

Compendium of practices on the implementation of ICT questions in households and businesses surveys in Latin America and the Caribbean 2010

Observatory for the Information Society in Latin America and the Caribbean (OSILAC)



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List of the main abbreviations

ADSL	Asymmetric Digital Subscriber Line
CATI	Computer Assisted Telephone Interviewing
DSL	Digital Subscriber Line
ECA	United Nations Economic Commission for Africa
ECLAC	Economic Commission for Latin America and the Caribbean
EU	European Union
ICA	Institute for Connectivity in the Americas
ICSE	International Classification of Status in Employment
ICT	Information and Communication Technologies
IDB	Inter-American Development Bank
IDRC	International Development Research Center
ILO	International Labor Organization
IP	Internet Protocol
ISCED	International Standard Classification of Education
ISDN	Integrated Services Digital Network
ISIC	International Standard Industrial Classification
ITU	International Telecommunication Union
kbps	kilobyte per second
LAN	Local Area Network
MDC	Mobile Data Capture Device
MECOVI	Program for the Improvement of Surveys and the Measurement of Living Conditions in Latin America and the Caribbean
MPHS	Multi Purpose Household Survey
NSO	National Statistical Office
OECD	Organization for Economic Co-operation and Development
OSILAC	Observatory for the Information Society in Latin America and the Caribbean
PDA	Personal Digital Assistant
RELPE	Latin American Network of Education Portals
SCA	Statistical Conference of the Americas
SDSL	Symmetric Digital Subscriber Line
SNA	System of National Accounts
SPU	Sampling Primary Units
UNCTAD	United Nations Conference on Trade and Development
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCWA	United Nations Economic and Social Commission for Western Asia
UNSD	United Nations Statistics Division
VoIP	Voice over Internet Protocol
WSIS	World Summit on the Information Society

Summary

The Compendium of practices on the implementation of information and communication technologies (ICT) questions in households and businesses surveys has been prepared by the Observatory for the Information Society in Latin America and the Caribbean (OSILAC), in cooperation with the working group on ICT measurement of the Statistical Conference of the Americas of ECLAC with the following objectives: i) to collect and organize the main developments in the design and implementation of questions on access and use of ICT in the household and business surveys of the countries of the region, ii) to report the measurement agreements by the countries of the regions that have collected data on ICT in the framework of their household and business surveys, iii) to serve as a reference, or support material, both to the persons responsible for the design and implementation of the ICT questions, and to the persons in charge of defining, calculating and analyzing the ICT indicators, in the countries of the region, iv) to enable the exchange of implementation experiences among the organizations and institutions that produce statistical data on ICT in the countries of the regions.

There are two main novelties in the Compendium revision 2010 in relation to the previous Compendium (2007): first, the increase in the number of countries for which we present the main characteristics of the implementation of ICT questions and, second, the inclusion of two new chapters concerning subjects of ICT measurement in the education sector and in the government.

The cases included correspond to the countries that have incorporated all or part of the ICT questions and core ICT indicators' list recommended by the Partnership on Measuring ICT for Development (2010). We emphasize the cases where the countries of the region incorporated both the ICT access variables and the ICT use variables in the household and business surveys of the last three years and whose data was not included in the previous Compendium.

I. Introduction

In the last ten years, parallel to the large-scale introduction of technologies such as Internet and mobile telephones, and the development of new applications and functionalities for these technologies, it has become necessary to have statistics and indicators available that allow tracing the current population coverage, forms and places of use, use frequency and ICT impacts on the economic and social development of the countries.

While in the precedent decades, the measurement of the technology-related aspects was concentrated almost exclusively on subjects connected with infrastructure and access to ICT services, nowadays, due to the progress achieved, the ICT research issues have diversified, and today we also require data about the forms and places of use of technology by individuals, households, businesses, schools, hospitals and government units. Likewise, now we need to have disaggregated measures of the access levels according to the geographic area, age, gender, income and education level of individuals, and according to the size and sector of the businesses' economic activity, among other subjects of interest.

Given these needs, the countries of Latin America and the Caribbean have begun to incorporate the issues related to the access and use of ICT in their household and business surveys. This data is usually collected by the National Statistical Offices (NSO) and other organizations and institutions that produce official statistics in the countries of the region.

The main advantages of using this type of data source are, among others, the following: i) the knowhow level of the NSO in data collection through national scope surveys, ii) the high quality standards of the collected data processing and reporting by the NSOs, iii) the possibility of disseminating official statistics periodically in order to inform both the government and the citizens of the development of the access and use of ICT in their respective countries, iv) the experiences accumulated by the NSO in the production of statistical data to be reported to the international organizations.

1.1 General description of the Compendium

The Compendium is a document which collects the main developments in the design and implementation of ICT questions in the household and business surveys of the countries of Latin America and the Caribbean and promotes the adoption of methodological standards for the ICT data collection and the calculation of the ICT indicators.

In order to draw up the Compendium, we considered, as a global reference framework, the work done and the recommendations given by the Partnership on Measuring ICT for Development (henceforward Partnership)¹, which proposed a list of core ICT indicators, in whose definition the NSOs participated actively. This list has served as a basis for the design and implementation of the ICT questions in the household and business surveys of the organizations and institutions that have joined the process of harmonized measurement.

As a reference framework at a regional and local level, this work considered mostly the experiences acquired and documented by the NSOs and other organizations and institutions that have included the measurement of ICT in their household and business surveys of the last years, and the outputs presented and the conclusions obtained at the Workshops on Measuring the Information Society in Latin America and the Caribbean, organized and coordinated by OSILAC, in the years 2004, 2005, 2006, 2008 and 2009².

The revision 2010 of the Compendium gathers the experiences of the countries of Latin America and the Caribbean that included modules or sections with the questions on ICT recommended by the Partnership, totally or partially, in their household and business surveys. It should be noted that this version of the document highlights the progress made in relation to the implementation of ICT questions of the last three years, and whose information had not been included in the previous Compendium (2007).

In general, this document serves as a methodological reference and a practical tool for the implementation of the ICT questions in the household and business surveys. In particular, this work is useful to the organisms and institutions that produce statistics on ICT, and we also encourage the measurement of ICT in the education sector and the government.

Objectives of the Compendium

The main objectives of this Compendium are the following:

- To collect and organize the main developments in the design and implementation of questions regarding the access and use of ICT in the household and business surveys of the countries of the region.
- To report the measurement agreements achieved by the countries of the region that collected data on ICT in the framework of their household and business surveys.
- To serve as a reference, or support material, for the persons responsible both of the design and implementation of the ICT questions, and the definition, calculation and analysis of the ICT indicators, in the countries of the region.
- To enable the exchange of implementation experiences among the organisms and institutions that produce statistical data on ICT in the countries of the region.

¹ The Partnership on Measuring ICT for Development is a group of organizations working on the definition and collection of a common set of ICT indicators and the support of the developing economies in their efforts to produce statistics of the information society. This aims at closing the digital divide that exists between the developed and developing countries. The Partnership was launched in June 2004 and its members are the International Telecommunication Unit (ITU), the Organization for Economic Cooperation and Development (OECD), the United Nations Conference on Trade and Development (UNCTAD), the Institute for Statistics of the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Regional Commissions (ECLAC, UNECA, UNESCAP, UNESCWA), Eurostat, the United Nations Department of Economic and Social Affairs (UNDESA) and the World Bank. For more information on the Partnership, see: <http://measuring-ict.unctad.org>.

² The Workshops on Measuring the Information Society in Latin America and the Caribbean (2004, 2005, 2006, 2008 and 2009) were attended by representatives of the National Statistics Offices and other organisms and institutions that formulate, coordinate or foster the development of statistics on ICT, at a regional and global level.

Target public of this document

The contents developed in this document are bound to be useful for two audience groups:

- Professionals and experts of the NSOs or other data producers involved in the measurement of ICT. This refers to the persons that participate in the design of the questionnaires; those in charge of planning and monitoring the data mapping; those in charge of processing and analyzing the data; and the consultants that provide technical assistance for the implementation of the surveys, especially those who design the ICT questions.
- Users of the ICT data. This group includes both the users of ICT data at a micro-data level, and the users of data in the form of statistical aggregates such as totals, percentages or ratios for specific population subgroups. In general, the users may benefit from learning about the measurement features of the ICT questions, in order to conceptualize their analysis and interpretations, to delimitate the scope of the conclusions from the exercises on the basis of data from the household and business surveys, and to identify potential new research areas.

1.2 Background

The information society is a paradigm that arises mostly thanks to the emergence and development of new digital technologies that allow a significant increase of information flows and communication processes, which generate new forms of social and productive organizations, and have the potentiality to generate knowledge in society (Katz and Hilbert, 2003).

During the last decade, due to the changes occurred in the society by the incoming of this new paradigm, an increasing demand of quantitative and qualitative information on the evolution and impact of these technologies at a global, regional and local level, has become evident.

The technologies which have gained a leading part in this process are mobile telephony, computers and the Internet. These technologies, together with the more traditional ones such as television and radio, have been the main reference point in monitoring the development and evolution of the Information Society.

In the following subsections, we start by presenting the process' background with a brief summary of the main international referents of ICT measurement. Later on, we include a list of the main objectives and uses of the statistical data on ICT, and finally, we offer a synthesis of the main developments achieved in the ICT measuring process in Latin America in the last 10 years.

Main international referents of the ICT measurement

The United Nations Millennium Declaration was one of the first scenarios to show the need to agree upon a group of indicators of the socioeconomic development of the countries, which included ICT indicators. This declaration was signed in September 2000 by 189 countries, in New York, and its Goal 18 sets out: *“In cooperation with the private sector, make available the benefits of new technologies, especially information and communication”*. As indicators for the follow-up of this process, the following are recommended: *“Telephone lines and cellular telephone subscribers per 100 inhabitants and Internet users per 100 inhabitants”*.

Thereafter, many initiatives have arisen in countries around the world regarding the measurement of the transformations and impact of the ICT in the lives of people, in the different sectors of society and in the organizations. Among them, one of the most relevant is the World Summit on the Information Society (WSIS), which took place in two phases: the first one was held in Geneva (Switzerland), in December 2003, and the second one was held in Tunis, in November 2005. The bases for measuring the global progress in the access

and use of ICT were adopted in the WSIS 2003, where: i) a Plan of Action³ was approved in which the need to establish the course of the information society in all countries, was stated, and ii) the creation of the Partnership on Measuring ICT for Development was established, whose principal mission is to identify a set of core indicators for measuring ICT; its members are: the International Telecommunication Unit (ITU), the Organization for Economic Cooperation and Development (OECD) the United Nations Conference on Trade and Development (UNCTAD), the UNESCO Institute for Statistics (UIS), the United Nations Regional Commissions (ECLAC, ECA, UNESCAP, UNESCWA), Eurostat, the United Nations Department of Economic and Social Affairs (UNDESA) and the World Bank.

The core indicators were consolidated and presented for the first time at the Thematic Meeting of the World Summit for the Information Society, held in Geneva in February 2005 and endorsed by the United Nations Statistical Commission in its 38th session on February 2007. Later on, the list was revised by the Partnership in 2008 and was presented as a background document before the Commission on its 40th session, in February 2009. Finally, the updated publication of the Core ICT Indicators was presented at the 41st session of the Commission, in February 2010. The revision 2010 has introduced a series of changes aiming at improving the comparability of the measurements made by the data producers of the countries, and reflecting the technological changes of the last three years.

Objectives and uses of the statistics on Information and Communication Technologies

Box 1 shows a summary of the main objectives and uses for the production of statistics on ICT, as a way to illustrate the importance of doing a regional measurement of the main variables regarding this subject. In general terms, it is emphasized that the compilation of ICT statistics is not seen as the final product of the harmonized ICT measurement process at a regional level, but on the contrary, these statistics are meant to serve as an input to make diagnosis, analysis and research concerning the state of development of the information society in the countries of the region.

BOX 1

OBJECTIVES AND USES OF THE STATISTICAL PRODUCTION ON ICT

The statistics production and the definition and estimation of ICT indicators, may pursue different purposes. Some of them are:

- To obtain basic estimations on the levels and trends in the access and use of ICT which are useful to monitor the progress of the information society
- To enable the comparisons concerning the evolution of the access and use of ICT over time, both among the countries and within each country
- To enable the monitoring and definition of strategies to prevent a new form of socioeconomic exclusion, named “digital divide”, which, if it increases, can have multiplicative effects in other social and economic divides already existing or promote the creation of new forms of social exclusion
- To identify and describe factors that promote the increase (or decrease) of the digital divides
- To identify the countries with more and less development in terms of access and use of ICT, and to quantify the existing divides among them

To serve as input for the evaluation of the digital policies implemented in the countries, and for the development planning of the ICT and through the ICT

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC)

³ The Plan of Action of the WSIS from December 12th, 2003, states: “E) Follow-up and evaluation 28. A realistic international performance evaluation and benchmarking (both qualitative and quantitative), should be developed through comparable statistics indicators and research results, to follow up the achievement of the objectives, goals and targets in the Plan of Action, considering the different national circumstances. F) All countries and regions should develop tools so as to provide statistics on the information society, with core indicators and analysis of its substantial dimensions. Priority should be given to the establishment of consistent and internationally comparable indicators systems, taking into account the different levels of development”.

Development of the ICT measurement process in Latin America and the Caribbean

The lack of ICT data in most of the countries of Latin America and the Caribbean in 2003, motivated the ECLAC and the Institute for Connectivity in the Americas (ICA) of the International Development Research Center (IDRC) to create the Observatory for the Information Society in Latin America and the Caribbean (OSILAC). The objective was to have an observatory in charge of fostering the creation of ICT statistics in the region in the following areas:

- Identification and description of the stage of development of the ICT data collection at a regional level and the needs for information in the region.
- In the joint work with the National Statistics Offices and other members of the Partnership, definition and consolidation of the core indicators in the measurement of ICT and promotion of the methodological discussion concerning the concepts and strategies of ICT data collection.
- Data, statistics and indicators collection by the National Statistics Offices as an input for the analysis and research oriented towards the creation of a regional and subregional overview of the state of development of the information society in Latin America and the Caribbean.

Furthermore, the NSOs have decisively contributed to the development of the ICT harmonized measurement process by sharing their experience and know-how, and they have been the leading actors of the methodological discussions intended for the definition of the concepts and questions on ICT included in the household and business surveys of the countries of the region.

In the development of this process, the fact of fulfilling the need of ICT harmonized measurement has implied the discussion and mutual agreements of the NSOs in various aspects; the basic ones are: i) The design or adaptation of measurement instruments; ii) The periodical collection of new data on ICT; iii) The definition, calculation, monitoring and analysis of the indicators aimed at the description of the evolution of the access and use of ICT; and iv) The identification and analysis of the socioeconomic factors that most influence the existence and increase (or decrease) of the divides, regarding the level of access and use of ICT in the households and businesses, and use of ICT by individuals.

As a consequence of this joint work, one of the main developments of the harmonized measurement process at a regional level has been the design and implementation of the on-line Statistical Information System on ICT⁴, which integrates, through a unique application, the data collected in the household surveys of 17 Latin American countries; these data contain ICT variables that enable the access to the aggregate outputs which illustrate the evolution of the external digital divide (among countries) of the last ten years and the internal digital divide (within each country) in the region. In this manner, the system is a valuable source of information for researchers and decision-makers in the public policy field.

1.3 Content

This document is structured in six chapters. The first one introduces some concepts that are necessary to understand the importance of the data measurement on access and use of ICT. We also include the background concerning the harmonized measurement process, where we mention the benchmarks at an international level and introduce some concepts that will be used in subsequent sections. Furthermore, there is a brief summary of the objectives and uses of the statistics on ICT and of the process development at the regional level.

Chapter Two examines the implementation of ICT questions in household surveys, presenting the core ICT Indicators recommended by the Partnership (2010) for measuring the access to ICT in the households and the use of ICT by individuals. Likewise, the variables associated to those indicators, are defined. Finally, there

⁴ See: <http://www.eclac.org/tic/flash/default.asp?idioma=IN>

is a brief summary of the experience from the different countries regarding the design, implementation and use of the ICT data in the household surveys.

Chapter Three deals with the implementation of ICT questions in business surveys. In the first place, there is a reference to the surveys that measure the access and use of ICT in the businesses of the countries of the region. Then, we include a summary of the main features and scopes of the said surveys.

In Chapter Four we examine the ICT indicators proposal in the education sector, in the countries of the region, considering as a basis, the core indicators list on ICT, developed by the United Nations Educational, Scientific and Cultural Organization (UNESCO). The review contains the proposals made in the region, in the frameworks of the meetings developed by OSILAC together with the Latin American Network of Education Portals (RELPE), experts on education and the NSOs of the region.

In Chapter Five, there is a proposal for the definition of e-government core indicators in the countries of Latin America and the Caribbean. The basis for this was the proposal developed by the Economic Commission for Africa, which incorporated the suggestions made by the Working Group on Information and Communication Technologies at the Statistical Conference of the Americas (SCA) of ECLAC, in 2009.

Finally, Chapter Six contains a series of recommendations for the harmonized measurement on ICT, in relation to the household and business surveys. The purpose of these recommendations is to enable the comparisons of the levels, trends and determinants of the ICT, among the countries of the region and over time.

II. 2. Measurement of the access and use of ICT in household surveys

In the last ten years, the household surveys have become a strategic component in monitoring the progress of the information society in the countries of the region and a very important element in planning the digital development of the countries and to design policies tending to accelerate this progress.

Most of the countries of Latin America and the Caribbean have included the questions on access to ICT in the housing modules of the household surveys. The questionnaires of these surveys include, generally, questions on access to the radio, TV, fixed telephone, mobile telephone, computer and the Internet in the households.

Likewise, the questions on individual use of ICT have gained a place among the emerging measurement subjects that are included in the household surveys of the countries of Latin America and the Caribbean. In some cases, the questions on individual use of ICT have been included in ICT specific surveys; in other cases, they have been incorporated as a module in the household surveys; and other countries have included them in modules of individuals' socio-demographic characterization in the household surveys. Nevertheless, there are still countries that have not yet implemented questions on individual use of ICT.

It should be noted, in this sense, that the questions incorporated in the questionnaires of the household surveys of the countries of the region have been, mostly, those recommended by the Partnership (2010). These questions are the result of an intense consulting process among the members of the Partnership and the National Statistics Offices (NSO)⁵. The process in Latin America and the Caribbean has been coordinated by OSILAC.

Accordingly, chapter two is structured in the following way: the first part presents and explains briefly the list of core ICT indicators proposed by the Partnership (2010). Later on, it defines the variables associated to the access to ICT in the households and the individual use of ICT. Finally, there is a general overview of the main features of the ICT measuring process in the countries of the region.

⁵ The questions on ICT that this Compendium uses as a referent are those agreed by the National Statistics Offices (NSO) and collected by the Partnership on Measuring ICT for Development (2010). These questions are explained in the document "Core ICT Indicators", presented to the Statistical Commission of the United Nations in its 41st session, held on February 2010 in New York. The complete document is available in English and can be found in the Internet in the following link: http://www.itu.int/dms_pub/itu-d/opb/ind/D-IND-ICT_CORE-2010-PDF-E.pdf.

2.1 Core indicators on access to and use of ICT in the households

At the 41st session of the UNSD, held in February 2010 in New York, the Partnership presented a publication on the core ICT indicators with a revised and extended list⁶. The revised list eliminated the distinction between basic indicators and extended indicators. Moreover, it contains amendments that reflect the technological changes and the use of ICT. The revised list of ICT core indicators is presented below, in Box 2.

BOX 2

REVISED LIST OF THE CORE ICT INDICATORS ON THE ACCESS TO ICT IN THE HOUSEHOLDS AND THE INDIVIDUAL USE OF ICT

HH1 Proportion of households with a radio

HH2 Proportion of households with a TV

HH3 Proportion of households with telephone:

- Any telephone
- Fixed telephone only
- Mobile cellular telephone only
- Both fixed and mobile cellular telephone

HH4 Proportion of households with a computer

HH5 Proportion of individuals who used a computer in the last 12 months

HH6 Proportion of households with Internet access

HH7 Proportion of individuals who used the Internet in the last 12 months

HH8 Location of individual use of the Internet in the last 12 months:

- Home
- Work
- Place of education
- Another person's home
- Community Internet access facility
- Commercial Internet access facility
- Any place via a mobile cellular telephone
- Any place via other mobile access devices

HH9 Internet activities undertaken by individuals in the last 12 months:

- Getting information about goods or services
- Getting information related to health or health services
- Getting information from general government organizations
- Interacting with general government organizations
- Sending or receiving e-mail
- Telephoning over the Internet/VoIP
- Posting information or instant messaging
- Purchasing or ordering goods or services
- Internet banking
- Education or learning activities

(CONTINUES)

⁶ More details on the 41st session can be found in the Internet in this link: http://mdgs.un.org/unsd/statcom/commission_41st_session.htm.

BOX 2 (CONTINUATION)

- Playing or downloading video games or computer games
- Downloading movies, images, music, watching TV or video, or listening to radio or music
- Downloading software
- Reading or downloading online newspapers or magazines, electronic books

HH10 Proportion of individuals who used a mobile cellular telephone in the last 12 months

HH11 Proportion of households with access to the Internet by type of access:

- Narrowband
- Fixed broadband
- Mobile broadband

HH12 Frequency of individual use of the Internet in the last 12 months:

- At least once a day
- At least once a week but not every day
- Less than once a week

Reference indicator

HHR1 Proportion of households with electricity

Source: Partnership on Measuring ICT for Development (2010).

The following changes can be appreciated with regard to the list 2005:

- The indicators presented for proportion of households with fixed telephone and proportion of households with mobile cellular telephone were merged into one indicator for households with access to telephony. Now, this telephony indicator splits into four subindicators so as to distinguish between households with any telephone, households with fixed telephone only, households with mobile cellular telephone only and households with both fixed and mobile cellular telephone.
- In relation to the places of use of the Internet there are the following categories: use of the Internet any place via a mobile cellular telephone and use of the Internet any place via other mobile access devices and, even if the countries may add the category other locations of use, it is not recommended for the indicators calculation.
- Among the Internet activities undertaken, the option getting information (an alternative which included any type of information) was eliminated. Instead, it is recommended to calculate more specific indicators, with more information on the state of progress of the information society, such as: getting information about goods or services, getting information related to health or health services and getting information from general government organizations.
- Moreover, and in the framework of the Internet activities undertaken, the category entertainment (a category which included any type of entertainment) was eliminated. Instead, it is recommended to calculate more specific indicators, with more information on the state of progress of the information society, such as: playing or downloading video games or computer games; downloading movies, watching TV or listening to music; downloading software and reading or downloading newspapers, magazines and/or electronic books.
- Finally, also among the category of Internet activities undertaken, it is recommended to calculate separate indicators for the categories: i) sending or receiving e-mail; ii) telephoning over the Internet (VoIP), and iii) posting information or instant messaging.

2.2 Defining variables on the access and use of ICT in the households

In monitoring the progress of the information society, there is a need to collect data and calculate indicators, which distinguishes between the availability of ICT in households and use of ICT by individuals. Here, the analysis must take into account that the access to ICT in the home is a possibility factor of the use of ICT by the members of the household, but to have this access available does not imply the use of it by all persons. For example, in the specific case of the Internet service, it is necessary to have indicators of the availability level of the technology in the households of every country, and of the individual use of the Internet, at home or any other place, in each country.

Along these lines, the Partnership (2010) defines two levels of analysis for the ICT variables, one for the access and another one for the use. In specific terms, it is recommended to calculate the core indicators on access for the households, and the core indicators on use for the individuals. In this way you can point out the difference between ICT access availability in the home, and the individual use of the technologies, at home or any other place.

This section of Chapter Two presents the harmonized definition of each of the variables recommended by the Partnership (2010) for measuring the access and use of ICT. These definitions were used in the design of the questions included in the questionnaires of the household surveys carried out by the National Statistics Offices (NSO) that were incorporated to the harmonized ICT measurement process. Therefore, we suggest that the countries that join this process later on also use these definitions.

2.2.1. Access to ICT by households

When measuring the access to ICT, households correspond to the statistical unit for which it is recommended to collect, process, analyze and interpret data. The concept of household recommended in the framework of the System of National Accounts⁷ is the following: *“Household is defined as: i) a single-person household, that is to say, a person who makes provision for his or her own food or other essentials for living without combining with any other person; ii) Multi-person household, that is to say, a group of two or more persons living together who make common provision for food or other essentials for living. The persons in the group may pool their incomes and may, to a greater or lesser extent, have a common budget; they may be related or unrelated persons or constitute a combination of persons both related and unrelated”* (USND, 2008).

In the region, the NSOs work with similar definitions in their household surveys, but they are not necessarily fully consistent to the previous one. Typically, cohabitation is considered a necessary condition, but it is not enough for a group of two or more persons to be considered part of the same household. Thus, the additional conditions may change according to the country or even according to the type of survey.

On the other hand, it is emphasized that the concept of access to ICT goods and services is solely restricted to goods and services that are possible to use by, at least, one member of the household. This includes any of the following cases: i) ICT goods in working conditions; ii) ICT services in operating conditions; iii) ICT goods that are expected to be in working conditions again soon and iv) ICT services that are expected to be in operating conditions again soon.

In view of the considerations above, Table 1 presents a summary of the variables recommended for measuring the ICT access in the households. Table 1 also indicates, for each variable, its analytic definition and the associated core indicator.

⁷ The United Nations System of National Accounts (SNA) is a complete set of consistent and flexible macroeconomic accounts intended to fulfil the needs of the public and private sector analysts, and of the economic policy-makers and the decision-takers. It has been designed to be used by countries with a market economy, whatever their economic development level, and by countries that are in the way of adopting a market economy. The System has had a good reception and has been unanimously approved by the Statistical Commission of the United Nations. (Source, SNA 2008). The complete document can be found in the Internet in the following link: <http://mdgs.un.org/unsd/nationalaccount/sna2008.asp>

TABLE 1
ANALYTIC DEFINITION OF THE ICT ACCESS VARIABLES IN THE HOUSEHOLDS

Variable	Definition	Associated Indicator
Radio access at home	Households with at least one radio broadcast device. It includes a radio set integrated in other apparatus such as recorders or cassette players, portable radios and audio equipment, but it excludes radios integrated with a mobile telephone, MP3 player or computer	HH1
Television access at home	Households with at least one TV set in working condition. It excludes TV functionality integrated with another device such as a computer or mobile telephone	HH2
Fixed telephone access at home ^a	Households with at least one fixed residential telephone line. (Some countries consider only the dwelling and not each household inside the dwelling, nevertheless the suggestion is to measure each household in the cases where there is more than one in a same dwelling)	HH3
Mobile telephone access at home	Households with at least one mobile telephone in working conditions. Users of both post-paid subscriptions and prepaid accounts are included	HH3
Computer access at home	Households with at least one computer, including desktop or laptop computers. It excludes personal digital assistants (PDA), electronic agendas, etc. and equipments that have some of the functions of a computer, such as mobile telephones or TV set	HH4
Internet access at home	Access to the Internet at home. It includes the access via a computer, mobile telephone or through any device other than the computer	HH6
Type of Internet connection	Type of Internet access service of the household. The answers should be able to detect the household with broadband service. (The Internet access, as seen in the previous variable, is not limited to the access via a computer, it also includes the access via mobile telephone or other devices)	HH11

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC), on the basis of the recommendations from the Partnership on Measuring ICT for Development (2010).

^a The Partnership (2010) recommended merging the indicators for fixed telephone and mobile cellular telephone. However, the variables in this table are presented separately, because the indicators' construction implies the identification of households that have any kind of telephone, those who have only fixed telephone, those who have only mobile telephone and those who have both. This can be achieved by asking the questions separately and combining the answers afterwards.

In accordance with the summary presented in Table 1, it should be noted that the analytical definition of the variables, and the associated core indicators, are based on: i) the recommendations of the Partnership (2010) and ii) the implementation experiences of the ICT questions in the countries of the region.

Moreover, it is important to mention that the variables referring to the ICT access in the households refer only to the possession of the ICT good or service as part of the dwelling equipments. The definition is also restricted to goods and services in working conditions, but it does not refer to their actual use.

To conclude, we recognize that this core indicators list on ICT access corresponds to a general set of measuring parameters, and that, in view of the information needs of each country, new variables could be of interest for describing ICT access in the households. For instance, some countries could require variables that distinguish if the Internet connection is mainly via a desktop computer, a laptop, a mobile cellular telephone or through any of these three kinds of devices indistinctly, because clearly these are situations with evident differences in their use possibilities. Moreover, there could be, or could appear in the future, many other possible variables that describe the access in the households; and some or all countries could consider their inclusion in their future surveys.

2.2.2 ICT individual use

In what concerns the use of ICT, the individual is the statistical unit for which it is recommended to collect, process, analyze and interpret the data.

It is emphasized that the measurement of the individual use of ICT is not restricted to the use at home only. This measurement also includes the ICT individual use in other locations, such as work, place of study, commercial access locations or any other place.

Furthermore, it is stressed that the ICT individual use is not necessarily associated to specific geographical locations. In fact, in the category ‘place of use’, the questionnaires also include the possibility of use from any place through mobile access devices.

Table 2 presents a list of the variables recommended by the Partnership (2010) for measuring the individual use of ICT. The table also mentions, for each variable, its analytical definition and its associated core indicator.

TABLE 2
ANALYTICAL DEFINITION OF THE VARIABLES OF ICT INDIVIDUAL USE

Variable	Definition	Associated Indicator
Mobile telephone use	Individual use of mobile telephone. Users of both post-paid subscriptions and prepaid accounts are included	HH10
Computer use	Individual use of the computer at home or any other place. Desktop computers and laptops are included. It does not include equipment with some embedded computing abilities such as mobile telephones, TV sets or personal digital assistants (PDA)	HH5
Internet use	Individual use of the Internet at home or any other place, either through a fixed network or a mobile network	HH7
Frequency of Internet use	Use frequency of the Internet by the in-scope individuals that used the Internet, from any location, including work	HH12
Location of Internet use	Locations where individuals normally use the Internet, at home, work, place of education, community access facility, commercial access facility or any other place via mobile cellular telephone or other mobile access devices. The Internet access does not include access via a computer only; it also includes mobile cellular telephones, laptops and other devices	HH8
Internet activities undertaken by individuals in the last 12 months	Internet activities normally undertaken by in-scope individuals, from any location, including work: Getting information about goods and services; getting information related to health or health services; getting information from general government organizations; sending or receiving e-mail; telephoning over the Internet; posting information or instant messaging; purchases, e-banking; education; interacting with general government organizations; playing or downloading video games, computer games, films, videos, images or music; use or downloading of TV or radio programs or software; and reading or downloading newspapers, magazines or electronic books. The Internet access does not include access via a computer only; it also includes mobile cellular telephones, laptops and other devices	HH9

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC), on the basis of the recommendations from the Partnership on Measuring ICT for Development (2010).

As you can see in Table 2, most of the variables recommended by the Partnership (2010) are directed towards describing the use of the Internet. The reason is that the Internet is considered the technology with more application possibilities in different areas and for different population groups.

Due to the fact that in the last years the number of Internet users has increased significantly in the entire world, and also in the region, it is more and more important to describe the locations, activities and frequency of use of this global network. Therefore, these are the three characterization variables (locations, activities and frequency of use of the Internet) that have undergone a greater number of changes in the revision of the core ICT indicators carried out by the Partnership (2010).

2.3 Socio-demographic variables of the classification

In order to monitor the progress of the information society, it is necessary to identify, dimension and describe the digital divides of access and use in each country. Particularly, this is required to determine what are the types of population or groups that have mostly incorporated ICT and which ones have remained behind.

Table 3 presents a list of the variables suggested for the calculation of subindicators concerning the ICT access in the homes. Nevertheless, it should be noted that each country, in view of their information requirements and of the determinants identified through the empirical evidence of their household surveys or other sources of information, may collect more data and process additional indicators.

TABLE 3
CLASSIFICATION VARIABLES FOR HOUSEHOLD ACCESS

Classification variable	Analysis categories	Observations
Geographical area	1. Urban 2. Rural	The distinction between urban areas and rural areas is based on each country's particular concepts. There is not a unique criterion to define this variable. In general, to establish this difference it is considered the population size and the population distribution in the country; the political-administrative division, and the concentration of the offer of goods and services. In the presence of any of these criteria, the urban areas tend to have greater connectivity levels than the rural areas, according to the results obtained by the national reports
Per capita income quintiles	Quintiles on the basis of the household's income	This variable corresponds to a division of the total number of the in-scope households into five groups, according to the income level of each household. Where the income level in each household is obtained as the ratio between the total income of the household and the number of members of the household. The households with higher incomes present, normally, greater levels of connectivity and more diversified uses than the households with less income. It is therefore interesting to calculate and analyze each quintile separately, and to compare the differences observed
Average school years of the household's adult members	Corresponds to an average among the total number of adults in the household	This aggregated variable is obtained by averaging the study years of the members older than 17. It aims at describing the role of education of the adult members of the household in the access to ICT
Presence of children	1. Yes 2. No	This variable identifies the presence or absence of children under 15 in the household. It is considered, because some studies of developed countries have shown that the presence of children in the household might be a factor associated to the possession of technologies, such as computers and the Internet
Age and gender of the head of the household	1. Man 15-29 2. Man 30-59 3. Man 60 and over 4. Woman 15-29 5. Woman 30-59 6. Woman 60 and over	It is normally considered that the head of the household has a greater influence when taking decisions on the purchase of goods and services. Besides, this variable can show forms of social inequity and vulnerability according to the gender and age group of the household's head, where the access to ICT by a female head of the household may show different levels and trends in urban areas and in rural areas, and also with regard to the household's income levels. Anyhow, the aim is to evaluate whether the gender of the head of the household is or is not an inhibitor of the ICT access, once assumed the other social and economic conditions of the households

(CONTINUES)

TABLE 3 (CONTINUATION)

Household typology	1. Single-person	This variable corresponds to a household typology in relation to the stages of the family life cycle.
	2. Nuclear (parents and children)	The characterization of the household composition helps to identify which are the leading ones in terms of connectivity and which present the lowest levels of digital inclusion.
	3. Extensive (nuclear plus relatives of the household's head)	Now, considering that this variable pretends to capture a structure, its influence on the access and use of ICT is influenced by the age profile and, in general, by the characteristics of the individuals within the household. Therefore, its interaction with other classification variables is also interesting
	4. Composed (nuclear plus individuals that are not relatives of the household's head)	
	5. Without nucleus	
Access to electricity	1. Yes 2. No	This variable is added because electricity is considered an essential resource for the access to most of the ICT. So it is an important aspect to consider, especially in the rural areas

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC), on the basis of Partnership (2010), OSILAC (2007), and Grazzi and Vergara (2008).

Table 4 presents the socio-demographic variables recommended for the calculation of subindicators of ICT individual use. The analysis categories suggested for each variable are based on the international recommendations concerning classifications of employment, population distribution by age range and education level.

Of course, countries may collect data of additional variables that allow identifying other factors associated to the ICT individual use. For example, in some countries of the region, and for certain specific population segments, there may be barriers regarding certain disadvantages due to lack of training and minor development of abilities in the handling of technologies or in relation to the language, among other characteristics.

TABLE 4
CLASSIFICATION VARIABLES FOR INDIVIDUAL USE

Classification variable	Analysis categories	Observations
Age	According to the analysis desired, it is possible to work with single ages, quinquennial groups or large age groups. The suggested age groups are the following: 1-4, 5-9, 10-14, 15-24; 25-34; 35-44; 45-54; 55-64; 65-74, and 75 or more	Age allows making an economic and a cultural reading, emphasizing the generational effect in the adoption of technologies. The researches carried out by OSILAC have shown differential levels of ICT use by youngsters, in relation to older populations. Moreover, these studies have demonstrated that young people are ahead in terms of connectivity (OSILAC 2007a and 2007b, Grazzi and Vergara 2008)
Gender	1. Man 2. Woman	This variable is defined through a classification based mainly on biological terms, where the members of the household are classified in men and women. Some countries may not show digital divides for this variable. However, the indicator is put forward because of the outputs of the disaggregated indicators for men and women that have already been calculated, where there are indeed some differences
Number of approved years of study	0, 1, 2, ..., 30	This variable is taken into account because normally the education level is one of the main determinants in the use of technologies
Activity condition	1. Employed 2. Unemployed 3. Student only 4. Retired	This variable is considered because the entry into the market may foster the development of capacities and abilities in handling technology. Likewise, the development of abilities in handling technology is a condition that may favor the entry into the labor market. In view of the former, it can be inferred that today's students show advantages in the use of modern technologies, in relation to the retired population, for example

(CONTINUES)

TABLE 4 (CONTINUATION)

Main occupation	<ol style="list-style-type: none"> 1. Directors and managers 2. Scientific and intellectual professionals 3. Technicians and associate professionals 4. Clerical support workers 5. Stall and market salespersons 6. Skilled agricultural, forestry and fishery workers 7. Craft and related trades workers 8. Plant and machine operators, and assemblers 9. Elementary occupations 0. Armed forces occupations 	<p>This variable is considered because the ICT impact on a productivity level is not standard in all occupations, or in all activity sectors. This impact is evident in a group of activities mainly and it is expected to be more evident in the future in all the other activities.</p> <p>In the first analysis conducted by OSILAC, professionals, technicians, administrative workers and members of the Executive tend to have higher levels of computer and Internet use, in relation to the other occupations. Nevertheless, these differences in the use of ICT may be reduced speedily in the near future.</p> <p>The former proves that it is necessary to monitor the evolution of specific indicators for occupation groups, with the aim of analyzing the impact of the type of occupation on the ICT use and vice versa.</p> <p>New technologies can stimulate the creation of new professional profiles, or introduce changes in the professional profiles already existing. Therefore, it is necessary to follow up these changes, and this should be based on the Classification of Occupations * and Activity Sectors already existing, and their updates</p>
Activity sector	<ol style="list-style-type: none"> A- Agriculture, forestry and fishing B- Mining and quarrying C- Manufacturing D- Electricity, gas, steam and air conditioning supply F.- Construction G- Wholesale and retail trade; repair of motor vehicles and motorcycles H- Transportation and storage I- Accommodation and food service activities J- Information and Communication K- Financial and insurance activities L- Real estate activities M- Professional, scientific and technical activities N- Administrative and support service activities O- Public administration and defence; compulsory social security P- Education Q- Human health and social work activities R- Arts, entertainment and recreation S- Other service activities T- Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use U- Activities of extraterritorial organizations and bodies 	<p>If possible, it is recommended to adapt or use the Revision 4 of the International Standard Industrial Classification of all Economic Activities, 2008 (ISIC Rev. 4)^b, where the new category is J: Information and Communication which is of great relevance for the calculation of the proportion of persons employed in the business ICT sector.</p> <p>Category J has the following structure:</p> <ol style="list-style-type: none"> 58- Publishing activities 59- Motion picture, video and television programme production, sound recording and music publishing activities 60- Programming and broadcasting activities 61- Telecommunications 62- Computer programming, consultancy and related activities 63- Information service activities <p>On the other hand, in the analysis according to the activity sectors, great gaps in the use of ICT were perceived between the persons that work in non-agricultural sectors and the people who work in agricultural activities (Dirven, 2008)</p>
Occupation category	<ol style="list-style-type: none"> 1. Employer 2. Own-Account worker with establishment 3. Own-account worker without establishment 4. Member of cooperatives 5. Contributing family members, without salary 6. Regular employee 7. Casual worker 8. Apprentice 9. Domestic service 10. Others 	<p>It is recommended to apply or adapt the International Classification of Status in Employment (ICSE-93)^c.</p> <p>ICSE-93 classifies the employments of a person in a given time. An employment is classified according to the type of implicit or explicit work contract of the party with other persons or organizations.</p> <p>The basic criteria used to define the classification groups are the type of economic risk, meaning the stability of the link between the person and the employment, and the type of authority that the parties have or will exercise on the place of business and on other workers</p>
Education level	<ol style="list-style-type: none"> 1. No formal education or primary education 2. Lower secondary education 3. Upper secondary education or postsecondary non-tertiary education 4. Tertiary education 	<p>This variable can have an impact on the use and adaptation of the ICT, especially in the younger age segments.</p> <p>For the definition of each one of the categories of this variable, the Partnership 2010 suggests the use of the UNESCO International Standard Classification of Education (ISCED) 1997</p>

(CONTINUES)

TABLE 4 (CONCLUSIÓN)

Race/ethnicity	It depends on each country's ethnic structure and its classification. Typically, for measuring this variable it is interesting to disaggregate outputs for each type of native population and/or for the different Afro-descendant communities according to each particular situation and the criteria established for each country	The ethnic origin of the population is a characteristic that allows detecting the existence of inequities in the access and use of ICT. Nevertheless, technologies such as the Internet can prove to be useful tools for elaborating and communicating their own messages and speeches. This is possible as far as the individuals belonging to these populations adopt these technologies
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Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC), on the basis of Partnership (2010), OSILAC (2007) and Grazi and Vergara (2008).

^a Whenever possible, the *Partnership* suggests using the main occupational groups indicated by the *International Standard Classification of Occupations* (ISCO) 2008.

^b More information on this document in the Internet: <http://unstats.un.org/unsd/cr/registry/isic-4.asp>

^c *International Classification of Status in Employment* (ICSE-93). See in the Internet: <http://www.ilo.org/public/english/bureau/stat/class/icse.htm>

2.4 Evolution and current state of ICT measurement in households

This section is organized in two parts. The first part describes the evolution and the present situation of the measurement of ICT access in the households. The second part sets forth the evolution and present situation of the measurement of individual use of ICT.

The summaries presented in this section are based on the information supplied by the NSOs of the countries and the questionnaires of the household surveys collected by OSILAC at the Regional Workshops on Measuring the Information Society and through direct consultation of the web site of each NSO.

The analysis corresponds to the period 2000-2009, because it is during this period that the changes have become more evident in society regarding the diffusion of technology; there is also a significant increase of the data capture, storage, processing and transmission capacities through the ICT. We have to acknowledge, however, that measurement on the access to technologies such as radio, TV or fixed telephone began in previous decades, in several countries of the region.

Measuring ICT access in households

Most countries collected data on access to radio and TV in the household surveys undertaken between 2000 and 2009. This explains itself because they are two of the most widespread technologies at a regional level, although its development is not recent. The evolution of the collection process on the access to these two technologies is presented in Table 5.

Furthermore, the household surveys have gathered information on the technological transition process between fixed telephone and mobile telephone. Table 6 presents the data collection situation of these two technologies and we may observe that, at the beginning of the decade, most of the countries collected data on access to fixed telephone, and only some of them did it on access to mobile telephone. Currently, all countries have available data on fixed telephone and mobile telephone.

Finally, at present there are two technologies that concentrate a major interest, regarding the measurement of its access in the households: the computer and the Internet. This data is currently collected in most household surveys of the region, a situation that differs from the first years of the decade where only some of the countries were monitoring these variables. Table 7 shows a summary of the data availability on these two variables (access to a computer and access to the Internet), in the household surveys carried out since the year 2000.

Measurement of the individual use of ICT

The measurement of the individual use of ICT has developed more recently than the access to ICT in the households. Most of the countries have incorporated to the harmonized ICT measurement process since 2005. In this sense, Table 8 shows the countries with data availability on individual use of ICT in household surveys, within the period 2005-2009.

The aforementioned table also shows that among the recommended variables for measuring the individual use of ICT there are more variables associated to the use of the Internet. This includes use in any location, activities undertaken and use frequency of the Internet. Moreover, there is less availability of variables associated to the use of a computer and use of mobile telephone, which demonstrates that there are still challenges concerning the measurement of the individual use of these two technologies at a regional level.

TABLE 5
LATIN AMERICA AND THE CARIBBEAN: DATA AVAILABILITY ON ACCESS TO RADIO AND TELEVISION
IN HOUSEHOLD SURVEYS, 2000 – 2009^a

	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009 ^b		TOTAL	
	RAD	TV	RAD	TV	RAD	TV	RAD	TV	RAD	TV	RAD	TV	RAD	TV	RAD	TV	RAD	TV	RAD	TV	RAD	TV
ARG				X																	0	1
BOL	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	9	9
BRA			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	9	9
COL	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	9	10
CRI	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	10	10
CUB												X	X							1	1	
DOM		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					7	8
ECU							X	X					X	X	X	X	X	X	X	X	5	5
SLV	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	10	10
GTM	X	X											X	X							2	2
HTI			X	X																	1	1
HND					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	7	7
MEX		X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	8	9
NIC			X	X							X	X	X	X	X	X					4	4
PAN							X	X					X	X	X	X	X	X	X	X	5	5
PRY			X	X		X		X		X	X	X	X	X	X	X	X	X	X	X	6	9
PER			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	9	9
URY		X		X		X		X		X		X	X	X	X	X	X	X	X	X	4	10
VEN						X	X	X	X	X	X				X	X					4	5
ATG																	X	X			1	1
BRB								X													0	1
BHS			X	X																	1	1
CYM														X	X						1	1
DMA						X											X	X			1	2
JAM	X	X	X	X	X	X			X	X			X	X	X	X	X	X	X	X	7	7
LCA												X	X								1	1
TTO											X	X									1	1
TOTAL	6	9	13	15	10	14	9	13	11	13	14	15	17	17	17	17	15	15	11	11		

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a ISO Alpha-3 codes for countries and territories in Latin America and the Caribbean. RAD represents access to radio and TV represents access to television.

^b The information for 2009 is provisional because we do not have all the questionnaires of household surveys.

TABLE 6
LATIN AMERICA AND THE CARIBBEAN: DATA AVAILABILITY ON ACCESS TO FIXED AND MOBILE
TELEPHONES IN HOUSEHOLD SURVEYS, 2000 – 2009 ^a

	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009 ^b		TOTAL		
	FIX	MOB	FIX	MOB	FIX	MOB	FIX	MOB	FIX	MOB	FIX	MOB	FIX	MOB	FIX	MOB	FIX	MOB	FIX	MOB	FIX	MOB	
ARG			X	X			X		X		X		X								5	1	
BOL			X		X				X		X	X	X	X	X	X	X	X	X	X	8	5	
BRA			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	9	9	
CHL	X	X					X	X					X	X						X	X	4	4
COL	X		X		X		X		X		X		X	X	X	X	X	X	X	X	10	3	
CRI	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	10	9	
CUB													X	X							1	1	
DOM			X		X		X	X	X	X	X	X	X	X	X	X					7	5	
ECU							X	X					X	X	X		X	X	X	X	5	4	
SLV	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	10	10	
GTM	X	X											X	X							2	2	
HTI			X	X																	1	1	
HND							X	X	X	X	X	X	X	X	X	X	X	X			6	6	
MEX			X		X				X	X	X	X	X	X	X	X	X	X	X	X	8	6	
NIC			X	X							X	X	X	X	X						4	4	
PAN							X	X					X	X	X	X	X	X	X	X	5	5	
PRY			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	9	9	
PER	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	10	10	
URY			X		X		X		X		X		X	X	X	X	X	X	X	X	9	4	
VEN					X		X	X	X	X	X	X			X	X					5	4	
ATG																	X	X			1	1	
BLZ									X												1	0	
BHS			X																		1	0	
CYM													X	X	X	X	X	X	X	X	4	4	
DMA					X												X	X			2	1	
JAM					X	X			X	X	X	X	X	X	X	X	X	X			6	6	
LCA											X	X		X							1	2	
SUR																			X		0	1	
TTO											X	X			X	X					2	2	
TOTAL	6	5	14	8	13	5	14	11	15	10	17	14	20	20	18	17	16	17	13	12			

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a ISO Alpha-3 codes for countries and territories in Latin America and the Caribbean. FIX represents access to fixed telephone line and MOB represents access to mobile cellular phone.

^b The information for 2009 is provisional because we do not have all the questionnaires of household surveys.

TABLE 7
LATIN AMERICA AND THE CARIBBEAN: DATA AVAILABILITY ON ACCESS TO COMPUTER
AND INTERNET IN HOUSEHOLD SURVEYS, 2000 – 2009^a

	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009 ^b		TOTAL		
	COM	INT	COM	INT	COM	INT	COM	INT	COM	INT	COM	INT	COM	INT	COM	INT	COM	INT	COM	INT	COM	INT	
ARG			X	X																		1	1
BOL			X		X		X		X		X	X	X	X	X	X	X	X	X	X	X	9	5
BRA			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	9	9
CHL	X	X					X	X					X	X						X	X	4	4
COL			X	X					X	X	X	X	X	X	X	X	X	X	X	X	X	7	7
CRI	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	10	9
CUB													X	X	X	X						2	2
DOM			X		X		X		X		X	X	X	X	X	X						7	3
ECU							X	X					X	X	X		X	X	X	X		5	4
SLV	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	10	10
GTM	X	X											X	X								2	2
HTI			X																			1	0
HND							X		X	X	X	X	X	X	X	X	X	X				6	5
MEX			X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	8	8
NIC			X	X							X	X	X	X	X							4	3
PAN							X	X					X	X	X	X	X	X	X	X	X	5	5
PRY			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	9	9
PER	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	10	10
URY			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	9	9
VEN							X	X	X	X	X	X		X	X							4	4
ATG																	X	X				1	1
BLZ									X													1	0
BRB							X	X														1	1
BHS			X																			1	0
CYM													X	X	X	X	X	X	X	X		4	4
DMA																	X	X				1	1
JAM													X	X	X	X	X	X				3	3
LCA											X	X	X									2	1
SUR																	X	X				1	1
TTO										X	X				X	X						2	2
ALC	5	5	14	10	9	7	14	11	13	9	15	15	20	19	19	17	17	17	13	13			

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a ISO Alpha-3 codes for countries and territories in Latin America and the Caribbean. COM represents access to computer and INT represents Internet access.

^b The information for 2009 is provisional because we do not have all the questionnaires of household surveys.

TABLE 8
LATIN AMERICA AND THE CARIBBEAN: DATA AVAILABILITY ON INDIVIDUAL ICT USE IN HOUSEHOLD SURVEYS, 2000 – 2009 ^a

	Computer use					Internet use					Mobile phone use				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
BOL					X					X					X
BRA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CHL		X			X		X			X		X			X
COL			X	X	X			X	X	X					
CRI				X		X	X	X	X	X	X			X	
CUB		X	X				X	X							
DOM	X		X			X		X			X		X		
ECU				X	X		X		X	X		X		X	X
SLV						X	X	X	X	X					
HND			X	X		X	X	X	X			X	X	X	
MEX	X	X	X	X	X	X	X	X	X	X					
NIC		X					X					X			
PAN			X	X	X		X	X	X	X		X	X	X	X
PRY						X	X	X	X	X					
PER								X	X	X					
URY		X		X	X		X		X	X					X
ATG				X					X						
CYM								X					X		
DMA									X				X		
LCA						X					X				
TTO								X							
TOTAL	3	6	7	9	8	8	12	13	13	12	4	6	5	6	6

TABLE 8 (CONT.)
LATIN AMERICA AND THE CARIBBEAN: DATA AVAILABILITY ON INDIVIDUAL ICT USE IN HOUSEHOLD SURVEYS, 2000 - 2009

	Places of Internet use					Activities of Internet use					Internet use frequency				
	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009	2005	2006	2007	2008	2009
BOL					X					X					X
BRA	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CHL		X			X		X			X					X
COL			X	X	X			X	X	X			X	X	X
CRI	X			X		X			X		X			X	
CUB		X	X				X							X	
DOM	X		X			X		X			X		X		
ECU				X	X				X	X				X	X
SLV	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
HND	X	X	X	X			X	X	X			X	X	X	
MEX	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NIC		X					X							X	
PAN		X	X	X	X		X	X	X	X			X	X	X
PRY	X	X	X	X	X	X	X	X	X	X					
PER			X	X	X			X	X	X			X	X	X
URY		X		X	X		X		X	X		X		X	X
ATG				X					X					X	
CYM			X												
DMA				X											
LCA	X														
TTO			X					X							
TOTAL	8	10	12	13	11	6	10	10	12	11	5	7	8	11	10

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

* The information for 2009 is provisional because we do not have all the questionnaires of household surveys.

2.5 Household surveys with ICT data

This section describes the main characteristics of the design and implementation of ICT questions in household surveys of Latin America and the Caribbean. It includes the definition of target population, the definition of recall period, collection methodologies, measurement frequency of the questions, dissemination policies of the results, forms of publication of the ICT results, among other subjects.

The presentation's main approach is to point out the specific features of the harmonized measurement process at a regional level. The summaries and tables are based on data provided by the NSOs of the countries. The collected data is continuously organized, revised and updated by OSILAC, with the purpose of maintaining and administrating a regional metadatabase, and for its collection has relied upon the valuable collaboration and feedback of the representative of the institutions involved.

2.5.1 Types of surveys with available data on ICT

The countries of the region have different types of household surveys which differ mainly in its characteristics regarding the purpose, scope, sampling methodologies and representativity level of the outputs. In most of the countries of the region, the Multi Purpose Household Surveys (MPHS) have become the main source of information on access and use of ICT in households and individuals. The rest of the countries which have joined the harmonized measurement process, have included the questions on access and use of ICT in surveys focalized on the evaluation of more specific subjects and subpopulations. Among these surveys we may find: specific surveys on ict measurement, surveys of living conditions, labour force surveys, income and expenditure surveys, demography and health surveys and multiple indicators cluster surveys.

The Multi Purpose Household Surveys (MPHS), as its name indicates it, deals with different subjects of demographic, economic and social nature. One of the main characteristics of the MPHS is the possibility to include periodical modules or sections on emerging issues, different from those already mentioned, among which we find the ICT question. The data collection for this kind of surveys is generally carried out through the same measuring instrument, the same methodological design and the same data collection procedure. The main advantage of incorporating ICT questions in this type of survey is given by the analysis' possibilities derived from the analysis of the interrelations between the ICT subject and other subjects. Its main disadvantage is that the detail level captured in the ICT questions is less than the detail level of a specific survey on ICT.

The advantage of the specific surveys on ICT measurement is that they are focused mainly on dimensioning the levels and trends of the access and use of ICT. Therefore, it is possible to include a greater number of subjects and questions than in a multi purpose survey. Its main disadvantages are the costs involved and the fact that it is more difficult to sustain them over time than the MPHS.

In the other types of surveys (surveys of living conditions, labour force surveys, expenditure and income surveys, demography and health surveys and multiple indicators cluster surveys), the experience of the countries demonstrate that it is also possible to collect valuable information on ICT. Nevertheless, their disadvantage is that the access and use of ICT is generally not related to the main objectives of the surveys, which makes it difficult to include several questions on the subject.

Finally, we should mention that the population and housing censuses of the countries of the region collect very important data for monitoring the progress of the information society. Its main advantage is that it enables to do a detailed account of situations and problematic of subpopulations with a low statistical frequency. The main disadvantage of this type of source is that a population census is conducted, typically, every ten years, which makes it more complex to monitor a phenomenon as dynamic as the ICT diffusion.

Household surveys with information on access and use of ICT

Table 9 shows a list including all surveys of the countries of the region with information on access and use of ICT of which there is reference and documentation, on the basis of the information provided by the NSOs, for the period 2000-2009. It includes the surveys with at least one question on ICT access and at least one question on individual use of ICT. Each survey specifies: name, type, form of inclusion of the ICT questions and the years for which there is information available.

TABLE 9
LATIN AMERICA AND THE CARIBBEAN: HOUSEHOLD SURVEYS WITH DATA AVAILABLE ON ACCESS AND USE OF ICT, 2000 – 2009 ^a

Country	Name of the survey	Type of survey	Form of including the questions	Years available
Antigua and Barbuda	National ICT Household Survey	ICT Survey	ICT Survey	2008
Bolivia (Plurinational State of)	Encuesta de Hogares (Household Survey)	Multi purpose household survey	Questions on use within section already existing that includes other subjects	2009
Brazil (IBGE)	Pesquisa Suplementar sobre Acesso a Internet da Pesquisa Nacional por Amostra de Domicílios (PNAD) (Supplement Survey on Internet Access of National Household Sample Survey)	Multi purpose household survey	Section on ICT	2005 and 2008
Brazil (Cgi.br)	Pesquisa sobre o Uso das Tecnologias da Informação e da Comunicação (Survey on the Use of Information and Communication Technologies)	ICT Survey	ICT Survey	2005-2009
Chile	Encuesta de Caracterización Socioeconómica Nacional (CASEN) (National Survey of Socioeconomic Characterization)	Survey of living conditions	Section on ICT	2000, 2003, 2006 and 2009
Colombia	Gran Encuesta Integrada de Hogares (GEIH) (Great Integrated Household Survey)	Employment survey	Section on ICT	Quarter I of 2007- Quarter III, IV of 2008 and 2009
Costa Rica	Encuesta de Hogares de Propósitos Múltiples (EHPM) (Multi Purpose Household Survey)	Multi purpose household survey	In 2005 and 2008: section on ICT. In 2006, 2007 and 2009 partial inclusion	2005-2009
Cuba	Encuesta Nacional de Ocupación y Situación Económica de los hogares (ENO) (National Survey of Occupation and Household Economic Situation)	Employment survey and living conditions	Section on ICT	2006 and 2007
Dominica	Survey of Living Conditions and Household Expenditure and Income	Survey of living conditions	Questions on use within section already existing that includes other subjects	2008
Ecuador	Encuesta de Condiciones de Vida (ENCOVI) (Survey of Living Conditions)	Survey of living conditions	Questions on use within section already existing that includes other subjects	2006
Ecuador	Encuesta de Empleo, Subempleo y Desempleo (ENEMDU) (Survey on Employment, Subemployment and Unemployment)	Employment survey, subemployment and unemployment	Section on ICT	2008 and 2009
El Salvador	Encuesta de Hogares de Propósitos Múltiples (EHPM) (Multi Purpose Household Survey)	Multi purpose household survey	Section on ICT	2005-2009
Honduras	Encuesta Permanente de Hogares de Propósitos Múltiples (EPHPM) (Permanent Multi Purpose Household Survey)	Multi purpose household survey	Section on ICT	2004-2008

(CONTINUES)

TABLE 9 (CONTINUATION)

Cayman Islands	Survey of Living Conditions	Survey of living conditions	Questions on use within section already existing that includes other subjects	2007
Mexico	Encuesta Nacional sobre Disponibilidad y Uso de las Tecnologías de la Información en los Hogares (ENDUTIH) (<i>Survey on Availability and Use of the Information Technologies in Households</i>)	ICT survey enclosed in an employment survey	Module enclosed in an institutional survey already established in households	2001-2002, 2004-2009
Nicaragua	Encuesta de Hogares para la Medición del Empleo Urbano y Rural (<i>Household Survey for Measuring Urban and Rural Employment</i>)	Employment survey	Section on ICT	2006
Panama	Encuesta de Propósitos Múltiples (EPM) (<i>Multi Purpose Survey</i>)	Multi purpose household survey	Section on ICT	2006-2009
Paraguay	Encuesta Permanente de Hogares (EPH) (<i>Permanent Household Survey</i>)	Survey of living conditions	Questions on use within section already existing that includes other subjects	2005-2009
Peru	Encuesta Nacional de Hogares (ENAH) (<i>National Household Survey</i>)	Survey of living conditions and poverty	Questions on use within section already existing that includes other subjects	2007-2009
Saint Lucia	Survey of living conditions and household budgets	Survey of living conditions	Questions on use within section already existing that includes other subjects	2005
Dominican Republic	Encuesta Nacional de Hogares de propósitos múltiples (ENHOGAR) (<i>National Multi Purpose Household Survey</i>)	Multi purpose household survey	Section on ICT	2005 and 2007
Trinidad & Tabago	National Survey on E-Commerce Usage and Awareness among Households	Specific survey on ICT	ICT Survey	2003
Trinidad & Tabago	Survey of households to measure the digital divide	ICT Survey	ICT Survey	2007
Uruguay	Encuesta Continua de Hogares (ECH) 2006 and 2008 (<i>Continuous Household Survey 2006 and 2008</i>)	Multi purpose household survey	Section on ICT	2006, 2008 and 2009

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a It only includes surveys with at least one question on ICT access and at least one on ICT use. The names of the surveys that are not in English are presented both in the original language and in English translation.

There are several household surveys that were incorporated to this revision of the Compendium (2010), and were not documented in the revision 2007⁸; these can be classified in three groups:

- Specific surveys on ICT, among which we may mention the following: the National Survey on ICT from Antigua and Barbuda (2008); the Brazilian Survey on Information and

⁸ The Compendium 2007 includes the main characteristics of the following surveys: the Supplementary Survey on access to Internet of the National Household Survey of the IBGE of Brazil (2005), the Survey on Information and Communication Technologies of Cgi.br from Brazil (2005), the National Survey of Socioeconomic Characterization (CASEN) from Chile (2006), the Multi Purpose Household Survey (EHPM) from Costa Rica (2005), the National Survey of Occupation and Household Economic Situation (ENO) from Cuba (2006), the Multi Purpose Household Surveys (MPHS) from El Salvador (2005 and 2006), the Permanent Multi Purpose Household Survey (EPHPM) from Honduras (2005 and 2006), the Survey on Availability and Use of the Information Technologies in Households (ENDUTIH) from Mexico (2001 to 2006), the Permanent Household Survey (EPH) from Paraguay (2005), the National Multi Purpose Household Survey (ENHOGAR) from Dominican Republic (2005), and the Extended National Household Survey (ENHA) from Uruguay (2006)

Communication Technologies (2007, 2008 and 2009), conducted by the Brazilian Internet Steering Committee (CGI.br); the Mexican Survey on Availability and Use of the Information Technologies in Households (ENDUTIH) (2007, 2008 and 2009); and the Household Survey for Measuring the Digital Divide of Trinidad & Tabago (2007).

- Household Surveys that have incorporated a section or module on ICT, among which we may mention the following: the Household Survey from Bolivia (Plurinational State of) (2009), the Brazilian National Household Survey (PNAD) (2008) conducted by the Brazilian Institute of Geography and Statistics (IBGE); the Multi Purpose Household Survey (EHPM) from Costa Rica (2008); the National Survey of Occupation and Household Economic Situation (ENO) from Cuba (2007); the Survey on Employment, Subemployment and Unemployment (ENEMDU) from Ecuador (2008 and 2009); the Multi Purpose Household Survey (EHPM) from El Salvador (2007, 2008 and 2009); the Permanent Multi Purpose Household Survey (EPHPM) from Honduras (2007 and 2008); the Household Survey for Measuring Urban and Rural Employment (Employment Survey) from Nicaragua (2006); the Multi Purpose Survey (EPM) from Panama (2006 to 2009); the National Multi Purpose Household Survey (ENHOGAR) from Dominican Republic (2007) and the Continuous Household Survey (ENHA) from Uruguay (2008 and 2009).
- Household Surveys that have incorporated questions on ICT use in modules already existing that include other subjects, among which we may mention the following: the Survey of Living Conditions (ENCOVI) from Ecuador (2006); the Survey of Living Conditions from Dominica (2008); the Survey of Living Conditions and Household Expenditure and Income from Cayman Islands (2007); the Permanent Household Survey (EPH) from Paraguay (2006 to 2009); the National Household Survey from Peru (2007 and 2009) and the Survey of Living Conditions and Household Budgets from Saint Lucia (2005).

Later on in this Chapter, the main emphasis concerns the characteristics of the household surveys conducted more recently (2007, 2008 and 2009). That is to say, on the surveys not characterized in the revision 2007 of the Compendium.

2.5.2 Questions applied by the countries

As we saw in Section 2.4, the data collection on individual use of ICT has significantly increased in the last four years, in the countries of the region. However, there still remain important challenges in the harmonization of the questions, in aspects such as the reference period for the identification of the users of each ICT and the formulation of response categories in the questions on places and activities of Internet use. To illustrate the former, Table 10 presents the questions used for measuring the proportion of Internet users in each country.

TABLE 10
LATIN AMERICA AND THE CARIBBEAN: QUESTIONS ON INTERNET USE IN HOUSEHOLD SURVEYS^a

Country and Survey	Questions	Response categories
Antigua and Barbuda: National ICT Household Survey 2008	Have you or any member of your household used the Internet in the last 12 months?	Yes
		No
		Do not know
Brazil Cgi.br: Pesquisa sobre o Uso das Tecnologias da Informação e da Comunicação 2009 (<i>Survey on the Use of Information and Communication Technologies 2009</i>)	Have you ever used the Internet?	Yes
		No
		Do not know
	When was the last time you used the Internet?	Less than 3 months ago
		Between 3 and 12 months ago
		More than 12 months ago

(CONTINUES)

TABLE 10 (CONTINUATION)

Chile: Encuesta de Caracterización Socioeconómica Nacional (CASEN) 2009 (<i>National Survey of Socioeconomic Characterization 2009</i>)	Where do you use the Internet most frequently?	At home
		At work
		In educational institution
		In a community telecenter or infocenter (library)
		In private places (Cyber-café, kioskonet, etc.)
		Others
		Do not use it
		None of the computers connected has Internet access
		Yes
		No
Colombia: Gran Encuesta Integrada de Hogares (GEIH) 2009 (<i>Great Integrated Household Survey 2009</i>)	Did you ... use the Internet (from any location) in the last 12 months?	Do not know Do not tell
		Yes ... at least once a day
		Yes ... at least once a week
Costa Rica: Encuesta de Hogares de Propósitos Múltiples (EHPM) 2008 (<i>Multi Purpose Household Survey 2008</i>)	(name) Have you used the Internet in the last three months...?	Yes ... at least once a month
		Yes ... at least once in the last three months
		No
		Home
		Work
Dominica: Survey of Living Conditions and Household Expenditure and Income 2008	Where did you use the Internet in the last 12 months?	School
		Internet café
		Cell phone
		Family friend
		Other
		No access
		Did not use
		Yes
Ecuador: Encuesta de Empleo, Subempleo y Desempleo (ENEMDU) 2009 (<i>Survey on Employment, Subemployment and Unemployment 2009</i>)	(...) have you used the Internet in the last 12 months, from any place?	No
		Yes
		No
Honduras: Encuesta Permanente de Hogares de Propósitos Múltiples (EHPM) 2008 (<i>Permanent Multi Purpose Household Survey 2008</i>)	Have you used the Internet in the last 12 months?	Yes
		No
	Did you have access to the Internet in the last 3 months?	Do not know
		Yes
		No
Cayman Islands: Survey of Living Conditions 2007	Where is Internet access available to ...? <i>* the question is made to all persons</i>	Do not know
		Home
		Work
		School
		Internet café
		Cell phone
		Family friend
		Other
No access		

(CONTINUES)

TABLE 10 (CONCLUSION)

Mexico: Encuesta Nacional sobre Disponibilidad y Uso de las Tecnologías de la Información en los Hogares (ENDUTIH) 2009 (<i>Survey on Availability and Use of the Information Technologies in Households 2009</i>)	Do you... use the Internet in this home or outside of it?	Yes No Do not know
Nicaragua: Encuesta de Hogares para la Medición del Empleo Urbano y Rural 2006 (<i>Household Survey for Measuring Urban and Rural Employment 2006</i>)	Have you used the Internet in the last 6 months, whether at home, at work or any other place?	Yes No
Panama: Encuesta de propósitos múltiples (EPM) 2008 (<i>Multi Purpose Survey 2008</i>)	Have you used the Internet in the last 6 months?	Yes No
Peru: Encuesta Nacional de Hogares (ENAHO) 2009 (<i>National Household Survey 2009</i>)	In the past month, did you use the Internet service?	Yes No
Paraguay: Encuesta Permanente de Hogares (EPH) 2009 (<i>Permanent Household Survey 2009</i>)	In the last 3 months, did you use the Internet...?	Yes ... At home Yes ... At work Yes... Educational institution Yes... Another person's house Yes ... Public places (CYBER) Yes ... Others (specify) No
Dominican Republic: Encuesta Nacional de Hogares de propósitos múltiples (ENHOGAR) 2007 (<i>National Multi Purpose Household Survey 2007</i>)	Have you used the Internet in the last 12 months, whether at home, at work or any other place?	Yes No
Saint Lucia: Survey of living conditions and household budgets 2005	Where did you use the Internet in the last 12 months?	Home Work School Internet café Cell phone Family friend Other No access
Trinidad & Tabago: Survey of households to measure the digital divide 2007	Do you access the Internet at home? Do you or other household members share Internet access at home with neighbours and/or friends? Do you use the Internet at locations other than at home?	Yes No Yes No Yes No
Uruguay: Encuesta Continua de Hogares (ECH) 2009 (<i>Continuous Household Survey 2009</i>)	Did you use the Internet in the last month?	Yes No

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

Table 11 illustrates the heterogeneity still existing in the formulation of the questions and the response categories on activities of Internet use. This issue has been deeply discussed in the Regional Workshops of OSILAC and in the Partnership at a global level. The prevailing differences reflect the tension existing between the information demand at the domestic level and the requirements of international comparability. This type of differences is not exclusive of the ICT measurement, and we hope to keep on progressing in improving the questions' comparability. This subject was also discussed at the SCA 2009 and the working group on ICT measurement made a series of suggestions in order to solve the comparability issue, where it basically recommends reconciling the requirements of the national users with those of the international ones. These recommendations are reproduced and analyzed in detail in Chapter 6.

TABLE 11
LATIN AMERICA AND THE CARIBBEAN: QUESTIONS ON ACTIVITIES
OF INTERNET USE IN HOUSEHOLD SURVEYS

Antigua and Barbuda - National ICT Household Survey 2008		
What are your main reasons for you or members of your household using the Internet?		
For communicating	For Internet banking	
For getting information	For dealing with government	
For buying goods or services	For leisure activities	
For education or learning activities	For another reason	
Brasil Cgi.br – Pesquisa sobre o Uso das Tecnologias da Informação e da Comunicação 2009 (Survey on the Use of Information and Communication Technologies 2009)		
Which of the following communication-related activities have you performed on the Internet within the past three months?		
Sending and receiving e-mails	1. Yes	0. No
Sending instant messages	1. Yes	0. No
Exchanging voice messages using software such as Skype/ Videoconferencing	1. Yes	0. No
Participating in relationship websites such as Orkut, Facebook, Linked In	1. Yes	0. No
Participating in discussion lists or forums	1. Yes	0. No
Creating or updating blogs and/or websites	1. Yes	0. No
Other communication-related activities	1. Yes	0. No
Which of the following activities related to information search have you performed on the Internet within the past three months?		
Information search on products and services	1. Yes	0. No
Information search on health and health services	1. Yes	0. No
Information search on entertainment and fun	1. Yes	0. No
Information search on travel and accommodations	1. Yes	0. No
Job search/ applications	1. Yes	0. No
Information search on virtual encyclopedias such as Wikipedia, Barsa	1. Yes	0. No
Information search on free dictionaries	1. Yes	0. No
Information search on other topics	1. Yes	0. No
Which of the following leisure and entertainment-related activities have you performed on the Internet within the past three months?		
Participating in a simulated or virtual reality environment, such as: Second Life	1. Yes	0. No
Playing games online (connected to the Internet)	1. Yes	0. No
Watching films or videos (such as YouTube)	1. Yes	0. No
Downloading movies and songs	1. Yes	0. No
Listening to the radio on the Web (in real time)	1. Yes	0. No
Reading newspapers or magazines	1. Yes	0. No
Downloading games	1. Yes	0. No

(CONTINUES)

TABLE 11 (CONTINUATION)

Advertising films or videos through websites such as YouTube	1. Yes	0. No
Creating or updating blogs or photo-blogs on the Internet	1. Yes	0. No
Watching TV (IN REAL TIME)	1. Yes	0. No
Downloading software	1. Yes	0. No
Other leisure activities	1. Yes	0. No
Which of the following Internet banking activities have you performed within the past 3 months?		
Consultations (checking accounts, savings accounts, credit cards)	1. Yes	0. No
Transactions (Payments, Investments, Money transfers – DOC, TED –, Mobile phone recharges etc.)	1. Yes	0. No
Other financial services	1. Yes	0. No
Have you, during the past three months, performed any activities on the Internet related to services offered by the Public Administration instead of going to a public agency or a government service office?		
Accessing information on services and/or public agencies	1. Yes	0. No
Downloading official forms	1. Yes	0. No
Sending e-mails or filled-out forms to public agencies	1. Yes	0. No
Filing complaints	1. Yes	0. No
Issuing invoices for payments and fees	1. Yes	0. No
Which of these activities related to training and education have you performed online within the past three months?		
Doing research for school projects / doing school activities	1. Yes	0. No
Taking online courses	1. Yes	0. No
Looking up books or articles available at the library	1. Yes	0. No
Downloading online course material	1. Yes	0. No
Searching for information on graduation, post-graduation and extension courses	1. Yes	0. No
Searching for information on technical and distance learning courses	1. Yes	0. No
Other activities related to education	1. Yes	0. No
Colombia - Gran Encuesta Integrada de Hogares (GEIH) 2009 (Great Integrated Household Survey 2009)		
For which of the following services or activities did you use the Internet for in the last 12 months:		
Getting information	1. Yes	2. No
Communication	1. Yes	2. No
Purchasing/ordering products or services	1. Yes	2. No
E-banking and other financial services	1. Yes	2. No
Education and learning	1. Yes	2. No
Transactions with government organisms	1. Yes	2. No
Entertainment activities (Games, downloading music, etc)	1. Yes	2. No
Others	1. Yes	2. No
Chile – Encuesta de Caracterización Socioeconómica Nacional (CASEN) 2009 (National Survey of Socioeconomic Characterization 2009)		
Did you use the Internet in the last week for?* Multiple Choice		
Getting information		
Written communication (e-mail, chat)		
Voice communication		
Entertainment		
Did you use the Internet in the last three months for?* Multiple Choice		
E-commerce		
E-banking operations		
Formal education and training activities		
Online transactions with public institutions		

(CONTINUES)

TABLE 11 (CONTINUATION)

Costa Rica - Encuesta de Hogares de Propósitos Múltiples (EHPM) 2008 (<i>Multi Purpose Household Survey 2008</i>)		
In the last three months (name) did you use the Internet for...?		
... sending or receiving mails, calls, chat?	1. Yes	0. No
... studying or doing homework?	1. Yes	0. No
... searching general information, except for study purposes?	1. Yes	0. No
... entertainment, playing, music, magazines, newspapers?	1. Yes	0. No
... buying products or services?	1. Yes	0. No
... payments of receipts, loans, balance consulting and other bank transactions?	1. Yes	0. No
Ecuador - Encuesta de Empleo, Subempleo y Desempleo (ENEMDU) 2009 (<i>Survey on Employment, Subemployment and Unemployment 2009</i>)		
For which services / activities did you use (...) the Internet in the last 12 months (for private purposes)? *Maximum four response alternatives		
1. Getting information (products, services, etc., or general search in the Web)		
2. Communication in general		
3. Purchasing / ordering products or services		
4. E-banking and other financial services		
5. Education and learning		
6. Transactions with government organisms / public authorities		
7. Entertainment activities (Games, downloading games, videos)		
8. Downloading movies, music or software		
9. Reading / downloading e-books, newspapers, etc.		
10. For work reasons		
11. Others, specify		
Honduras - Encuesta Permanente de Hogares de Propósitos Múltiples (EPHPM) 2008 (<i>Permanent Multi Purpose Household Survey 2008</i>)		
For which reasons do you use the Internet?		
1. Domestic calls	1. Yes	2. No
2. International calls	1. Yes	2. No
3. Communication by e-mail or chat	1. Yes	2. No
4. Studying or doing homework	1. Yes	2. No
5. Searching for information, news, software, etc	1. Yes	2. No
6. Personal entertainment	1. Yes	2. No
7. Buying products and services	1. Yes	2. No
8. Others	1. Yes	2. No
Mexico - Encuesta Nacional sobre Disponibilidad y Uso de las Tecnologías de la Información en los Hogares (ENDUTIH) 2009 (<i>Survey on Availability and Use of the Information Technologies in Households 2009</i>)		
Please name the two main places and what for do you use the Internet in each place. *Two use activities in each one of the two main places of use.		
1. Getting information about goods and services		
2. Getting information related to health or health services		
3. Getting information from general government organizations		
4. Getting any type of general information		
5. Sending or receiving e-mail		
6. Having written conversations (chat)		
7. Supporting education and learning activities		
8. Obtaining or downloading official forms from government organizations		
9. Filling official forms in sites of government organizations in the web		

(CONTINUES)

TABLE 11 (CONTINUATION)

10. Playing or downloading videos		
11. Downloading movies, music or software		
12. Reading / downloading e-books, newspapers, or magazines		
13. Other entertainment activities		
14. Banking or financial services		
15. Others		
99. Do not know		
Nicaragua - Encuesta de Hogares para la Medición del Empleo Urbano y Rural 2006 (<i>Household Survey for Measuring Urban and Rural Employment 2006</i>)		
In the last 6 months (Name) did you use the Internet for....		
14. Sending or receiving mails, calls, chat?	1. Yes	2. No
15. Studying or doing homework?	1. Yes	2. No
16. Searching for general information, except for study purposes?	1. Yes	2. No
17. Entertainment, games, music, magazines, newspapers?	1. Yes	2. No
18. Payments of receipts, loans, balance consulting and other bank transactions?	1. Yes	2. No
19. Buying products or services?	1. Yes	2. No
20. Searching for information in the Government pages?	1. Yes	2. No
Panama - Encuesta de Propósitos Múltiples (EPM) 2008 (<i>Multi Purpose Survey 2008</i>)		
Have you used the Internet in the last 6 months for ...? (<i>Multiple choice</i>)		
Getting information (about products, services, health or other general type information)		
Communication (e-mail, chat, calls or others)		
Purchasing, selling or hiring goods and services		
E-banking operations		
Formal education or training activities		
Interaction with government organizations		
Entertainment activities		
Peru - Encuesta Nacional de Hogares (ENAH) 2009 (<i>National Household Survey 2009</i>)		
Did you use the Internet for...?		
1. Obtaining information?	1. Yes	2. No
2. Communicating (e-mail, chat, etc.)?	1. Yes	2. No
3. Purchasing products and/or services?	1. Yes	2. No
4. E-banking operations and other financial services?	1. Yes	2. No
5. Formal education and training activities?	1. Yes	2. No
6. Transactions (interaction) with government organizations /public authorities?	1. Yes	2. No
7. Entertainment activities? (video games, downloading movies, music, etc.)	1. Yes	2. No
ONLY IF IN ITEM 1 YOU CIRCLED CODE 1 "YES" ¿THE INFORMATION YOU GOT IS RELATED TO: (Accept one or more alternatives)		
1. Health or health services?		
2. Products and/or services?		
3. Government organizations or political authorities?		
4. Other type of information or search in Web sites?		

(CONTINUES)

TABLE 11 (CONTINUATION)

Paraguay - Encuesta Permanente de Hogares (EPH) 2009 (<i>Permanent Household Survey 2009</i>)		
In the last 3 months, what did you use the Internet for most frequently?		
1. Communication		
Obtaining information about:		
2. Products and services		
3. Health and health services		
4. Other information		
5. Purchasing products or services		
6. Education and learning		
Entertainment Activities:		
7. Reading newspapers, magazines		
8. Playing/downloading games, videos, movies		
9. Other activities		
10. Others (specify)		
Dominican Republic - Encuesta Nacional de Hogares de propósitos múltiples (ENHOGAR) 2007 (<i>National Multi Purpose Household Survey 2007</i>)		
For which of the following activities did you use the Internet in the last 12 months?		
a. To get information about goods and services?	1. Yes	2. No
b. To get information about health, illnesses or health services?	1. Yes	2. No
c. To get information from government organizations or public authorities?	1. Yes	2. No
d. To buy products including music and other goods (except investment products, shares' selling)	1. Yes	2. No
e. For e-banking or other financial services?	1. Yes	2. No
f. For doing homework, education or learning activities?	1. Yes	2. No
g. To communicate with government organizations or public authorities, for example downloading statements or application forms, completing forms, online payments, purchasing something from the government?	1. Yes	2. No
h. To download software (computer programs)?	1. Yes	2. No
i. To read or download e-books, newspapers or magazines?	1. Yes	2. No
j. For other entertainment activities; such as lottery, listening to the radio or watch TV?	1. Yes	2. No
k. To make and receive long distance calls using IP telephony?	1. Yes	2. No
l. To communicate using chats or instant messaging?	1. Yes	2. No
m. To play or download videogames or computer games?	1. Yes	2. No
n. To watch or download movies?	1. Yes	2. No
x Others	1. Yes	2. No
Trinidad & Tabago - Survey of households to measure the digital divide 2007		
What do you use the Internet for? <i>Check all applicable reasons.</i>		
E- mail	Chat sites, bulletin boards	
Internet phone	Entertainment – (music, games, radio, video)	
Searching for information - Education	Searching for information - medical/health	
Searching for information – employment	Searching for information – Travel	
Buying goods & services	Government dealings (tax, forms, etc.)	
Other		
Uruguay - Encuesta Continua de Hogares (ECH) 2009 (<i>Continuous Household Survey 2009</i>)		
What did you use the Internet for in the last month?		
Communication	1. Yes	2. No
Searching for information	1. Yes	2. No
Education and learning	1. Yes	2. No

(CONTINUES)

TABLE 11 (CONCLUSION)

Purchasing/ordering products or services	1. Yes	2. No
E-banking and other financial services	1. Yes	2. No
Transactions	1. Yes	2. No
Entertainments (games, downloading music or movies, etc.)	1. Yes	2. No

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

2.5.3 Interview and data collection methodologies

All the household surveys for which there is information available, used the face-to-face interview. Among the main advantages of this collection system are the high response rates, the possibility of explaining the technical terms and checking of responses by the interviewer; and among the disadvantages are the economical costs and the time it takes to carry out the personal interviews (UIT, 2009).

Additionally, the main collection instruments used in the household surveys of the countries of the region, according to the reports of the NSOs, are the following: i) Collection through printed questionnaires and afterwards magnetic capture of the collected data, ii) Collection through printed questionnaires and optical reading of the answers to the questionnaire, iii) Use of mobile data capture devices, where the answers of the respondent are saved directly in a digital device.

Particularly, it should be noted that in the last five years the Mobile Data Capture devices (MDC) have gained popularity for collecting statistical data from censuses or surveys. This proves that there has been a great change in the past decades, when printed questionnaires were almost universal. Box 3 illustrates some general features of the application of MDC, taking as an example some of the household surveys conducted in Colombia, Brazil and Uruguay.

BOX 3 COLOMBIA, BRAZIL Y URUGUAY: INTERVIEW METHODOLOGIES USED IN HOUSEHOLD SURVEYS ^a

Colombia: Gran Encuesta Integrada de Hogares (GEIH) 2008 (*Great Integrated Household Survey 2008*)

Data is collected through direct interviews. The data capture is done by means of Mobile Data Capture Devices (MDC), the use of digital technology allows saving biodegradable resources such as paper, and it does not require data transcription and provides an infrastructure of equipments that are possible to use in the future

Brazil: Census 2007 – Survey on the Use of Information and Communication Technologies 2007 (*Survey on the Use of Information and Communication Technologies 2007*)

In Brazil, where data had already been collected by means of hand-held computers in the Census 2000, in 2001 they incorporated the PDA in the collection of the *monthly survey on employment level* and it was decided to use the same technology during the Census 2007, where they included a *Population Count*, the *Agricultural Census* and the *National Address Register* for statistical purposes. In the Survey on the Use of Information and Communication Technologies of 2007 it was also decided to use the same technology and they made use of the same PDAs that were used in the last census

Uruguay: Encuesta Continua de Hogares (ECH) 2006 (*Continuous Household Survey 2006*)

In the *continuous household survey* of 2006 in Uruguay, the interview was made through personal visits in the home, in the case of Montevideo with hand-held equipment (pocket pc), and inland, the interviewer filled the form by writing. The PDAs were already used in the data collection for the consumer price index (CPI)

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a The names of the surveys that are not in English are presented both in the original language and in English translation.

2.5.4 Reference period of the questions on use

The reference period of the questions on individual use of ICT is one of the issues that have generated more discussion in the regional implementation of the questions. The Partnership (2010) recommends collecting data on ICT use in the last 12 months. However, the ICT information requirement at a national level implies, in many countries of the region, to use different reference periods in the formulation of the questions.

As can be seen in Table 12, most countries of the region do not use the reference period of 12 months. Some countries collect data on use in the last six months, others use as a reference period the last three months and some have reference periods of less than three months (a month or at the time of the survey), or they simply do not use a reference period to identify the users of ICT. In order to solve this problem, the recommendation of the working group on ICT of the SCA is to inquire about different reference periods, so that it is possible to identify both the ICT users in the last twelve months and the ICT users in the reference period that meet the national requirements.

The last twelve months is used as a reference period for the questions on use in: the Great Integrated Household Survey (GEIH) from Colombia (2009); the National Survey of Occupation and Household Economic Situation (ENO) from Cuba (2007); the Survey of Employment, Subemployment and Unemployment (ENEMDU) of Ecuador (2009), and the National Multi Purpose Household Survey (ENHOGAR) from Dominican Republic (2007).

The last six months is used as a reference period for the questions on use in: the Household Survey for Measuring Urban and Rural Employment (Employment Survey) from Nicaragua (2006); and the Multi Purpose Survey (EPM) from Panama (2008).

The last three months is used as a reference period for the questions on use in: the Brazilian Survey on Information and Communication Technologies (2008), conducted by the Brazilian Internet Steering Committee (CGI.br); the Multi Purpose Household Survey (EHPM) from El Salvador (2008); the Permanent Household Survey (EPH) from Paraguay (2008) and the Multi Purpose Household Survey (EHPM) from Costa Rica (2008).

In the case of the National Survey of Socioeconomic Characterization (CASEN) from Chile (2009), it is specifically asked: “Where do you use the Internet most frequently?”, “Did you use the Internet in the last week for?” (getting information, written communication, voice communication, entertainment) and “Did you use the Internet in the last 3 months for?” (e-commerce, e-banking operations, formal education and training activities, online transactions with public institutions).

In the Permanent Multi Purpose Household Survey (EHPM) from Honduras (2008) the question refers to the use of a computer in the month previous to the survey; and the Internet use and phone calls via Internet is for the last twelve months. Concerning the other questions, the reference period is three months.

In Mexico, the Survey on Availability and Use of the Information Technologies in the Households (ENDUTIH) (2009) asks on the use at the moment of the survey.

In Peru, the National Household Survey (ENAHU) (2009) asks on the ICT use on the day of the interview and the month previous to the survey. Likewise the Continuous Household Survey (2009) of Uruguay asked on the ICT use on the last month.

TABLE 12
LATIN AMERICA AND THE CARIBBEAN: REFERENCE PERIODS FOR
QUESTIONS ON ICT USE IN HOUSEHOLD SURVEYS^a

Country-Survey	Reference period questions on use (core indicators)
Antigua and Barbuda: National ICT Household Survey	12 months
Brazil IBGE: Pesquisa Suplementar sobre Acesso a Internet da Pesquisa Nacional por Amostra de Domicílios (PNAD) (<i>Supplement Survey on Internet Access of National Household Sample Survey</i>)	Internet use: 3 months. Personal use of mobile cellular telephone: moment of the survey
Brazil CGIB: Pesquisa sobre o Uso das Tecnologias da Informação e da Comunicação (<i>Survey on the Use of Information and Communication Technologies</i>)	Last 3 months
Chile: Encuesta de Caracterización Socioeconómica Nacional (CASEN) 2009 (<i>National Socioeconomic Characterization Survey</i>)	Frequent use for location of the Internet use: Last week for getting information, written communication, voice communication, entertainment Last 3 months for e-commerce, e-banking operations, formal education and training activities, online transactions with public institutions
Colombia: Gran Encuesta Integrada de Hogares (GEIH) (<i>Great Integrated Household Survey</i>)	Last 12 months
Costa Rica: Encuesta de Hogares de Propósitos Múltiples (EHPM) (<i>Multi Purpose Household Survey</i>)	In 2005: Last 12 months In 2008: Last 3 months
Cuba: Encuesta Nacional de Ocupación y Situación Económica de los hogares (ENO) (<i>National Survey of Occupation and Household Economic Situation</i>)	In 2006: month before In 2007: previous 12 months
Dominica: Survey of Living Conditions and Household Expenditure and Income	12 months
Ecuador: Encuesta de Condiciones de Vida (ENCOVI) (<i>Survey of Living Conditions</i>)	Last week
Ecuador: Encuesta de Empleo, Subempleo y Desempleo (ENEMDU) 2009 (<i>Survey of Employment, Subemployment and Unemployment</i>)	12 months
El Salvador: Encuesta de Hogares de Propósitos Múltiples (EHPM) (<i>Multi Purpose Household Survey</i>)	Last 3 months
Honduras: Encuesta Permanente de Hogares de Propósitos Múltiples (EPHPM) (<i>Permanent Multi Purpose Household Survey</i>)	Last 12 months (access to Internet and communication) Last 3 months (other questions)
Cayman Islands: Survey of Living Conditions	Moment of the survey
Mexico: Encuesta Nacional sobre Disponibilidad y Uso de las Tecnologías de la Información en los Hogares (ENDUTIH) (<i>Survey on Availability and Use of the Information Technologies in Households</i>)	Moment of the survey

(CONTINUES)

TABLE 12 (CONTINUATION)

Nicaragua:	
Encuesta de Hogares para la Medición del Empleo Urbano y Rural (<i>Household Survey for Measuring Urban and Rural Employment</i>)	Last 6 months
Panama:	
Encuesta de propósitos múltiples (EPM) (<i>Multi Purpose Survey</i>)	Last 6 months
Paraguay:	
Encuesta Permanente de Hogares (EPH) (<i>Permanent Household Survey</i>)	Last 3 months
Peru:	
Encuesta Nacional de Hogares (ENAHO) (<i>National Household Survey</i>)	Day of the interview and month before
Saint Lucia:	
Survey of living conditions and household budgets	Last 12 months
Dominican Republic:	
Encuesta Nacional de Hogares de propósitos múltiples (ENHOGAR) (<i>National Multi Purpose Household Survey</i>)	Last 12 months
Trinidad & Tabago:	
Survey of households to measure the digital divide	Moment of the survey
Uruguay:	
Encuesta Continua de Hogares (ECH) (<i>Continuous Household Survey</i>)	2006 and 2008: Last 6 months 2009: Last month

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

2.5.5 Respondents and target population of the questions on ICT use

The choice of the respondent and the identification of the target population of the questions on ICT use are two key issues if we aim at collecting data that responds adequately to the questions formulated by researchers and policy-makers. The inappropriate choice of the respondent can negatively affect the quality of the collected data. Likewise, the wrong identification of the target population of the questions can make impossible the analysis for subpopulations that are of interest at a public policies level.

In the household surveys of the region, the respondent that answers the questions on ICT use is usually the same that answers the rest of the survey. Nevertheless, if that person does not know the information, it is normally accepted the help of another person, someone who knows more about the subject and is also a member of the household or by any member of the household that is physically present at the moment of the survey. Ideally, the best is to obtain the information by the same person that is being interviewed.

Furthermore, for monitoring the national policies, the target population of the questions on ICT use varies according to the data requirements of each country. When the NSOs design the questions, they establish a minimum age to answer the questions on ICT use. For example, in some surveys, the individuals must be 5 years and over in order to answer the questions on ICT use; in other surveys, the individuals must be 10 years and over; and in other surveys the individuals must be 12 years and over in order to answer the questions.

The Partnership (2010) recommends that the target population of the questions includes, at least, the individuals between 15 and 74 years old. This, of course, does not imply that the questions are directed towards collecting data on this age group only. For example, if a country inquires about the ICT use in individuals who are 5 years and over, the data collected follows the line of the Partnership's recommendation, because the population between 15 and 74 years old is a subpopulation of the target population of the questions on use.

Table 13 presents a summary of the target populations and respondents of the questions on ICT use in the surveys of the countries of the region.

The target population of the questions on ICT use, in the surveys of Chile, Colombia, Ecuador and Honduras, corresponds to the individuals who are 5 years old and over.

In the case of Costa Rica, the questions on Internet use are for individuals who are 5 years old and over and those on mobile cellular telephone use for individuals that are 10 years old and over.

The household surveys of Mexico, Peru and Uruguay inquire about the ICT use of individuals who are 6 years old and over.

In the survey of Nicaragua, the questions on use are aimed at getting information on the ICT use of individuals who are 7 years old and over.

The target population of the questions on ICT use in the surveys of Brazil, El Salvador, Panama and Paraguay corresponds to individuals who are 10 years old and over.

In the household surveys of Ecuador and Dominican Republic it is inquired about the ICT use by individuals who are 12 years old and over.

In the case of Cuba, the questions on the use of computers are for individuals who are 6 years old and over. The rest of the questions are directed towards collecting information on the use ICT by individuals who are 12 years old and over.

TABLE 13
LATIN AMERICA: TARGET POPULATION AND RESPONDENTS IN QUESTIONS ON INTERNET USE IN HOUSEHOLD SURVEYS^a

Country, survey and year	Target population for the questions on ICT use	Respondent
Brazil IBGE Pesquisa Suplementar sobre Acesso a Internet da Pesquisa Nacional por Amostra de Domicílios (PNAD) 2005 and 2008 (<i>Supplement Survey on Internet Access of National Household Sample Survey 2005 and 2008</i>)	Persons who are 10 years old and over	One respondent (the most eligible according to the criterion of the interviewer, subject to briefing)
Brazil CGIB Pesquisa sobre o Uso das Tecnologias da Informação e da Comunicação 2005-2009 (<i>Survey on the Use of Information and Communication Technologies 2005-2009</i>)	Persons who are 10 years old and over	The person of the household that fulfils the requirements of the preselected profile
Chile: Encuesta de Caracterización Socioeconómica Nacional (CASEN) 2006 and 2009 (<i>National Socioeconomic Characterization Survey 2006 and 2009</i>)	Persons who are 5 years old and over	Head of the household or spouse, and if none of them is present, any member of the household over 18 years old

(CONTINUES)

TABLE 13 (CONTINUATION)

Colombia: Gran Encuesta Integrada de Hogares (GEIH) 2007-2009 (<i>Great Integrated Household Survey 2007 to 2009</i>)	Persons who are 5 years old and over	Direct respondent for persons who are 18 years old and over, and for those who are between 10 and 17 who are working or looking for a job. For the rest, an eligible respondent is accepted
Costa Rica: Encuesta de Hogares de Propósitos Múltiples (EHPM) 2005 and 2008 (<i>Multi Purpose Household Survey 2005 and 2008</i>)	Persons who are 5 years old and over (Internet use). People 10 years old and over (mobile cellular phone)	Member of the household older than 15, who knows the information of the other members. If the “self-respondent” person is home at the moment of the interview, he/she gives its own information
Cuba: Encuesta Nacional de Ocupación y Situación Económica de los hogares (ENO) 2006 and 2007 (<i>National Survey of Occupation and Household Economic Situation 2006 and 2007</i>)	Persons who are 6 years old and over (use of computers). Persons who are 12 years old and over (other questions)	In 2006: questions are answered by the person who is at home and responds for all the members of the household. The respondent only reports the number of persons in the household and no individual data is known In 2007, the questions were answered individually, by the persons themselves or by the respondent responsible for answering the survey
Ecuador: Encuesta de Condiciones de Vida (ENCOVI) 2006 (<i>Survey of Living Conditions 2006</i>)	Persons who are 12 years old and over	Direct interview to each individual of the household who is 12 years old and over, or to the most eligible in the case of minors
Ecuador: Encuesta de Empleo, Subempleo y Desempleo (ENEMDU) 2008 and 2009 (<i>Survey of Employment, Subemployment and Unemployment 2008 and 2009</i>)	Persons who are 5 years old and over	Direct interview to each person of the household. For those who are 15 years old and over, a direct respondent is used. It should be noted that the ENEMDU collects information from 5 years old
El Salvador: Encuesta de Hogares de Propósitos Múltiples (EHPM) 2005-2009 (<i>Multi Purpose Household Survey 2005 to 2009</i>)	Persons who are 10 years old and over	One respondent: the head of the household
Honduras: Encuesta Permanente de Hogares de Propósitos Múltiples (EPHPM) 2005-2008 (<i>Permanent Multi Purpose Household Survey 2005 to 2008</i>)	Persons who are 5 years old and over	If present, the respondent is the person whose characteristics are being inquired; otherwise, one should look for an eligible respondent who is head of the household, the spouse or a person who is 15 years old or over and member of the household
Mexico: Encuesta Nacional sobre Disponibilidad y Uso de las Tecnologías de la Información en los Hogares (ENDUTIH) 2005-2009 (<i>Survey on Availability and Use of the Information Technologies in Households 2005 to 2009</i>)	Persons who are 6 years old and over	Older than 18 who knows the information and whose birthday is the nearest to the mapping date. If the selected respondent does not know about ICT, he/she can look for help with any other member of the household who knows the information that is being asked, preferably an ICT user

(CONTINUES)

TABLE 11 (CONTINUATION)

Nicaragua: Encuesta de Hogares para la Medición del Empleo Urbano y Rural 2006 (<i>Household Survey for Measuring Urban and Rural Employment 2006</i>)	Persons who are 7 years old and over	Direct interviews to each person member of the household who is 10 years and over. The questions are being asked to all persons who are regular residents of the home
Panama: Encuesta de Propósitos Múltiples (EPM) 2008 (<i>Multi Purpose Survey 2008</i>)	Persons who are 10 years old and over	Each member of the household who is 10 years old and over
Paraguay: Encuesta Permanente de Hogares (EPH) 2005-2009 (<i>Permanent Household Survey 2005 to 2009</i>)	Persons who are 10 years old and over	15 years old and over, direct interview. Less than 15 years old, answers the head of the household
Peru: Encuesta Nacional de Hogares (ENAHO) 2007- 2009 (<i>National Household Survey 2007 to 2009</i>)	Persons who are 6 years old and over	Head of the household, housewives, perceivers, persons who are 12 years old and over (depending on section)
Dominican Republic: Encuesta Nacional de Hogares de propósitos múltiples (ENHOGAR) 2005 and 2007 (<i>National Multi Purpose Household Survey 2005 and 2007</i>)	Persons who are 12 years old and over	A person among those who are 12 years old or more is chosen at random
Uruguay: Encuesta Continua de Hogares (ECH) 2006, 2008 and 2009 (<i>Continuous Household Survey 2006, 2008 and 2009</i>)	Persons who are 6 years old and over	The person of the household who knows more than the rest

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

2.5.6 Sampling methodology and sampling frame

The development of a sampling plan and a sampling methodology are activities of crucial importance in the framework of the implementation of a household survey. This is so, because these activities provide statistical support for carrying out the estimations at the population level. Moreover, these two subjects are not of the exclusive interest of the implementation of ICT questions, they are rather transversal to all the thematic areas included in the household surveys.

In the case of the countries of Latin America and the Caribbean, the implementation of sample surveys has benefited from the work performed in the framework of the project Program for the Improvement of Surveys and the Measurement of Living Conditions in Latin America and the Caribbean (MECOVI), where the

ECLAC has worked together with the Inter-American Development Bank (IDB) and the World Bank⁹. Likewise, at a global level, the United Nations Statistical Division has been in charge of the main publications concerning the design and processing of household sample surveys, among which we can point out: *Household Sample Surveys in Developing and Transition Countries* (United Nations, 2005) and *Designing Household Survey Samples: Practical Guidelines* (United Nations, 2005).

Table 14 presents a summary of the sampling methodologies used in the household surveys of the region, which rely on information about access and use of ICT, on the basis of the data reported by the countries. It should be noted that, in general, the design of the sample of the household surveys in the countries of the region shows a national coverage, but with different geographic disaggregation levels. And sometimes, the design enables estimations at the level of large regions, metropolitan areas or big cities. The confidence level achieved is generally of 95% and the sampling error usually varies between 1% and 10%. Similarly, most of the household surveys use multi-stage stratified sample designs; these stages and strata are defined by each country, according to their own criteria and information requirements.

TABLE 14
LATIN AMERICA: SUMMARY OF SAMPLING METHODOLOGY AND SAMPLING FRAME IN HOUSEHOLD SURVEYS^a

Country, survey and year	Sample design	Sample coverage	Sample size	Confidence level and sampling error
Brazil CGI.br: Pesquisa sobre o Uso das Tecnologias da Informação e da Comunicação 2007 (<i>Survey on the Use of Information and Communication Technologies 2007</i>)	Systematic, stratified cluster sampling, multi-stage, with quotas established in the last stage	National and regional	17,000 households	Confidence: 95% Error: 0.8% National 2% Regional
Chile: Encuesta de Caracterización Socioeconómica Nacional (CASEN) 2006 (<i>National Socioeconomic Characterization Survey 2006</i>)	Stratified, two-stage cluster (sections) sampling. The stratification is made on a geographical basis	National (urban-rural), regional (urban-rural), provincial and for 335 self-represented communes	35,000 dwellings	Confidence: 95% and Error: 5%
Colombia: Gran Encuesta Integrada de Hogares (GEIH) 2008 (<i>Great Integrated Household Survey 2008</i>)	2008-III: representativity: 24 main cities with their metropolitan areas; 2008-IV: representativity: 24 main cities with their metropolitan areas and rural area	The data of the annual sample are representative at a national level, for 5 regions, capital and rest and 24 main cities with their metropolitan areas	Approximate monthly sample size: 20,669 households	Error: 5%, confidence level: 95%

(CONTINUES)

⁹ More information on the Program for the Improvement of Surveys and the Measurement of Living Conditions in Latin America and the Caribbean (MECOVI) of the ECLAC in the Internet in: <http://www.eclac.cl/deype/mecovi/index.htm>

TABLE 14 (CONTINUATION)

Costa Rica: Encuesta de Hogares de Propósitos Múltiples (EHPM) 2008 (<i>Multi Purpose Household Survey 2008</i>)	Stratified, two-stage, probabilistic design of the areas	National	14,955 dwellings	Error: 1% and confidence level: 95%
Cuba: Encuesta Nacional de Ocupación y Situación Económica de los hogares (ENO) 2007 (<i>National Survey of Occupations and Household Economic Situation 2007</i>)	The design corresponds to a probabilistic sampling named Stratified, Three-stage Cluster Sampling, with stratification of the primary units. The strata were composed of the provinces and within them the townships, urban and rural side	National	60,000 households	Error: 5%, confidence level: 95%
Ecuador: Encuesta de Empleo, Subempleo y Desempleo (ENEMDU) 2008 (<i>Survey of Employment, Subemployment and Unemployment 2008</i>)	The sample design was on the basis of the 6 th Population Census and 5 th Housing Census of 2001, from which a master sample was selected for the household surveys, from which a subsample was selected for the ENEMDU. Probabilistic, three- stage sampling: the primary sampling units (PSU) were selected with probability proportional to the size. In stage two, a sector was selected at random within each PSU, and in stage three, dwellings were selected at random within each sector	National, urban and rural, provincial	1,685 sectors, 20,220 dwellings	Not available
El Salvador: Encuesta de Hogares de Propósitos Múltiples (EHPM) 2008 (<i>Multi Purpose Household Survey 2008</i>)	Stratified, two-stage, cluster sampling, with probability proportional to the size. Systematic sampling in the second stage	National, with valid estimations at the level of the 14 departments and the 50 main self-represented townships	17,376 dwellings	Confidence: 95%
Honduras: Encuesta Permanente de Hogares de Propósitos Múltiples (EHPM) 2008 (<i>Permanent Multi Purpose Household Survey 2008</i>)	The sampling frame is composed of the 1,436,978 dwellings registered in the Pre- Census (1999) of the Population and Housing National Census 2001; the frame was divided in four study areas or domains: Central District, San Pedro Sula, Rest Urban and Rural. The type of sampling used is probabilistic, stratified and two- stage. In the first stage, the PSU are selected and the last selection units – compact groups or SSU – were selected in the second one	All the country's departments, except Islas de la Bahía and Gracias a Dios	21,490 dwellings	Absolute error of 10% and a confidence level of 95%

(CONTINUES)

TABLE 14 (CONTINUATION)

<p>Mexico: Encuesta Nacional sobre Disponibilidad y Uso de las Tecnologías de la Información en los Hogares (ENDUTIH) 2008 (<i>Survey on Availability and Use of Information Technologies in Households 2008</i>)</p>	<p>Two-stage, stratified cluster sampling, where the ultimate selection unit is the dwelling and the observation unit is the household</p>	<p>National</p>	<p>7,000 dwellings</p>	<p>Confidence: 95% Error: 8.6%</p>
<p>Nicaragua: Encuesta de Hogares para la Medición del Empleo Urbano y Rural 2006 (<i>Household Survey for Measuring Urban and Rural Employment 2006</i>)</p>	<p>Area, probabilistic, stratified, multi-stage sample. The selection applied a random two-stage sampling method, where the same selection probability was assigned to each stage. The first stage units are dwelling clusters delimited by segments and the dwellings constitute the final sampling unit</p>	<p>The population being studied is composed of the households in the urban and rural areas of the country, it is denominated target population</p>	<p>7,540 dwellings</p>	<p>95% confidence level</p>
<p>Panama: Encuesta de Propósitos Múltiples (EPM) 2008 (<i>Multi Purpose Survey 2008</i>)</p>	<p>For the urban area, a two-stage sampling design was used, where half of the dwellings of the PSU are selected in the second stage. In the province of Darién, the urban sample was selected in one stage only. In the rural area, the sampling design is single-stage, where all dwellings within each PSU are selected. The native sample corresponds to the same sampling design</p>	<p>National, urban and rural, districts of Panama and San Miguelito, rest of the province of Panama and West Panama</p>	<p>15,400 dwellings approximately</p>	<p>Confidence: 95%, error level between 3% and 4%</p>
<p>Paraguay: Encuesta Permanente de Hogares (EPH) 2008 (<i>Permanent Household Survey 2008</i>)</p>	<p>The sampling design corresponds to a probabilistic cluster designs with probability proportional to the size, two-stage and stratified in the first stage</p>	<p>National, with strata divides as follows: Asunción and the departments of San Pedro, Caaguazú, Itapúa, Alto Paraná, Central, plus Rest Urban and Rural</p>	<p>6,000 dwellings</p>	<p>Confidence: 95%</p>
<p>Peru: Encuesta Nacional de Hogares (ENAH) 2007 (<i>National Household Survey 2007</i>)</p>	<p>Area, probabilistic, stratified, multi-stage, independent sample in each studied department</p>	<p>The survey is being done at the national level, in the urban and rural area, in the 24 departments of the country and in the Provincia Constitucional del Callao</p>	<p>22,640 dwellings</p>	<p>The confidence level of the sampling outputs is of 95%</p>

(CONTINUES)

TABLE 14 (CONCLUSION)

Dominican Republic: Encuesta Nacional de Hogares de propósitos múltiples (ENHOGAR) 2007 (<i>National Multi Purpose Household Survey 2007</i>)	Three-stage, stratified design. The first stage with systematic strata sampling in each province. In the second stage, dwellings were selected and in the third one, the individuals	98.3% of the inhabitants. National level coverage, urban total, city of Santo Domingo, other cities of 100 thousand and more inhabitants, rest urban and total rural. For some variables, it is possible to make implications at a provincial level. It excludes minor islands and areas with less than 20 dwellings (1.7%)	Theoretical: 14,000 households Effective: 12,670 households	Confidence level: 95% and sampling error of 10%
Uruguay: Encuesta Continua de Hogares (ECH) 2008 (<i>Continuous Household Survey 2008</i>)	Two-stage design with optimum allocation. Random, stratified, cluster sampling	National: urban and rural area	50,411 households	Confidence: 95%, Error: 1%

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

2.5.7 Variables for describing the access and use of ICT

The household surveys of the region generally include information on various subjects and for different purposes. These variables may be useful for describing the access and use of ICT at the households' level and for individuals. Some of the variables normally included in the questionnaires are the following: gender and age of the persons, income of individuals and households, characteristics of the dwellings, occupations and activity sector of individuals, education level of the persons, among other subjects.

Box 4 illustrates some of the main variables used for describing the access and use of ICT. This time, the examples of Costa Rica, El Salvador and Mexico were considered.

BOX 4

COSTA RICA, EL SALVADOR Y MÉXICO: VARIABLES FOR DESCRIBING THE ACCESS AND USE OF ICT IN HOUSEHOLD SURVEYS^a

Costa Rica. Encuesta de Hogares de Propósitos Múltiples (EHPM) 2008 (Multi Purpose Household Survey 2008)

Characteristics of the dwellings: access to basic services, quality of the dwelling, ownership of the dwelling, possession of appliances

Personal: gender, age, nationality, instruction level, school attendance, type of educational institution (public and private), marital status, activity condition, poverty level, income quintile per capita of the household to which he/she belongs. For persons employed and non-employed with work experience: occupational group, activity sector, occupational category, institutional sector, working hours

The occupation classification corresponds to an adaptation for Costa Rica of ISCO-99 of the ILO

The classification of activity sector corresponds to an adaptation for Costa Rica of ISIC-Rev. 3 of the UN

El Salvador. Encuesta de Hogares de Propósitos Múltiples (EHPM) 2009 (Multi Purpose Household Survey 2009)

Relationship

Gender and age

Family status

Literacy, school attendance

Education level

Classification of economic activity sector ISIC-Rev. 3 and of occupations, ISCO-88

Mexico. Encuesta Nacional sobre Disponibilidad y Uso de las Tecnologías de la Información en los Hogares (ENDUTIH) 2009 (National Survey on Availability and Use of the Information Technologies in the Households 2009)

Considered in the socio-demographic questionnaire of the ENOE (National Survey on Occupation and Employment):

Locality, gender, age, instruction level, income, occupation activities

The economic activity sectors consider the north american industry classification system (naics); the occupation groups are on the basis of the mexican classification of occupations (cmo)

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a The names of the surveys that are not in English are presented both in the original language and in English translation.

2.5.8 ICT measurement frequency

The questions on ICT access are included in the questionnaires of most household surveys of the countries of the region, on a regular and annual basis. With regard to the questions on ICT use, the information is collected annually in most cases, and bi-annually and every three years in the rest of the countries that have incorporated to the process.

The countries that collect data on access and use annually, and sometimes every three months, are Brazil, Colombia, Costa Rica, Cuba, El Salvador, Honduras, Mexico, Panama, Paraguay and Peru.

In the case of Chile, the measurement of the access and use of ICT has been included in the Survey of Socioeconomic Characterization (CASEN) since 2000; this survey is conducted every three years.

In the case of Ecuador, in the Survey of Living Conditions (ECV) of 2006, questions were included on the individual use of Internet and mobile cellular telephone. Later on, the Survey of Employment, Subemployment and Unemployment (ENEMDU) of December 2008 and December 2009, included an exclusive section for the ICT subject.

In Nicaragua, the Household Survey for Measuring the Urban Rural Employment (Employment Survey) of 2006 incorporated a section on ICT.

In Dominican Republic, the Multi Purpose National Household Survey (ENHOGAR) is conducted annually. The questions on ICT access are also included annually and the questions on ICT use were included in 2005 and 2007.

In Uruguay, the Continuous Household Survey is conducted every three months. The questions on access to ICT are included regularly every three months, and the questions on individual use of ICT were included in 2006, 2008 and 2009.

TABLE 15
LATIN AMERICA: MEASURING FREQUENCY OF THE ICT
VARIABLES IN HOUSEHOLD SURVEYS ^a

Country - Survey	Measuring frequency of access core indicators	Measuring frequency of ICT use
Brazil IBGE: Pesquisa Suplementar sobre Acesso a Internet da Pesquisa Nacional por Amostra de Domicílios (PNAD) (<i>Supplement Survey on Internet Access of National Household Sample Survey</i>)	Annual	Three years
Brazil CGIB: Pesquisa sobre o Uso das Tecnologias da Informação e da Comunicação (<i>Survey on the Use of Information and Communication Technologies</i>)	Annual	Annual
Chile: Encuesta de Caracterización Socioeconómica Nacional (CASEN) (<i>National Socioeconomic Characterization Survey</i>)	Three years	Three years
Colombia: Gran Encuesta Integrada de Hogares (GEIH) (<i>Great Integrated Household Survey</i>)	Every three months	Every three months
Costa Rica: Encuesta de Hogares de Propósitos Múltiples (EHPM) (<i>Multi Purpose Household Survey</i>)	Annual	Annual (partial)
Cuba: Encuesta Nacional de Ocupación y Situación Económica de los hogares (ENO) (<i>National Survey of Occupation and Household Economic Situation</i>)	Annual	Annual
Ecuador: Encuesta de Condiciones de Vida (ENCOVI) (<i>Survey of Living Conditions</i>)	Only one year available	Only one year available
Ecuador: Encuesta de Empleo, Subempleo y Desempleo (ENEMDU) (<i>Survey of Employment, Subemployment and Unemployment</i>)	Annual	Annual
El Salvador: Encuesta de Hogares de Propósitos Múltiples (EHPM) (<i>Multi Purpose Household Survey</i>)	Annual	Annual
Honduras: Encuesta Permanente de Hogares de Propósitos Múltiples (EHPM) (<i>Permanent Multi Purpose Household Survey</i>)	Annual	Annual
Mexico: Encuesta Nacional sobre Disponibilidad y Uso de las Tecnologías de la Información en los Hogares (ENDUTIH) (<i>Survey on Availability and Use of Information Technologies in Households</i>)	Annual	Annual
Nicaragua: Encuesta de Hogares para la Medición del Empleo Urbano y Rural (<i>Household Survey for Measuring Urban and Rural Employment</i>)	Annual	Only one year available
Panama: Encuesta de propósitos múltiples (EPM) (<i>Multi Purpose Survey</i>)	Annual	Annual
Paraguay: Encuesta Permanente de Hogares (EPH) (<i>Permanent Household Survey</i>)	Annual	Annual

(CONTINUES)

TABLE 15 (CONTINUATION)

Peru: Encuesta Nacional de Hogares (ENAHO) (<i>National Household Survey</i>)	Every three months	Every three months
Dominican Republic: Encuesta Nacional de Hogares de propósitos múltiples (ENHOGAR) (<i>National Multi Purpose Household Survey</i>)	Annual	Every two years
Uruguay: Encuesta Continua de Hogares (ECH) (<i>Continuous Household Survey</i>)	Annual	Annual

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^aThe names of the surveys that are not in English are presented both in the original language and in English translation.

2.5.9 Cost and financing means of the survey or module

The cost of applying an ICT module or the marginal cost of a section with specific questions on ICT use varies according to the size of the module. As can be appreciated in Table 16, the countries that have incorporated more questions on the specific use of ICT in the last years are those who tend to have higher costs.

Likewise, the financing means are different for each country. Sometimes it is done with a regular budget and others, thanks to the support of other institutions. In this case, it is through agreements or alliances, or due to the direct interest of some institutions in financing those specific modules or sections on ICT.

TABLE 16
LATIN AMERICA: COSTS AND FINANCING MEANS OF HOUSEHOLD SURVEYS ^a

Name	Cost per interview	Cost of ICT Module	Financing means of the survey
Colombia: Gran Encuesta Integrada de Hogares (GEIH) 2008 (<i>Great Integrated Household Survey 2008</i>)	\$2,198 (US\$0.92 approx.)	\$17,576,709.31 (US\$7,385 approx.)	The ICT module is financed with the Budget of the GEIH
Costa Rica: Encuesta de Hogares de Propósitos Múltiples (EHPM) 2008 (<i>Multi Purpose Household Survey 2008</i>)	₡ 1,035 (US\$1.98) (considering estimation of contribution in kind)	(₡10,500,000 cash, plus provision of vehicles, drivers and their labour costs estimated in ₡4,000,000) (US\$20,104+ US\$7,659 of estimation of contribution in kind)	Regular Budget of the INEC (National Institute of Statistics and Census) – incorporation of the ICT module in agreement with the Instituto Costarricense de Electricidad (Electricity Institute of Costa Rica)
El Salvador: Encuesta de Hogares de Propósitos Múltiples (EHPM) 2007 (<i>Multi Purpose Household Survey 2007</i>)	US\$ 1.73	US\$ 30,000	Own funds
El Salvador: Encuesta de Hogares de Propósitos Múltiples (EHPM) 2008 (<i>Multi Purpose Household Survey 2008</i>)	US\$ 2.00	US\$ 34,752	Own funds
Honduras: Encuesta Permanente de Hogares de Propósitos Múltiples (EHPM) 2008 (<i>Permanent Multi Purpose Household Survey 2008</i>)	N.a	N.a	External funds
Mexico: Encuesta Nacional sobre Disponibilidad y Uso de las Tecnologías de la Información en los Hogares (ENDUTIH) 2007 (<i>Survey on Availability and Use of Information Technologies in Households 2007</i>)	MXN \$ 81.63 (US\$7.28 approx.)	MXN \$ 571,437.00 (US\$50,975.65 approx.)	The ENDUTIH module has been studied as an annex of regular surveys of the National Institute of Statistics and Geography (INEGI) (lately in the National Survey of Occupation and Employment - ENOE)

(CONTINUES)

TABLE 16 (CONTINUATION)

Mexico: Encuesta Nacional sobre Disponibilidad y Uso de las Tecnologías de la Información en los Hogares (ENDUTIH) 2008 (<i>Survey on Availability and Use of Information Technologies in Households 2008</i>)	MXN \$ 85.64 (US\$6.31 approx.)	MXN \$ 599,448.92 (US\$44,174.57 approx.)	The ENDUTIH module has been studied as an annex of regular surveys of the National Institute of Statistics and Geography (INEGI) (lately in the National Survey of Occupation and Employment - ENOE)
Nicaragua: Encuesta de Hogares para la Medición del Empleo Urbano y Rural 2006 (<i>Household Survey for Measuring Urban and Rural Employment 2006</i>)	N.a	US\$ 30,000	Institutions BCN, MITRAB, SETEC, INIDE
Panama: Encuesta de propósitos múltiples (EPM) 2008 (<i>Multi Purpose Survey 2008</i>)	N.a	N.a	Operational budget
Paraguay: Encuesta Permanente de Hogares (EPH) 2007 (<i>Permanent Household Survey 2007</i>)	The marginal cost is not estimated because there are a few extra questions included on the use of ICT; the basic questions on possession are part of the usual household survey		
Peru: Encuesta Nacional de Hogares (ENAH) 2007 (<i>National Household Survey 2007</i>)	55 dollars for approximately 426 questions of the questionnaire (US\$7.74 average)	There is no module of ICT questions	Resources from the Public Treasury – Government
Uruguay: Encuesta Nacional de Hogares Ampliada (ENHA) 2006 (<i>National Extended Household Survey 2006</i>)	US\$6.00		National resources assigned to the survey
Uruguay: Encuesta Continua de Hogares (ECH) 2008 (<i>Continuous Household Survey 2008</i>)	US\$6.00		National resources assigned to the survey

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a The names of the surveys that are not in English are presented both in the original language and in English translation.

2.5.10 Dissemination policies of the surveys' microdata

The NSOs of the region allow the access to the surveys' microdata in different ways and through different strategies:

- Some countries, within their web sites, provide free-access links to the microdata and metadata of the survey. That is to say that any on-line user may access free of costs to the complete information of the anonymized microdata.
- In other cases, the NSO allows the access to the microdata to a group of predefined users, but not to any user. This access can be via Internet or other media such as compact discs which are distributed to the main users of the data.
- In the rest of the cases, the NSO allows the access to the files but they may only be consulted within the facilities of a data center authorized by the NSO.

Furthermore, it should be noted that some countries do not give direct access to the databases, but rather to aggregated results, and studies and analysis on the basis of collected microdata. The aggregated data could be consulted through predefined tables or through on-line consulting systems.

Currently, there are microdata available for downloading, upon acceptance of a series of conditions of use, in the web sites of the National Statistical Offices of Argentina, Bolivia (Plurinational State of), Brazil, Chile, Ecuador, Honduras, Mexico, Nicaragua, Panama, Peru and Uruguay. However, the dissemination policies of the databases may vary over time and also between one survey and the other of the same NSO.

Likewise, Costa Rica and Dominican Republic have information systems available that allow online tabulations, where the user has no direct access to the microdata, but rather to the reports derived from them.

Table 17 presents a list of the web addresses of the main producers of ICT data, for the household surveys, of the countries of the region. In these links you may verify the dissemination policies regarding actual microdata. And even if it is not always explicitly indicated, in most cases it is mentioned that the microdata are available to the external users if that is the case. This access may be either online or for licensed consultation or consultation in the room.

TABLE 17
LATIN AMERICA AND THE CARIBBEAN: WEB ADDRESSES OF THE NATIONAL STATISTICAL OFFICES OR PRODUCERS OF ICT INFORMATION

Country	Name of the page	Web link
Argentina	Instituto Nacional de Estadística y Censos de la República Argentina -INDEC-	http://www.indec.mecon.gov.ar/
Bolivia (Plurinational State of)	Instituto Nacional de Estadística de Bolivia -INE-	http://www.ine.gov.bo/
Brazil	Instituto Brasileiro de Geografia e Estadística -IBGE-	http://www.ibge.gov.br
Brazil	Comite Gestor da Internet do Brasil	http://www.cgi.br/
Chile	Instituto Nacional de Estadísticas de Chile -INE-	http://www.ine.cl
Chile	Ministerio de Planificación -MIDEPLAN-	http://www.mideplan.cl
Colombia	Departamento Administrativo Nacional de Estadística -DANE-	www.dane.gov.co
Costa Rica	Instituto Nacional de Estadísticas y Censos -INEC-	http://www.inec.go.cr/
Cuba	Oficina Nacional de Estadísticas -ONE-	http://www.one.cu/
Ecuador	Instituto Nacional de Estadística y Censos – INEC-	http://www.inec.gov.ec
El Salvador	Ministerio de Economía -Dirección Nacional de Estadística y Censos -DIGESTYC-	http://www.digestyc.gob.sv/
Guatemala	Instituto Nacional de Estadística -INE-	http://www.ine.gob.gt
Honduras	Instituto Nacional de Estadística -INE-	http://www.ine-hn.org/
Mexico	Instituto Nacional de Estadística Geografía e Informática -INEGI-	http://www.inegi.gob.mx
Nicaragua	Instituto Nacional de Información de Desarrollo – INIDE-	http://www.inec.gob.ni/
Panama	Instituto Nacional de Estadística y Censo -INEC-	http://www.contraloria.gob.pa/inec/
Paraguay	Dirección General de Estadísticas, Encuestas y Censos -DGEEC-	http://www.dgeec.gov.py/
Peru	Instituto Nacional de Estadística e Informática -INEI-	http://www.inei.gob.pe/
Uruguay	Instituto Nacional de Estadística -INE-	http://www.ine.gub.uy/
Venezuela (Bolivarian Republic of)	Instituto Nacional de Estadística -INE-	http://www.ine.gov.ve/

(CONTINUES)

TABLE 17 (CONTINUATION)

Dominican Republic	Oficina Nacional de Estadística -ONE-	http://www.one.gob.do
Haiti	Institut Haïtien de Statistique et d'Informatique -IHSI	http://www.ihsi.ht/
Cayman Islands	Economics and Statistics Office of the Cayman Islands	http://www.eso.ky/
Jamaica	Statistical Institute of Jamaica -STATIN-	http://www.statinja.com/
Saint Lucia	Saint Lucia's Government Statistical Department	http://www.stats.gov.lc/
Trinidad & Tabago	Trinidad & Tabago's Central Statistical Office -CSO-	http://www.cso.gov.tt/

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

2.5.11 Publication and communication of the results

According to a survey to the NSOs in 2009, the main forms of publication of the ICT results, obtained through the national household surveys, are: own web site, institutional presentations, electronic bulletins, press news and printed bulletins. The survey's output is detailed, by country, in Table 18.

TABLE 18
LATIN AMERICA AND THE CARIBBEAN: PUBLICATION FORMS OF
THE ICT RESULTS IN HOUSEHOLD SURVEYS

Country	Own web site	Printed bulletins	Electronic bulletins	Press news	Institutional presentations
Brazil	x	x	x	x	x
Colombia	x		x	x	x
Costa Rica	x				x
Cuba	x	x	x		
Ecuador	x	x	x	x	x
El Salvador	x				x
Honduras		x	x		
Mexico	x			x	x
Nicaragua					
Panama	x			x	x
Paraguay	x	x			
Peru	x		x	x	x
Dominican Republic	x	x	x	x	x
Uruguay	x				
Total	12	6	7	7	9

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

2.5.12 Main findings of the countries' publications

Box 5 presents some of the main findings of the publications which analyze the access and use of ICT. As an example, the cases of Antigua and Barbuda, Brazil, Colombia, Cuba, Mexico and Peru, were taken into account¹⁰.

BOX 5

ANTIGUA Y BARBUDA, BRASIL, COLOMBIA, CUBA, MÉXICO AND PERÚ: MAIN FINDINGS OF THE COUNTRIES' PUBLICATIONS^a

Antigua and Barbuda. National ICT Household Survey 2008

- The proportion of households with mobile cellular telephone already exceeds the proportion of households with fixed telephone
- Less than 10% of the persons aged 50 and over used a computer the year before the survey
- Access to the Internet is mainly by individuals with secondary or tertiary education
- The places of most frequent use of the Internet are the home and the working place

Brazil. Pesquisa sobre o Uso das Tecnologias da Informação e da Comunicação 2007 (*Survey on the Use of Information and Communication Technologies 2007*)

- In 2007, computers were present in 24% of the Brazilian homes, an increase of four percentage points in relation to the year before
- Internet achieved 17% of the total Brazilian homes, which represents an increase of four percentage points in relation to the previous year. The access to Internet is still extremely associated to socioeconomic and regional factors, the higher the income, the higher the penetration in the homes
- The registered percentage of Brazilians over 10 years old that used the Internet was of 41%. Younger individuals, with higher schooling level and higher incomes, present more possibilities of accessing to the Internet
- This year, the Internet use increased in public centers with paid access; these became the main location for the access to Internet in Brazil, accounting for 49%. This means that half of the Brazilians navigate through the network in these centers

Colombia. Gran Encuesta Integrada de Hogares Abril-Julio de 2007 (*Great Integrated Household Survey April to July 2007*)

Some of the main results for the 13 cities and metropolitan areas were:

- 29.4% of the households have a computer. 17.1% of the households have access to the Internet
- 42.0% of the people who are 5 years and over used a computer (in any location) in the last 12 months. 32.6% of the people who are 5 years old and over used the Internet (in any location) in the last 12 months
- The locations most used by individuals who are 5 years and over to access the Internet were the public paid access centers (Internet café). 53.1% of the persons used them in the last 12 months

Cuba. Encuesta Nacional de Ocupación y Situación Económica de los Hogares 2007 (*National Survey of Occupations and Household Economic Situation 2007*)

- 33.2% of the target population (6 years old and over), which represented the sample of the persons that answered the ESIC, reported to have used a computer in the last 12 months
- The locations of computer use, reported by individuals, in order of importance were the following: study centers, work centers, Joven Club (youth center), post office, and households
- From the individuals that used a computer in the last 12 months and who are 15 years old and over, 40.4% has an occupation, and 34.3% is part of the non-economic active population (PNEA). Those who are less than 15 years old, therefore students, represent a 25.3%

Mexico. Encuesta Nacional sobre Disponibilidad y Uso de las Tecnologías de la Información en los Hogares (ENDUTIH) 2008 (*Survey on Availability and Use of Information Technologies in Households 2008*)

- A computer is available in one of four households only
- The presence at home of some of the studied technologies shows a significant lag. The availability of access to the Internet serves as an example, because only 13.5% is connected to the global network
- Almost half of the computer users are between 12 and 24 years old
- Most respondents, 43.5%, used the Internet as a helping resource for school homework or learning activities, which supports the importance of this media in the educational sector

(CONTINUES)

¹⁰ For a more detailed review, we recommend to visit the web site of the statistics producers of the countries.

BOX 5 (CONTINUATION)

Peru. Encuesta Nacional de Hogares. Third quarter 2008 (*National Household Survey 2008*)

- 28.9% of the country's households have a fixed telephone, 60.1% has a cellular phone and 9.5% has an Internet connection at home
- 89.0% of the total number of heads of the household with tertiary non-university education and 93.0% of the total number of heads of the household with university education have ICT within the home, in relation to a 46.4% of the total number of heads of the household with primary education and 74.6% of the total number of heads of the household with secondary education in a similar situation
- The population with access to the Internet, does it mainly, 68.5%, in public cabins, a percentage which is 5.6 percentage points less than the one reported in the same quarter of the year before (74.1%)
- 54.8% of the population who is 6 years old and over uses the Internet once a week and 29.4%, once a day

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of publications supplied by the National Statistical Offices.

^a The names of the surveys that are not in English are presented both in the original language and in English translation.

2.5.13 Users and uses of the information on ICT

The main users of ICT data, according to the reports of the NSOs, are: the government and international organisms, communication media and private sector, academic sector, and non-governmental organisms. The detail of the users of ICT data, by country, is presented in Table 19.

TABLE 19
LATIN AMERICA: MAIN USERS OF THE INFORMATION ON
ICT BASED IN HOUSEHOLD SURVEYS

Country	Government	Academic sector	Private sector	International organisms	Non-governmental organisms	Communication media
Brazil	X	X	X	X	X	X
Colombia	X	X	X	X		X
Costa Rica	X	X	X	X		X
Cuba	X	X		X	X	X
Ecuador	X	X	X	X	X	X
El Salvador	X		X	X	X	X
Honduras	X		X	X		X
Mexico	X	X	X	X		X
Nicaragua	X			X		
Panama	X	X	X	X	X	X
Paraguay	X		X	X	X	X
Peru	X		X	X	X	X
Dominican Republic	X	X	X	X		
Uruguay	X	X		X		
Total	14	9	11	14	7	11

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of publications supplied by the National Statistical Offices.

2.6 Formulation and calculation methodologies of the ICT indicators

The indicators of access and use of ICT are one of the main products of the harmonized measurement, because they constitute a set of important inputs for analyzing the progress of the information society.

In general terms, the indicators of access and use of ICT recommended by the Partnership (2010), correspond to ratios with values between 0 and 1 (between 0% and 100%), where values close to zero imply low levels of access in the households, or low use levels in individuals. And, similarly, values close to 100% imply high levels of connectivity for the indicators which refer to the households or high use levels for the indicators which refer to the individuals.

Box 6 presents a list of the use core indicators with its corresponding calculation strategy. It should be noted that these strategies are based on the recommendations by the Partnership (2010).

BOX 6 USE CORE INDICATORS AND CALCULATION STRATEGY

HH5 Proportion of individuals who use a computer

The proportion of individuals who used a computer is calculated by dividing the total number of individuals – between 15 and 74 years old – who used a computer from any location, by the total number of individuals between 15 and 74 years old

HH7 Proportion of individuals who use Internet

The proportion of individuals who used the Internet is calculated by dividing the total number of individuals – between 15 and 74 years old – who used the Internet from any location, by the total number of individuals between 15 and 74 years old

HH8 Location of Internet use

For measuring the location of Internet use there are two possible indicators depending on the base population:

- a) Proportion of Internet users - between 15 and 74 years old – who use Internet in each location (for example, the proportion of users who use the Internet at home, at work, etc.)

It is calculated by dividing the total number of users – between 15 and 74 years old – in each location by the total number of Internet users between 15 and 74 years old

- b) Proportion of individuals - between 15 and 74 years old – who use Internet at each location

It is calculated by dividing the total number of users – between 15 and 74 years old – in each location by the total number of individuals between 15 and 74 years old

HH9 Internet activities undertaken by individuals in the last 12 months

For measuring the Internet activities there are two possible indicators depending on the base population:

- a) Proportion of Internet users - between 15 and 74 years old – who undertake each type of activity from any location. For example, for communicating, interacting with public authorities, etc.

It is calculated by dividing the total number of users – between 15 and 74 years old – who undertake each type of activity from any location by the total number of Internet users between 15 and 74 years old

- b) Proportion of in-scope individuals - between 15 and 74 years old – who undertake each type of activity from any location

It is calculated by dividing the total number of users – between 15 and 74 years old – who undertake each type of activity from any location by the total number of individuals between 15 and 74 years old

HH10 Proportion of individuals who use mobile telephone

The proportion of individuals who use mobile cellular telephone is calculated by dividing the total number of individuals - between 15 and 74 years old – who use mobile telephone, by the total number of individuals between 15 and 74 years old

HH12 Frequency of the individual use of the Internet in the last 12 months (from any location)

Proportion of the individuals - between 15 and 74 years old – who use the Internet with each one of the frequencies considered: at least once a day; at least once a week, but not every day; at least once a month, but not every week; or less than once a month

It is calculated by dividing the total number of individuals - between 15 and 74 years old – who use the Internet with each one of the frequencies considered by the total number of users between 15 and 74 years old

Source: Partnership on Measuring ICT for Development (2010).

III. Measuring ICT use in business surveys

In the countries of Latin America and the Caribbean the information of the business surveys has been very important for the analysis of the development in terms of connectivity in the last ten years. Simultaneously, there has been a higher demand of statistical data on ICT use in the businesses mainly by the national governments, the education sector and the private sector. There are requirements for disaggregated outputs according to the business' size, economic activity sector and geographical area, among other aspects. Likewise, it is important to recognize that there are still challenges in terms of regional harmonization of the variables and indicators that are collected and analyzed at a national and local level.

The NSOs of the region generally incorporate questions on ICT in their regular manufacturing surveys, trade or services surveys, specific surveys on ICT use in the businesses, economic censuses, innovation surveys, and research and development surveys. These questions included by the NSO, which have joined the harmonized ICT measurement process, are based on the work performed, jointly, with the Partnership on Measuring ICT for Development, that recommends the adoption of a list of core ICT indicators in businesses, whose last edition was published at the 41st session of the United Nations Statistical Commission in February 2010. Nevertheless, it should be taken into account that the variables recommended, and collected by several countries of the region, aim at a basic definition of the ICT use in the businesses. In order to evaluate the impacts of the ICT incorporation in the productive and administrative processes of the businesses, there are additional indicators to be developed and implemented.

The priority and relevance of the ICT indicators in the businesses are constantly revised by the NSOs and other regional and extra regional actors involved in the harmonized ICT measurement process. It is recognized, however, that these indicators are a minimum set of parameters concerning the measurement process in this field, because there is a big need to study in depth other aspects such as ICT investment by the businesses, the perception of the ICT impacts of the persons employed in the businesses, the skills in the use of ICT by the persons employed in the businesses, among other subjects.

In accordance with the former, Chapter 3 of this Compendium is structured as follows: the first three sections review the twelve core ICT indicators in businesses by describing the definitions, the way of including them in the business surveys and the classification variables associated to these indicators. Finally, in the last three sections of this chapter, there is a summary with the main characteristics of the business surveys conducted in Antigua and Barbuda, Argentina, Brazil, Chile, Colombia, Cuba, Mexico, Panama, Peru, Dominican Republic, Trinidad & Tabago, and Uruguay.

3.1 Core indicators on ICT use by businesses

Box 7 presents a list of the core indicators recommended by the Partnership (2010) for measuring the ICT use in businesses, including the last modifications made and published at the 41st session of the United Nations Statistical Commission.

BOX 7 REVISED LIST OF CORE INDICATORS ON ICT USE BY BUSINESSES

- B1 Proportion of businesses using computers
- B2 Proportion of persons employed routinely using computers
- B3 Proportion of businesses using the Internet
- B4 Proportion of persons employed routinely using the Internet
- B5 Proportion of businesses with a web presence
- B6 Proportion of businesses with an intranet
- B7 Proportion of businesses receiving orders over the Internet
- B8 Proportion of businesses placing orders over the Internet
- B9 Proportion of businesses using the Internet by type of access:
 - Narrowband
 - Fixed broadband
 - Mobile broadband
- B10 Proportion of businesses with a local area network (LAN)
- B11 Proportion of businesses with an extranet
- B12 Proportion of businesses using the Internet by type of activity:
 - Sending or receiving e-mail
 - Telephoning over the Internet/VoIP
 - Posting information or instant messaging
 - Getting information about goods or services
 - Getting information from general government organizations
 - Interacting with general government organizations
 - Internet banking
 - Accessing other financial services
 - Providing customer services
 - Delivering products online
 - Internal or external recruitment
 - Staff training

Source: Partnership on Measuring ICT for Development, 2010.

The list of core indicators 2010 has made certain modifications in order to improve the precision and scope of the indicators, which are described below:

- The distinction between basic indicators and extended indicators has been eliminated. Additionally, in several countries of the region, the most important indicators, for answering research questions or policy questions, are the type of access to the Internet and the type of activities undertaken in the Internet by the businesses, which were considered extended indicators in the past.

- For indicators B2 and B4 it is suggested to consider as a base the total number of “persons employed”, which includes both the persons who work at the offices and the persons who work outside the offices. It includes those who have fixed-term and short-term contracts, casual workers, self-employed persons and contributing family workers who may be paid or unpaid. This definition is in accordance with the general outlines of the United Nations Conference on Trade and Development (UNCTAD) 2007 and the International Labour Organization (ILO).
- For indicator B9, the response categories of type of access to the Internet, were modified. The suggested categories are: “narrowband”, “fixed broadband” and “mobile broadband”. This update is due to the fact that the access to the Internet, both via broadband and mobile devices, has extended in the last three years, both globally and in the countries of the region. Thus, when presenting the categories in this way, it is possible to have a flexible proposal so that each NSO may incorporate the categories and/or subcategories considered necessary for the adequate measurement of the use of these technologies in the businesses.
- In relation to indicator B12, the following categories were introduced: “telephoning over the Internet/VoIP or use of video calls”; “use of instant messaging or discussion forums”; “Internet banking”; “access to other financial services”; “internal or external recruitment”; and “staff training”.
- Likewise, the following response categories were eliminated: “getting information” and “other information search or research activities”. The reason is that these responses lacked precision and had a low level of comparability among the countries.
- Finally, the indicator on proportion of businesses with a mobile telephone was excluded. Nevertheless, it is recommended that those countries, who esteem that the indicator is relevant, should include it in their studies.

3.2 Definition of the variable on ICT use in the businesses

This section of Chapter 3 presents the harmonized definition of each of the variables recommended by the Partnership (2010) for measuring the ICT use in the businesses. These definitions were used in the design of the questions included in the questionnaires of the business surveys, conducted by the National Statistical Offices (NSO) which joined the harmonized ICT measurement process. Therefore, it is recommended that these definitions are also used by the countries that join this process later on.

It should be noted that in the ICT measurement in the businesses, reference is made only to the use of ICT, not the access. It is generally assumed that ICT are used by some of the persons employed within the business. However, some variables and model questions are similar to those used in the measurement of the access to ICT in the households.

Furthermore, the recommended concept of business has been aligned with the System of National Accounts Rev. 2008, which describes it as follows: “An institutional unit as a producer of goods and services; an enterprise may refer to a corporation, a quasi-corporation, an NPI or an unincorporated enterprise”.

In view of the former considerations, Table 20 presents the definition of the ICT variables recommended by the Partnership (2010). The list has two types of variables: a group deals with the description of the ICT use by businesses, and another group pretends to size the number of persons employed that use ICT. Similarly, it can be noted that most of the recommended variables concentrate on the use of the computer and the use of the Internet; this is so, because these are the technologies with more possibilities of promoting productivity improvements through the transition to more complex applications.

TABLE 20
ANALYTIC DEFINITION OF THE VARIABLES OF ICT USE IN BUSINESSES

Variable	Definition	Associated indicator
Use of computer	Use of computers by businesses. A computer is a desktop or laptop. It does not include equipment with embedded computing abilities such as mobile telephones, TV sets or Personal Digital Assistants (PDA)	B1
Number of persons employed who use a computer	Number of persons employed who routinely use a computer for their activities within the business. A person employed refers to all persons working for the business and not only those working in clerical jobs. They include working owners and partners, short-term and casual employees, self-employed persons and contributing family members who may be paid or unpaid	B2
Use of the Internet	Internet use, considering the Internet as a worldwide public computer network, which provides access to a number of communication services, including the World Wide Web, and carries e-mail, news, entertainment and data files. Internet use may be facilitated by any device enabling Internet access (not only a computer). This includes a mobile phone, PDA, games machine and digital TV. Use can be via a fixed or mobile network	B3
Number of persons employed who use the Internet	Number of persons employed who routinely use the Internet for their activities within the business. A person employed refers to all persons working for the business and not only those working in clerical jobs. They include working owners and partners, short-term and casual employees, self-employed persons and contributing family members who may be paid or unpaid	B4
Web presence	A web presence includes a website, homepage or presence on another entity's website. It excludes inclusion in an online directory and any other web pages where the business does not have control over the content of the page	B5
Possession of Intranet	An intranet refers to an internal communications network using Internet protocols and allowing communication within an organization (and to other authorized persons). It is typically set up behind a firewall to control access	B6
Reception of orders over the Internet (sales)	Orders received include orders received via the Internet whether or not payment was made online. They include orders received via websites, specific Internet marketplaces, extranets, EDI over the Internet, Internet-enabled mobile phones and e-mail. They also include orders received over the Internet on behalf of other organizations – and orders received over the Internet by other organizations on behalf of the business. It excludes orders that were cancelled or not completed	B7
Placement of orders over the Internet	Orders placed include orders placed via the Internet whether or not payment was made online. They include orders placed via websites, specific Internet marketplaces, extranets, EDI over the Internet, Internet-enabled mobile phones and e-mail. It excludes orders that were cancelled or not completed	B8
Type of Internet access	Type of internet access refers to the type of connection of the business to access the Internet. The Internet access services are narrowband, fixed broadband or mobile broadband. As businesses can have more than one access service, multiple responses to this variable are possible. The Partnership recommends that countries collect data at a finer level. The categories chosen by the countries should allow aggregation in the three groups already presented: narrowband, fixed broadband and mobile broadband	B9
Possession of local area network (LAN)	A Local Area Network (LAN) refers to a network connecting computers within a localized area such as a single building, department or site; it may be wireless	B10
Possession of Extranet	An extranet is a closed network that uses Internet protocols to securely share a business's information with suppliers, vendors, customers or other businesses partners. The extranet can take the form of a private and secure extension of an intranet that allows external users to access part of the business's intranet. The extranet can also be a private part of the business' website, where business partners may navigate after being authenticated in a login page	B11

(CONTINUES)

TABLE 20 (CONTINUATION)

Uses of the Internet (activities)	Internet activities usually undertaken by in-scope businesses. It includes: sending or receiving e-mail, telephoning over the Internet/VoIP, posting information or instant messaging, getting information about goods or services, getting information from general government organizations, interacting with general government organizations, Internet banking, accessing other financial services, providing customer services, delivering products online, internal or external recruitment and staff training.	B12
The businesses may give multiple answers		

Source: Partnership on Measuring ICT for Development (2010).

3.3 Socioeconomic classification variables

The socioeconomic classification variables enable the disaggregation of the core ICT indicators according to their characteristics, such as the size of the business, the geographical area where it is located and the economic activity sector to which it belongs. In this manner, when cross tabulating the ICT variables with the socioeconomic variables it is possible to generate subindicators on ICT use in the businesses.

It is recommended that data producers specify in their reports the type of classification used and if it is consistent with the standards proposed at an international level. That is to say, it is important to specify in the documentation if the jobs were classified according to their industry using the International Standard Industrial Classification (ISIC), an adaptation of the ISIC or other classification on the basis of equivalent international standards. Likewise, it is recommended to specify the criteria used for the definition of the other socioeconomic classification variables. For example, it is necessary to define the size of the business, and the criterion is generally the number of persons employed. Furthermore, it is necessary to define the categories that will be established for the geographical areas considered in the study.

Table 21 presents the classification variables recommended for the definition of ICT use in the businesses.

TABLE 21
CLASSIFICATION VARIABLES ON ICT USE IN BUSINESSES

Variable	Analysis category	Observations
Size of the business	1-9	The recommendation is to use this classification for international comparability purposes, although there is no universal business size classification according to the number of persons employed.
	10-19	
	20-49	The recommended minimum scope corresponds to the businesses with 10 or more persons employed. Nevertheless, several countries may collect data for the 1-9 range
	50-249	
Economic activity sector	250 or more	The categories presented correspond to the minimum scope recommended by the Partnership, under ISIC Rev. 3.1 of 2002 ^a . However, the countries may add other economic activities if there are data available.
	D: Manufacturing;	
	F: Construction;	
	G: Wholesale and Retail Trade;	
	H: Hotels and restaurants;	
Geographic area	I: Transportation, storage and communications;	For the countries that have adopted or will adopt soon the ISIC Rev. 4, 2008 ^b , the minimum scope recommended by the Partnership are sections C, F, G, H, I, J, L, M (Partial), N and S (Partial). For Section M: Professional, scientific and technical activities it is suggested to exclude Division 75: Veterinary activities. For Section S it is suggested to exclude Division 95: Repair of computers and personal and household goods
	K: Real estate activities.	
Geographic area	Urban	According to the political-administrative division of each country, because there is no international harmonized definition of urban geographical areas and rural geographical areas
	Rural	

Source: Partnership on Measuring ICT for Development (2010)

^a The categories presented are under classification of the text International Standard Industrial Classification (ISIC), Revision 3.1 (Rev. 3.1), 2002. The complete document is available in the Internet in the following link:

http://unstats.un.org/unsd/publication/SeriesM/seriesm_4rev3_1e.pdf.

The general structure and explanatory notes, are also available in the Internet in the following link: <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=17&Top=2&Lg=1>

^b The categories of the text International Standard Industrial Classification (ISIC), Revision 4 (Rev. 4), 2008 are available in the complete document in the Internet link:

http://lingue.ine.cl/nomenclaturas/archivos/clasificadores_internacionales/isis_revison_4.pdf

3.4 Evolution and current state of the measurement of ICT use by businesses

This section aims at illustrating the stage of development of the measurement on ICT use by the businesses in the countries of the region. The emphasis is made on the data collected in the last four years, because, as in the measurement of ICT in the households, the progress in connectivity issues has become more evident in these last years. The summaries presented in this section are based on the information provided by the NSOs of the countries and on the questionnaires from the business surveys that have been collected by OSILAC at the Regional Workshops for Measuring the Information Society and through direct consulting in the web sites of each one of the NSOs.

The countries that joined this revision of the Compendium, and that were not included in the previous one (2007), are Antigua and Barbuda, Chile, Colombia, Mexico, Panama and Trinidad & Tabago¹¹. Likewise, information is included on the business surveys conducted in the last three years by the countries of Latin America and the Caribbean that were already outlined in 2007.

Table 22 shows a summary of the indicators collected by the countries until 2009. The indicator is marked available if the country has collected data to build it throughout one year at least within the period comprising 2005 and 2009, in some of their studies. Additionally, the data of the indicators B9 and B12 are registered as available if the countries collected, at least, one of the response categories. The indicators that are measured by a larger number of countries are: businesses using computers (B1); businesses using the Internet (B3); businesses receiving orders over the Internet (B7) and businesses placing orders over the Internet (B8). The following lines describe the situation for each one of the 10 countries that reported to have indicators available on ICT in businesses.

Antigua and Barbuda conducted the E-Readiness Business Survey in 2008, which contains data that enables calculation for nine core ICT indicators in businesses.

Argentina has data for all twelve indicators through the National Survey on Innovation and Technological Behavior (ENIT) which is conducted annually and was last applied in 2008.

Brazil relies on data for all twelve indicators through the Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil conducted annually by the Internet Steering Committee (CGI.br). Moreover, in 2007, the Brazilian Institute of Geography and Statistics (IBGE) collected the 12 core indicators for Microbusinesses through the Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil – TIC Microempresa.

Chile has data for eight core indicators through the Encuesta a las Pequeñas y Medianas Empresas PYME (Survey of small and medium businesses) of 2006 and 2008. Additionally, this survey provides detailed data on ICT use in the Chilean enterprises.

Colombia relies on data of all twelve core indicators in their Annual Economic Surveys: The Encuesta Anual de Comercio (Annual Trade Survey) of 2006, 2007 and 2008; the Encuesta Anual de Servicios (Annual Service Survey), of 2006, 2007 and 2008; and the Encuesta Anual Manufacturera (Annual Manufacturing Survey, of 2007 and 2008) and the Encuesta a Microestablecimientos (Microestablishments Survey) (2006, 2007 and 2008).

Cuba has data of two core indicators (B1 and B3) through the Economic Census on ICT (2006) and additionally collects data on three other indicators (B7, B8 and B9) in the ICT Specific Survey (2009).

¹¹ The previous Compendium (2007) presented the main characteristics of the implementation of ICT questions in business surveys in the following seven countries: Argentina, Brazil, Cuba, Spain, Peru, Dominican Republic and Uruguay. Furthermore, reference was made to business surveys with questions on ICT use in: Barbados, Chile and Trinidad & Tabago, but the implementation experiences were not detailed.

This edition details only the methodological characteristics of the surveys implemented in Latin America and the Caribbean. For more information on the Survey on ICT Use and e-Commerce in Businesses of the Spanish NSO, please consult the official web site: www.ine.es.

Mexico collects data of nine core indicators through the Economic Census for the Manufacturing Industry (2009, reference 2008).

Panama has data of all twelve core indicators through the Encuesta entre Empresas No Financieras (2007) (Survey among Non-financial Businesses 2007).

Peru collects data for all twelve core indicators through the ICT Module of the National Economic Census (2008).

Dominican Republic has all twelve core indicators in its survey Diagnóstico Nacional sobre Uso y Acceso a Tecnologías de Información y Comunicación (2005-2006) (National Diagnosis on Use and Access to Information and Communication technologies 2005-2006).

Trinidad & Tabago conducted the Survey on E-Commerce Usage and Awareness among Businesses in 2003. This survey contains information on six core ICT indicators.

TABLE 22
LATIN AMERICA AND THE CARIBBEAN: DATA AVAILABILITY ON ICT USE IN BUSINESS SURVEYS ^a

	ATG	ARG	BRA	CHL	COL	CUB	MEX	PAN	PER	DOM	TTO	URY	Total
B1 Businesses using Computers	X	X	X	X	X	X	X	X	X	X	X	X	12
B2 Persons employed routinely using computers		X	X		X		X	X	X	X		X	8
B3 Businesses using the Internet	X	X	X	X	X	X	X	X	X	X	X	X	12
B4 Persons employed routinely using the Internet	X	X	X		X		X	X	X	X		X	9
B5 Businesses with a web presence	X	X	X	X	X			X	X	X	X	X	10
B6 Businesses with an intranet	X	X	X	X	X		X	X	X	X		X	10
B7 Businesses receiving orders over the Internet	X	X	X	X	X	X	X	X	X	X	X	X	12
B8 Businesses placing orders over the Internet	X	X	X	X	X	X	X	X	X	X		X	11
B9 Businesses using the Internet by type of access	X	X	X		X	X		X	X	X	X	X	10
B10 Businesses with a local area network (LAN)		X	X		X			X	X	X		X	7
B11 Businesses with an extranet		X	X	X	X		X	X	X	X		X	9
B12 Businesses using the Internet by type of activity	X	X	X	X	X		X	X	X	X	X	X	11
Total	9	12	12	8	12	5	9	12	12	12	6	12	

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a ISO Alpha-3 codes for countries and territories in Latin America and the Caribbean.

3.5 Business surveys with ICT data

This section describes the main characteristics of the design and implementation of ICT questions in business surveys in Latin America and the Caribbean. This includes the definition of target population, recall period, collection methodologies, measurement frequency of the questions, classification variables used, publication forms of the results, among other subjects.

The main approach of the presentation is to show the characteristics of the harmonized measurement process at a regional level. The summaries and tables are based on the information provided by the NSOs of the countries. The collected information is continually organized, revised and updated by OSILAC, with the aim of maintaining and administrating a regional metadata base, and for this purpose, it has relied on the valuable collaboration and feedback of the representatives from the institutions involved.

3.5.1 Types of surveys with available ICT data

The main data sources on ICT use in businesses at a regional level are the following: regular surveys on manufacturing, trade or services, specific surveys on ICT use in the businesses, economic census, innovation surveys and research and development surveys. These censuses and surveys are usually managed by the NSOs. In the following lines, there is a brief description of the main features of each one of the data sources mentioned.

Regular surveys on manufacturing, trade or services. The inclusion of an ICT module in this type of surveys has several advantages: i) it enables a periodic measurement of the ICT questions; ii) it allows to enhance the analysis by using additional information that may be derived from the survey, for example, the cross tabulation with socioeconomic variables; iii) there is no need to burden the businesses that are already compelled to answer several surveys; iv) in this type of surveys, the inclusion of the ICT module has costs that tend to be marginal in relation to the total cost of the survey. Nevertheless, the main disadvantage of this approach is that the number of indicators on ICT use is generally limited, due to the fact that it is not the principal objective of the survey and, therefore, the publications are directed primarily to satisfy the general objectives of the surveys.

Specific surveys on ICT use. Its advantage is that they enable to collect more detailed and better quality data, because the respondents usually have more knowledge about the information concerning the ICT. The main disadvantage is that they normally present high design and implementation costs.

Economic census. The advantage of this approach is that it enables to collect data on all the businesses of the country which are within the scope of the researches. Nevertheless, the implementation costs are usually high and its application schedule is, in general, every 5 or 10 years.

Innovation surveys and research and development surveys. Both data sources are considered appropriate for the inclusion of ICT modules (UNCTAD, 2009). However, not all countries of the region have institutionalized the measurement process of innovation; therefore it should be necessary to reconcile the outputs of the countries that rely on this type of surveys with the ones provided by the countries that do not conduct this type of surveys, but that do have other data sources on ICT use by businesses.

Thus, we highlight the comparability among the different data sources on ICT use in businesses. Likewise, we reaffirm the need to continue developing and implementing standards and methodologies for the harmonization of the questions, variables and indicators on ICT in businesses, in a similar way as in the developments achieved in the ICT measurement in households.

Surveys on ICT use in businesses

Table 23 presents a list of the business surveys of the countries of the region with data on ICT use, in the last five years. It should be noted that seven countries of the region included ICT sections in their economic censuses or surveys; and eight countries conducted specific surveys on the ICT use in businesses.

The data collected show that the countries have achieved a significant progress in the implementation of ICT questions in the business surveys. While in December 2007, 9 countries of the region reported to have core ICT indicators in businesses, in 2010, 12 countries had data on the core indicators¹².

TABLE 23
LATIN AMERICA AND THE CARIBBEAN: BUSINESSES SURVEYS WITH DATA ON ICT USE ^a

Country	Name of the survey	Type of survey	Way of including ICT questions	Year of implementation and reference year
Antigua and Barbuda	E- Readiness Business Survey	ICT Survey	ICT Survey	2008
Argentina	Encuesta Nacional a Empresas sobre Innovación, Investigación y Desarrollo y Tecnologías de la Información y de las Comunicaciones ^a (<i>National Business Survey on Innovation, Research and Development and Information and Communication Technologies</i>)	Innovation Survey	ICT Section	2005 (Ref. 2002-2004)
	Encuesta Nacional sobre Innovación y Conducta Tecnológica (ENIT) (<i>National Survey on Innovation and Technological behavior</i>)	Innovation Survey	ICT Section	2005-2008 (Ref. to year before)
Brazil (IBGE)	Pesquisa sobre acesso e uso das Tecnologias da Informação e Comunicação e do Comércio Eletrônico das Empresas (<i>Survey on the Access and Use of Information and Communication Technologies and E-commerce</i>)	ICT Survey	ICT Survey	2009-2010
Brazil (CGI.br)	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil (<i>Survey on the Use of Information and Communication Technologies in Brazil</i>)	ICT Survey	ICT Survey	2005-2009 (Ref. to same year)
	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil – TIC Microempresas (<i>Survey on the use of Information and Communication Technologies in Brazil – ICT microbusinesses</i>)	ICT Survey	ICT Survey	2007 (Ref to same year)
Chile	Encuesta a las Pequeñas y Medianas Empresas PYME (<i>Survey of Small and Medium Businesses</i>)	Economic Survey	ICT Section	2007 (Ref. to same year)
	Tecnologías de Información y Comunicación en Microempresas (<i>Information and Communication Technologies in Microbusinesses</i>)	ICT Survey	ICT Survey	2007 (Ref. to 2006)
Colombia	Encuesta Anual Manufacturera (EAM) (<i>Annual Manufacturing Survey</i>)	Economic Survey	ICT Section	2006 and 2007 (Ref. to year before)
	Encuesta Anual de Servicios (EAS) (<i>Annual Service Survey</i>)	Economic Survey	ICT Section	2006 and 2007 (Ref. to year before)
	Encuesta Anual de Comercio (EAC) (<i>Annual trade Survey</i>)	Economic Survey	ICT Section	2006 and 2007 (Ref. to year before)

(CONTINUES)

¹² This information is on the basis of the information published in the previous Compendium (2007)

TABLE 23 (CONTINUATION)

	Encuesta de Microestablecimientos (<i>Survey of Microestablishments</i>)	Economic Survey	ICT Section	2007 and 2008 (Ref. to year before)
	Censo Económico sobre las Industrias TIC (<i>Economic Census on ICT Industries</i>)	Economic Census	Census enquiry on ICT	2006
Cuba	Actualización de los datos de Censo (Imputación de datos) ^b (<i>Updating of the Census's data. Data imputation</i>)	N. a	N. a	2007
	Encuesta especializada en TIC (<i>ICT Specific Survey</i>)	ICT Survey	ICT Survey	2009
Mexico	Encuesta sobre Investigación y Desarrollo Tecnológico (<i>Survey on Research and Technological Development</i>)	Innovation Survey	ICT Section	2004 (Ref. to same year)
	Censo Económico para la Industria Manufacturera (<i>Economic Census for the Manufacturing Industry</i>)	Economic Census	ICT Section	2009 (Ref. 2008)
Panama	Encuesta entre Empresas No Financieras (Empresas de 5 y más ocupados e intencionales) (<i>Survey among Non-financial Businesses. - Businesses with 5 or more persons employed and purposive-</i>)	Economic Survey	ICT Section	2007 (Ref. to same year)
	Encuesta Nacional sobre Tecnología de la Información y Comunicaciones (<i>National Survey on Information and Communication Technology</i>)	ICT Survey	ICT Survey	2007 (Ref. to same year)
Peru	IV Censo Nacional Económico (<i>IV National Economic Census</i>)	Economic Census	ICT Section	2008 (Ref. to same year)
	Encuesta Económica Anual (<i>Annual Economic Survey</i>)	Economic Survey	ICT Section	2009
Dominican Republic	Diagnóstico Nacional sobre Uso y Acceso a Tecnologías de Información y Comunicación (<i>National Diagnosis on Use and Access to Information and Communication Technologies</i>)	ICT Survey	ICT Survey	2005-2006
Trinidad & Tabago	Survey on E-Commerce Usage and Awareness among Businesses	ICT Survey	ICT Survey	2003
Uruguay	Encuesta de Actividad Económica (<i>Survey of Economic Activity</i>)	Economic Survey	ICT Section	2005-2007

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a The names of the surveys that are not in English are presented both in the original language and in English translation.

^b The updating of the Economic Census on ICT was made in accordance with the guidelines of the Manual for the Production of Statistics on the Information Economy of the UNCTAD, and consisted of the data imputation by comparing businesses that had approximately the same size and the same economic activity.

3.5.2 Questions implemented by the countries

As was seen in Section 3.4, data collection on ICT use in businesses has increased significantly in the countries of the region, in the last four years. Nevertheless, there are still important challenges concerning the homogenization of the questions' design, in aspects regarding the respondent's profile, the question on the type of Internet connection, the questions on the number of individuals using a computer and the Internet, among

other subjects. To illustrate the former, Table 24 presents the questions used for measuring the type of access to the Internet in each country.

TABLE 24
LATIN AMERICA AND THE CARIBBEAN: QUESTIONS ON THE TYPE OF INTERNET CONNECTION IN BUSINESS SURVEYS^a

Country and Survey	Questions	Response categories
Antigua and Barbuda: E-Readiness Business Survey 2008	What types of Internet connection do your computers have?	Dial-up
		Dedicated leased line
		DSL
		Wireless
		Broadband
Argentina: Encuesta Nacional sobre Innovación y Conducta Tecnológica (ENIT) 2007 (<i>National Survey on Innovation and Technological behavior 2007</i>)	What was the type of access/band width that your business used most in 2007 to access to the Internet?	Analogue modem (ISDN) / dial up
		XDSL (ADSL, SDSL, VDSL, etc.)
		Wire / Optical fiber
		Mobile wireless
		Fixed wireless (wi-fi)
Other		
Brazil Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil 2009 (<i>Survey on the Use of Information and Communication Technologies in Brazil 2009</i>)	Which of the following types of connection to the Internet have you got in your enterprise?	Dial-up access
		Digital modem via telephone line (DSL)
		Cable modem (Cable TV)
		Optical fiber modem
		Radio connection
		Satellite connection
		Mobile phone connection
		Other types of connection
		Does not know
		Other
Chile Encuesta Uso de Tecnología de Información y Comunicación en Empresas 2008 (<i>Survey on Use of Information and Communication Technologies in Businesses 2008</i>)	The type of technology used in the switched connection is:	Analogue technology
		ISDN
		Other technologies. Specify _____
		ADSL
		Cable modem
	The type of technology used in the dedicated connection is:	WLL
		Frame relay
		Other technologies. Specify _____
		Analogue modem
		ISDN
Colombia Encuesta Anual de Comercio 2007 (<i>Annual Trade Survey 2007</i>)	Choose the type of connection used by the business to access to the Internet.	ADSL
		Dedicated channel - wire/optical fiber
		Wireless
		Frame Relay
		GPRS
		EDGE
		Other
Cuba Encuesta Especializada en TIC 2009 (<i>ICT Specific Survey 2009</i>)	What type of access/bandwidth does your business use to access to the Internet?	Analogue modem
		ISDN
		XDSL
		Wire optical fiber
		Mobile wireless
		Fixed wireless (wi-fi)
		Other (specify)

(CONTINUES)

TABLE 24 (CONTINUATION)

Mexico			Modem (analogue)
Encuesta sobre Investigación y Desarrollo Tecnológico 2004 (<i>Survey on Research and Technological Development 2004</i>)	Indicate the type of telecommunication technology used by the business to access to the Internet. <i>Answer (1) = Yes (2) = No</i>		Cable modem (digital)
			Mobile telephony (satellite or cellular)
			Digital Subscriber Lines (XDSL)
			Access by digital signal telephone lines (ISDN)
			Antenna (example MVS)
			Other type of connection over 2Mbps
			Traditional modem (analogue)
			() Yes () No Speed (in Kbps)
			Access by digital signal telephone lines (ISDN)
			() Yes () No Speed (en Kbps)
Panama	Type of telecommunication technology used by the business to access to the Internet:		DSL connections (xDSL, ADSL, HDSL, SDSL or similar)
			() Yes () No Speed (in Kbps)
			Other fixed Internet connection (cable modem (digital), leased line (level 1 E1 or E3), Frame Relay or others)
			() Yes () No Speed (in Kbps)
			Mobile connection (analogue telephone level 1, GSM or others)
			() Yes () No Speed (in Kbps)
			Others (specify)
			() Yes () No Speed (in Kbps)
			Modem xDSL (ADSL, HDSL, SDSL)
			Other types of fixed connection (wired or wireless)
Peru	Which is the type of access that your business uses to access to the Internet?		Satellite broadband
			Mobile Internet broadband
			Telephone line modem
			ISDN
			Mobile Internet narrowband
			Specify if it is another type of access

Uruguay	What type of connection does your business use to access to the Internet?		_____

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

* We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

Problems identified in the implementation on ICT questions

In the following lines we point out the main problems reported on the implementation of ICT questions, for each one of the countries, in the Regional Workshops and in the framework of the Statistical Conference of the Americas. We hope to keep on progressing in the discussion and implementation of solutions concerning the difficulties already mentioned, through the working group on ICT Measurement of the SCA – ECLAC.

Argentina identified the following main problems: non response and inconsistency of the collected data.

Colombia stated that its main difficulties were the erroneous interpretation of some questions and the follow-up of the sequence of the questionnaire by the respondents; furthermore, there were some difficulties to establish possible response categories in the questions on access type and speed of the Internet.

Mexico mentioned that one of its main difficulties is that, often, the businesses are not clear enough when informing about the type of access and the access speed to the Internet. This country declared that the respondent does not have a comprehensive knowledge of the information on ICT because, typically, he/she is a non-expert respondent in ICT issues.

Panama identifies its main problems in the refusal of the respondents to provide data, the size of the questionnaire and the mobility of the businesses due to shut-down, change of activity or change of geographical location.

Chile identified the mobility or shut-down of the businesses as one of their main difficulties.

Peru observed, in the second year of implementation of the questionnaire, that 15% of the businesses had difficulties when identifying the band width which they had. Additionally, it pointed out that the businesses have trouble answering the questions on the number of persons employed who use a computer or the Internet.

It should be noted that the main problem identified by the NSOs in the business surveys is related to the design of the questions and the collection of data on the type of Internet access. This subject has been discussed with the representatives of the NSOs, and the recommendation given in the framework of the SCA-ECLAC was to ask for the type of access and not necessarily for the speed, but this decision is subject to each country's criterion. Anyhow, it is recommended that the response categories allow categorizing the type of access in narrowband, fixed broadband and mobile broadband.

3.5.3 Interview and data collection methodologies

Table 25 presents the main collection means used by the NSOs in the business surveys of each country. It can be noted that most of the business surveys of the region can be self-administered. Moreover, in several surveys the data may be completed over several days or months. Finally, it should be noted that some countries have collected data through online interviews and telephone interviews: the online data collection has been used in surveys of Antigua and Barbuda, Dominican Republic, Uruguay and Peru; and the telephone interview was used in surveys conducted in Brazil.

TABLE 25
LATIN AMERICA AND THE CARIBBEAN: INTERVIEW
METHODOLOGIES IN BUSINESS SURVEYS^a

Country	Survey	Interview methodology
Antigua and Barbuda	E-Readiness Business Survey 2008	It could be answered manually or online
Argentina	Encuesta Nacional sobre Innovación y Conducta Tecnológica (ENIT) 2006 (<i>National Survey on Innovation and Technological Behavior 2006</i>)	By post, self-administered
Brazil (IBGE)	Pesquisa sobre acesso e uso das Tecnologias da Informação e Comunicação e do Comércio Eletrônico das Empresas 2009 (<i>Survey on the Access and Use of Information and Communication Technologies and E-commerce 2009</i>)	CATI (Computer Assisted Telephone Interview)
Brazil (Cgi.br)	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil 2008 (<i>Survey on the Use of Information and Communication Technologies in Brazil 2008</i>)	Telephone Interview
Brazil (Cgi.br)	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil – TIC Microempresas 2007 (<i>Survey on the use of Information and Communication Technologies in Brazil – ICT microbusinesses 2007</i>)	Telephone Interview

(CONTINUES)

TABLE 25 (CONTINUATION)

Chile	Encuesta a las Pequeñas y Medianas Empresas PYME 2006 (<i>Survey of Small and Medium Businesses 2006</i>)	Self-administered
	Tecnologías de Información y Comunicación en Microempresas 2006 (<i>Information and Communication Technologies in Microbusinesses 2006</i>)	Self-administered
Colombia	Encuesta Anual Manufacturera (EAM) 2008 (<i>Annual Manufacturing Survey 2008</i>)	Self-administered
	Encuesta Anual de Servicios (EAS) 2008 (<i>Annual Service Survey 2008</i>)	Self-administered
	Encuesta Anual de Comercio (EAC) 2008 (<i>Annual Trade Survey 2008</i>)	Self-administered
	Encuesta de Microestablecimientos de Comercio, Servicios e Industria 2008 (<i>Survey of Trade, Services and Industry Microestablishments 2008</i>)	Direct interview.
Cuba	Encuesta especializada en TIC 2009 (<i>ICT Specific Survey 2009</i>)	Direct interview.
Mexico	Censo Económico para la Industria Manufacturera 2009 (<i>Manufacturing Industry Economic Census 2009</i>)	Self-administered
Panama	Encuesta entre Empresas No Financieras 2007 (<i>Survey among Non-financial Businesses 2007</i>)	Direct interview.
Peru	IV Censo Nacional Económico 2008 (<i>IV National Economic Census 2008</i>)	Self-administered
Dominican Republic	Diagnóstico Nacional sobre Uso y Acceso a Tecnologías de Información y Comunicación 2006 (<i>National Diagnosis on Use and Access to Information and Communication Technologies 2006</i>)	Internet – Direct interview
Trinidad & Tabago	Survey on E-Commerce Usage and Awareness among Businesses 2003	N.a
Uruguay	Encuesta de Actividad Económica 2007 (<i>Economic Activity Survey 2007</i>)	Self-administered

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

3.5.4 Reference periods of the ICT questions

Most questions inquire about the use of ICT during the reference period of twelve months. However, there are design differences in the questions that affect the answer given by a business to issues such as the use of computers, the use of Internet, the reception and placement of orders over the Internet, the type of access and the activities undertaken in the Internet. Thus, while some countries make the questions with reference to the use of ICT in the last 12 months (previous to the survey), other countries inquire about the use of ICT in the year immediately before (that is, the period between January and December of the year immediately before)¹³, which affects the output comparability among the surveys that use different reference periods for the use of ICT.

¹³ The difference between the year immediately before and the last 12 months is that the first case considers the period from January to December of the year previous to the survey. On the other hand, the second case refers to the period from the month of the survey and the 12 months previous to it. For example, if the survey was conducted on April 1st 2009, then, the last 12 months correspond to the period from April 1st 2008 to March 31st 2009. However, if in the same example, the reference period is the year immediately before, the question would refer to the period between January 2008 and December 2008.

Table 26 summarizes the reference periods used in the surveys of the countries of the region. We observe that in the ICT specific surveys, the most common reference is the last 12 months, on the other hand, if the surveys are not ICT specific, the reference is usually the year immediately before.

TABLE 26
LATIN AMERICA AND THE CARIBBEAN: REFERENCE PERIODS FOR
THE QUESTIONS ON ICT USE IN BUSINESS SURVEYS^a

Country	Survey	Reference period
Antigua and Barbuda	E-Readiness Business Survey 2008	Moment of the survey
Argentina	Encuesta Nacional sobre Innovación y Conducta Tecnológica (ENIT) 2006 (<i>National Survey on Innovation and Technological Behavior 2006</i>)	Year before
Brazil (CGI)	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil 2008 (<i>Survey on the Use of Information and Communication Technologies in Brazil 2008</i>)	Last 12 months ^b
	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil – TIC Microempresas 2007 (<i>Survey on the use of Information and Communication Technologies in Brazil – ICT microbusinesses 2007</i>)	Last 12 months ^b
Chile	Encuesta a las Pequeñas y Medianas Empresas PYME 2006 (<i>Survey of Small and Medium Businesses 2006</i>)	Last 12 months
	Tecnologías de Información y Comunicación en Microempresas 2006 (<i>Information and Communication Technologies in Microbusinesses 2006</i>)	Last 12 months.
Colombia	Encuesta Anual Manufacturera (EAM) 2008 (<i>Annual Manufacturing Survey 2008</i>)	Year before
	Encuesta Anual de Servicios (EAS) 2008 (<i>Annual Service Survey 2008</i>)	Year before
	Encuesta Anual de Comercio (EAC) 2008 (<i>Annual Trade Survey 2008</i>)	Year before
	Encuesta de Microestablecimientos de Comercio, Servicios e Industria 2008 (<i>Survey of Trade, Services and Industry Microestablishments 2008</i>)	Year before
Cuba	Encuesta especializada en TIC 2009 (<i>ICT Specific Survey 2009</i>)	Actual time
Mexico	Censo Económico para la Industria Manufacturera 2009 (<i>Manufacturing Industry Economic Census 2009</i>)	Year before
Panama	Encuesta entre Empresas No Financieras 2007 (<i>Survey among Non-financial Businesses 2007</i>)	Year before ^c
Peru	IV Censo Nacional Económico 2008 (<i>IV National Economic Census 2008</i>)	Last 12 months
Dominican Republic	Diagnóstico Nacional sobre Uso y Acceso a Tecnologías de Información y Comunicación 2006 (<i>National Diagnosis on Use and Access to Information and Communication Technologies 2006</i>)	Last 12 months
Trinidad & Tabago	Survey on E-Commerce Usage and Awareness among Businesses 2003	Actual time
Uruguay	Encuesta de Actividad Económica 2007 (<i>Economic Activity Survey 2007</i>)	Actual time

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

^b Except questions of modules A, B (only B7 refers to the last 12 months) and D (only D8 refers to the last 12 months).

^c In the cases where the businesses have special fiscal periods it shall correspond to the one that contains a greater number of months of that year, except for the sugar plantations where the fiscal year including 2006, is considered.

3.5.5 Respondents and scope of the surveys

Most NSOs recommend businesses that the respondent should be a person of the ICT area. Nevertheless, in the end, the businesses are the ones that decide who answers the survey and in some cases, the questions are answered by the accounting personnel and not by someone who has knowledge regarding the use of ICT. Along these lines, the NSOs of certain countries declared that the respondents of the surveys did not always have the necessary knowledge to answer the ICT questions, mainly those referring to the type of access to the Internet and the number of persons employed who use a computer and the Internet.

The recommendation of the working group on ICT of the SCA-ECLAC, was that, whenever possible, the person who answers the ICT section of the survey shall be someone of that area, even if the rest of the survey is answered by the accounting personnel. Table 27 shows the profiles of the respondents who answer the ICT questions, for each one of the countries.

TABLE 27
LATIN AMERICA AND THE CARIBBEAN: RESPONDENTS OF
QUESTIONS ON ICT USE IN BUSINESS SURVEYS ^a

Country	Survey	Respondent
Antigua and Barbuda	E-Readiness Business Survey 2008	Does not specify the respondent's profile
Argentina	Encuesta Nacional sobre Innovación y Conducta Tecnológica (ENIT) 2006 (<i>National Survey on Innovation and Technological Behavior 2006</i>)	Chosen by the business
Brazil (IBGE)	Pesquisa sobre acesso e uso das Tecnologias da Informação e Comunicação e do Comercio Electrónico das Empresas 2009 (<i>Survey on the Access and Use of Information and Communication Technologies and E-commerce 2009</i>)	Does not specify the respondent's profile
Brazil (Cgi.br)	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil 2009 (<i>Survey on the Use of Information and Communication Technologies in Brazil 2009</i>)	Person in charge of ICT area
Brazil (Cgi.br)	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil – TIC Microempresas 2007 (<i>Survey on the use of Information and Communication Technologies in Brazil – ICT microbusinesses 2007</i>)	Person in charge of ICT area
	Encuesta a las Pequeñas y Medianas Empresas PYME 2006 (<i>Survey of Small and Medium Businesses 2006</i>)	Does not specify the respondent's profile
Chile	Tecnologías de Información y Comunicación en Microempresas 2006 (<i>Information and Communication Technologies in Microbusinesses 2006</i>)	Does not specify the respondent's profile

(CONTINUES)

TABLE 27 (CONTINUATION)

	Encuesta Anual Manufacturera (EAM) 2008 (<i>Annual Manufacturing Survey 2008</i>)	Person belonging to the Systems Department
	Encuesta Anual de Servicios (EAS) 2008 (<i>Annual Service Survey 2008</i>)	Person belonging to the Systems Department
Colombia	Encuesta Anual de Comercio (EAC) 2008 (<i>Annual Trade Survey 2008</i>)	Person belonging to the Systems Department
	Encuesta de Microestablecimientos de Comercio, Servicios e Industria 2008 (<i>Survey of Trade, Services and Industry Microestablishments 2008</i>)	Person belonging to the Systems office or otherwise someone who knows about systems in the economic unit
Cuba	Encuesta especializada en TIC 2009 (<i>ICT Specific Survey 2009</i>)	N.a
Mexico	Censo Económico para la Industria Manufacturera 2009 (<i>Manufacturing Industry Economic Census 2009</i>)	N.a
Panama	Encuesta entre Empresas No Financieras 2007 (<i>Survey among Non-financial Businesses 2007</i>)	Personal interview to the managers of the business or specialized personnel. The ICT questions were answered by the managers, directors or heads of the informatics area within each institution or other authorized personnel
Peru	IV Censo Nacional Económico 2008 (<i>IV National Economic Census 2008</i>)	Manager or specialist in the informatics area
Dominican Republic	Diagnóstico Nacional sobre Uso y Acceso a Tecnologías de Información y Comunicación 2006 (<i>National Diagnosis on Use and Access to Information and Communication Technologies 2006</i>)	Person in charge of technology, if it exists; otherwise, another person of the company
Trinidad & Tabago	Survey on E-Commerce Usage and Awareness among Businesses 2003	Does not specify the respondent's profile
Uruguay	Encuesta de Actividad Económica 2007 (<i>Economic Activity Survey 2007</i>)	Does not specify the respondent's profile

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

3.5.6 Sampling methodology and sampling frame

Table 28 presents the sampling methodologies and sampling frames that were used to conduct the ICT surveys in businesses. This information allows comparing the coverage and scope of each research done by the countries of the region, and the methodologies used.

TABLE 28
LATIN AMERICA AND THE CARIBBEAN: SUMMARY OF SAMPLING METHODOLOGY AND SAMPLING FRAME IN BUSINESS SURVEYS^a

Country	Survey	Sampling design	Sampling frame	Sample coverage	Sample size	Confidence level
Antigua and Barbuda	E-Readiness Business Survey 2008	N.a	Business list of the Inland Revenue Department	National	743 businesses, of which 102 responded	N.a
Argentina	Encuesta Nacional sobre Innovación y Conducta Tecnológica (ENIT) 2006 (<i>National Survey on Innovation and Technological Behavior 2006</i>)	Probabilistic sampling in the 75 domains defined by branch grouping of 5-digits. Stratified design by conglomerates for each relevant domain	National industrial sector, the observation unit is the business. Sample on the basis of the Monthly Industrial Survey conducted by the INDEC (National Institute of Statistics and Censuses)	National, with businesses with at least 5 paid employees	2,167 businesses	N.a
Brazil (IBGE)	Pesquisa sobre acesso e uso das Tecnologias da Informação e Comunicação e do Comércio Eletrônico das Empresas 2009 (<i>Survey on the Access and Use of Information and Communication Technologies and E-commerce 2009</i>)	Stratified, random sample design. The sample is divided in 3 strata according to the size of the businesses	Businesses with more than 10 persons employed	National	Approximately 28,000 businesses	N.a
Brazil (CGI)	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil 2008 (<i>Survey on the Use of Information and Communication Technologies in Brazil 2008</i>)	Cross-reference sampling, stratified in 7 segments according to economic activity, with simple random selection in each stratum	Businesses with 7 segments of the National Classification of Economic Activities (CNAE-NACE), section D, F, G, H, I, K, O (without groups 90 and 91). Only businesses with 10 or more persons employed are included. The outputs of the RAIS (Annual Report of Social Information) were considered	Results can be estimated by: region, economic activity sector and number of persons employed	3,300 businesses	95%
Brazil (CGI)	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil – TIC Microempresas 2007 (<i>Survey on the use of Information and Communication Technologies in Brazil – ICT microbusinesses 2007</i>)	Cross-reference sampling, stratified in 7 segments according to economic activity, with simple random selection in each stratum	Businesses with 7 segments of the National Classification of Economic Activities (CNAE-NACE), section D, F, G, H, I, K, O (without groups 90 and 91). Only businesses with 1 to 9 persons employed are included. The outputs of the RAIS (Annual Report of Social Information) were considered	Results can be estimated by: region, economic activity sector and number of persons employed	1,000 businesses	95%

(CONTINUES)

TABLE 28 (CONTINUATION)

Chile	Encuesta a las Pequeñas y Medianas Empresas (PYME) 2006 (<i>Survey of Small and Medium Businesses 2006</i>)	Two-stage selection; the first corresponds to the businesses belonging to the surveyed segment and have a forced inclusion in the sample. The second selection corresponds to the segment to be sampled which is made independently in each one of the strata, with a systematic selection. There is a 30% additional business selection available for possible substitutions	Businesses from the registry of the Servicio de Impuestos Internos	Representativity by tabulation category ISIC Rev. 3. And size at national level	2,804 businesses	95%
	TIC Microempresas 2006 (<i>ICT Microbusinesses 2006</i>)	Probabilistic, stratified sampling with a confidence level of 95%. It is distributed proportionally to the number of units contained in each one of the strata	Businesses with data from the Servicio de Impuestos Internos, (Annual Income Tax Statement, form 22 and monthly statement of the value added tax (VAT), form 29) of 2006	National according to activity and size. Regional	2,511 microbusinesses	95%
Colombia	Encuesta Anual de Servicios (EAS) 2006 (<i>Annual Service Survey 2006</i>)	Census stratified by business size defined in terms of income and staff employed	List frame constituted by sources of the Economic Census of 1990 and updated by sources of the Superintendence of Societies, cooperative inspection, Confecámaras (Trade Chambers), trade associations, Deputy Minister of Tourism and yellow pages, annual surveys of the DANE (National Statistical Administrative Department), among others	National	2,185 businesses	95%
	Encuesta Anual de Comercio (EAC) 2008 (<i>Annual Trade Survey 2008</i>)	Survey by probabilistic, stratified sampling. The stratification criteria are economic activity and income from sales and personnel employed. Within each stratum, the selection method is simple random sampling	In order to construct the sampling frame of the EAC, a list frame was elaborated on the basis of files of the Trade Chamber, Confecámaras. This frame relies on data of the economic activity of the business, number of persons employed and income	National	7,905 businesses (3,895 forced inclusion and 4,010 probabilistic inclusion approximately)	N.a
	Encuesta de Microestablecimientos de Comercio, Servicios e Industria 2008 (<i>Survey of Trade, Services and Industry Microestablishments 2008</i>)	Probabilistic, multi-stage, stratified design of conglomerates	Sampling frame: economic area frame. Trade, services and industrial premises with 10 or more persons employed	National Urban	55,000 facilities approximately	N.a
Cuba	Encuesta especializada en TIC 2009 (<i>ICT Specific Survey 2009</i>)	Induced sample, according to the result of questions made in the Census	Sampling frame: ICT Economic Census	National	300 businesses	N.a

(CONTINUES)

TABLE 28 (CONCLUSION)

Panama	Encuesta entre Empresas No Financieras 2007 (<i>Survey among Non-financial Businesses 2007</i>)	Probabilistic, stratified sample	The selection frame contains around 7,000 non-financial businesses: businesses which had annual incomes of 5 million dollars and more. (Forced inclusion). Activities with less than 10 businesses within each one of the 7 regions defined. (Forced inclusion). Simple random sampling for the other activities	National	2,950 businesses:	95%
Dominican Republic	Diagnóstico Nacional sobre Uso y Acceso a Tecnologías de Información y Comunicación 2006 (<i>National Diagnosis on Use and Access to Information and Communication Technologies 2006</i>)	Sampling stratified in 5 strata, according to registered capital: i) less than RD\$100 thousand of capital stock, ii) more than RD\$100 thousand up to RD\$500 thousand, iii) more than RD\$500 thousand up to RD\$1 million, iv) more than RD\$1 million up to RD\$5 millions, v) more than RD\$5 millions	The sampling frame was organized on the basis of the Dirección General de Impuestos Internos	National	2,186 businesses	N.a
Trinidad & Tabago	Survey on e-commerce usage and awareness among businesses and households 2003	Stratified sampling. The strata are defined according to the main activity of the business	The sampling frame is formed by all firms operating in Trinidad & Tabago which are enumerated in the Registry of the Central Statistical Office	National	800	95%
Uruguay	Encuesta de Actividad Económica 2007 (<i>Economic Activity Survey 2007</i>)	Stratified, random sampling: 6 strata, 5 in terms of the personnel employed in the business and one on the basis of sales	The sampling frame is composed of legal institutions whose main economic activity is: Mining and quarrying (C), Manufacturing industries (D), Electricity, gas and water supply (E), Construction (F), Wholesale and retail trade (G), Hotels and restaurants (H), Transport, storage and communications (I), Real estate, renting and business activities (K), Education (M), Health and social work (N). The businesses that fulfill the previous requirement, must have average annual employed personnel greater or equal to five, or must have declared sales, before the DGI, of more than 120 million Uruguayan pesos, except trade.	National	2,666 businesses	95%

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

* We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

3.5.7 Characterization variables of ICT use

The most frequent classification variables are economic activity sector, business size and geographic area. It is usual that reports contain disaggregated outputs according to sector and size mainly. In relation to the geographic area classification, it varies according to the country, and the sampling design used, but there is normally some stratification criterion of the sampling frame that considers a geographic regionalization.

In general, the business surveys use as a reference the International Standard Industrial Classification (ISIC) or adaptations of it. This classification is reviewed periodically and not all countries incorporate the last version simultaneously, because it is required some time to prepare the implementation. Table 29 shows a summary of the Classification of Economic Activities used by the countries of the region in their studies on ICT in businesses.

TABLE 29
LATIN AMERICA AND THE CARIBBEAN: CLASSIFICATION OF THE ECONOMIC
ACTIVITY SECTOR IN BUSINESS SURVEYS ^a

Country	Survey	Economic activity sector
Antigua and Barbuda	E-Readiness Business Survey 2008	The sectors are: Agriculture; Construction, culture and entertainment; Finance and insurance; Fishing; Hotels; Information technologies; Legal activities; Manufacturing; Medical and pharmaceutical services; Real estate and renting; Sports; Tourism and recreation; Retail; Restaurants; Telecommunication; Tourist operators; Transportation; Wholesale trade; Others
Argentina	Encuesta Nacional sobre Innovación y Conducta Tecnológica (ENIT) 2006 (<i>National Survey on Innovation and Technological Behavior 2006</i>)	D – Industrial National Classification of Economic Activities, CNAE. Adaptation of the International Standard Industrial Classification, ISIC Rev. 3 (elaborated by the INDEC [National Institute of Statistics and Censuses] in 1997)
Brazil (IBGE)	Pesquisa sobre acesso e uso das Tecnologias da Informação e Comunicação e do Comercio Electrónico das Empresas 2009 (<i>Survey on the Access and Use of Information and Communication Technologies and E-commerce 2009</i>)	The sectors are: C – Primary industries; D – Manufacturing Industry; F – Construction; G – Trade; H – Hotels and restaurants; I – Transportation, storage and communications; K – Real estate activities; O – Other collective, social and personal services (Groups 92.1, 92.2, 92.3, 92.6 and 93.0). National Classification of Economic Activities, CNAE 1.0
Brazil (CGI)	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil 2008 (<i>Survey on the Use of Information and Communication Technologies in Brazil 2008</i>)	The sectors are: D - Manufacturing Industry; F – Construction; G – Trade; H – Hotels and restaurants; I – Transportation, storage and communications; K – Real estate activities; O – Other collective, social and personal services (except groups 90 and 91). National Classification of Economic Activities, CNAE

(CONTINUES)

TABLE 29 (CONTINUATION)

	<p>Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil – TIC Microempresas 2007 (<i>Survey on the use of Information and Communication Technologies in Brazil – ICT microbusinesses 2007</i>)</p>	<p>The sectors are: D - Manufacturing Industry; F – Construction; G – Trade; H – Hotels and restaurants; I – Transportation, storage and communications; K – Real estate activities; O – Other collective, social and personal services (except groups 90 and 91). National Classification of Economic Activities, CNAE</p>
Chile	<p>Encuesta a las Pequeñas y Medianas Empresas PYME 2006 (<i>Survey of Small and Medium Businesses 2006</i>)</p>	<p>The sectors are: C – Mining and quarrying; D – Manufacturing; E - Electricity, gas and water supply; F – Construction; G – (50) Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel; G (51) - Wholesale trade and commission trade, except of motor vehicles and motorcycles; G (52) - Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods; H – Hotels and restaurants; I – Transportation, storage and communications. International Standard Industrial Classification, ISIC Rev. 3</p>
	<p>Tecnologías de Información y Comunicación en Microempresas 2006 (<i>ICT in Businesses 2006</i>)</p>	<p>The sectors are: C – Mining and quarrying; D – Manufacturing; E - Electricity, gas and water supply; F – Construction; G – (50) Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel; G (51) - Wholesale trade and commission trade, except of motor vehicles and motorcycles; G (52) - Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods; H – Hotels and restaurants; I – Transportation, storage and communications. International Standard Industrial Classification, ISIC Rev. 3</p>
Colombia	<p>Encuesta Anual Manufacturera (EAM) 2008 (<i>Annual Manufacturing Survey 2008</i>)</p>	<p>D – Manufacturing Industry ISIC Rev. 3 adapted for Colombia</p>
	<p>Encuesta Anual de Servicios (EAS) 2008 (<i>Annual Service Survey 2008</i>)</p>	<p>The sectors are: H – Hotels and restaurants; I63 - Supporting and auxiliary transport activities; activities of travel agencies; I64 – Post and telecommunications; K - Real estate, renting and business activities; O92 - Recreational, cultural and sporting activities; O93 – Other service activities. ISIC Rev. 3 adapted for Colombia</p>
	<p>Encuesta Anual de Comercio (EAC) 2008 (<i>Annual Trade Survey 2008</i>)</p>	<p>G – Wholesale and retail trade (except those dedicated to activities of repair, maintenance, buying and selling, chance, lotteries, raffles, telemarketing or sale by mail. It does not include the trade of used merchandise, except vehicles). ISIC Rev. 3 adapted for Colombia</p>
	<p>Encuesta de Microestablecimientos de Comercio, Servicios e Industria 2008 (<i>Survey of Trade, Services and Industry Microestablishments 2008</i>)</p>	<p>D – Industry; G – Trade; O – Services. (with 10 or less persons employed) ISIC Rev. 3 adapted for Colombia</p>
Cuba	<p>Encuesta especializada en TIC 2009 (<i>ICT Specific Survey 2009</i>)</p>	<p>ICT Sector. Foreign trade ISIC Rev. 3.1</p>

(CONTINUES)

TABLE 29 (CONCLUSION)

Mexico	Censo Económico para la Industria Manufacturera 2009 (<i>Economic Census for the Manufacturing Industry 2009</i>)	31-33 Manufacturing industries. Industrial Classification System of North America, SCIAN Mexico
Panama	Encuesta entre Empresas No Financieras 2007 (<i>Survey among Non-financial Businesses 2007</i>)	Forestry, Fishing, Mining and quarrying, Electricity generation and distribution, Construction, Wholesale trade, Retail trade, Hotels and restaurants, Transportation, storage and communications and Other services. National Standard Industrial Classification, CINU
Peru	IV Censo Nacional Económico 2008 (<i>IV National Economic Census 2008</i>)	All sectors except agricultural, financial and public sector activities. International Standard Industrial Classification, ISIC Rev.4
Dominican Republic	Diagnóstico Nacional sobre Uso y Acceso a Tecnologías de Información y Comunicación 2006 (<i>National Diagnosis on Use and Access to ICT 2006</i>)	The sectors are: Industry; Trade, Agriculture; Agro industry; Tourism services; Financial services; General consulting services; Health and related services; Educational institutions; Non-profit organizations; Other services; Architecture, engineering and construction; Telecommunications, TV and radio; Technology, Internet
Trinidad & Tabago	Survey on E-Commerce Usage and Awareness among Businesses 2003	The sectors are: Information technologies; Construction; Finance; Wholesale trade; Manufacturing; Insurance; Transportation; Tourism; Agriculture; Government; Legal activities; Health; Telecommunications; Energy; Other services
Uruguay	Encuesta de Actividad Económica 2007 (<i>Economic Activity Survey 2007</i>)	The sectors are: C – Mining and quarrying; D – Manufacturing; E - Electricity, gas and water supply; F – Construction; G – Wholesale and retail trade; H – Hotels and restaurants; I – Transportation, storage and communications; K - Real estate, renting and business activities; M – Education; N – Health and social work. International Standard Industrial Classification, ISIC Rev. 3

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

Most countries use economic activity classifications that are consistent with the recommendations of the Partnership (2010). The most common classification is still the ISIC Rev. 3. Likewise, some countries have made adaptations of this classification in order to satisfy the national information requirements: Argentina and Brazil use the National Classification of Economic Activities (CNAE); Mexico uses the Industrial Classification System of North America (SCIAN); and Panama uses the National Standard Industrial Classification (CINU). In the case of Peru, they are already using the International Standard Industrial Classification ISIC Rev. 4.

The definition of the business size intervals according to the number of persons employed is not standard in all countries or in all surveys. Therefore, it is suggested that the reports with outputs of the ICT indicators in businesses, disaggregated by size, include the numerators and/or denominators used in the calculations and not only the percentages, so as to enable the comparability among indicators for different surveys.

3.5.8 ICT measurement frequency

Most of the countries of the region that conduct business surveys in a regular and periodic form are those which have progressed more in the implementation of ICT questions in businesses, as you may

observe in Table 30. Argentina, Brazil, Colombia, Panama, Peru and Uruguay have annual data available on the use of ICT in businesses.

In relation to the Economic Census, the time periods between a measurement and the following one, are larger: The Economic Census of Mexico is done every 5 years, and so does the Economic Census of ICT in Cuba. As for Peru, fifteen years passed between the III and IV National Economic Census.

TABLE 30
LATIN AMERICA AND THE CARIBBEAN: MEASUREMENT FREQUENCY OF THE ICT
VARIABLES IN BUSINESS SURVEYS ^a

Country	Surveys	Measurement frequency
Antigua and Barbuda	E-Readiness Business Survey	N.a
Argentina	Encuesta Nacional sobre Innovación y Conducta Tecnológica (ENIT) (<i>National Survey on Innovation and Technological Behavior</i>)	Annual
Barbados	E-readiness survey	N.a. There is reference of only one year of application
Brazil (IBGE)	Pesquisa sobre acesso e uso das Tecnologias da Informação e Comunicação e do Comércio Eletrônico das Empresas (<i>Survey on the Access and Use of Information and Communication Technologies and E-commerce</i>)	To be determined
Brazil (CGI)	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil (<i>Survey on the Use of Information and Communication Technologies in Brazil</i>)	Annual
	Pesquisa sobre o uso das Tecnologias da Informação e da Comunicação no Brasil – TIC Microempresas (<i>Survey on the use of Information and Communication Technologies in Brazil – ICT microbusinesses</i>)	Every 3 years (scheduled)
Chile	Encuesta a las Pequeñas y Medianas Empresas PYME (<i>Survey of Small and Medium Businesses</i>)	Every 2 years
	Tecnologías de Información y Comunicación en Microempresas (<i>ICT in Microbusinesses</i>)	N.a
	Encuesta Anual Manufacturera (EAM) (<i>Annual Manufacturing Survey</i>)	Annual
	Encuesta Anual de Servicios (EAS) (<i>Annual Service Survey</i>)	Annual
Colombia	Encuesta Anual de Comercio (EAC) (<i>Annual Trade Survey</i>)	Annual
	Encuesta de Microestablecimientos de Comercio, Servicios e Industria (<i>Survey of Trade, Services and Industry Microestablishments</i>)	Annual
Cuba	Encuesta especializada en TIC (<i>ICT Specific Survey</i>)	To be conducted in the inter-census period
Mexico	Censo Económico para la Industria Manufacturera (<i>Economic Census for the Manufacturing Industry</i>)	Every five years
Panama	Encuesta entre Empresas No Financieras (Empresas de 5 y más ocupados e intencionales) (<i>Survey among Non-Financial Businesses – Businesses with 5 or more persons employed and purposive</i>)	Annual
Peru	IV Censo Nacional Económico (<i>IV National Economic Census</i>)	Not defined, 15 years passed between the last two censuses

(CONTINUES)

TABLE 30 (CONTINUATION)

Dominican Republic	Diagnóstico Nacional sobre Uso y Acceso a Tecnologías de Información y Comunicación (<i>National Diagnosis on Use and Access to ICT</i>)	There is no schedule defined
Trinidad & Tabago	Survey on E-Commerce Usage and Awareness among Businesses	N.a
Uruguay	Encuesta de Actividad Económica (<i>Economic Activity Survey</i>)	Annual

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

3.5.9 Costs and financing means of the survey or module

The costs of implementation of the questions or modules on ICT in the business surveys represent one of the most significant obstacles reported by the countries of the region, for implementing all the questions recommended by the Partnership (2010).

Table 31 presents a summary of the available information on costs and financing means of the ICT questions in the Business Surveys of the region.

TABLE 31
LATIN AMERICA AND THE CARIBBEAN: COSTS AND
FINANCING MEANS OF BUSINESS SURVEYS ^a

Country	Survey	Cost per interview on ICT questions	Cost per ICT module	Financing means
Antigua and Barbuda	E-Readiness Business Survey 2008	N.a	N.a	Ministry of Information and Telecommunication
Argentina	Encuesta Nacional sobre Innovación y Conducta Tecnológica (ENIT) 2005 (<i>National Survey on Innovation and Technological Behavior 2005</i>)	\$56.2 ARP (US\$18.7)	\$120,000 ARP (US\$40,000)	Own funds of the Institute and support of the Science, Technology and Productive Innovation Department (SeCyT)
Brazil (IBGE)	Pesquisa sobre acesso e uso das Tecnologias da Informação e Comunicação e do Comércio Electrónico das Empresas 2009 (<i>Survey on the Access and Use of Information and Communication Technologies and E-commerce 2009</i>)	N.a	N.a	Budget resources
Chile	Encuesta a las Pequeñas y Medianas Empresas PYME 2006 (<i>Survey of Small and Medium Businesses 2006</i>)	N.a	N.a	Internal resources
Chile	Tecnologías de Información y Comunicación en Microempresas 2006 (<i>ICT in Microbusinesses 2006</i>)	N.a	N.a	Agreement Undersecretaryship of Economy – INE (National Statistical Institute)

(CONTINUES)

TABLE 31 (CONTINUATION)

	Encuesta Anual Manufacturera (EAM) 2008 (<i>Annual Manufacturing Survey 2008</i>)	\$ 35,383 cost per module. US\$15 (using the exchange rate of \$2,250 of January 27 th , 2009)	\$284,373,171 pesos. US\$ 126,388 (using the exchange rate of \$2,250 of January 27 th , 2009).	Investment budget allocated to the annual manufacturing survey
Colombia	Encuesta Anual de Servicios (EAS) 2008 (<i>Annual Service Survey 2008</i>)	\$ 35,383 (Colombian pesos). US\$15 approx. with exchange rate 01/29/2009	\$156,994,371. US\$67,060 approx. with exchange rate 01/29/2009	DANE's resources, the module is financed with resources of the Annual Service Survey (EAS)
	Encuesta Anual de Comercio (EAC) 2008 (<i>Annual Trade Survey 2008</i>)	\$ 35,383 (Colombian pesos). US\$15 approx. with exchange rate 01/29/2009	\$ 262,188,030 (Colombian pesos) US\$109,679 approx. with exchange rate 01/29/2009	DANE's resources, the module is financed with resources of the Annual Trade Survey
	Encuesta de Microestablecimientos de Comercio, Servicios e Industria 2008 (<i>Survey of Trade, Services and Industry Microestablishments 2008</i>)	\$.048 (Colombian pesos). US\$2	\$229,266,576 (Colombian pesos). US\$101,896	Investment budget allocated to the survey
Cuba	Encuesta especializada en TIC 2009 (<i>ICT Specific Survey 2009</i>)	N.a	N.a	Budget of the NSO
Mexico	Censo Económico para la Industria Manufacturera 2009 (<i>Economic Census for the Manufacturing Industry 2009</i>)	N.a	N.a	Resources of the Federal Government
Panama	Encuesta entre Empresas No Financieras (Empresas de 5 y más ocupados e intencionales) 2007 (<i>Survey among Non-Financial Businesses – Businesses with 5 or more persons employed and purposive- 2007</i>)	N.a	N.a	Operation budget of the Institution
Peru	IV Censo Nacional Económico 2008 (<i>IV National Economic Census 2008</i>)	N.a	N.a	Resources of the public treasury
Dominican Republic	Diagnóstico Nacional sobre Uso y Acceso a Tecnologías de Información y Comunicación 2006 (<i>National Diagnosis on Use and Access to ICT 2006</i>)	N.a	N.a	Government funds through the National Statistical Office
Trinidad & Tabago	Survey on E-Commerce Usage and Awareness among Businesses 2003	N.a	N.a	National E-Commerce Secretariat's (NeCS)
Uruguay	Encuesta de Actividad Económica 2007 (<i>Economic Activity Survey 2007</i>)	US\$4.	N.a	Budget of the National Statistical Institute.

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country. The names of the surveys that are not in English are presented both in the original language and in English translation.

It should be noted, that in most surveys, the NSOs finance the researches with own resources allocated by the public treasury. Likewise, it is important to highlight the support of other bodies as in the case of Argentina and Chile.

3.5.10 Dissemination of the survey's data

The preparation and distribution of the ICT indicators is done mainly in the form of tables which are included in the publications and reports of the NSOs. These tables are available in digital format or in printed form. The access to the microdata of the business surveys is usually more restricted than the access to the microdata of the household surveys. The reason for this is that the confidentiality of the information of each registry is more complex to guarantee in the business surveys, where there are activity sectors with a small number of businesses.

In this regard, the NSOs have guaranteed this private information protection to the firms. In other words, they have found methods for publishing the results without revealing confidential data and, at the same time, giving a general overview of the businesses' situation, by economic activity sector, value of the assets, region and size of the business, among other characteristics.

The countries of the region, which have implemented ICT questions, have published the results concerning the use of ICT in the businesses through different media (web sites, bulletins, periodic publications). The following section deals with this matter in detail.

3.5.11 Forms of publishing and disseminating the results

Table 32 shows a summary of the main mechanisms for publishing ICT statistics results in businesses of the countries of the region.

TABLE 32
LATIN AMERICA AND THE CARIBBEAN: MECHANISMS OF DISSEMINATION AND PUBLICATION OF ICT STATISTICS RESULTS IN BUSINESSES^a

Country	Dissemination mechanisms	Publications
Antigua and Barbuda	Publication of document with research results	Antigua and Barbuda E-Readiness Business Survey Report (2008)
Argentina	Paper, CD and web, one publication for each innovation Survey. The highest level of publication was ISIC with two-digit codes	Encuesta sobre Conducta Tecnológica de las empresas Industriales Argentinas (Survey on Technological Behavior of the Argentinean Industrial Businesses) (1992/1996) Segunda Encuesta Nacional de Innovación y Conducta Tecnológica de las Empresas Argentinas (Second National Survey of Innovation and Technological Behavior of the Argentinean Businesses) (1998/2001) Encuesta Nacional a Empresas sobre Innovación, I+D y TIC (National Business Survey on Innovation, R&D and ICT) (2002/2004) Encuesta Nacional sobre Innovación y Conducta Tecnológica ENIT (National Survey on Innovation and Technological Behavior) (2005)
Brazil (CGI)	Institutional web page, publication of a book on the survey, press and institutional presentations, paper, CD and web in the form of tables: www.nic.br/indicadores .	Pesquisa sobre o uso das teconologias da informação e da comunicação no Brasil (2006) Pesquisa sobre o uso das teconologias da informação e da comunicação no Brasil (2007) Pesquisa sobre o uso das teconologias da informação e da comunicação no Brasil (2008) Artículo TIC Microempresas (2007)
Chile	Institutional web page Web page of the Undersecretaryship of Economy	Resultados Encuestas PYMES (Results PYME Surveys) Metodología Encuestas PYMES (Methodology PYME Surveys) Tabulados Encuestas PYMES (Tabulations PYME Surveys) Tecnología de Información y Comunicación en Microempresas (Resultados Preliminares) ICT in Microbusinesses (Preliminary Results)

(CONTINUES)

TABLE 32 (CONTINUATION)

Colombia	Press bulletins in DANE's institutional page, press news and institutional presentations	Primera publicación con los resultados de 2006 (2008) cómo módulo anexo de la EAC (First publication with the results of 2006 (2008) as an annexed module of the EAC) Boletines de Indicadores Básicos de Tecnologías de la Información y la Comunicación TIC 2006 (2008) (Bulletins of Core ICT Indicators)
Cuba	Web site	Resultados Encuestas (Survey results)
Mexico	Databases in web page through data Warehouse	Tabulados Censo Económico 2004 (Tabulations of Economic Census)
Panama	Own web page, printed bulletins, Electronic bulletins. Press news, institutional presentations	Encuesta Anual entre Empresas No Financiera (Annual Survey among Non-financial Businesses)
Peru	Working documents	N.a
Dominican Republic	Printed report and in PDF file via CD and electronically, via the NSO's Portal	Diagnostico Nacional sobre Tecnologías de Información y Comunicación (DINATIC). Gobierno – Empresas 2005(06) (National Diagnosis on ICT (DINATIC). Government – Businesses 2005(06)
Trinidad & Tabago	Report in digital format.	Surveys on E-Commerce Usage and Awareness among Businesses and Households 2003
Uruguay	Web site	The National Statistical Institute has not yet made any Publications on ICT in the businesses; it is a pending task for the moment when the results of 2006 and 2007 are available

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

^a We include the most recent surveys with available documentation for each country.

3.5.12 Main findings in the countries' publications

Box 8 presents some of the main findings of the publications that analyse the access and use of ICT. As an example, the cases of Antigua and Barbuda, Argentina, Panama and Dominican Republic, were considered.

BOX 8

ANTIGUA AND BARBUDA, ARGENTINA, PANAMA AND DOMINICAN REPUBLIC: MAIN FINDINGS OF PUBLICATIONS WITH RESULTS ON ICT IN BUSINESS SURVEYS ^a

Antigua and Barbuda. E-Readiness Survey report 2008

- 98% of the businesses that answered this survey have Internet access
- The Internet penetration level among the whole staff is around 70%
- 45% of the respondents access the Internet through a wireless connection and 31% via broadband connections
- 25% of the studied businesses have an Intranet
- 62% of the respondents indicated that their business has a web site

Argentina. Encuesta nacional sobre Innovación y Conducta Tecnológica 2006 (National Survey on Innovation and Technological Behavior 2006)

Some of the results on the level of dissemination, use and investment on ICT by the Argentinean industrial businesses are mentioned below:

- Between 2001 and 2005, the increase in the use of the Internet is demonstrated by the fact that 95% of the businesses used it in 2005
- During 2005, more than 92% of the businesses used the e-mail in their work routines
- During 2005, 45.1% of the business declared to have made investments on ICT, which indicates an increase of 4.2% in relation to the previous year

(CONTINUES)

BOX 8 (CONTINUATION)

- While most big and medium businesses (92.2% and 73.8% respectively) declared to have made investments on ICT during 2005, only 32.9% of the small businesses stated that they had invested on ICT in that year

Panama. Encuesta entre empresas no financieras 2007 (Survey among Non-Financial Businesses 2007)

- 79.1% of the businesses have computers
- 68.3% of the businesses have Internet service
- 20.3% of the businesses have Intranet
- 39.7% of the businesses have local area network (LAN)

Dominican Republic. Diagnóstico Nacional sobre Tecnologías de la Información y Comunicación 2006 (National Diagnosis on Use and Access to ICT 2006)

- 80% of the country's businesses have computers
- 94% of the businesses declared to have some kind of communication system
- Of the total number of businesses, 4% has a WAN network connected to all computers and 3.7% of the businesses have it for some areas and/or departments
- DINATIC registers that only 54% of the businesses which have computers have access to the Internet
- 35% of the businesses reporting to have access to the Internet make transactions with public institutions

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of publications supplied by the National Statistical Offices.

^a The names of the surveys that are not in English are presented both in the original language and in English translation.

3.5.13 Users and uses of the information on ICT

Currently, the demand for ICT data comes from different national and international organizations. Table 33 shows that the main users of this kind of information in the region are (in decreasing order): the government, and the researchers and academic institutions; then, the private sector, the international organizations, the NGOs and the communication media. It should be noted that Chile was the only one to identify the civil society as the main user of the information.

TABLE 33
LATIN AMERICA AND THE CARIBBEAN: MAIN USERS OF ICT
INFORMATION OF BUSINESS SURVEYS

Country	Government	Academic Institutions and Researchers	Private Sector	International Organizations and/or NGO	Communications Media	Civil Society
Argentina	x	x	x		x	
Brazil	x	x	x	x	x	
Chile	x	x	x		x	x
Colombia	x	x	x	x	x	
Mexico	x	x		x		
Panama	x	x	x	x	x	
Peru	x	x	x	x		
Uruguay	x	x	x			
Total	8	8	7	5	5	1

Source: Observatory for the Information Society in Latin America and the Caribbean (OSILAC) on the basis of data supplied by the National Statistical Offices.

3.6 Formulation and methodologies for the calculation of business core indicators

Table 34 presents the proposal of the Partnership (2010) for the numerators and denominators recommended for the calculation of each of the twelve core indicators on the use of ICT in businesses. This general guideline is intended as a guide that may be extended or adapted by the countries according to the information requirements at a national and local level.

TABLE 34
CORE ICT INDICATORS IN BUSINESSES

Core indicator	Numerator	Denominator
B1 Proportion of businesses that use computers.	Number of businesses that used computers	Total number of businesses
B2 Proportion of persons employed who routinely use computers.	Number of persons employed who routinely use computers	Total number of persons employed
B3 Proportion of businesses that use the Internet.	Number of businesses that use the Internet	Total number of businesses
B4 Proportion of persons employed who routinely use the Internet	Number of persons employed who routinely use the Internet	Total number of persons employed
B5 Proportion of businesses with presence in the web.	Number of businesses with presence in the web	Total number of businesses
B6 Proportion of businesses with Intranet.	Number of businesses with Intranet	Total number of businesses
B7 Proportion of businesses that receive orders over the Internet.	Number of businesses that receive orders over the Internet	Total number of businesses
B8 Proportion of businesses that place orders over the Internet.	Number of businesses that make orders over the Internet	Total number of businesses
B9 Proportion of businesses that use the Internet classified by type of access (narrowband, fixed broadband and mobile broadband).	Number of businesses that have access to the Internet by each type of access	Total number of businesses that use the Internet
B10 Proportion of businesses with local area network (LAN).	Number of businesses with LAN	Total number of businesses
B11 Proportion of businesses with extranet.	Number of businesses with extranet	Total number of businesses
B12 Proportion of businesses that use the Internet classified by type of activity.	Number of businesses that use the Internet by each type of activity	Total number of businesses that use the Internet

Source: Partnership on Measuring ICT for Development, 2010.

IV. Proposals for ICT indicators in education

In 2005, the Partnership on Measuring ICT for Development created a working group on measuring ICT in education, coordinated by the UNESCO Institute for Statistics. In the same year, the UNESCO presented a first proposal for ICT indicators in education, on the basis of the review of 10 surveys dedicated, totally or partially, to the measurement of the infrastructure and use of ICT in the educational systems¹⁴. More precisely, the UNESCO identified, collected and systematized the main international education surveys which included the ICT question in this area. This lay the foundations for more thorough research on this matter which is essential for the development processes of the XXI century.

A first list of core ICT indicators in education was proposed with regard to the identification of the indicators that are most used in the surveys. This list was presented by the UNESCO during the Third Workshop on Measuring the Information Society in Latin America and the Caribbean, which was held in Panama in 2006¹⁵. On this occasion, the NSO of Cuba presented a proposal of indicators on access and social use of ICT. This proposal was intended for educational, health and sports institutions, and centers of community access to the Internet.

Later on, during the Fourth Workshop on Measuring the Information Society in Latin America and the Caribbean, held in February 2008 in El Salvador, a first session was organized on how to advance towards the definition of indicators on ICT use in education. The session included presentations of the UNESCO, the Cuban NSO, ECLAC – on eLAC's goals 2010 concerning education – and a regional proposal on ICT indicators in education prepared by the Working Group on ICT of SCA/ECLAC. This discussion generated a regional proposal on the basis of the indicators agreed by the UNESCO, which incorporates 20 indicators regarding infrastructure, use and capacity.

Then, in August 2008 in Antigua, at the Workshop on Indicators organized by OSILAC and the Latin American Network of Education Portals (RELPE), in the framework of the Seminar on Editing in Latin American Portals and for the Definition of ICT in Education Indicators¹⁶, a second set of indicators was proposed by the experts on education, on the basis of UNESCO's framework, but

¹⁴ More details on the proposal in: UNESCO Institute for Statistics (UIS) (2005) "ICT and Education Indicators. Suggested core indicators on the basis of meta-analysis of selected international school surveys".

¹⁵ More information about this Workshop in the Internet, in the following link: http://www.itu.int/ITU-D/ict/conferences/panama06/material/Conclusions_S.pdf

¹⁶ More information in the Internet, in the following link: <http://www.relpe.org/relpe>

with broader objectives. These indicators aimed at measuring the development of ICT skills for teachers and the goals of eLAC2010.

Finally, the proposals were analyzed at the Fifth Workshop on Measuring the Information Society in Latin America and the Caribbean, held in April 2009 in Rio de Janeiro, and it was agreed that the Working Group on ICT of SCA/ECLAC would draw up a final document with the regional suggestion for a core indicators list on ICT in education, and also identify key subjects on methodological harmonization. The final document was presented at the Fifth Meeting of the Statistical Conference of the Americas, held in August 2009, in Bogota.

The regional proposal embraces 14 indicators and considers the list of indicators identified by the UNESCO as a reference. The novel aspects concern the aggregation of 4 new indicators to the original list (availability of computers and computer laboratory in the schools, connection availability of computers to local area networks (LAN) and wide networks (WAN)), and also the specifications on the indicator which refers to the type of Internet connection.

The proposal detailed in Table 35 relies on all the efforts already mentioned and considers also the progress already achieved by the UNESCO Institute for Statistics, presented at the Geneva meeting of the Partnership on Measuring ICT for Development¹⁷.

This proposal was discussed and endorsed, at a regional level, by the members of SCA-ECLAC, the experts on educational statistics and the members of the digital agendas of the countries of the region¹⁸.

TABLE 35
PROPOSAL FOR ICT INDICATORS IN EDUCATION

Type	Ref.	Indicators	Observations	UNESCO list correspondent
Access	I1	Proportion of schools with a radio used for educational purposes (ISCED levels 1- 3)	Only the transmission, not the equipment, is considered	ED1
	I2	Proportion of schools with a TV used for educational purposes (ISCED levels 1- 3)	Measurement of the type of media used (transmission, VHS, DVD, etc.)	ED2
	I3	Proportion of schools with computers (ISCED levels 1- 3))	You can also measure the proportion of schools with computers used for management and administrative purposes	New (related to ED22)
	I4	Learner-to-computer ratio (ISCED levels 1- 3)		ED4
	I5	Proportion of schools with computer labs (ISCED levels 1- 3)	Computers in classrooms and labs	New
	I6	Proportion of schools with computers connected to a local area network (LAN) (ISCED levels 1- 3)		New
	I7	Proportion of schools that belong to a wide area network (WAN) (ISCED levels 1- 3)		New

(CONTINUES)

¹⁷ More details in: UNESCO Institute for Statistics (UIS) (2008) Proposal for internationally comparable core indicators on ICT in education.

¹⁸ The methodological guidelines of the proposed indicators can be consulted in the document: Regional proposal for core indicators on ICT in education: methodological guidelines.
http://www.cepal.org/socinfo/noticias/noticias/1/40221/Regional_proposal_for_core_indicators_on_ict_in_education_-_Methodological_guidelines.pdf

TABLE 35 (CONTINUATION)

	I8	Proportion of schools with a telephone communication facility (ISCED levels 1- 3)		ED3
	I9	Proportion of schools with Internet access, by type (ISCED levels 1- 3)	It is suggested to specify the options for connectivity and speed instead of bandwidth. Options: dial-up, xDSL, modem, dedicated line, mobile Internet, satellite or others. The indicator should reveal whether the connection is broadband or narrowband	ED5 (with specifications)
Skills	I10	Proportion of learners who have access to the Internet at school (ISCED levels 1- 3)		ED6
	I11	Proportion of learners (by gender) enrolled at the post-secondary non-tertiary and tertiary level in ICT-related fields (ISCED level 4 and ISCED level 5 and 6)		ED7
	I12	Proportion of ICT-qualified teachers in primary and secondary schools (ISCED levels 1- 3)		ED8
	I13	Proportion of primary and secondary school teachers trained to teach subject(s) using ICT facilities (ISCED levels 1- 3)		ED38
	I14	Proportion of schools with electricity (ISCED levels 1- 3)	We suggest you check before you set options if the power supply is via public network or autonomous	

Source: Diagnosis on methodological matters and new ICT indicators for Latin America and the Caribbean. Statistical Conference of the Americas, 2009.

V. Proposal for core indicators on e-government

The electronic government, in other words, the use of ICT in the internal government processes and the provision of public services to the citizens, is a key issue in the functioning of the states, which has shown significant results in increasing transparency and efficiency of governments in countries where it has been implemented. Moreover, it enables an accessibility of the citizens to the institutions and a better communication with them. Therefore, this subject is considered of great importance for monitoring the progress of the information society at the global, regional, national and subnational levels.

The discussion about the definition of a list of core indicators on e-government in the lines of the Partnership began some years ago, but only in 2008 the activities were intensified through the task group on development of e-government indicators (TGEG), whose coordination was trusted to the United Nations Economic Commission for Africa (UNECA). On the basis of a first list proposal presented by the TGEG, the ICT working group of SCA/ECLAC, with the support of OSILAC, developed a proposal for measuring e-government indicators in the region, which comprises ten basic or core indicators, and seven extended indicators. Besides, additional subindicators may be calculated by differentiating according to the gender of the persons employed and the geographic location of the government organizations, if the countries are interest in it.

This proposal was discussed by representatives of the National Statistical Offices (NSO) in the frame of the Fifth Workshop on Measuring the Information Society in Latin America and the Caribbean, held in April of 2009 in Rio de Janeiro. The discussion highlighted the importance of driving the measurement of electronic government in our countries, and it was suggested that data collection begins with the central government, and eventually extends to the collection of data on regional and local government levels. The recommended data sources for collecting this type of information are: the administrative records and the surveys addressed to the public sector.

The main units of analysis referred to in this proposal are the government organizations¹⁹ and the persons employed in government organizations; the analysis emphasizes the more recently developed technologies with major possibilities of applications such as computers and the Internet.

¹⁹ In accordance with the recommendation of the UNSD (2008b) “The government organizations include central, regional and local government units and do not include the public corporations (legal entities that are mainly owned or controlled by the government and that have been created with the purpose of producing goods and services for the market and may be an income source for its owners)”. On the other hand, the current definition used by the OECD follows the lines given by the System of National Accounts (SNA) [UNSD, 1993] which

Table 36 presents a summary of the regional proposal on e-government core indicators, on the basis of the discussion held in the ICT working group of SCA/ECLAC on methodological and data harmonization subjects, in the frame of ICT measurement in the region²⁰.

TABLE 36
PROPOSAL FOR CORE INDICATORS ON E-GOVERNMENT

Type	Ref	Indicators	Observations	Code in original list
Core Indicators	CEG1	Percentage of persons employed in government institutions routinely using computers at work	We added “routinely” and “at work”	EG1
	CEG2	Percentage of persons employed in government institutions routinely using the Internet at work	We added “routinely” and “at work”. We changed “access” for “use”	EG2A
	CEG3	Percentage of persons employed in government institutions routinely using an e-mail at work	New	EG2B
	CEG4	Percentage of government institutions with a web presence (website or homepage hosted in another entity’s website, but with control over content publishing)	We remarked that this indicator includes the institutions with homepage hosted in another entity’s website, but with control over content publishing. We deleted “with databases”	EG3A
	CEG5	Percentage of government institutions with corporate networks (LAN, WAN, Intranet, Extranet)	We didn’t make changes	EG4
	CEG6	Percentage of government institutions with interoperability standards	New	EG19
	CEG7	Percentage of government institutions with Internet access by type of access (narrowband, fixed broadband and mobile broadband)	We didn’t make changes	EG11
	CEG8	Percentage of government institutions offering services to users by available platforms: web, fixed telephone, fax, mobile phone	We added the types of technologies: web, fixed telephone, fax, mobile phone	EG5
	CEG9	Percentage of government institutions offering online services by level of complexity service	New	EG17
	CEG10	Percentage of government institutions offering online services by type of service	We didn’t make changes	EG15

(CONTINUES)

defines the government units as follows: “Government units may be described as unique kinds of legal entities established by political processes that have legislative, judicial or executive authority over other institutional units within a given area. Viewed as institutional units, the principal functions of government are to assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes; to redistribute income and wealth by means of transfers; and to engage in non-market production (...)”. UNSD (2008b), Updated System of National Accounts 1993 (1993 SNA), <http://unstats.un.org/unsd/nationalaccount/default.asp>.

²⁰ The methodological guidelines of the proposed indicators are available in the document Regional Proposal for e-Government Indicators: Methodological Guidelines. http://www.cepal.org/socinfo/noticias/noticias/1/40221/Regional_proposal_for_core_indicators_on_e-government_methodological_guidelines.pdf

TABLE 36 (CONTINUATION)

Extended Indicators	EEG1 1	Percentage of expenditure on ICT per total expenditure of government institutions	We didn't make changes	EG9
	EEG1 2	Percentage of ICT persons employed or subcontracted ICT personnel in government institutions	We didn't make changes	EG6
	EEG1 3	Percentage of persons employed in government institutions with computer skills	We remark "computer skills", not "type of applications"	EG13
	EEG1 4	Percentage of persons employed in government institutions with abilities in the Internet use	We changed "who are trained on use of ICT" for "with abilities in the Internet use"	EG14
	EEG1 5	Percentage of government institutions that offer ICT training to their persons employed	New	EG20
	EEG1 6	Percentage of the ICT budget spent on institutional ICT training	We changed "on institutional capacity building and human resource development" for "on institutional ICT training"	EG10
	EEG1 7	Percentage of government institutions using open source software as an operative system	We deleted the comparison with "proprietary software"	EG12

Source: Diagnosis on methodological subjects and new ICT indicators for Latin America and the Caribbean. Statistical Conference of the Americas, 2009.

Other observations of the ICT working group of the SCA/ECLAC to the e-government harmonized measurement process in the region

Usually, the government organizations have the obligation to answer official questionnaires, therefore, their response is highly probable (or it is guaranteed up to a certain point).

It is essential that the National Statistical Offices identify their counterparts, that is, the organizations involved in the production of statistics and indicators on e-government in each country.

It is also important to point out that, depending on the ICT development level in the public administrations, it would be interesting to make use of the administrative records already existing instead of making specific surveys on the government subject.

Colombia is a clear example of administrative records development to measure ICT in the government, through its online government program. Here, public entities are legally forced to detail in a data system their purchases of ICT tools, their budget, ICT expenses, and the number of personnel using ICT, among others.

Additionally, it should be taken into account that the National Statistical Offices, in their steering role of the National Statistical Systems, can make observations and participate in elaborating methodological designs for the collection of data on e-government collected by other institutions, thus collaborating in the construction of an informed society by contributing with their know-how in the design and implementation of statistical operations at the national and subnational levels.

VI. Recommendations

This chapter offers practical recommendations concerning the implementation of ICT questions in household surveys and business surveys of Latin America and the Caribbean. In general terms, it considers as a global frame of reference the recommendations given by the Partnership on Measuring the ICT for Development (2010), the International Telecommunication Union (2008) and the UNCTAD (2009) and it reports observations and suggestions for the main issues discussed at the Regional Workshops on Measuring the Information Society (2005 – 2009).

The purpose of these recommendations is to achieve the comparability of ICT results at a regional level and in relation to other regions and economies. Thus, the information may be used as an input for making diagnosis on the external digital divide and to enable the identification of the main regional requirements.

The NSO of the region have a large experience in planning and implementing statistical operations that involve data collection on social and economic subjects; therefore, we do not include recommendations on issues regarding: the sampling design of the surveys; the design of questions and response categories to collect data on occupation, age and income; planning and implementation of the collection process, among other subjects.

On the other hand, the main recommendation concerning e- government and ICT in education is to start implementing the proposed indicators at a regional level. This implementation should allow improving the formulation of the indicators and establishing a base line for comparing the progress made by the countries in these two subjects. Although the researches on e-government and ICT in education are not always performed by the NSOs, it is proposed that the NSOs collect the results of the indicators and, if possible, make suggestions for the permanent improvement of the data collection methodologies and the quality of the collected data. These subjects are still in a development process and, therefore, they are not discussed more largely in this chapter.

6.1 Recommendations for ICT measurement in household surveys

The recommendations made in this section are focused in five areas: i) Design of the questions and response categories on ICT, ii) ICT data collection, iii) Metadata reporting, iv) Data processing and calculation of the ICT indicators, and v) Presentation and diffusion of the ICT results.

We emphasize the specific aspects of the implementation of ICT questions in household surveys, especially those that have been discussed by representatives of the NSO at the regional meetings.

6.1.1 Design of questions and response categories on ICT

In the following lines, you will find a list with the main suggestions and recommendations regarding the design of ICT questions:

- It is suggested that the categories of response for the questions on ICT access in the households are “Yes” and “No”. The fact of not including the response category “No” may lead to ambiguities between no-access and no-response.
- It is recommended that the question on type of access to the Internet captures data on two big subjects: i) the bandwidth and ii) the access mobility. Regarding the bandwidth, the goal is to be able to categorize the type of connection in broadband and narrowband; and in the access type, to distinguish between fixed access and mobile access. The most interesting subcategories, when evaluating in one question the two issues mentioned above are: fixed broadband, mobile broadband and narrowband.
- It is recommended designing the categories of response on type of Internet access according to the connection technology, without specifying the speed. Usually, respondents do not know the characteristics of the connection speed of the Internet service they have at home²¹.
- The wording of the questions on locations and activities of ICT use should be as neutral as possible, avoiding the use of restrictive clauses such as usually or most frequently.
- It is suggested to treat each possible use location and each activity undertaken in the Internet as an independent variable, that is, to allow the reporting of multiple places and multiple use activities by each person interviewed, without restricting the number of response possibilities by the person. This, with the aim of being able to discriminate between the users that have the option of choosing among multiple places of access, and those who lack this option; and to distinguish between users who undertake multiple activities online, and those who only use the Internet for communicating and information searching activities.
- It is proposed that the reference period of the questions on individual ICT use allows obtaining information about the 12 months previous to the survey, for international comparability purposes, according to the recommendation of the Partnership (2010). Some of the countries of the region have used shorter reference periods in view of their national information requirements; in these cases, the recommendation is that the response categories of the questions should envisage different time periods (including the last 12 months and the last three months). Note that for variables such as use of Internet for electronic commerce and electronic government, whose intensity can vary depending on time of year, is suggested to keep the reference period of 12 months.

²¹ Among the most common types of narrowband technology are the analogue modem (dial-up via standard phone line), ISDN (Integrated Services Digital Network), DSL at speeds below 256 kbit/s and mobile phone access services such as CDMA 1x /Version 0), GPRS, WAP and e-mode.

In relation to broadband, the most common types of technology are DSL (Digital Subscriber Line), cable modem, high-speed leased lines, fibre-to-the-home, power line, satellite, fixed wireless, wireless local area network, WiMAX, wideband CDMA, high-speed downlink packet access (HSDPA), complemented by the high-speed uplink packet access (HSUPA), CDMA2000 1xEV-Do and CDMA2000 1xEV-DV.

- It is recommended that the question on Internet use frequency refers to the routine use, without considering legal holidays or vacations of the person.

In the particular case of the ICT specific surveys, the suggestion is to include questions that inquire on other data of interest that are not usually dealt with in the multipurpose surveys, such as: ICT expenses, benefit perception of ICT at an individual level, obstacles to the access and use of ICT, skills in the use of ICT and use activities of the mobile telephone, among others.

Similarly, the variables' selection and analysis categories to be included in the questionnaire should take into account the most common requirements of the ICT data users. These requirements may be incorporated along the lines of the design of a basic tabulation plan of the results, before the collection process begins.

The ICT specific surveys should also collect data on socioeconomic and demographic variables such as: age, education level, household size, geographical residence area (urban/rural), income, occupation, activity sector, ethnicity, English knowledge. These variables are the base for generating subindicators and cross tabulations.

It is recommended to adopt the methodologies and classifications on status in employment, occupation, education level and age group, which were internationally agreed. Likewise, it is suggested to take into account the comparability of the response categories of the classification variables with the standards of other surveys at a national level to allow the results' comparison among different researches.

The NSO should also collect data on ICT use by younger individuals (14 or less) and older individuals (75 and over). Although the minimum recommended scope corresponds to individuals between 15 and 74 years old, the characterization of other population groups enriches the analysis of the progress of the information society.

The questions should be translated and adapted for each one of the main languages of the country, in accordance with the recommendations of the United Nations Statistical Division.

6.1.2 ICT data collection

It is recommended that the interviewer's reference manual includes the main guidelines and instructions that the interviewer should follow when developing the ICT questions.

For those countries that make questions on ICT use to the direct respondent, it is suggested that the interviewer's manual specifies the maximum number of visits that should be made in order to obtain the information.

For those countries that make questions on ICT use to an eligible respondent, it is suggested that the interviewer's manual contains instruction for the selection of the respondent; priority should be given to the person from which you desire to obtain the information (respondent), but it should indicate guidelines to choose the eligible respondent if it is not possible to interview the direct respondent.

The main criteria suggested for the selection of the eligible respondent are: age of the respondent, knowledge about the information and the possibility to rely on the collaboration of other members to answer the questions.

Besides, it is recommended to carry out field tests before the collection process, whether the capture is via digital form or via printed questionnaires.

In general terms, it is recommended that each country collects ICT data with a frequency of at least every two years. If the economic and human resources allow it, it is recommended to do it annually.

In the specific cases of the countries that are incorporating ICT questions for the first time, it is recommended that they adopt the proposals made in this compendium and that they take into

account the experience and practices of the countries of the region that have already incorporated the ICT measurement in their regular survey programs.

6.1.3 Metadata reporting

It is recommended to draw up a summary with the main characteristics of the data collection and processing (metadata), in order to promote the correct understanding of the processes involved and the scopes of the collected data in the household surveys. This process is important for all the variables' groups included in a survey, not only for the ICT variables.

The metadata associated to each survey should include the following:

- Official name of the survey and short name or abbreviation of the survey.
- Coverage of the survey, specifying the subpopulations, or excluded or out-of-scope individuals.
- Description of the data collection methods, indicating if they are self-responded paper questionnaires, questionnaires captured directly in electronic devices or other types of methods.
- Date of the last data update, whether due to the entry of new data, correction of existing data, or modifications in the organization of the data.
- Dissemination media of the data, referring whether it is by microdata, electronic publications, printed publications, news, databases for online consulting, summary tables in the web page, or other media.
- Date of metadata's last update, whether due to the entry of new metadata or data descriptors, or the elimination or modification of the metadata from the penultimate update.
- Sampling proceedings, sample size, stratification, treatment of the non-response, sampling frame used.
- Questionnaire and interviewer's manual.
- Dictionary of the survey's variables, with name of the variables, description of the variables and codification of the question's response categories.
- Description of the construction process of the aggregated variables that have been included in the databases after the data collection.
- Problems encountered during the ICT data collection and lessons learned from the process.
- An additional material that can be provided to data users includes presentations on the basis of data, frequencies of the ICT variables in the target population, charts, maps, tables, spreadsheets and summaries of the collected data or related material.

For the NSO that reports microdata, some of the guidelines usually employed by the countries are the following:

- Include id variables of auto-numbering type for each analysis unit, with the aim of protecting the statistical secret of the individual and household information, enabling the design of databases queries -according to the information requirements of the user-.
- Report the names of the variables that contain the weighting factors, the strata (in the case of stratified sampling) and the primary sampling units (in the case of multi-stage

sampling), with the purpose of enabling estimations of the errors in the indicators or statistics calculated by the user.

- Report the structure of the database, specifying if it is rectangular, hierarchical or of some other type.

6.1.4 Data processing and calculation of ICT indicators

It is recommended to focus the first stage of processing on a descriptive analysis of access and use of ICT, in terms of the core indicators on access and use of ICT.

In subsequent stages, it is recommended to make cross tabulations among ICT variables and other socioeconomic and demographic variables, on the basis of the tabular plan that was defined by the institution that collects the data.

For those processing that involves a multivariate analysis, the suggestion is to consider as a basis the main results obtained by the univariate and bivariate level.

In the following points of this subsection, you will find several practical recommendations for the calculation of indicators on the use and access to ICT.

In relation to the household indicators:

The minimum recommended scope for the calculation of indicators of access to ICT corresponds to all households with at least one member between 15 and 74 years old. Each country shall decide according to its own criteria, if the indicators are calculated for those households where all its members are outside this age range (that is, that all the persons of the household are younger than 15 or older than 74).

It is recommended that the indicators on access to ICT consider the households as the analysis unit. Although there are no big differences between the number of households and the number of dwellings, it is considered more adequate to measure the ICT access at the level of each household and not of each dwelling.

The indicators on ICT access should be restricted to private households. Other types of households, such as prisons, senior homes and hotels, should be excluded from the calculation.

In relation to the individual indicators:

The minimum scope recommended for reporting results on individual use, as inputs for drawing up regional overviews and internationally comparable analysis, corresponds to the population between 15 and 74 years.

Likewise, if someone generates indicators or cross tabulations with the purpose of reporting results according to age groups, it is recommended to use the following classification: 15-24, 25-34, 34-44, 45-54, 55-64 and 65-74.

Additionally, the suggestion is that the countries collecting the data, generate indicators for the age groups: 4 years and less, 5-9, 10-14 and 75 and over, with the purpose of making analysis that are focused in young and older populations.

6.1.5 Presentation and disclosure of the ICT results

It is recommended that the institutions that collect the data, publish basic descriptive analysis to support the characterization of the collected data, either through their website, printed publications or any other media selected for dissemination purposes.

For each table, box or chart it is suggested to specify the base of population used on the denominator. The reason under this consideration is that different denominators imply changes on the results of the indicators.

The National Statistical Offices should make observations to the interpretations or erroneous analysis disclosed by other sources, thus collaborating to the construction of an informed society.

It is recommended to make use of the data dissemination process to open communication channels with the data users that are policy-makers and decision-takers, as they can contribute with observations and suggestions to improve the measuring instruments and the results' reporting.

It is suggested to work in the permanent improvement of the dissemination media and the presentation forms of the results, so that the ICTs are actually used for communicating the results of the measuring process, in a visual and accessible way to the public.

One objective of the harmonized ICT measurement process should be that the time between the publication of the first results of the survey and the publication of the ICT results should be as short as possible.

For the results on ICT use, it should be stressed that the measurement is not limited only to the individual use at home, because it also includes the use in other locations, such as work, place of study, commercial access facility or any other place. This type of specification allows establishing conceptual differences with the indicators reported on the basis of other data sources, for example, the statistics on Internet subscriptions obtained by the administrative records of the Internet service operators.

Moreover, it should be stressed that, in fact, the ICT individual use is not necessarily associated to specific geographic locations, because it also includes the use from any location through mobile access devices.

With regard to the questions on activities of ICT use, the results being published should include the explanatory note on the maximum number of possible answers per interviewee; for example, "each person was able to mention the two main activities", "each person was able to mention the three main activities", or "each person was able to indicate multiple use activities, without limiting to the main ones".

In relation to the questions on location of ICT use, the results being published should include the explanatory note on the maximum number of possible answers per interviewee; for example, "each person was able to mention the main locations of use", "each person was able to mention the three main locations of use", or "each person was able to indicate multiple use locations, without limiting to the main ones".

For the indicators of activities of Internet use is suggested to specify that the sum could be higher than 100%. This is due to the fact that each individual can report more than one activity in the reference period.

For the indicators of Internet location is suggested to specify that the sum could be higher than 100%. This is due to the fact that each individual can report more than one location in the reference period.

For the indicators of type of Internet access is suggested to specify that the sum could be higher than 100%. This is due to the fact that each household can report more than one type of Internet access in the reference period.

Finally, on the basis of the work performed by the working group on ICT of the Statistical Conference of the Americas, it is recommended to keep progressing in the use or adaptation of the methodological guidelines of the ICT indicators, by formulating observations or suggestions that are necessary to support or to improve the contents thereof.

6.2 Recommendations for measuring ICT in business surveys

This section includes the main recommendations for measuring ICT in business surveys. The aspects that are specific to this type of surveys are emphasized, because several recommendations of the previous section regarding the design of the ICT questions, metadata reporting, processing and dissemination of the results, also apply for the business surveys.

General aspects of the measuring process

For the countries that incorporate the ICT questions for the first time in business surveys, it is suggested to adopt the proposals mentioned in this compendium and take into account the experiences and practices of the countries of the region that have already incorporated the ICT measurement in their regular surveys.

For those countries that have already made researches on ICT use in businesses, it is recommended to implement the necessary changes for the adoption of the most recent recommendations by the UNCTAD (2009). This includes the revision of the main concepts and the measuring instruments in businesses.

The documentation of the surveys should always include the industrial classification being used, making reference to the revision year, and the detail of the sectors and subsectors included in the classification. Likewise, it is recommended to report the characterization typology of the business size and the geographical areas.

The countries that wish to collect indicators on ICT use in the business sector should include the maximum number of industries that is possible; the developing economies should extend the scope to include agriculture, hunting and forestry; fishing; mining and quarrying; and the activities of recreation, culture and sports (UNCTAD, 2009).

It is recommended to report the problems encountered in the ICT data collection process. Later on, this documentation may be used as inputs for the discussion of solution alternatives with experts of the NSOs of the other countries.

It is suggested to elaborate and divulge descriptive analysis of ICT use in the businesses, on the basis of the core indicators on access and use of ICT.

It is recommended to discuss and develop alternatives to enable the use business information at the aggregated level, while protecting the statistical secret of the data at the level of each business. The general results on access and use of ICT may be disseminated at the national or even regional level, without major risks in the use of the results.

The reports on data quality should be made by the same unit that produces the ICT results.

Specific aspects on the ICT questions and results reporting

All the published reports should stress that the definition of persons employed in a business includes the owners, those who perform clerical jobs, short-term and casual workers, contributing family workers and self-employed persons, who may be paid or unpaid.

The published results should emphasize that the indicators refer to the use of ICT and not only to the availability of access in the businesses.

For measuring the use of ICT, the countries should use a reference period of 12 months and make reference to it in the question, for purposes of international comparability. If the national information requirements consider a different period, the suggestion is that the response categories of the questions include different time intervals, with the condition that it will be possible to identify the necessary datum to make the international comparison.

It is recommended that the reference date of the questions on ICT use is always the same in all statements.

If the data collection phase lasts several months, it is suggested to use the same reference period for all the studied businesses, for example, the last calendar year or the year that finished on June 30 200X. Similarly, the reference date should be as close as possible to the last day of the established reference period.

The indicators of e-commerce should not be classified according to the location of the salesman or the buyer, because a business may not know or may have not registered the destination of their online sales.

In the same way as in the Eurostat Model Questionnaire (2008), it is generally not recommended to use the response categories “Does not know”, because it is considered that the answer gives the same information as a blank answer.

It is suggested that the surveys that are carried out with a regular periodicity, report any changes introduced in the analysis categories so that it is clear to the final users of the information.

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Glossary

Analogue modem: the modem converts a digital signal in an analogue one for the transmission through traditional telephone lines (copper). It also converts the analogue transmission into digital ones.

Cable modem: a device connected to the cable television networks (cable television lines) to obtain permanent “fixed” access to the Internet. A modem cable is a device that enables to connect a computer to a local cable television line and to receive information. It is considered a permanent (fixed) Internet connection of high capacity (speed) (broadband).

Community Internet access facility: it includes the use of the Internet in public libraries, free-access Internet cabins, non-commercial telecenters, community digital centers, post offices or other state organisms; usually, the access is free and it is available to the general public.

Computer: it refers to an electronic programmable device, in which you can store, acquire and process data, and through which you can share information in a highly structured way. It does mathematical and logical operations at a high speed according to a set of instructions. Computers refer to desktop or portable computers. This category does not include equipments which have some of the functions of a computer such as mobile cellular telephones, digital personal assistants or TV sets.

Educational institutions: they are established institutions whose main or sole purpose is to provide education. These institutions are normally accredited or authorized by a public authority. While most educational institutions are under the jurisdiction of, or are operated by, the education authorities, other public agencies dedicated to areas such as education, training, employment, justice, defence, social services, etc., may also be involved. The educational institutions may also be administrated by private organizations, such as religious institutions, groups with special interests, or private education and training institutions, including those that pursue profits and the non-profit ones.

E-mail: it is the electronic message transmission, both from texts and telecommunication documents. It may not be the same as an access line or a subscriber.

DSL: technology designed to provide information to households and small businesses over the regular copper telephone lines. It uses a high bandwidth at a speed of 256 kbp/s minimum in one or both directions.

Extranet: a close network which uses Internet protocols to share, safely, business’s information with suppliers, salesmen, customers or other business partners. It may have the form of an Intranet’s safe extension that allows the external users to access to part of the business’s Intranet. It can also be a part of the business’s web site where the business partners can navigate once being authenticated in a home page (login).

Fixed broadband: this category refers to technologies with speeds of 256 kbp/s minimum, in one or both directions, such as DSL, cable modem, high speed leased lines, fibre-to-the-home, power line, satellite, fixed wireless, wireless local area network and WiMAX.

Fixed telephone line: a fixed telephone line is defined as a telephone line connecting a customer’s terminal equipment (e.g. telephone set or fax machine) to the public switched telephone network (PSTN) and which has a dedicated port on a telephone exchange. This term is synonymous with the term “main station” or “Direct Exchange Line” (DEL) that is commonly used in telecommunication documents. It may not be the same as an access line or a subscriber.

Free open source: open source software refers to the computer software that circulates under an open source license. An open source license is a copyright license for computer software that allows users to modify and redistribute the source code without having to pay rights to the original author. These licenses may have additional limitations, such as the requirement to keep the authors’ names and the copyright statement inside the code.

The definition of Free Software from the Free Software Foundation is related to that of the Open Source. This definition seeks to establish which requirements must meet a software license in order to qualify as free software. In fact, the licenses which comply with the definition of open source may almost always be defined as free software too. Since 2005, all licenses declaring to comply with the free software definition, also observe the open source definition.

Government organizations: those organisms that assume responsibility for the provision of goods and services to the community or to individual households and to finance their provision out of taxation or other incomes; to redistribute income and wealth by means of transfers; and to engage in non-market production. It includes central, state and local government units.

Household: is defined as: i) a single-person household, that is to say, a person who makes provision for his or her own food or other essentials for living without combining with any other person. ii) Multi-person household, that is to say, a group of two or more persons living together who make common provision for food or other essentials for living. The persons in the group may pool their incomes and may, to a greater or lesser extent, have a common budget; they may be related or unrelated persons or constitute a combination of persons both related and unrelated.

ICT-assisted education: it refers to teaching methods or instruction models that employ ICT for sustaining, improving and providing the contents' transmission of the class. It includes any, all or combinations of the following aspects: radio-assisted education, television-assisted education, computer-assisted education and Internet-assisted education.

Interacting with general government organizations: it refers to downloading or requesting forms, completing and sending forms online, making online payments and purchasing from government organizations. It excludes getting information from government organizations.

Internet banking: it includes electronic transactions with a bank for payments or transfers, or for looking up account information.

Internet: it is a worldwide public network that provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (it is not assumed that it is only via a computer – it may also be via mobile telephone, game machines, digital TV, or other). Access can be via a fixed or mobile network.

Intranet: it refers to an internal communications network using Internet protocols and allowing communication within an organization (and to other authorized persons). It is typically set up behind a firewall to control access.

LAN: it refers to a network connecting computers within a localized area such as a single building, department or site; it may be wireless.

Mobile broadband: it refers to technologies at speeds of 256 kbp/s minimum, in one or both directions, such as Wideband CDMA (W-CDMA), known as Universal Mobile Telecommunications System (UTMS) in Europe; High-speed Downlink Packet Access (HSDPA), complemented by High-speed Uplink Packet Access (HSUPA); CDMA2000 1xEV-DO and CDMA2000 1xEV-DV. Access can be via any device (pocket computer, portable computer, mobile cellular phone, etc.).

Mobile cellular telephone: A mobile cellular telephone is defined as a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems, as well as IMT-2000 (3G). Users of both post-paid subscriptions and prepaid accounts are included.

Narrowband: It includes analogue modem (dial-up via standard phone line), ISDN (Integrated Services Digital Network), DSL at speeds below 256 kbit/s, and mobile phone and other forms of access with an advertised download speed of less than 256 kbit/s. Note that narrowband mobile phone access services include CDMA 1x (Release 0), GPRS, WAP and i-mode.

Orders placed over the Internet: include orders placed via the Internet whether or not payment was made online. They include orders placed via websites, specialized Internet marketplaces, extranets, EDI over the Internet, Internet-enabled mobile phones and e-mail. It excludes orders that were cancelled or not completed.

Orders received over the Internet: it includes orders received via the Internet whether or not payment was made online. They include orders received via websites, specialized Internet marketplaces, extranets, EDI over the Internet, Internet-enabled mobile phones and e-mail. They also include orders received over the Internet on behalf of other organizations – and orders received over the Internet by other organizations on behalf of the business. It excludes orders that were cancelled or were not completed.

Persons employed: it refers to all persons working for the business, not only those working in clerical jobs. They include short-term and casual employees, contributing family workers and self-employed persons, who may be paid or unpaid.

Radio apparatus: it is a device capable of receiving broadcast radio signals, using popular frequencies such as FM, AM, LW and SW. It includes a radio set integrated in a car or an alarm clock, but excludes radios integrated in a mobile phone, digital audio player (MP3 player) or in a computer.

Subsector of the central government: it refers to the institutional unit(s) that composes the central government, plus the non-market, non-profit institutions controlled by the central government, whose politic authority or jurisdiction extends throughout the country's entire territory. In general terms, it is composed of a central group of the departments and ministries that conforms a sole institutional unit, plus, in many countries, other institutional units.

Television set: it is defined as a stand-alone device capable of receiving broadcast television signals, using popular access means such as over-the-air, cable and satellite. It excludes TV functionality integrated with another device, such as a computer or a mobile phone.

VoIP: voice over the Internet protocol. VoIP is a family of transmission technologies for carrying voice communications over the Internet and other networks with packet switching. It is usually called IP telephony.

Web presence: it includes a web site, homepage or presence in another entity's website (including a related business). It excludes the inclusion in an online directory and any other web pages where the business does not have control over the content of the page.

Web site: a site in the World Wide Web identified by a web address. A set of web files on a specific subject, that includes a home folder, denominated portal. The information is codified in specific languages (HyperText Markup Language (HTML), Extensible Markup Language (XML), Java) that can be read with a web navigator, such as Netscape Navigator or Microsoft Internet Explorer.

xDSL: it refers to a local loop technology family with high bandwidth (broadband) which offers a permanent digital connection to the Internet through the copper wires of the local telephone network. DSL technologies are designed to increase the band width available in the traditional copper telephone wires. It includes IDSL, HDSL, SDSL, ADSL, RADSL, VDSL, DSL-Lite.

VIII. Annexes

ANNEX A CORE INDICATORS ON ACCESS TO ICT IN HOUSEHOLDS AND USE OF ICT BY INDIVIDUALS. REVISED LIST

Core indicators	
HH1	Proportion of households with a radio
HH2	Proportion of households with a TV
HH3	Proportion of households with telephone: Fixed telephone only Mobile cellular telephone only Both fixed and mobile cellular telephone
HH4	Proportion of households with a computer
HH5	Proportion of individuals who used a computer in the last 12 months
HH6	Proportion of households with Internet access
HH7	Proportion of individuals who used the Internet in the last 12 months
HH8	Location of individual use of the Internet in the last 12 months: Home Work Place of education Another person's home Community Internet access facility Commercial Internet access facility Any place via a mobile cellular telephone Any place via other mobile access devices
HH9	Internet activities undertaken by individuals in the last 12 months: Getting information about goods or services Getting information related to health or health services Getting information from general government organizations Interacting with general government organizations Sending or receiving e-mail Telephoning over the Internet/VoIP Posting information or instant messaging

(CONTINUES)

ANNEX A (CONTINUATION)

	Purchasing or ordering goods or services
	Internet banking
	Education or learning activities
	Playing or downloading video games or computer games
	Downloading movies, images, music, watching TV or video, or listening to radio or music
	Downloading software
	Reading or downloading online newspapers or magazines, electronic books
HH10	Proportion of individuals who used a mobile cellular telephone in the last 12 months
HH11	Proportion of households with access to the Internet by type of access: Narrowband Fixed broadband Mobile broadband
HH12	Frequency of individual use of the Internet (any place): At least once a day At least once a week but not every day Less than once a week
	Reference indicator
HHR1	Proportion of households with electricity

Source: Partnership on Measuring ICT for Development (2010).

ANNEX B**CORE INDICATORS ON ACCESS AND USE OF ICT IN BUSINESSES. REVISED LIST**

B1	Proportion of businesses using computers
B2	Proportion of persons employed routinely using computers
B3	Proportion of businesses using the Internet
B4	Proportion of persons employed routinely using the Internet
B5	Proportion of businesses with a web presence
B6	Proportion of businesses with an intranet
B7	Proportion of businesses receiving orders over the Internet
B8	Proportion of businesses placing orders over the Internet
B9	Proportion of businesses using the Internet by type of access: Narrowband Fixed broadband Mobile broadband
B10	Proportion of businesses with a local area network (LAN)
B11	Proportion of businesses with an extranet
B12	Proportion of businesses using the Internet by type of activity: Sending or receiving e-mail Telephoning over the Internet/VoIP Posting information or instant messaging Getting information about goods or services Getting information from general government organizations

(CONTINUES)

ANNEX B (CONTINUATION)

Interacting with general government organizations
 Internet banking
 Accessing other financial services
 Providing customer services
 Delivering products online
 Internal or external recruitment
 Staff training

Source: Partnership on Measuring ICT for Development (2010).

ANNEX C
CORE INDICATORS ON THE ICT SECTOR AND TRADE IN ICT GOODS

ICT1	Proportion of total business sector workforce involved in the ICT sector
ICT2	ICT sector share of gross value added
ICT3	ICT goods imports as a percentage of total imports
ICT4	ICT goods exports as a percentage of total exports

Source: Partnership on Measuring ICT for Development (2010).

ANNEX D
CORE ICT INDICATORS IN EDUCATION

ED1	Proportion of schools with a radio used for educational purposes (ISCED levels 1 to 3)
ED2	Proportion of schools with a television used for educational purposes (ISCED levels 1 to 3)
ED3	Proportion of schools with a telephone communication facility (ISCED levels 1 to 3)
ED4	Learners-to-computer ratio (ISCED levels 1 to 3)
ED5	Proportion of schools with Internet access by type of access (ISCED levels 1 to 3): Fixed narrowband Fixed broadband Fixed narrowband and broadband
ED6	Proportion of learners who have access to the Internet at school (ISCED levels 1 to 3)
ED7	Proportion of learners enrolled at the tertiary level in ICT-related fields (ISCED levels 5 and 6)
ED8	Proportion of ICT-qualified teachers in schools
Reference indicator	
EDR1	Proportion of schools with electricity (ISCED levels 1 to 3)

Source: Partnership on Measuring ICT for Development (2010)

ANNEX E
ISO CODES OF THE COUNTRIES

Numerical code	Country or area name	ISO ALPHA-3 code
660	Anguilla	AIA
28	Antigua and Barbuda	ATG
32	Argentina	ARG
44	Bahamas	BHS
52	Barbados	BRB
84	Belize	BLZ
68	Bolivia (Plurinational State of)	BOL
76	Brazil	BRA
136	Cayman Islands	CYM
152	Chile	CHL
170	Colombia	COL
188	Costa Rica	CRI
192	Cuba	CUB
212	Dominica	DMA
214	Dominican Republic	DOM
218	Ecuador	ECU
222	El Salvador	SLV
308	Grenada	GRD
320	Guatemala	GTM
328	Guyana	GUY
332	Haiti	HTI
340	Honduras	HND
388	Jamaica	JAM
484	Mexico	MEX
500	Montserrat	MSR
530	Netherlands Antilles	ANT
558	Nicaragua	NIC
591	Panama	PAN
600	Paraguay	PRY
604	Peru	PER
630	Puerto Rico	PRI
659	Saint Kitts and Nevis	KNA
662	Saint Lucia	LCA
670	Saint Vincent and the Grenadines	VCT
740	Suriname	SUR
780	Trinidad & Tabago	TTO
796	Turks and Caicos Islands	TCA
858	Uruguay	URY
862	Venezuela (Bolivarian Republic of)	VEN

Source: <http://unstats.un.org/unsd/methods/m49/m49alpha.htm>