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SPECIAL RELEASE

2019 Survey on Information and Communication Technology (SICT) for Information Economy (Core ICT Industries) Preliminary Results

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Table A. Proportion of Information Economy Establishments/Employees According to Selected Information and Communication Technology (ICT) Indicators for Core ICT Industries: Philippines, 2019 and 2017

ICT Indicator	2019 (in %)	2017 (in %)	Percentage-Point Difference
Proportion of Establishments			
That Owned and Used Computers and Communication Equipment	99.8	99.6	0.2
With Internet	97.6	97.9	-0.3
With Website	40.7	43.7	-3.0
With E-Commerce via the Internet	23.1	22.2	0.9
With Business Transaction via Cellular Mobile Phone	41.2	26.8	14.4
With Social Media Account	51.3	39.9	11.4
Proportion of Employees			
Using Computer Routinely at Work	65.5	63.8	1.7
Using Computer Routinely at Work with Internet Connection/Access	59.9	57.2	2.7

Source: Philippine Statistics Authority, 2017 SICT (Final Results) and 2019 SICT (Preliminary Results)

This special release highlights the results of the survey for Core ICT Industries. The Core ICT Industries are those industries comprising the **Information Economy (IE)**[1]. The IE is a term used to describe the economic and social value created through the ability to rapidly exchange information anytime,

[1]United Nations Conference on Trade and Development (UNCTAD) Manual for the Production of Statistics on the Information Economy, 2009 Revised Edition

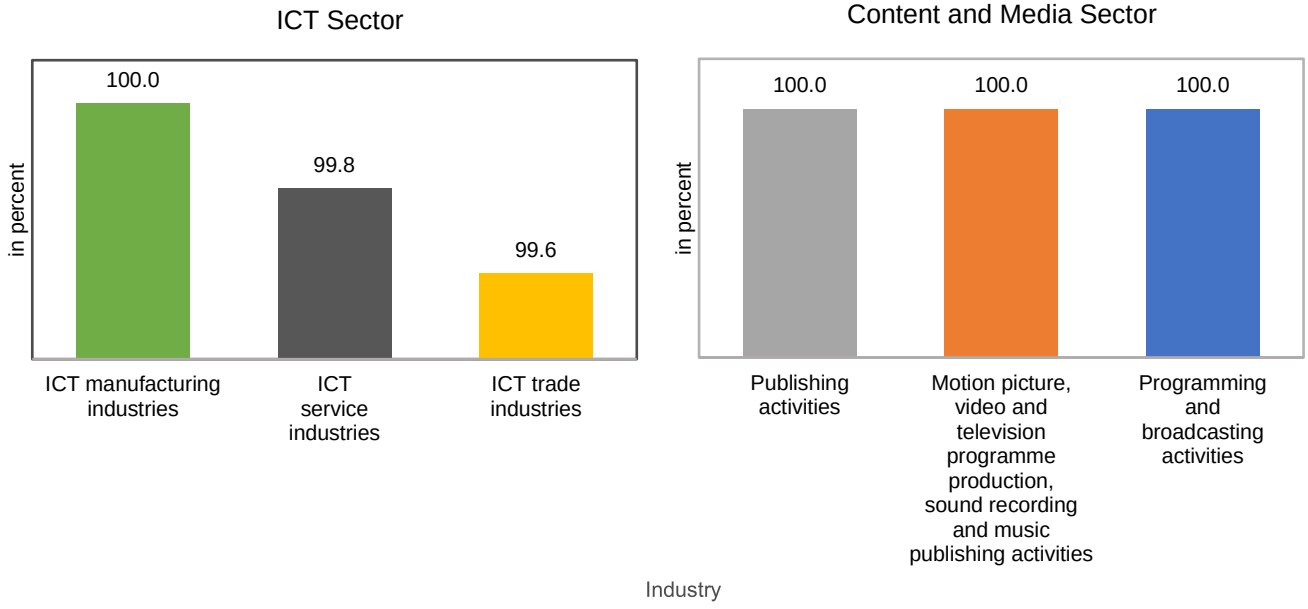
anywhere to anyone. A distinctive characteristic of the IE is the intensive use by businesses of ICT for the collection, storage, processing, and transmission of information. The use of ICT is supported by supply of ICT products from an ICT-producing sector and through trade.

1. Proportion of IE establishments that owned and used computers and communication equipment remained at 99.8 percent

A total of 5,535 establishments under the IE was estimated in 2019. Of these establishments, 99.8 percent owned and used computers and communication equipment in their business operations, which was only higher by 0.2 percentage point than the proportion of ownership and usage in 2017 at 99.6 percent. (Tables A and 1)

There are two sectors under IE, namely: (1) Information and Communication Technology (ICT) sector and (2) Content and Media sector. All establishments under the Content and Media Sector owned and used computers and communication equipment in 2019. For the ICT sector, only establishments engaged in ICT manufacturing industries registered 100.0 percent ownership and usage. (Figure 1 and Table 1)

Figure 1. Proportion of IE Establishments that Owned and Used Computer and Communication Equipment by Industry: Philippines, 2019



Source: Philippine Statistics Authority, 2019 SICT (Preliminary Results)

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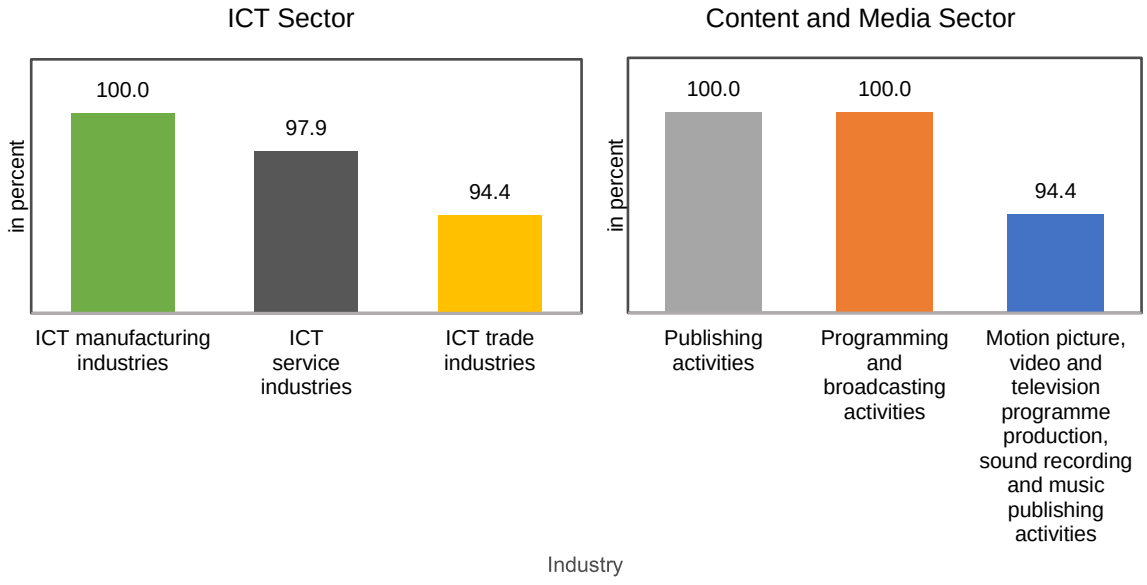
2. Proportion of IE establishments with internet connection or access likewise remained at 97.6 percent

Of the total IE establishments, 97.6 percent had internet access in 2019. This proportion posted a slight decrease of -0.3 percentage point, from 97.9 percent of IE establishments with internet access in 2017. (Tables A and 1)

Among industries in the ICT Sector, all ICT manufacturing industries establishments had internet access in 2019. On the other hand, 97.9 percent and 94.4 percent of establishments in the ICT service industries and ICT trade industries had internet access, respectively. Meanwhile, among industries in the Content and Media Sector, all establishments under publishing activities, and programming and broadcasting activities had internet access, whereas, for motion picture, video and television programme production, sound recording and music publishing activities, 94.4 percent of the establishments had internet access. (Figure 2 and Table 1)

Figure 2. Proportion of IE Establishments with Internet by Industry: Philippines, 2019



Source: Philippine Statistics Authority, 2019 SICT (Preliminary Results)

Among the transactions done by IE establishments with government offices, 69.1 percent used the internet in downloading or requesting government forms, and 65.8 percent in completing forms online or sending completed forms. (Figure 3 and Table 7)

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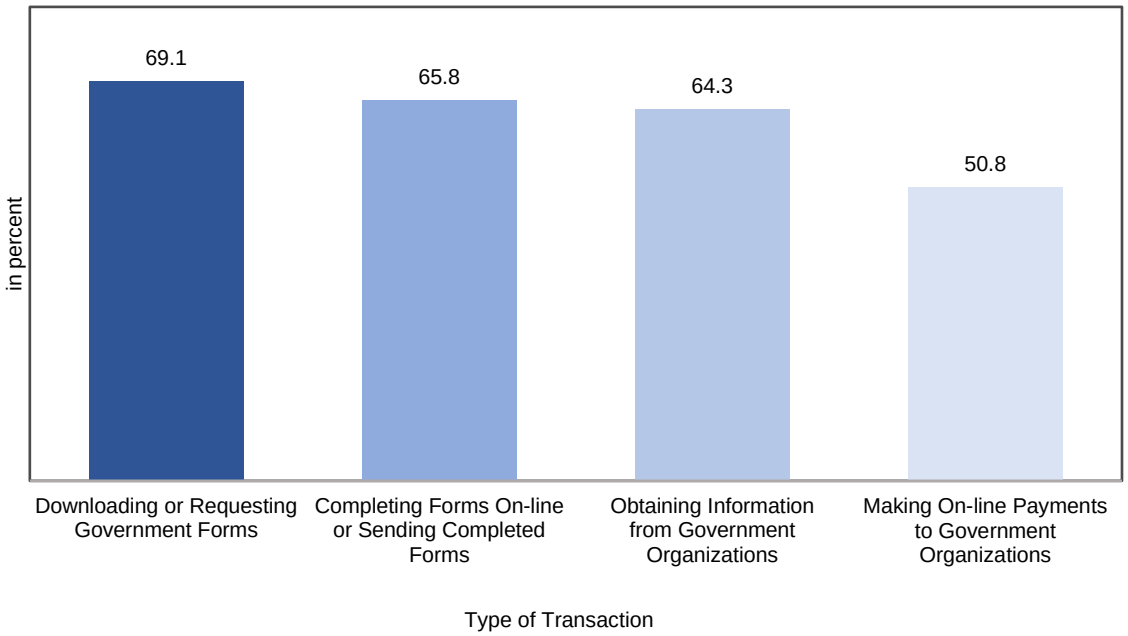
Figure 3. Percentage of IE Establishments that Used the Internet for Transactions in Government Agencies: Philippines, 2019



Source: Philippine Statistics Authority, 2019 SICT (Preliminary Results)

3. Proportion of IE establishments with website slowed down

In 2019, 40.7 percent of IE establishments had websites. This was lower by 3.0 percentage points than the 43.7 percent recorded in 2017. (Table A)

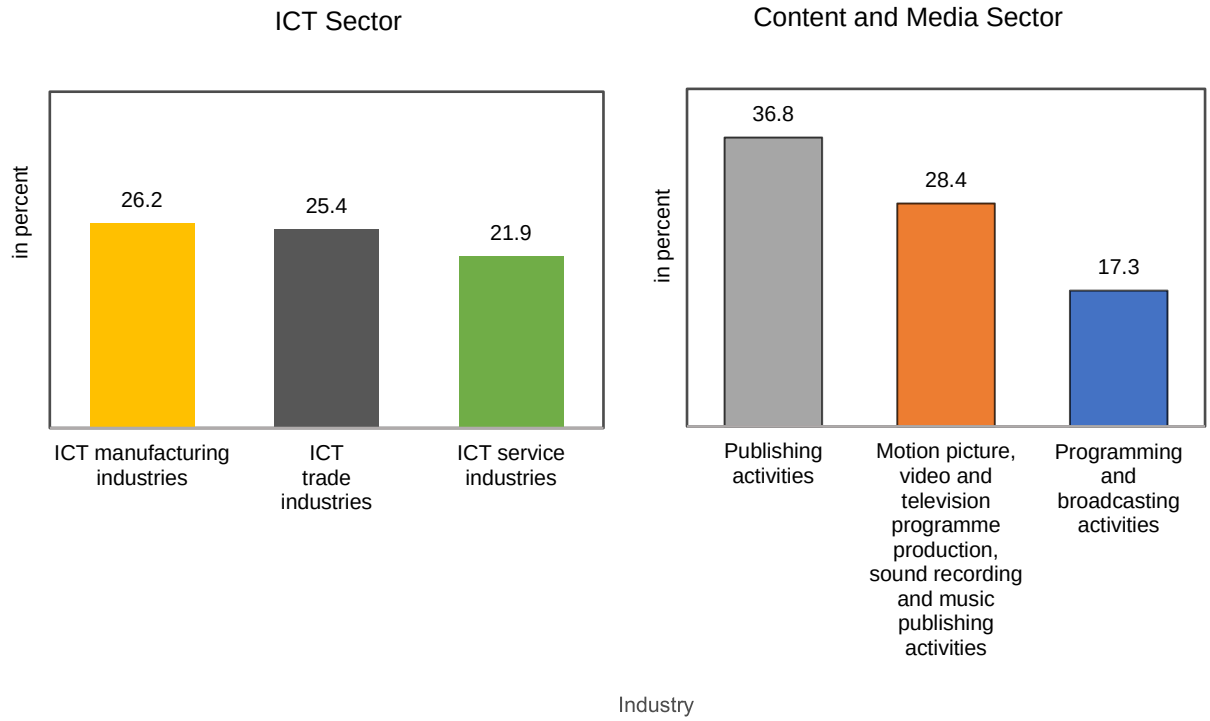
Among specific IE activities, publishing activities (63.6%) had the highest proportion of establishments with website. Meanwhile, the highest percentage-point increase of 21.9 percent was noted in motion picture, video and television programme production, sound recording and music publishing activities. (Table 3)

4. E-commerce transactions via internet increased by 0.9 percentage point

The proportion of IE establishments engaged in e-commerce transaction via internet in 2019 was recorded at 23.1 percent, an increase of 0.9 percentage point from the 22.2 percent reported level in 2017. (Table A)

Publishing activities registered the highest proportion at 36.8 percent, followed by motion picture, video and television programme production, sound recording and music publishing activities with 28.4 percent, and ICT manufacturing industries, 26.2 percent. (Figure 4 and Table 5)

Figure 4. Proportion of IE Establishments with E-commerce Transactions via the Internet by Industry: Philippines, 2019



Source: Philippine Statistics Authority, 2019 SICT (Preliminary Results)

5. Use of mobile phone in business transactions went up

Cellular mobile phone is another medium that can be used for doing business. Of the total IE establishments, 41.2 percent used mobile phones in their business transactions in 2019, an increase of 14.4 percentage points from the 26.8 percent usage level in 2017. (Table A)

ICT trade, with 49.2 percent, surpassed other industries in using mobile phones for their business transactions, while ICT manufacturing industries registered the lowest at 26.2 percent. (Table 5)

6. Five out of ten IE establishments had social media accounts

The presence of social media account among IE establishments reached 51.3 percent in 2019. This was higher by 11.4 percentage points from the 39.9 percent with recorded social media accounts in 2017. (Table A)

Among the IE industries, programming and broadcasting activities had the highest proportion with social media account (73.6%), while ICT manufacturing (31.7%) had the least. (Table 8)

7. Proportion of IE employees using computer routinely at work continued to increase by 1.7 percentage points

The proportion of IE employees who used computers routinely at work was recorded at 65.5 percent in 2019, higher by 1.7 percentage points compared with the 63.8 percent level in 2017. (Table A)

Programming and broadcasting activities of the Content and Media Sector had the highest proportion of employees using computers routinely at work at 85.5 percent. On the other hand, ICT manufacturing industries of the ICT Sector posted the least at 43.5 percent. (Table 2)

8. Three out of five IE employees used computers with internet connection routinely at work

At the national level, three out of five or 59.9 percent of the total IE employees used computers with internet connection or access routinely at work. The proportion of IE employees that used computer with internet connection or access routinely at work in 2019 was higher by 2.7 percentage points than the 57.2 percent level in 2017. (Table A)

Programming and broadcasting activities had the highest proportion of employees who used computers with internet connection or access at 84.8 percent. On the other hand, employees of ICT manufacturing industries had the least at 31.4 percent. (Table 2)

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TECHNICAL NOTES

I. Introduction

The 2019 Survey on Information and Communication Technology (SICT) was the eighth in the series of SICT conducted by the Philippine Statistics Authority (PSA). It was a rider to the 2019 Annual Survey of Philippine Business and Industry (ASPBI) conducted in 2020.

The 2019 SICT collected and generated information on the availability, distribution, and access/utilization of Information and Communication Technology (ICT) among establishments in the country.

Specifically, the survey measured the following:

a. component of ICT resources and their utilization by establishments;
b. diffusion of ICT into establishments from various sources;
c. e-commerce transactions from data on e-commerce sales/revenue and purchases;
d. cellular mobile phone business transactions from data on sales/revenue;
e. estimate of the number of ICT workers in establishments;
f. methods of disposal of ICT equipment; and
g. presence of social media accounts.

II. Data Collection and Processing

The 2019 SICT utilized only one type of questionnaire (SICT Form 1) for all sectors which was distributed to sample establishments by field office personnel. All information collected in the 2019 SICT refers to calendar year 2019, except for employment where reference period is as of 15 November 2019. The SICT Form 1 followed the 2017 SICT questionnaire design with minor revisions due to the addition of some data items and categories recommended by the Department of Information and Communications Technology (DICT). The clearance number for the 2019 SICT Form 1 is PSA-2042 with expiry date of 30 September 2021. Moreover, sample establishments were given various options in accomplishing the survey questionnaire, and these are:

a. Online Questionnaire, which can be accessed at https://sict.psa.gov.ph;

b. Electronic Questionnaire, which can be accomplished in fillable Portable Document Format (.pdf) or Microsoft Excel (.xlsx) file format; and

c. Printed questionnaire, which is the traditional and physical version of the questionnaire.

The Establishment Data Management System (EDMS) was utilized in the decentralized processing of 2019 ASPBI questionnaires in the provinces.

Data are presented by industry group or 3-digit classification as classified under the 2009 Philippine Standard Industrial Classification (PSIC).

III. Taxonomy of Establishments

An *establishment* is defined as an economic unit under a single ownership or control which engages in one or predominantly one kind of economic activity at a single fixed location. It is categorized by its economic organization, legal organization, industrial classification, employment size, and geographic location.

Economic Organization refers to the organizational structure or role of the establishment in the organization. It may be a single establishment, branch, establishment and main office with branches elsewhere, main office only, or an ancillary unit other than main office.

Legal Organization refers to the legal form of the economic entity which owns the establishment. It may be a single proprietorship, partnership, government corporation, stock corporation, non-stock corporation, or cooperative.

Industrial classification of an economic unit was determined by the activity from which it derives its major income or revenue. The 2009 PSIC which was approved for adoption by government agencies and instrumentalities through PSA Resolution No. 01 Series of 2017-158 signed on 14 February 2017 was utilized to classify economic units according to their economic activities.

Size of an establishment is determined by its total employment as of the time of visit during the latest Updating of the List of Establishments.

Total Employment (TE) refers to the total number of persons who work in or for the establishment. This includes paid employees, working owners, unpaid workers and all employees who work full-time or part-time including seasonal workers. Also included are persons on short-term leave such as those on sick, vacation or annual leaves, and on strike.

Geographic Classification refers to the grouping of establishments by geographic area using the Philippine Standard Geographic Code (PSGC) classification. The PSGC contains the latest updates on the official number of

regions, provinces, cities, municipalities, and barangays in the Philippines. The PSGC as of 31 December 2019 was used for the 2019 SICT.

IV. Scope and Coverage

The 2019 SICT was undertaken nationwide and covered all industries in the 2019 ASPBI. For the purpose of the survey, these industries were classified as core ICT industries and non-core ICT industries. Core ICT industries are industries comprising the Information Economy (IE). IE refers to industries involved in producing and trading of ICT products, and those which primarily used ICT in providing products and services. For this Special Release, only results from IE industries are presented.

The IE was composed further of the ICT sector and Content and Media sector. The industries under each sector are as follows:

a. ICT Sector
    - a.1 ICT Manufacturing Industries
    - a.2 ICT Trade Industries
    - a.3 ICT Service Industries
        - i. Software publishing
        - ii. Telecommunication services
        - iii. Computer programming, consultancy and related services
        - iv. Data processing, hosting and related activities; web portals
        - v. Repair of computers and communication equipment

b. Content and Media Sector
    - b.1 Publishing activities
    - b.2 Motion picture, video and television programme production, sound recording and music publishing activities
    - b.3 Programming and broadcasting activities

The economic activities composing the core ICT industries in the Philippines are listed in Table 1.

Table 1. List of Core ICT Industries in the Philippines: 2009 PSIC

2009 PSIC	Industry Description
ICT Manufacturing Industries	
C26110	Manufacture of electronic valves and tubes
C26120	Manufacture of semi-conductor devices and other electronic components
C26200	Manufacture of computers and peripheral equipment and accessories

2009 PSIC	Industry Description
C26300	Manufacture of communication equipment
C26400	Manufacture of consumer electronic
C26800	Manufacture of magnetic and optical media
	ICT Trade Industries
G46510	Wholesale of computers, computer peripheral equipment and software
G46521	Wholesale of electronic valves and tubes
G46522	Wholesale of semi-conductor devices
G46523	Wholesale of micro-chips and integrated circuits
G46524	Wholesale of printed circuits
G46526	Wholesale of telephone and communications equipment including parts and accessories
G46527	Wholesale of blank audio and video tapes and diskettes, magnetic and optical disks (CDs, DVDs)
	ICT Service Industries
J58200	Software Publishing
	Telecommunications Services
	Wired telecommunications activities
J61101	Wired (landline) services
J61102	Wired internet access service activities (e.g. DSL, leased line, dial-up)
J61103	Telegraph, facsimile/ telefax, and telex services
J61109	Other wired telecommunication activities, including pay phone
	Wireless telecommunications activities
J61201	Wireless landline services
J61202	Mobile telecommunications services
J61203	Wireless internet access services (e.g. Internet Service Provider, broadband)
J61209	Other wireless telecommunication services, n.e.c.
J61300	Satellite telecommunications activities
	Other telecommunications activities
J61901	Telephone access in facilities open to the public service activities
J61902	Internet access in facilities open to the public service activities
J61903	Voice Over Internet Protocol (VOIP) service activities
J61909	Other telecommunications service activities, n.e.c.
	Computer Programming, Consultancy and Related Activities
J6201	Computer programming activities
J62011*	Game design and development
J62019*	Other computer programming activities

2009 PSIC	Industry Description
J62020	Computer consultancy and computer facilities management activities
J62090	Other information technology and computer service activities
	Data processing, hosting and related activities; web portals
J63111	Data processing
J63112	Website hosting services
J63113	Application hosting services
J63120	Web portals
	Repair of computers and communication equipment
S95110	Repair of computers and peripheral equipment
S95120	Repair of communication equipment
S95210	Repair of consumer electronics
	Content and Media Industries
	Publishing Activities
J58110	Book publishing
J58120	Publishing of directories and mailing lists
J58130	Publishing of newspapers, journals and periodicals
J58190	Other publishing activities
J63910	News agency activities
J63990	Other information service activities, n.e.c
	Motion picture, video and television programme production, sound recording and music publishing activities
J5911	Motion picture, video and television programme activities
J59111*	Pre and main production of traditional & 2D animation
J59112*	Pre and main production of 3D animation
J59119*	Pre and main production of other motion films and etc.
J5912	Motion picture, video and television programme post-production activities
J59121*	Post production of traditional & 2D animation
J59122*	Post production of 3D animation
J59129*	Post production of other motion films and etc.
J59130	Motion picture, video and television programme distribution activities
J59140	Motion picture projection activities
J59201	Sound recording activities
J59202	Publishing of music
	Programming and broadcasting activities
J60101	Radio broadcasting and relay station and studios
J60102	Radio program production
J60103	Radio broadcasting activities over the Internet (internet radio stations)

2009 PSIC	Industry Description
J60201	Television broadcasting and relay station and studios including closed circuit television services
J60202	Television program production
J60203	Television broadcasting activities over the Internet (internet radio stations)

**Newly-assigned industry codes which were split from selected industries (J59110, J59120, and J62010) and for PSA internal use only*

V. Sampling Design

The 2019 SICT utilized a stratified systematic sampling design with 3-digit PSIC serving as industry strata (industry domain) and employment size as the second stratification variable, except for ICT Core and Business Process Management (BPM) industries which was at the 5-digit PSIC level.

Domain

The geographic domain of the core ICT industries is the region while for the non-core ICT industries is at the national level. The industry domain/stratum for the non-core ICT industries are the 3-digit PSIC industry groups while for the core ICT industries are the 5-digit PSIC industry sub-classes. The employment domain/stratum is the MSME classification.

Unit of Enumeration

The unit of enumeration of the survey is the establishment.

Sampling Frame of Establishments

The frame for the 2019 SICT was extracted from the preliminary 2019 List of Establishments (LE) as of 05 February 2020. Samples were selected from the list of samples of the 2019 ASPBI, to ensure that the sample of SICT is a sample of ASPBI as well.

Estimation procedure

Core Industries

1) Estimation of Survey Weights

Base Weight

The base weight is the inverse of the probability of selection. For the SICT, the base weight for each domain is given by:

$$w_{hk} = \frac{N_h}{n_h}$$

where:

w_{hk} = weight of the k[th] establishment in the h[th] stratum
N_h = total no. of establishments in the h[th] stratum
n_h = total no. of sample establishments in the h[th] stratum
h = refers to the industry-employment stratum

Adjustment Factor

To take into account the non-responding sample establishments, the adjustment factor by region and industry domain is as follows:

$$A_{s1} = \frac{\sum_{j=1}^{n} w_{hk} X_{1k}}{\sum_{k=1}^{n} w_{hk} X_{2k}}$$

where:

A_{s1} = adjustment factor for industry domain s
X_{1k} = eligibility status of the k[th] sample establishment (1 if eligible, 0 otherwise)
X_{2k} = responding status of the k[th] sample establishment (1 if responding, 0 otherwise)

Final Weight

The final weight is the product of the base weight and adjustment factor. That is,

$$w'_{hk} = (w_{hk})(A_{s1})$$

where:

w'_{hk} = final weight of the kth sample establishment in stratum h
w_{hk} = weight of the k[th] establishment in the h[th] stratum
A_s = adjustment factor for industry domain s

To consider the total industries covered in the ASPBI, additional adjustment factor is considered as follows:

Adjusted Final Weight

To consider the total industries covered in the ASPBI, additional adjustment factor is considered as follows

$$w'_{hkf} = \frac{w'_{hka}}{w'_{hkt}}$$

where:

w'_{hkf} = final weight of the kth sample establishment in stratum h
w'_{hka} = final weight of the kth sample in stratum h in ASPBI
w'_{hkt} = final weight of the kth sample in stratum h in SICT

2) Estimation of Total

Total by Industry-Employment Stratum

The estimator for the total of a characteristic in each industry-employment stratum in a region (geographic domain) is given by:

$$\hat{Y}_h = \sum_{j=1}^{n_h} w'_{hkf} y_{hk}$$

where:

y_{hk} = value of the k[th] sample establishment in stratum h
w'_{hkf} = final weight of the kth sample establishment in stratum h

Total by Industry Stratum and Domain

The estimator for the total of a characteristic in each industry stratum in a domain is given by:

$$\hat{Y}_{ir} = \sum_{h=1}^{h_i} \sum_{j=1}^{n_h} w'_{hkf} y_{hk}$$

where:

h_i = number of strata (industry-employment strata) for industry stratum i

Total by Employment Stratum and Domain

The estimator for the total of a characteristic in each employment stratum in a domain is given by:

$$\hat{Y}_{jr} = \sum_{h=1}^{h_j} \sum_{j=1}^{n_h} w'_{hkf} y_{hk}$$

where:

h_j = number of strata (industry-employment strata) for industry stratum j

r = subscript for geographic domain r

Total by Geographic Domain

The estimator for the total of a characteristic in each geographic domain is given by:

$$\hat{Y}_r = \sum_{i=1}^{I} \hat{Y}_{ir}$$

or

$$\hat{Y}_r = \sum_{j=1}^{J} \hat{Y}_{jr}$$

where:

I = total number of industry strata in geographic domain r

J = total number of employment strata in geographic domain r

Total by Industry Stratum (National)

The estimator for the national total of a characteristic in each industry domain/stratum is given by:

$$\hat{Y}_i = \sum_{r=1}^{R} \hat{Y}_{ir}$$

where:

R = total number of regions

Total by Employment Stratum (National)

The estimator for the national total of a characteristic in each employment domain/stratum is given by:

$$\hat{Y}_j = \sum_{r=1}^{R} \hat{Y}_{jr}$$

National Total

The estimator for the national total of a characteristic is given by:

$$\hat{Y} = \sum_{i=1}^{I} \hat{Y}_i$$

or

$$\hat{Y} = \sum_{j=1}^{J} \hat{Y}_j$$

Non-core Industries

3) Estimation of Total

Total by Industry-Employment Stratum

The estimator for the total of a characteristic in each industry-employment stratum at the national level (geographic domain) is given by:

$$\hat{Y}_h = \sum_{j=1}^{n_h} w'_{hkf} y_{hk}$$

where:

y_{hk} = value of the k[th] sample establishment in stratum h

w'_{hk} = Final weight of the k[th] sample establishment in stratum h

Total by Industry Stratum and Domain

The estimator for the total of a characteristic in each industry stratum in a domain is given by:

$$\hat{Y}_i = \sum_{h=1}^{h_i} \sum_{j=1}^{n_h} w'_{hkf} y_{hk}$$

where:

h_i = Number of strata (industry-employment strata) for industry stratum i

Total by Employment Stratum and Domain

The estimator for the total of a characteristic in each employment stratum in a domain is given by:

$$\hat{Y}_j = \sum_{h=1}^{h_j} \sum_{j=1}^{n_h} w'_{hkf} y_{hk}$$

where:

h_j = Number of strata (industry-employment strata) for employment stratum j

National Total

The estimator for the national total of a characteristic is given by:

$$\hat{Y} = \sum_{i=1}^{I} \hat{Y}_i$$

or

$$\hat{Y} = \sum_{j=1}^{J} \hat{Y}_j$$

where:

I = Total number of industry strata in geographic domain
J = Total number of employment strata in geographic domain

VI. Response Rate

The overall response rate for the 2019 SICT was 78.1 percent (10,124 of the 12,958 sample establishments). This included receipts of good[2] questionnaires, partially accomplished questionnaires, and reports of closed, moved out, or out-of-scope establishments. Out of the total responding establishments, 384 establishments responded online. For Core ICT industries, the response rate was 81.7 percent (3,179 of the 3,889 sample establishments).

VII. Concepts and Definitions

E-commerce or electronic commerce refers to the sale of goods and services where an order is placed by the buyer, price, and terms of sale are negotiated over the Internet Protocol-based networks, an extranet, Electronic Data Interchange (EDI) network, or other online systems.

Extranet is a network or internetwork that is limited in scope to a single organization or entity, but which also has limited connections to the networks of one or more other usually, but not necessarily, trusted organizations or entities (e.g., a company's customers may be given access to some part of its intranet creating in this way an extranet, while at the same time the customers may not be considered 'trusted' from a security standpoint).

Information Economy (IE) is a term used to describe the economic and social value created through the ability to rapidly exchange information anytime, anywhere, and to anyone. It is characterized by the intensive use by businesses of ICT for the collection, storage, processing, and transmission of information. The use of ICT is supported by supply of ICT products from an ICT-producing sector and through trade.

Information and Communication Technology (ICT), as defined by the Commission on Information and Communication Technology (CICT), is "the totality of electronic means to collect, store, process, and present information to end-users in support of their activities". It consists, among others, of computer systems, office systems, and consumer electronics, as well as network information infrastructure, the components of which include the telephone system, the Internet, fax machines, and computers.

[2] Refers to questionnaires with complete entries in the required data items

ICT Resources are equipment, knowledge, and human resources used to support electronic business/manufacturing processes and the conduct of electronic commerce transactions. It includes computer and peripheral equipment, systems and application software, network channels, telecommunication equipment, routers, satellite, and other ICT hardware used in electronic business and commerce transactions, ICT support services and ICT workers.

Internet is a global system of interconnected computer networks that interchange data by packet switching using the standardized Internet Protocol Suite (TCP/IP). It is a "network of networks" that consists of millions of private and public, academic, business, and government networks of local to global scope that are linked by copper wires, fiber-optic cables, wireless connections, and other technologies. The internet carries various information resources and services, such as electronic mail, online chat, file transfer and file sharing, online gaming, and the inter-linked hypertext documents and other resources of the World Wide Web (WWW).

Intranet is a set of networks, using the Internet Protocol and IP-based tools such as web browsers and file transfer applications, that is, under the control of a single administrative entity. That administrative entity closes the intranet to all but specific, authorized users. Most commonly, an intranet is the internal network of an organization.

Local Area Network (LAN) is a computer network covering a small physical area, like a home, office, or small group of buildings, such as a school, or an airport. Current LANs are most likely to be based on Ethernet technology. Each workgroup can get to its local printer. Note that the printers are not accessible from outside their workgroup.

Network channel is a collection of computers connected to each other that allows them to communicate with each other and share resources and information. All networks are made up of basic hardware building blocks to interconnect network nodes, such as Network Interface Cards (NICs), Bridges, Hubs, Switches, and Routers.

Web site is a collection of Web pages, images, videos, or other digital assets that is hosted on one or more web servers, usually accessible via the internet. All publicly accessible websites are seen collectively as constituting the "World Wide Web". The pages of a website can usually be accessed from a common root Uniform Resource Locator (URL) called the homepage, and usually reside on the same physical server.

Wide Area Network (WAN) is a computer network that covers a broad area (i.e., any network whose communications links cross metropolitan, regional, or

national boundaries. Less formally, a WAN is a network that uses routers and public communications links. The largest and most well-known example of a WAN is the internet. A WAN is a data communications network that covers a relatively broad geographic area (i.e. one city to another and one country to another country) and that often uses transmission facilities provided by common carriers, such as telephone companies.