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**COMPENDIUM OF PRACTICES ON THE IMPLEMENTATION OF ICT QUESTIONS
IN HOUSEHOLDS AND BUSINESSES SURVEYS IN
LATIN AMERICA AND THE CARIBBEAN**

Observatory for the Information Society in Latin America and the Caribbean in
cooperation with the Working Group on harmonization of ICT statistics
of the Statistical Conference of the Americas of ECLAC

Summary

The present compendium gathers the Latin America and Caribbean countries experiences that have incorporated core questions on ICT access and use in its households and companies surveys¹. The compendium aims to contribute in two purposes: i) to gather in a single source, the different forms to collect data access and use on Information and Communication Technologies (ICT), and ii) to serve as support material for the ones in charge of ICT statistics implementation, particularly in the countries of the region. The countries included in the indicators of households or individuals are Brazil, Costa Rica, El Salvador, Mexico, Paraguay, Peru, Dominican Republic and Uruguay in bussiness indicators and companies surveys. The cases included are taken from the countries that completed the Compendium of Practices Questionnaire and sent the information asked by OSILAC, nevertheless it includes a general panorama of the state of the incorporation of ICT questions in all the countries of the region.

¹ The questions have been compiled by the Partnership in Measurement of ICT for development and presented in the book "Core ICT indicators":
<http://www.cepal.org/socinfo/noticias/documentosdetrabajo/6/23116/Partnership%20core%20%20indicators%20English.pdf>

I. Introduction

Various initiatives have been set up in response to the need for data and indicators on the status of the information society in countries throughout the world, particularly in developing countries. One of these is the World Summit on the Information Society (WSIS).² The Plan of Action adopted at this summit serves as a basis for work to establish the status of the information society in each country. The Plan also contains suggestions relating to the development of indicators on the strength of which it will be possible to evaluate the status of the Information and Communication Technologies (ICT) and, in turn, to benchmark the implementation of this Plan to monitor global progress in the use of ICT.³

In Latin America and the Caribbean, the lack of information about ICT present in most of the countries in 2003, motivated ECLAC and the Institute for Connectivity in the Americas (ICA) of the International Development Research Centre of Canada (IDRC) to create the Observatory for the Information Society in Latin America and the Caribbean (OSILAC)⁴. The objective was having an Observatory which would be in charge of fostering the creation of ICT statistics in the region. This Observatory is since its creation under the umbrella of the Statistical Conference of the Americas (SCA) of ECLAC and interacts through it with the National Statistics Offices (NSO) of the region to obtain a harmonized measurement of access and use of ITC. The @LIS

² The United Nations General Assembly endorsed the holding of the World Summit on the Information Society (WSIS) in two phases. The first phase took place in Geneva from 10 to 12 December 2003 and the second phase took place in Tunis, from 15 to 18 November 2005. The events of the World Summit, which bring together heads of State and Government and other high-profile world leaders, seek, in the long term to place at the top of the global agenda issues such as poverty, environmental degradation and, in this case, the development of an information society. www.itu.int/wsis

³ Plan of Action of the World Summit on the Information Society, 12 December 2003: E). Follow-up and evaluation 28. A realistic international performance evaluation and benchmarking (both qualitative and quantitative), through comparable statistical indicators and research results, should be developed to follow up the implementation of the objectives, goals and targets in the Plan of Action, taking into account different national circumstances. f) All countries and regions should develop tools so as to provide statistical information on the Information Society, with basic indicators and analysis of its key dimensions. Priority should be given to setting up coherent and internationally comparable indicator systems, taking into account different levels of development.”

⁴ For more information about OSILAC objectives and activities, see www.cepal.org/socinfo/osilac

project of the European Commission and the PanAmericas program of IDRC, are also supporting OSILAC.

Following the global initiative of the WSIS, the countries of the region held the Regional Preparatory Ministerial Conference of Latin America and the Caribbean for the Second Phase of the World Summit on the Information Society in Rio de Janeiro from 8 to 10 June 2005. At that conference, the countries adopted the Plan of Action eLAC2007, which in goal 26.1 called on participants to “Support and foster, with technical cooperation programmes, institution-building and methodological strengthening and the development of ICT access and usage indicators (...)”⁵. Also, the Statistical Conference of the Americas, in its third meeting in June 2005, decided the creation of a working group on Information and Communication Technologies. OSILAC works together with this group and has jointly proposed the elaboration of this Compendium of Practices.

Another initiative in which the National Statistical Offices of Latin America and the Caribbean are participating through the Economic Commission for Latin America and the Caribbean (ECLAC) and OSILAC, is the Partnership on Measuring ICT for Development. This partnership, launched in June 2005, is formed by the International Telecommunication Union (ITU), the Organization for Economic Co-operation and Development (OECD), the United Nations Conference on Trade and Development (UNCTAD), the UNESCO Institute for Statistics (UIS), the United Nations regional commissions: the Economic Commission for Latin America and the Caribbean (ECLAC), the Economic Commission for Africa (ECA), the Economic and Social Commission for Asia and the Pacific (ESCAP), the Economic and Social Commission for Western Asia (ESCWA), the Statistical Office of the European Community (Eurostat) and the World Bank. This group works to define and collect a common set of ICT indicators and to assist developing countries in their efforts to produce statistics on the Information Society, thereby helping to close the digital divide existing between developed and developing countries.⁶

In the framework of these initiatives, OSILAC has been working jointly with National Statistical Offices and the other members of the Partnership to consolidate a set of core indicators. This set is the result of discussions and agreements between National Statistical Offices of developing regions and the agencies members of the Partnership.

It was consolidated and presented for the first time in the Thematic Meeting of the World-wide Summit on Information Society, held in Geneva the 7th – 9th of February, 2005, and has been guaranteed by the Statistic Commission of the United Nations in his 38 session in February of 2007.

The definition of the adopted indicators and the proposed questions to be included in surveys, are compiled and explained in the document "Core ICT indicators" (Partnership, 2005b).

Since one is conscious of the necessity of global harmonized information in order to know the state of a thematic within a country, a region or any other geographic context, the first questions arising are: how to measure that thematic, what variables must be considered, what practical cases exist on measuring the subject, how "others" have measured it, what must be the objective population, how to formulate the questions, among others. This document tries to help to answer

⁵ Plan of Action eLAC2007, June 2005: "26.1 (...) differentiated by gender and social group and in accordance with the ITU definitions of community access indicators and the recommendations of the World Summit side event on monitoring the information society, taking into account their ongoing evolution and incorporating them into questionnaires and statistical instruments suited to the regional reality."

⁶ <http://measuring-ict.unctad.org>

those questions and to concentrate in a single document all the experiences learned by countries, regions or institutions in that measurement. In addition the document can be seen like a pursuit of the core indicators document mentioned before.

In order to create this compendium and answer these questions, information provided by the National Statistical Offices of Latin America and the Caribbean has been used, together with special inputs from the Spanish case with the business surveys. This document only pretends to be a step in the process to promote the development of statistics to benchmark the state of advance towards an Information Society and the development of policies for the access and use of ICT.

Measurement of the Information Society

The "Information Society" is a concept that gets more and more importance in the present world, and although the definition and its existence are still object of discussion, the ECLAC's Information Society program (InfoSoc) and the Observatory for the Information Society in Latin America and the Caribbean (OSILAC), have talk about it as a paradigm that arises thanks to the appearance of new digital technologies that allow a significant increase of information flows and communication processes, that generate new forms of social and productive organizations, and have the potentiality to generate knowledge in society (Katz and Hilbert, 2003).

Since that knowledge is not easily measurable, it arises naturally that to measure the advance of a society in terms of information access and use, it is necessary to create statistics that report access and level of use of the necessary technologies for transmission and processing that information. The new technologies like mobile telephony, computers and the Internet, along with other traditional ones as fix telephone and television, have been the reference point adopted by OSILAC and the Partnership on Measuring ICT for Development⁷, to know how and to what extent countries are advancing towards the construction of an Information Society.

The lack of statistics for policies and strategies formulation in favor of the advantage of these technologies for the benefit of society and economic growth, which can also be an object of international comparisons, has been the main challenge that faced countries and the international and regional organizations to determine such advances. The methods harmonization is important for the comparability on time between countries and regions. The internal comparisons allow to make a follow up to implemented policies, whereas the comparisons between countries, allow to examine how in front of similar or different socioeconomic characteristics, countries obtain experiences which allow them to accomplish established goals and the improvement of their indicators with respect to other countries.

One of the main objectives of the project OSILAC creation has been to promote the creation of harmonized statistics on ICT at a sub regional, national and local level, helping to the creation of harmonized methodological frameworks. This same objective has been raised by the Partnership on Measuring ICT for development, with the spirit to solve the international necessity to have comparable statistics for the pursuit and the evaluation of ICT effects in economic and social evolution.

It is in favor of this objective that this compendium as been made, showing the used practices of the region's countries for the implementation of statistics decided and discussed between OSILAC, the National Statistical Offices of most of the developing and developed world

⁷ For more information on the Partnership objectives and activities, see <http://measuring-ict.unctad.org>

countries, and the organisms involved in the Partnership on Measuring ICT for Development. This compendium gathers the experiences of the Latin American and Caribbean countries that have incorporated modules or sections with core questions recommended by the Partnership, totally or partially, in its surveys of households and business. These core questions can be divided in basic core questions and extended core questions.

Since the construction of indicators on ICT is in a development stage, the application of questions has been a learning process, as much for the planers and producers of the surveys, as for the respondents and the later users of the information. These experiences that countries are having are a source for proposals revision and overall, serves as a base for countries that don't have them yet and need to organize information to facilitate the incorporation of questions decided in their surveys. It is hoped then that this compendium of practices compile these experiences and facilitates the process of measurement of ICT penetration and use. It is possible notice that the included cases correspond to the countries that completed the Compendium of Practices Questionnaire and sent the information asked for by OSILAC.

Chapter 2. ICT indicators and questions in household surveys

The questions that have been incorporated in the countries household surveys, are in their majority those that the Partnership on Measuring ICT for Development has gather These questions are the result of an intense process of consultations of the Partnership members with national organisms of statistics, which in the case of Latin America and the Caribbean it has been carried out by ECLAC and coordinated through project OSILAC. As part of this process, a survey was made that allowed to obtain metadata about the state of official statistics on the information society, provided by the national organisms of statistics of the entire world, from there a series of regional workshops were carried out where core ICT questions relevant to the monitoring of advances in access and use of ICT were analyzed, according with the participants opinion (Partnership 2005a). From these processes, a proposal of a list of ICT core indicators aroused and then presented by the Partnership at the WSIS Thematic Meeting on the Information Society Measurement, counting with the participant's approval (Geneva, February of 2005). This list has been the base for the NSO work in maters of ICT in households and business measurement and was endorsed by the Statistic Commission of the United Nations in his 38 session in February of 2007.

The list includes 10 core indicators denominated basic and 3 denominated extended, as well as a reference indicator on access and electricity service (Partnership 2005b).For each one of these indicators, the Partnership has suggested models of questions and methodological recommendations detailed in the document of core indicators (2005b). Within the basic core indicators is possible to speak about 'access basic indicators' (HH1-HH5 y HH7) and 'use basic indicators' (HH6, HH8-HH10). It is adequate to make this precision since in some cases, countries just count on first ones, like part of household equipment. In box 1 the summarized list of indicators and formulated questions are presented. The complete list with detailed information of these indicators is displayed in the Annex I.

BOX 1
CORE INDICATORS AND QUESTIONS ON ICT ACCESS AND USE BY HOUSEHOLDS AND INDIVIDUALS.

Basic Core indicators

HH1 Proportion of households with a radio

Does any member of this household/ do you have access to a radio at home?

HH2 Proportion of households with a television set

Does any member of this household/ do you have access to a television at home?

HH3 Proportion of households with a fixed telephone line

Does this household have a fixed telephone line at home?

HH4 Proportion of households with a mobile cellular phone

Does any member of this household/ do you have access to a mobile cellular phone?

HH5 Proportion of households with a Computer

Does any member of this household/ do you have access to a Computer at home?

HH6 Proportion of individuals who used a computer

Have you used a Computer in the last X months?

HH7 Proportion of households with Internet access at home

Does any member of this household/ do you have Internet access at home, regardless of whether it is used?

HH8 Proportion of individuals who used the Internet

Have you used the Internet in the last X months?

HH9 Location of individual use of the Internet in the last X months

Where did you use the Internet in the last X months?

At home, at workplace, at an educative establishment, at another people's house, at a communal Internet access place, at a commercial Internet access place, in other places.

HH10 Internet activities undertaken by individuals

For which of the following activities did you use the Internet for private purposes, in the last X months?

for getting information, for communicating, for purchasing or ordering goods or services, for internet banking, for education or learning activities, for dealing/interacting with government organizations, for leisure activities.

Extended core indicators

HH11 Proportion of individuals with use of a mobile phone

Did you have personal use of a mobile phone during some or all of the last X months?

HH12 Proportion of households with access to the internet by type of access

What type of internet access are used for Internet access at home?

HH13 Frequency of Individual access to the Internet in the last X months (from any location)

How often did you typically use the Internet during the last X months?

At least once a day; at least once a week, but not every day; at least once a month, but not every week; less than once a month.

Reference indicator

HHR18 Proportion of households with electricity

Some countries have incorporated the complete or partial list, whereas others have even incorporating additional more relevant indicators as for example the access barriers for Internet use in households.

2.1. Definition of ICT variables

The definition of the variables recommended globally and used by the institutes and national statistical offices for the later construction of the indicators are hereafter described.

TABLE 1
DEFINITION OF ICT VARIABLES

Variable	Definition
Radio access	Ownership of at least one radio receiver per household, including those of sound equipment. Combined equipment as recorders o cassette players and sound equipment are included.
Television access	Ownership of at least one television set in good state in dwelling (In some countries the question or its definition makes reference to a color television set).
Main telephone line access	Possession of at least one household main telephone line. (Some countries measure it only for dwelling)
Mobile phone access	Possession of at least one mobile phone service per household
Computer access	Ownership of one computer (desktop, laptop or hand devices (as for example personal assistants (PDA))
Internet access	Access to Internet in household (Internet is world-wide computer science network of public use. It provides access to several communication services like the World Wide Web, and transmits electronic mail archives, news, entertainment and data).
Computer use	Individual use of computer on the part of individuals included in the study.
Internet use	Individual use of Internet on the part of individuals included in the study.
Places of Internet use	Place or places where habitually the individuals included in the study make use of Internet: home, work, educative establishment, communitarian access place, commercial access place, etc.
Uses given to Internet	Activities that usually are done in Internet by the individuals included in the study, from any site, including workplace: to obtain information, communication, shop, electronic banking, education, interaction with public authorities, entertainment, etc.
Mobile phone use	Individual use of mobile phone on the part of individuals included in the study.
Internet Connection type	Type of connection used in household to accede to Internet. The answers should allow detecting households with broadband access.
Frequency of use	Use frequency (habitual) of individuals included in the study that used Internet, from any site, including the work place: 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).

Source: OSILAC, based in Partnership (2005b)

2.2. Socio-demographic variables of reference

The socio-demographic and economic variables are necessary to make an analysis of the status of households and individuals having or not access to the ICT. Social and economical gaps for ICT access and usage can be established by using those variables.

The availability and use of ICT gives account of the technologies penetration that reach households and the levels of use that users give them, but is not sufficient to establish the breaches or differences between a region and another, between a household with basic income or high income, in young households or with children in school age and households with older people. These variables are necessary to quantify what has been denominated the digital divide and/or digital social inclusion.

It is important that ICT relative variables can be compared and correlated with the reference variables described in this section so that public policies based on this information count on a characterization of the sectors that must be favored.

Recently ECLAC has made an investigation about the presence of ICT goods and services in households, based on the information of the censuses of the 2000 round (Osilac, 2006). This study has included a group of socio-economic variables of interest that in greater or smaller degree allow realizing about the differences mentioned in the access and use of ICT. These variables with others proposed in this document, would have to be specified for the indicators calculated for households and for those referring specifically to ICT use on the part of the individuals. Table 2 and 3 present the definition of a basic group of variables that could be used to establish the mentioned gaps and being the base for public policies of access and use of ICT.

TABLE 2
SOCIO-DEMOGRAPHIC VARIABLES OF REFERENCE FOR HOUSEHOLDS

Variable	Description
Geographic zone	Urban Rural
Geographic region	According to the political division of each country
Per capita income quintiles	Quintiles built over the base of household income
Household size	Number of members, including those who are not included in the considered rank of age for ICT use questions Suggested classification by the Census study: Unipersonal Nuclear (parents and children) Extensive (nuclear plus head of the home relatives) Composed (nuclear plus people than are not relatives to the head of the home) Without nucleus

School years of the household members	There are no members studying.. Members only in elementary school. Members only in high school. Members only in higher education Members only in elementary and high school Members in elementary school and higher education Members in higher education and high school. Members in the three levels of education.
Presence of children	Presence of children under 16 in the household
Possession of sewage system	The sewage system, conceived as an essential basic service, whose access indicates the exigency of a minimum basic condition of quality of living in household
Electricity ownership	Electricity as a essential resource for the access to most of the ICT
Household income	Income quintiles
Ingreso per cápita del hogar	Income per capita quintiles
Activity condition of the head of household	Employed, unemployed, student, retired.
Category of occupation of the head of household	Employer, Independent, wage-earning employee, no wage-earning worker
Main Occupation	The Partnership recommends to use the main groups that appear in the CIUO-88.8
Gender (Head of the household)	Man Woman
Dwelling ownership	Own Rented Family owned
Type of dwelling	House or apartment Room in a house or shared house Improvised house

Source: OSILAC, based on Partnership (2005b) and OSILAC (2006)

⁸ Véase Organización Internacional del Trabajo (OIT), “Clasificación Internacional Uniforme de Ocupaciones (CIUO)-88” <<http://www.ilo.org/public/spanish/bureau/stat/class/isco.htm>>.

TABLE 3
REFERENCE VARIABLES FOR INDIVIDUALS

Gender	Man Woman
Age	Recodified in quinquennial or decennial group. The Partnership has tried to restrict the presentation of the indicator to individuals between 16 and 74 years, but the used age depends on the interests and necessities of each country. It is proposed an adaptation that allows to reproduce the categories recommended by the Partnership, as well as the OECD and Eurostat: 5 or less, 6 to 10; 11 to 15; 16 to 19; 20 to 24; 25 to 29; 30 to 34; 35 to 39; 40 to 44; 45 to 49; 50 to 54; 55 to 59; 60 to 64; 65 to 69; 70 to 74, more than 74
Education level	No grade Primary school Secondary school University
Number of approved years of studies	0, 1, 2, ..., 25
Activity Condition	employed, unemployed, only student, retired.
Occupation category	Employer, self-employed, paid employee, family worker without salary Broad classification: 1: Employer 2: Self-employed with a establishment 3: Self-employed without a establishment 4: Cooperative worker 5: Family worker without salary 6: Permanently hired 7: Occasionally hired 8: Apprentice 9: Domestic service 10: Other
Main occupation	The Partnership recommends the use of the principal groups of the CIUO-88. ¹⁰ The classification groups are: 1. Legislators, senior officials and managers 2. Professionals 3. Technicians and associate professionals 4. Clerks 5. Service workers and shop and market sales workers 6. Skilled agricultural and fishery workers 7. Craft and related trades workers 8. Plant and machine operators and assemblers 9. Elementary occupations 10. Armed Forces
Race or skin color	According to each country breakdown

Source: OSILAC, based on Partnership (2005b) and OSILAC (2006)

⁹ El Partnership, siguiendo las prácticas de OCDE y Eurostat, recomienda para efectos de la comparabilidad internacional, utilizar los siguientes niveles: 16 a 24; 25 a 34; 35 a 44; 45 a 54; 55 a 64; 65 a 74 (Partnership, 2005b)

¹⁰ Véase Organización Internacional del Trabajo (OIT), “Clasificación Internacional Uniforme de Ocupaciones (CIUO)-88” <<http://www.ilo.org/public/spanish/bureau/stat/class/isco.htm>>.

2.3. Current state of the information in the region

The countries of the region have actively participated in the process of obtaining relevant statistics to make a benchmarking of the state and advance of the access and use of ICT in households. Between 2005 and 2006 there is a small group of countries who have incorporated a module of ICT use in their household's surveys and an even smaller one, in their companies surveys. For some years now, most of the countries have been counting with information of possession of ICT goods in their household's surveys and censuses, as part of the home equipment question. These goods are mainly radio, television, fix telephone and more recently, from 2000, the ownership of a computer, mobile telephone and access to Internet has been present in some countries. In table 4 a listing of the countries that count with this information or a part of it, and the dates from it is available appears.

TABLE 4
EXISTENCE OF INFORMATION ON BASIC CORE INDICATORS OF ACCESS TO ICT

Country / Indicator	Year(s)	Radio	TV	Telephone line	Mobile phone	Computer	Internet
Barbados	2003	n	y	n	n	y	y
Bolivia	2001	y	y	y		y	n
	2002	y	y	y		y	n
	2003-2004	y	y	y	n	y	n
	2005	y	y	y	y	y	y
Brazil (IBGE)	2001	y	y	y	y	y	y
	2002	y	y	y	y	y	y
	2003	y	y	y	y	y	y
	2004	y	y	y	y	y	y
	2005	y	y	y	y	y	y
Brazil (CGIB)	2005	y	y	y	y	y	y
	2006	y	y	y	y	y	y
Chile	2000	n	n	y	y	y	y
	2003	n	y	y	y	y	y
	2006	n	n	y	y	y	y
Colombia	2000	y	y	y	n	n	n
	2001	n	y	y	n	y	y
	2002	y	y	y	n	n	n
	2004	y	y	y	n	y	y
	2005	y	y	y	n	y	y
Costa Rica	2000	y	y	y	y	y	y
	2001	y	y	y	y	y	y
	2002	y	y	y	n	y	y
	2003	y	y	y	y	y	y
	2004	y	y	y	y	y	n
	2005	y	y	y	y	y	y
	2006	y	y	y	y	y	y
Cuba	2006	y	y	y	y	y	y
Ecuador	2005-2006	y	y	y	y	y	y

El Salvador	2000	y	y	y	y	y	p
	2001	y	y	y	y	y	p
	2002	y	y	y	y	y	p
	2003	y	y	y	y	y	p
	2004	y	y	y	y	y	p
	2005	y	y	y	y	y	p
	2006	y	y	y	y	y	y
Guatemala	2000	y	y	y	y	y	y
Honduras	2003	y	y	y	y	y	n
	2006	y	y	y	y	y	y
Mexico	2001	y	y	y	n	y	y
	2002	y	y	y	n	y	y
	2004	y	y	y	y	y	y
	2005	y	y	y	y	y	y
	2006	y	y	y	y	y	y
Nicaragua	2001	y	y	y	y	y	n
	2005	y	y	y	y	y	y
Panamá	2006	y	y	y	n	y	n
Paraguay	2000-2001	y	y	y	y	y	y
	2002	n	y	y	y	y	y
	2003	n	y	y	y	y	y
	2004	n	y	y	y	y	y
	2005	y	y	y	y	y	y
Peru	2000	n	n	y	y	n	y
	2001	y	y	y	y	y	y
	2002	y	y	y	y	y	y
	2003-2004	y	y	y	y	y	y
	2005	y	y	y	y	n	y
	2006	y	y	y	y	n	y
Dominican Republic	2001	y	y	y	n	y	n
	2002	y	y	y	n	y	n
	2003	y	y	y	y	y	n
	2004	y	y	y	y	y	n
	2005	y	y	y	y	y	y
Saint Lucia	2005	y	y	y	y	y	y
Trinidad and Tob.	2003	n	n	n	n	y	y
Uruguay	2000	n	y	n	n	n	n
	2001	n	y	y	n	y	y
	2002	n	y	y	n	y	y
	2003	n	y	y	n	y	y
	2004	n	y	y	n	y	y
	2005	n	y	y	n	y	y
	2006	n	y	y	y	y	y
Venezuela	2002	n	y	y	n	n	n
	2003	y	y	y	y	y	y
	2004	y	y	y	y	y	y
	2005	y	y	y	y	y	y

Note: Argentina and Guatemala do not have or have not reported data about ICT equipment

Source: OSILAC based on official information of countries and NSO

On the other hand, Table 5 presents a list of the countries that are including total or partially some of the questions about ICT use suggested by the Partnership. The countries that had included almost all the agreed questions are Brazil, Chile, Costa Rica, El Salvador, Honduras, Mexico, Dominican Republic, Uruguay. In the case of Trinidad and Tobago and Barbados there were exercises in year 2003 carried out by official organizations for measuring the use of ICT in households and business, which covered some of the core basic indicators proposed, or at least some of the response categories. Ecuador, Panamá, Cuba and Saint Lucia have included questions regarding Internet users, and still they need to include some basic questions of access and use. These countries have begun their process to include questions related to ICT in 2006, making a valuable effort to include several questions considered basic, and even extended ones as in the case of Cuba and Panama that incorporated the use of mobile telephony.

This module has been included in some cases like a section or additional module or in others like a supplement. The permanence of this module will depend on the policy of the INE on the importance of benchmarking the use of the ICT, or the budget available and interest of other financial institutions in its measurement.

TABLE 5
COUNTRIES HAVING INDICATORS*

Country	Institution	Basic indicators	Extended indicators
Brazil	IBGE	yes	yes
Chile	INE	yes	yes
Costa Rica	INEC	yes	yes
Ecuador	INEC	Partial	no
El Salvador	DIGESTYC	yes	Partial
Honduras	INE	yes	Partial
México	INEGI	yes	yes
Panamá	DEC, CGR	Partial	Partial
Paraguay	DGEEC	yes	no
Uruguay	INE	yes	Partial
Dominican Rep	ONE	yes	yes
Cuba	ONE	Partial	Partial
Barbados	BARSTATS – NCST	Partial 2003	Partial 2003
Saint Lucia	Saint Lucian Stats	Partial	no
Trinidad and Tobago	NeCS	Partial	Partial

*At least one use indicator in 2003 and 2006. Data updated to April 2007

Source: OSILAC based on official information from NSO.

2.4. Household surveys with ICT information

The countries of the region count on different types of household surveys that allow to collect information of demographic (location urban/rural, age, gender, race), social (dwelling, education and health characteristics), economic (economically active population, work condition, income), cultural characteristics, etc, usually denominated **Multipurpose Household Surveys**. This type of surveys allows the inclusion of new questions and thematic modules. Several countries of the region have incorporated modules or sections with ICT questions in this type of survey. Other countries have chosen to include ICT questions on **Life Conditions Surveys**, which also count on

occasional modules for their country's interest issues. These types of survey have the purpose of producing basic information to study the socioeconomic development of countries.

Other countries also make **Expenses and income surveys** and **Work and labor force surveys**. Many of those include within objects of expenses, possession and access to ICT goods. Some countries of the region, although in very few occasions, have made **Specific ICT surveys**. These countries are Trinidad & Tobago (2003), Barbados (2003), Mexico (2002, 2004, 2005 and 2006) and Brazil (2005 and 2006). Particularly Brazil and Mexico have completely incorporated the questions recommended by the Partnership in addition to an extensive set of ICT questions that follow the guidelines of OECD and Eurostat.

2.4.1. Surveys Identification

TABLE 6
SURVEYS WITH ICT QUESTIONS ON ACCESS AND USE

Country	Survey	Type of Survey	Way of including ICT questions	Accomplishment year
Brazil (IBGE)	Supplementary survey on INTERNET access of the National Survey for dwelling sample (PNAD)	MPHS	ICT Section	2005
Brazil (CGIB)	Survey on Information and Communication Technologies in Brazil	ICT Survey	ICT Survey	2005, 2006
Chile	Encuesta de Caracterización Socioeconómica Nacional CASEN	Life conditions survey	ICT Section	2000, 2003 2006
Costa Rica	Multiple Purpose Household Survey (MPHS)	MPHS	ICT Module (2005) Questions on existing sections (2006)	2005 (2006 partially)
Cuba	Encuesta Nacional de Ocupación y Situación Económica de los hogares (ENO)	Life conditions and labour Survey	ICT Module inside ENO: Survey on Access to Information and Communication Selected Services ESIC-1	2006
El Salvador	Multiple Purpose Household Survey (EHPM)	MPHS	ICT Section	2005, 2006
Honduras	Permanent Multiple Purpose Household Survey	MPHS	ICT Section	2006
Mexico	Survey on Information and Communication Technologies in households (ENDUTIH)	ICT Survey	ICT Survey has a chaired module in diverse household surveys	2001, 2002, 2004, 2005, 2006
Paraguay	Permanent Household Survey	Life Conditions Survey	Other sections no specific about ICT	2005
Dominican Republic	Multiple Purpose Household National Survey (ENHOGAR)	MPHS	ICT Section	2005
Uruguay	Continuous Household Survey	MPHS	ICT section	2006

Source: OSILAC based on NSO official information through the compendium questionnaire.

1. In **Brazil**, the Brazilian Institute of Geography and Statistics - IBGE added an additional ICT module to the Annual households survey (PNAD) of 2005, covering all core indicators, except HH6, individuals that used a computer. The purpose of the PNAD is the production of basic information to study the socioeconomic development of the country. As a complement, the Brazilian Internet Steering Committee - CGIB, has covered all core indicators, basic and extended, in a specific survey on Internet use in households of Brazil in 2005, which a second version made in 2006.

2. **Costa Rica** has incorporated the ICT thematic in a special module of its Multiple Purpose Household Survey (EHPM) of 2005, covering all core indicators, basic and extended, excepting HH6. In 2006 it only included some questions in existing sections and did not include indicators HH6, HH9, HH10 and HH13.

3. **Cuba** has incorporated a good part of the indicators in a special survey made in 2006. The survey is denominated Survey on Access to Information and Communication Selected Services (ESIC-1) and it has been including as module in the “Encuesta Nacional de Ocupación y Situación Económica de los hogares” (ENO). This last one also contains the basic questions of ICT equipment, allowing to calculate the basic indicators of access, with exception of Internet (HH7). Nevertheless, the module ESIC allows to deepen in questions of computer use, Internet and mobile telephony.

4. **El Salvador** included a section with variables related to Information and Communication Technologies (ICT) since 2005 in the Multiple Purpose Household Survey (EHPM). In 2006, with the support of the Ministry of Tourism, it included indicator HH10. In none of the two surveys are included indicators HH11 or HH12.

5. In **Mexico** the basic source of information on access and use of ICT in households and individuals comes from the results that rise from a survey on households, the Survey on Availability and Use of Information Technologies in Households (ENDUTIH). This survey includes all core indicators, basic and extended, except HH11, and it has been applied in 2001, 2002, 2004, 2005 and 2006 like an integrated module along with other diverse surveys of households. The last one, in 2006, compiled along with the National Survey of Occupation and Labor (ENOE).

6. **Paraguay** included some questions in the already existing sections on household characteristics and population in the Permanent Survey of Households (EPH). It included all the basic core indicators, except HH6 and it did not include any of the extended ones.

7. **Dominican Republic** included an extended section on ICT use in the ENHOGAR 2005. This survey was focused towards aspects of the technologies demand and use by households and individuals. Other modules contained in the Survey were focused towards the Millennium Goals and Citizen Security. Survey 2005 included all the agreed core indicators, as well as others recommended by international instances, allowing to give account of more advanced uses of ICT.

8. **Uruguay** included for the first time a module on access and use of ICT in the Continuous Household Survey in 2006, which is made quarterly and includes additional modules in every trimester. The module on ICT will be only included in the second trimester of every year. In this survey all the basic and extended core indicators, except the HH11, are included..

2.4.2. Sampling methodology and sample frame of each survey

1. Most of the countries make multistage designs, with unavoidable inclusion of some layers (regions or municipalities) relevant to them. The population represented in the sample usually corresponds to dwellings and households. All surveys has a national coverage, and only in some cases they are representative also of great regions or metropolitan areas. The usually tried level of confidence is 95% and the errors samples are between 5 and 9%. In some cases the surveys are compiled during some specific months of the year, whereas in others it is compiled permanently throughout the year.

2. In Brazil, the sample that makes the IBGE corresponds to households, whereas the investigation unit is the resident in households, in addition of the household, the sample has national cover and is representative at regional, federal and some metropolitan area levels. The 2005 survey was made from October to December. In the case of the CGIB, the sample represents individuals of 10 years or more and was stratified based in 15 regions of Brazil, the quotas of each layer are based on the Population Census of IBGE 2000 and they are chosen according to censales areas. In addition, in order to have sufficient interviews in each layer to have reliable results, a over-quota of Internet users for layers with low Internet penetration in households, according to PNAD 2003 data, was chosen. This survey was made during the month of September of 2005 and was repeated on 2006.

4. In Costa Rica, the population represented in the sample corresponds to households, and it has national cover. The sample in 2005 includes 13500 households, of which there were 12000 effective answers. In 2006 the sample covers 14000 households. The survey is made during the month of July.

5. In Cuba the sample was of 60.000 households and has national coverage. The sample framework corresponds to the Population Census in 2002.

6. In El Salvador the population represented in the sample corresponds to private dwellings, to the households and individuals who live there, and the sample has national coverage. The sample framework is based on the cartographic material of the last Census of Population (1992), updated in 1995 and again in the last years, to have a total frame of 1,442.660 dwellings. The survey is permanently made during the year.

7. In Mexico, the population represented in the sample corresponds to the households, it has national coverage. In 2005, the survey was made in the month of June and in 2006, in the month of April.

8. In Paraguay, the last unit of sampling is the dwelling and it covers households at the national level. The survey was made in the months of October, November and December.

9. In Dominican Republic, the survey covers 98,3% of the national population. The excluded areas were very dispersed. The results of the survey can be generalized in national total urban total, city of Santo Domingo (that covers the National District and the urban part of Santo Domingo province), other cities of 100 thousand and more inhabitants, and the rest of urban and rural areas. For some variables it is possible to make inferences at provincial level. The original theoretic sample was of 22 thousand households. The selection of the households was probabilistic, stratified, systematic in three stages. The sample frame used was from the VIII Population Census of 2002 updated for the selected areas.

10. In Uruguay, the sample has national coverage. Until 2005 the sample wasn't representative in rural areas, but in 2006, it has representation of urban and rural zones. As far as the design sample, 21.615 households in a two-phases sampling are chosen, in first stage the census zones are chosen and in second are households. They are selected in conglomerates of 3 (urban localities) or 4 (rural area) by primary unit.

TABLE 7
CHARACTERISTICS OF THE SAMPLE DESIGNS

Name	Sample Design	Sample Coverage	Sample size	Level of confidence and sample error
Brazil PNAD - IBGE- 2005	Three stages design, stratified, with proportional probability to the size and replacements in the two first stages. In the last stage, the household unit was selected with the same probability.	National, with good precision estimations for the 5 Great Regions of the country, 27 Federal Units and 9 Metropolitan Regions.	142 471 households units and 408 148 persons.	
Brazil CGIB – ICT Survey - 2005, 2006	Sampling by quotas, stratified with base in 15 regions of Brazil.	National Metropolitan areas of Sao Paulo, Rio de Janeiro, Belo Horizonte, Salvador, Recife, Fortaleza, Belém Curitiba, Porto Alegre, District Federal Other areas of Southeastern, Northeast, North, South and Center-West.	8 540 households. The sample was chosen, so that it represents individuals of 10 years or more.	Confidence: 95% Error: 1.5% nationally, 5% regionally
Costa Rica EHPM - 2005, 2006	Three stages design, stratified and by conglomerates.	National	14 000 households	nd
Cuba ENO 2006	nd	National	60,000 households	nd
El Salvador EHPM - 2005, 2006	Two stages design, stratified and by conglomerates, with proportional probability to size. Systematic sampling at second stage.	National, with valid estimations at department level and of the principal 50 municipalities auto represented (forced inclusion).	16 800 households Sample frame: 1 442 660 households	Confidence: 95%
Mexico ENDUTIH- 2006	Two stages design stratified and by conglomerates, where the last selection unit is dwelling and the observation unit are households.	National	7 000 households distributed in 32 Federal Entities	Confidence: 90% Error: 8.6%
Paraguay Permanent Household survey 2005	Two stages design, stratified at first step and by conglomerates with proportional probability to size.	National, with layers divided like this: Asunción and departments of San Pedro, Caaguazú, Itapúa, Alto Paraná, Central, and rest of Urban area and Rural.	5 000 households	Confidence: 95%

Dominican Republic ENHOGAR - 2005	Three stages design The first stage with systematic sampling in each province. In the second one households were selected and in the third, persons. To answer the ICT and Citizen Security sections, a person older than 12 years was selected among the other members of the household. This selection was made with a uniform distribution in order to give the same probability to each eligible person in the household.	National (98.3%), total urban, Santo Domingo city (covers Distrito National and the urban part of Santo Domingo province), other cities of 100 mil and more inhabitants, the rest of urban area and total rural. For some variables it is possible to do inferences at provincial. level	22,000 households(theory) 20,619 households(effective)	nd
Uruguay	Two stages design with optimum allocation, stratified and by clusters random sampling .	National: urban and rural areas	21,615 dwellings	Confidence: 95% Error: 1%

Source: OSILAC based on official information from NSO through the Compendium questionnaire.

2.4.3. Interview methodology

1. In every cases, an in person interview is made (visit to households) to obtain the data, applying a questionnaire in paper. The profile of the person interviewed varies as per the country and usually it is not chosen in a random form but as per particular guidelines given to the interviewer. In some cases, should be a person of 10 years or more, in others a person of 15 or more, or 18 or more. In some countries it is considered to repeat visits (up to three) to assure the information pick up.

2. In the case of IBGE Brazil, the interviewer is trained to identify the most qualified people to answer the questionnaire, of the basic survey and also the ICT questions. In the case of CGIB, the interviewer has a pre-established list of profiles to interview in each census area, as per the characteristic of that area and considering always people ten years and older. If there isn't a person with established profile in that address, the interviewer should skip three houses and choose the following until he/she found a proper profile.

3. In the case of Costa Rica, the interviews are made in each one of the households that resides in the selected dwelling. The people who inform traditionally have been a person that frequently resides in the household and has at least 15 years old or more.

4. In El Salvador, the visits to the selected households are made as units of investigation. The questions related to ICT are made to people of 10 years old and more age that live in the household.

5. In Mexico, after the dwelling is selected, the interviewer moves physically toward it. At first, identify how many households exist in the dwelling selected to interview them all. Next, it comes to choose the proper informer to the mother survey and to apply the corresponding questionnaire. The proper person that inform from the NDUTIH is an adult older than 18 years old that knows the information. The interviewer will ask the informer selected about all ICT sections for each one of the members of the household with an age of 6 years or more. The interviewer can return up to three times to the household with the purpose to assure the questionnaire pick up. To make

the interviews the people selected have a wide experience in households survey pick up. The questionnaires are reviewed by field supervisors and validated by the regional and state working teams.

6. For Paraguay, visits to dwellings are made, the households are identified and are interviewed all the households in the dwelling. The person that inform should be preferably the head of the household. The interviewer can return up to three times to the households with the purpose of assuring the questionnaire pick up. To make the interviews the people selected are with a wide experience in households surveys pick up. The questionnaires are review by field supervisors and validated by DGEEC.

7. In the Dominican Republic the interview is done personally. To give the information about household and dwelling, the interview is done to the head of the household. For the specific modules on ICT and Citizen Security, a resident of 12 or more years of age is selected. For the respondent on ICT and Citizen Security the selection of modified Kish tables were used because they allow a uniform distribution with the purpose of giving the same probability to the persons in the household. In this sense, the household, selected can be interviewed by the head of the household or any other member that match the selection, or just the head of the household in case of a wrong selection.

8. In Uruguay, the interview is done with personal visits to the household, in the Montevideo case, it is done with Hand Held (Pocket PC) equipment, and in the rest of the country the person in charge of the survey fills a written form. The survey is done to the person who has greater knowledge at the moment of the interview; in case of unanswered questions the head of the household is reach to answer the questions. Doubts are solved with a phone conversation afterwards.

2.4.4. Respondents and target population for each ICT questions

1. The person who responds to the questions of the surveys vary as per the country, but in general, is an adult who knows the information of the household, in some cases is the head of the household but it is not a requirement. In the case of the ICT questions, usually the person that respond is the same that answer the base household survey, sometimes it can be supported by another person that knows more the theme as Mexico proposed, or allow the present people to answer the question about themselves if they are available at the moment of the interview, such as established by Costa Rica.

2. In general, ICT questions are responded by the person that inform for all member of the household that fulfill with the characteristic of having a certain age. Only in the case of Brazil (CIGB) and Dominican Republic the information of only one person is picked up, and that is understood as representative of the household. The Cuba case is particular because the informant only respond to a number of people in the household characteristic and doesn't give information about socio-demographic characteristics for what is not possible to do individual characterization of ICT use.

3. The age of the population target for the ICT uses, vary as per the interests of each country. Some will consider useful having have this information from the elementary school age, that is, 5 to 6 years (Costa Rica, Mexico and Uruguay cases). Other have been interested in the population that have 10 or 12 years or more (Brazil, Cuba, El Salvador and Paraguay cases) and finally the CGIB, following the Eurostat guidelines have been gathered the information for people of 16

years and more. The recommendation of the Partnership on measuring ICT has been precisely this last one, that is being used by Eurostat (and the OCDE). In all cases the indicators can be calculated to obtain the information from the people 16 years old or more and therefore have harmonized and comparatives indicators.

TABLE 8
TARGET POPULATION AND RESPONDENTS

Country	Target population for ICT usage	Respondent	Members of the covered household
Brazil (IBGE)	>= 10 years	Only one respondent (the most qualified according to the criteria of the interviewer , previous orientation received from its training)	All members of the household of 10 years old or more
Brazil (CGIB)	>=10	The person of the household that fulfill with the characteristics of the pre-selected profile	The respondent
Costa Rica	>=5 years except by having and using a mobile phone that is apply to people of 10 years and more.	Person member of the household older than 15 years old, that knows the characteristic of the rest of the household. For ICT questions could change but the change it is not registered. If a self respondent person is found at the moment of the interview, this is chosen to give its own information.	All members of the households with 5 years old or more
Cuba	>=12 years (only in case of computer use questions it applies to >=6)	The questions are answered by the person who is in the household, the answer is for all the household members. Nevertheless the informer only gives account about the number of people with the characteristic and doesn't know individual information about them.	All the household members of 12 years of age or more. Due that there is only information about the number of persons, it is not possible to do a characterization of individuals.
El Salvador	>=10 years	Only one respondent the head of the household	All members of the household of 10 years old or more
Mexico	>=6 years	Adult older than 18 years that knows the information. If there s more than an adult in the household, will be selected the one whose birthday is closer to the pick up date. If the selected person to inform does not know about ICT, can be supported by someone who knows, inclusive if it is under the age of 18.	All members of the household of 6 years old or more

Paraguay	>=10 years	Preferably the head of the household	All members of the household of 10 years old or more
Dominican Republic	>=10 years	A person in a random form is chosen among who has 12 years or more	The respondent

Source: OSILAC based on official information from the NSO through the Compendium questionnaire .

2.4.5 Socio-demographic variables included in the surveys

1. As mentioned in the section 2.2 it is necessary to count with a basic set of variables of harmonized classification to establish the social and economic breaches that works against the access and the use of ICT in the countries of the region. The countries included in this compendium count with in general with the level variables of family incomes, age, sex, level of education and in some cases, the condition of economic activity of the head of the household and members, like the other variables refer to the physical conditions of the dwelling. Since each country has its particularities in the education system, the form of measuring income and working conditions, it is necessary to make an additional exercise of harmonization for such variables, in order to allow the comparison among the countries of the region.

2. In Brazil, the supplement of ICT of 2005, allow to make crossings of variables with any of the themes investigated in the basic body of the PNAD, such as, education, work, incomes, population and household characteristics. Regarding the CGIB survey, the variables used are: geographic areas, family income level, socio-economic class, education level, age and gender.

3. In Cuba calculations can be done classifying by geographic area, territories, number of persons in the household, age, sex.

4. In the tabulations made by the INEC, Costa Rica, variables of sex, age, planning region and geographic zone, deciles and quintiles of income per capita, education level (re-codified) are used.

5. The information of the EDUTIH survey of Mexico could be classified through the variables of sex, age (coverage on people over six or more years old at the moment of the interview) schooling level and condition of economic activity.

6. In Paraguay as in Mexico, the information on ICT could be classified through the variables of sex, age, schooling level and economic activity condition (population economically active and population not economically active).

7. In the Dominican Republic the information on ICT use can be classified, among others, by age, relationship with head of the household, sex, marital state(for people of 12 years of age or more), alphabetization (for older than 3 years of age), scholar years (for older than 3 years of age), apart from variables characteristics of the household.

8. In the case of Uruguay, it is possible to make calculations of all the variables included in the main survey, for example, sex, age, zone (rural / urban), regions (states), education level, labor situation, household income. The information flash published until now have just considered simple variable distributions as well as some classifications by age and demographic area.

2.4.6. Frequency of ICT measuring

1. In most cases, the basic core indicators of access are present in a regular form in the household surveys. For being this permanent and of annual frequency, it is guaranteed having these indicators annually. Regarding the core basic indicators of usage and core extended, will be kept as long as resources are available on the other side institutions. It is anticipated that will be biennial in most of cases and every three years in others. It is convenient to emphasize the case of Mexico, who are anticipating an extensive module on access and usage of ICT (ENDUTIH) from the year 2001.
2. In the IBGE, the investigation on basic ICT infrastructure (basic core indicators of access) is held annually in the PNAD, however, the specific supplement on ICT does not have a defined regularity but depend on the resources availability and the interest of other actors. In the case of the specific survey on ICT of CGIB, at the moment the frequency has been annual.
3. The questionnaire of the EHPM of Costa Rica has incorporated almost permanently the questions about having home telephone, computer, sound equipment, and color television. From the year 2000 the basic core question of access have been incorporated in an annual way and only for the case of a few variables, biannually. Some questions on the use of Internet have started being annually, from the last two latest surveys.
4. In Cuba, the ENO is gathered annually it is expected the same periodicity of the ESIC gathered for the first time in 2006.
5. From the year 2001, the INEGI of Mexico has been worrying for picking up in annual way the questionnaire of the ENDUTIH. The only year in which were not possible to pick up the Survey was in 2003, due to budget reasons. Therefore, it is had the series of information that start with the Monaco-2001 Survey and continue with Endutih-2002, Endutih-2004, Endutih-2005, Endutih-2006. It is the intention of the institute to keep annually the periodicity of the Endutih pick up.
6. The permanent households survey of Paraguay is made annually from 1983, Basic core questions of access have then guarantee of annual presence, however, there is no intention about using questions on usage.
7. In the Dominican Republic case, the NSO did in 2005 the Encuesta Nacional de Hogares de Propósitos Múltiples (ENHOGAR 2005), as a initiative in the installation of the new Integrated System of Households Surveys. Although some access key indicators have been gathered from the Encuesta Nacional de Fuerza de Trabajo, it will be ENHOGAR the one in charge to obtain data about ICT. It is expected that ENHOGAR, that is done annually, will include ICT indicators biannually
8. The household survey made in Uruguay is done every trimester, the ICT module was incorporated for the first time in the second trimester of 2006. The INE will recollect the information on ICT use annually every second trimester. The information on access to ICT indicators is gathered annually.

TABLE 9
ICT INDICATORS MEASUREMENT FREQUENCY AND REFERENCE PERIODS FOR
QUESTIONS ABOUT USE

Country	Measurement frequency of basic core indicators of access	Frequency on the use of ICT	Reference period for questions on ICT use (core indicators)
Brazil (IBGE)	Annual	Without defined periodicity.	3 months (if did not use Internet in the last 3 month the interview is not make) The personal use of the cellular phone refers at the moment of the survey.
Brazil (CGIB)	Annual	Annual	Last 3 months
Costa Rica	Annual	Annual (partial*)	Last 12 months
Cuba	Annual	Expected to be annual	Last month
El Salvador	Annual	Annual (partial*)	Last 3 months
Mexico	Annual	Annual	Present moment. The only question on ICT with reference period is the frequency of usage of Internet, that is referred to the last 12 months (before 2005, it was referred to 6 months)
Paraguay	Annual	Without defined periodicity.	Last 3 month
Dominican Republic	Annual	Biennial	Last 12 months
Uruguay	Annual	Annual	Last 6 months

* Every 2 or 3 years the complete list would be gathered, in the midterm only some of the questions would be included in the annual surveys.

Source: OSILAC based on official information from NSO through the Compendium questionnaire.

2.4.7 Reminder period used in the questions

A theme that has been discussed in the establishment of the core indicators of usage has been the period of reference for the questions on the use of Internet. During the first discussion on the theme in the region, it was agreed to use as reference the use of Internet in the last three months, however, during the global discussion that incorporated all the developing regions, it was agreed to refer the use in the last 12 months, to value all type of users, frequent and non-frequent.

Some countries have maintained the initial suggestion from the last 3 months and other has been adapted to global suggestions, asking for the last 12 months. However other countries have taken different options, as Mexico, have been referred the questions of usage, at the present moment of the survey., Cuba the previous month and Uruguay the last 6 months. As per information of Eurostat, the usage differences between 3 and 12 months are minimum, which will not prevent the comparison among these measures; however, it is remarkable for the harmonization of the statistic, use a common period of reference at the present moment.

The argument used by the Partnership to recommend the use of 12 months period is that the questions that do not depend so much on the exactitude of the reminiscences, do not imply significant remembering risks, and on the other hand, the use of a different period (for example,

three months) can introduce seasonal bias. Finally, a period of 12 months allows reflecting better certain less frequent activities, as for example the information search on health issues or on line purchases. Although some countries argue not to consider an Internet user if he/she doesn't use it in 3 or 6 months, in this case a possible solution would be to determinate a different period for the question on activities undertaken in the internet, if one want to register more infrequent activities. As we can see in these statements, the issue must be analyzed in the region and globally.

2.4.8 Cost of the survey or module.

The cost of applying an ICT module or the marginal cost of a section with specific questions on ICT varies as per the size of the module. As appreciate it in the calculations of the table 10, the countries that had incorporated bigger modules or with questions on the specific use of Internet are the ones that has bigger cost, as it is the case of Mexico and Brazil. In the case of countries where they have been applied strictly to the module suggested by the Partnership, the cost is close to US\$1.50 per interview.

TABLE 10
COST OF ICT QUESTIONS

Name	Cost per interview on ICT questions	Cost ICT module
Brazil PNAD-IBGE-2005	R\$4.95 (US\$2.31)	R\$ 2 018 000 (US\$ 943 000)
Brazil CGIB – ICT research 2005	R\$35.13 (US\$16.42)	R\$ 300 000 (US\$ 140 000)
Cuba ENO – ESIC 2006	nd	nd
Costa Rica EHPM - 2005	¢ 636 (US\$ 1.33)	(¢8 900 000) (US\$ 18 563)
El Salvador EHPM – 2005, 2006	US\$ 1.48	US\$ 25 000
Mexico ENDUTIH - 2006	MXN\$ 81.50 (US\$ 7.50)	MXN\$ 570 000 (US\$ 52 500)
Dominican Republic ENHOGAR - 2005	US\$ 6.1	US\$ 134 000
Uruguay Household Survey	US\$ 21.00*	nd
Paraguay Permanent Household Survey - 2005	The marginal cost it is not estimated, because it has been incorporated few extra questions on the ICT usage, the basic questions about possessing, belong to the usual household survey	

* Cost by interview of the whole survey.

Source: OSILAC based on NSO official information through the Compendium questionnaire

2.4.9. Financing methods for the survey

1. The financing methods are different for each country. In some cases are done with regular budget, in other thanks to the support of other institutions through agreements or alliances made or by direct interest of other institutions that pay to make it done. For the studied cases in

this compendium, INE Mexico, Cuba, México and Uruguay have done the survey with regular budget, as well as Dominican Republic but with support from the MECOVI programme; Brasil and Costa Rica have made it through agreements with other institutions and El Salvador has done it thanks to the permanent financing of other institutions for the permanent household survey.

2. In 2005 the IBGE signed an agreement with the Management Committee of Internet of Brazil – CGIB, to make the specific supplement on ICT. In the meantime, the CGIB with its regular budget made the specific survey on ICT to have a bigger quantity of information in a short term.

3. In the case of Costa Rica, the budget for the household survey is part of the regular budget of INEC, however, the inclusion of the ICT module was made through an agreement with the Electricity Institute of Costa Rica.

4. Cuba finances the survey with their regular budget.

5. In the case of Salvador, it is remarkable that since 2005, the EHPM has been financed exclusively with the funds from the Ministry of Economy guaranteeing that the investment in social statistic that for years financed the Inter-American Development Bank (BID) through its program MECOVI and the International Agency of Development from the Government of the United States of America was preserved and maintained.

6. In the case of Mexico, the pick up of the ENDUTIH is financed with own resources by the INEGI and is already part of the regular households surveys that INEGI pick up every year.

7. Funds for the pick up of ENHOGAR 2005 from the Dominican Republic came from two sources. The main one coming from the government through the National Statistic Office with 15 millions of pesos. The remaining part was financed by the MECOVI and it was RD\$1,898,740.

8. In the case of Uruguay, the pick up is made with national resources for the Encuesta Continua de Hogares.

2.4.10. Publication and diffusion of the results

1. In some cases the INE put the information available for public in its web sites, usually under table format. In other cases, more reduced, make printed publications that are usually also available in their web sites, sometimes for free and others with cost. In most cases the information produced is sent the institutions interested in each particular theme or the institution that financed the survey for its respective use or diffusion. In the specific case of the ICT module, Brazil and Mexico published the results; however Costa Rica, Cuba and Salvador didn't do it yet. In the case of Paraguay, they publish the general results of the survey, which cover the basic core indicators of access but not of use.

2. The results of the survey of IBGE are published under a table format in printed version and electronically available in CD-ROM and Internet (www.ibge.gov.br). Additional, a CD-Room with micro-data is available in the virtual store of IBGE and the service of dissemination of information located in the state units. Regarding the CGIB survey, all the data is published in the web, in table format and free access (www.nic.br/indicadores). The data were also organized in an English and Portuguese publication (also available in the web) that includes articles and data

analysis. It has been distributed to the government, universities, institutes of research and development, associations and organizations involved with the development of Internet in Brazil and abroad. The publication is annual. All indicators are presented for each one of the 15 metropolitan areas, levels of family incomes, social class, level of education, age and gender.

3. With respect to the data on ICT, the INEC Costa Rica made a series of table of the results is available for the users, the INEC does not make the diffusion of the results immediately through the press, because that duty is made by the institutions that request the information. The tables that are usually generated are updated every year and also are adding new information as per the requisition received.

4. In the case of El Salvador the information of the section ICT has not been diffused. However, public and private institutions have been requesting information about households having and using computers, telephone and Internet. The level of desegregation of the information that can be published is: total, urban, rural, metropolitan area of San Salvador and the local governments self-represented (of forced inclusion).

5. Mexico diffuses the results of the Endutih in three complementary manners. At first, the institute diffuses a press note with the main methodological characteristic of the survey and position in the public opinion the main results obtained. At the same time, is available in the web site of the institute, a publication in PDF format where it is presented and analyzed the main results, a brief methodological description is made and is available for public a terms glossary, as well as the collection instruments used.¹¹ Finally, is published in Web site, in the section of Science and Technology, a extent set of statistical tables that exploits in great detail the ample information that is possible to generate through the Survey.

Regarding the publication in PDF format, two exist at the moment, the first one titled Availability and Use of Technologies of Information in households in Mexico, presentation of the Results of 2001, 2002 and 2004 Surveys, and the second one takes by title Statistics on Availability and Use of Information and Communications Technology in Households, 2005. The desegregation level of the publication just contemplates the national level, with the possible breakdowns depending on the different classifications used and on the options of answer including in the collecting instrument.

6. Paraguay spreads the results of the Household Survey in a publication called "Main Results". In parallel it is available on Internet, in DGEEC's web site, a publication in PDF format. This publication contains the basic access core indicators suggested, but it does not the uses ones including already in the survey. The information is showed at a household level and for 2005 is also presented at a population level. In relation to breakdown levels, the information dissemination is representative in a national level, as well as by large departments of the country.

5. The results from ENHOGAR 2005 were published by the NSO from Dominican Republic when ending the Survey project, and were released through two massive events at national level. The publication had 1,000 copies and 1,000 CDs of the final report of results from the survey. Simultaneously, it was available to everyone through Internet the final report and the data base:

¹¹ The address from where materials can be access are:

http://www.INEGI.gob.mx/prod_serv/contenidos/espanol/bvINEGI/productos/encuestas/especiales/endutih2004.pdf

http://www.INEGI.gob.mx/prod_serv/contenidos/espanol/bvINEGI/productos/encuestas/especiales/endutih/endutih2005.pdf

<http://www.dgeec.gov.py>

<http://www.one.gub.do/>. The NSO's Portal presents a link to "Dirección de Censos y Encuestas" that leads to the "Departamento de Encuestas" where those documents are presented among others from the institution.

6. Uruguay release the results and micro-data from the Household Survey in electronic format on the INE portal. Until now it has published two summarized thematic reports: "Technology access in households"¹² where new technologies access are analyzed and "Technology"¹³ where ICT use is analyzed.

2.4.11 Methodologies of calculations for required indicators

1. The calculation of the basic core indicators suggested is made in a simple manner, because it corresponds to the household portion with access to the ICT goods. This indicators (portions) are calculated dividing the number of household that own the corresponding good (radio, television, main line, mobile telephone, computer) by the number of total households included in the study (indicators HH1 to HH5). The same way is calculated the indicator of Internet access in the household (HH7).

2. Even though differences between the quantity of dwellings and the quantity of households don't differ too much, it would be recommended that all countries present its indicator taking in consideration the households. Some countries make this questions to all types of households (including prisons, elderly nursing homes, or special lodgings, like hotels), whereas others are restricted to private households or particular dwellings. The recommendations to represent the regional indicators are to restrict to particulars or privates households.

3. Regarding indicators which are referred to individuals, each country has a population target chosen as per the interests and the orientation given to their policies (see section 2.4.4.). The recommendation made by the Partnership in the document of core indicators (Partnership, 2005b) is to restrict this indicator to a group of population with age between 16 and 74 years old, for the purpose of comparing them among countries.

4. A recommendation for harmonization effects, could be to generate two indicators, one referred to the target population of the study and other using the international recommendation to be able to compare with the rest of the countries, for example, dividing the number of individuals of 16 years or older that used Internet by the number of total individuals of 16 years older included in the study.

5. The question that established more than one category of answers presents some difficulties to compare them. Some countries restricted the answer to the selection of one category, others to two and even three and others allow multiple choice¹⁴. This lead that different countries present the corresponding indicator in different possible ways: as independent percentage per each category over the total individuals included in the study; as independent percentage per each category over the total Internet users; as percentage of each category with respect to the total summed by all the categories, this last applied just when there is only one option in the possible

¹²<http://www.ine.gub.uy/enha2006/flash/Flash%20Acceso%20de%20los%20hogares%20a%20la%20tecnologia.pdf>

¹³http://www.ine.gub.uy/enha2006/flash/Flash%2011_Tecnolog%EDa%20de%20Informaci%F3n%20y%20Comunicaci%F3n.pdf

¹⁴ This restriction has sense for those countries that wish to diminish the costs of data processing.

answer or when the calculation are restricted to take only the first option marked in the questionnaire (if is specified in the questionnaire). A possible solution is that each country present various indicators recommended over the same question.

6. With respect to the previous point, most of the countries present its indicators relative to the Internet use based on total Internet users, nevertheless, some also display the indicator on the base of total population included in the study. In this case it is recommended preferably to present the first one, leaving place to whom wish and can do it, to expose the both ways of represent the ICT use in all the contexts, the dimensions of it, over all the population study object.

7. In general, the calculation forms recommended by the Partnership are described, with additional explanations and proposals in some cases, as per the calculations done for some countries.

HH6 individual portions that used computers

The proportion of individual using computers is calculated dividing the number of total individual that used computers in any place (in the last 12 months) by the total number of individuals included in the study.

HH8 individual portions that use Internet

The proportion of individual using Internet is calculated dividing the number of total individual that used Internet (in any place) in the last 12 months by the total number of individual included in the study.

HH9 Place of Internet usage in the last 12 month

For the case of more than one possible answer:

1. Proportion of Internet users in each place: for example, the portion of users using Internet in the household, at work, etc. (Allow to see the calculation about the Internet users, independently for each category). To include clarification note: two possible answers, three possible answers, multiples answers possible.)
2. Proportion of the individuals included in the study using Internet in each place (Allow to see the calculation over the total individuals, users and non users, but independently form for each category).

For the case of only one possible answer or restricted post- collection of only one answer:

3. Proportion of Internet users using Internet more frequent en each place, considering only one possible answer (include clarification note: “the question allow only one answer” or “it is being chosen the first of two/three/multiple possible answers). In this case the sum of the percentage will be 100.
4. Proportion of the individuals included in the study using Internet more frequent in each possible place, considering only one possible answer (include clarification note: “the question allow only one answer” or “it is being chosen the first of two/three/multiple possible answers).

Here it is recommended to add the percentage of the ones not using Internet, this way the sum of the percentage will be 100.

HH10 Activities made on Internet by individuals in the last 12 months

The activities that can be made on Internet are multiples, nevertheless some countries restrict the question to the two or three more frequent activities. Another case is for example the one of IBGE of Brazil, who asks an independent question for each category. Since it is not possible to have the same level of information in all the countries, it is always recommended in the presentation of the indicators to specify the form in which the question was made and distinguish between "multiple possible answers", "two more frequent", "three more frequent". In agreement with these particularities the following indicators are recommended:

1. Proportion of *Internet* users who make each type of activity from any place, for example, the proportion of users who use Internet for communication, interaction with public authorities, etc. (It allows to observe the calculation only on Internet users, independently of each category). To include explanatory note: "two possible answers, three possible answers, multiple possible answers).
2. Proportion of *the individuals* included in the study that make each type of activity from any place. (It allows to observe the calculation over the total population, users or not, but in a independent way for each category).
3. Proportion of *Internet users* who make each type of activity on Internet more frequently, considering a unique answer possible (to include explanatory note: "the question allows a unique answer" or "it has been choose the first of two/three/multiple possible answers"). In this case the sum of the percentage will give 100. This indicator could not be obtained for example for the case of Brazil, and it would only have sense for those countries restricting their question to the most frequent activities.

HH11 Proportion of individuals using a mobile telephone

The *proportion of individuals with use of a mobile telephone* is calculated by dividing the total number of in-scope individuals using a mobile telephone by the total number of in-scope individuals.

HH12 Proportion of households with access to the Internet by type of access

This indicator presents particularities in its calculation given principally the difficulties to make the question in the surveys. In many cases the person who answer the survey does not know what type of connection he has, reason why the statistic offices are forced to formulate the question in a very simple way, as for example in the case of Uruguay where it is asked just for two options: i) dial-up Internet connection and ii) Internet connection by contract or monthly payment. It thus becomes difficult to make a classification that allows establishing the type of bandwidth used in households. In other cases (e.g. Mexico) the options extend a little more, asking if a dedicated telephone line exists or if the cable service is used to get the Internet connection. Only Brazil formulated the question about if the household has broadband access, in addition of dial-up access, but without indicate the type of broadband specifically. Additionally, each country has different access service conditions, in some countries, what in theory would be broadband (256Kbits/seg) is still far from reaching. It is anticipated then that the socio-demographic characterization of households having broadband will not be possible at least until users get

familiar with new tools. It can be, for some countries, that the Telecommunications Regulation Agencies could have data of broadband residential subscribers thus to determine the proportion, but without doing a characterization.

In agreement with the Partnership, the indicator can be calculated as the proportion of households with broadband Internet access and narrow band (respectively).

Another possible presentation would be to display it only as the proportion of households with Internet access. It is recommended to present both.

HH13 Frequency of individual Internet access in the last 12 months (from any location)

The proportion of in-scope individuals using 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).

Another recommendable presentation would be the proportion of Internet users who use Internet with each one of the frequencies listed below.

III. ICT Indicators and questions in surveys of businesses

The countries of Latin America and the Caribbean (primarily through their national statistics agencies) have proposed a number of questions for inclusion in business surveys. The Partnership on Measuring ICT for Development has compiled not only these questions, but similar ones from other regions as well. After studying the results, the Partnership has proposed a list of key ICT questions, which it presented for the first time at the Thematic Meeting on Measuring the Information Society, held in Geneva in February 2005. The meeting's participants approved the list, which in addition to being used as a point of reference by national statistical offices, has gained the support of the United Nations Statistical Commission, which considered the matter at its thirty-eighth session in February 2007.

The key indicators include eight "basic" indicators and twelve "extended" indicators. In connection with each indicator, the Partnership has suggested model questions and methodological recommendations, which are set forth in its document on the suggested indicators (2005b). Table 2 shows a summary of the indicators and questions. Annex I includes the list with more detailed information on the indicators.

Countries that have shown progress in incorporating the questions into their surveys include Argentina, the Dominican Republic, Panama, Peru and Uruguay. Chile, which was one of the reference countries for inclusion of ICT questions, incorporated the questions in some of its business surveys up until 2005, and plans to resume doing so in 2008. Colombia also included the questions in 2001, and plans to do so again in 2007. Barbados used them in 2003, but has not pursued the matter. Brazil's Internet Steering Committee (CGIB) conducted a business survey in 2005 and 2006, and plans to repeat the exercise in 2007. Cuba and Trinidad and Tobago have also included some of the questions in their business surveys.

3.1. Definitions of ICT variables

Although there is no consensus on how to measure certain variables, the following are definitions that can be used by countries, both for measurement and as a basis for formulating questions and constructing indicators.

TABLE 11
DEFINITIONS OF ICT VARIABLES

Variable	Definition
Computer use	Firm's use of <i>computer equipment</i> (desktops, laptops, hand-held devices, microcomputers, central computers). Not included are other devices that incorporate IT capacities, such as mobile telephones, televisions, machinery controlled by computers, and electronic cash registers.
Number of employees using a computer	<i>Number of employees</i> using a computer for work. An "employee" is anyone working for the firm, and is not limited to those in administrative or management areas. This includes owners and partners who work in the business.
Internet use	Firm's use of the <i>Internet</i> , including use of any network based on Internet protocol (IP), use of the World Wide Web, use of external networks accessed via Internet (extranets), electronic data exchange via Internet, access to and use of the Internet from mobile telephones, and use of e-mail.
Number of employees using Internet	<i>Number of employees</i> regularly using the Internet for work. An "employee" is anyone working for the firm, and is not limited to those in administrative or management areas. It includes owners and partners who work in the business.
Web presence	The term <i>web presence</i> refers to a website, or a home page or presence on another entity's website. It excludes listings in online directories or on any websites where the firm does not have substantial control of content.
Intranet	An <i>Intranet</i> is a network that uses Internet protocol for communication <i>within</i> an organization. Access is normally controlled by a <i>firewall</i> .
Incoming orders via Internet (sales)	This refers to <i>orders</i> received via the Internet, whether or not payment is made online. It includes orders routed through websites, specialized Internet markets, electronic data exchange via Internet, and Internet- and e-mail-capable mobile phones, but excludes cancelled or unfilled orders, whatever the reason.
Outgoing orders via Internet	This refers to <i>orders</i> placed via the Internet, whether or not payment is made online. It includes orders placed through websites, specialized Internet markets, extranets, electronic data exchange via Internet, and Internet- and e-mail-capable mobile phones, but excludes cancelled or unfilled orders, whatever the reason.
Type of Internet connection	<i>Type of Internet connection</i> used by a firm for Internet access: Questions should be formulated so as to elicit information on which firms have broadband access.
Local area network (LAN)	A <i>local area network (LAN)</i> is a wired or wireless network that connects computers within a localized area, such as a building, department or facility/site.
External network (extranet)	An <i>extranet</i> is a private, secure extension of an internal network (Intranet) that functions under Internet protocol. It allows selected outside users to access particular sections of an organization's internal network.
Uses of Internet	This item is intended to identify <i>activities</i> that businesses normally conduct that involve obtaining information, sending or receiving e-mail, carrying out banking operations or accessing other financial services, dealing with governmental organizations, providing services to clients, or delivering products online. Responses may specify more than one activity.

Source: OSILAC, based on *Partnership* (2005b)

3.2. Classification variables

Economic and other types of business variables are useful in analysing differences in ICT access and use in businesses. As classification criteria, they define distinctions between large and small enterprises, between different types of economic activity, between varying geographic locations, etc. They also help to ascertain the impact of ICT on productivity. However, the agreed list of questions focuses primarily on whether firms have access to the basic benefits of ICT for streamlining internal and external processes, sharing information, providing faster service to clients, and accessing current market information.

These classification variables should facilitate comparison and correlation with ICT variables, so as to identify determinants of ICT access and use. To the extent that they do so, they may be expected to provide information for formulating and implementing public policy that improves a country's ICT infrastructure and the capacities of its firms.

Table 12 presents proposed classification variables to collect and organize information on ICT use in business. A country may find that it is not possible to calculate values in certain categories, since some of the types or sizes of firms referred to here may not exist in the country.

TABLE 12
CLASSIFICATION VARIABLES FOR COLLECTING INFORMATION ON ICT IN BUSINESS

Variable	Description
Size of business	Number of employees: under 10, 10-19, 20-49, 50-99, 100-249, 250-499, 500-999, 1000+.
Economic sector	The following ISIC sectors or their equivalents are proposed as a sectoral classification scheme: D - Manufacturing E - Electricity, gas and water supply F - Construction G - Commerce H - Hotels and restaurants I - Transportation, warehousing and communications J - Financial intermediation K - Real estate O - Film, radio and television (92.1 and 92.2)
Geographic area	As per country's political divisions

Source: OSILAC, based on *Partnership* (2005b)

3.3. Current state of information in the region

The agreed key ICT indicators for businesses are based on proposals from the region's countries, as well as on international standards. Thus, a number of the region's countries have been able to incorporate the variables in some, if not all, of their business surveys.

In the last three years, nine of the region's 33 countries have incorporated at least one key ICT indicator in their surveys. Eight of these countries are Latin American, and one Caribbean. Detailed information is included here on six Latin American countries.

TABLE 13
KEY BUSINESS INDICATORS USED IN THE REGION'S COUNTRIES

Key indicators (businesses)	Argentina	Brazil	Cuba	Panama	Dom. Rep.	Peru	Uruguay
B1. They use computers	x	x	x	x	x	x	x
B2. Employees use computers	x	x	x	x	x	x	x
B3. They use Internet	x	x	x	x	x	x	x
B4. Employees use Internet	x	x	x	x	x	x	x
B5. Web presence	x	x	-	-	x	x	x
B6. They use Intranet	x	x	x	x	x	x	x
B7. They receive orders via Internet	x	x	-	x	x	x	x
B8. They place orders via Internet	x	x	-	x	x	x	x
B9. Type of Internet access	x	x	-	x	x	x	x
B10. Local area network (LAN)	x	x	x	x	x	x	x
B11. External network (extranet)	x	x		x	x	x	x
B12. Type of activity	x	x	-	x	x	x	x

Source: OSILAC, based on official national statistics

As Table 13 shows, countries that have incorporated indicators in their business surveys include almost all of the indicators. There are slight differences in the way they have formulated certain questions, but the indicators are essentially comparable and calculable. In Cuba, the data are based on an economic census. Though the number of countries that have incorporated the indicators in their business surveys is smaller, there is greater standardization in this area. The major problem is that the range of businesses covered varies from country to country. Though at least three countries have incorporated questions in innovation surveys, their respondent bases are different. Peru, for example, covers only businesses that are deemed to have conducted some innovative activity, while other countries specifically cover large firms. The sectors covered also vary from country to country. Thus, comparability problems remain to be addressed.

Argentina has already included the indicators in three surveys, and plans to do so annually in its innovation activities survey. Uruguay included some of the indicators in its 2004 innovation survey, and all of them in its 2006 economic activities survey. Brazil's CGIB has been including the indicators in its annual surveys since 2005, and though its data are not yet representative of the entire nation, they are currently the principal source of data for the country. The other countries have incorporated the questions in only one survey, and expect to continue the process on a biennial basis, or to address the issues in annual structural surveys.

3.4. Business surveys incorporating ICT questions

In general, the countries conduct three types of business surveys that may include questions on ICT: (i) regular surveys of manufacturing, commercial or service firms; (ii) innovation and R&D surveys; and (iii) specific surveys on ICT access and use, principally focusing on e-readiness and use of electronic technologies (e-usage). As indicated in the foregoing section, those countries that have incorporated the ICT questions have thus far done so in these three types of business surveys.

3.4.1. A list of the surveys

TABLE 14
SURVEYS WITH QUESTIONS ON ICT ACCESS AND USE

Country	Survey	Type of survey	Way in which ICT questions are incorporated	Year conducted
Argentina	National Survey of Businesses on Innovation, Research and Development, and Information and Communication Technologies—2004	Innovation survey	Section on ICT	2005 (covering 2002-2004)
Brazil (CGIB)	Survey on use of ICT in Brazil—ICT Firms 2005	Survey on ICT	Survey on ICT	2005, 2006
Cuba	Census of Information Technologies	ICT census	Census survey on ICT	2006
Spain	Survey on the use of Information and Communication Technologies and of e-commerce in businesses—2006	Survey on ICT	Survey on ICT	2006/2007
Peru	National Survey of Science and Technology and Technological Innovation, ENCYT2004	Innovation survey	Section on ICT	2005 (covering 2004)
Dominican Republic	National Assessment on Use of and Access to Information and Communication Technologies	Survey on ICT	Survey on ICT	2005-2006 (covering 2005 – 2006)
Uruguay	Survey of Innovation Activities (1998-2000)	Innovation survey	Section on ICT	2001 (covering 1998-2000)
	Survey of Innovation Activities (2001-2003)	Innovation survey	Section on ICT	2004 (covering 2001-2003)
	Encuesta de Actividad Económica (EAE)	Business survey	Section on ICT	2006 (covering 2005)

Source: OSILAC, based on official national statistics, as provided in answers to the compendium questionnaire.

1. In Argentina, INDEC, which, to date, has conducted its innovation survey four times, has incorporated a section with ICT questions for the third consecutive time: in the 2002 survey (covering the 1998-2001 period), in the 2005 survey (covering 2002-2004) and in the 2006 survey (covering 2005).
2. In Brazil, CGIB has included all of the basic and extended indicators in a survey specifically designed to study Internet use in businesses. The survey was conducted for the first time in 2005, and again in 2006. It also includes variables on e-commerce, e-government and security.
3. Cuba conducted an Information and Communication Technologies Census in September 2006, and carries out a monthly “services survey” organized around indicators of communications traffic, quality and infrastructure. The two surveys are based on a master registry of businesses.
4. Spain conducts a survey on businesses’ use of ICT and e-commerce. The one used here covers the October 2006 – January 2007 period.
5. Uruguay conducts a survey on innovation activities along with DINACYT (now DICYT). During 2006, the National Statistics Institute incorporated a specific chapter on ICT in its Economic Activity Survey (designed to cover the year 2005).

6. Peru conducts a National Science and Technology Survey of public-sector, private-sector and mixed enterprises of both domestic and foreign ownership located in Peru; public institutions with activities related to science, technology and innovation; and institutions of higher learning, including public and private universities and public and private technical schools.
7. Since 2005, the Dominican Republic's National Statistics Office has conducted a national assessment of ICT use and access (DINATYC) among two types of organizations, using two different methods. A census covers executive-branch entities of the central government, while a nationally representative survey, based on a random sample, covers the business sector.

3.4.2. Sampling methodology and sampling framework for the different surveys

1. Argentina's operation was conducted in the industrial sector, the unit of observation being the individual firm. The sample was comprised of 2,137 firms, based on INDEC's Monthly Industrial Survey.
2. In Brazil, firms were chosen from seven segments of the national classification of economic activities, CNAE-NACE:¹⁵ sections D, F, G, I, K, groups 55.1 and 55.2, and groups 92.1 and 92.2. This approach follows the Eurostat model. Only firms with at least 10 employees were considered. A cross-sectional sample was used, according to region, economic area and size, employing the figures provided by the Annual Social Information Report (RAIS).
3. In Cuba, the survey took the form of an economic census on ICT, based on a master registry of businesses, including state enterprises, mixed enterprises, commercial firms, budgetary units and other economic entities. The monthly services survey is based on the master registry of information and communications firms.
4. In Spain, firms were chosen based on number of employees and area of activity. The sample for the 2006-2007 survey included 28,821 firms, of which 16,871 had at least 10 employees, while 11,950 had fewer than 10. The sectors studied were: manufacturing (D); energy, gas and water production and distribution (E); construction (F); commerce (G); the hospitality industry (H); transportation and communications (I); financial intermediation (J); leasing and business services (K); and film, radio and television (92.1 and 92.2 of section O).
5. In Peru, the sample is based on two sources: a directory of businesses that state that they conducted innovative or R&D activities during the 1997-1999 period, and a database provided by the National Tax Superintendency (SUNAT). After eliminating errors, redundancies and inconsistencies, the list comprised 47,586 firms.
6. Uruguay's Survey of Economic Activity (EAE) covers all the country's economically active units, except for those conducting activities not covered by CEN97, namely farming, services provided on an individual basis by graduate professionals without employees; financial activities under the purview of the Central Bank of Uruguay (BCU); domestic services; and construction. Public-

¹⁵ NACE is, in effect, the counterpart of the ISIC. It is the classification of economic activities corresponding to ISIC Rev. 3, and is totally consistent with the corresponding European classifications.

sector economic activity is covered, including oil refining, which had already been changing, and electricity and water services, as well as communications services provided by the post office and ANTEL. Not included thus far are activities classified in section E of the ISIC Rev. 3 adapted for Uruguay, and activities of class 7000 of section K (real estate activities), as well as community services (section O), extra-territorial organizations and agencies (section Q) and extractive industries. Firms with fewer than five employees are not included.

7. The DINATYC survey in the Dominican Republic covered private-sector firms appearing in the national database of taxpayers maintained by the Office of Internal Revenue (DGII)—which includes all firms in the country that have formal legal status— along with primary information required to follow the internationally recommended activity classifications by size and other variables. The survey covered a total of 2,186 firms.

TABLE 15
DESIGN OF SAMPLES

Name	Design of sample	Coverage of sample	Sector	Sample size
Argentina	not available	National. Sample based on INDEC's Monthly Industrial Survey, for enterprises of at least five waged employees.	Industrial (D)	2,137 firms
Brazil CGIB, 2005/2006 ICT research	Cross-reference sample. 7 segments of economic activity, namely, NCEA segments D, F, G, K, I, groups 55.1 and 55.2, and groups 92.1 and 92. Simple random sample in each stratum. Covers firms with at least 10 employees.	By region. Results can be examined by: -region -sector of economic activity -size	D (manufacturing), F (construction), G (commerce), K (real estate), I (transportation, warehousing and communications), group 55.1 (hotels) and 55.2 (restaurants), groups 92.1 (film and video) and 92.2 (radio and television).	2,030 firms
Spain	Random sample stratified according to number of employees and type of economic activity. However, all firms with over 500 employees were examined.	National. Includes all firms whose principal activity is in NCEA sector D, E, F, G, H, I, J, K or O.	Sections D, E, F, G, H, I, J and K, and groups 92.1 and 92.2 of section O according to CNAE-93. ¹⁶	28,821 firms (16,871 of at least 10 employees and 11,950 with fewer than 10).
Peru	Stratified sample, with four strata determined by net annual sales. (i) Very large firms (annual sales above 50 million new soles). (ii) Large firms (sampling of firms with sales between 2.5 million and 50 million new soles).	National. Covers firms that conducted activities in science, technology or innovation. Results can be examined by: -geographic location -sector of economic activity	Firms carrying out experimental R&D activities. Institutions of higher learning: public and private universities; public and private technical schools.	7,296 firms. Total population 47,586 firms. Stratum (i) 1,026. Stratum (ii) 1,734. Stratum (iii) 3,084. Stratum (iv) 1,452.

¹⁶ The CNAE is Spain's national classification of economic activities, and is equivalent to the ISIC.

	(iii) Medium-sized firms (sampling of firms with sales between 500,000 and 2.5 million new soles). In (ii) and (iii), simple systematic random sampling was used. (iv) Small firms (with sales between 100,000 and 500,000 new soles), using simple systematic non-probabilistic sampling.			
Dominican Republic	Stratified sample with five strata according to registered stock: (i) Less than 100,000 pesos in share capital. (ii) Over 100,000 pesos but no more than 500,000 pesos. (iii) Over 500,000 pesos but no more than 1 million pesos. (iv) Over 1 million pesos but no more than 5 million pesos. (v) Over 5 million pesos.	National. Population sampled is the database of the Office of Internal Revenue.	Registered firms	2,186 firms
Uruguay Survey of Economic Activity (EAE)	Stratified sample with three strata. Random sampling for two of the strata (firms of 5-19 and 20-49 employees), and complete coverage of the third (firms with annual sales over 21 million pesos at current year's prices, or with at least 50 employees).	Firms with at least 5 employees. Results can be examined by: -sector of economic activity -personnel employed	Classes of ISIC rev3	3,300 firms (The statistical sampling unit is the firm)

Source: OSILAC, based on official national statistics, as provided in answers to the compendium questionnaire.

3.4.3. Information-gathering methods

1. In Argentina, the forms are sent by mail. Where necessary, information is confirmed or corrected by telephone or e-mail. Regular mail is not sent to a predetermined person at the firm, but to whomever the firm itself designates as respondent. This person signs the form and will be contacted for any additional questions.
2. In Brazil, CGIB conducts **telephone interviews** with the person at each firm responsible for ICT. If the company is not using ICT at the time of the interview, a person familiar with ICT is selected.
3. In Cuba, the questionnaire is delivered directly to the entities. The entities and the municipal statistics offices have an agreement by which the former deliver the forms to the municipal offices according to a preset schedule. When a form is returned to a municipal office, the official at the national statistical office reviews

it in the presence of the respondent who completed it. The respondent is the person in charge of IT or financial matters for the entity in question.

4. In Spain, forms are sent by mail, with follow-up telephone calls made 15 days later for any clarifications needed. If the firm is late in responding, calls are made 15 days following the issuing of a warning of possible sanctions (response to the survey is mandatory). No personal visits are conducted, but a toll-free telephone number is available for firms to call with any questions they may have. Respondents are designated by the firms.
5. Peru uses **direct personal interviews** for very large firms, large and medium-sized firms. For small firms, colleges and universities, public science and technology institutions and NGOs, **forms were sent to CONCYTEC offices** in Lima and to INIE regional offices in the country's departments. Respondents are designated by the firms.
6. Uruguay's innovation survey draws on **personal interviews** that utilize a paper questionnaire. In the case of the Survey of Economic Activity (EAE), the forms are sent by e-mail or fax. The firms normally return the form (in the form of an Excel spreadsheet) by e-mail, and the data are automatically inputted in the database. When forms are returned by fax, the INE digitizes the information. A few firms personally pick up and return the form, which is then digitized. The questions contained in the ICT chapter are answered by the person at the firm responsible for systems support.
7. The Dominican Republic used two complementary methods to gather the information. Internet contact was used first, and in cases where no response was received, personal interviews were conducted at the selected firms.

3.4.4. Economic variables used in the surveys (for classification)

1. Argentina uses the following variables:
 - Size of firm (2004 data).
 - Foreign capital as a percentage of total equity.
 - Industry to which the entity belongs.
2. Brazil uses:
 - Firm size based on number of employees: 10-19, 20-49, 50-99, 100-249, 250-499, 500-999, 1000 or more.
 - Region: north, north-east, south-east, south, central-western.
 - Sector of economic activity according to NCEA. This classification has been defined by Brazil's Institute of Statistics and is compatible with the ISIC. The sectors covered are:
 - Manufacturing
 - Construction
 - Commerce
 - Real estate
 - Transportation, warehousing and communications
 - Lodging (hotels) and food (restaurants)

- Film, video, radio and television.
3. Cuba uses:
 - Territorial areas.
 - Economic sectors (all sectors, except for the private sector, represented in the census) according to the National Classifier of Economic Activities (NAE). The NAE corresponds to ISIC Rev. 3.
 - Number of employees.
 - Urban/rural.
 - Possible cross-referencing with gender and education variables in relation to employees.
 4. Spain uses:
 - Firm size (number of employees).
 - Economic sectors covered by the survey.
 - Autonomous community.
 5. The Dominican Republic uses:
 - Sector of economic activity
 - Industry
 - Commerce
 - Farming
 - Agribusiness
 - Tourist services
 - Financial services
 - General consulting services
 - Health-care and related services
 - Educational establishments
 - Not-for-profit organizations
 - Miscellaneous services
 - Architecture, engineering and construction
 - Telecommunications, television and radio
 - Technology, Internet
 - Number of employees
Under 10, 10-49 , 50-99, 100-249, over 250
 - Interviewee's perception of the size of the firm
 - Estimated average annual sales of the firm

3.4.6. Periodicity of information gathering

Argentina has conducted three surveys covering ICT, beginning with the 2005 survey (covering activity in 2004) and continuing on an annual basis since then. Brazil's CGIB conducts annual surveys, as does Spain's corresponding agency. Cuba and the Dominican Republic have no set timetable. Uruguay's Economic Activity Survey is conducted annually, and the innovation survey is triennial. To date, Peru has conducted its survey only once—in 2005 (covering activity in 2004).

3.4.7. Periods covered by the questionnaires

1. Argentina: the year immediately preceding the survey.
2. Brazil: the last 12 months, except for questions A5, A6, C2, C6, C7, C8, D5, X3 and X4, which deal only with 2005.
3. Cuba: in the case of the census, the current period; in the case of the monthly surveys, the preceding month.
4. Spain: in the case of the questions dealing with ICT, January of the current year; for questions dealing with e-commerce, the preceding year.
5. Peru: the year immediately preceding the survey.
6. Uruguay: in the case of the innovation survey, the 2001-2003 period, though the form of the ICT questions implies that responses would reflect the current point in time.
7. Dominican Republic: the year immediately preceding the survey.

3.4.8. Cost of survey or module

TABLE 16
COST OF ICT QUESTIONS

Name	Cost per interview for ICT questions	ICT module cost
Argentina 2005 Innovation Survey	56.2 pesos (US\$ 18.7)	120,000 pesos (US\$ 40,000)
Brazil CGIB – 2005 ICT Survey	98.5 reais (US\$ 46)	200,000 reais (US\$ 93,400)
Cuba	not available	not estimated
Spain ICT and e-commerce Survey	30 euros (US\$ 40.2)	864,630 euros (US\$ 1,158,600)
Peru	not available	not estimated; is part of chapter V
Uruguay	not available	not estimated
Dominican Republic	not available	not estimated

Source: OSILAC, based on official national statistics, as provided in answers to the compendium questionnaire.

In Argentina, the cost is calculated to include salaries of personnel directly assigned to the operation, expenditures for printing, postage and other paper costs. Not included are administrative costs such as management personnel and methodological design staff, data capture costs and development of data entry programs, oversight and consistency, telephone and Internet costs, which are funded as a part of the secondary activities of the statistics office. In Spain, the cost is estimated at 30 euros per questionnaire. In this case, it is difficult to generalize, since data are scarce. However, it is apparent that in the two cases (Spain and Brazil) involving larger surveys that follow the Eurostat format, which go far beyond the key questions to explore ICT use (particularly e-commerce), the cost per interview is between US\$ 40 and US\$ 50. The cost per interview of including the key questions in an existing survey, as in the case of Argentina, is probably no more than US\$ 20.

3.4.9. Funding of surveys

1. In Argentina, the funds of the national statistics agency itself are used, though additional support is provided by the Secretariat of Science, Technology and Productive Innovation, which is part of the Ministry of Education, Science and Technology.
2. Brazil's CGIB finances the survey with its regular funds. Cuba and Uruguay also draw on their statistics offices' regular budgeted funds.
3. In Spain, the survey is part of the National Statistical Plan, and thus is paid for by regular budgeted funds. Spain also receives Eurostat subsidies. For development of Information Society indicators, there is a collaborative agreement with the Ministry of Industry, Tourism and Commerce.
4. In Peru, the ENCYT 2004 survey was conducted under an agreement between the National Science and Technology Council (CONCYTEC) and the National Institute of Statistics and Information Technology.
5. The Dominican Republic study employed government funds channelled through the National Statistics Office.

2.4.10. Publication and dissemination of results

TABLE 17

Country	Name of publication	Year	Means of publication	Institution that publishes the results
Argentina	Press release: "Utilización de Tecnologías de la Información y las Comunicaciones (TICs) en las empresas argentinas," September 2006.	2006	Hard copy, CD and Internet	INDEC
	"Encuesta Nacional a Empresas sobre Innovación, I+D y TICs" Analysis of Results	2006		INDEC, Secretariat of Science and Technology, with support from experts in the REDES group.
	"Segunda encuesta nacional de innovación y conducta tecnológica de las empresas industriales argentinas," 1998-2001.	2004		
Brazil	Pesquisa sobre o uso das tecnologias da informação e comunicação no Brasil 2005	2006	Hard copy, CD and Internet in tabular form: www.nic.br/indicadores .	CGIB
Cuba	Indicators		Hard copy and website	
Spain	not available	Annually (last quarter of year)	INE website and press release at time of publication	INE
Peru	Working document with results of ENCYT 2004	Not yet published		INEI
Dominican Republic	Diagnóstico Nacional sobre uso y acceso a Tecnologías de Información y Comunicación en el Gobierno y las Empresas	Not yet published	Hard copy and PDF file on CD and website of ONE	National Statistics Office

Source: OSILAC, based on official national statistics, as provided in answers to the compendium questionnaire.

1. Argentina issues a publication following each innovation survey. The maximum disaggregation of the information published was at the two-digit level of the industrial codes in the National Classification of Economic Activities, 1997 version.
2. Brazil publishes results annually. All of the indicators are published by region, activity and firm size, as cited in section 3.4.4.
3. Cuba conducts an annual statistics study, in which it plans to introduce ICT information.
4. Spain publishes its data on the website in the last quarter of each year, and issues press releases to announce the online publication.
5. As Table 17 shows, some national statistical offices publish data on their websites. It is desirable to continue such dissemination and extend it to include ICT, providing detailed information and analysis of ICT impact.

3.4.11. Methods of calculating indicator values: remarks and recommendations

In general, the countries include questions on the percentage of employees using computers and Internet. The recommendation, however, is to ask about the absolute number of employees, in order to then calculate a percentage for the firms as a group. Countries that query firms as to percentages calculate the indicator by averaging the percentages. However, this does not necessarily give the same result as would be obtained by calculating the overall percentage as a direct function of the absolute numbers for the individual firms. To ensure comparability, the most advisable method is the recommended one of soliciting the actual number of employees, even if responses are approximations.

For the other indicators, countries are expected to produce information based on their Internet-using firms, and on all firms, classified according to the variables in section 3.2 and others that the national statistics agencies consider relevant and deem useful as evidence of the impact of ICT use within firms.

In calculating the Internet sales and purchases indicator, some countries may be including orders placed and filled through e-mail. It would be helpful for such countries to clarify this and, subsequently, to separate the question into two different components (e-mail versus website activity).

IV. Moving forward with measurement and analysis

Conclusions

As seen in chapters II and III, the inclusion of ICT variables in household and business surveys is progressing quite well in the region, primarily in the Latin American countries. The present phase should take advantage of the extensive information that has been generated, given that the main objective of this entire process has been to generate harmonized data to support policymaking and monitoring of existing policy, as well as monitoring countries' progress in ICT access and use, along with possible social and economic impact.

It would be desirable for the countries to continue —or begin— preparing reports on the information produced, employing the demographic, social and economic variables recommended in the present document. OSILAC is currently in the process of creating an information system with various subsystems, one of which deals with household surveys, a second with business surveys, and another with indicators for monitoring ICT infrastructure, access and use, as well as the industry as a whole. The system is designed to house data from all of the countries collecting information on ICT, and to become a regional instrument for national and regional policymaking in connection with promoting mass access to, and greater use of, these technologies, with the ultimate goal of benefiting society as a whole.

Thus, OSILAC plans to produce studies that examine the economic and social impact of ICT on people's lives, and on firms' organizational development and productivity. At the same time, some countries (specifically through their national statistical agencies) are forming study groups to produce analyses in terms of the creation of an information society and, more specifically, in terms of ICT access and use. Examples are the Brazilian and Chilean agencies, and the governmental initiative of the National Observatory for the Information Society within the national statistics agency in the Dominican Republic.

In addition to furthering data analysis, it is clearly important to continue working on harmonizing the variables; reaching agreement on a number of issues still pending in the region, such as the period to be covered by ICT questions; relevant age brackets for questions on ICT use; and the

comparability of respondents in differently designed surveys. On some of these points, unified decisions are probably unnecessary, but it would be worthwhile to discuss this issue. Above all, compatible presentation of information must be achieved so that, for example, Internet users above 5 years of age in one country are not being compared with users above 10 years in another, or firms of over 50 employees that have websites in one country with firms of over 10 employees in another. The problem is not as complex as it might seem. It is essentially an issue of ensuring comparability both between and within countries.

One of the tools that OSILAC aims to provide is a system in which unified, harmonized information can be generated directly from the databases of the region's countries. Databases must be harmonized for this to be achieved.

Returning to the issue of measurement, it should be noted that some countries are taking steps to implement actual monitoring of their ICT sectors. Chile, in particular, has created a satellite account based on the analytical frameworks provided by the OECD. Though not all countries need satellite accounts for such specific areas as ICT, it is definitely advisable for countries to research the impact of the sector's production on job creation, value added, imports and exports. This information is basic in establishing the positive or negative impacts that this sector—so important in the globalized world—is having on our societies. Accordingly, countries are urged to move in this direction, in line with the parameters provided by the Partnership (2005b, pp. 48-52).

The hope is to advance the study of the social and economic impact of ICT, moving toward measurements more closely oriented to social and productive use of ICT. Emphasis has been placed at various times on the need to improve measurement of ICT access and use in educational institutions at all levels, health-care organizations, and national and local government institutions. Even measurement in sports institutions and public Internet access establishments has been proposed,¹⁷ so as to determine the extent to which community members are using the Internet in publicly available locations.

Main findings

In a general sense, it is clear that modules or sections on ICT use can be incorporated in existing surveys. There are but a few basic questions, and most of the countries have found it feasible to include the extended questions as well. Some have even incorporated other relevant questions, such as those on barriers to Internet access. Including sections on home equipment in household surveys facilitates inclusion of all questions relating to ICT access, thus limiting the challenge to that of incorporating the questions in a section capable of fitting onto a single page of the questionnaire. For firms, the questions can also be included in a page of the existing questionnaire, regardless of whether the survey is horizontal—covering all sectors of the economy—or specific to the sectors that the country considers it important to measure.

For household surveys, the cost of including the key ICT questions is on the order of US\$ 1.50 per interview. The number of countries that have included these questions, and the diversity of these countries in terms of their stage of development, show that any country, regardless of its development, can adopt a leadership role and place measurement of ICT access and use on the agenda of its statistical agency. In the case of business surveys, it is more difficult to determine

¹⁷ Proposal by the Cuban national statistics agency presented at the Third Regional Workshop on Information Society Measurement, held in Panama City in November 2004.

cost. However, the limited data available suggest that surveys dedicated exclusively to ICT, with questions exploring Internet use and e-commerce, cost between US\$ 40 and US\$ 50 per interview. It is to be expected that if the ICT questions are simply included in an existing survey, the additional cost should not exceed some US\$ 20 per interview. Countries with a tradition of regular business surveys have already included the questions, or are doing so in 2007. It would seem that the inclusion of these questions increases total survey cost significantly, though there is very little information from which to generalize. To date, experience shows that countries can incorporate the questions without major impact on the structure or quality of their surveys.

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Annex

Annex I. Core list of ICT indicators

Core indicators on ICT infrastructure and access

Basic core	
A1	Fixed telephone lines per 100 inhabitants
A2	Mobile cellular subscribers per 100 inhabitants
A3	Computers per 100 inhabitants
A4	Internet subscribers per 100 inhabitants
A5	Broadband Internet subscribers per 100 inhabitants
A6	International Internet bandwidth per inhabitant
A7	Percentage of population covered by mobile cellular telephony
A8	Internet access tariffs (20 hours per month), in US\$, and as a percentage of per capita income
A9	Mobile cellular tariffs (100 minutes of use per month), in US\$, and as a percentage of per capita income
A10	Percentage of localities with public Internet access centres (PIACs) by number of inhabitants (rural/urban)
Extended core	
A11	Radio sets per 100 inhabitants
A12	Television sets per 100 inhabitants

Core indicators on access to, and use of, ICT by households and individuals

Basic core	
HH1	Proportion of households with a radio
HH2	Proportion of households with a TV
HH3	Proportion of households with a fixed line telephone
HH4	Proportion of households with a mobile cellular telephone
HH5	Proportion of households with a computer
HH6	Proportion of individuals who used a computer (from any location) in the last 12 months
HH7	Proportion of households with Internet access at home
HH8	Proportion of individuals who used the Internet (from any location) in the last 12 months
HH9	Location of individual use of the Internet in the last 12 months <ol style="list-style-type: none"> 1. At home 2. At work 3. Place of education 4. At another person's home 5. Community Internet access facility (specific denomination depends on national practices) 6. Commercial Internet access facility (specific denomination depends on national practices) 7. Others
HH10	Internet activities undertaken by individuals in the last 12 months; <ol style="list-style-type: none"> 8. Getting information <ul style="list-style-type: none"> o About goods or services o Related to health or health services o From government organisations/public authorities via websites or e-mail o Other information or general Web browsing 9. Communicating 10. Purchasing or ordering goods or services 11. Internet banking 12. Formal education or training activities 13. Dealing with government organisations/public authorities 14. Leisure activities <ul style="list-style-type: none"> o Playing/downloading video or computer games o Downloading movies, music or software o Reading/downloading electronic books, newspapers or magazines o Other leisure activities
Extended core	
HH11	Proportion of individuals with use of a mobile telephone
HH12	Proportion of households with access to the Internet by type of access <ol style="list-style-type: none"> 15. Categories allow an aggregation to narrowband and broadband, where broadband excludes slower speed technologies, such as dial-up modem, ISDN and most 2G mobile phone access. Broadband will usually have an advertised download speed of at least 256 kbit/s.

HH13	Frequency of individual access to the Internet in the last 12 months (from any location) 16. at least once a day 17. at least once a week but not every day 18. at least once a month but not every week 19. less than once a month
Reference indicator	
HHR1 ¹⁸	Proportion of households with electricity

Core indicators on use of ICT by businesses

Basic core	
B1	Proportion of businesses using computers
B2	Proportion of employees using computers
B3	Proportion of businesses using the Internet
B4	Proportion of employees 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
Extended core	
B9	Proportion of businesses using the Internet by type of access 20. Categories allow an aggregation to narrowband and broadband, where broadband excludes slower speed technologies, such as dial-up modem, ISDN and most 2G mobile phone access. Broadband will usually have an advertised download speed of at least 256 kbit/s.
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 21. Sending and receiving e-mail 22. Getting information <ul style="list-style-type: none"> ○ About goods or services ○ From government organisations/public authorities via websites or e-mail ○ Other information searches or research activities 23. Performing Internet banking or accessing other financial services 24. Dealing with government organisations/public authorities 25. Providing customer services 26. Delivering products online

Core indicators on the ICT sector and trade in ICT goods

ICT sector and trade basic core	
ICT1	Proportion of total business sector workforce involved in the ICT sector
ICT2	Value added in the ICT sector (as a percentage of total business sector value added)
ICT3	ICT goods imports as a percentage of total imports
ICT4	ICT goods exports as a percentage of total exports

¹⁸ Since electricity is not specifically an ICT commodity, but an important prerequisite for using ICT, it is not included in the core list, but included as a reference indicator.