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International Telecommunication Union

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Indicators on ICT household access and individual use

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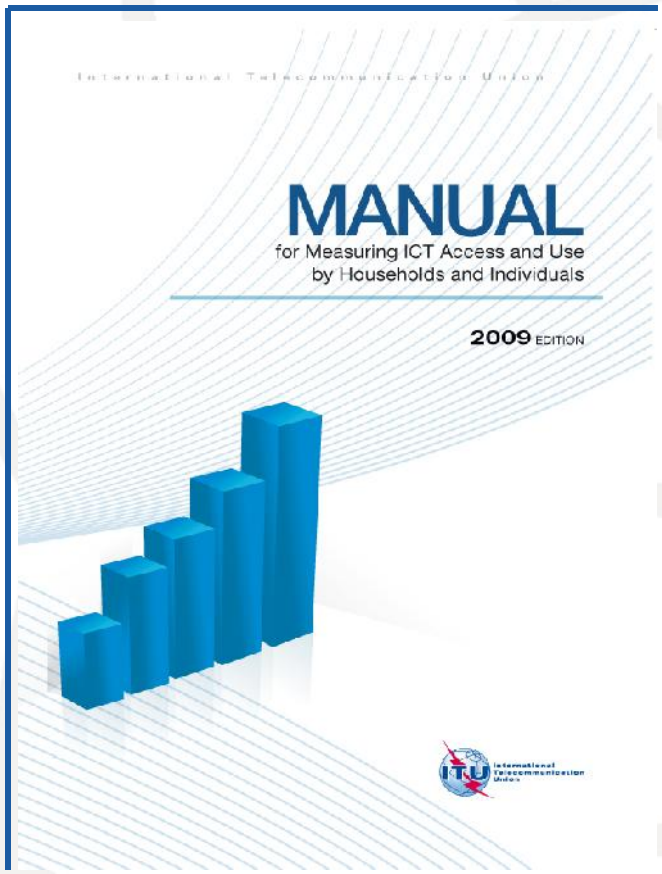
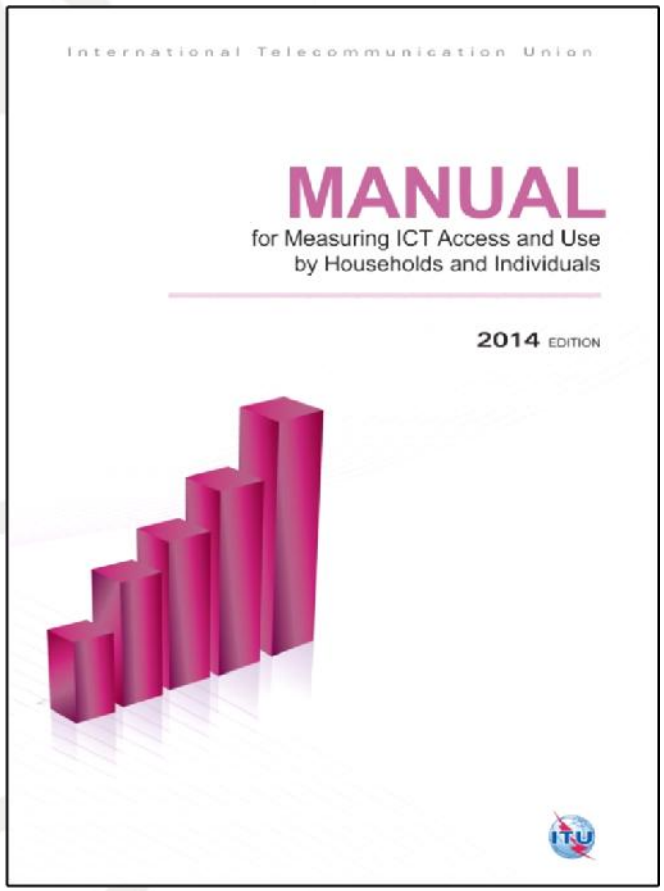
Contents

- Households Manual & Indicators definitions
- Survey vehicles and methodological issues
- ITU training course
- Expert Group on ICT Household Indicators (EGH)

Households Manual and Indicators definitions

2009 and 2014 editions: 5 years is a long time in the ICT age

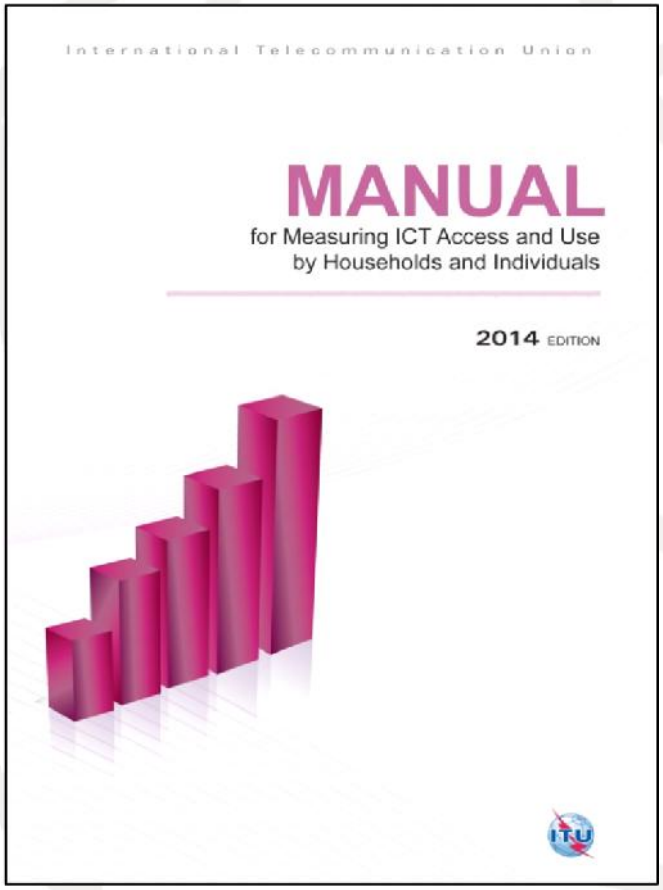




Revision process of Manual and indicators

- 2012-13: two rounds of complete revisions (consultants)
- Comments from Expert Group on Household Indicators (EGH) forum
- Outcomes of EGH meetings (Brazil, June 2013)
- Manual 2014: Launched at WTIS 2013 (December 2013, Mexico)
- New revisions to indicators: outcomes of EGH meetings (Geneva 2014, Geneva 2015)

ITU Manual for Measuring ICT Access and Use by Households and Individuals, 2014 edition



- Main objective: to assist countries to measure ICT access and use by households and individuals
  - Production of high quality and internationally comparable data
- Basis for delivery of training courses
- Includes the 2013 revised version of the core ICT household indicators
- Available online in 6 UN languages

What is new in the 2014 edition?

- Complete revision of core indicators and change in the presentation of the indicators
- Updated definitions, classifications and examples
- Creation of tables for each core indicator and complementary information such as:
  - definitions of technical terms; clarifications and methodological issues; model questions; disaggregation and classifications; core indicator calculation; and policy relevance.
- Expansion on conceptual framework and international work carried out on ICT measurement

Content – 10 Chapters

1. Introduction
2. Coordination among national stakeholders in ICT measurement
3. Planning and preparation for ICT household surveys
4. Statistical standards (core ICT household indicators)
5. Data sources and collection techniques
6. Question and questionnaire design
7. Sampling

Content – 10 Chapters

8. Data processing
9. Data quality and evaluation
10. Dissemination of ICT household data and metadata

- Annexes
  - Core list of ICT indicators
  - Model questionnaire
  - Examples of imputation and weighting
  - ITU Questionnaire
  - Glossary

Core ICT household indicators

- The indicators consist of:
  - The access indicators, which refer to access of the household to ICT equipment and services
    - not the use of those products by individual household members.
  - The use indicators, which refer to use of ICT equipment and services by individual household members
  - The household ICT expenditure indicator

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

HH1	Proportion of households with a radio
HH2	Proportion of households with a television
HH3	Proportion of households with telephone
HH4	Proportion of households with a computer
HH5	Proportion of individuals using a computer
HH6	Proportion of households with Internet
HH7	Proportion of individuals using the Internet
HH8	Proportion of individuals using the Internet, by location
HH9	Proportion of individuals using the Internet, by type of activity
HH10	Proportion of individuals using a mobile cellular telephone
HH11	Proportion of households with Internet, by type of service
HH12	Proportion of individuals using the Internet, by frequency
HH13	Proportion of households with multichannel television, by type
HH14	Barriers to household Internet access
HH15	Individuals with ICT skills, by type of skills
HH16	Household expenditure on ICT

New indicators after 2014 Manual

- HH17 Individuals using the Internet, by type of portable device and network used to access the Internet
- HH18 Proportion of individuals who own a mobile phone
- HH19 Proportion of individuals not using the Internet, by type of reasons

Definition of indicators

- Definition of concepts: computer, telephone, Internet access services, use of computer, use of Internet, multichannel TV…
- Response categories
- Clarifications and methodological issues
- Model questions
- Disaggregations and classifications
- Formula of calculation
- Use (policy relevance)

Indicator HH1: Proportion of households with a radio

Definitions:

This is the proportion of households that have a radio.

A *radio* is defined as a device capable of receiving broadcast radio signals, using common frequencies, such as FM, AM, LW and SW. A radio may be a stand-alone device, or it may be integrated with another device, such as an alarm clock, an audio player, a mobile telephone or a computer.

Indicator HH2: Proportion of households with a television

Definitions:

This is the proportion of households that have a television (TV).

A *television (TV)* is a device capable of receiving broadcast television signals, using popular access means such as over-the-air, cable and satellite. A television set is typically a stand-alone device, but it may also be integrated with another device, such as a computer or a mobile telephone.

Indicator HH3: Proportion of households with telephone

Definitions:

This is the proportion of households that have a telephone.

A *fixed telephone line* refers to a telephone line connecting a customer's terminal equipment (e.g. telephone set, facsimile machine) to the public switched telephone network (PSTN) and which has a dedicated port on a telephone exchange. This term is synonymous with the terms *main station* or *Direct Exchange Line* (DEL) that are commonly used in telecommunication documents. It may not be the same as an access line or a subscription.

A *mobile (cellular) telephone* refers to a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems and technologies such as IMT-2000 (3G) and IMT-Advanced. Users of both postpaid subscriptions and prepaid accounts are included.

Indicator HH4: Proportion of households with a computer

Definitions:

This is the proportion of households that have a computer.

A *computer* refers to a desktop computer, a laptop (portable) computer or a tablet (or similar handheld computer).

- Desktop: a computer that usually remains fixed in one place; normally the user is placed in front of it, behind the keyboard.
- Laptop (portable) computer: a computer that is small enough to carry and usually enables the same tasks as a desktop computer; it includes notebooks and netbooks but does not include tablets and similar handheld computers.
- Tablet (or similar handheld computer): a tablet is a computer that is integrated into a flat touch screen, operated by touching the screen rather than (or as well as) using a physical keyboard.

It does not include equipment with some embedded computing abilities, such as smart TV sets, and devices with telephony as their primary function, such as smartphones.

Indicator HH5: Proportion of individuals using a computer

Definitions:

This is the proportion of individuals who used a computer from any location in the last three months.

A *computer* refers to a desktop computer, a laptop (portable) computer or a tablet (or similar handheld computer).

- Desktop: a computer that usually remains fixed in one place; normally the user is placed in front of it, behind the keyboard.
- Laptop (portable) computer: a computer that is small enough to carry and usually enables the same tasks as a desktop computer; it includes notebooks and netbooks but does not include tablets and similar handheld computers.
- Tablet (or similar handheld computer): a tablet is a computer that is integrated into a flat touch screen, operated by touching the screen rather than (or as well as) using a physical keyboard.

It does not include equipment with some embedded computing abilities, such as smart TV sets, and devices with telephony as their primary function, such as smartphones.

Indicator HH6: Proportion of households with Internet

Definitions:

This is the proportion of households with Internet access at home.

The *Internet* is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.

Indicator HH7: Proportion of individuals using the Internet

Definitions:

This is the proportion of individuals who used the Internet from any location in the last three months.

The *Internet* is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.

Indicator HH8: Proportion of individuals using the Internet, by location

Definitions:

This is the proportion of individuals who used the Internet from specified locations in the last three months.

The *Internet* is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network, including wireless access at a WiFi 'hotspot'.

Access via a mobile device should be classified to the appropriate location or to 'in mobility', that is while mobile.

Locations of Internet use are defined as follows:

- Home
- Work
- Place of education
- Another person's home
- Community Internet access facility (typically free of charge
- Commercial Internet access facility (typically not free of charge
- In mobility

Indicator HH9: Proportion of individuals using the Internet, by type of activity

Definitions:

This is the proportion of individuals who undertook one or more activities using the Internet for private (defined as non-work) purposes from any location in the last three months. Internet activities are defined as follows:

- Getting information about goods or services
- Seeking health information (on injury, disease, nutrition etc.).
- Making an appointment with a health practitioner via a website
- Getting information from general government organizations
- Interacting with general government organizations (downloading/requesting forms, completing/lodging forms online, making online payments and purchasing from government organizations etc.)
- Sending or receiving e-mail
- Telephoning over the Internet/VoIP (using Skype, iTalk, etc.; includes video calls via webcam)
- Participating in social networks (creating user profile, posting messages or other contributions to Facebook, Twitter etc.)

- **SEE THE OTHER ACTIVITIES IN THE ITU MANUAL**

Indicator HH10: Proportion of individuals using a mobile cellular telephone

Definitions:

This is the proportion of individuals who used a mobile telephone in the last three months.

A *mobile (cellular) telephone* refers to a portable telephone subscribing to a public mobile telephone service using cellular technology, which provides access to the PSTN. This includes analogue and digital cellular systems and technologies such as IMT-2000 (3G) and IMT-Advanced. Users of both postpaid subscriptions and prepaid accounts are included.

Indicator HH11: Proportion of households with Internet, by type of service

Definitions:

This is the proportion of households with access to the Internet, by type of service.

The *Internet* is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.

The broad types of Internet services to be identified are the following:

- Fixed (wired) narrowband network: includes analogue modem (dial-up via standard telephone line), ISDN (Integrated Services Digital Network), DSL (Digital Subscriber Line) at advertised download speeds below 256 kbit/s, and other forms of access with an advertised download speed of less than 256 kbit/s
- Fixed (wired) broadband network: refers to technologies at advertised download speeds of at least 256 kbit/s, such as DSL, cable modem, high speed leased lines, fibre-to-the-home/building, powerline and other fixed (wired) broadband
- Terrestrial fixed (wireless) broadband network: refers to technologies at advertised download speeds of at least 256 kbit/s, such as WiMAX, fixed CDMA
- Satellite broadband network (via a satellite connection), at advertised download speeds of at least 256 kbit/s
- Mobile broadband network (at least 3G, e.g. UMTS) via a handset
- Mobile broadband network (at least 3G, e.g. UMTS) via a card (e.g. integrated SIM card in a computer) or USB modem

Indicator HH12: Proportion of individuals using the Internet, by frequency

Definitions and notes:

This is the frequency of Internet use by individuals who used the Internet from any location in the last three months.

The *Internet* is a worldwide public computer network. It provides access to a number of communication services including the World Wide Web and carries e-mail, news, entertainment and data files, irrespective of the device used (not assumed to be only via a computer – it may also be by mobile telephone, tablet, PDA, games machine, digital TV etc.). Access can be via a fixed or mobile network.

Frequency of use categories are as follows:

- At least once a day: once a working day for respondents who only (or most frequently) use the Internet from work or school etc.
- At least once a week but not every day
- Less than once a week.

Indicator HH13: Proportion of households with multichannel television, by type

Definitions:

This is the proportion of households with multichannel television (TV) and by type of multichannel service. Multichannel TV services are as follows:

- Cable TV (CATV): multichannel programming delivered over a coaxial cable for viewing on television sets
- Direct-to-home (DTH) satellite services: TV services received via a satellite dish capable of receiving satellite television broadcasts
- Internet-protocol TV (IPTV): multimedia services such as television/video/audio/text/graphics/data delivered over an IP-based network managed to support the required level of quality of service, quality of experience, security, interactivity and reliability; it does not include video accessed over the public Internet, for example, by streaming. IPTV services are also generally aimed at viewing over a television set rather than a personal computer.
- Digital terrestrial TV (DTT): the technological evolution from analogue terrestrial television, providing capability for significantly more channels

Indicator HH14: Barriers to household Internet access

Definitions:

This measures the barriers to Internet access for households without Internet access. It is expressed as a proportion of households without Internet access.

Barriers (that is, reasons for not having Internet) are:

- Do not need the Internet (not useful, not interesting, lack of local content)
- Have access to the Internet elsewhere
- Lack of confidence, knowledge or skills to use the Internet
- Cost of the equipment is too high
- Cost of the service is too high
- Privacy or security concerns
- Internet service is not available in the area
- Internet service is available but it does not correspond to household needs (e.g. quality, speed)
- Cultural reasons (e.g. exposure to harmful content)

Barriers to household Internet access (categories revised)

Response categories:

- Do not need the Internet (not useful, not interesting)
- Do not know how to use it
- Cost of Internet use is too high (service charges, etc.)
- Privacy or security concerns
- Internet service is not available in the area
- Cultural reasons (e.g. exposure to harmful content)
- Don't know what Internet is
- Not allowed to use the Internet
- Lack of local content
- Other reason, specify

Revised by EGH in 2015

Indicator HH15: Individuals with ICT skills, by type of skills

Definitions:

This refers to ICT skills, defined for the purpose of this indicator as having undertaken certain computer-related activities in the last three months.

Computer-related activities to measure ICT skills are as follows:

- Copying or moving a file or folder
- Using copy and paste tools to duplicate or move information within a document
- Sending e-mails with attached files (e.g. document, picture, video)
- Using basic arithmetic formulae in a spreadsheet
- Connecting and installing new devices (e.g. a modem, camera, printer)
- Finding, downloading, installing and configuring software
- Creating electronic presentations with presentation software (including text, images, sound, video or charts)
- Transferring files between a computer and other devices
- Writing a computer program using a specialized programming language

Indicator HH16: Household expenditure on ICT

Definitions:

This measures the percentage of total household expenditure that is expended on ICT goods and services as follows:

- Telephone and telefax equipment (COICOP 08.2.0): Purchases of telephones, radio-telephones, telefax machines, telephone-answering machines and telephone loudspeakers; repair of such equipment.
- Telephone and telefax services (COICOP 08.3.0): Installation and subscription costs of personal telephone equipment; includes telephone calls (from any location), information transmission services, Internet connection services, hire of telephones.
- Equipment for the reception, recording and reproduction of sound and picture (COICOP 09.1.1): Television sets, video cassette players and recorders, television aerials of all types; radio sets, car radios, radio clocks, two-way radios, amateur radio receivers and transmitters; gramophones, tape players and recorders, cassette players and recorders, CD-players, personal stereos, stereo systems and their constituent units (turntables, tuners, amplifiers, speakers, etc.), microphones and earphones.
- Information processing equipment (COICOP 09.1.3): Personal computers, visual display units, printers and miscellaneous accessories accompanying them; computer software packages such as operating systems, applications, languages, etc.; calculators, including pocket calculators; typewriters and word processors. (Also includes laptops, tablets, e-book readers.)
- Repair of audio-visual, photographic and information processing equipment (COICOP 09.1.5)

HH17: Individuals using the Internet, by type of portable device and network used to access the Internet

a. Mobile phone

a1) via mobile cellular network

a2) via other wireless networks (e.g. WiFi)

b. Tablet

b1) via mobile cellular network, using USB key/dongle or integrated data SIM card

b2) via other wireless networks (e.g. WiFi)

c. Portable computer (laptop, notebook, netbook)

c1) via mobile cellular network, using USB key/dongle or integrated data SIM card or mobile cellular telephone as modem

c2) via other wireless networks (e.g. WiFi)

d. Other portable devices (e.g. portable games consoles, watches, e-book readers etc.)

First collected in 2015 (agreed by EGH in 2014)

HH18: Proportion of individuals who own a mobile phone

First collected in 2015
(agreed by EGH in 2014)

HH19: Proportion of individuals not using the Internet, by type of reasons

Response categories:

- Do not need the Internet (not useful, not interesting)
- Do not know how to use it
- Cost of Internet use is too high (service charges, etc.)
- Privacy or security concerns
- Internet service is not available in the area
- Cultural reasons (e.g. exposure to harmful content)
- Don't know what Internet is
- Not allowed to use the Internet
- Lack of local content
- Other reason, specify

To be collected in 2016 (agreed by EGH in 2015)

Concept of access

- ICT device/service should be available for use of any member of the household at any time
- Device can be owned or not by the household
- Applies to all indicators referring to household ICT access

Age scope

- Countries should report ICT usage information for the three main core indicators on individuals' use of ICTs (computer, mobile phone and Internet) for the entire population of the country, i.e. there is no minimum age scope any more for these indicators

Reference period

- Information on ICT usage should be collected and reported with a reference period of the last 3 months

Classificatory variables - households

- Regions, urban/rural
- Household composition, size
  - Household composition – households with and without children under 15
  - Household size – number of household members.
- Household with or without electricity
- Characteristics of head of household
- Household income

Classificatory variables - individuals

- Urban/rural
- Sex
- Age
- Highest level of education attained
- Labour force status
- Occupation

Cross-classification of variables

- Can produce information that is very useful for analytical purposes
  - example: Internet use by young women (data are cross-classified by age and gender).
- Cross-classified output is more detailed
  - especially for indicators with response categories
    - example: Internet use at home by young women (location by age and gender).
  - This detail has implications for sample size.

Other classificatory variables

- level of literacy and languages spoken
- income level (household or individual)
- level of ICT skills
- disability status

Though may present statistical challenges

Calculation / tabulation of indicators

- All the indicators are presented as proportions of the relevant population.
- There are two ways of calculating the proportion for the indicators with response categories
  - as a proportion of the whole population and/or
  - as a proportion of a sub-population – individuals using the Internet or households with access to the Internet.
- Sub-indicators can be constructed using classificatory variables e.g. Internet use by age.

Survey vehicles and methodological issues

ICT statistics in household surveys

- Indicators on household ICT access, individual usage of ICTs (by age, gender, etc) are collected through national household surveys
- Standalone ICT household surveys
- ICT questions or modules added to existing surveys (labour force surveys, living standard surveys, MICS, DHS, HBS etc.) or in population census

Types of surveys

- Stand-alone household surveys deal with a single topic (such as ICT access and use)
- Multi-purpose household surveys collect data on more than one subject via a single survey (ICT questions can be added)
- Household budget expenditure surveys measure household expenditure and can be used to identify household access to ICT equipment and services
- Population censuses can be used to collect ICT access and/or use data
- All of these surveys are being used by NSOs to collect household ICT statistics

Methodological issues

- National representativeness
  - Probabilistic random sampling of households (see chapter 7, HH Manual)
  - National coverage needs to be ensured (e.g. not only some regions)
- Data editing (data validation): microedit should happen at the time of the interview (see chapter 8, HH Manual), macroedit (validation of tabulated data)
- Data quality and evaluation: quality measures should be calculated (e.g. sampling errors) and surveys should be evaluated and documented (Quality Assurance Framework) (see chapter 9, HH Manual)
- Data dissemination: data and metadata should be reported following statistical quality standards (see chapter 10, HH Manual)

Interactive discussion

- What kind/s of survey is available in your country that (could be) is used collect ICT household?
- Are data collected and disseminated?

ITU Training course on household ICT surveys

- Main target group: staff from NSOs working with household surveys
- Five days face-to-face training covering five modules
- Includes interactive group discussions, group exercises, tests (true/false), evaluations
- Based on Household Manual (main reference document)
- Delivered six times so far (2009 and 2011 in Addis Ababa, English and French)

Expert Group on ICT Household Indicators (EGH)

- Launched in May 2012, following a decision by the 9th World Telecommunication/ICT Indicators Meeting (7-9 December 2011, Mauritius)
- Main objectives: revision of the household core ICT indicators and of the ITU Manual for Measuring ICT Access and Use by Households and Individuals
- Open to all ITU members and experts in the field of ICT statistics and data collection
- Works through an online forum
- Meets once a year and reports back to the World Telecommunication/ICT Indicators Symposium (WTIS)
- Register at: http://www.itu.int/net4/ITU-D/forum/expertgrouponhouseholds/forum

Future work

- Countries are encouraged to collect ICT data (through official surveys)
  - ICT indicators included in the SDG indicators framework
  - ICT indicators included in the ICT development index
- Participate in the discussions taking place in the EGH's online forum

THANK YOU

More information

http://www.itu.int/ict