

**8th World Telecommunication/ICT Indicators
Meeting (WTIM-10)**
Geneva, Switzerland, 24 - 26 November 2010



Information document

Document INF/10-E
16 November 2010

English

SOURCE: Central Statistics Office, India

TITLE: ICT Sector Statistics in India – Current Status (as on September 2010)

ICT SECTOR STATISTICS IN INDIA – CURRENT STATUS (as on September 2010)

1. Introduction

1.1 Information and Communication Technology can be broadly viewed under two sectors, Information Technology and Communication. In India, the growth of both these sectors is very significant in the past two decades. Indian IT industry has built up an enormous confidence for itself in the global markets. IT industry in India comprises of software industry and information technology enabled services (ITES), which also includes business process outsourcing (BPO) industry. India is considered as a pioneer in software development and a favourite destination for IT-enabled services. The Indian software and services exports including ITes-BPO exports is estimated at US \$ 49.7 billion in 2009-10, as compared to US \$ 47.1 billion in 2008-09, an increase of 5.5 per cent. The IT services exports is estimated to be US \$ 27.3 billion in 2009-10 as compared to US \$ 25.8 billion in 2008-09, showing a growth of 5.8 per cent. ITes-BPO exports is estimated to grow from US \$ 11.7 billion in 2008-09 to US \$ 12.4 billion in 2009-10, a year-on-year (Y-o-Y) growth of 6 per cent.

1.2. On the Other hand, the growth of Telecommunications is also alarming. In recent times, country has emerged as one of the fastest growing telecom markets in the world. Indian telecom has become the second largest wireless network in the world after China. The future progress of telecom in our country is very encouraging. The current addition of about 15 million connections per month puts the telecom sector on strong footing. The target of 500 million connections by 2010 has been achieved in September 2009 itself.

1.3. Measuring the impact of ICT is critical to better understanding the role of ICT for economic and social development. With the rapid growth of the ICT sector in India, there is an important demand from the research community and policy makers for better data to ensure that research findings are representative for the entire country or the state in order to inform policy makers about ICT developments and its impact and have meaningful interpretations of policies. In particular, there is a real need to measure the digital divide in the country, including the urban-rural and gender divides, and the use of community Internet access centers and mobile phone applications by low-income users.

1.4. In India, much work on measuring the impact of the IT industry on economic growth and employment has been carried out. The Government of India has been making sustained efforts to improve the availability of ICT data for policy making and research. Certain data in particular data on the telecommunication sector, the IT industry and business process outsourcing (BPO), data on the information society at large, are produced on a regular basis. A significant amount of data exists on the ICT service industry, collected by National Association of Software and Services Companies (NASSCOM), reflecting their members' data. Similarly, data on ICT manufacturing is captured by another private body, the Communication and Manufacturing Association of India (CMAI).

1.5. However, there is a clear need to collect more ICT data in India in a comprehensive and comparable fashion, particularly on the use of ICT by individuals, households and businesses. While some of these data are produced through surveys in a limited manner,

official statistics representing the entire sector in a regular manner are still limited. **The current proposed paper attempts to identify the existing data system / data present in the field of ICT statistics in India, particularly with reference to the Basic Core Indicators (Annex) identified and recognised at international level under the four categories viz.(a) Infrastructure and Access (b) Access to and use of ICT by households & Individuals (c) Use of ICT by businesses (d) ICT sector and Trade in ICT goods. Apart from the core-indicators, the paper also presents an outlook of the e-readiness reports used in India to motivate the provincial / state governments in implementing the e-Governance programmes / projects.**

2. Core indicators on ICT infrastructure and access

2.1. The first three indicators A1, A2 and A3 viz Fixed telephones per 100 inhabitants, Mobile telephones per 100 inhabitants; and computers per 100 inhabitants, are regularly maintained month wise by the department of telecommunication under the ministry of information and communication technology. The latest information available **till July 2010** on these three indicators are depicted in the following charts.

Chart 1: No. of telephones per 100 inhabitants

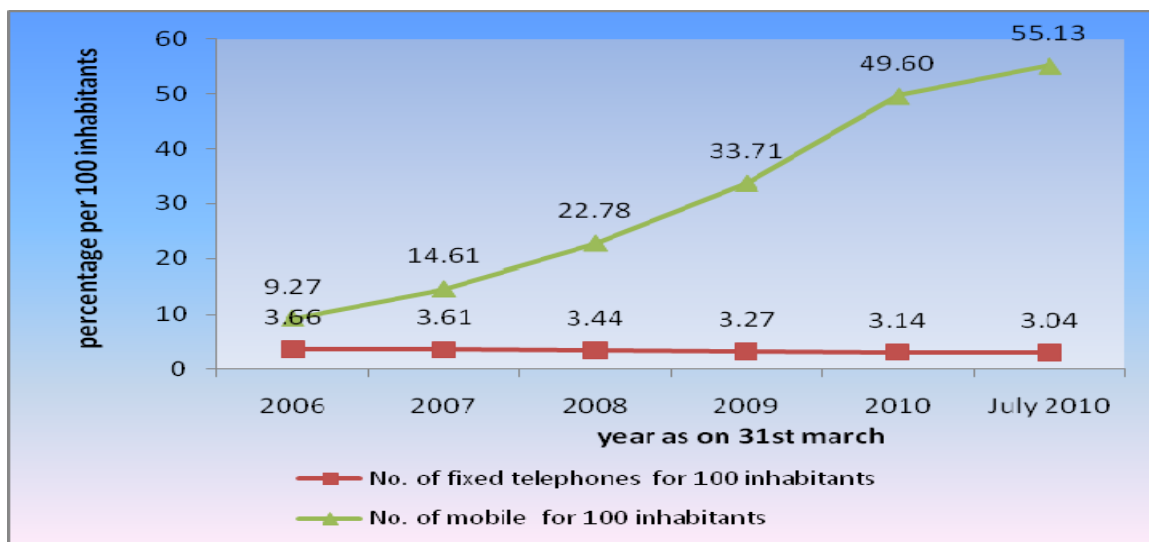
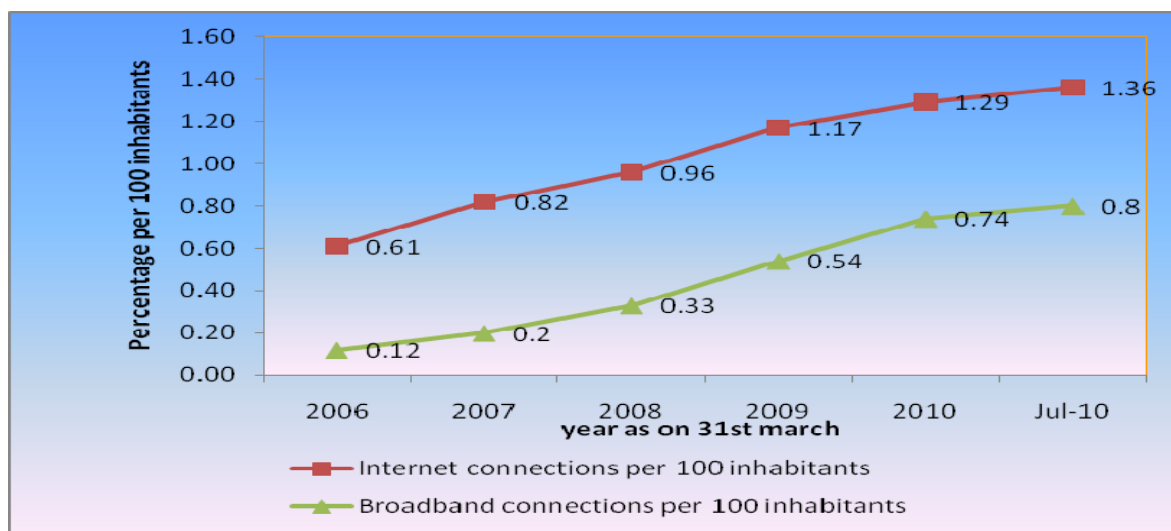


Chart 2: No. of Internet connections per 100 inhabitants



2.2. The data on certain indicators of this category like percentage of population covered by mobile cellular telephony(A7) are available in a very crude format. i.e The number of localities interms of villages in each state with the facility of mobile telephony are available, which can be converted to A7 by putting little more extra efforts by the state governments by adding the population of all these villages . Similarly the data on tariffs is available with the distributors of the internet connections under different packages offered. Thus the tariff rates are to be disaggregated under ech pakage and per hpu rate is to be arrived at. In a nutshell, the data on the remaining indicators related to infrastructure and access indicators is yet to be maintained in a systematic fashion in India.

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

3.1. National Sample Survey Office (NSSO) of the Ministry of Statistics and Programme Implementation conducts multi-subject integrated sample surveys all over the country in the form of successive rounds relating to various aspects of social, economic, demographic, industrial and agricultural statistics in successive rounds, each round covering subjects of current interest in a specific survey period. The subject coverage of Socio Economic (SE) inquiries for different rounds is decided on the basis of a 10 year time frame. In this cycle, 1 year is devoted to land and live stock holdings, debt and Investment; 1 year to social consumption (education and health care, etc.), 2 years to quinquennial surveys on household consumer expenditure, employment & un-employment situation and 4 years to non-agricultural enterprises, namely, manufacturing, trade and services in un-organized sector. The remaining two years are for open rounds in which subjects of current/special interest on the demand of Central Ministries, State Governments and research organizations are covered.

3.2 Each survey extends over a period of six months or a year which is termed a round. At present each NSS round covers, at the all India level, about 12,000 to 14,000 villages and urban blocks in the Central sample (covered by the Central government agency NSSO) and an independent sample of about 14,000 to 16,000 villages and blocks in the State sample (covered by the Governments of various states and union territories). The Socio-Economic Surveys cover the whole of the Indian Union except for a few inaccessible and difficult pockets.

3.3. The information related to the core indicators on access to and Use of ICT is available from the quinquennial surveys of Consumer Expenditure. The latest survey was conducted

during the periods 2004-05. As per this survey the information of core indicators is depicted in the following table.

**Table 1: Estimates of % of household in rural and urban India
(a) Possessing radio and (b) Possessing television**

Year	% households possessing radio (HH1)		% households possessing television (HH2)	
	Rural	Urban	Rural	Urban
2004-05	26.3	33.6	25.6	66.1

3.4 The indicator HHR1, estimate of proportion of households using electricity as primary source of energy for lighting is available for 2004-05 to 2007-08. The estimates are as under.

Table 2: Estimates of % of households using electricity for lighting

Year	% households using electricity for lighting*	
	Rural	Urban
2004-05	54.9	92.3
2005-06	56.3	92.0
2006-07	56.1	92.7
2007-08	60.2	93.8

*As primary source of energy for lighting

3.5 Information on HH3 to hh13 is not available in India. However, the information on the number of household using computers (HH5) is being introduced in the next survey of NSSO.

4. Core indicators on use of ICT by businesses

4.1. The Annual Survey of Industries (ASI) is the principal source of industrial statistics in India. It provides statistical information to assess and evaluate, objectively and realistically, the changes in the growth, composition and structure of organised manufacturing sector comprising activities related to manufacturing processes, repair services, gas and water supply and cold storage. The data is collected through a comprehensive questionnaire, which includes a query related to the use of ICT whether the business is using the computer. The survey covers all factories registered under Factories Act, 1948 employing 10 or more workers using power; and those employing 20 or more workers without using power. Apart from these, certain servicing units and activities like water supply, cold storage, repairing of motor vehicles and other consumer durables like watches etc. are covered under the Survey

Thus the core indicator B1 compiled from the Annual Survey of Industries for the last three are shown in the table below.

Table 3: ICT usage indicators (by no. of employees)

Year	Total estimated no.	% of enterprises using computer	% of enterprises using computer with no. of employees
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	of factories/ enterprises								
		Rural	Urban	Total	0-9	10-49	50-49	250+	Total
2005-06	140160	59.21	70.31	65.83	30.75	62.05	78.67	92.82	65.83
2006-07	144710	61.50	74.72	69.26	36.04	64.37	79.60	94.31	69.26
2007-08	146385	67.26	77.71	73.21	37.05	68.57	81.93	94.76	73.21

The above table indicates that the usage of computers in rural areas has increased from 59% in 2005-06 to 67% in 2007-08 whereas in urban areas it has increased from 70% in 2005-06 to 78% in 2007-08. Also it may be seen that about 95% of large enterprises having above 250 employees are using computer. However, only 37% of businesses with less than 10 employees are using computers in 2007-08.

4.2. Moreover, the data in the survey is collected as per the National Industrial Classification which is comparable with International Standard Industrial Classification till four digit level. Thus the information on Value added and employment (by gender) related to the manufacturing industries of ICT (included in the definition of ICT sector, recognised by UN) are available through the Annual Survey of industries.

4.3. Apart from the Annual Survey of Industries described above, In India, large scale sample surveys on households and enterprises are carried out regularly to estimate the workforce, Gross value Added and various other related characteristics. These surveys are conducted by National Sample Survey Office (NSSO), an official agency of the Government of India under the Ministry of Statistics and Programme Implementation specializing in sample surveys. While household surveys are generally carried out every year, enterprise surveys are conducted with a gap of 4/5 years. Latest few enterprise surveys and their coverages were

63rd round (July 06 - June 07) – Services sector excluding trade

67th round (July 10 - June 11) – Manufacturing sector and Services sector

5. Core indicators of the ICT sector and Trade in ICT goods

5.1 In India, the indicators ICT1 to ICT4 related to workforce, value added, imports & exports respectively are not strictly measured as per the International Standard Industrial Classification (ISIC). However, the information related to workforce & exports for this sector is maintained in National Association of Software and Services Companies (NASSCOM) for the IT-BPO sector.

5.2 NASSCOM is a premier trade body as well as the Chamber of Commerce of IT-BPO sector in India. It is a not-for-profit organisation and has emerged as an authentic voice of this industry in India. It publishes an annual edition of its strategic review to disseminate the latest status of the industry based on the survey of large companies of this sector. As per the NASSCOM results, the estimated number of business sector workforce involved in the ICT sector - IT-BPO direct employment for the financial year 2009-10 is 2.3 million and the ICT goods exports as percentage of total exports- IT-BPO services as a percentage of total exports for the year 2009-10 is 27.3%.

5.3 Gross Domestic product related to Communication sector and Computer related services is available in the Ministry of Statistics and Programme implementation from their publication National Accounts Statistics. The figures for the last five years as shown in table below indicates that the total share of GDP at 2004-05 prices in these two sectors has increased from 3.9% in 2004-05 to 6.1% in 2008-09.

**Share of Gross Domestic Product (GDP) by Economic Activity to total GDP
(At 2004-05 prices)**

Sl.No	Economic Activity	2004-05	2005 - 06	2006-07	2007 - 08	2008-09
1.	Communications	1.66	1.85	2.12	2.49	2.93
2.	Computer relating services	2.25	2.61	2.93	3.18	3.21
	Total (1 +2)	3.91	4.46	5.05	5.67	6.14

5.4 The data related to production, exports and imports of this sector is also maintained by the Ministry of Communication and Technology in terms of electronic hardware, computer software etc. The information of production, imports and exports are shown in table 4 and table 5 below.

Table 4: Trend in production and growth of the Hardware and Computer Software Sector

Year	Production (Rs. Billion)			Growth (% increase over previous year)
	Electronic hardware	Computer software	Total	
2003-04	438.0	744.9	1182.9	21.9
2004-05	505.0	1019.2	1524.2	28.9
2005-06	565.6	1337.0	1903.0	24.9
2006-07	660.0	1780.0	2440.0	28.3
2007-08	844.1	2114.1	2958.2	21.2
2008-09	946.9	2735.3	3682.2	24.5

Source: Department of IT, Ministry of Communication and IT

Table 5: Growth of Exports in IT-ITES/BPO sector

Sl.No.	Year	Exports (USD billion)	Growth (%)
1	2004- 05	17.7	37.2
2	2005- 06	23.6	33.3
3	2006-07	31.1	31.8
4	2007-08	40.4	29.9
5	2008-09	46.3	14.6

Source: The Ministry of Communication and Information Technology

5.5 The Ministry of Commerce & Industry maintains the Imports/exports data of transportable goods as per the Indian Trade Classification ITC (HS) Classification which is an 8-digit Classification; the first six digits are comparable in toto with the HS

Classification. The imports/exports details for the ICT Manufacturing industries are as below:

Table 6: Percentage of exports / imports of ICT manufacturing goods to total manufacturing exports / imports

Year	Exports	Imports
2004-05	1.05	4.01
2005-06	0.96	3.77
2006-07	0.87	3.63
2007-08	0.80	2.90
2008-09	2.84	7.85
2009-10(P)	2.45	8.10

(P) : provisional

Source: Ministry of Commerce & Industry

Survey on Software & Information Technology Services Exports: 2008-09

5.6 The Reserve Bank of India recently introduced a quarterly sample surveys on Software and ITES/BPO Services Exports for the quarters April-June, July- September and October-December 2008 and also conducted the third comprehensive annual survey for the period 2008-09. The second annual software export survey was conducted with reference period 2007-08. The survey collected the information on the computer services exports, as defined in Balance of Payments Manual [BPM5 (1993)] and Manual on Statistics of International Trade in Services [MSITS (2002)] as well as on ITES/BPO services exports.

5.7 The survey results are based on the data collected through the quarterly sample surveys for the quarters April-June, July-September and October- December 2008 and also a comprehensive annual survey for the period 2008-09. The data are collected as per BPM5 guidelines. For the quarterly sample survey, 200 companies were selected, of which 187 companies responded. The sample of 200 companies covered all 93 large companies (software export size of 100 crore i.e about US\$ 22 million and above) and 107 small companies (export size of less than Rs. 100 crore i.e about US\$ 22 million). The sample of small companies was selected using simple random sampling from the frame of small companies. It was ensured that selected companies covered all the four major groups of activities, viz., IT services, BPO services, engineering services and software product development services. The large companies covered almost 80 per cent of total software export business in 2007-08. For the comprehensive annual survey for the reference period 2008-09, a total of 916 companies responded to the survey. Exports done by the non-respondent companies have been estimated using median exports. For estimating the quarterly software services exports, observed sample proportions of quarterly software services exports, based on the quarterly survey were used

Main Findings

- Total Computer Services and Information Technology Enabled Services (ITES)/ Business Process Outsourcing (BPO) services exports of India during 2008-09 were estimated at Rs.1,67,240 crore (US\$ 36.4 billion), of which computer services exports was Rs.1,21,956 crore (US\$ 26.6 billion).

- Quarterly survey results revealed that export from India on account of software services in Q1 was 21 per cent of total global software services exports in 2008-09, increasing to 25 per cent and 26 per cent in Q2 and Q3, respectively.
- The share of software export in the last quarter of 2008-09 was the highest at 28 per cent. Of the total software exports (Computer and ITES/BPO services), around 72 per cent was through offsite services while onsite software exports accounted for 28 per cent.

6. e-Readiness in Indian States

6.1 The Department of Information Technology and the National Council of Applied Economic Research have collaborated in producing the India e-Readiness reports since 2003 in an attempt to evaluate the e-Readiness of State Governments. This e-Readiness report thus presents the evolution in the ranking of States according to their Government's e-Readiness. e-Readiness is a multidimensional concept. It measures the state's ability to participate in an increasingly networked world. It can be viewed as the ability to pursue value creation opportunities facilitated by ICT. Therefore, it is not simply a matter of the number of computers, internet connections, telephones and mobiles, etc., in the state but also the ability or readiness to use technology skilfully at the level of the individual, business and the Government.

6.2 The Report employs the use of composite indicators. To measure e-Readiness, the following three main sub-indicators are used:

- the environment that promotes the spread and usage of ICT;
- the readiness of different stake holders of the economy (the government - both the initiatives of the central government and the response of the state governments, businesses and the individual) to use ICT; and
- The degree of usage of ICT by the three stakeholders.

The data for computing these indices is obtained from both secondary and primary sources. Secondary sources included the Department of Telecommunication Annual Statistics, Statistical Abstracts of India, Economic Survey, Census publications and various Governments of India websites. Primary data collection was through a survey of the various departments of the state governments using a well-structured questionnaire. e-Readiness composite index is basically a weighted average of a large number of quantitative and qualitative indicators organised into their basic categories.

6.3 A regional comparison shows that states in southern India are clear leaders. The Eastern region performs consistently, with all the states being either the 'aspiring leaders' or 'expectants'. Within the North-East region most of the states are in the bottom categories. The Western region demonstrates a highly disparate performance.

6.4 e-Readiness is an important factor in promoting e-Governance. The former provides capabilities, while the latter is an indicator of implementation. One of the important differences is that while e-readiness has three actors, i.e, Government, business and individuals, the responsibility of effective implementation of e-Governance projects and services is the sole responsibility of the Government. However, the effectiveness of e-Governance increases if the citizens are more e-literate and aware, as this enables them to take benefits of e-Governance.

6.5 For the first time, the report provides an assessment of Indian states /UTs in the area of e-Governance. The e-Governance part of the questionnaire administered in all the states contained certain questions as basic filters for capturing hierarchy in e-Governance.

6.6 Comparing the e-Readiness and e-Governance rankings, the report finds that not all states/U.Ts in a leading position of e-Readiness perform well in terms of e-Governance. On the other hand, many states /UTs that are less e-Ready are still using their ICT capabilities much efficiently for providing e-Governance.

7. Recent Developments in India

A project on “Statistical Compilation of ICT sector Statistics in India”

7.1 Recently Govt. of India, Ministry of Statistics and programme Implementation (MOSPI) has signed an MOU to participate in the project on “Statistical Compilation of ICT Sector and Policy Analysis” undertaken by Orbicom, the network of UNESCO Chairs in Communication. In this project an attempt has been made to compile data on the contribution of ICT sector to the Gross Domestic Product (GDP) and employment to the Indian economy following internationally accepted and harmonized definitions and concepts emerging from the OECD and United Nations. The value added has been compiled from the existing data holdings of the MOSPI.

7.2 Since the ICT sector spreads over both organized and unorganized segments of manufacturing and services sectors, the value added has been compiled from the Annual Survey of Industries for organized manufacturing sector. For the unorganised manufacturing sector it was found that the contribution was negligible. For the services sector as a whole the value added has been estimated at two digit level of NIC from the National Accounts Statistics of India, the official publication released by Central Statistics Office of the Ministry of Statistics and Programme Implementation. The definition of ICT sector / sub-sectors as defined under ISIC Version 4.0 and the corresponding derived National Industrial Classification 2008 (NIC-2008) has been used for compilation of the data. The high lights of the report are:

- Estimated GDP (at 2-digit level of NIC) for total ICT has increased from Rs. 656 billion in 2000-01 to Rs. 2530 billion in 2007-08 with Compound Annual Growth Rate (CAGR) of 21.3%.
- Estimated share (at 2-digit level of NIC) of ICT services to total ICT GDP is about 90% and that of ICT manufacturing sector to total ICT GDP is about 10%.
- Estimated share (at 2-digit level of NIC) of ICT services GDP to Service sector GDP has increased from 6% in 2000-01 to 10% in 2007-08.
- Estimated share of ICT services to total GDP has increased from 3% in 2000-01 to 6% in 2007-08

Index of Telecommunication sector as a part of Services Sector Index

7.3 In view of the growing importance of the service sector in the Indian economy, in terms of its contribution to Gross Domestic Product (GDP) about 55% of total GDP as well as absence of short term indicators to measure the dynamics of this vital sector it was decided

by the Govt. of India to compile service sector indices for the major source activities. Telecom sector is one of the services sectors which need to be measured on urgent basis. The work is in progress in the development of methodology and identification of the variables. The variables under consideration are fixed telephone services, mobile telephone services and provision of internet access.

8. Conclusions

8.1 In India, the data pertaining to Core indicators are maintained at different sources in different formats for the purpose of internal policy decisions and investment purposes. A stand alone survey of enterprises and households will be of great help for business indicators and household indicators. The performance of e-Governance is monitored through the regular e-readiness reports released from time to time by the Ministry of Information and Technology & National Council for Applied Economic Research. **Given the vastness of the country both in size and population, It takes time to establish the mechanism fully for international comparability of data for this sector according to ISIC definition,**

9. Acknowledgements

9.1 The author is thankful to the National Accounts Division of CSO, CSO (IS Wing), Survey Design and Research Division (SDRD) of NSSO, The Ministry of Communication and Information Technology, Ministry of Commerce and Industry , NASSCOM, for furnishing the information related to ICT sector which was required for this study.

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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 percapita 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: (a) at home; (b) at work; (c) place of education; (d) at another person's home; (e) community Internet access facility (specific denomination depends on national practices)⁴; (f) commercial Internet access facility (specific denomination depends on national practices)⁵; and (g) others
- HH10 Internet activities undertaken by individuals in the last 12 months.

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: Categories Should 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): (a) at least once a day; (b) at least once a week but not every day; (c) at least once a month but not every week; and (d) less than once a month.

Reference indicator

- HHR17 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: Categories should 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

Core indicators on the ICT sector and trade in ICT goods

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

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