

# **A4AI-Mozambique Expert Workshops**

Maputo, Mozambique  
7 July 2015

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

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Senior Adviser- ITU Regional Office for Africa  
Telecommunication Development Bureau  
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

# 17 May 2015

<http://itu150.org/historical-timeline/>



STATISTIQUE GÉNÉRALE  
DE LA  
TÉLÉGRAPHIE

Telex  
statistic  
s

Measuring  
the  
Information  
Society  
Report



1871

1885

1908

1956

1968

1974

1997

2007

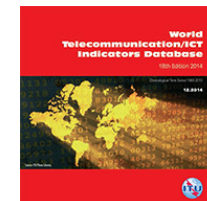
Today

Telephone  
statistics

Radiocom  
statistics

All statistics  
combined into  
one  
publication

WTI database



Yearbook of  
Statistics



+



ICT Facts &  
Figures  
The world in 2015

...

# ITU's work on ICT statistics

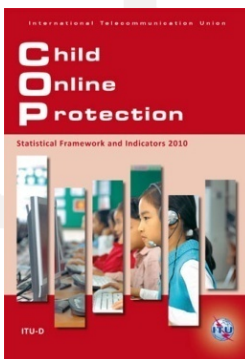
- 50 years of data collection and dissemination
- Development of statistical standards
- Data analysis and research reports
- Capacity development
- WSIS and MDG monitoring



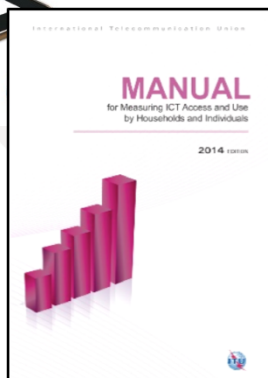
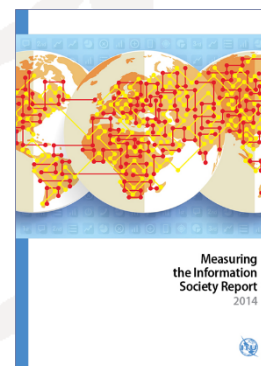
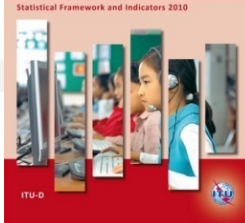
International Telecommunication Union

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

 PARTNERSHIP ON  
MEASURING ICT  
FOR DEVELOPMENT



WTIS-15  
13th WORLD TELECOMMUNICATION  
**ICT INDICATORS  
SYMPOSIUM**  
30 NOVEMBER - 2 DECEMBER 2015  
HIROSHIMA, JAPAN



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# Importance of ICT statistics

## National

- 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

## International

- Benchmarking national vs international ICT developments
- Monitor global ICT development targets, e.g. Broadband Commission targets, WSIS+10, Post-2015
- Informing private investors (e.g. to attract FDI), international cooperation programmes, donors, the media

# 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)



# 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 ... Search

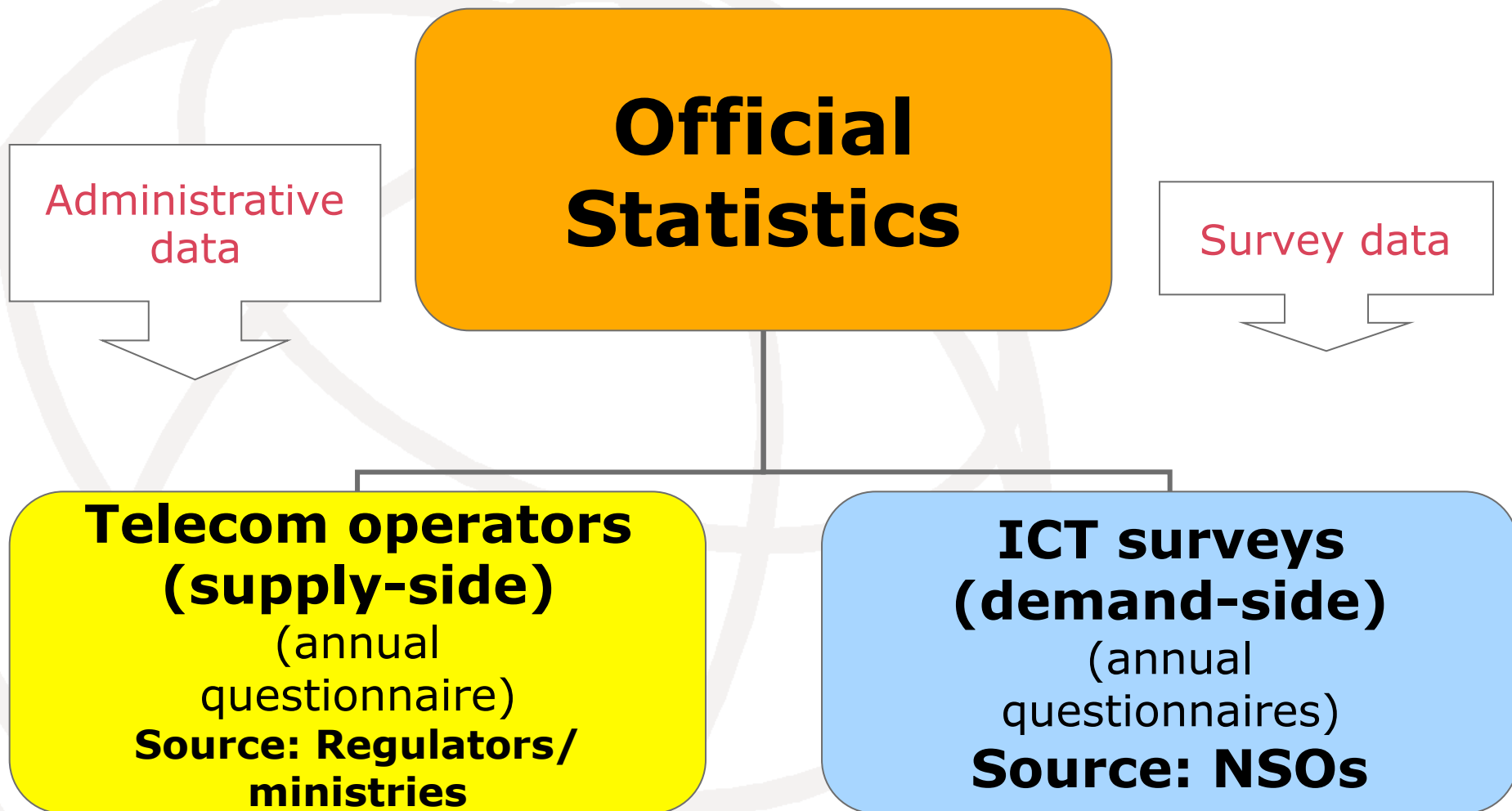
ICASA ICT Indicators Portal South Africa

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

<b>Annual Questionnaires</b>	<b>Short WTI</b>	<b>Long WTI</b>	<b>ICT Price Basket</b>	<b>Short Household</b>	<b>Long Household</b>
<b>Addressee</b>	Instituto Nacional das Comunicações de Moçambique			Instituto Nacional de Estatistica	
<b>Format</b>	Online	Online	Online	Excel	Excel
<b>Date</b>	April	July/Sept	Oct/Nov	March	June/July
<b># indicators</b>	6	~ 70	~ 75	3	16 + class variables
<b>Response Mozambique</b>	YES	40% in 2014	YES	No recent data	

# Agenda

1. Background

**2. Data from ICT household surveys**

3. Data from administrative data sources

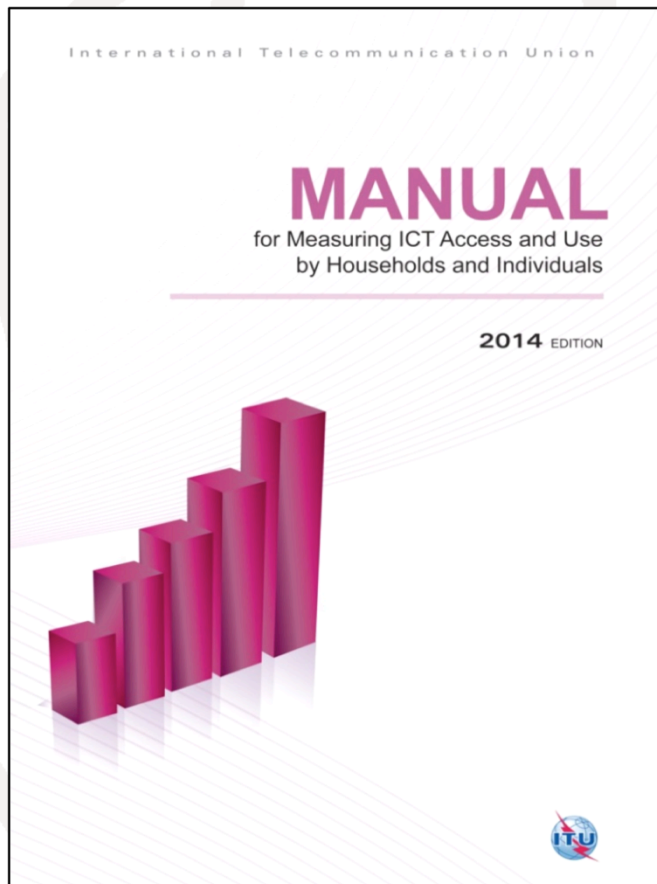
4. Upcoming measurement challenges

# 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**



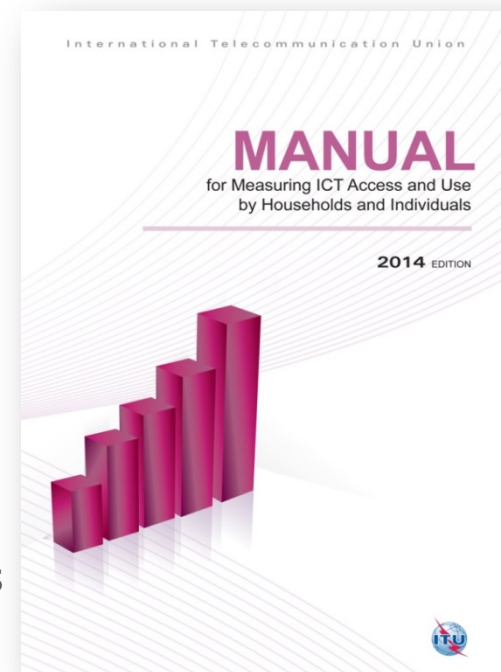
# ITU Manual for Measuring ICT Access and Use by Households and Individuals, 2014 edition



- 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

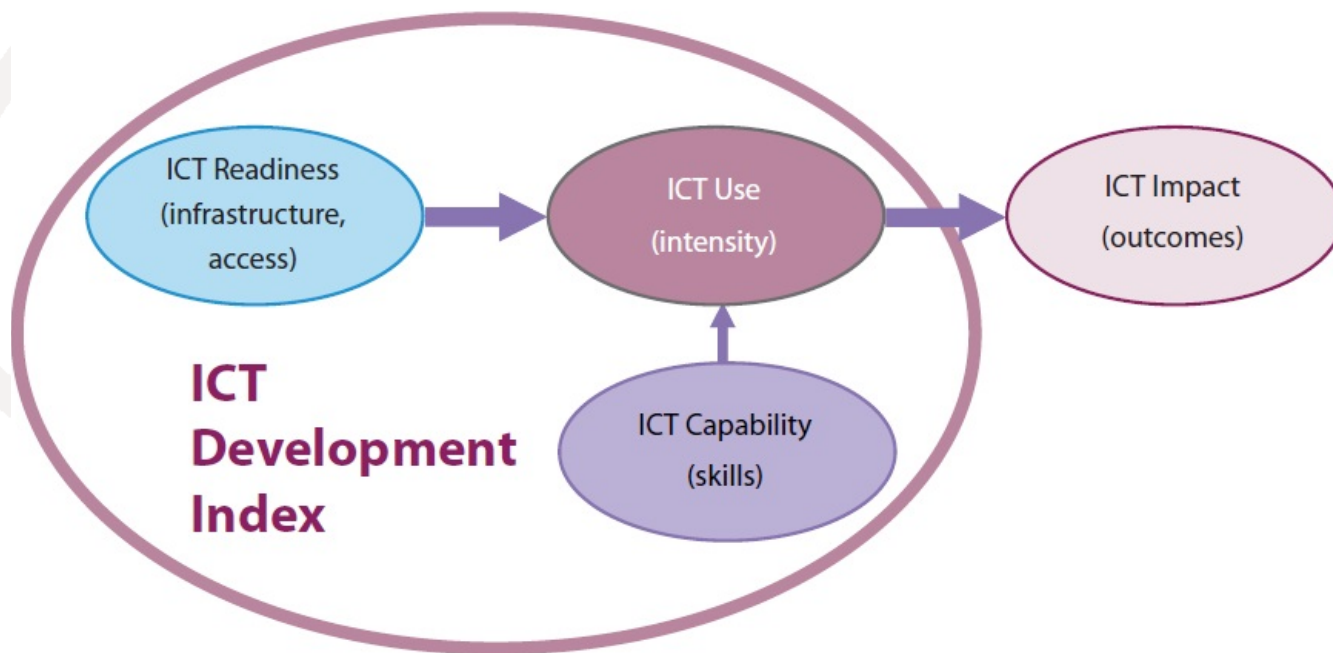
- Urban/rural
- Sex
- Age
- Highest level of education attained
- Labour force status
- Occupation
- Others such as ethnicity, level of literacy, languages spoken, etc.

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

HH1	Proportion of households with a radio	✗
HH2	Proportion of households with a television	✗
HH3	Proportion of households with telephone	✗
HH4	Proportion of households with a computer	3.8% 2007 Research ICT Africa, 7.3% ITU est. 2014
HH5	Proportion of individuals using a computer	✗
HH6	Proportion of households with Internet	0.9% 2007 Research ICT Africa, 6.2% ITU est. 2014
HH7	Proportion of individuals using the Internet	✗ 5.9%, 2014 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	✗
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 Mozambique

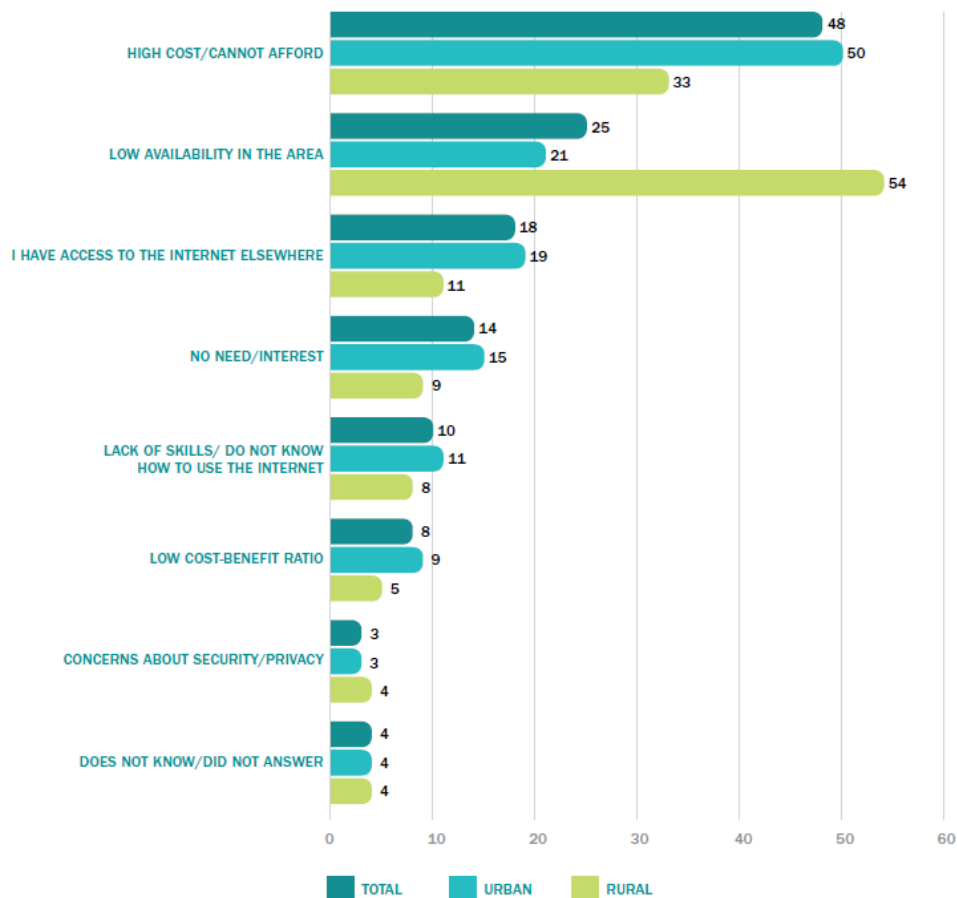
No data on ICT use  
– why is it important?



# 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

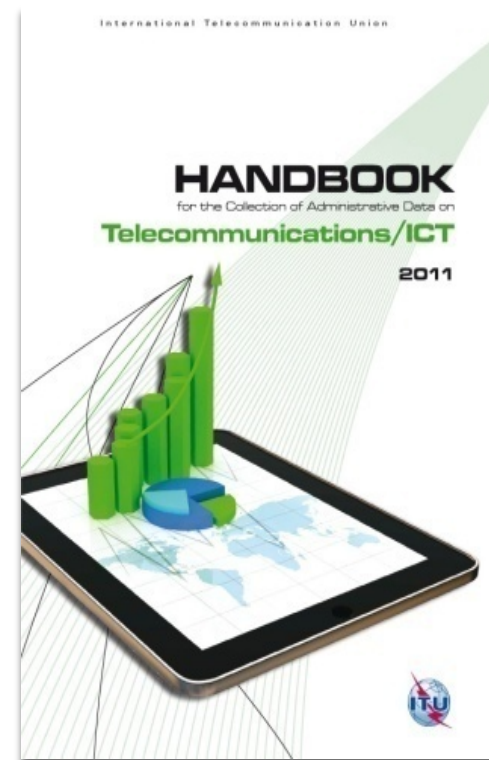
1. Background
2. Data from ICT household surveys
- 3. Data from administrative data sources**
4. Upcoming measurement challenges



# 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.)

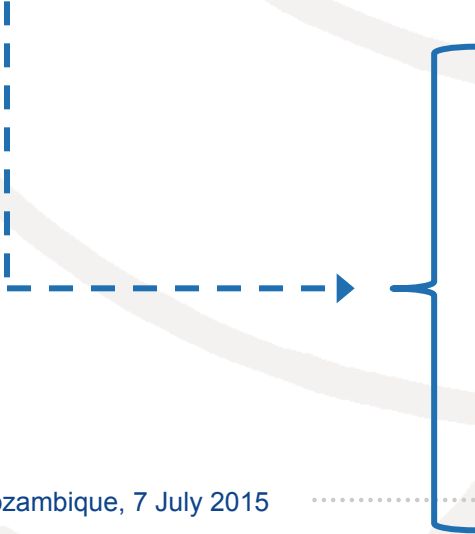
### Groupings:

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

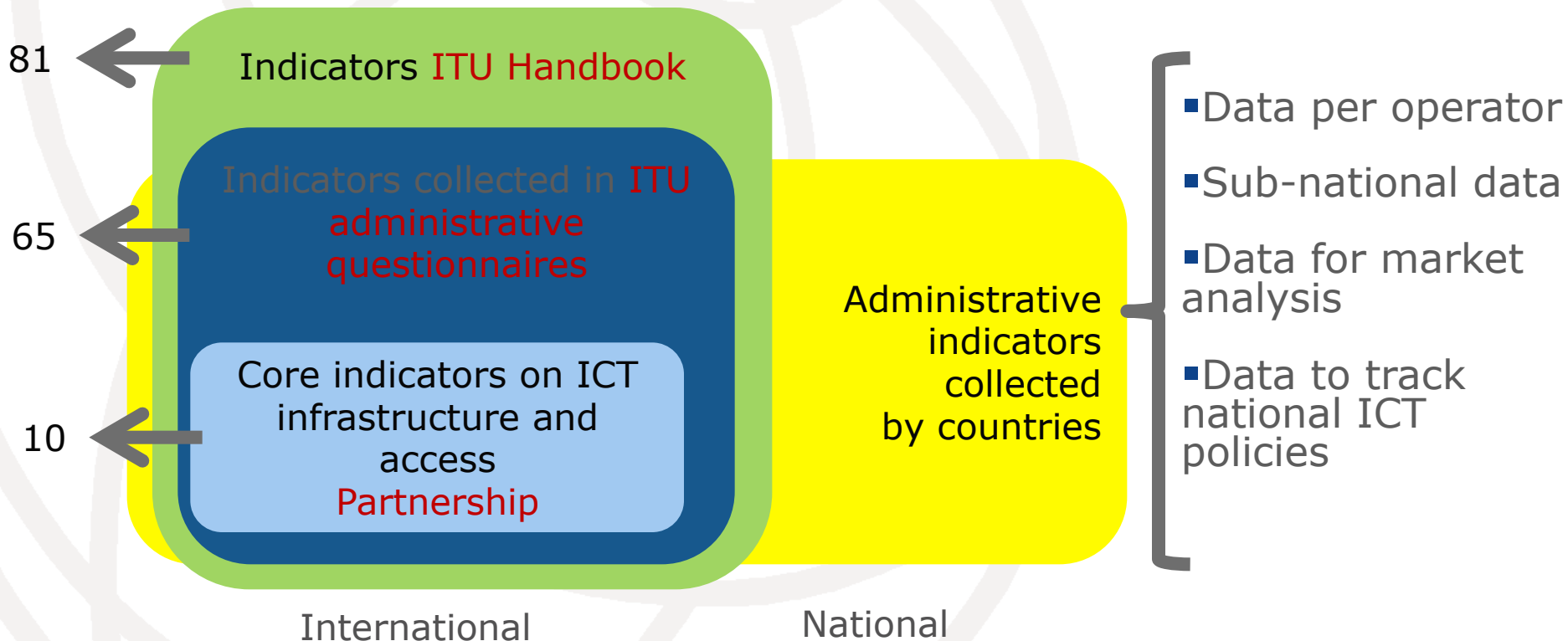
- Definition
- Clarifications and scope
- Method of collection
- Relationship with other indicators
- Methodological issues
- Examples

## 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:

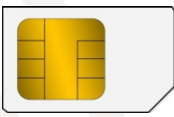



- (i) postpaid subscriptions**; and
- (ii) prepaid accounts that are active**, i.e. used during the last three months.

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.

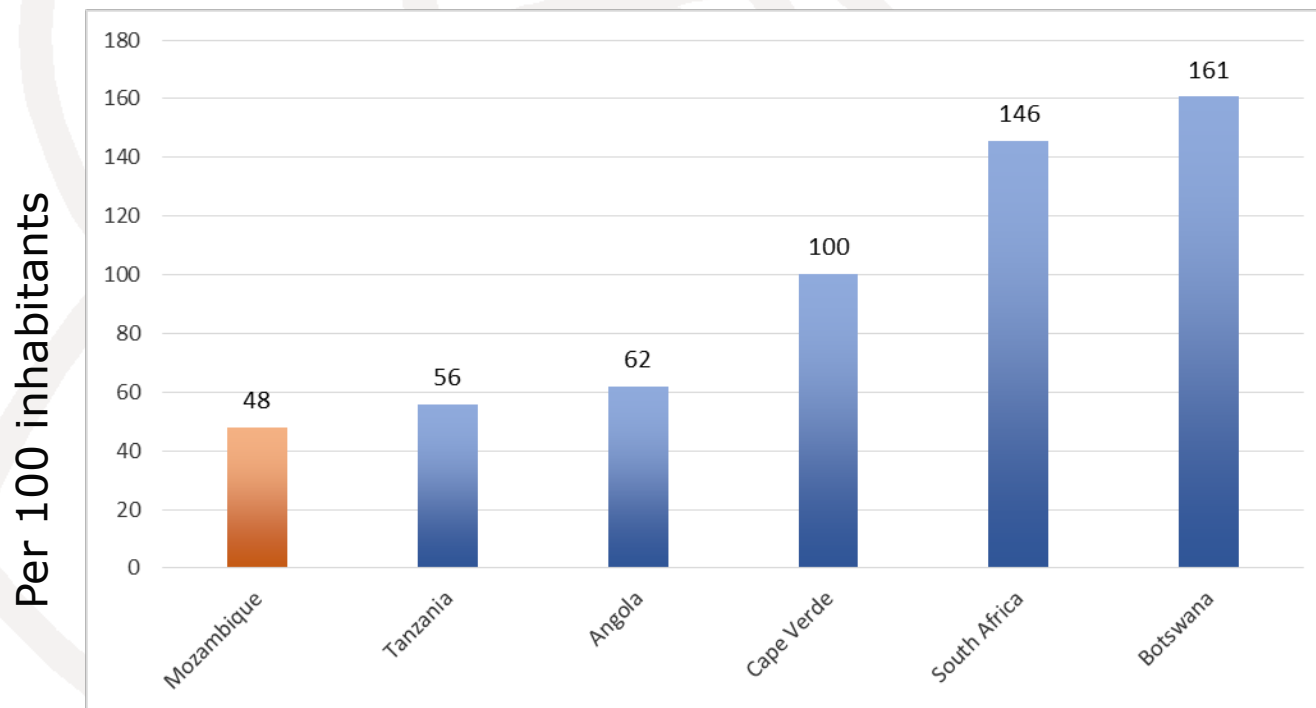
# What do we actually measure?

## Mobile-cellular...

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

# Mobile cellular – Mozambique

Mobile-cellular subscriptions, end 2013



No data from household surveys on mobile-phone users  
-> not known % of the population using mobile services



## Other mobile-cellular indicators

- Prepaid mobile-cellular telephone subscriptions – **98.9% of total mobile subs, 2012 Mozambique**
- % population covered by a mobile-cellular telephone network – **no data for Mozambique**
- % population covered by at least a 3G mobile network – **no data for Mozambique**
- Mobile-cellular numbers ported – **no data for Mozambique (number portability not available?)**

## 2. Internet

# Fixed (wired)-broadband subscriptions

## Main features:

- advertised  $\geq 256$  kbit/s



- wired



## Breakdowns:

- by speed

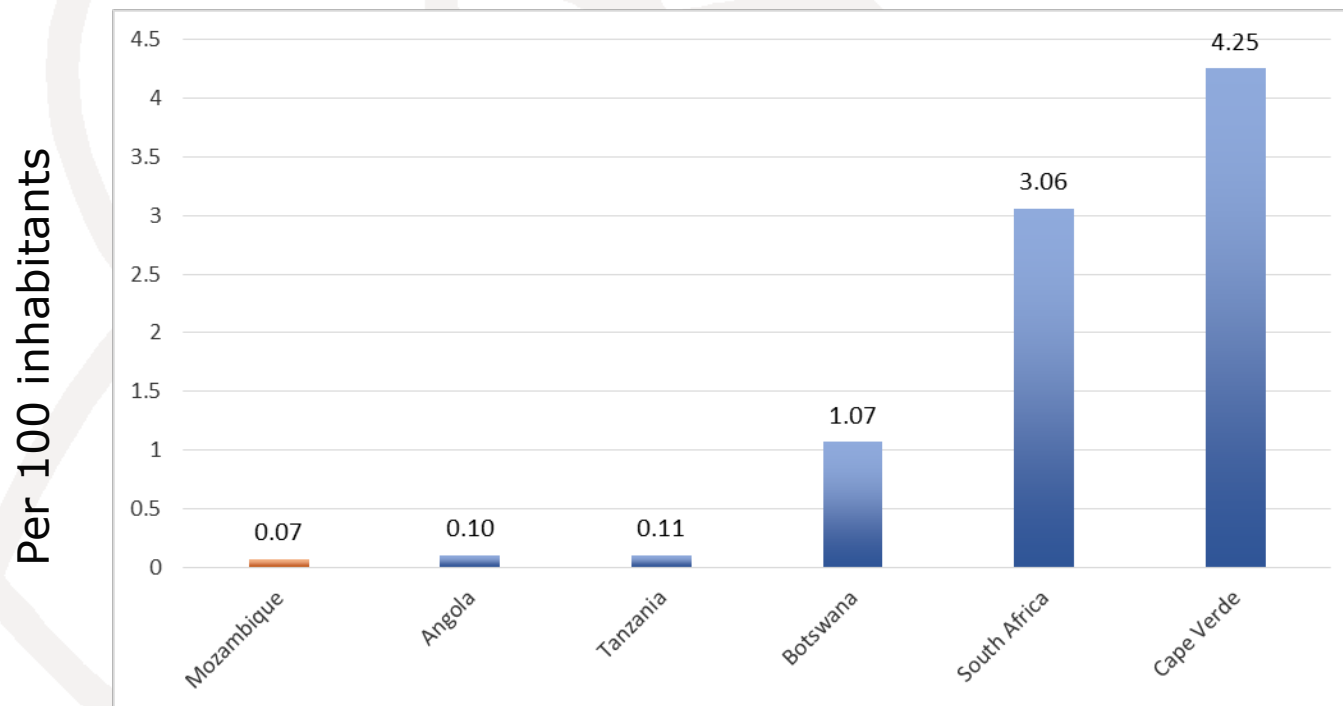
- $\geq 10$  Mbit/s
- 2 – 10 Mbit/s
- 0.256 – 2 Mbit/s

- by tech

- DSL
- cable
- FTTH/B
- other

# Fixed (wired) broadband – Mozambique

Fixed (wired)-broadband subscriptions, end 2013



Breakdown by tech available for 2012 – 75% DSL  
No breakdown by speed available

## 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

## Fixed wireless broadband

### Indicator 23: Satellite broadband subscriptions

### Indicator 24: Terrestrial fixed wireless broadband subscriptions

No data for  
Mozambique –  
not relevant?

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**

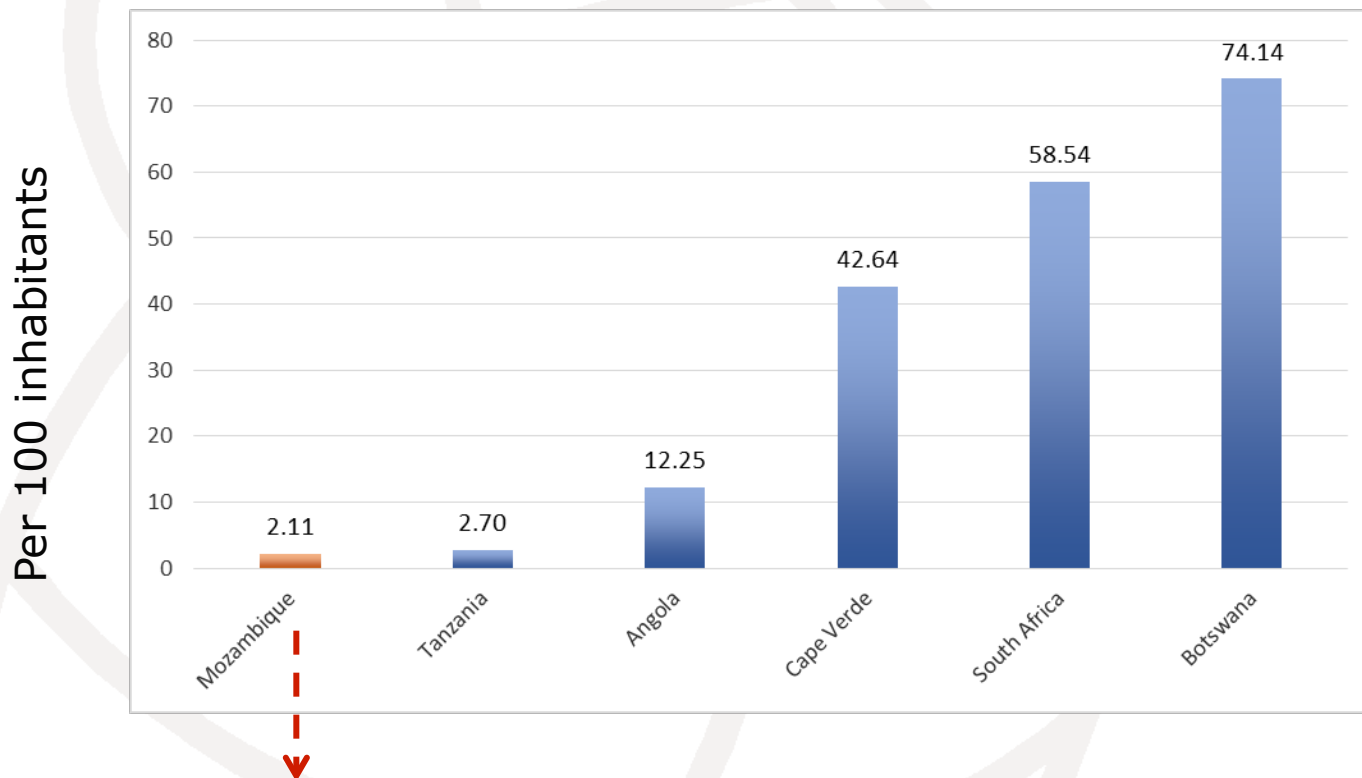
- active

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 – Mozambique

Active mobile-broadband subscriptions, end 2013



ITU estimate, data reported by INCM for 2014 (3.0%)



## Conclusions mobile broadband methodology

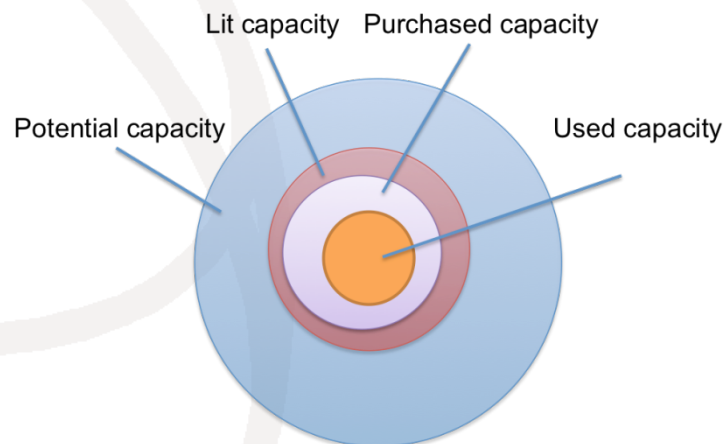
- International agreement to collect data on active subscriptions to mobile broadband
- operators have these data in their systems  
**e.g.** transnational operators, such as Vodacom
- Operators may need time to implement the new activity criteria

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

# International Internet bandwidth

- What is feasible/relevant to collect?

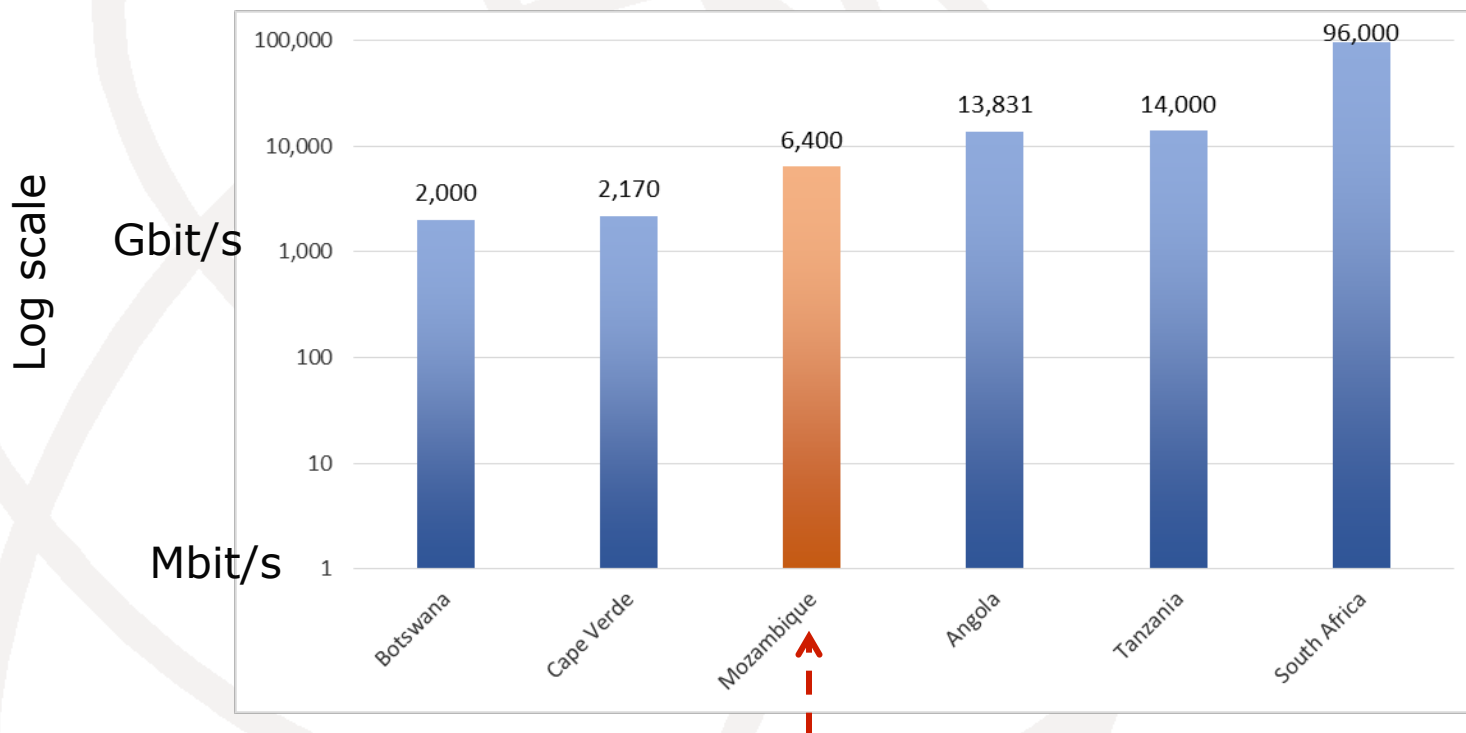
- used capacity?
- purchased capacity?
- lit or equipped capacity?
- simply total design capacity (potential)?



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

# Intl Internet bandwidth – data in Mozambique

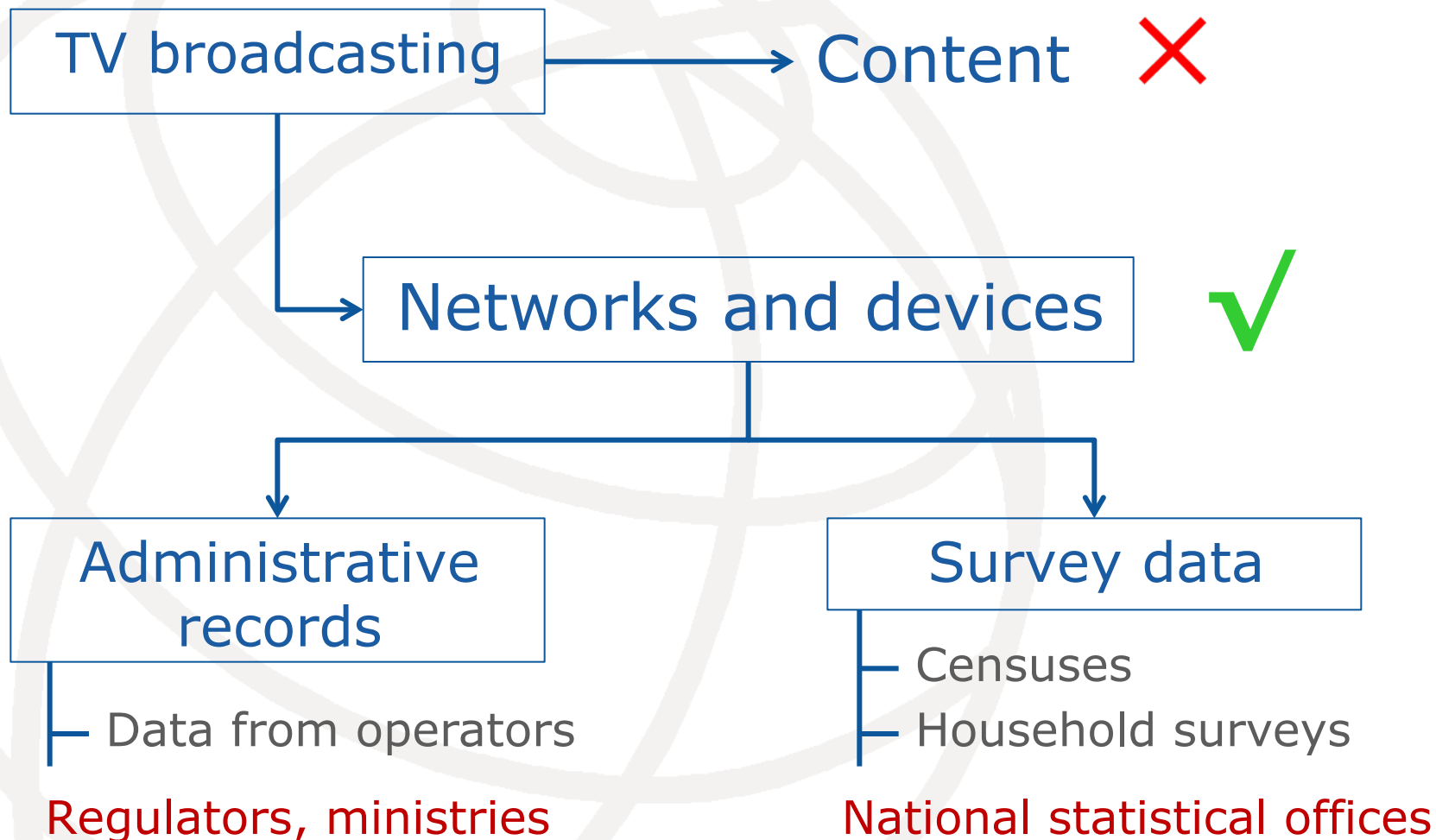
International Internet bandwidth, end 2013



ITU estimate, data reported by INCM for 2014 (12' 195 Mbit/s)  
(If 10% of broadband subs in Mozambique accessed the intl Internet at the same time  
-> they would only have narrowband speeds)

# 3. Broadcasting, traffic

## ITU data on TV broadcasting

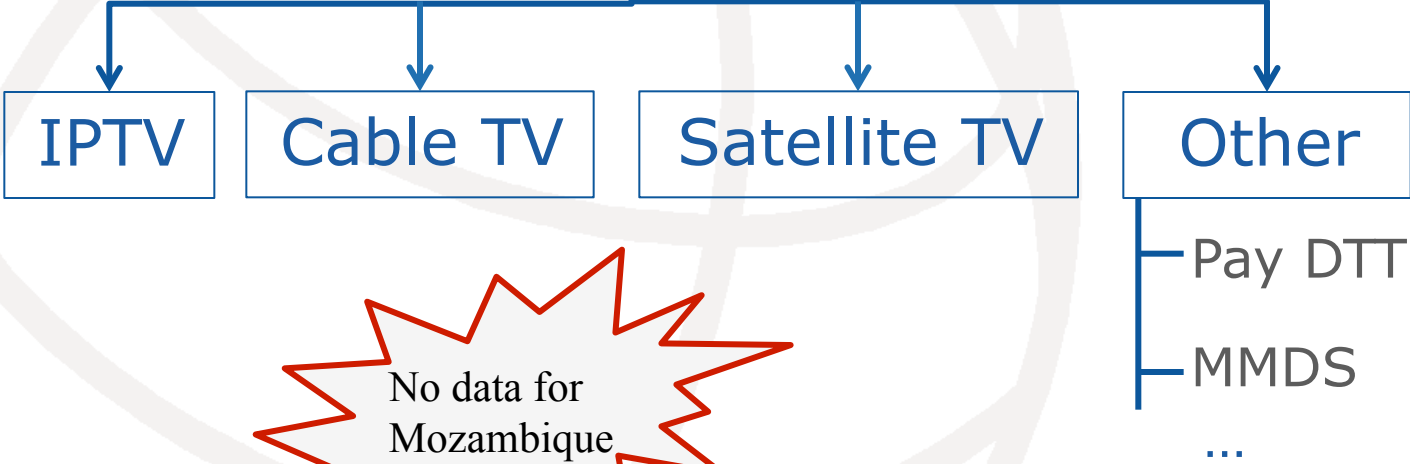


# ITU indicators on TV broadcasting

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**

# Agenda

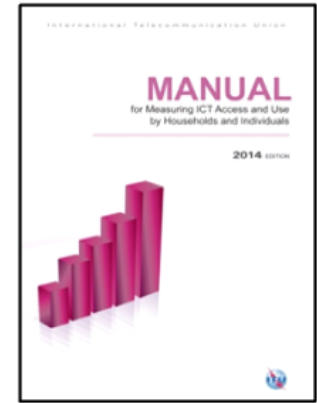
1. Background
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# EGTI and EGH

## 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**



# EGTI online forum



Home **All Subscriptions ! My Subscriptions ! UserGroups**  
[Home](#) • [Discussion Boards](#) • [Last Messages](#) • [Search](#) • [Members](#) • [Calendar](#) • [What's new](#) • [FAQ](#)

**Welcome Back Vallejo!**

[Display my profile](#)  
[Edit my Profile](#)  
[Manage my Files](#)  
**LOGOFF**

[Admin Options](#)

**Events Calendar**

February 2014  
 Sun Mon Tue Wed Thu Fri Sat  
 1  
 2 3 4 5 6 7 8  
 9 10 11 12 13 14 15  
 16 17 18 19 20 21 22  
 23 24 25 26 27 28

Monday, February 24, 2014

- There are no events for this date.

**Upcoming Events**

- There are no Upcoming Events.

	Discussion Boards	Topics	Posts	Last Post	Moderator(s)	
<b>ICT/Telecommunication indicators</b>						
	<a href="#">Ongoing discussions</a>	1	27	<b>Today</b> 08:28:36 by: <a href="#">kolalwet</a> →	<a href="#">Maqoantay Nathalie Vallejo</a>	
	<a href="#">Previous discussions</a>	33	258	02 Dec 2013 04:55:34 by: <a href="#">Imacklew</a> →	<a href="#">Maqoantay Nathalie Vallejo</a>	
	<a href="#">ITU Handbook</a>	2	16	14 May 2012 15:30:54 by: <a href="#">Vallejo</a> →	<a href="#">Maqoantay Nathalie Vallejo</a>	
<b>EGTI meetings</b>						
	<a href="#">4th EGTI meeting - 2013</a>	5	9	20 Dec 2013 16:25:11 by: <a href="#">Vallejo</a> →	<a href="#">Maqoantay Nathalie Vallejo</a>	
	<a href="#">3rd EGTI meeting - 2012</a>	3	16	25 Jan 2013 17:27:44 by: <a href="#">Vallejo</a> →	<a href="#">Maqoantay Nathalie Vallejo</a>	
	<a href="#">2nd EGTI meeting - 2011</a>	2	6	16 Dec 2011 16:28:33 by: <a href="#">Vallejo</a> →	<a href="#">Maqoantay Nathalie Vallejo</a>	
	<a href="#">1st EGTI meeting - 2010</a>	12	21	03 May 2010 14:45:41 by: <a href="#">Maqoantay</a> →	<a href="#">Maqoantay Nathalie Vallejo</a>	
<b>Information on the EGTI</b>						
	<a href="#">Welcome to the EGTI Forum</a>	1	10	31 Jul 2009 16:02:14 by: <a href="#">NB</a> →	<a href="#">Maqoantay Nathalie Vallejo</a>	
	<a href="#">ToR of the EGTI</a>	1	3	31 Jul 2009 15:57:05 by: <a href="#">NB</a> →	<a href="#">Maqoantay Nathalie Vallejo</a>	
	<a href="#">EGTI planning</a>	3	7	<b>Today</b> 12:06:05 by: <a href="#">omindicators</a> →	<a href="#">Maqoantay Nathalie Vallejo</a>	
	<a href="#">EGTI Chair</a>	1	2	25 Jul 2012 10:30:43 by: <a href="#">Maqoantay</a> →	<a href="#">Maqoantay Nathalie Vallejo</a>	

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

## Current discussions in EGTI

1. Revision of the 2011 ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT
2. Additional sources for administrative data (big data, OTT)
3. indicators on fixed-broadband services in public and private organizations
4. sub-categories of mobile broadband subscriptions
5. subscription data on advanced mobile-broadband technologies (LTE and plus)

# ITU WTI Long Questionnaire (July-August 2015)

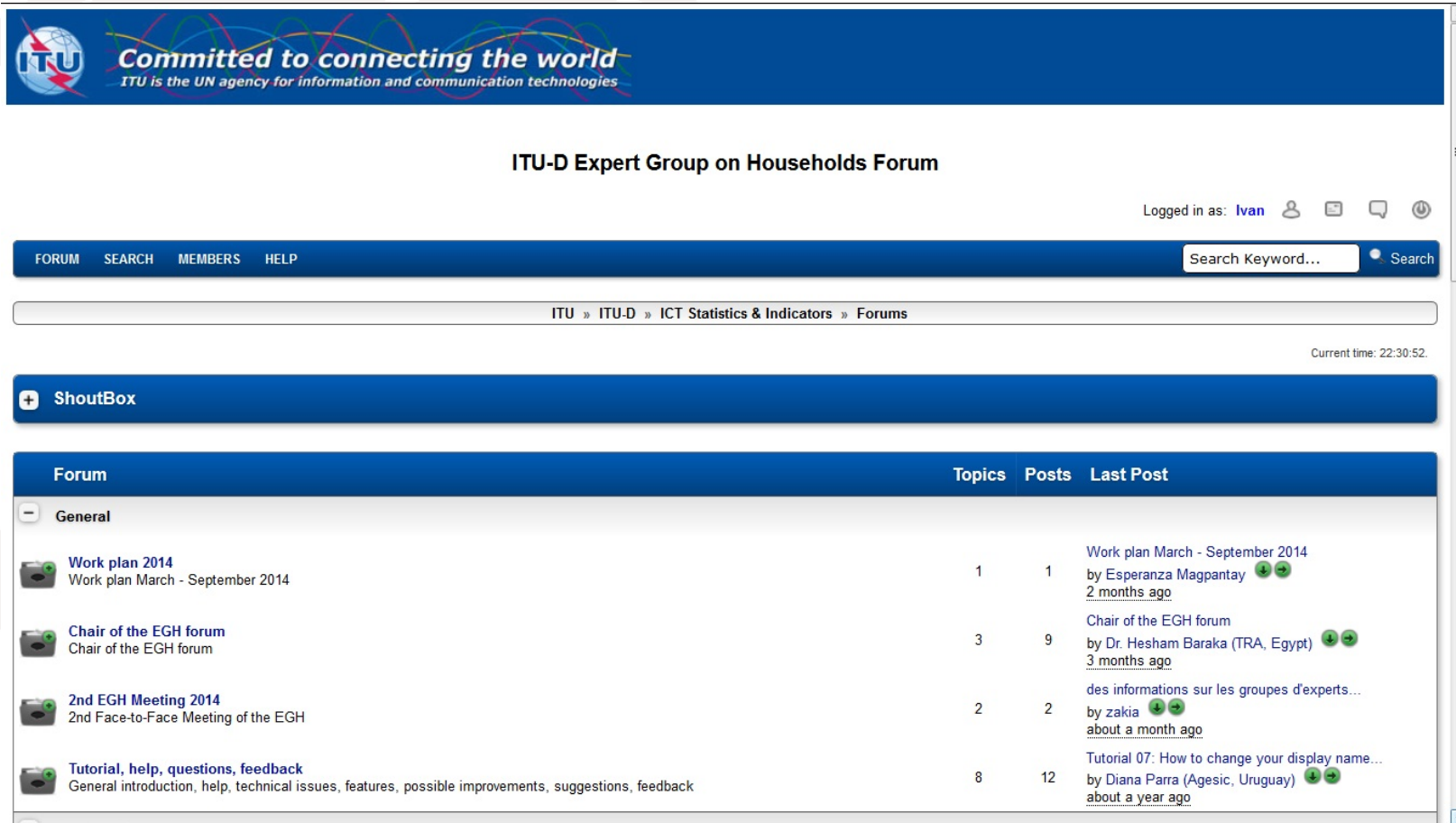
## New indicators to be collected:

Fixed-broadband subscriptions for organizations
M2M mobile network subscriptions
Lit/equipped international Internet bandwidth
Used international Internet bandwidth
Subscriptions to fixed-broadband and fixed-telephony bundles
Subscriptions to fixed-broadband, fixed-telephony and pay TV bundles
Percentage of the population covered by LTE and other advanced mobile-broadband networks


## Definitions available at:

[http://www.itu.int/en/ITU-D/Statistics/Documents/datacollection/ITU\\_LQ\\_2015.pdf](http://www.itu.int/en/ITU-D/Statistics/Documents/datacollection/ITU_LQ_2015.pdf)

# EGH online forum



**ITU-D Expert Group on Households Forum**









Logged in as: **Ivan** 

FORUM SEARCH MEMBERS HELP

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

Current time: 22:30:52

**+ ShoutBox**

Forum	Topics	Posts	Last Post
<b>- General</b>			
 <b>Work plan 2014</b> Work plan March - September 2014	1	1	Work plan March - September 2014 by Esperanza Magpantay  2 months ago
 <b>Chair of the EGH forum</b> Chair of the EGH forum	3	9	Chair of the EGH forum by Dr. Hesham Baraka (TRA, Egypt)  3 months ago
 <b>2nd EGH Meeting 2014</b> 2nd Face-to-Face Meeting of the EGH	2	2	des informations sur les groupes d'experts... by zakia  about a month ago
 <b>Tutorial, help, questions, feedback</b> General introduction, help, technical issues, features, possible improvements, suggestions, feedback	8	12	Tutorial 07: How to change your display name... by Diana Parra (Agesic, Uruguay)  about a year ago

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

# Current discussions in EGH

## 1. Development of new indicators:

- ICT employment
- Proportion of individuals not using the Internet, by type of barriers and review of HH14 – Barriers to household Internet access
- Barriers to mobile phone ownership

## 2. Experience sharing related to Internet security; and children and youth online protection

## 3. Data quality

## 4. Methodological issues:

- Data collection (tools, processes, standards, vehicles, challenges)
- Data verification/processing
- Data dissemination (visualization, open data)

## Current discussions in EGH

5. Other data sources (big data)
6. National coordination (NSOs, ministry, regulator)
7. Other areas (SDGs/post2015, digital inclusion, e-waste, e-government, e-health, ICT in education)

## ITU HH Long Questionnaire:

- To be completed online 15 July-15 September
- Model available at:

[http://www.itu.int/en/ITU-D/Statistics/Documents/datacollection/ITU\\_HH\\_Questionnaire\\_with\\_macro\\_2014.xls](http://www.itu.int/en/ITU-D/Statistics/Documents/datacollection/ITU_HH_Questionnaire_with_macro_2014.xls)

**THANK YOU**

**More information**

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

[indicators@itu.int](mailto:indicators@itu.int)