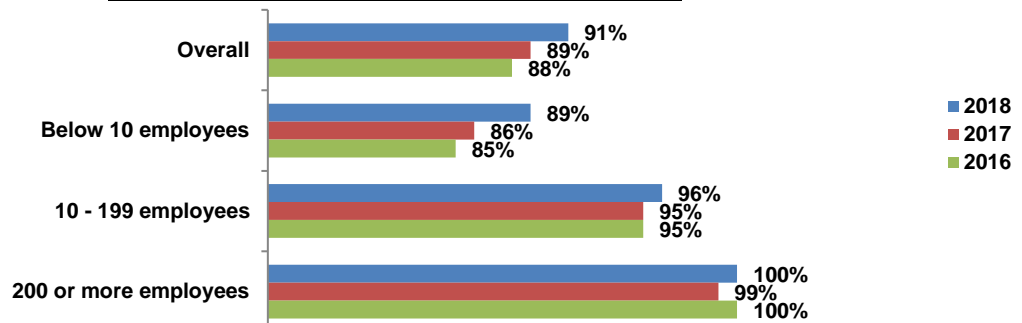
**Chart 2.1: Computer usage by employment size**



#### Usage of Internet and Broadband

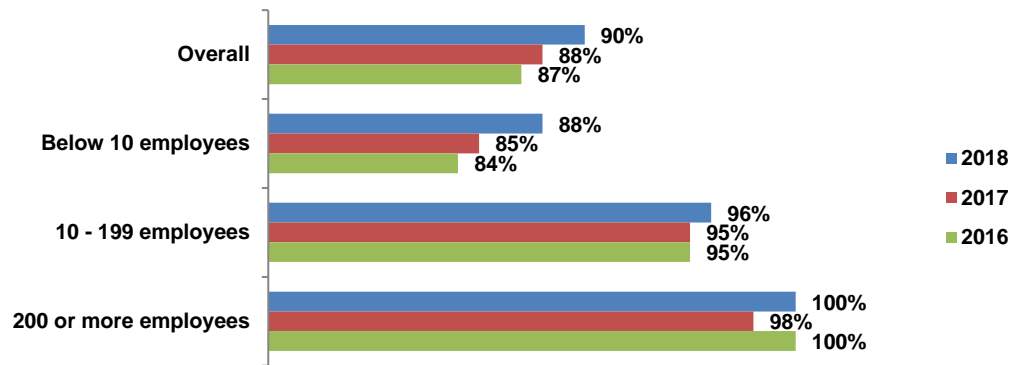
Internet usage amongst enterprises increased from 88% in 2016 to 91% in 2018. Similar to computer usage, all enterprises with 200 or more employees used the Internet (Chart 2.2). Enterprises that connected to the Internet via broadband grew from 87% in 2016 to 90% in 2018 (Chart 2.3).

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



<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.

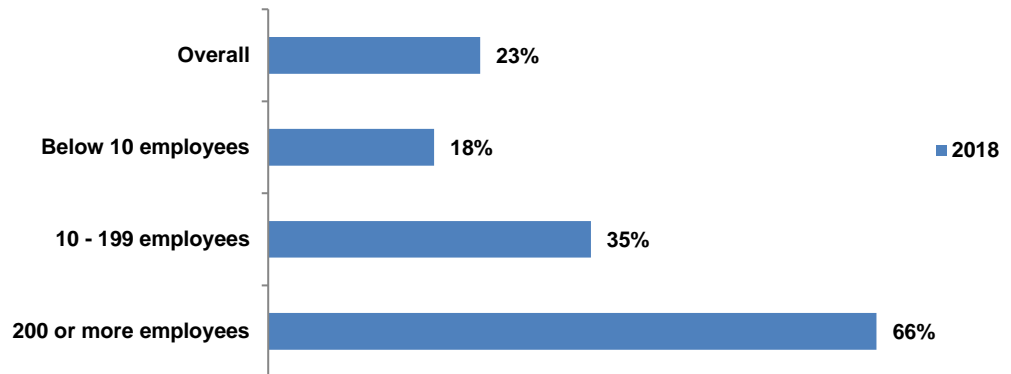
**Chart 2.3 Broadband usage by employment size**



Usage of Cloud Computing Services<sup>2</sup>

The usage of cloud computing services was 23% in 2018. It was also noted that the larger the enterprise, the higher the usage of cloud computing services (Chart 2.4).

**Chart 2.4 Cloud Computing Services usage by employment size**

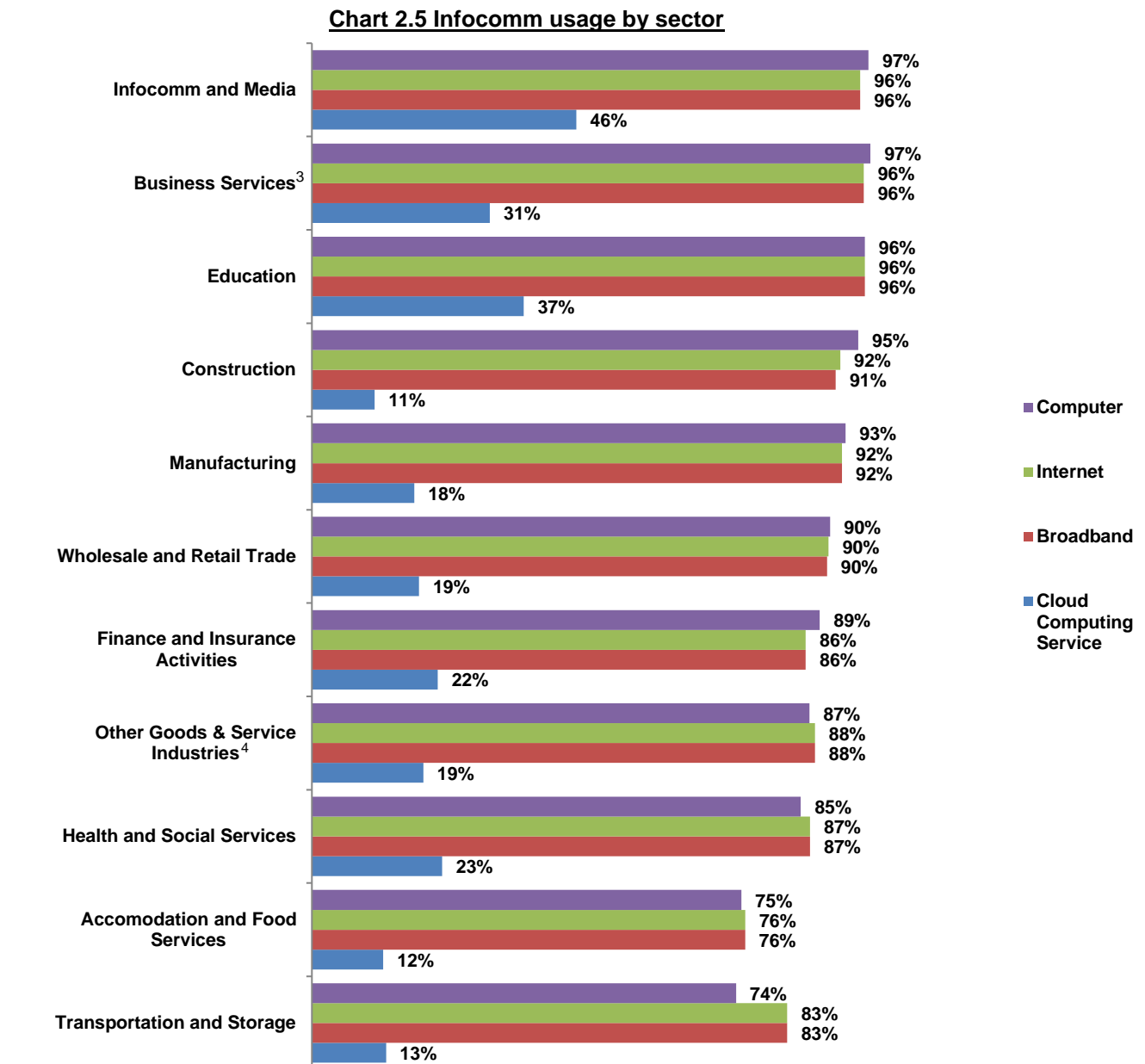


<sup>2</sup> Cloud computing service models refers to Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS). As IMDA just started to collect data on usage of cloud computing services, 2018 will be the base year for it.

## 2.2 By Sector

**Infocomm and Media, Business Services and Education were the three sectors with the highest infocomm adoption in 2018**

The *Infocomm and Media* sector led infocomm adoption in all aspects, with 97% computer usage and 96% Internet usage ([Chart 2.5](#)). This was followed by *Business Services* sector.



<sup>3</sup> *Business Services* include enterprises from the following segments: Real Estate; Professional Services; Scientific and Technical Activities; Environmental Services; Security; Other Administrative and Support Services; Employment Activities; Travel Agencies.

<sup>4</sup> *Other Goods and 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 organizations (Churches, country clubs, charity organizations).

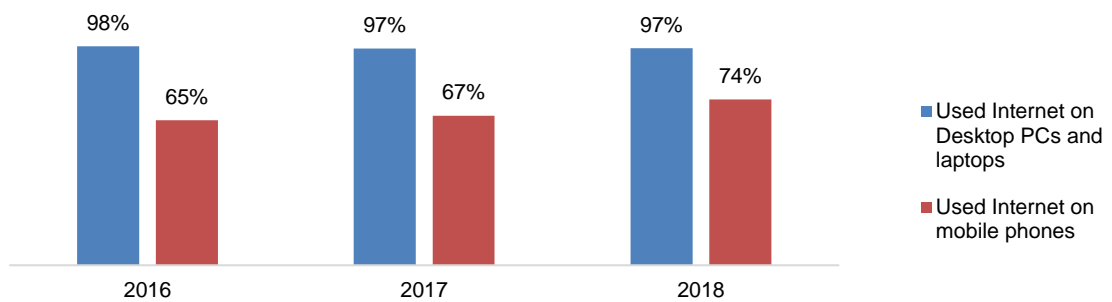
### 3. INTERNET USAGE

#### 3.1 Internet Activities

##### ***More enterprises used mobile devices to do business***

Among the enterprises that used the Internet (Chart 2.2), about three-quarters (74%) used internet on mobile phones (Chart 3.1), which is an increase from 65% in 2016, while almost all enterprises used computers for their Internet activities.

**Chart 3.1 Devices used for Internet activities**

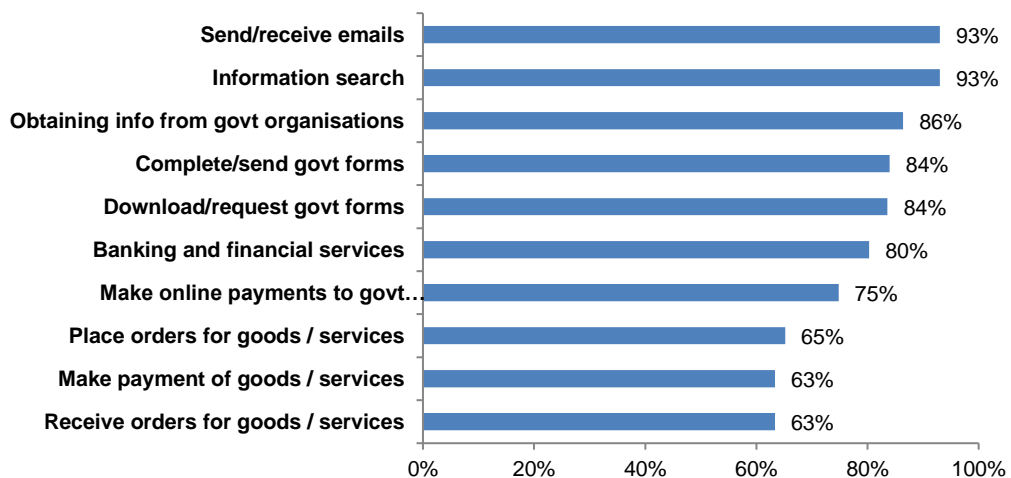


Base: Enterprises with Internet Usage

***While sending and receiving emails and information search were still the top common Internet activities on computers and mobile equipment, enterprises still preferred to use computers for government transactions, and use mobile equipment for communications***

When using the Internet on computers, the most common Internet activities were sending and receiving emails (93%), information search (93%) and getting information from government organizations (86%) (Chart 3.2).

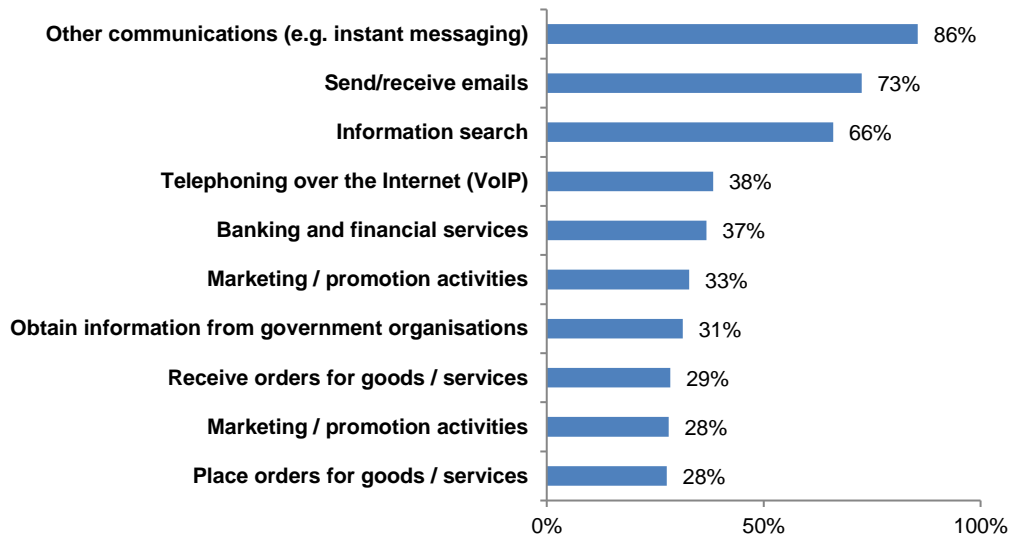
**Chart 3.2 Top 10 internet activities on desktop PCs and laptops**



Base: Enterprises with Internet Usage on Desktop PCs and laptops

Similar to Internet activities on desktop PCs and laptops, the top three Internet activities on mobile/smartphones or tablets were other communications (86%), sending and receiving emails (73%) and information search (66%) ([Chart 3.3](#)).

**Chart 3.3 Top 10 internet activities on mobile/smart phones**



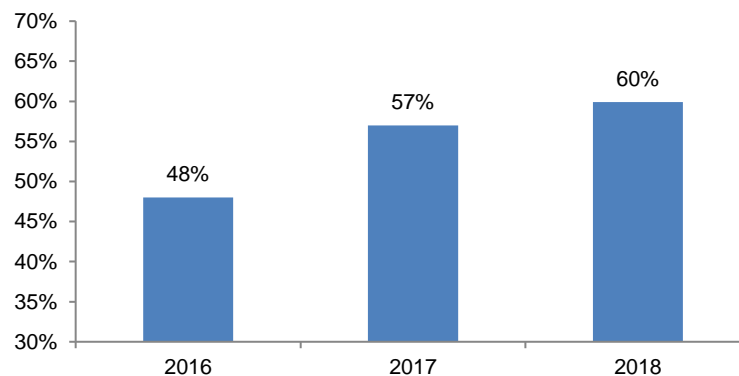
Base: Enterprises with Internet Usage on mobile/smartphones

### 3.2 E-payment

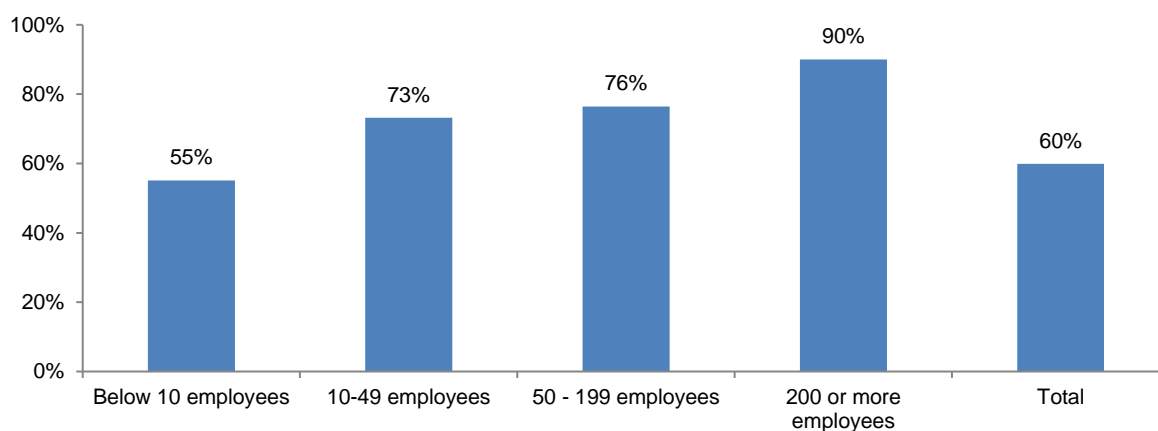
***The proportion of enterprises that used e-payments in their businesses continued to grow in 2018, with larger enterprises being more likely to use e-payments.***

Enterprises that used e-payments in their businesses grew from 48% in 2016 to 60% in 2018 ([Chart 3.4](#)), with higher adoption rates among the enterprises with larger employment size ([Chart 3.5](#)).

**Chart 3.4 Enterprises that used e-payments**



**Chart 3.5 Enterprises that used e-payments by employment size**



Base: Enterprises that use e-payment

Amongst the enterprises that did not use e-payments, the top reason for not using it was that cash and cheque are still the preferred modes of payment (Table 3.1), of which a higher proportion was from the *Accommodation and Food Services*, *Construction*, and *Manufacturing* sectors.

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

Barriers to E-payment Adoption <sup>5</sup>	2016	2017	2018
Cash and cheque are still the preferred modes of payment	-	2	1
Nature of business is not a good fit for e-payment	1	1	2
Cost of transaction fees	5	4	3
Poor awareness/understanding of e-payment	3	6	4
Not sure of e-payment benefits to business	2	3	5

Base: Enterprise who did not use e-payment

Note: The options "Cash and Cheque are still the preferred modes of payment" and "Worry about cybersecurity risks in accepting e-payment" were newly added in 2017.

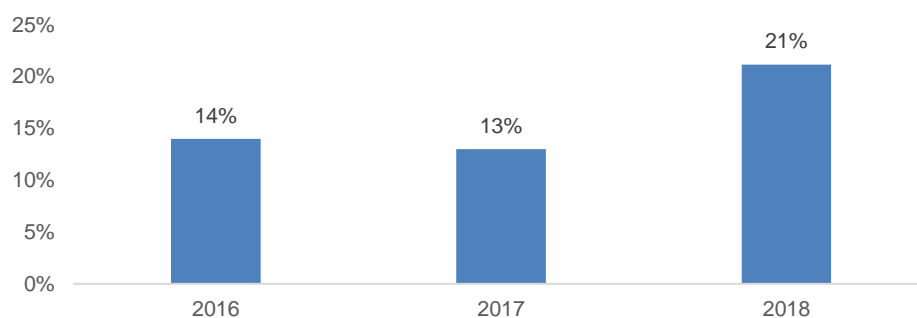
### 3.3 E-commerce

***The proportion of enterprises engaged in e-commerce activities increased to 21% in 2018, from an average of 13% in the previous three years.***

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

The engagement of e-commerce<sup>6</sup> activities among enterprises had increased to 21% in 2018 after it maintained around 13% in the previous few years (Chart 3.6).

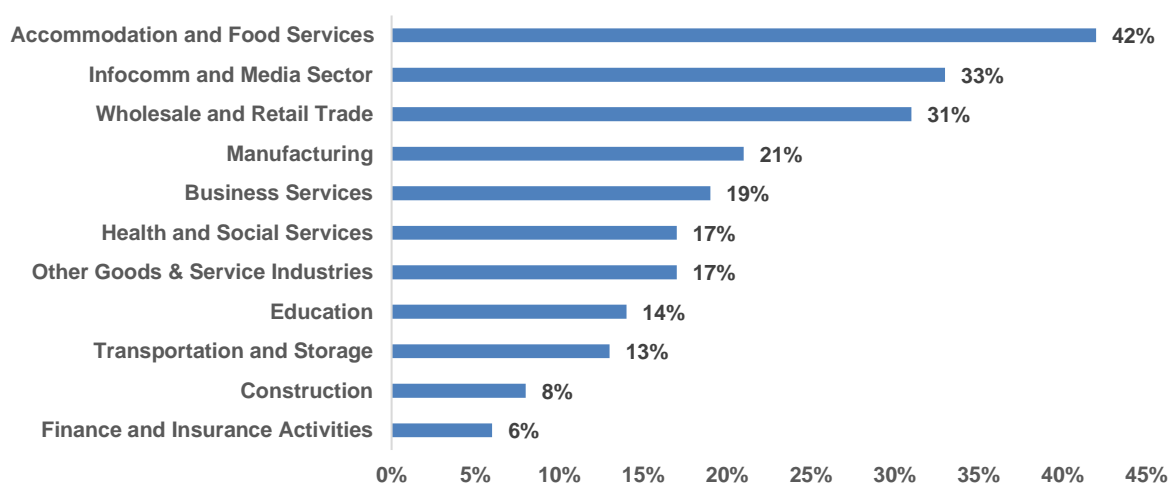
**Chart 3.6 Enterprises that engaged in e-commerce activities**



Base: Enterprises that use the internet for work

Enterprises from *Accommodation and Food Services, Infocomm and Media and Wholesale and Retail Trade* sectors were more likely to engage in e-commerce activities compared to those in other sectors (Chart 3.7).

**Chart 3.7 Enterprises that engaged in e-commerce activities by sectors**



Amongst the enterprises that did not engage in e-commerce activities, the top reason for not doing so was that they felt that the nature of their business was not a good fit

<sup>6</sup> *E-commerce activities: An e-commerce transaction is the sale or purchase of goods or services over computer-mediated networks (broad definition)/ the Internet (narrow definition). Payment and delivery of the good or service can be offline. Orders received/placed by telephone, fax or normal mail are excluded (This definition was adopted from OECD).*



for e-commerce (Table 3.2). A higher proportion of them was from the *Health and Social Services, Finance and Insurance Activities and Business Services* sector.

**Table 3.2 Reasons for not engaging in e-commerce activities**

<b>Reasons for not engaging in e-commerce activities</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Nature of business is not a good fit for e-commerce	-	1	1
Satisfied with sales through the traditional channel such as physical stores	1	2	2
Cost of investing in e-commerce is too high	2	3	3
Do not have the knowledge on how to engage in e-commerce	3	4	4
Worried about cybersecurity risks in conducting e-commerce (e.g. online fraud)	-	5	5
Unable to find suitable logistics service providers to work seamlessly for order fulfillment	4	6	6

Base: Enterprise who did not engage in e-commerce activities

*Note: The options "Nature of business is not a good fit for e-commerce" and "Worried about cybersecurity risks in conducting e-commerce (e.g. online fraud)" were added in 2017.*

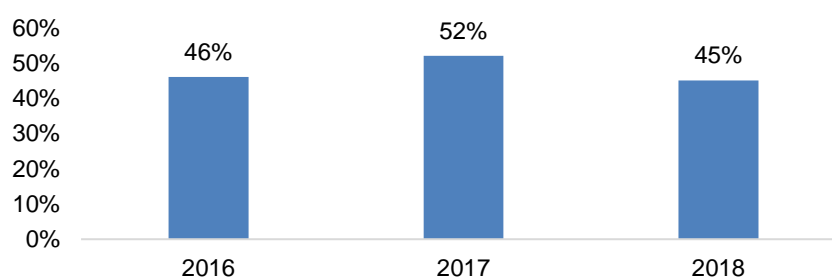
## 4. CYBERSECURITY

### 4.1 Cybersecurity Adoption

**Cybersecurity adoptions fell from 46% in 2016 to 45% in 2018, with Virus Checking or Protection Software being the most commonly adopted cybersecurity measure.**

The adoption of cybersecurity measures by enterprises that used the computer for work fell from 46% in 2016 to 45% in 2018 (Chart 4.1).

**Chart 4.1 Enterprises with cybersecurity measure in place**



Base: Enterprise who used the computer for work

Virus Checking or Protection Software became the most pervasive cybersecurity measure among all enterprises in 2018, while Firewall was the next most commonly deployed cybersecurity measure (Table 4.1).

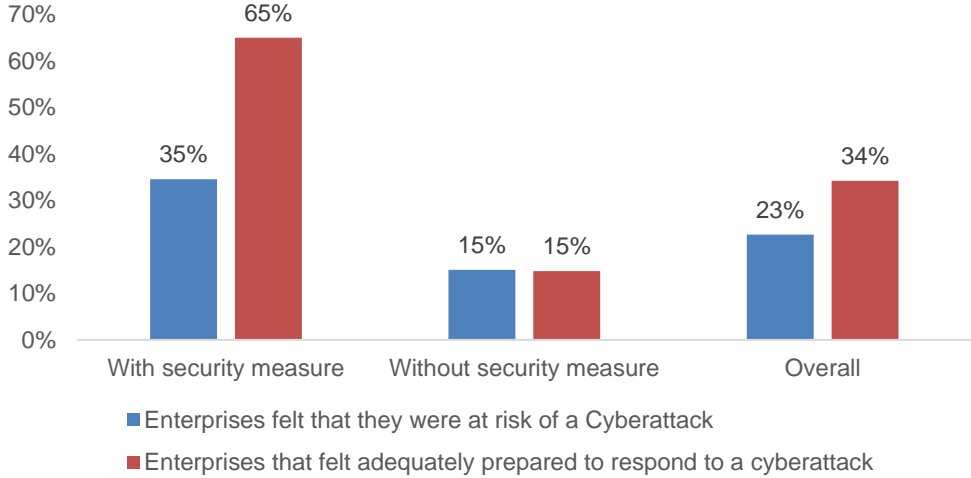
**Table 4.1 Cybersecurity measure<sup>7</sup>**

	<b>Cybersecurity Measure</b>	<b>2018</b>
1	Virus checking or protection software	92%
2	Firewall	78%
3	Anti-spyware software	73%
4	Regular backup of critical data	67%
5	Spam filter	64%
6	Automatic/regular update of operating systems and application software used in the organization	47%
7	Offsite data backup	44%
8	Access control software/hardware	42%
9	Encrypted transmission of sensitive information (SSL)	38%
10	Intrusion detection system	29%
11	Documented plan on how information assets are managed and secured	27%
12	End-user training and awareness	26%

Base: All enterprises who used the computer and adopt cybersecurity measures

<sup>7</sup> Respondents were allowed to select multiple options, whichever was applicable to them.

**Chart 4.2 Enterprises' perception of risk of a cyber attack (2018)**



Approximately 23% of all enterprises felt that they were at risk of a cyber attack, regardless of their implementation of cybersecurity measures. 65% of enterprises who had cybersecurity measures in place indicated that they were adequately prepared to respond to a cyber attack.