

# **A4AI-Ghana Expert Workshops**

Accra, Ghana  
12 November 2014

## **ICT Data Collection: International Best Practices and Lessons Learned**

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International Telecommunication Union

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# Agenda

## 1. Background

2. Data from ICT household surveys

3. Data from administrative data sources

4. Upcoming measurement challenges

# ITU's work on ICT statistics

- 50 years of data collection and dissemination
- Development of statistical standards
- Data analysis and research reports
- Capacity development
- WSIS and MDG monitoring

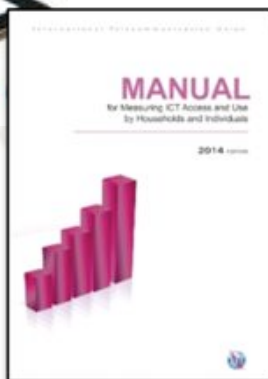
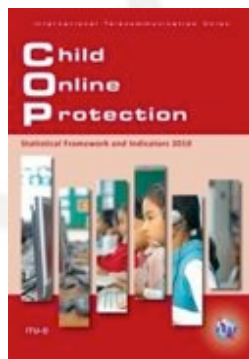


HANDBOOK  
for the Collection of Administrative Data on  
Telecommunications/ICT  
2011

PARTNERSHIP ON  
MEASURING ICT  
FOR DEVELOPMENT



12th WORLD  
TELECOMMUNICATION  
**ICT**  
INDICATORS SYMPOSIUM  
TBILISI, GEORGIA  
24-26 November  
2014



# Partnership on Measuring ICT for Development

- Global initiative to improve internationally comparable ICT statistics
- Main mechanism for the **coordination of ICT statistics internationally** (Steering Committee, Task Groups)
- Members: international and regional agencies involved in official ICT statistics



UNITED NATIONS  
UNCTAD



UNITED NATIONS  
UNDESA



UNEP



BASEL CONVENTION



UNITED NATIONS  
ECLAC



UNITED NATIONS  
ESCAP



UNITED NATIONS  
ESCWA

## Core list of ICT indicators

- The Partnership defines the core list of ICT indicators
  - Infrastructure and access (10)
  - Household and individuals (16)
  - ICT use by businesses (12)
  - ICT sector and trade in ICT goods (4)
  - ICT in education (8)
  - e-government (8)

# Relevance of ICT statistics

## 1. For national purposes

- Overall monitoring of ICT developments
- Market analysis to inform regulatory/policy interventions
- Tracking of regulatory measures, e.g. licence obligations
- Monitoring of national ICT goals, e.g. broadband plans

## 2. For international purposes

- Because national ICT development is relative to global ICT development
- To monitor global ICT development targets, e.g. Broadband Commission targets, WSIS+10, Post-2015
- To inform private investors (e.g. to attract FDI), international cooperation programmes, donors, the media

# Examples of African countries

- Mauritius
  - One of the first developing countries that conducted an ICT Household survey – annual basis
- South Africa
  - ICASA: recent development of an ICT Indicators Portal



Search ICT Indicators Portal

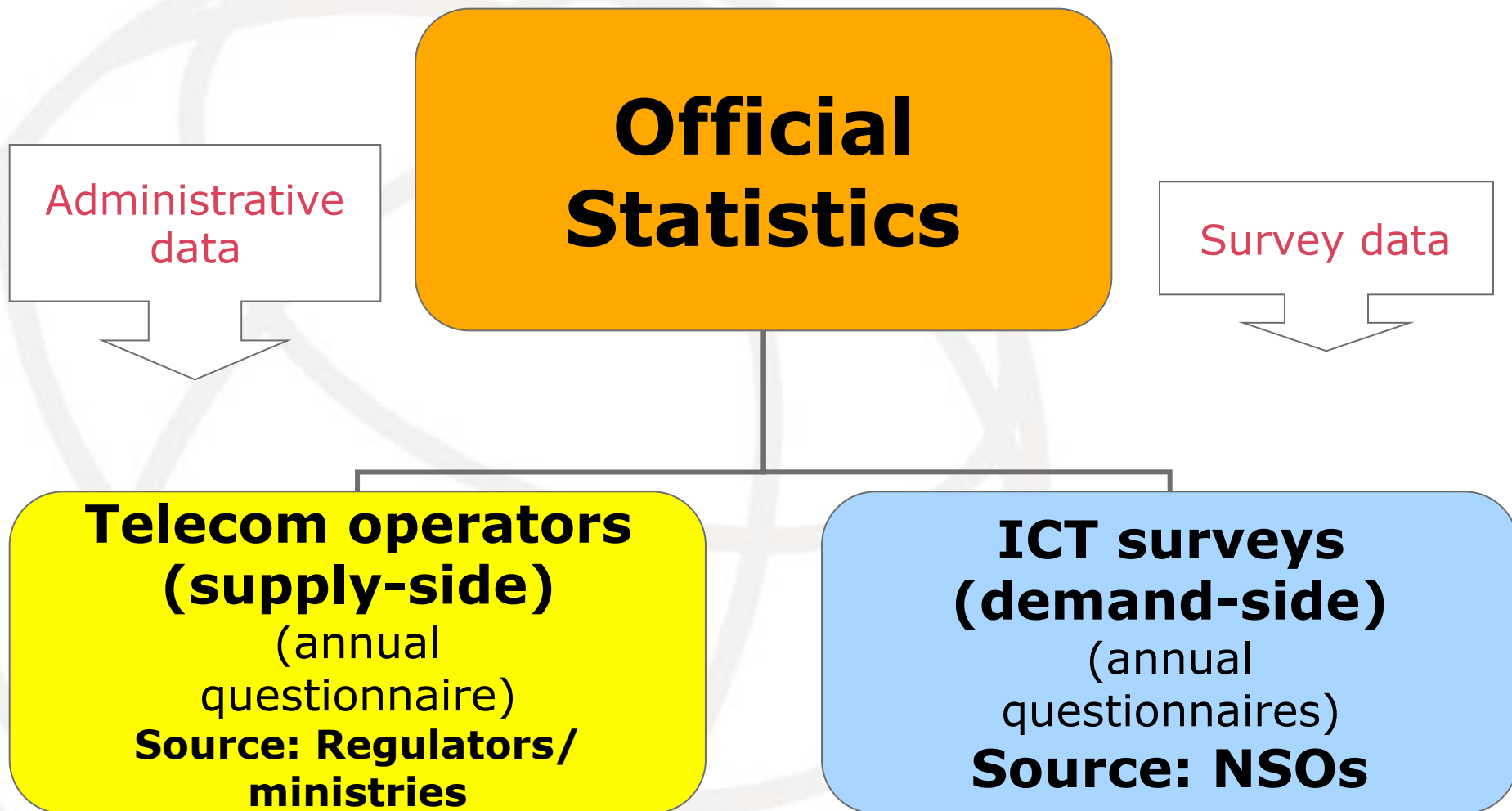
**ICASA** ICT Indicators Portal  
South Africa

Home Pricing Indicators National Accounts Telecoms Broadcasting Postal Login Contact

Welcome to the South African ICT Indicators Portal

What's New   
Call Termination Questionnaire

# Main sources ITU Statistics





# ITU data collection

| <i>Annual Questionnaires</i> | <i>Short WTI</i>                  | <i>IDI Telecom</i> | <i>Long WTI</i>      | <i>ICT Price Basket</i>   | <i>Short Household</i>      | <i>IDI HH</i> | <i>Long Household</i> |
|------------------------------|-----------------------------------|--------------------|----------------------|---------------------------|-----------------------------|---------------|-----------------------|
| <b>Addressee</b>             | National Communications Authority |                    |                      | Ghana Statistical Service |                             |               |                       |
| <b>Format</b>                | Online                            | Online             | Online               | Online                    | Excel                       | Online        | Excel                 |
| <b>Date</b>                  | March                             | April              | July/Sept            | Oct/Nov                   | March                       | April         | June/July             |
| <b># indicators</b>          | 6                                 | 5                  | ~ 70                 | ~ 75                      | 3                           | 3             | 16 + class variables  |
| <b>Response Albania</b>      | YES                               | YES                | Latest reply in 2013 | YES                       | Limited data based on GLSS6 |               |                       |

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1. Background

**2. Data from ICT household surveys**

3. Data from administrative data sources

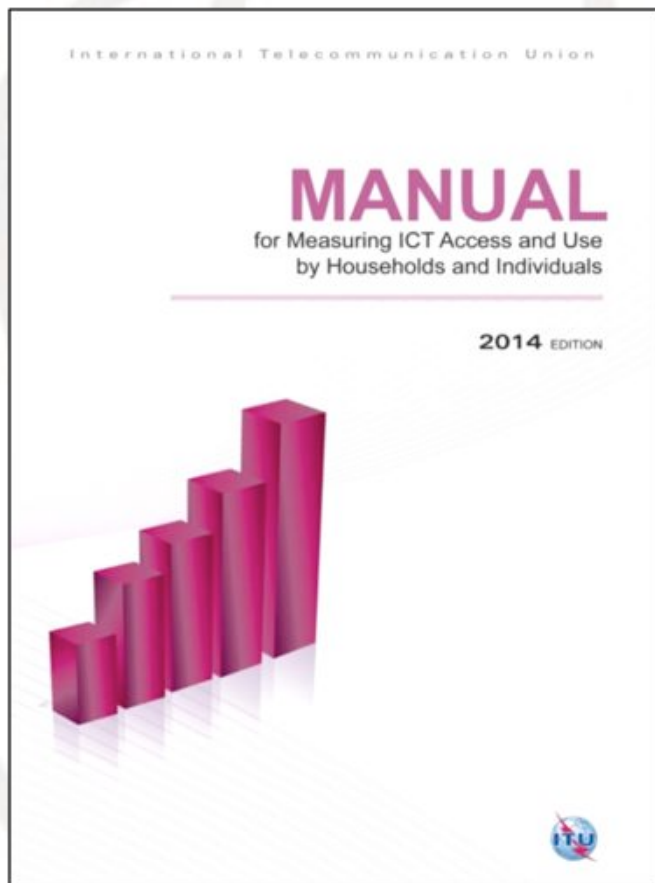
4. Upcoming measurement challenges

# ICT statistics in household surveys

- Indicators on household ICT access, individual usage of ICTs are collected through national household surveys
- Standalone ICT household surveys
- ICT questions or modules added to existing surveys (labour force surveys, living standard surveys, household budget expenditure surveys) or in population census
- **Nationally representative data**



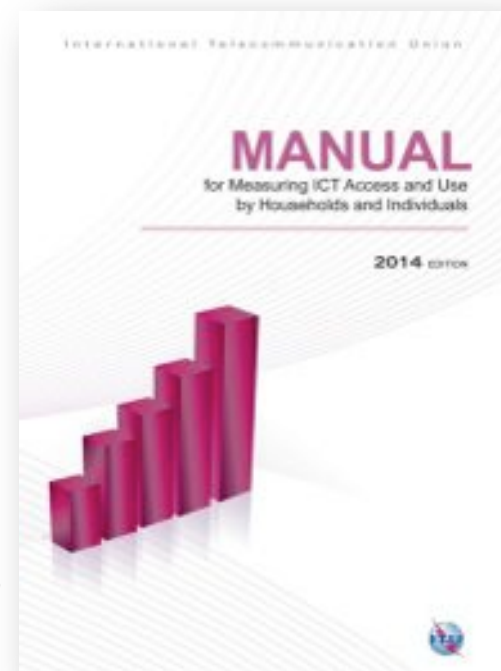
# ITU Manual for Measuring ICT Access and Use by Households and Individuals, 2014 edition



- 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 revised core ICT household indicators
- Available in 6 official UN languages

# Overview of the 2014 ITU Manual

- Chapter 1. Introduction
- Chapter 2. **Coordination** among national stakeholders in ICT measurement
- Chapter 3. **Planning and preparation** for ICT household surveys
- Chapter 4. **Statistical standards** and measurement topics for ICT household statistics
- Chapter 5. **Data sources** and **collection techniques** for ICT household statistics
- Chapter 6. Question and **questionnaire** design for ICT household surveys
- Chapter 7. **Designing** ICT household surveys
- Chapter 8. **Data processing** for ICT household statistics
- Chapter 9. **Data quality and evaluation** for ICT household statistics
- Chapter 10. **Dissemination** of ICT household data and metadata



## Concept of household access

- ICT device/service should be generally available for use by all members 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 with or without electricity
- Characteristics of head of household
- Household income

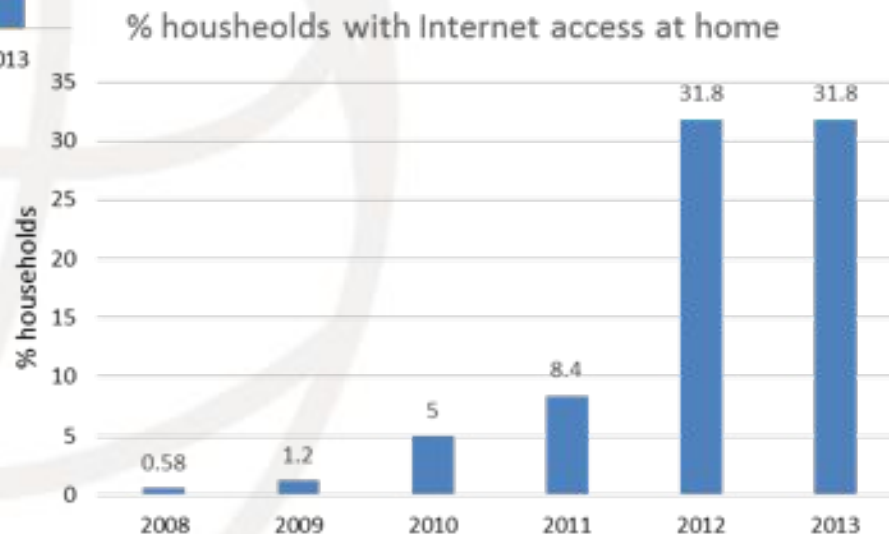
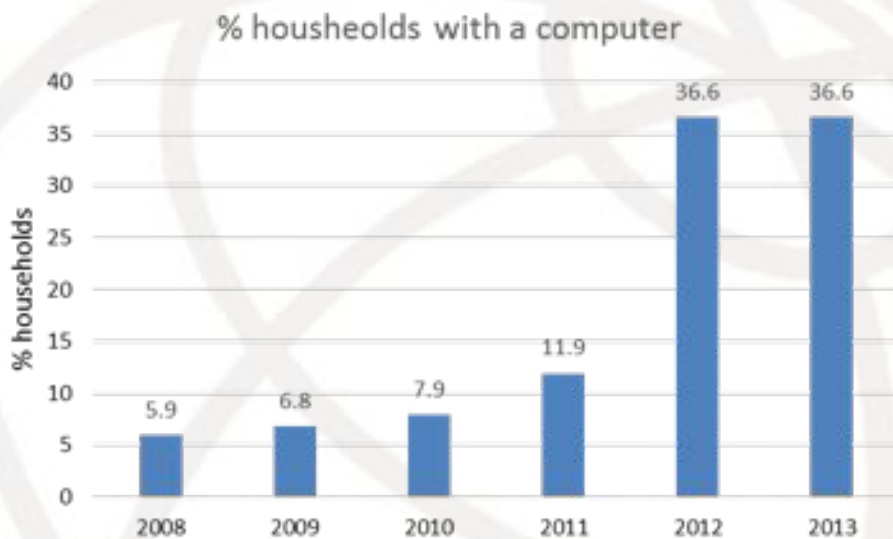
## Classificatory variables - individuals

- Urban/rural
- Sex
- Age
- Highest level of education attained
- Labour force status
- Occupation
- Others such as ethnicity, level of literacy, languages spoken, etc.

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

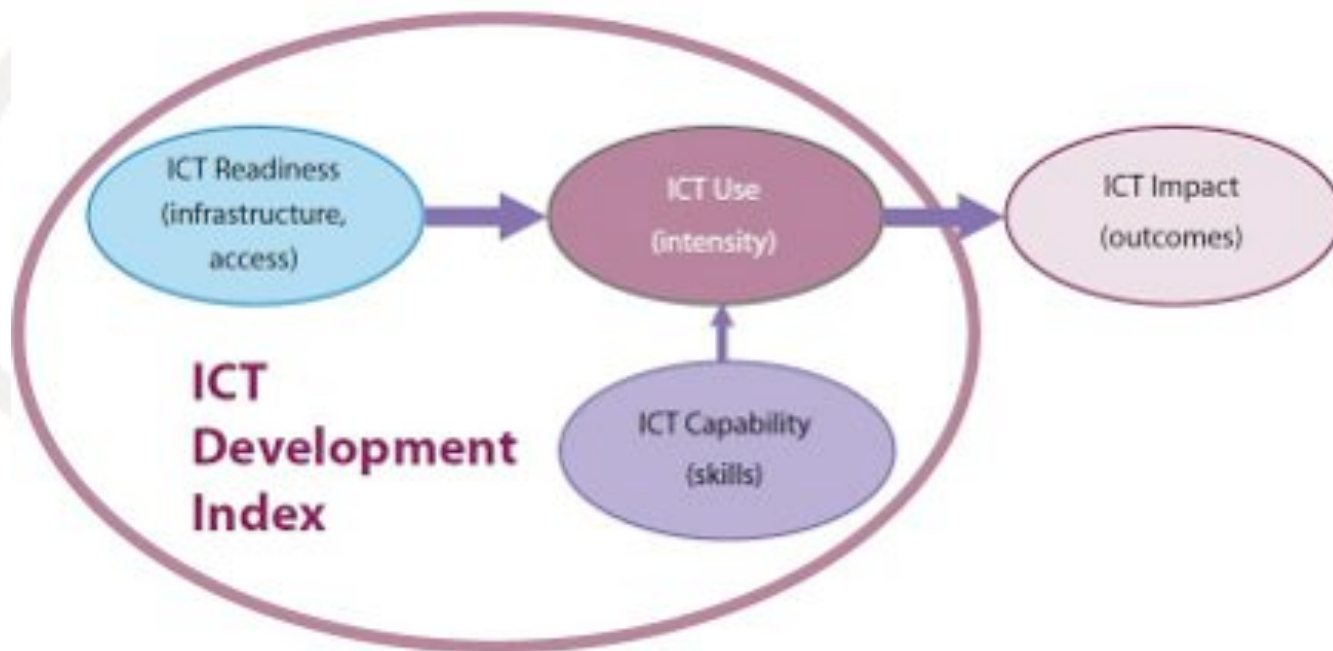
|      |   |  |
|------|---|--|
| HH1  | Proportion of households with a radio                             | Latest data: 69%, CWIQ 2003                      |
| HH2  | Proportion of households with a television                        | Latest data: 21%, CWIQ 2003                      |
| HH3  | Proportion of households with telephone                           | 5% fixed, 8% mobile, GLSS5 2006                  |
| HH4  | Proportion of households with a computer                          | 37% own/access desktop/laptop/tablet, GLSS6 2013 |
| HH5  | Proportion of individuals using a computer                        | ✗  |
| HH6  | Proportion of households with Internet                            | 32% (own/access to Internet), GLSS6 2013         |
| HH7  | Proportion of individuals using the Internet                      | ✗ 12%, 2013 estimate based on access data        |
| 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       | 48%, 2010 Census                                 |
| 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                                      | ✗  |

# Household ICT statistics in Ghana (i)



## Household ICT statistics in Ghana (ii)

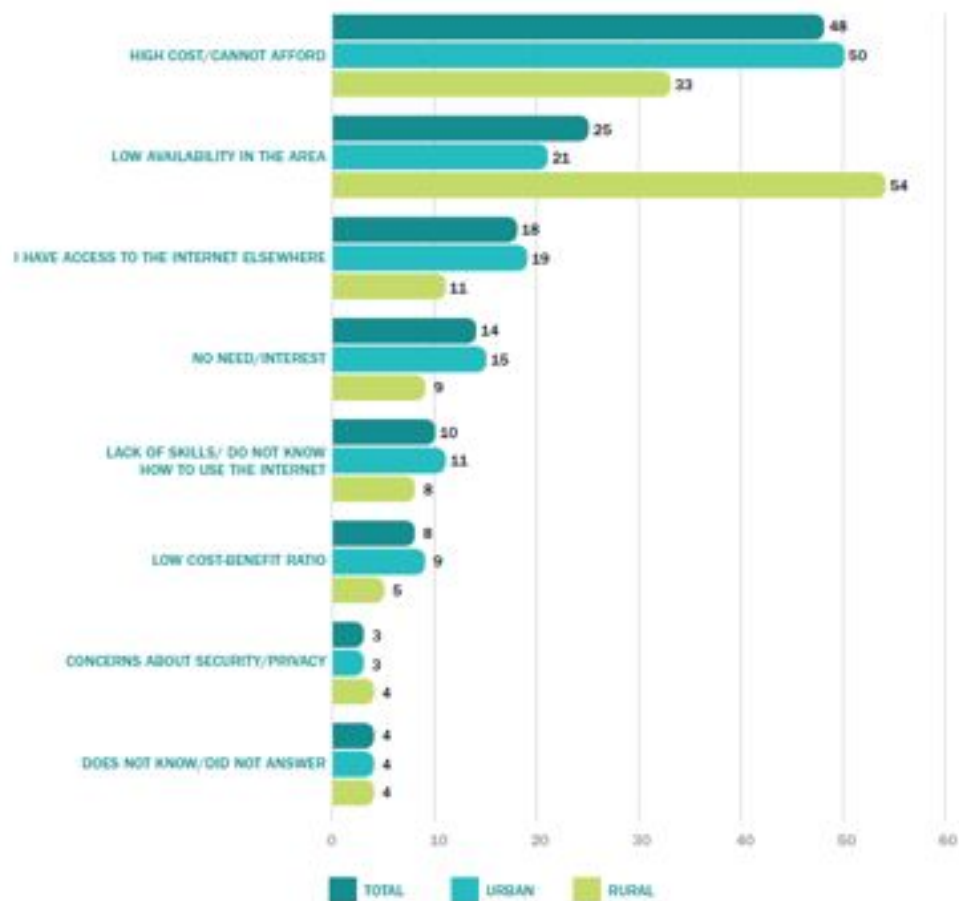
No data on ICT use  
– why is it important?



# Household ICT statistics – example of Brazil

CHART 16. REASONS FOR THE LACK OF INTERNET CONNECTION IN THE HOUSEHOLD BY AREA (2011)

Percentage of the total number of households that have computers, but no access to the Internet



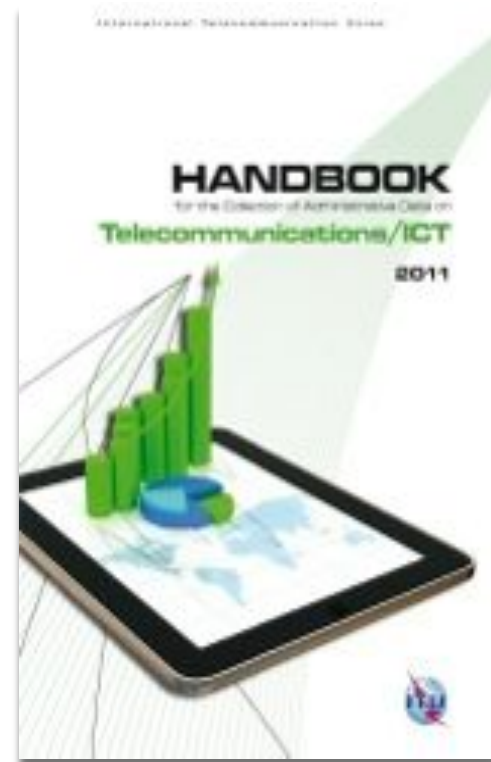
# Agenda

1. Background
2. Data from ICT household surveys
- 3. Data from administrative data sources**
4. Upcoming measurement challenges

# ITU Handbook

- Covers **81 indicators** on telecommunication/ICT services
- Covers data collected from **administrative sources** (e.g. telecom operators)
- Discussed in the ITU Expert Group on Telecom/ICT Indicators (**EGTI**)
- **Available at:**

[http://www.itu.int/pub/D-IND-ITC\\_IND\\_HBK-2011](http://www.itu.int/pub/D-IND-ITC_IND_HBK-2011)





## ITU Handbook (cont.)

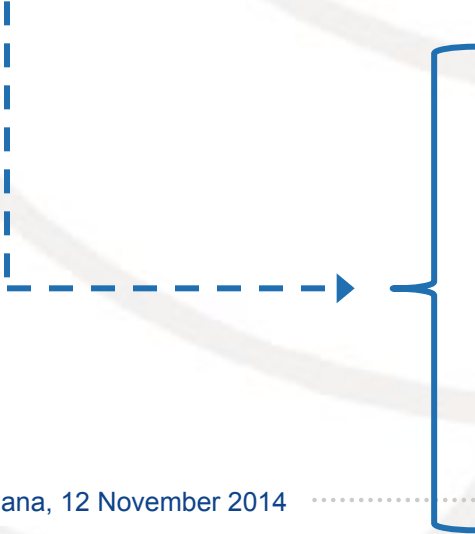
### Groupings:

- Fixed-telephone networks
- Mobile-cellular networks
- Internet
- Traffic
- Tariffs
- Quality of service
- Persons employed
- Revenue
- Investment
- Public access
- Broadcasting and other indicators

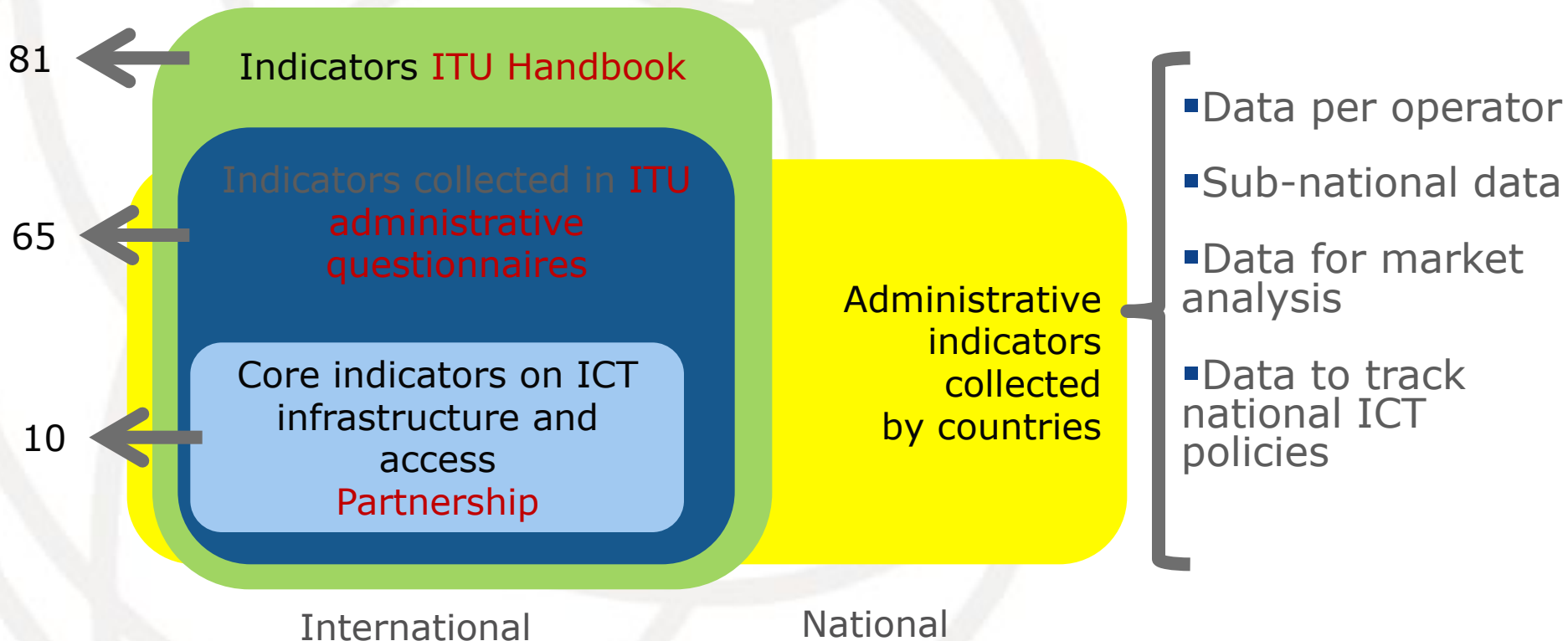
- Definition
- Clarifications and scope
- Method of collection
- Relationship with other indicators
- Methodological issues
- Examples

## ITU Handbook – additions

- Revision of revenue and investment indicators
- New indicators from administrative sources 2011-2013

- 
- Fixed broadband and mobile QoS
  - Broadband Internet traffic
  - Pay-TV subscriptions
  - Mobile-broadband prices

# Context: indicators from administrative sources



# Main ITU indicators from administrative sources

## **1. Mobile-cellular network**

## Indicator 11: Mobile-cellular telephone subscriptions

Number of subscriptions to a public mobile telephone service that provide **access to the PSTN using cellular technology**.

The indicator includes:





- (i) postpaid subscriptions**; and
- (ii) prepaid accounts that are active**, i.e. used during the last three months.

The indicator applies to all mobile-cellular subscriptions that offer voice communications.

**It excludes subscriptions via data cards or USB modems**, subscriptions to public mobile data services, private trunked mobile radio, telepoint, radio paging and telemetry services.

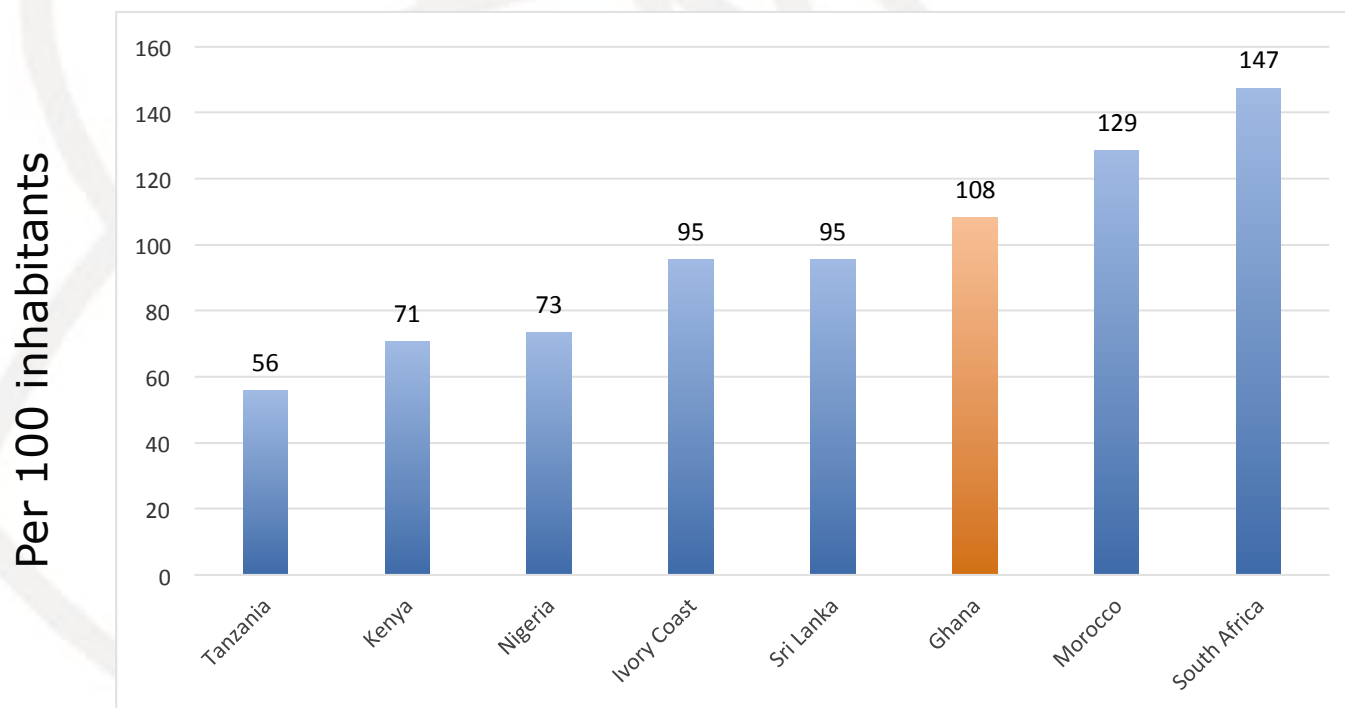
# What do we actually measure?

## Mobile-cellular...

- Subscriptions →  ✓ operator data
- Users, owners →  household survey data
- Handsets →  ✗
- Subscribers →  ✗

# Mobile cellular – Ghana

Mobile-cellular subscriptions, end 2013



Household survey data: 48% mobile-phone users in 2010  
-> it could be estimated 72% mobile-phone users in 2013

## Other mobile-cellular indicators

- Prepaid mobile-cellular telephone subscriptions – **99.5% of total mobile 2012 Ghana**
- % population covered by a mobile-cellular telephone network – **87% 2012 Ghana**
- % population covered by at least a 3G mobile network – **40% 2012 Ghana**
- Mobile-cellular numbers ported – **554'803 2012 Ghana (2% total subscriptions)**



## 2. Internet

# Fixed (wired)-broadband subscriptions

## Main features:

- advertised  $\geq 256$  kbit/s



- wired

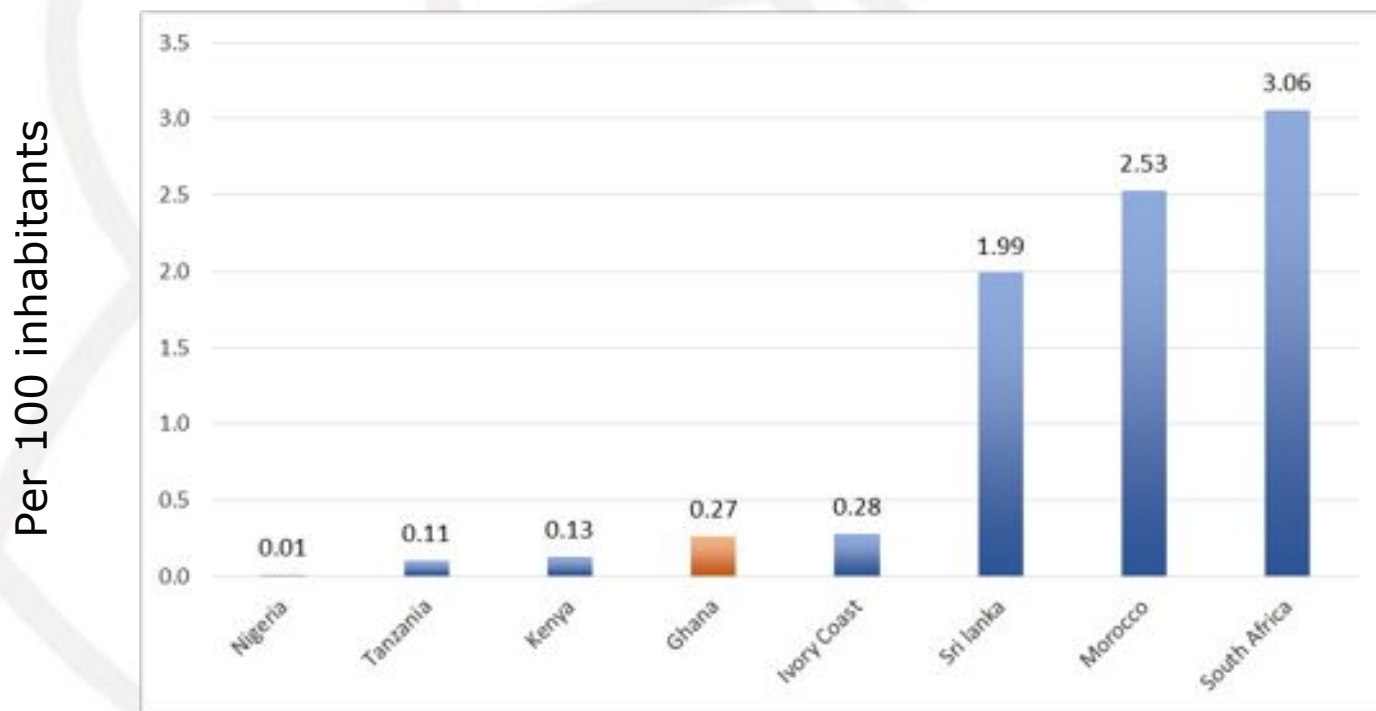


## Breakdowns:

- |  |   |  |   |   |   |   |
|--|---|--|---|---|---|---|
| <ul style="list-style-type: none"> <li>• by speed</li> </ul> | { | <ul style="list-style-type: none"> <li>• <math>\geq 10</math> Mbit/s</li> <li>• 2 – 10 Mbit/s</li> <li>• 0.256 – 2 Mbit/s</li> </ul> | • | <ul style="list-style-type: none"> <li>• by tech</li> </ul> | { | <ul style="list-style-type: none"> <li>• DSL</li> <li>• cable</li> <li>• FTTH/B</li> <li>• other</li> </ul> |
|--|---|--|---|---|---|---|

## Fixed (wired) broadband – Ghana

Fixed (wired)-broadband subscriptions, end 2013



Breakdown by tech available for 2012 – 99% DSL

Breakdown by speed available for 2012 – 99% < 2Mbit/s

## Conclusions fixed (wired) broadband

- International agreement to keep minimum speed at 256 kbit/s

➔ importance of **breakdown by speed**

➔ **Breakdown by technology** gives additional information on infrastructure

# Wireless broadband

## Wireless broadband subscriptions

Satellite  
broadband  
subscriptions

Terrestrial fixed  
wireless  
broadband  
subscriptions

Active mobile  
broadband subs

Standard  
Internet + voice  
Internet used in the  
last 3 months

Dedicated  
Internet only  
Recurrent fee or  
Internet used in the  
last 3 months

Advertised download speeds  $\geq 256$  kbit/s

## Fixed wireless broadband

### Indicator 23: Satellite broadband subscriptions

### Indicator 24: Terrestrial fixed wireless broadband subscriptions

2 800 subs in  
2012 in Ghana

Includes: fixed WiMAX and fixed-wireless with an advertised download speed of at least 256 kbit/s.

Excludes:

(i) occasional users at hotspots and subscribers of Wi-Fi hotspots

(ii) mobile-broadband subscriptions where users can access a service throughout the country wherever coverage is available.

# Active mobile-broadband subscriptions

## Main features:

- advertised  $\geq 256$  kbit/s



GPRS and EDGE **excluded**

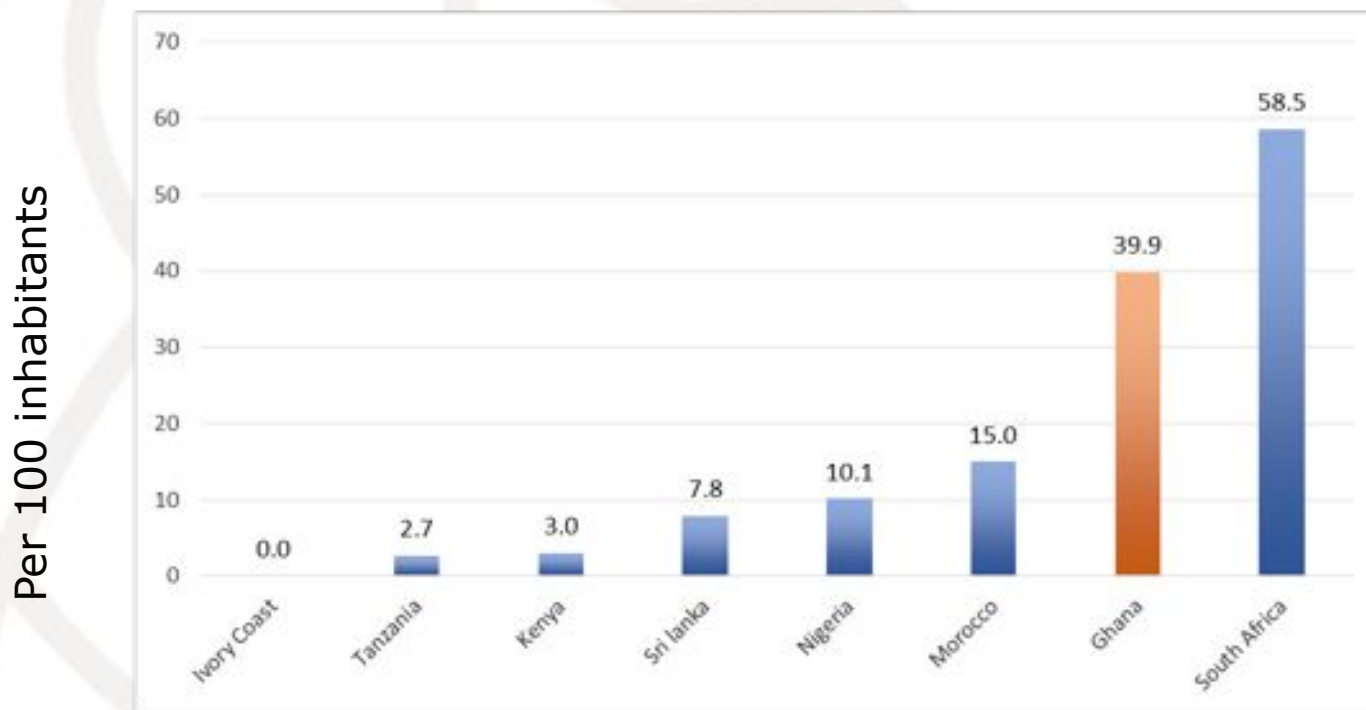
- active

1. Monthly fee paid only for Internet access
- OR
2. Accessed the Internet in the previous three months

- allows access to the open Internet

## Mobile broadband – Ghana

Active mobile-broadband subscriptions, end 2013





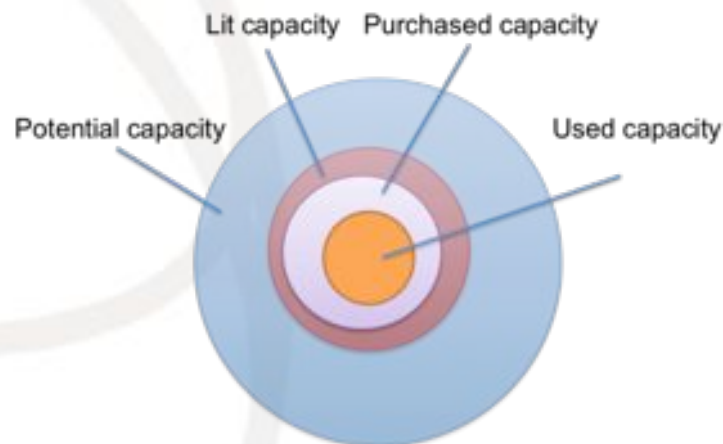
## Conclusions mobile broadband methodology

- International agreement to collect data on active subscriptions to mobile broadband
- operators have these data in their systems  
**e.g.** transnational operators, such as Vodafone
- Operators may need time to implement the new activity criteria

**Important to work with operators for them to adjust to the activity criteria**

# International Internet bandwidth

- What is feasible/relevant to collect?
  - used capacity?
  - purchased capacity?
  - lit or equipped capacity?
  - simply total design capacity (potential)?

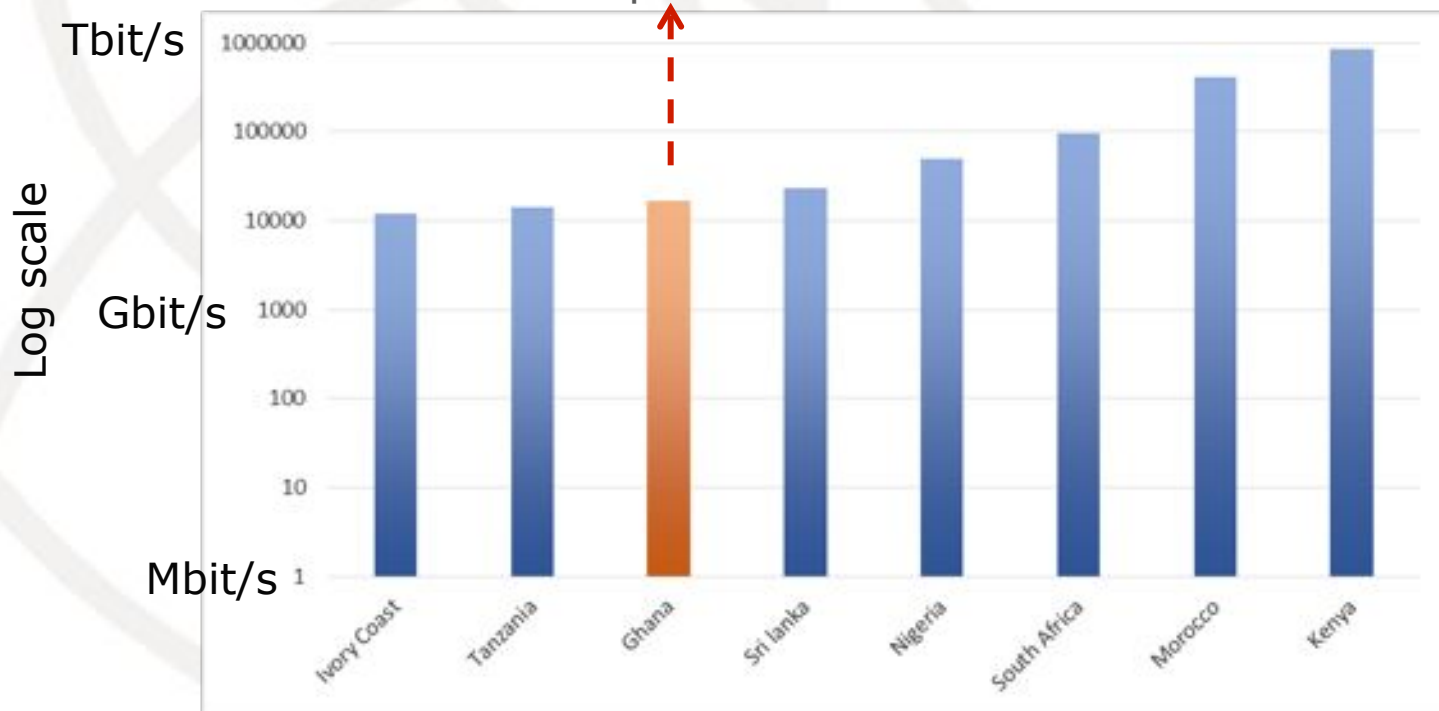


Lit ~ 10-45% potential capacity  
Purchased capacity ~ <10% lit

## Intl Internet bandwidth – data in Ghana

International Internet bandwidth, end 2013

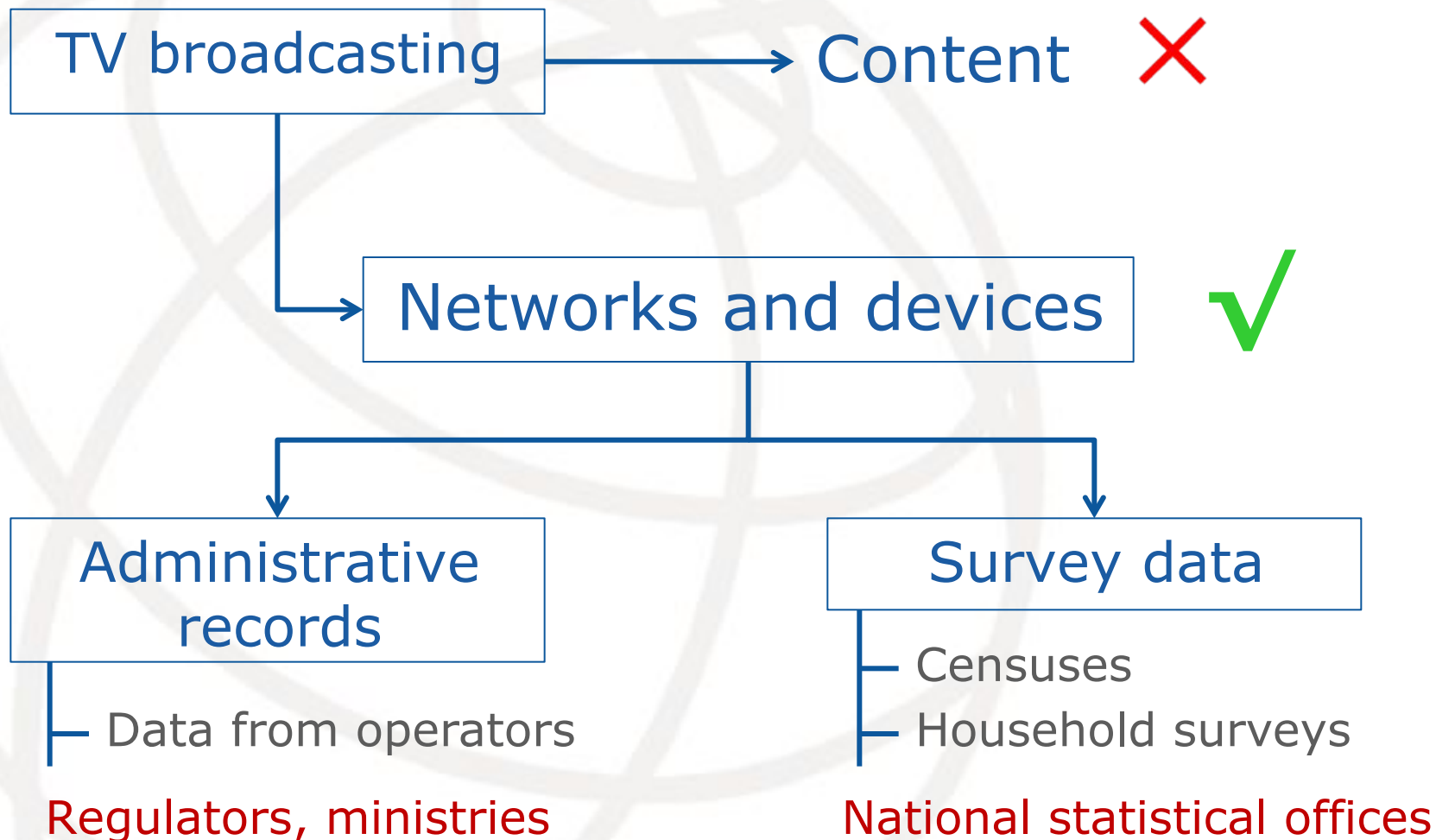
16' 590 Mbit/s for 10' 500' 000 bb  
subscriptions



If 1% of bb subscriptions access the international Internet at the same time  
-> average speed of 162 kbit/s -> **narrowband**

# 3. Broadcasting, traffic

## ITU data on TV broadcasting



# ITU indicators on TV broadcasting

TV subscriptions

We are referring to pay TV

TV platform



# Traffic

- Fixed telephone: domestic, international minutes
- Mobile cellular: domestic, international minutes and SMS
- Data traffic (**1<sup>st</sup> ITU collection 2013**):
  - Fixed (wired)- broadband Internet traffic (exabytes)
  - Mobile-broadband Internet traffic (inside country)
  - Mobile-broadband Internet traffic (outside, roaming out)

**Measured at the end-user access point**

**Excl. walled-garden, wholesale traffic, IPTV/CATV**

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# EGTI and EGH

## Defining indicators and developing international standards

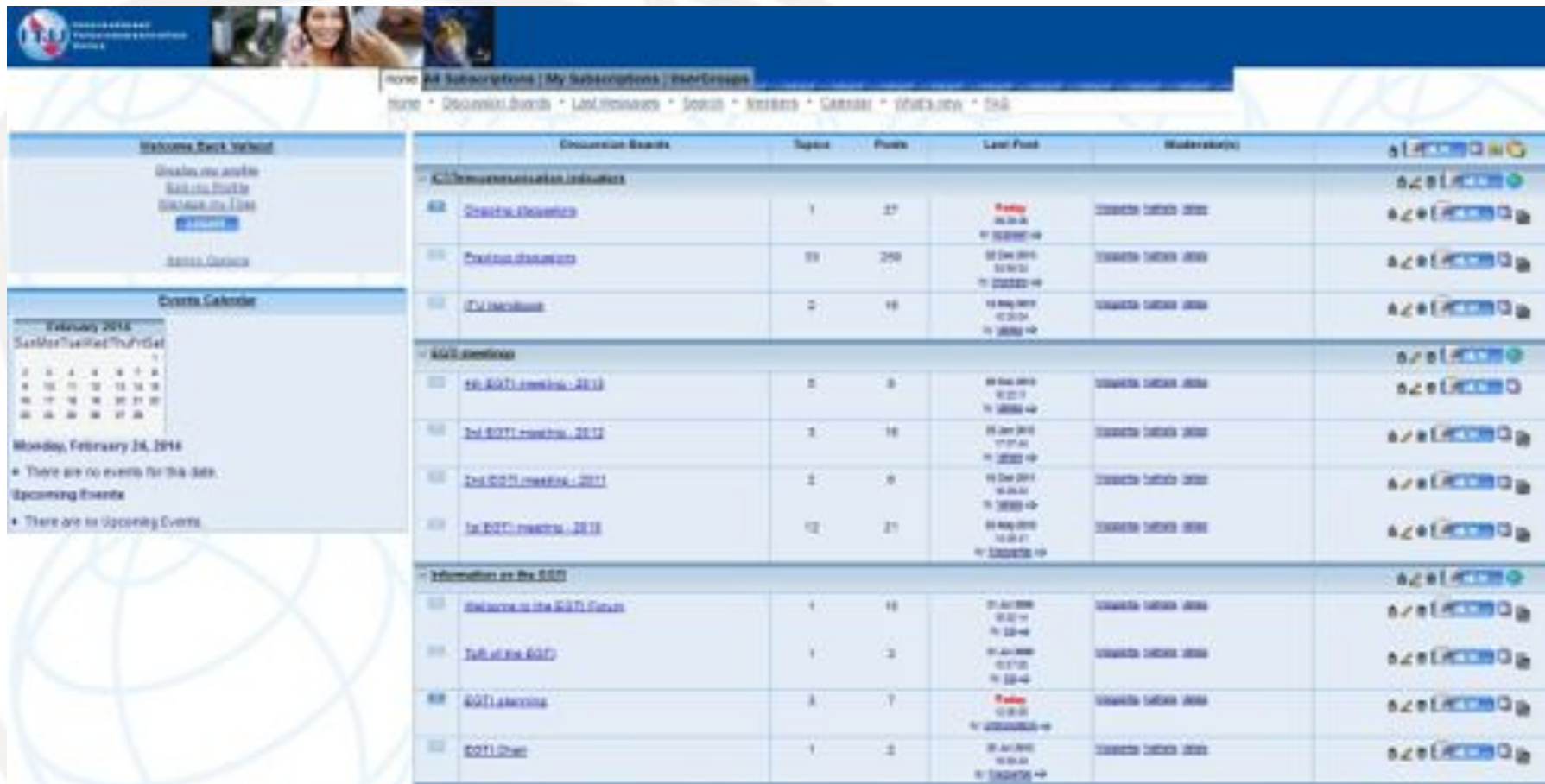
- Expert Group on Telecommunication/ ICT Indicators (**EGTI**) (since 2012)
  - ▣ Around 500 members from 128 countries
- Expert Group on ICT Household Indicators (**EGH**) (since 2010)
  - ▣ Around 270 members from 100 countries
- Online discussion forum
- Face-to-face meeting
  - ▣ 15-19 September 2014, Geneva
- **Report to WTIS for adoption**



## Current discussions in the EGTI

- International Internet bandwidth
- Revision of the classification of wireless-broadband subscriptions
- Indicators on bundled telecommunication services
- Separation of subscription data on (a) individuals and (b) public and private organizations
- M2M and LTE indicators

# EGTI online forum



The screenshot shows the ITU EGTI online forum interface. On the left, there is a navigation menu with sections like 'Welcome, Expert Network' and 'Events Calendar'. The main content area displays a table of discussion boards under the heading 'Discussion Boards'. The table has columns for 'Topic', 'Posts', 'Last Post', and 'Moderator(s)'. The boards are categorized into 'All Discussion and Information Industries', 'EGTI Activities', and 'Information on the EGTI'.

| Topic  | Posts | Last Post | Moderator(s)        |
|--|-------|-----------|---------------------|
| <b>All Discussion and Information Industries</b> |       |           |                     |
| Country Activities                               | 1     | 27        | 2014-02-24 10:30 AM |
| Country Activities                               | 28    | 250       | 2014-02-24 10:30 AM |
| EGTI members                                     | 2     | 19        | 2014-02-24 10:30 AM |
| <b>EGTI Activities</b>                           |       |           |                     |
| 1st EGTI meeting, 2014                           | 0     | 0         | 2014-02-24 10:30 AM |
| 2nd EGTI meeting, 2014                           | 1     | 18        | 2014-02-24 10:30 AM |
| 3rd EGTI meeting, 2014                           | 2     | 9         | 2014-02-24 10:30 AM |
| 4th EGTI meeting, 2014                           | 12    | 21        | 2014-02-24 10:30 AM |
| <b>Information on the EGTI</b>                   |       |           |                     |
| Information on the EGTI Forum                    | 1     | 18        | 2014-02-24 10:30 AM |
| Talking to EGTI                                  | 1     | 3         | 2014-02-24 10:30 AM |
| EGTI activities                                  | 3     | 7         | 2014-02-24 10:30 AM |
| EGTI Forum                                       | 1     | 2         | 2014-02-24 10:30 AM |

<http://www.itu.int/ITU-D/ict/ExpertGroup>

## Current discussions in the EGH

- Children and youth online protection
- Internet security
- Internet use by type of portable device/network
- Mobile phone ownership
- Mobile phone activities
- Barriers to Internet use by individuals



# EGH online forum

ITU *Committed to connecting the world*  
ITU is the UN agency for information and communication technologies

ITU-D Expert Group on Households Forum

Logged in as: Ivan

FORUM SEARCH MEMBERS HELP Search Keyword... Search

ITU » ITU-D » ICT Statistics & Indicators » Forums

Connect live: 22/30/12

ShoutBox

| Forum  | Topics | Posts | Last Post   |
|--|--------|-------|---|
| General  |        |       |   |
| Work plan 2014<br>Work plan March - September 2014   | 1      | 1     | Work plan March - September 2014<br>by Esperanza Magorray 2 months ago                              |
| Chair of the EGH forum<br>Chair of the EGH forum   | 3      | 9     | Chair of the EGH forum<br>by Dr. Hanyam Benka (IRA, Egypt) 1 month ago                              |
| 2nd EGH Meeting 2014<br>2nd Face-to-Face Meeting of the EGH  | 2      | 2     | des informations sur les groupes d'experts...<br>by julia about a month ago                         |
| Tutorial, help, questions, feedback<br>General introduction, help technical issues, features, possible improvements, suggestions, feedback | 8      | 12    | Tutorial 07: How to change your display name...<br>by Diana Para (Ageric, Uruguay) about a year ago |

[www.itu.int/net4/ITU-D/forums/EGH](http://www.itu.int/net4/ITU-D/forums/EGH)

# 12th World Telecommunication/ICT Indicators Symposium (WTIS)



- 24-26 November 2014, Tbilisi, Georgia; pre-event on 23 November 2014
- Main global event on ICT measurement - bringing together ICT policy and ICT data community
- Presentation of work of EGH and EGTI for adoption
- Main agenda topics
  - Post 2015, future ICT-for-development priorities and measurement
  - Measuring competition and affordability
  - Big data
  - Data quality, open data
  - Partnership on Measuring ICT for Development
- Launch of the MIS Report 2014 – high-level panel on top performers and dynamic countries



**Please register at [www.itu.int/en/ict](http://www.itu.int/en/ict)**

**THANK YOU**

**More information**

<http://www.itu.int/ict>

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