

EXPLANATORY TEXT

INTRODUCTION

The 2008 Survey on Information and Communication Technology (SICT) is the second [of the series](#) undertaken by the National Statistics Office (NSO). It is a rider to the 2008 Annual Survey of Philippine Business and Industry (ASPBI) conducted in 2009.

The first ever ICT survey was the 2002 SICT, with 2001 as the reference period. It was conducted in 2002 by NSO in collaboration with the Information Technology and E-Commerce Council (ITECC) of the Office of the President. The survey was a rider to the 2002 ASPBI.

USES OF ICT DATA

The results of the survey will be used in:

- assessing the use of ICT resources by establishments and the available infrastructure
- determining how establishments use the internet, including the activities for which it is used
- determining Web presence in establishments
- determining the revenue generated through e-commerce transactions, and through cellular mobile phones
- determining the methods of disposal of ICT equipment

LEGAL AUTHORITY

Like all censuses and surveys conducted by the NSO, the conduct of the 2008 SICT are authorized by various legislative acts and presidential directives namely:

- **Commonwealth Act No. 591 (An Act to Create the Bureau of the Census and Statistics, to Consolidate Statistical Activities of the Government Therein)**, approved on August 19, 1940 which empowers the Bureau, among other things, to prepare for and undertake all censuses of population, agriculture, industry and commerce.
- **Presidential Decree No. 418** dated March 20, 1974 reconstituted the Bureau of the Census and Statistics as a new agency to be known as the National Census and Statistics Office (NCSO), under the administrative supervision of the National Economic Authority (NEDA).

- **Executive Order No. 121 (Reorganization Act of the Philippine Statistical System)** dated August 4, 1987 renamed the National Census and Statistics Office (NCSO) to National Statistics Office (NSO) which shall be the major statistical agency responsible for generating general purpose statistics and undertaking such censuses and surveys
- **Executive Order 5 (Strengthening the National Statistics Office)**, dated July 29, 1998 authorized the Office to delegate more substantive and administrative functions to the field offices to transform them from a mere data collection arm to statistics-producing units.

Penalty Clause

Section 3 of Commonwealth Act No. 591 states that:

“...Any person who fails or refuses to accomplish, mail or deliver such questionnaire or form received by him to the Bureau of the Census and Statistics... or any person who in accomplishing any such questionnaire or form, knowingly gives data or information which shall prove to be materially untrue in any particular, or in any person who signs such questionnaire or form after it has been accomplished in the knowledge that it is untrue in any particular shall upon conviction, be punished by a fine of not more than six hundred pesos or by imprisonment for not more than six months, or by both...”

Confidentiality of Information

Section 4 of Commonwealth Act No. 591 states that:

“...Data furnished to the Bureau of the Census and Statistics by an individual corporation, partnership, institution or business enterprise shall not be used as evidence in any public office either as evidence for or against the individual, corporation, association, partnership, institution or business enterprise from whom such data emanates; nor shall such data or information be divulged to any person except authorized employees of the Bureau of the Census and Statistics, acting in the performance of their duties; nor shall data be published except in the form of summaries or statistical tables in which no reference to an individual, corporation, association, partnership, institution or business enterprise shall appear. Any person violating the provisions of this section shall, upon conviction, be punished by a fine of not more than six hundred pesos or by imprisonment for not more than six months, or by both...”

SCOPE AND COVERAGE

Industries in the 2008 SICT were classified as core ICT and non-core ICT sectors. The core ICT industries are those referred as the Information Economy (IE).

Information Economy is a term used to describe the economic and social value created through the ability to rapidly exchange information at anytime, anywhere to anyone. A distinctive characteristic of the information economy 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.

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

a. ICT Sector

- ICT Manufacturing Industries
- ICT Trade Industries
- ICT Service Industries
 - Software publishing
 - Telecommunication services
 - Computer programming, consultancy and related services
 - Data processing, hosting and related activities; web portals
 - Repair of computers and communication equipment

b. Content and Media Sector

- Publishing activities
- Motion picture, video and television programme production, sound recording and music publishing activities

UNIT OF ENUMERATION

The unit of enumeration in the SICT or any other economic survey or census of the NSO is the establishment. It is defined in the United Nations International Recommendations on Industrial Statistics as:

“an economic unit under a single ownership control, i.e., under a single legal entity, engaged in one or predominantly one kind of economic activity at a single fixed location.”

In actual practice, however, there are difficulties in applying the ideal definition so the establishment is defined in operational terms to take into account the organization and record keeping practices of certain sectors by making the single location and activity criteria more

flexible. This necessitates the use of the kind-of-activity unit for certain sectors as the single location restriction is eliminated.

For the Construction; Transport, Storage and Communications; Insurance; Real Estate Buying, Developing, Subdividing and Selling; and Investigation Agencies, the establishment is defined as:

“the unit that is engaged in the production of the most homogenous group of goods and services, usually at one location, but sometimes over a wider area, for which separate records are available that can provide data concerning the production of these goods and services and the materials, labor and physical resources used in the production.”

SURVEY DESIGN

Classification of Establishments

An establishment is categorized by its economic organization (EO), legal organization (LO), industrial classification, employment size, and geographic location.

Economic Organization (EO)

This relates to the organizational structure or role of the establishment in the organization. The following are the types of EO:

- Single establishments (EO = 1) is an establishment which has neither branch nor main office
- Branch only (EO = 2) is an establishment which has a separate main office located elsewhere
- Establishment and main office (EO = 3) both located in the same address and with branch/es elsewhere
- Main office only (EO = 4) is the unit which controls, supervises and directs one or more establishments of an enterprise
- Ancillary unit other than Main Office (EO = 5) is the unit that operates primarily or exclusively for a related establishment or group of related establishments or its parent establishment and provides goods or services that support but do not become part of the output of those establishments.

Legal Organization (LO)

This provides the legal basis for ownership of the establishment. The following are the types of LO:

- Single Proprietorship (LO = 1) is a business establishment organized, owned and managed by one person, who alone assumes the risk of the business enterprise
- Partnership (LO = 2) is an association of two or more individuals for the conduct of a business enterprise based upon an agreement or contract between or among them to contribute money, property or industry into a common fund with the intention of dividing profits among themselves
- Government Corporations (LO = 3) is a private corporation organized for private aim, benefit or purpose and owned and controlled by the government
- Private Corporation (LO = 4) is a corporation organized by private persons
- Cooperative (LO = 5) is an organization composed primarily of small producers and/or consumers who voluntarily join together to form business which themselves own, control and patronize
- Others (LO = 6) is an organization not classified in any of the above classification. It includes private associations, foundations, NGOs or other forms of legal organization.

Industrial Classification

The industrial classification of an economic unit is determined by the activity from which it derives the major income or revenue. The amended 1994 Philippine Standard Industrial Classification (PSIC) is utilized to classify economic units according to their economic activities. It is aligned with the International Standard Industrial Classification of all economic activities (ISIC) Revision 3.1.

Establishment Size

The size of an establishment is determined by its Total Employment (TE). The following are the employment size classification used in the establishment census/survey:

TE Code	Total Employment (TE)	TE Code	Total Employment (TE)
0	1-4	5	100-199
1	5-9	6	200-499
2	10-19	7	500-999
3	20-49	8	1,000-1,999
4	50-99	9	2,000 and over

Geographic Classification

Establishments are also classified by geographic area using the Philippine Standard Geographic Code (PSGC). The PSGC contains the latest updates on the official number of regions, provinces, cities, municipalities and barangays in the Philippines. It consists of the 17 administrative regions as approved under Executive Order No. 36 dated 19 September 2001 (*Providing for the Reorganization of the Administrative Regions in Mindanao...*) and Executive Order No. 103 dated 17 May 2002 (*Dividing Region IV into Region IV-A and region IV-B, transferring the province of Aurora to Region III*). The geographic codes used in the 2008 SICT are in accordance with PSGC as of September 2008.

Frame of Establishments

The 2008 SICT sampling frame is extracted from the 2008 List of Establishments (LE). The 2008 List of Establishments is the combined result of the following:

1. 2004 Updating of the List of Establishments (ULE) conducted in the National Capital Region and in selected urban barangays in cities/provincial capitals/first class municipalities (2004 ULE areas) during the period from September 2004 to May 2005;
2. 2005 ULE in rural barangays in provincial capitals/cities/municipalities of selected provinces (2005 ULE areas) conducted from September to December 2005. The selected provinces are the provinces in Region 3 and 4A, provinces where the NSO Regional Office is located, and provinces with the highest count of establishments in rural barangays of provincial capitals/cities/municipalities. It also covered growth areas in selected provinces;
3. 2008 ULE conducted in September 2008 in priority areas (growth centers and other areas where significant change in the number of establishments were observed) and field verification of status and characteristics of establishments listed in selected sources but not found in the LE or referred to as “no matched” establishments.

Survey feedbacks from the 2006 CPBI (Census of Philippine Business and Industry), the 2008 MISSI (Monthly Integrated Survey of Selected Industries), the 2008 QSPBI (Quarterly Survey of Philippine Business and Industry), the 2008 SIFE (Survey on Impact of Floods on Establishments), the 2007 SSIC (Special Survey of Imported Commodities) and 2008 SPLN (Survey on Production and Logistic Networks of Philippine Manufacturing Industries) were also used to update and validate the 2008 LE.

An initial estimate from the 2008 LE shows there are about 800,000 establishments in operation in the country for the year. Distribution of these establishments reveals that about 600,000 establishments (81.2%) are classified as the “informal sector” and the remaining 200,000 establishments are classified as the “formal” sector. However, around 65% (130,000) of establishments classified in the “formal” sector are within the scope and coverage of the 2008 SICT and thus, comprise the frame of the survey.

Sampling Design

The 2008 SICT samples are sub-samples of the 2008 ASPBI (Annual Survey of Philippine Business and Industry). It utilized the stratified systematic sampling design with three and five-digit PSIC serving as industry strata (industry domain) and the employment size (TE) as the second stratification variable. There are only two TE strata used for the survey, as follows: TE of 20 and over and TE of less than 20.

Sampling Domain

For Establishments with total employment of 20 and over, the domains are the region and industry, with employment size (TE) as the stratification variable. For TE less than 20, the domains are national and industry with the employment size as the stratification variable.

Geographic Domain

For establishments with total employment of less than 20, the geographic domain is at the national level. For those with 20 and over, the geographic domains are the regions. Hence, the samples of the 2008 SICT with total employment of 20 and over can provide estimates at the regional level while for those less than 20 only at the national level.

List of Geographic Domains (Region and Province)

REGION	PROVINCE
National Capital Region (NCR)	City of Manila, Quezon City, Mandaluyong City, Marikina City, Pasig City, San Juan City, Caloocan City, Malabon City, Navotas City, Valenzuela City, Makati City, Pateros, Taguig City, Parañaque City, Las Piñas City, Muntinlupa City, Pasay City
Cordillera Administrative Region (CAR)	Abra, Apayao, Benguet, Ifugao, Kalinga, Mountain Province
Region I – Ilocos	Ilocos Norte, Ilocos Sur, La Union, Pangasinan
Region II – Cagayan Valley	Batanes, Cagayan, Isabela, Nueva Vizcaya, Quirino
Region III – Central Luzon	Aurora, Bataan, Bulacan, Nueva Ecija, Pampanga, Tarlac, Zambales
Region IV-A – CALABARZON	Cavite, Laguna, Batangas, Rizal, Quezon
Region IV-B – MIMAROPA	Oriental Mindoro, Occidental Mindoro, Romblon, Marinduque, Palawan
Region V – Bicol	Albay, Camarines Norte, Camarines Sur, Catanduanes, Masbate, Sorsogon
Region VI – Western Visayas	Aklan, Antique, Capiz, Guimaras, Iloilo, Negros Occidental
Region VII – Central Visayas	Bohol, Cebu, Negros Oriental, Siquijor
Region VIII – Eastern Visayas	Biliran, Leyte, Southern Leyte, Eastern Samar, Northern Samar, Western Samar

REGION	PROVINCE
Region IX – Zamboanga Peninsula	Zamboanga del Norte, Zamboanga del Sur, Zamboanga Sibugay, Isabela City
Region X– Northern Mindanao	Bukidnon, Camiguin, Lanao del Norte, Misamis Occidental, Misamis Oriental
Region XI – Davao Region	Compostela Valley, Davao del Norte, Davao del Sur, Davao Oriental
Region XII – SOCCSKSARGEN	North Cotabato, Sarangani, South Cotabato, Sultan Kudarat, Cotabato City
Autonomous Region in Muslim Mindanao (ARMM)	Lanao del Sur, Maguindanao (excluding Cotabato City), Sulu, Tawi-Tawi, Basilan (excluding Isabela City)
Caraga	Agusan del Sur, Agusan del Norte, Dinagat Islands*, Surigao del Sur, Surigao del Norte

* Created as the 5th province in Caraga on December 2, 2006 pursuant to R.A. 9355.

Industry Domain

The industry stratification for the 2008 SICT is the 5-digit PSIC for the core ICT sector and 3/5–digit PSIC for the non- core ICT sectors. The table below presents the distribution of industry strata by sector.

Comparative Distribution of Industry Strata by Sector

Sector	2008 ASPBI	2008 SICT		
		Total	3-digit PSIC	5-digit PSIC
A	114	30	14	16
B	20	9	6	3
C	26	8	3	5
D	441	82	56	25
E	4	4	-	4
F	15	5	3	2
G	167	24	17	7
H	12	2	2	-
I	53	20	10	10
J	39	7	5	2
K	73	20	10	11
M	11	5	3	2
N	18	3	2	1
O	42	15	5	10
Total	1035	234	136	98

Refer to Appendix 1 for the list of industry domains (industry strata) by sector.

Sample Size Determination

Establishments engaged in the core ICT industries were completely enumerated (100%), that is, for both TE of less than 20 and TE of 20 and over. The establishments classified in the non-core ICT industries were covered on a sampling basis, these were as follows:

Total Employment (TE)	Sampling Rates
less than 20	1%
20 and over	20%

For TE of 20 and over of the non-core ICT industries, the sample size was estimated at the national level for each of the industry domain (3/5-digit PSIC). These were then proportionately allocated to the regions.

A total of **9,711 samples** were selected for the survey. The number of sample establishments in all sectors is shown below:

Description	Total	TE of 20 and over	TE of less than 20
Core ICT	3,333	1,078	2,255
Non-core ICT	6,378	5,339	1,039
TOTAL	9,711	6,417	3,294

Sample Allocation

Proportional allocation was used in allocating the number of samples for total employment of 20 and over by industry domain to the regions. Basis of allocation was the number of establishments (N) by industry domain in the region. A minimum sample size was set to three and a maximum of ten establishments per cell (region and industry domain). However, when the total number of establishments (N) in the cell was less than or equal to three, all establishments in that cell were taken as samples. For total employment of less than 20, no allocation was done as the sample size was determined by industry domain at national level. A minimum sample size was also set to three and a maximum of thirty establishments per cell (industry domain).

For total employment of 20 and over, the number of samples for each of the industry domain at the national level was allocated by region. The formula used was

$$n_{shr} = \left(\frac{N_{shr}}{N_{sh}} \right) \times n_{sh}$$

where:

N_{shr} = total number of establishments in the h^{th} industry domain of major division s in the r^{th} region

N_{sh} = total number of establishments in the h^{th} industry domain of major division s

n_{sh} = number of sample establishments in the h^{th} industry domain of major division s

n_{shr} = number of sample establishments in the h^{th} industry domain of major division s in the r^{th} region

Estimation Procedure

General Formula

Sample Mean of stratum h (Industry Stratum)

$$\bar{y}_h = \frac{1}{n_h} \sum_{i=1}^{n_h} y_{hi}$$

For quantitative variables:

y_{hi} = value of the variable y

For qualitative variables:

y_{hi} = 1 if the establishment has a particular characteris
= 0 if otherwise

$$Y'_h = \frac{N_h}{n_h} \sum_{i=1}^{n_h} y_{hi} = N_h \bar{y}_h$$

For Core ICT Industries

$$p = \frac{A}{N}$$

p = population proportion (proportion of establishments satisfying a certain condition)

N = number of establishments in the population

A = number of establishments satisfying the given condition (assign "0" for those not satisfying the given condition, and "1" for those satisfying the given condition)

$$p_{rh} = \frac{A_{rh}}{N_{rh}}, \quad A_{rh} = \sum_{i=1}^m a_{rhi}$$

A_{rh} = number of establishments satisfying the given condition in the h^{th} industry in the r^{th} region

N_{rh} = number of establishments in the h^{th} industry in the r^{th} region

a_{rhi} = a dichotomous variable that is 0 or 1

Total proportion estimate for the region is obtained by aggregating the A's of all the industry sub-sectors in the region and dividing it by the number of establishments in the region.

National level proportion by industry sub-sector is obtained by aggregating separately the A's of industry subsector of all the regions divided by the corresponding number of establishments.

For Non-core ICT Industries

- Total Employment of less than 20

$$p_s = \frac{\sum_{h=1}^L \frac{N_{sh}}{n_{sh}} \sum_{i=1}^{n_h} a_{shi}}{N_s} = \sum_{h=1}^L \frac{N_{sh}}{N_s} p_{sh}$$

- Total Employment of 20 and Over

$$p_{rs} = \frac{\sum_{h=1}^L \frac{N_{rsh}}{n_{rsh}} \sum_{i=1}^{n_h} a_{rshi}}{N_{rs}} = \sum_{h=1}^L \frac{N_{rsh}}{N_{rs}} p_{rsh}$$

$$\hat{r}_s = \frac{\sum_{h=1}^L \frac{N_{sh}}{n_{sh}} \sum_{i=1}^{n_h} y_{shi}}{\sum_{h=1}^L \frac{N_{sh}}{n_{sh}} \sum_{i=1}^{n_h} x_{shi}} = \frac{\sum_{h=1}^L \sum_{i=1}^{n_h} \frac{N_{sh}}{n_{sh}} y_{shi}}{\sum_{h=1}^L \sum_{i=1}^{n_h} \frac{N_{sh}}{n_{sh}} x_{shi}}$$

y_{shi} = value of the i^{th} establishment in the h^{th} industry stratum of the s^{th} major division

x_{shi} = value of the i^{th} establishment in the h^{th} industry stratum of the s^{th} major division

N_{sh} = number of establishments in h^{th} industry stratum of the s^{th} major division

n_{sh} = number of sample establishments in h^{th} industry stratum of the s^{th} major division

$$\hat{r}_{rs} = \frac{\sum_{h=1}^L \frac{N_{rsh}}{n_{rsh}} \sum_{i=1}^{n_h} y_{rshi}}{\sum_{h=1}^L \frac{N_{rsh}}{n_{rsh}} \sum_{i=1}^{n_h} x_{rshi}} = \frac{\sum_{h=1}^L \sum_{i=1}^{n_h} \frac{N_{rsh}}{n_{sh}} y_{rshi}}{\sum_{h=1}^L \sum_{i=1}^{n_h} \frac{N_{rsh}}{n_{rsh}} x_{rshi}}$$

y_{rshi} = value of the i^{th} establishment in the h^{th} industry stratum of the r^{th} region of the s^{th} major division

x_{rshi} = value of the i^{th} establishment in the h^{th} industry stratum of the r^{th} region of the s^{th} major division

N_{rsh} = number of establishments in h^{th} industry stratum of the r^{th} region of the s^{th} major division

n_{rsh} = number of sample establishments in h^{th} industry stratum of the r^{th} region of the s^{th} major division

Questionnaire Design

Survey Form

The 2008 SICT has undergone a clearance process by the NSCB. It utilized one type of questionnaire with NSCB Approval No.0901-01 and expiration date of 26 February 2010.

The questionnaire adopted with modifications, both the UNCTAD (United Nations Conference on Trade and Development) and OECD (Organization for Economic Cooperation and Development) model survey instrument recommended for ICT surveys on establishments.

Data Items

The questionnaire is a booklet type form, structured into ten sections to collect information on the following:

Section	Description
I	General Information About the Establishment
II	Information and Communication Technology (ICT) Resources of the Establishment
III	Uses of ICT Resources in the Establishment's Operations
IV	Internet Connection of this Establishment
V	E-Commerce Via the Internet
VI	Use of the Internet for Other Processes Within the Establishment
VII	E-Commerce via Computer Networks Other than the Internet
VIII	Use of Cellular Mobile Phones in Selling and Other Business Operation
IX	Purchase and Disposal of ICT Equipment
X	Other General Information About the Establishment
	Remarks
	Certification
	Contact Person
	Processing Information (For NSO Use Only)



**NATIONAL
STATISTICS
OFFICE**

SICT Form 1
NSCB Approval No. NSO-0901-01
Expires: 26 February 2010

2008 SURVEY ON INFORMATION AND COMMUNICATION TECHNOLOGY
January – December 2008

Please enter your TIN here

OBJECTIVE
The 2008 Survey on Information and Communication Technology (SICT) will gather and generate information on the availability, distribution and access/utilization of information and Communication Technology (ICT) in business and industry in the country.

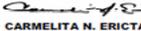
AUTHORITY
The information sought is collected under the authority of COMMONWEALTH ACT 591. The Act authorizes the National Statistics Office to collect information from establishments. Any person who fails or refuses to accomplish this questionnaire shall, upon conviction, be punished as provided for in Section 3 of this same Act.

CONFIDENTIALITY
Section 4 of CA 591 provides that all information furnished this Office will be kept strictly CONFIDENTIAL and shall not be used for purposes of taxation, investigation or regulation.

REFERENCE PERIOD
Report should refer to the period from January 1 to December 31, 2008.

DUE DATE
Duly accomplished form should be submitted to NSO or to the authorized representative ON or BEFORE _____.

INQUIRIES
For inquiries please contact:
Tel. No. _____
E-mail Address _____


CARMELITA N. ERICTA
 Administrator

FOR NSO USE ONLY											
FN	GN	QR	ECN								
			IND	PROV	MUN	BCY	SZ	LO	EO		

Reference Period

All information collected in the 2008 SICT refers to calendar year 2008 except for employment data, which is as of November 15, 2008.

SURVEY OPERATIONS

The 2008 SICT consisted of the following major phases of operation: preparatory activities, training, distribution, and collection of questionnaires, desk verification, spotchecking, data processing, tabulation and dissemination.

Preparatory Activities

Activities undertaken during this phase included the frame preparation, questionnaire design and content, survey clearance process, manual preparation, processing plan, publicity and training plans, budgeting, frame updating, sample design and selection, preparation of edit specifications, preparation of tabulation formats and table specifications, computer system design and program development, publicity campaign, addressing of questionnaires, printing of survey forms and manuals, preparation for shipment of survey materials and other related activities, recruitment of statistical researchers, etc.

Preparatory activities, including a write-shop on the preparation of 2008 ASPBI and SICT Field Operations and Processing Manual was undertaken in January 2009.

Publicity

Publicity campaign was done to inform and educate the general public of the basic information and importance of the 2008 ASPBI and its rider surveys. It aimed to solicit support from government and non-government agencies, business organizations and target respondents in the early submission of reports. Display of 2008 ASPBI streamers and posters were done in the Central Office and in the Field Offices.

Training

Trainings for field operations, editing and data processing, conducted on staggered dates, were done in three levels, as follows:

- **Task Force Training** – The first level training was conducted on February 5 to 6, 2009 in Pillilla, Rizal. The participants were ITSD statisticians and selected IRD staff. They served as trainers for the second level training.



Task Force Training at Villa Lorenza

- **Second Level Training** – The second level training was conducted at the regional offices for duration of two days (March 12 to 13, 2009). The participants in this training were the Regional Directors, Provincial Statistics Officers (PSOs), Regional and Provincial Statisticians and District Statistics Officers/Statistical Coordination Officers (SCOs) of selected provinces where the regional office is located.



2nd Level Training held in Batangas

- **Third Level Training** – The training was conducted in all NCR districts and provincial offices nationwide for duration of two days (March 26 to 27, 2009). The participants in this training were the PSOs (for NCR only), SCOs, Provincial Statisticians/Staffs and hired Statistical Researchers of the province. Those who attended the second level training served as trainers for this level. For selected provinces, the trainers were assisted by a representative from Central Office. For NCR, trainers were composed of three Task Force Training participants.



3rd Level Training held in Cebu

These field operations trainings also served as venues for the launching of the 2008 ASPBI and the SICT. Regional launching activities were also conducted during the period March to April 2009.



Launching of ASPBI/SICT in Region 7

To expedite and facilitate data entry, two levels of data entry training was conducted for duration of two days. Training for ITSD-SMD and ITOD staff was conducted on August 24 and 25, and for hired data encoders on September 1 and 2, 2009.

Field Operations

Distribution of Questionnaires

Distribution of questionnaires was done by about 492 provincial staff (239 regular field staff and 253 hired statistical researchers) through personal delivery of questionnaires to sample establishments in April 2009.

Collection of Questionnaires

Generally, the respondents were given 30 days within which to accomplish the questionnaire. The timetable for collection was programmed from May to June 2009. For regions with large workload such as NCR and Region IV-A, timetable for collection was until September 2009. Actual collection of accomplished questionnaires was extended to December 2009 to allow more time for collection of establishments that were considered as industry leaders. Field edited questionnaires were submitted to ITSD starting 15 May 2009.

Supervision and Spotchecking

When the survey was undertaken, the ITSD/RDs/PSOs/OICs conducted a close supervision of collection and field editing of all collected questionnaires to ensure their accuracy and completeness. Spotchecking was conducted in some provinces based on the quality of report and status of receipt of sample establishments. This activity was done during the collection stage in the field offices.

Receipt and Control

Accomplished questionnaires received by the provincial office were recorded and controlled by the staff of the Receipt and Control Unit (RCU) of the provincial office using the ITSD-Monitoring and Tracking System (MTS). The updated MTS Data Files were transmitted to ITSD-RCU and cc: RDs to monitor the smooth flow and progress of distribution/collection of questionnaires according to dates indicated in the timetable of activities.

Questionnaires for new referrals to any province within the region were forwarded directly to the RD for transmittal to the receiving province. All referrals outside the region were transmitted directly to ITSD-OD (Office of the Director).

The computerized MTS which enabled the Field Offices to submit the progress reports electronically was enhanced for added information such as names, addresses and phone numbers of contact persons.

Data Processing

Processing or editing of 2008 SICT accomplished questionnaires was done to check for the completeness, consistency and reasonableness of data. It consisted of two stages: manual editing and machine processing.

Manual Processing

Manual editing of data was done in three levels, as follows:

- Field editing of data was done by the field men, hired SRs and Provincial Staff upon collection of the accomplished questionnaires from the establishments. The objective is to check for completeness of entries in the questionnaires, following the instructions provided in the Field Operations and Processing Manual. Any missing data was corrected at this stage as this can be immediately verified from the respondents.
- Verification was done by Provincial Staff upon receipt of the accomplished questionnaires from the field men and hired SRs to check on the completeness as well as for the consistencies of entries in the questionnaire. In some instances, the staff contacted directly the establishments through phone call or sent email inquiries to verify some inconsistent or missing data.
- Review of accomplished questionnaires was done by the ITSD staff to check the consistency and reasonableness of entries. In addition, the review process validated the status of establishments that were non-responding and reported closed, cannot be located, transferred, and out of scope. Telephone inquiry was extensively utilized to verify information from the establishment's contact person. The Internet was also used to obtain information on the contact address and to research for information on the status of the establishment.

Machine Processing

Machine processing includes data entry, validation and encoding of updates, and generation of completeness check, summary file report and generation of tables. Prior to data entry, questionnaires were folioed by sector and region and by ATE stratum. All phases of machine processing, except data entry, were done by the ITSD-SMD statisticians at the CO.

A microcomputer-based machine processing and tabulation system for the 2008 SICT was developed by the IRD staff using Census and Survey Processing (CSPPro) software.

CSPPro is a software package developed by the International Processing Center of the United States Bureau of Census. It has several modules specifically designed for processing census and survey data. However, only four of these modules were employed in the 2008 ASPBI computer system namely, the data dictionary editor, data entry, batch edit, and cross tabulation.

Machine processing was done by both the staff of ITSD subject matter divisions and IRD. Data entry of the edited accomplished survey questionnaires were encoded by trained IRD-Information and Technology Operations Division staff and hired data encoders.

Several workshops on machine processing were conducted in Tagaytay City on July 15-17, 2009 for the preparation of edit specifications; and in Subic, Zambales on August 5-7, 2009 for the table format and specifications.

Tabulation

The subject-matter divisions of ITSD were responsible for the generation of the preliminary and final tables of the 2008 SICT by sector and employment stratum at the national and regional levels, including the preparation of Special Releases and manuscripts of final survey results for publication.

Statistical tables at the regional level at the 3-digit or 4-digit PSIC are available for establishments with total employment of 20 and over. For establishments with total employment of less than 20, the data are available up to the national level only.

Statistical Disclosure Control

Section 4 of Commonwealth Act 591 requires that the data of individual business firms be kept confidential. Guidelines are formulated by NSO statisticians in the statistical disclosure control of data pertaining to a particular corporation, partnership, institution or business firm so as to safeguard its confidentiality during the publication stage.

To avoid disclosure of information of individual establishment, statistical tables shall not provide information for any industry group or class in which the number of establishments is less than three. In such case, two methods are adopted to safeguard the confidentiality of data. These are through combination and/or suppression of confidential cell.

- Combination involves the grouping of a confidential cell in a statistical table with another cell of the same group (3-digit PSIC), class (4-digit PSIC), or sub-class (5-digit PSIC) and the information is disseminated for the aggregate and not for the individual cell. Grouping of data shall be done for similar industries. The bracket (}) symbol shall be used to identify the cell combined.
- Suppression means the disclosure control of confidential data in a cell. The values in the confidential primary cells (primary suppression) are not published while publishing the original values of the other cell with establishments' count of more than three. If necessary, other cells must also be suppressed to guarantee the protection of the values under the primary cells, leading to the secondary suppression. The symbol 's' shall be used to the suppressed cells.

Dissemination

Data Dissemination Seminar

Preliminary results of the 2008 SICT was presented in a Dissemination Seminar on December 7, 2009 at the Commission on Information and Communication Technology (CICT) Audio-Visual Room in Quezon City.

On May 28, 2010, the final results of the 2008 SICT was presented by Deputy Administrator Paula Monina G. Collado in the National Data Dissemination Seminar at the Intercontinental Manila in Makati City. Dr. Vicente B. Valdepeñas Jr., President of the Philippine Statistical Association gave the keynote speech.

Presentation of survey background included uses of ICT data, objectives of the survey, survey frame, unit of enumeration, scope and coverage, sampling design, indicators, reference period and response rate. Presentation of final results includes those from Information Economy establishments, those from Non-Information Economy establishments and those from all establishments. Among the percentages reported were that of establishments using computers and internet in 2008, of employees routinely using computers, of employees using the Internet, of establishments with intranet, extranet, WAN and LAN, of establishments with E-commerce transactions, and of establishments with website.

The table below shows a series of 2008 ASPBI/SICT Data Dissemination Seminars to be conducted in different regions/provinces.

2008 ASPBI/SICT Data Dissemination Seminars

Region/Province	Date	Venue	CO Resource Person
CAR	16 August 2010	Pines View Hotel, Baguio City, Benguet	Ms. Jean C. Floirendo, Statistician III, NSO Manila
I – Ilocos Region	30 July 2010	ORT Community Multi-Purpose Cooperative, San Fernando, La Union	Deputy Administrator Paula Monina G. Collado
II – Cagayan Valley	11 August 2010	Crown Hotel, Tuguegarao City, Cagayan	Deputy Administrator Paula Monina G. Collado
IVa – CALABARZON	12 August 2010	Blue Sapphire, Brgy. Sico, Lipa City, Batangas	Ms. Josephine S. Albino, Statistician IV, NSO Manila
IVb – MIMAROPA	10 August 2010	Max Restaurant, San Vicente, Calapan, Oriental Mindoro	Ms. Josephine S. Albino, Statistician IV, NSO Manila
Palawan	26 July 2010	A&A Plaza Hotel, Puerto Princesa City, Palawan	Dir. Estela T. De Guzman
V – Bicol Region	12 August 2010	Avenue Plaza Hotel, Naga City	Adm. Carmelita N. Ericta
VII – Central Visayas	12 August 2010	Eduardo Aboitiz Development Study Center, Cebu City, Cebu	Ms. Elsie B. Solidum, Division Chief, NSO Manila

Region/Province	Date	Venue	CO Resource Person
VIII – Eastern Visayas	12 August 2010	Balyuan Convention Center, Tacloban City, Leyte	Ms. Carole A. Blanco, Statistician III, NSO Manila
IX – Zamboanga Peninsula	12 August 2010	Garden Orchid Hotel, Zamboanga City, Zamboanga del Sur	Mr. Apolinar F. Oblea, Statistician IV, NSO Manila
XII – SOCCSKSARGEN	26 July 2010	Koronadal City	Deputy Administrator Paula Monina G. Collado

RESPONSE RATES

The overall response rate for the 2008 SICT was 95.6 percent of the 9,711 sample establishments. For the Core ICT industries, the response was 83.3 % of the 3,333 samples.

CONCEPTS AND DEFINITIONS

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.

Information technology (IT), as defined by the Information Technology Association of America (ITAA), is "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware". IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit, and securely retrieve information.

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.

A **desktop computer** is a personal computer (PC) in a form intended for regular use at a single location, as opposed to a mobile laptop or portable computer. Today the phrase usually indicates a particular style of computer case. Most modern desktop computers have separate screens and keyboards. A specialized form of desktop case is used for home theater PC systems, incorporating front-panel mounted controls for audio and video.

A **laptop computer**, also known as a notebook computer, is a small personal computer designed for mobile use. A laptop integrates all of the typical components of a desktop computer, including a display, a keyboard, a pointing device (a touchpad, also known as a trackpad, or a pointing stick) and a battery into a single portable unit.

A **minicomputer** (colloquially, mini) is a class of multi-user computers that lies in the middle range of the computing spectrum, in between the largest multi-user systems (mainframe computers) and the smallest single-user systems (microcomputers or personal computers).

Mainframes (often colloquially referred to as Big Iron) are computers used mainly by large organizations for critical applications, typically bulk data processing such as census, industry and consumer statistics, ERP, and financial transaction processing.

A **personal digital assistant (PDA)** is a handheld computer also known as palmtop computers. Newer PDAs also have both color screens and audio capabilities, enabling them to be used as mobile phones, (smartphones), web browsers, or portable media players.

A **landline, main line or fixed-line** is a telephone line which travels through a solid medium, either metal wire or optical fibre. This is distinguished from mobile cellular line, where the medium used is the airwaves. Landlines usually cost less than cellular lines and provide better voice quality, and are used when there is no need for mobility or where cellular service is. A fixed phone line (i.e., one that is not a mobile phone line) can be hard-wired or wireless.

A **mobile phone** (also known as a wireless phone, cell phone, or cellular telephone) is a long-range, electronic device used for mobile voice or data communication over a network of specialized base stations known as cell sites. In addition to the standard voice function of a mobile phone, telephone, current mobile phones may support many additional services, and accessories, such as SMS for text messaging, email, packet switching for access to the Internet, gaming, Bluetooth, infrared, camera with video recorder and MMS for sending and receiving photos and video, MP3 player, radio and GPS.

A **satellite telephone, satellite phone, or satphone** is a type of mobile phone that connects to orbiting satellites instead of terrestrial cell sites. Depending on the architecture of a particular system, coverage may include the entire Earth, or only specific regions.

Radio is the transmission of signals, by modulation of electromagnetic waves with frequencies below those of visible light. Information is carried by systematically changing (modulating) some property of the radiated waves, such as amplitude, frequency, or phase.

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.

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.

An **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).

A **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.

A **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.

A **Campus Area Network (CAN)** is a computer network made up of an interconnection of local area networks (LANs) within a limited geographical area. It can be considered one form of a metropolitan area network, specific to an academic setting.

Global Area Network (GAN) specifications are in development by several groups, and there is no common definition. In general, however, a GAN is a model for supporting

mobile communications across an arbitrary number of wireless LANs, satellite coverage areas, etc. The key challenge in mobile communications is "handing off" the user communications from one local coverage area to the next.

A **Metropolitan Area Network (MAN)** is a network that connects two or more Local Area Networks or Campus Area Networks together but does not extend beyond the boundaries of the immediate town/city. Routers, switches and hubs are connected to create a Metropolitan Area Network.

A **Personal Area Network (PAN)** is a computer network used for communication among computer devices close to one person. Some examples of devices that are used in a PAN are printers, fax machines, telephones, PDAs and scanners. The reach of a PAN is typically about 20- 30 feet (approximately 6-9 meters), but this is expected to increase with technology improvements.

A **Virtual Private Network (VPN)** is a computer network in which some of the links between nodes are carried by open connections or virtual circuits in some larger network (e.g., the Internet) instead of by physical wires.

Operating system (commonly abbreviated OS and O/S) is the infrastructure software component of a computer system; it is responsible for the management and coordination of activities and the sharing of the limited resources of the computer. The operating system acts as a host for applications that are run on the machine. Common contemporary operating systems include Microsoft Windows, Mac OS, Linux, BSD and Solaris.

Office automation tool refers to all tools and methods that are applied to office activities which make it possible to process written, visual, and sound data in a computer-aided manner. The term "office suite" refers to all software programs which make it possible to meet office needs.

A **database** is a structured collection of records or data that is stored in a computer system. The structure is achieved by organizing the data according to a database model. The model in most common use today is the relational model. Other models such as the hierarchical model and the network model use a more explicit representation of relationships.

Custom software (also known as Bespoke software) is a type of software that is developed either for a specific organization or function that differs from or is opposite of other already available software (also called off-the-shelf or COTS software). It is generally not targeted to the mass market, but usually created for companies, business entities, and organizations. Custom software is also when companies or governments pay for customized software for budget or project managing.

Open Source Software (OSS) began as a marketing campaign for free software. OSS can be defined as computer software for which the human readable source code is made available under a copyright license (or arrangement such as the public domain) that meets the Open Source Definition. This permits users to use, change, and improve the software, and to redistribute it in modified or unmodified form.

Commercial Off-the-Shelf (COTS) is a term for software or hardware, generally technology or computer products, that are ready-made and available for sale, lease, or license to the general public. They are often used as alternatives to in-house developments or one-off government funded developments.

A **computer virus** is a computer program that can copy itself and infect a computer without the permission or knowledge of the user. A true virus can only spread from one computer to another when its host (some form of executable code) is taken to the target computer, for instance, because a user sent it over a network or the Internet, or carried it on a removable medium such as a floppy disk, CD, or USB drive.

A **worm** can spread itself to other computers without needing to be transferred as part of a host, and a **Trojan horse** is a program that appears harmless but has a hidden agenda. Worms and Trojans, like viruses, may cause harm to a computer system's hosted data, functional performance, or networking throughput, when they are executed.

Spam is the abuse of electronic messaging systems to indiscriminately send unsolicited bulk messages. While the most widely recognized form of spam is e-mail spam, the term is applied to similar abuses in other media: instant messaging spam, Usenet newsgroup spam, Web search engine spam, spam in blogs, wiki spam, Online classified ads spam, mobile phone messaging spam, Internet forum spam, junk fax transmissions, and file sharing network spam.

Spyware is computer software that is installed surreptitiously on a personal computer to intercept or take partial control over the user's interaction with the computer, without the user's informed consent. Spyware programs can collect various types of personal information, such as Internet surfing habits, sites that have been visited, but can also interfere with user control of the computer in other ways, such as installing additional software, and redirecting Web browser activity.

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 on-line system.

A **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 URL called the homepage, and usually reside on the same physical server.

Symbols Used in Statistical Tables

- Zero
- s suppressed