

ICT SECTOR STATISTICS IN INDIA – CURRENT STATUS

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.

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 March, 2010 on these three indicators are depicted in the following charts.

Chart 1 No. of telephones per 100 inhabitants

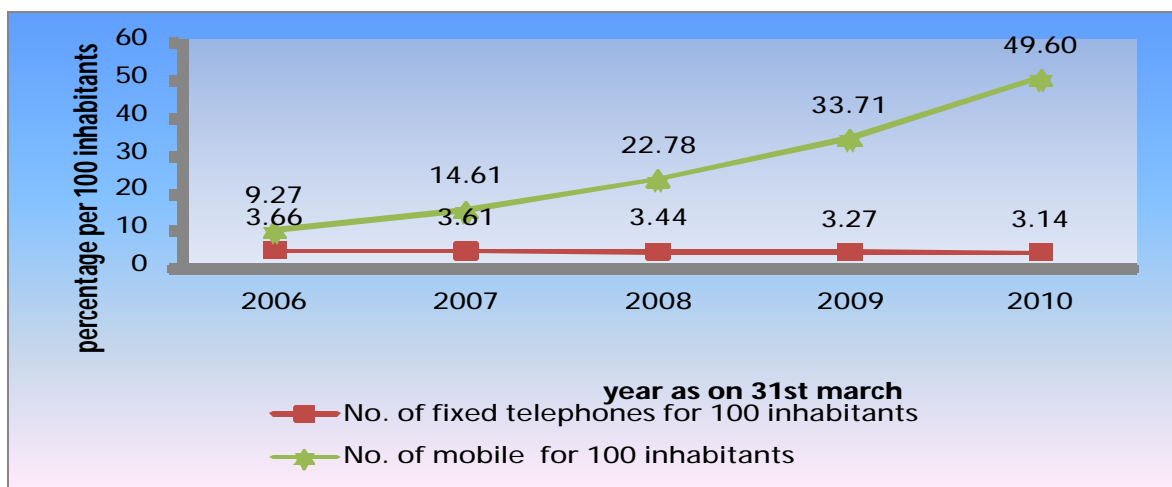
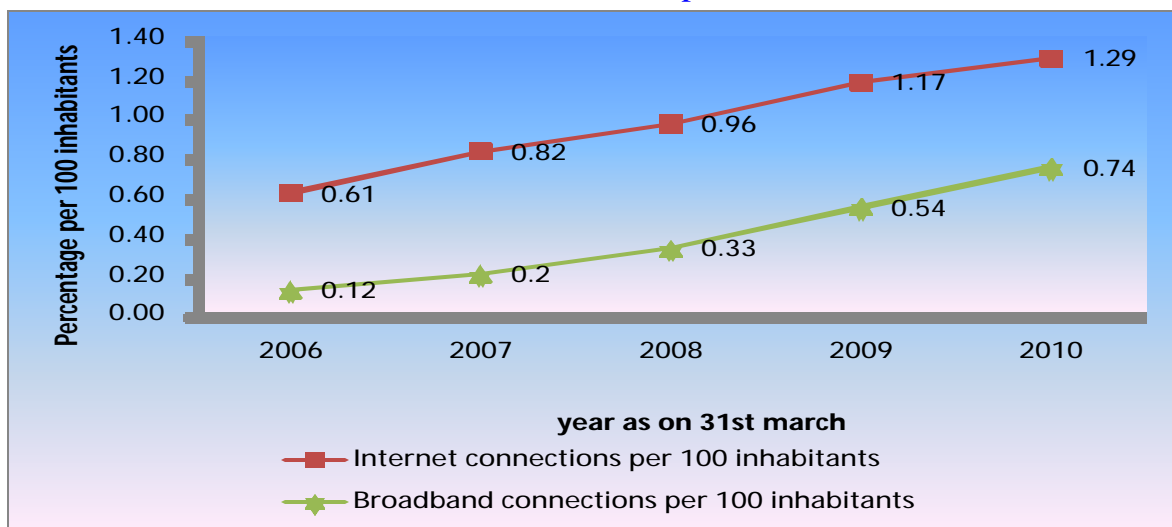


Chart 2 No. of Internet connections per 100 inhabitants



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 in terms 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 each package 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 factories/ enterprises | % of enterprises using computer | | | % of enterprises using computer with no. of employees | | | | |
|---------|-----------------------------------------------|---------------------------------|-------|-------|-------------------------------------------------------|-------|-------|-------|-------|
| | | 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

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

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

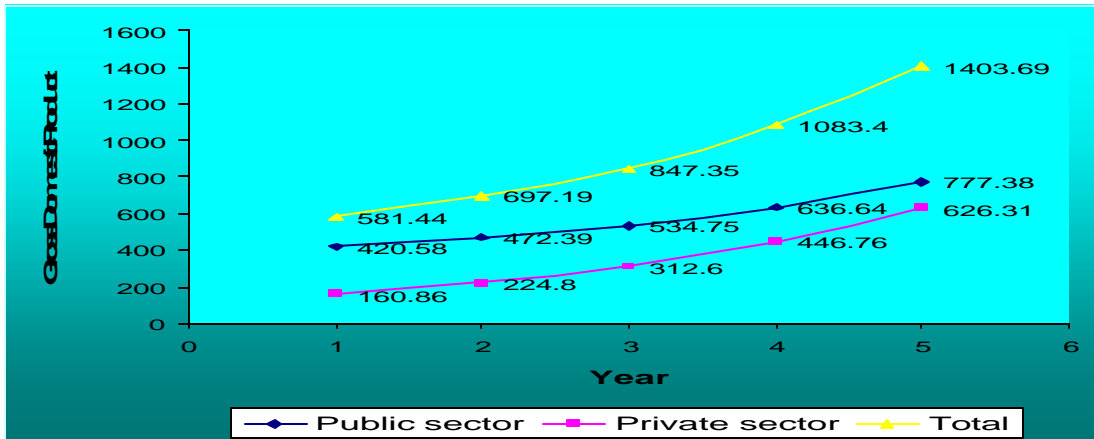
5. Core indicators of the ICT sector and Trade in ICT goods

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 a 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 as a whole is available in the Ministry of Statistics and Programme implementation from their publication National Accounts Statistics. The figures for the last five as shown in chart below indicates that the GDP in this sector has increased from about 581 billions in 2004-05 to 1403.09 billion in 2008-09, which is slightly less than three times. The percentage GDP of this sector of total GDP has nearly doubled from 1.96 to 3.38. Production and exports for certain components of ICT sector is maintained by the Ministry of Information and Technology. The details of GDP for communication sector for the last few years are as below.

Chart 3: Gross Domestic product from Communication sector



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 (in US\$ 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* | 2.45 | 8.10 |

* upto January , 2010 only

Source: Ministry of Commerce & Industry

6. Recent Developments in India

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

6.1.1 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.

6.1.2 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

6.2 Index of Telecommunication sector as a part of Services Sector Index

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.

7. Conclusions

7.1 In India, the data pertaining to access 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 or households will be of great help for business indicators and household indicators. Given the vastness of the country both in size and population, the collection of information on Gross value added, workforce imports and exports, for this

sector according to ISIC definition, is very difficult and takes time to establish the mechanism fully for international comparability of data.

8. Acknowledgements

8.1 The author is thankful to the National Accounts Division of CSO, SO (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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6. Reports on Export Import Statistics from Ministry of Commerce and Industry

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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