



## 12th World Telecommunication/ICT Indicators Symposium (Tbilisi, 2014)

### Presentations – Part III

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**12<sup>th</sup> World Telecommunication/ICT Indicators Symposium  
(WTIS-14)**

**Tbilisi, Georgia, 24-26 November 2014**



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***Presentation***

**Document C/18-E  
25 November 2014**

**English**

**SOURCE:** Consultant to ITU

**TITLE:** ITU Data Quality Assurance Framework

**12<sup>th</sup> World Telecommunication ICT Indicators  
Symposium**

**ITU Data Quality Assurance Framework**

by  
Michael Colledge  
Consultant to ITU

**Content**

- **Introduction**
  - Context
  - Role and benefits of Data Quality Assurance Framework (DQAF)
- **Components of DQAF**
  - Underlying statistical principles, quality dimensions, guidelines, assessment programme
- **Underlying statistical principles**
  - From UN standard
- **Quality dimensions**
  - Illustrated by examples from current ITU quality assessment

## Context

- **Statistics within ITU**
  - Production of statistics is a (very important) by-product of ITU's main function
  - Statistical activities are primarily undertaken within ICT Data and Statistics Division (IDS)
- **Problems and Challenges**
  - Keeping up with ever changing data demands due to the fast evolution of ICT sector
  - Erosion of ITU's status as the primary and most authoritative source of ICT statistics
  - Non-responses by data providers
  - Inadequate data processing tools
  - Shortage of resources for statistical work

## Role and Benefits of ITU Data Quality Assurance Framework (DQAF)

- Systematic mechanism for ongoing identification of quality problems and possible actions for their resolution
- Basis for promoting a data quality culture within ITU
- Greater transparency to processes by which statistics produced and their quality assured
- Reinforces ITU's image as trustworthy provider of good quality statistics
- Reference material for training
- Framework for exchange of ideas on quality assurance with other producers and users of statistics

## Components of the DQAF

1. Underlying statistical principles
  - Principles Governing International Statistical Activities
2. Dimensions of quality
  - Highlighting the various aspects of data and process quality
3. Quality guidelines
  - Set of good practices for assuring quality
4. Quality assessment programme
  - Procedures for ensuring quality regularly assessed and quality improvement actions implemented.

## DQAF Component 1: Underlying Statistical Principles

1. High quality international statistics, accessible for all, are a fundamental element of global information systems
2. To maintain trust in international statistics, their production is impartial and strictly based on the highest professional standards
3. The public has a right to be informed about the mandates for the statistical work of the organisations

## **DQAF Component 1 (continued): Underlying Statistical Principles**

4. Concepts, definitions, classifications, sources and methods meet professional scientific standards and are made transparent for the users
5. Sources and methods for data collection are chosen to ensure timeliness and other aspects of quality, to be cost-efficient, and to minimise reporting burden for data providers
6. Individual data about natural persons or legal entities or small aggregates subject to national confidentiality rules, are kept strictly confidential and are used exclusively for statistical purposes or for purposes mandated by legislation

## **DQAF Component 1 (concluded): Underlying Statistical Principles**

7. Erroneous interpretation and misuse of statistics are immediately appropriately addressed
8. Standards for national and international statistics are developed on the basis of sound professional criteria, while also meeting the test of practical utility and feasibility
9. Coordination of international statistical programmes is essential to strengthen the quality, coherence and governance of international statistics, and avoid duplication of work
10. Bilateral and multilateral cooperation in statistics contribute to professional growth of statisticians and to improvement of statistics in international organizations and countries

## DQAF Component 2: Dimensions of Quality

### Data Quality

1. Relevance
2. Accuracy
3. Credibility
4. Coherence
5. Timeliness and Punctuality
6. Accessibility
7. Interpretability

### Process Quality

8. Sound Methods and Systems
9. Cost-efficiency

## 1. Relevance

The degree to which the data serve to address the purposes for which they are sought by users

### Remark from ITU Quality Assessment

- Expert Groups and ITU pay great attention to the choice of ICT indicators collected and disseminated
  - Consideration is given to the utility of each indicator and to the corresponding response rate
  - Indicators with little power in discriminating well developed systems from poorly developed systems, or based on poor response rates, are eliminated

## **1. Relevance**

The degree to which the data serve to address the purposes for which they are sought by users

### **Recommendation from ITU Quality Assessment**

- Undertake a review of current statistical products along the following lines:
  - Record and analyse requests received for indicators or datasets that cannot currently be satisfied by statistics produced by ITU;
  - Conduct an analysis of users, and potential users, of ICT statistics, and of the uses they make, or could make, of the statistics;
  - Conduct another satisfaction survey of those users that purchase access to the WTI Database.

## **2. Accuracy**

The degree to which the data correctly estimate or describe the quantities or characteristics they are designed to measure

### **Remark from ITU Quality Assessment**

- The most probable sources of error are operator and household response errors and NRA and NSO data collection and processing errors.
- ITU processing errors may occur but are much less likely.
  - Thus, there are only limited improvements that ITU can make to accuracy by improving its own processing operations.
  - The biggest improvements in accuracy are likely to come from better primary data collection.

## **2. Accuracy**

The degree to which the data correctly estimate or describe the quantities or characteristics they are designed to measure

### **Recommendation from ITU Quality Assessment**

- As the basis for decisions where to target improvements in accuracy and where to invest training resources:
  - Conduct and analyse the types, incidence and impact of errors that occur; and
  - Classify data providers according to their capacity and willingness to collect and report the required data, and the likely accuracy of these data.

## **3. Credibility**

The confidence that users place in the data based primarily on their image of the data producer and the product, i.e., the brand image

### **Remark from ITU Quality Assessment**

- The ITU's credibility gives it a comparative advantage over other sources of ICT statistics
- It depends on the fact that:
  - it is a UN agency, with the reputation for even handedness and professionalism that brings; and
  - it has access to official government ICT statistics in member countries

### **3. Credibility**

The confidence that users place in the data based primarily on their image of the data producer and the product, i.e., the brand image

#### **Recommendation from ITU Quality Assessment**

- Publicise ITU's professional approach to collection, harmonisation, editing and dissemination
  - Refer to the occasional concerns countries express about adjusted values
  - Emphasise that the ITU has the authority to make the final decision.

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### **4. Coherence:**

The degree to which data products are logically connected and mutually consistent with other data products (includes comparability across countries and across time)

#### **Remark from ITU Quality Assessment**

- Harmonisation of the data received by ITU is the key to coherence of data across countries and is a major source of value added by the ITU. It is competently done.

#### **Recommendation from ITU Quality Assessment**

- As NSOs are, in principle, responsible for coordination of all statistical activities, ITU should suggest that NRAs inform the NSO in their country about data provided in response to ITU questionnaires.

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## **5. Timeliness and Punctuality:**

The length of time between availability of data and the event or phenomenon they describe; and the existence of and adherence to a data dissemination schedule

### **Remark from ITU Quality Assessment**

- Timeliness of supply and demand side data is largely determined by data availability from the primary providers (operators and households).

### **Recommendation from ITU Quality Assessment**

- Based on a review of data availability from primary providers, and assessment of time required for NRA, NSO and ITU processing, and ITU resource implications, consider whether the current schedule can be advanced.

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## **6. Accessibility**

How readily the data can be discovered, located and accessed from within ITU data holdings

### **Remarks from ITU Quality Assessment**

- ITU gives good exposure to the data it produces. The major publications are attractive and professional in appearance and content.
- ICT-Eye provides instant access to selected indicators for any country.
- The external WTI Database, which contains much more data, is available on CD\_ROM and by download from the website, but access requires a subscription.

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## **6. Accessibility:**

How readily the data can be discovered, located and accessed from within ITU data holdings

### **Recommendation from ITU Quality Assessment**

- Consider free distribution of all data, in particular, making the external WTI Database freely accessible.
  - Establish the magnitude of the consequential revenue loss.
  - Compare with the benefits of having more users.

## **7. Interpretability:**

The ease with which users can understand and properly use the data (sometimes called *clarity*)

### **Remark from ITU Quality Assessment**

- There is sufficient metadata available in the publications and on the website to discover the data and to find the definitions of the indicators.

### **Recommendation from ITU Quality Assessment**

- Develop and publish a *sources and methods* document describing the procedures by which the ITU collects, processes and analyses its statistical outputs, thereby conveying an impression of the likely quality of the data.

## **8. Sound Methods and Systems:**

The use of international standards and best practices for all procedures and systems

### **Remark from ITU Quality Assessment**

- ITU is a world leader in terms of developing standards and methods for collecting ICT supply and demand data.

### **Recommendation from ITU Quality Assessment**

- Extend content of regional training workshops to include provision of additional metadata by NRAs and NSOs
- and completion of quality self-assessment template

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## **9. Cost-Efficiency**

Minimizing costs incurred relative to benefits of the products  
(Quality cannot be discussed without consideration of costs)

### **Remark from ITU Quality Assessment**

- Any request for additional resources should be part of a business case that describes
  - the additional activities and outputs that will flow from the resources
  - the benefits that will accrue to ITU.

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11/25/2014

## 9. Cost-Efficiency

Minimizing costs incurred relative to benefits of the products  
(Quality cannot be discussed without consideration of costs)

### Recommendation from ITU Quality Assessment

- In tandem with review of the evolving needs for ICT statistics and possible revision of statistical products
- formulate and analyse the options for re-engineering the current ITU statistical production process
  - with the aim of making it more effective and efficient.

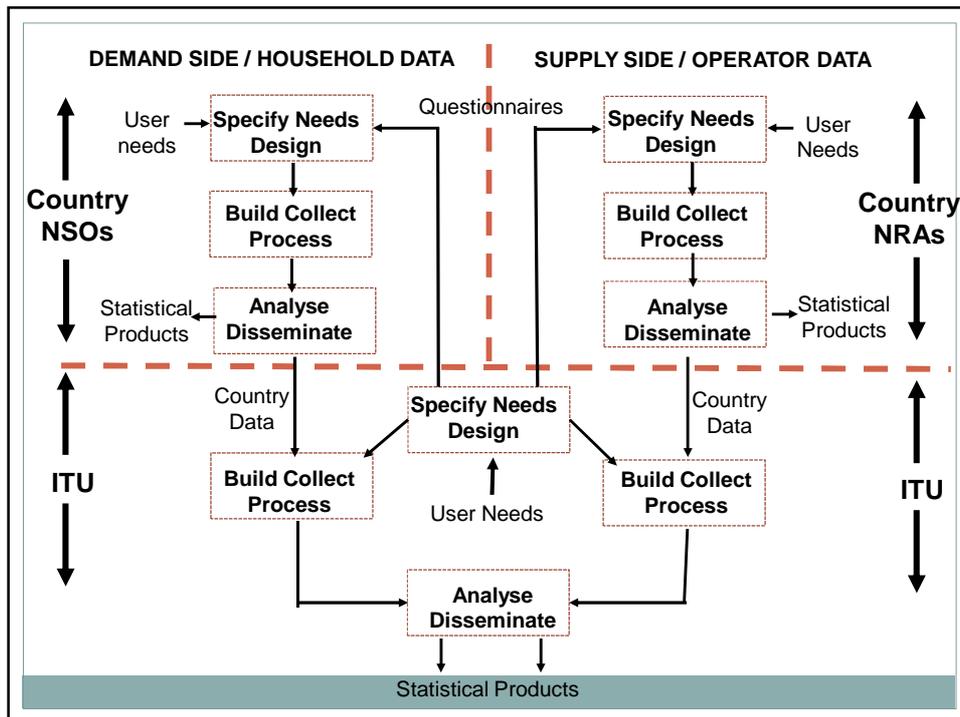
## DQAF Implementation

- DQAF has been formulated
  - Includes statistical principles and quality definitions,
  - broad quality guidelines and draft quality self-assessment template
- Quality assessment programme is commencing
  - External assessment – *the current assessment*
  - Periodic ITU self-assessment
- Raise awareness of need for data quality self-assessment of NSO and NRA statistical processes collecting the ICT data

**Thank you for your attention**

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Statistical Activity Groups (Phases)	Data Quality Dimensions							Process Quality Dimensions	
	Relevance	Accuracy	Credibility	Coherence	Timeliness & Punctuality	Accessibility	Interpretability	Sound Methods & Procedures	Cost Efficiency
Specify needs and manage users	√√√	√	√√	√√	√√	√	√		√
Design stat process and infrastructure	√√	√√√	√√	√√√	√√√	√√	√√		√√√
Build statistical procedures & systems		√√			√	√√			√√
Collect data and manage providers		√√			√√				√√
Process data		√√			√				√√
Analyse data		√	√√	√√	√		√		√
Disseminate statistical products		√	√√	√	√	√√√	√√√		√
Assure quality (including evaluation)	√√	√√	√√	√√	√√	√√	√√		√√
Assure methodology impartiality transparency			√√√					√√√	
Manage metadata			√	√		√√√	√√√		
Manage Human Financial Technological Resources								√√	√√√



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***Presentation***

**Document C/19-E  
25 November 2014**

**English**

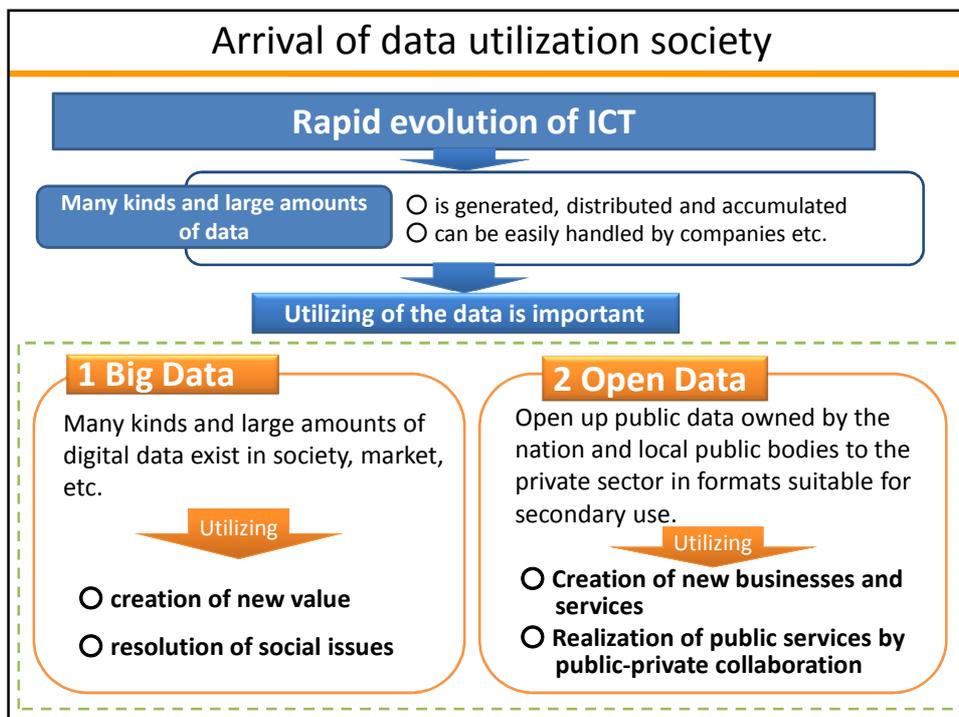
**SOURCE:** Ministry of Internal Affairs and Communications, Japan

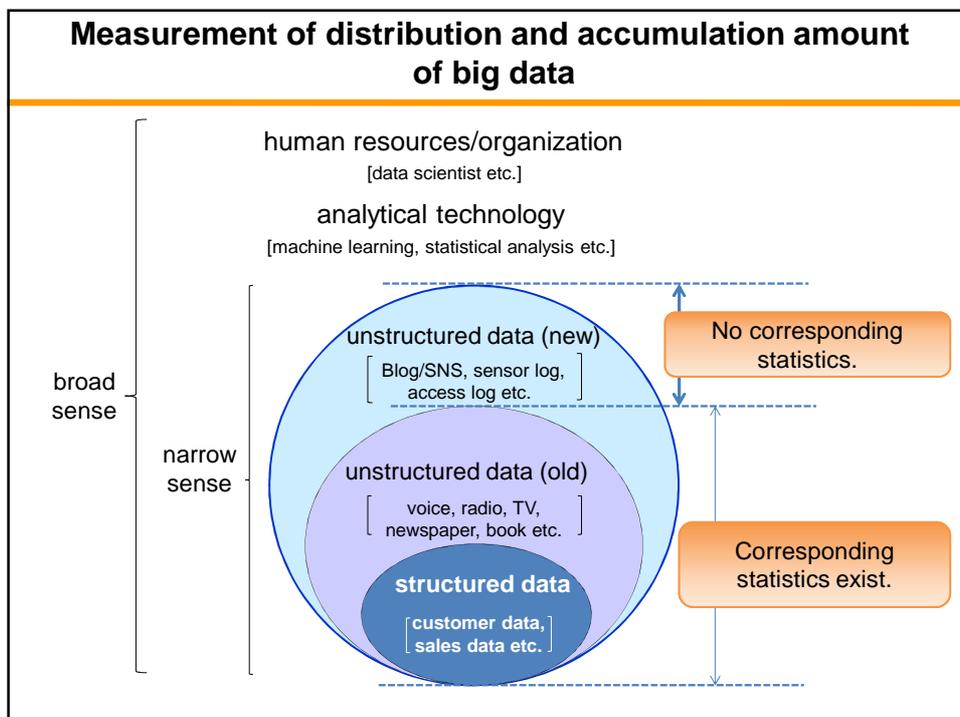
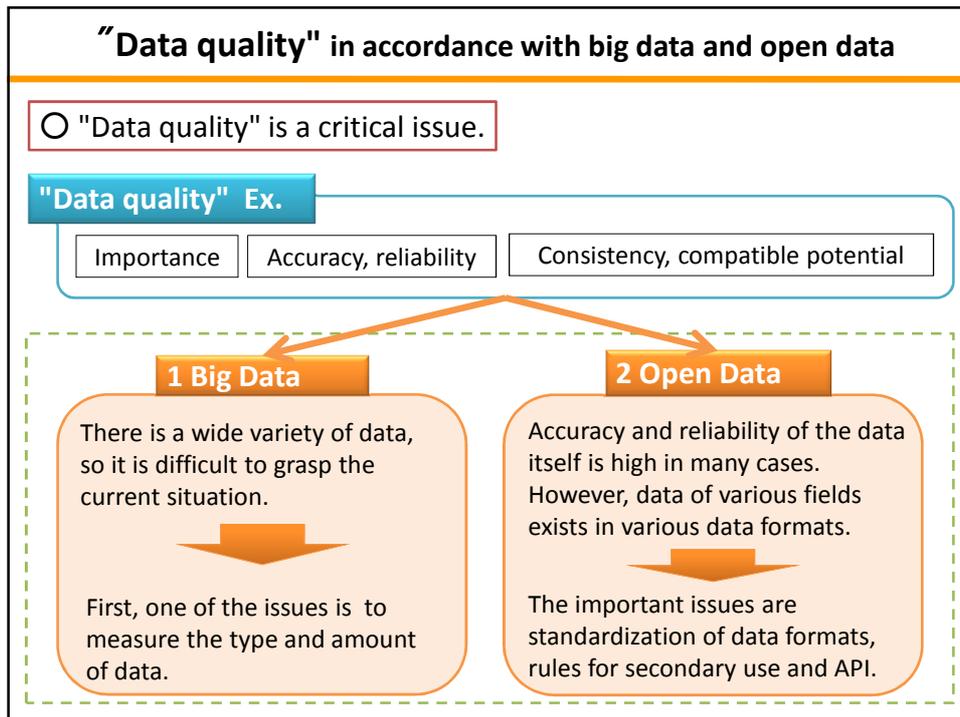
**TITLE:** Efforts for Big Data and Open Data in Japan


 Ministry of Internal Affairs  
and Communications

## Efforts for Big Data and Open Data in Japan

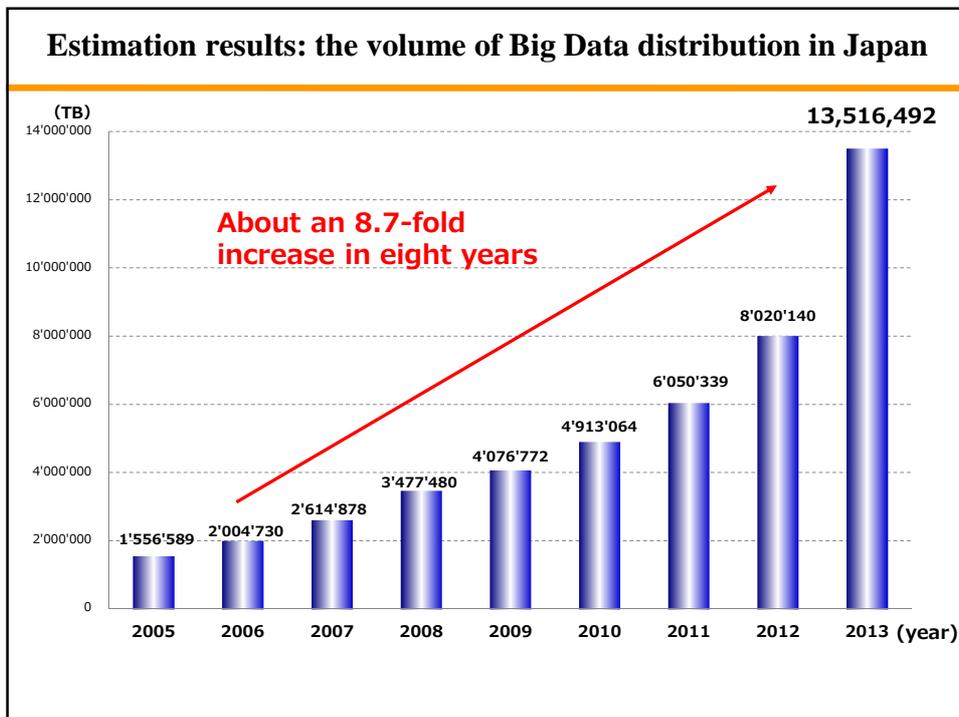
Director General for International Affairs,  
Global ICT Strategy Bureau, MIC, Japan  
**MORI Kiyoshi**  
 25 Nov. 2014

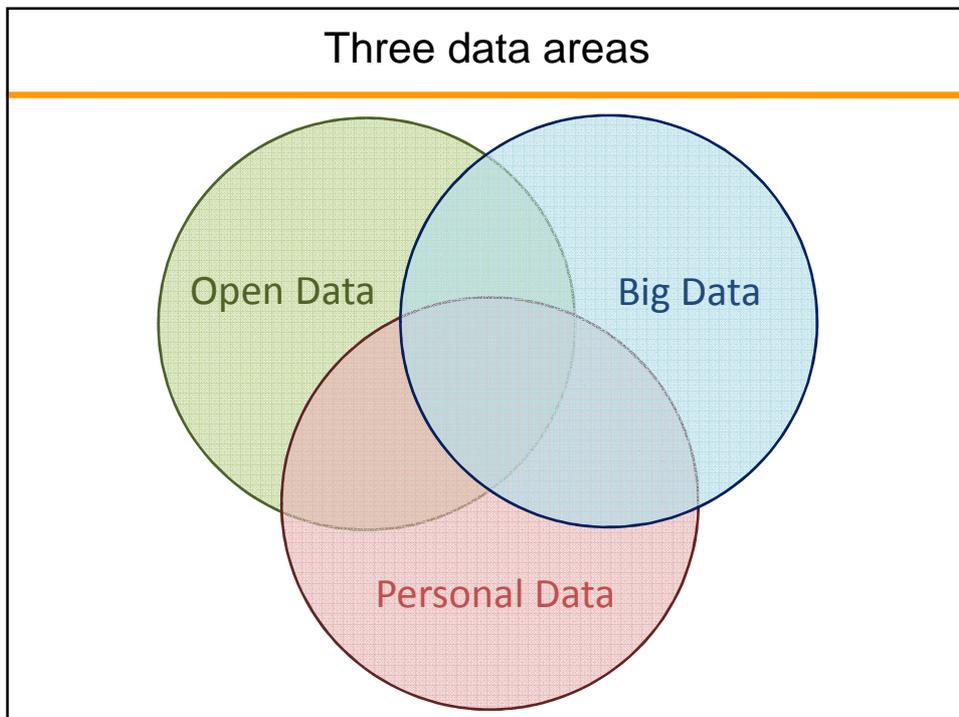
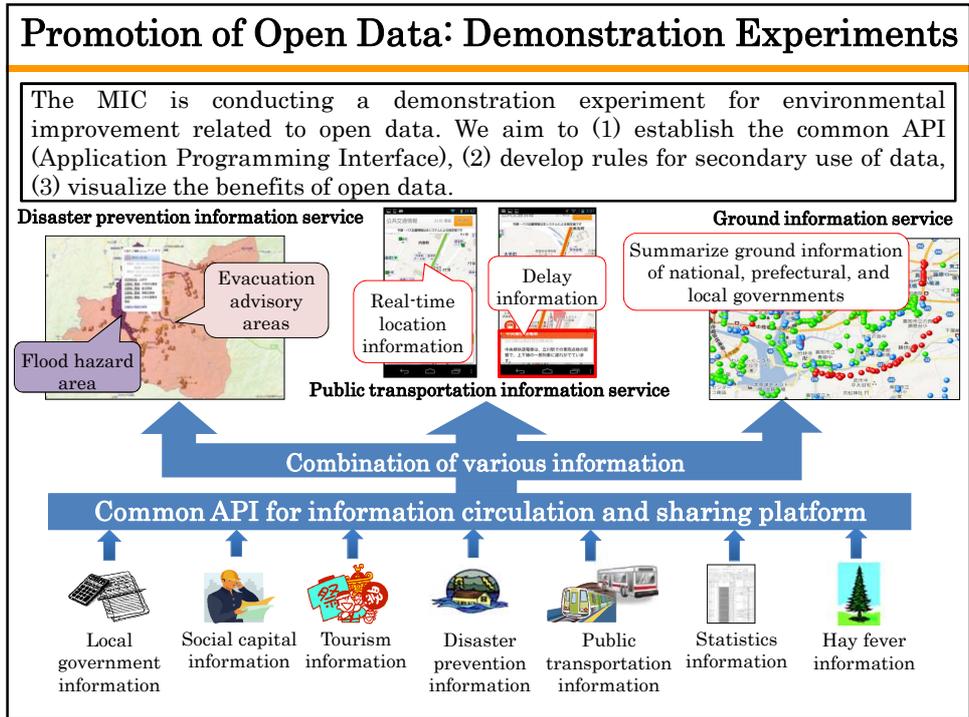




**(Ref.) The targeted media for estimation of Big Data distribution**

	Structured data	Unstructured data
Business system	<ul style="list-style-type: none"> <li>Customer DB</li> <li>POS data (basket data at the point of sale)</li> <li>Accounting data</li> <li>【Medical】 receipt data</li> </ul>	<ul style="list-style-type: none"> <li>Business diary (text)</li> <li>【Medical】 diagnostic imaging (image, still image, movie)</li> <li>【Medical】 electronic health record (text)</li> <li>CTI voice log data (voice)</li> </ul>
Web service (EC, etc)	<ul style="list-style-type: none"> <li>Sales log in e-commerce</li> </ul>	
Sensor GPS M2M	<ul style="list-style-type: none"> <li>GPS data</li> <li>RFID data</li> <li>Weather data</li> </ul>	<ul style="list-style-type: none"> <li>Sensor log</li> <li>Traffic-congestion information</li> <li>Security and remote monitoring camera</li> </ul>
Media content		<ul style="list-style-type: none"> <li>Video and image viewing log</li> </ul>
Personal media social media		<ul style="list-style-type: none"> <li>Blog, SNS articles etc (text)</li> <li>Access log (various logs)</li> <li>Mobile phone [including PHS,voice]</li> <li>E-mail (text)</li> <li>Fixed IP phone[voice]</li> </ul>





## Challenge of data utilization

### 1. Utilization of personal data

(Enterprises)  
High value of data related directly to users

(Consumers)  
Privacy infringement, concerns of exploitation by a third party



**A balance between protection and utilization of personal data is important.**

### 2. Data scientist training

Securing human resources who derive useful knowledge from data and use it to solve problems is important. However, there are few such human resources ("Data Scientist").



**Data scientist training is important.**



Ministry of Internal Affairs  
and Communications

Thank you for your  
attention.

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*Presentation*

**Document C/20-E  
25 November 2014**

**English**

**SOURCE:** World Bank

**TITLE:** Open Data: World Bank's Experience



**Open Data**  
World Bank's Experience



**WORLD BANK GROUP** World Telecommunication  
ICT Indicators Symposium  
Tbilisi, Georgia  
November 25, 2014



**OPEN DATA**  
data.worldbank.org | @worldbankdata

## Agenda

- Introduction
- Open Data at the World Bank
- Quick Tour
- Data Quality & Link to Big Data
- The World Bank's support to a Country's Open Data and the future of data

## What is Open Data, Why do people release it?

"Open Data" has a very precise meaning. According to the [Open Definition](#) (*italics added*):

a piece of data or content is open if **anyone** is **free to use, reuse, and redistribute it**—subject only, at most, to the requirement to attribute (*provide proper citations*) and/or share-alike (*redistribute under the same terms and conditions*).

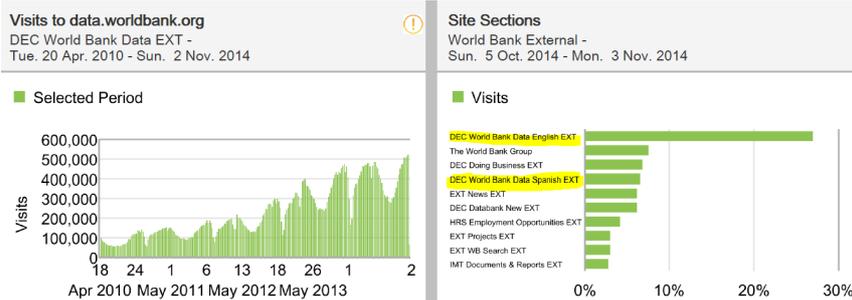
- ❖ For data to be "open" must satisfy two criteria:
  - 1) Being "**technically**" open – findable and available in standard, editable electronic file formats such as CSV, XML, JSON (JavaScript Object Notation) or other machine readable forms via APIs
  - 2) Being "**legally**" open – explicitly released under a license that permits free use, re-use, and re-distribution (e.g. Creative Commons CC-BY). The World Bank's data terms of use provides the legal framework for data opened by the World Bank.
- ❖ The 3 most common reasons for releasing open data are:
  - 1) Transparency – allowing other to monitor and hold data publishers to account;
  - 2) Efficiency and Innovation – opening up data releases potentially hidden value, others can come up with new ideas;
  - 3) Participation and engagement – creating an ongoing dialog and relationship

## How did Open Data start at the World Bank?

- In April 2010, "data.worldbank.org" launched featuring data from the World Development Indicators
- The Open Data Initiatives is evolving effort; now an institution-wide effort bringing together with the shared goal of making the data available and accessible.

## Impacts

- ❖ Significant number of access to the data site “data.worldbank.org”
- ❖ Over 54 million visits since April 2010
- ❖ Over 1/3 of all traffic to the World Bank’s website goes to the data site
- ❖ The data site is #1 reason people visit the World Bank’s websites
- ❖ The World Bank has seen a 10-fold increase in the use of its data



4 Open Data – the World Bank’s Experience



## Quick Tour

<http://data.worldbank.org>

**Data**

By Country | By Topic | Indicators | Data Catalog | Microdata | Initiatives | What's New | Support | Products

This page in [English](#) | [Español](#) | [Français](#) | [العربية](#) | [中文](#)

**World Bank Open Data:** free and open access to data about development in countries around the globe.

2013 Global and Regional Estimates for Child Malnutrition Released  
Posted on 19 Nov 2014

“A World That Counts” - The Data Revolution Report is Out  
Haishan Fu | Posted on 7 Nov 2014

Kenya’s re-based GDP: myths, facts, and the consequences  
Johan Mistiaen, John Randa & Apurva Sanghi | Posted on 13 Nov 2014

[View all news](#) | [View all blogs](#)

**Find an indicator**

GNI per capita, Atlas method (current US\$)

**BROWSE DATA**

[By Country](#) | [By Topic](#)

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**FEATURED**

World Development Indicators  
Open Finances  
Projects & Operations  
Open Government Data Toolkit

**RECENTLY UPDATED**

IDA Results Measurement System  
13 Nov, 2014  
Gender Statistics  
07 Nov, 2014  
[View data catalog](#)

**The World at a Glance**

**Economy & Growth**

GDP (current US\$)

**\$74.91 trillion** 2013

**Health**

Life expectancy at birth, total (years)

**71** 2012

## By Country

### Data

By Country | By Topic | Indicators | Data Catalog | Microdata | Initiatives | What's New | Support | Products

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#### India

South Asia	GDP (current US\$)	\$1.877 trillion 2013
Income level	Population, total	1.252 billion 2013
Lower middle income		

**BROWSE**

- World Development Indicators
- Global Economic Prospects - Forecasts
- Projects & Operations
- Finances
- Surveys
- Climate

[Country Partnership Strategy for India \(FY2015 - 17\) Click here >>](#)

#### World Development Indicators

Graph, map and compare more than 1,000 time series indicators from the World Development Indicators and more than 5,000 indicators from other collections such as Gender Statistics, African Development Indicators, and Education Statistics.

[DATABANK](#) [DOWNLOAD DATA](#)

##### School enrollment, primary (% gross)

113% 2011

##### CO2 emissions (metric tons per capita)

1.7 2010

**ROUP**

## By Country

### Global Economic Prospects - Forecasts

Global Economic Prospects examines trends for the world economy and how they affect developing countries. The report includes country-specific three-year forecasts for major macroeconomic indicators, including commodity and financial markets.

[FORECASTS & ANALYSIS](#) [DATA](#)

##### Annual GDP Growth (%)

##### Current Account Balance, %GDP

#### Projects & Operations

Search, browse and map more than 10,000 projects from 1947 to the present.

[PROJECTS & OPERATIONS](#)

##### Project Map - India

##### IBRD/IDA Operations Approved by Fiscal Year

\$5.109 billion FY2014

##### New and Supplemental Projects by Fiscal Year

17 FY2014

<http://datacatalog.worldbank.org/>

## Data

By Country | By Topic | Indicators | Data Catalog | Microdata | Initiatives | What's New | Support | Products

### Data Catalog

The World Bank's Open Data initiative is intended to provide all users with access to World Bank data, according to the Open Data Terms of Use. The data catalog is a listing of available World Bank datasets, including databases, pre-formatted tables, reports, and other resources.

Access to Information | Download Data Catalog | Data Catalog API

200 records found

REFINE BY:

- Topics
- Economy Coverage
- Periodicity
- Access Options

Sort By: Most Popular | Alphabetical | Last Updated

#### World Development Indicators (WDI)

Recently updated

The primary World Bank collection of development indicators, compiled from officially-recognized international sources. It presents the most current and accurate global development data available, and includes national, regional and global estimates.

Type: Time series | Periodicity: Annual | Last Updated: 06-Nov-2014 | See More +

#### GDP ranking (GDP)

Gross domestic product ranking table.

Type: Time series | Periodicity: Annual | Last Updated: 24-Sep-2014 | See More +

#### Africa Development Indicators (ADI)

The primary World Bank collection of development indicators on Africa, compiled from officially-recognized international sources. It presents the most current and accurate global development data available, and includes national, regional and global estimates.

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## World Development Indicators Online Tables

THE WORLD BANK | Working for a World Free of Poverty

### 2014 People | 2.1 World Development Indicators: Population dynamics

Show Metadata Links

Data > Data Catalog > World Development Indicators > Tables > 2.1

	Population			Average annual population growth %		Population age composition			Dependency ratio		Crude death rate	Crude birth rate
	millions			2000-12	2012-25	Ages 0-14	Ages 15-64	Ages 65+	young	old	per 1,000 people	per 1,000 people
	2000	2012	2025			%	%	%	% of working-age population	% of working-age population		
Vietnam	77.6	88.8	97.0	1	1	23	71	7	32	9	6	16
Virgin Islands (U.S.)	0.1	0.1	0.1	0	0	21	64	15	32	24	8	11
West Bank and Gaza	2.9	4.0	5.5	3	2	41	56	3	72	5	3	31
Yemen, Rep.	17.5	23.9	31.3	3	2	41	56	3	72	5	7	31
Zambia	10.1	14.1	21.4	3	3	47	51	3	92	5	11	43
Zimbabwe	12.5	13.7	18.7	1	2	40	56	4	72	7	10	32
<b>World</b>	<b>6,102.1</b>	<b>7,043.9</b>	<b>8,038.1</b>	<b>1</b>	<b>1</b>	<b>26</b>	<b>66</b>	<b>8</b>	<b>40</b>	<b>12</b>	<b>8</b>	<b>19</b>
<b>Low income</b>	648.2	846.5	1,113.2	2	2	39	57	4	69	7	9	32
<b>Middle income</b>	4,243.3	4,897.6	5,567.9	1	1	27	67	6	40	10	8	19
<b>Lower middle income</b>	2,077.9	2,507.0	2,970.9	2	1	31	63	5	50	8	8	23
<b>Upper middle income</b>	2,165.4	2,390.6	2,596.9	1	1	22	70	8	31	11	7	15
<b>Low &amp; middle income</b>	4,891.5	5,744.1	6,681.1	1	1	29	65	6	44	9	8	21
<b>East Asia &amp; Pacific</b>	1,912.2	1,991.6	2,151.4	1	1	21	71	8	30	11	7	14
<b>Europe &amp; Central Asia</b>	258.5	270.8	283.8	0	0	22	68	10	32	15	9	16
<b>Latin America &amp; Caribbean</b>	500.3	581.7	672.1	1	1	22	68	10	42	11	6	19
<b>Middle East &amp; North Africa</b>	276.6	339.1	411.6	1	1	22	68	10	47	7	6	24
<b>South Asia</b>	1,382.2	1,649.2	1,916.2	1	1	22	68	10	47	8	8	21
<b>Sub-Saharan Africa</b>	663.7	911.5	1,262.7	3	3	43	54	3	80	6	11	38
<b>High income</b>	1,210.6	1,299.8	1,357.0	1	0	17	67	16	25	23	9	12
<b>Euro area</b>	317.6	333.3	339.8	0	0	15	66	19	23	29	10	10

http://wdi.worldbank.org/tables

You are here > Data > Data Catalog > World Development Indicators > Tables > 2.1

Help/Feedback

## Data Quality

### Legal Framework for data opened by the World Bank

- ❖ **The Open Data Terms of Use** (<http://data.worldbank.org/summary-terms-of-use>)

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- ❖ **Access to Information Policy**



10 Open Data – the World Bank's Experience



## Link to Big Data

<http://data.worldbank.org/developers/>

**Data**

By Country	By Topic	Indicators	Data Catalog	Microdata		Initiatives	What's New	Support	Products
------------	----------	------------	--------------	-----------	--	-------------	------------	---------	----------

This page in: [English](#) | [Español](#) | [Français](#) | [العربية](#) | [中文](#)

### For Developers

**About the API**

The World Bank currently has three different APIs to provide access to different datasets: one for Indicators (or time series data), one for Projects (or data on the World Bank's operations), and one for the World Bank financial data (World Bank Finances API). All three APIs implement RESTful interfaces to allow users to perform queries of available data using selection parameters. For the Indicators API, XML and JSON representations are available; for the Projects API, Atom representation is also available; for the World Bank Finances API, XML, JSON and RDF representations are available.

The API Overview page describes how to query the Indicators API, demonstrate specific queries and show expected results, and give several examples. Explore the Projects API page allows users to pick different options to see the corresponding API request and response format. Details on the API used for World Bank Finances can be found on the Open Data API site.

**About the Data**

The World Bank Indicators API lets you programmatically access more than 8,000 indicators and query the data in several ways, using parameters to specify your request. Many data series date

**For Developers**

- API Documentation
- API Sources
- App Competitions
- Application Showcase
- Apps for Development Competition
- Data Catalog API
- Development Best Practices
- Widgets
- Climate Data API
- World Bank Finances

**Join the Discussion** »

## Link to other applications

Data

By Country | By Topic | Indicators | Data Catalog | Microdata | Initiatives | What's New | Support | Products

This page in: [English](#)

### Application Showcase

The World Bank's new Open Data Initiative, launched April 20, 2010, made key data sets including the World Development Indicators, Africa Development Indicators, Global Finance Indicators, and Doing Business Indicators free for all.

If you have an application that you'd like featured here, let us know.

Below are applications or libraries written using World Bank data.



Google's Public Data Explorer uses Google tools, including motion charts, to visualize and explore data from the World Bank and many other providers. [more](#)



Windows Azure Marketplace enables users to access rich premium and public domain data from leading providers like World Bank using tools like Excel and PowerPivot. [more](#)



The wbiapi and wbiquery Drupal modules provide request handling and views integration for the World Bank Data API. These modules make it easy to pull in data from the API and display it in custom "views". [more](#)



Geo.me Solutions has created a web application that uses Google's Visualization API to display indicators from the Bank's WDI dataset on a world map. [more](#)



wbiopendata allows Stata users to download over 3,000 series of indicators from the World Bank databases. This module allows users live access to the databases.

#### For Developers

- [API Documentation](#)
- [API Sources](#)
- [App Competitions](#)
- [Application Showcase](#)
- [Windows Azure Marketplace](#)
- [Drupal Integration Module](#)
- [Geo.me Data Mapping](#)
- [wbiopendata: Stata module to access World Bank databases](#)
- [Apps for Development Competition](#)
- [Data Catalog API](#)
- [Development Best Practices](#)
- [Widgets](#)
- [Climate Data API](#)
- [World Bank Finances](#)

Join the Discussion »

API Query Builder »

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## Example: Google Public Data Explorer

Google

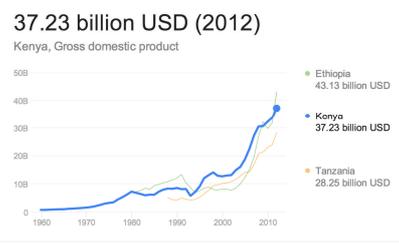
+ Tariq | Share

Web | News | Images | Maps | Shopping | More | Search tools

About 12,900,000 results (0.37 seconds)

### 37.23 billion USD (2012)

Kenya, Gross domestic product



Explore more

Sources include: World Bank

[Kenya Home - World Bank](http://www.worldbank.org/en/country/kenya)

Access Kenya's economic data, statistics, project information, development research from ... GDP, \$40.70 billion, 2012 ... Kenya's Trendy Jewelry Goes Global.




### Kenya

Country

Kenya, officially the Republic of Kenya, is a country in the African Great Lakes region of East Africa. Its capital and largest city is Nairobi. [Wikipedia](#)

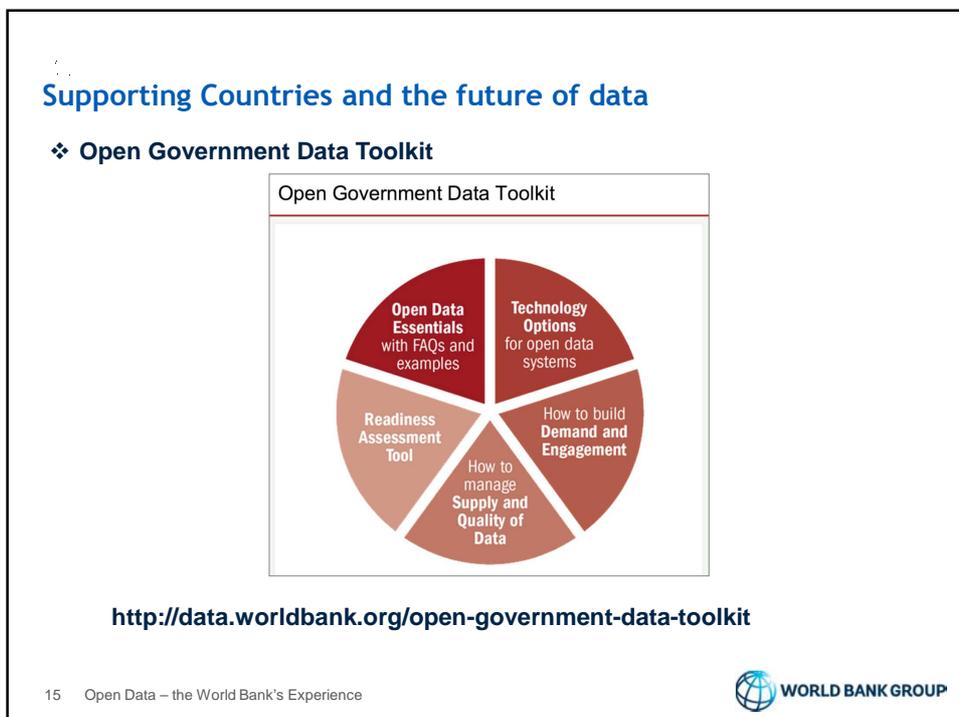
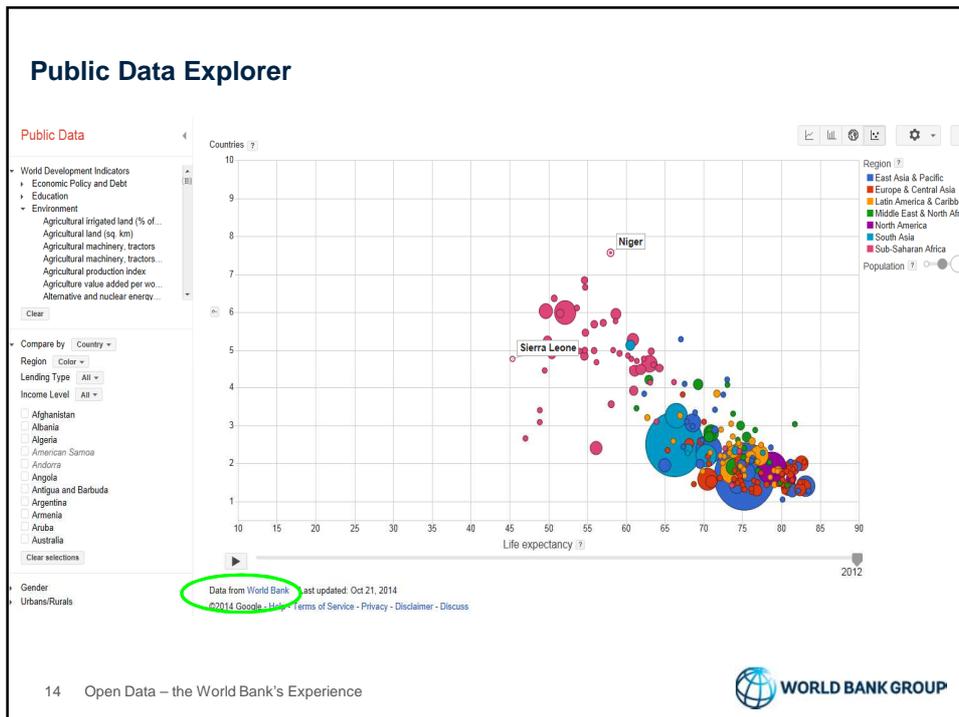
#### Related statistics

Population	43.18 million (2012)	
GDP per capita	862.23 USD (2012)	
Gross national income	76.05 billion PPP dollars (2012)	

Gross domestic product elsewhere

13 Open Data – the World Bank's Experience





## ❖ Example of Open Data Scorecard

Leadership	Green	Commitment at top; Commitment and Awareness at all Ministries/agencies level
Policy	Yellow	A progressive FoIP exists, but implemented inconsistently across agencies. Harmonization of implementation following Open Data principles needed
Institutions	Green	Inter-agency mechanism for Open Gov exists; expand for Open Data?
Data	Yellow	Early-movers have been identified. High-value data available in e-format but not published yet in such format. Still lots of paper information across ministries/agencies
Demand	Red	Weak demand outside government has been identified. Capacities needed particularly in media, CSOs, and ICT community
Data Ecosystem	Red	Innovation is not strongly supported. Advocacy & Capacities needed
Finance	Yellow	A specific budget for OD must be allocated, but existing funding exists for the whole e-gov framework
Infrastructure	Yellow	Strong inter-gov infrastructure. Very weak external infrastructure, very low ICT usage at the country level

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# Thank you

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 World Bank  
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**12<sup>th</sup> World Telecommunication/ICT Indicators Symposium  
(WTIS-14)**

**Tbilisi, Georgia, 24-26 November 2014**



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***Presentation***

**Document C/21-E  
25 November 2014**

**English**

**SOURCE:** e-Government Center, Moldova

**TITLE:** Moldova's experience with Open Data Initiative

# Moldova's experience with Open Data Initiative



**Livia Turcanu**

Product platform consultant

E-Government Center Moldova

[livia.turcanu@egov.md](mailto:livia.turcanu@egov.md)

Tbilisi, November 25th, 2014



# STARTING THE JOURNEY



**WORLD BANK** as the main donor driver for Open Governance and Open Data

## **THE GOVERNMENT OF MOLDOVA**

enabling and aligning OD and OD-based innovations to the legal and institutional framework

## 2010-2011

Strong commitments and political support



## date.gov.md

The screenshot displays the homepage of the Open Data Portal for Moldova. At the top, there is a navigation bar with the text 'Guvernul Republicii Moldova' and 'Portalul Guvernamental al Datelor Deschise'. Below this, a search bar contains the text 'Căutare site'. The main content area features a large white box with the number '782' and the text 'seturi de date (3358 resurse)'. To the right of this box is a search input field with the placeholder text 'Căutare seturi de date'. Below the search bar, there is a list of categories: 'sănătate (88) • instituții medico-sanitare publice (56) • spital (55) • infracțiuni (23) • școli (19) • Camera de Licențiere (17) • forță de muncă (14) • elevi (14) • cheltuieli (14) • buget (13) • cultură (13)'. In the bottom left corner, there is a yellow banner for 'Biroul Național de Statistică al Republicii Moldova'. In the bottom right corner, there is a green box titled 'Noutăți' (News) containing a list of recent updates with dates and titles.

-782 datasets

- Open Data publication Methodology

- A network of 30+ OD focal points

- 19 open data Apps on the portal

- 160,838 downloads in 2014

# First Steps towards Open Data



April

May

June

July

December

2011

Launch of the portal

Launch of BOOST

Portal User's Manual

TechCamp

Prime Minister's Directive  
(Institutionalization of ODI)

Hans Rosling

Launch of Apps Contest

V 2.0 portal launched

# Open Government Action Plan Consultations



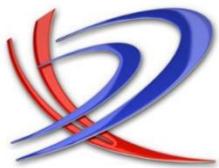
**List of public government data to be open in 2012 – consulted with civil society**



**Open Data Catalogues of Central Public Institutions**



# Open Innovation Week, May 2012



date.gov.md  
Portalul datelor deschise



open  
development  
technology  
alliance



World Bank  
Institute

Open  
Government  
Partnership



Data Journalism Bootcamp  
BOOST training  
Open Government Day  
Apps for Moldova  
Open Data Knowledge Exchanges

# WHAT Government Data to Open?

Priority



Information systems  
(Structured data)

Q	R	S	T	U	V	W	X	Y
111	Retribuire	47924500	17686577	3044855	2514814	2921870	4777697	4427340
111	Retribuire	413000	31593.21	0	0	0	11320.48	20272.73
112	Contributi	10584100	4025049	693061.7	573224.7	667313.6	1093442	998006.7
112	Contributi	9500	267.48	0	0	0	2604.75	4662.73
113	Plata marf	28018.5	7755.2	22720.5	9978	1915086	1873592	
113	Plata marf	59200	78956.6	0	0	9075	10441.74	60508.67
114	Deplasari	5220200	1232676	156612.3	189395.6	77635.55	444394.1	364638.8
116	Prime de	1609800	612507.5	105465.9	87279.85	101547.7	166393.4	151870.6
116	Prime de	11000	25.55	0	0	0	0	709.55
132	Transferuri	21900	259.0	0	0	0	0	0
135	Transferuri	5173400	1002594	14118.04	185757.9	227162.4	223979.1	351576.4
136	Transferuri	7000	0	0	0	0	0	0
242	Procurare	476900	16820	0	16	0	0	0
111	Retribuire	89000	26398	43588	4238	2638	4483	636115.7
112	Contributi	1729200	596806.2	100249.8	95630.35	154768.1	101606	144551.5
113	Plata marf	3975000	294565.7	0	199216.1	32083.54	28685.56	34580.45
113	Plata marf	10000	0	0	0	0	0	0
114	Deplasari	2260000	0	0	0	0	2600	22488
116	Prime de	263200	91000	0	0	23551.03	15461.85	21996.97
135	Transferuri	529100	171973.6	0	25328.31	44517.8	27385.13	74742.35
242	Procurare	2268000	7599.2	0	0	0	0	7599.2
111	Retribuire	22208600	6875089	1096460	1115385	1204398	1340241	2118605
112	Contributi	4988000	1568824	252185.8	254537.6	275240.5	303827.9	483032.2
113	Plata marf	6856800	937013	5490.05	177047	216976.9	202729.1	334770

Manually collected data  
(Data in Word, Excel)

Sectorial data

KPI data

Sectorial data

KPI data

Paid data?

Integrate through API

Data Structure Guide  
to ensure easy reuse

5 ★ Open Data

New Open Data Portal  
CKAN and Drupal  
Launched in Feb 2014

# Open Data Applications



Open Procurement



Open Budget Spending



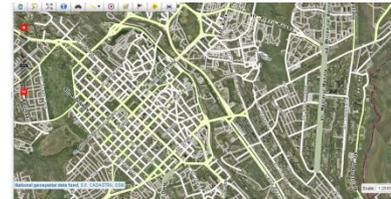
Open Foreign Aid



Open Legislation



Open National Statistics



Open Geoportal



# Latest progress



February

May-June

August

2014

[www.date.gov.md](http://www.date.gov.md)  
Version 0.3

Public consultations on:

- Open Data concept
- Open Data publication methodology

**Open data as default policy  
for the Government of Moldova**

# Legal Framework

 Law nr. 982-XIV from 11.05.2000 on **access to information**

 Law nr. 305 on **public sector information reuse**

 Government Decision nr. 886 from 08.11.2013 on the approval of **Methodological norms on applying Law nr. 305 on public sector information reuse**

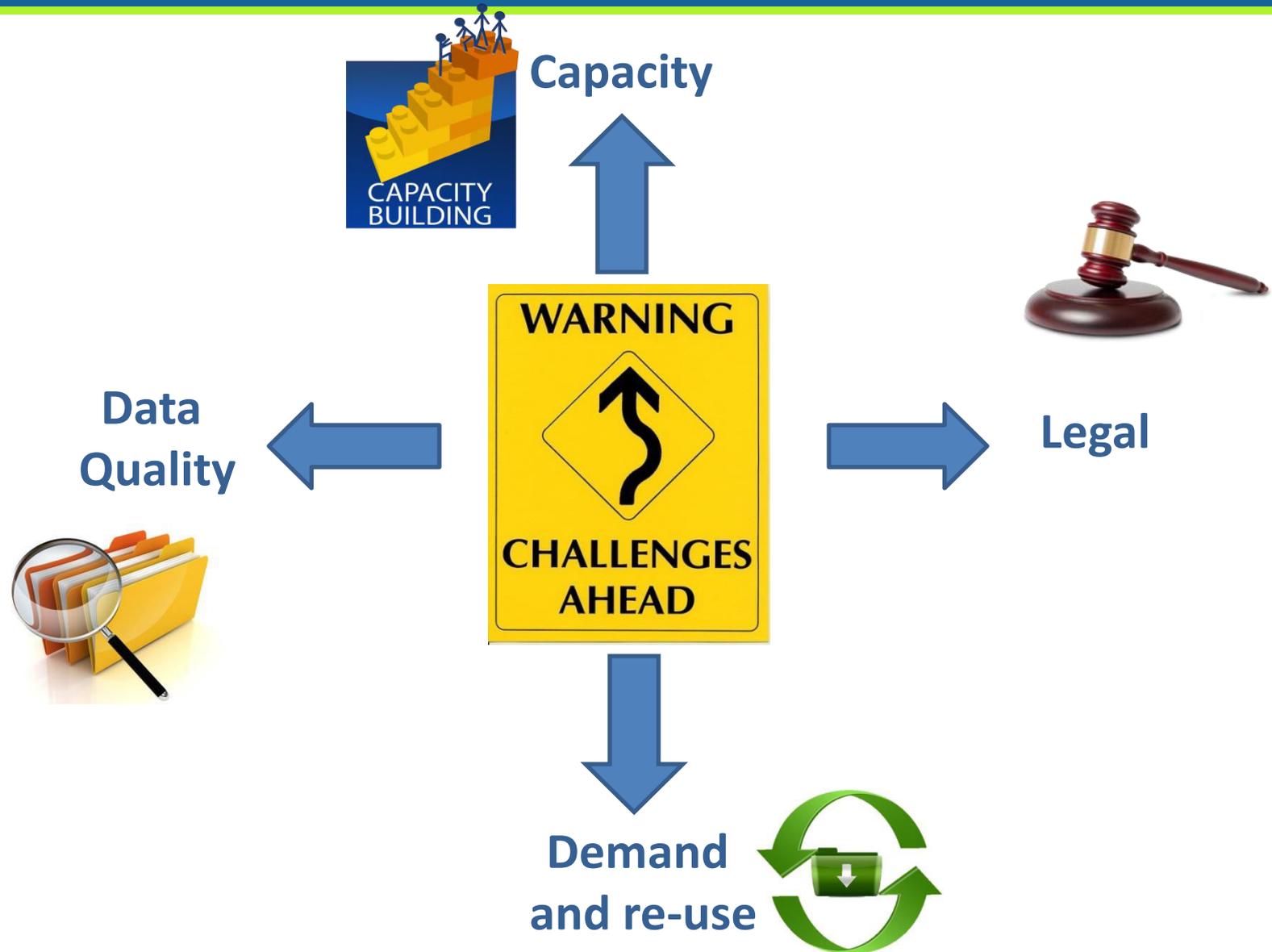
 Open Data License

 Government Decision nr. 133 from 08.07.2011 on **personal data protection**

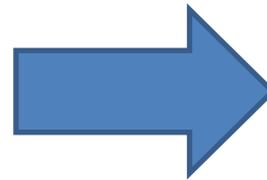
 Government Decision nr. 700 from 25.08.2014 on the approval of **Open Data Policy** (outlining the principles of open data)

 Government Decision nr. 701 from 25.08.2014 on the approval of **Open data publishing methodology**

# OPEN DATA CHALLENGES IN MOLDOVA



## Open data quality



Has multiple dimensions and it is more than data correctness: accuracy, availability, completeness, relevance, validity, timeliness, processability, etc.



## **Purpose:**

to create a regulatory framework on the open data principles applied nation-wide and define the minimum open data requirements

# OPEN DATA PRINCIPLES

- ✓ Opening up data implicitly and proactively
- ✓ Protecting sensitive data
- ✓ Opening up primary data
- ✓ Availability online
- ✓ Publishing timely data
- ✓ Publishing data in open and automatically processable formats
- ✓ Accurate and representative metadata
- ✓ Publishing bulk data

# DATA QUALITY CHALLENGES



Information systems  
(Structured data)



Sectorial data



KPI data

Q	R	S	T	U	V	W	X	Y
ol	art_name	precizat	executat	executat0	executat0	executat0	executat0	executat0
111	Retribuire	47924500	17686577	3044855	2514814	2921870	4777697	4427340
111	Retribuire	413000	31593.21	0	0	0	11320.48	20272.73
112	Contributi	10584100	4025049	693061.7	573224.7	667313.6	1093442	998006.7
112	Contributi	99100	667.48	0	0	0	2604.75	4662.73
113	Plata marl	2801100	139592.1	22288.5	200200	18111.8	1915086	1873592
113	Plata marl	59200	71958.21	0	0	0	10441.74	60508.67
114	Deplasari	5220200	1232676	156612.3	189395.6	77635.55	444394.1	364638.8
116	Prime de	1609900	612507.5	105465.9	87239.85	101547.7	166393.4	151870.6
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132	Transferui	2100	194.16	0	0	0	2200	0
135	Transferui	5173400	1002594	14118.04	185757.9	227162.4	223979.1	351576.4
136	Transferui	7000	0	0	0	0	0	0
242	Procurare	476900	16920	0	1600	0	0	0
111	Retribuire	192200	122098	13588	42100	6630	14130.2	636115.7
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116	Prime de	263200	911113	3300	23113	23551.03	15461.85	21996.97
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242	Procurare	2268000	7599.2	0	0	0	7599.2	0
111	Retribuire	22208600	6875089	1096460	1115385	1204398	1340241	2118605
112	Contributi	4988000	1568824	252185.8	254537.6	275240.5	303827.9	483032.2
113	Plata marl	6856800	937013	5490.05	177047	216976.9	202729.1	334770

Manually collected data  
(Data in Word, Excel)



Sectorial data



KPI data

# CHALLENGES WITH DATA QUALITY

- The need of a standardized and centralized data collection mechanism
- Difficulty in handling the data collection process in the regions
- The need of standardized procedures for data collection in the public authorities – > **open by design**



# OPPORTUNITIES

## **Information management systems:**

*Examples:* Ministry of Education, Ministry of Health, Ministry of Environment, etc.

Better quality data from priority sectors

## **Increased feedback from data users :**

Will help increase the open data quality by pointing to concrete issues in the datasets

## **Interoperability platform:**

*Examples:* MConnect, Government Interoperability Platform of Moldova

# Thank You for your attention!



**Facebook** – Date Guvernamentale  
Deschise

**Twitter** – @OpenGovMD  
@DateDeschiseMD



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**12<sup>th</sup> World Telecommunication/ICT Indicators Symposium  
(WTIS-14)**

**Tbilisi, Georgia, 24-26 November 2014**



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***Keynote address***

**Document C/22-E  
26 November 2014**

**English**

**SOURCE:** Statistician-General, South Africa

**TITLE:** Keynote: The tetralemma of statistics, communications technology and power: Challenges of the Post 2015 Agenda

The tetralemma of statistics, communications technology and power: Challenges of the Post 2015 Agenda.

Pali Lehohla

Statistician-General

South Africa

Tbilisi-Georgia 24-26 November 2014

The metaphor of Arsukides chisel-holding-right-hand at the Svetitskhoveli Basilica in Mtskheta reflects the tetralemma of showing or talking truth to power. At times they may not like it.

Throughout life not once has the tetralemma of statistics, communication technology and power threatens the foundations of society like they do in an information society.

I am greatly honoured to be invited to address you at the gathering of the International Telecommunication Union (ITU). This is especially so for me who is not a specialist on communications technology. My area of work is one of measurement; namely collecting the facts about phenomena and reporting on such observations through the lens of numbers. I feel the welcoming warmth of the City of Tbilisi as if the legendary King Vakhtang I Gorgasali has delegated his son King Dachi I Ujarmeli to receive me in this city drumming with history and influence since time immemorial. King Tamar stands as the symbol of how deep gender equality was understood in Georgia and gender activists owe a priceless debt to King George and his daughter King (Queen) Tamar as founders of gender equality. They are worth canonising for their farsighted leadership in driving the gender sensitised meritocracy agenda. One other monarch to recognise this is King Moshoeshoe, the founder of the Basotho nation. If he had his way his daughter Senate would have been king but his desires could not pass the patriarchal advisory council. The path to social, economic and political justice is paved with many such obstructive advisory types of council. Even the legacy of King George of gender equality could not be sustained. These obstructions frame my response to this report on Measuring the Information society 2014. I have thus framed my response "The tetralemma of statistics, communications technology and power: Challenges of the Post-2015 Agenda."

It gives me even greater pleasure to address an organization that is almost 150 years, the ITU itself having been established in 1865. Its Siamese twin, the International Statistics Institute (ISI) to which I belong had a delayed birth. Born twenty years later in 1885 it has however proven to mature much faster with fifty nine World Congresses under its belt since its birth compared to 12 of WTIS. Very few associations have had the resilience to survive this long as they speak and communicate truth to power. My rendition is about the tetralemma of the triumvirate of statistics, communication technology and power. I have framed the tetralemma

through the metaphor of the sculpture of Arsukides chisel holding hand engraved at the Svetitskhoveli Basilica in Mtskheta.

Legend has it that Arsukides' scientific architectural designs at Svetitskhoveli Basilica in Mtskheta won him wrath at the highest level. It cost him his right hand. The sculpture of his chisel holding hand is a reminder of how his unprecedented artistic and scientific architectural design and construction is said to have challenged the power of his patron and teacher who influenced King George to have his right hand chopped. The external northern wall has an inscription that reads "the hand of Arsukidze, slave of God, may forgiveness be his." To the east another inscription reads "this holy church was built by the hand of Thy wretched servant, Arsukides. May your soul rest in peace, O master. Galileo Galilee in his grave knows the consequences of speaking truth to power. It cost him his life. The dynamic and consequences of results of scientific enquiry, the communication thereof to power, their appropriation and deployment by communities of practice reflect the struggle of society as it changes its production relations, the structure of its productive forces and how it gives rise to a new socio-economic and political form.

The tetralemma of statistics, communication technology and power is brought about by the irresistible affinity of living organisms to be prey to conflict of interest. Napoleon the Bonaparte was said to be a keen user of statistics as a management tool. Laplace, the prime mover of Bayesian theory lived in Napoleon's palace. But then Napoleon used statistics by and large as an exclusive weapon for leadership rather than a public good. The dilemma then was whether the plebiscite had a say in their own affairs or they relied and depended on benevolent dictatorship. Napoleon through the revolution introduced a more warrior like France and led to French demise spurred by the failed invasion of Russia. However on the positive side Napoleon managed to abolish serfdom and slavery and introduced the metric system that has made our measurement so efficient today.

The height of the crisis of the tetralemma of statistics, communication technology and power displays itself in the twentieth and twenty first century through the crash of the stock exchange and war. The two World Wars and the Cold War just marked the extent to which temporally and spatially: statistics, information technology, resource and power asymmetries are capable of plunging the world into a crisis. The dotcom bubble was just a feature of how communications technology generated an exaggerated view of itself, an aspect of the tetralemma. The more recent 2008 financial crisis that led the economy of the world to an abyss, just demonstrated how vulnerable the interconnected world can be and that the obfuscation of statistics driven by corporate greed largely in the United States and Europe collapsed the world. The lack of harmony in statistics, communication technology and power in the modern world is what undermines an information society. The so called Arab spring was characterised by a heightened disjuncture and tetralemma across the centrifugal forces of statistics, information technology and power.

The Measuring the Information Society Report by itself mirrors these social struggles and gives a spatial and temporal narrative of their theatrics. The report problematizes the characteristics of an information society by providing the schematic contours country by country and region by region. In its detail the report subtly frames the fundamental postulate of the emergent and yet metamorphosing political economy of an information society. It silently poses profound questions of why societies and communities differ in value creation and value appropriation of information technology. It presents vital statistics of who are going to be heirs to information technology as well as who are emerging as harmonious information societies, and by the same token reflects the flipside of who are representing a deformed strata of information society. It lays bare the facts about uneven development and podcasts these phenomena unambiguously to power and for power to know. It thus brings out the skeleton of this tetralemma of statistics, communications technology and power out of its comfortable place. The report causes society to engage in uncomfortable and disruptive discussions and questioning. This is so especially in the light of socially desirable *utopia* promise propounded by the Secretary General of the United Nations of living no one behind; putting sustainable development at the core; growing economies for jobs and creating just and accountable societies. These desirable states espoused by the Secretary General of the United Nations of the Post 2015 agenda drives the tetralemma of statistics, communications technology and power for which the report is the gunpowder. The report propels Data Revolution to take centre stage of an information society.

The report points to Denmark as a country that has appropriated the virtues of information and communication technology the most. In fact six Scandinavian countries feature in the top ten on IDI use. This prominent Scandinavian record however compares less favourably when we consider ICT Development Index (IDI) skills sub-index where only two of the Scandinavian countries feature in the top ten and Denmark coming in at position twelve. In this regard the report points to Greece in the first slot of skills sub-index. It is difficult to absorb this fact given the economy and social strife in Greece, but therein another PIGS country ranks high, Spain comes up ninth ahead of Iceland the second only Scandinavian country to Finland in this aspect of the measurement.

Another source of information complementing this report is the Human Development Index (HDI) of the United Nations Development Programme. Quoting Confucius the report says "In a country well governed, poverty is something to be ashamed of. In a country badly governed, wealth is something to be ashamed of."

This quotation provides the synthesis of these two reports. In the HDI, the Scandinavian countries are doing very well and the only feature letting them down is that their Gross National Income (GNI) per capita is moderate, except Norway probably spurred by oil incomes. The Republic of Korea featuring as second on the IDI also has a modest GNI per capita.

Taken as a group, the Scandinavian countries have displayed a long history of strong values of social democracy and human solidarity with sustained underlying statistics, technology and accountability based systems of power. Their common thread with Korea is one of a developmental state and Korea's variant arises out of a bitter struggle of just above half a century ago. The solidarity of Korea and its pride of defeating adversity in just half a century and advancing the notion of development partnership remains the most recent beacon of hope that an information society is possible as witnessed in the long established tradition by Scandinavian countries.

It is possible that the tetralemma of statistics, communication technology and power can be tamed and an information society where the need to and the ability of knowing remain an unmitigated default position delivering statistics through communication technology and power shared leadership. The tetralemma of statistics, communication technology and power can and should be solved. A society where human solidarity and sustained development is statistics based, communications technology driven and power sharing led is within our reach. It is a society where Arshakidze should have been rewarded for building a magnificent Svetitskhoveli Basilica in Mtskheta instead of his hand being chopped off based on superstition, jealousy, lies and ignorance. Galileo Galilee would have been a laureate for his scientific discovery of the sun being the centre of the universe instead of being guillotined for blasphemy against God. King George and King Moshoeshoe would not have to be disturbed in their eternal sleep in the knowledge that they ushered to the world a meritorious society devoid of gender discrimination.

Measuring the Information Society Report 2014 provides the crucial jewels of knowledge and understanding of the fundamental principles that give birth and meaning to an information society. Where it works, how it works and why it works. It is for society to read the report and find out so that sustainable livelihoods can be successfully led and the promise of the post-2015 agenda of sustainable development delivered.

Didi madloba

**12<sup>th</sup> World Telecommunication/ICT Indicators Symposium  
(WTIS-14)**

**Tbilisi, Georgia, 24-26 November 2014**



---

*Presentation*

**Document C/23-E  
26 November 2014**

**English**

**SOURCE:** ITU

**TITLE:** Measuring the Information Society Report 2014



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



## Measuring the Information Society Report 2014

26 November 2014, Tbilisi, Georgia

Measuring the Information Society Report 2014



ICT Data and Statistics Division  
International Telecommunication Union

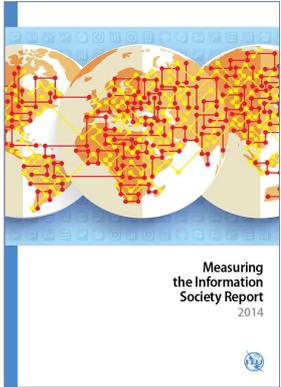
24 November 2014

## Index



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- **Recent information society developments**
- The ICT Development Index (IDI)
- ICT prices and the role of competition
- The role of big data for ICT monitoring and for development

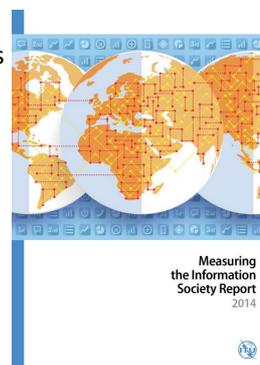


## Measuring the Information Society Report 2014



3

- Latest trends in ICT developments worldwide
  - ▣ Fixed/mobile market, Internet usage, revenue, investment, ICT in schools, e-government, e-business
- ICT Development Index (IDI)
  - ▣ Digital divide, regional analysis, top and dynamic performers, IDI and MDGs, IDI and geography
- ICT prices and the role of competition
  - ▣ ICT Price Basket (IPB) and income distribution
  - ▣ Impact of competition/regulation on prices and affordability
- Big data from the telecommunication/ICT industry
  - ▣ Big data as a source of real-time information
  - ▣ Challenges and opportunities



**Full report available online (except for Annex 4)  
Executive Summaries in 6 languages (available shortly)**

## Measuring the Information Society Report 2014 statistical highlights



- Mobile broadband is driving ICT growth
  - ▣ Global mobile-broadband penetration increased from 9% to 32% in the last five years
  - ▣ Africa stands out with a mobile-broadband growth rate of over 40% in 2014
  - ▣ 3G progressing in developing countries, and mobile-broadband penetration 21%
  - ▣ 3G+ techs driving mobile-broadband penetration in developed countries: 84% in 2014

## Measuring the Information Society Report 2014 statistical highlights



- ❑ Internet access and use growing steadily
  - ❑ Almost 44 per cent of the world's households have Internet access at home
  - ❑ Growth driven by developing countries in 2014: 14% as against 4% in developed countries
  - ❑ Internet users doubled in five years to reach 3 billion, 2/3 live in developing countries
  - ❑ Globally, around 40% of the population is using the Internet (45% if excluding China and India)

## Measuring the Information Society Report 2014 statistical highlights

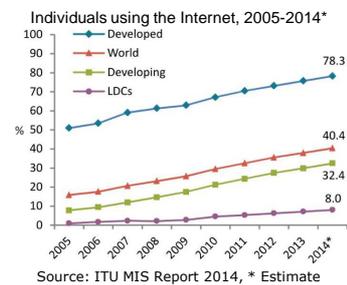
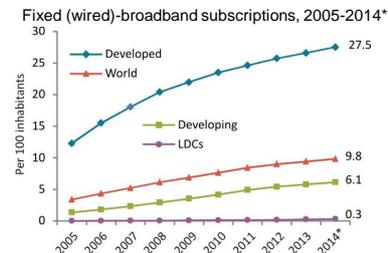


- ❑ Mobile-cellular and fixed-broadband uptake slowing down
  - ❑ Growth in mobile penetration slows to a ten-year low of 2.6%
  - ❑ Mobile markets have reached saturation with almost 7 billion subscriptions
  - ❑ Fixed-broadband growth rates have dropped to 6% in developing countries, despite penetration remaining low (6%) in the developing world
  - ❑ Fixed broadband has reached mature levels in developed countries: 27.5% penetration and continuous low growth (3.4%)

## The digital divides



- 450 million people worldwide without access to mobile services
- <1% fixed-broadband penetration in least developed countries (LDCs)
- Rural-urban divide: lower 3G coverage, smaller proportion of households with Internet access and fewer enterprises and schools connected in rural areas.
- 4.3 billion people worldwide are not yet using the Internet, 90% live in the developing world

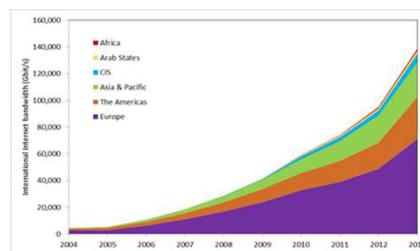
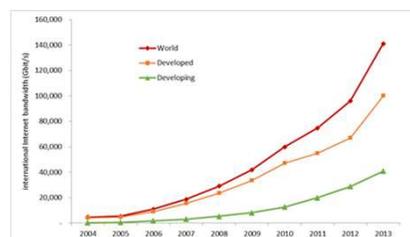


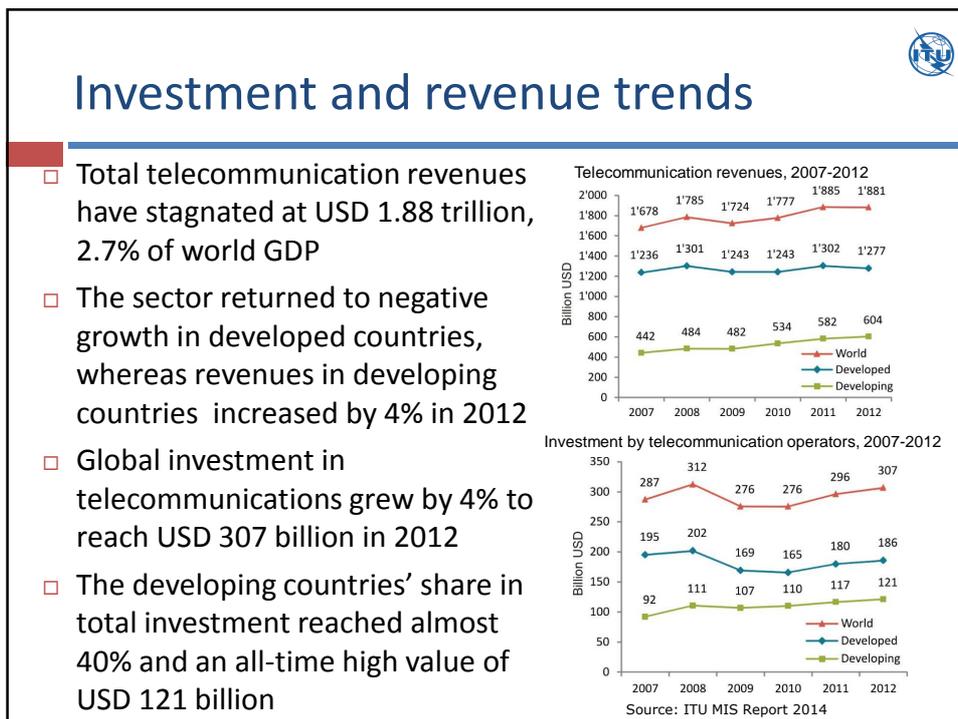
## International bandwidth climbed sharply over the past decade



- Developing countries' share increased from 9% in 2004 to almost 30% in 2013
- Europe accounts for more than 50% of the world's total, compared with Africa's share of less than 1%

Total International Internet bandwidth (Gbit/s)





## Connect 2020 - ITU strategic goals and targets

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### Global ICT goals

- 1 GROWTH**  
Enable and foster access to and increased use of telecommunications/ICTs
- 2 INCLUSIVENESS**  
Bridge the digital divide and provide broadband for all
- 3 SUSTAINABILITY**  
Manage challenges resulting from the telecommunication/ ICT development
- 4 INNOVATION & PARTNERSHIP**  
Lead, improve and adapt to the changing telecommunication/ICT environment

- Approved by the ITU Plenipotentiary Conference (PP-14): Resolution on *Connect 2020 Agenda*
- Measurable targets – ICT indicators
- Report on progress in MIS Report



## Connect 2020 ITU strategic goals and targets



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### Goal 1 Growth – Enable and foster access to and increased use of telecommunications/ICTs

- Target 1.1: Worldwide, 55% of households should have access to the Internet by 2020
- Target 1.2: Worldwide, 60% of individuals should be using the Internet by 2020
- Target 1.3: Worldwide, telecommunication/ICTs should be 40% more affordable by 2020

### Goal 2 Inclusiveness –Bridge the digital divide and provide broadband for all

- Target 2.1.A: In the developing world, 50% of households should have access to the Internet by 2020
- Target 2.1.B: In the least developed countries (LDCs), 15% of households should have access to the Internet by 2020
- Target 2.2.A: In the developing world, 50% of individuals should be using the Internet by 2020
- Target 2.2.B: In the least developed countries (LDCs), 20% of individuals should be using the Internet by 2020
- Target 2.3.A: The affordability gap between developed and developing countries should be reduced by 40% by 2020
- Target 2.3.B: Broadband services should cost no more than 5% of average monthly income in developing countries by 2020
- Target 2.4: Worldwide, 90% of the rural population should be covered by broadband services by 2020
- Target 2.5.A: Gender equality among Internet users should be reached by 2020
- Target 2.5.B: Enabling environments ensuring accessible telecommunications/ICTs for persons with disabilities should be established in all countries by 2020

### Goal 3 Sustainability – Manage challenges resulting from the telecommunication/ICT development

- Target 3.1: Cybersecurity readiness should be improved by 40% by 2020
- Target 3.2: Volume of redundant e-waste to be reduced by 50% by 2020
- Target 3.3: Green House Gas emissions generated by the telecommunication/ICT sector to be decreased per device by 30% by 2020

### Goal 4 Innovation and partnership – [Lead,] shape and adapt [the Union] to the changing telecommunication/ICT environment

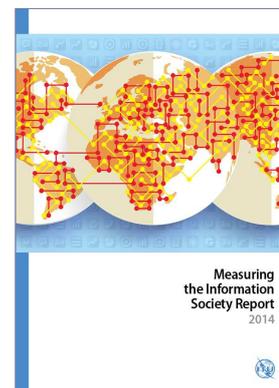
- Target 4.1: Telecommunication/ICT environment conducive to innovation
- Target 4.2: Effective partnerships of stakeholders in telecommunication/ICT environment

## Index



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- Recent information society developments
- **The ICT Development Index (IDI)**
- ICT prices and the role of competition
- The role of big data for ICT monitoring and for development



## The ICT Development Index (IDI)

- 11 indicators, covering 3 areas:
  - ▣ ICT access, use and skills
- 166 economies
- Comparison of data from 2013 and 2012
- Regional analysis
- Assessment of the relationship between geography and population and IDI performance
- Analysis of the link between IDI and the MDGs

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## Almost all countries improved in the IDI but Least Connected Countries lag behind

### IDI 2013 top ten

1. Denmark
2. Korea (Rep.)
3. Sweden
4. Iceland
5. United Kingdom
6. Norway
7. Netherlands
8. Finland
9. Hong Kong, China
10. Luxembourg

### Key findings

- Top IDI performers have high income levels, competitive markets and a skilled population
- Effective implementation of policies to achieve ambitious ICT targets help drive national information economies
- Some 2.5 billion people living in the world's least connected countries (LCCs) need targeted policies for improved access to ICTs

## Wireless broadband drives IDI progress in dynamic countries, most of which are from the developing world



Most dynamic countries - changes between IDI 2013 and 2012

Change in IDI ranking			Change in access ranking			Change in use ranking		
IDI rank 2013	Country	IDI rank change	Access rank 2013	Country	Access rank change	Use rank 2013	Country	Use rank change
32	United Arab Emirates	14	47	Oman	16	71	Thailand	34
91	Fiji	12	101	Cape Verde	7	72	Fiji	24
93	Cape Verde	11	124	Gambia	7	142	Burkina Faso	13
81	Thailand	10	22	Qatar	6	79	Cape Verde	12
52	Oman	9	28	Estonia	5	24	United Arab Emirates	12
34	Qatar	8	64	Seychelles	5	134	Congo (Rep.)	11
38	Belarus	5	97	Albania	4*	111	Bhutan	8
69	Bosnia and Herzegovina	5	38	Belarus	4*	30	Qatar	8
78	Georgia	5	112	Bolivia	4*	61	Antigua & Barbuda	7**

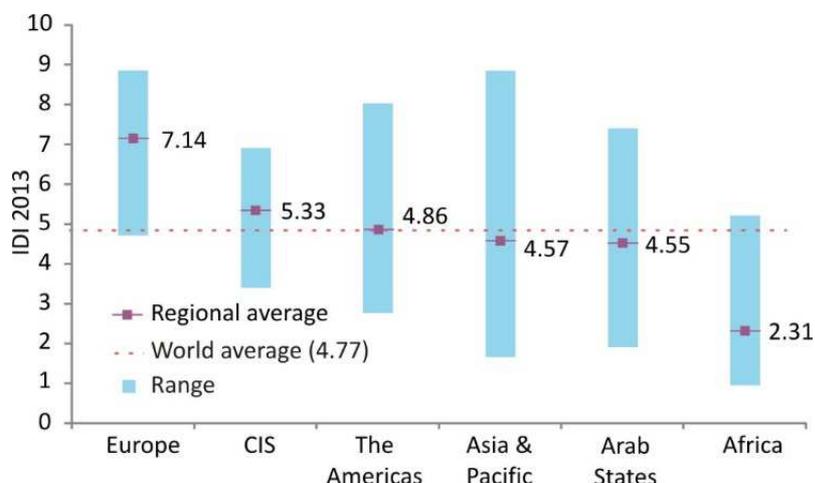
Note: \* In the access sub-index, Mali, Mexico, Nepal, Nigeria, the Russian Federation and Uruguay also went up four places between 2012 and 2013. \*\*In the use sub-index, Belarus and Oman also went up seven places.  
Source: ITU MIS Report 2014

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## Regional IDI



IDI ranges and averages, by region and compared to world average, 2013



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## Top five per region

The top five economies in each region and their ranking in the global IDI, 2013

Regional IDI rank	Europe	Global IDI rank	Asia & Pacific	Global IDI rank	The Americas	Global IDI rank	Arab States	Global IDI rank	CIS	Global IDI rank	Africa	Global IDI rank
1	Denmark	1	Korea (Rep.)	2	United States	14	Bahrain	27	Belarus	38	Mauritius	70
2	Sweden	3	Hong Kong, China	9	Canada	23	United Arab Emirates	32	Russian Federation	42	Seychelles	75
3	Iceland	4	Japan	11	Barbados	35	Qatar	34	Kazakhstan	53	South Africa	90
4	United Kingdom	5	Australia	12	Uruguay	48	Saudi Arabia	47	Moldova	61	Cape Verde	93
5	Norway	6	Singapore	16	St. Kitts and Nevis	54	Oman	52	Azerbaijan	64	Botswana	104

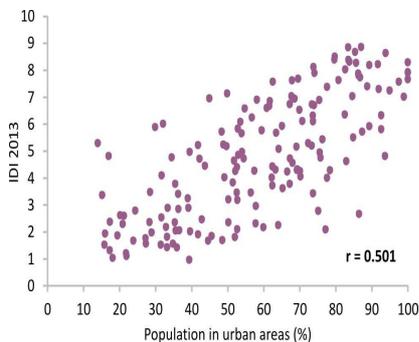
Source: ITU MIS Report 2014

17



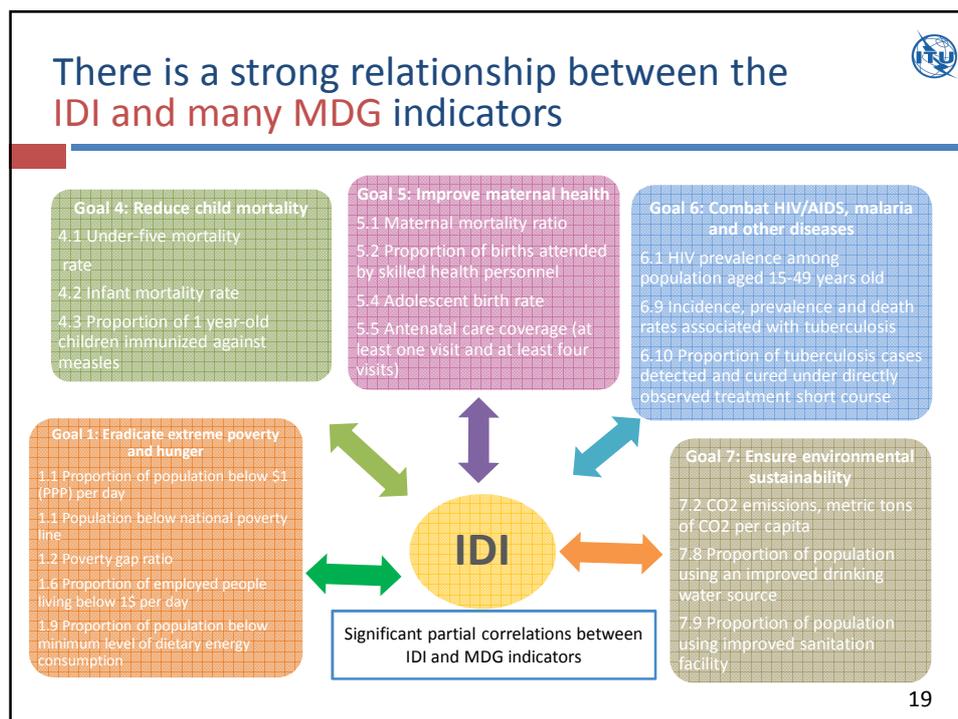
## The higher a country's share of population living in urban areas, the higher the values reached on the IDI

IDI and the percentage of population living in rural areas



- Strong correlation between IDI and GNI p. c. levels
- Strong correlation between IDI and % population living in urban areas
- No correlation between IDI and population density, population size and geographic size

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## Index

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- Recent information society developments
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- The role of big data for ICT monitoring and for development

Measuring  
the Information  
Society Report  
2014

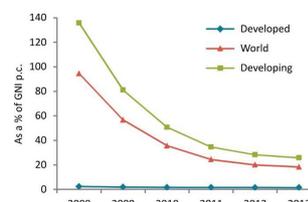
## Fixed-broadband prices continue to decrease and entry-level speeds are increasing



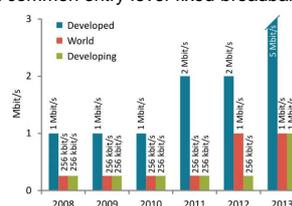
21

- 2008-2012: entry-level fixed-broadband prices decreased by 20% per year on average in developing countries
- In 2013, there was a slowdown: price in developing countries decreased by only 4%
- 1 Mbit/s was the most common entry-level speed in 2013, compared with 256 kbit/s in 2008

Fixed-broadband prices as a % of GNI p.c.



Most common entry-level fixed-broadband speed



Source: ITU MIS Report 2014

## A basic fixed-broadband plan >5% GNI p.c. in most developing countries



22

- On average, fixed-broadband prices corresponded to 26% of GNI p.c. in the developing world compared with 1.5% in the developed world
- Major differences in the affordability of fixed broadband persist across regions and within some regions

Fixed-broadband prices as a percentage of GNI p.c., by region, 2013

Region	Average	Standard deviation	Minimum	Maximum	Median
Europe	1.4	0.8	0.5	3.8	1.1
CIS	3.8	3.4	0.5	11.9	2.8
Arab States	4.1	5.9	0.4	23.7	2.0
The Americas	9.0	17.5	0.7	85.8	4.6
Asia & Pacific	23.7	56.7	0.3	266.0	5.0
Africa	135.8	382.1	0.8	2'193.6	42.1

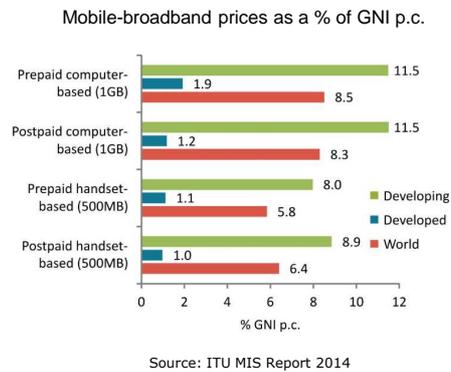
Source: ITU MIS Report 2014

## Mobile broadband in developed countries six times more affordable than in developing countries



23

- The number of developing countries offering mobile-broadband plans increased by 20% from 2012 to 2013
- The price of mobile-broadband plans corresponds on average to >5% of GNI p.c. in the developing world

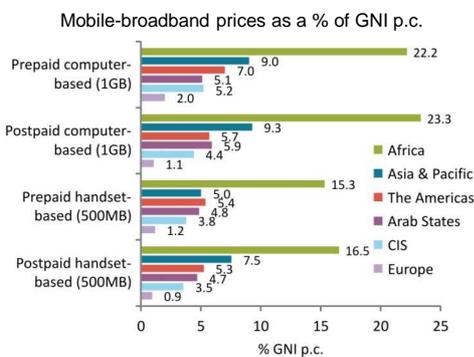


## Entry-level mobile broadband is cheaper than fixed broadband in many countries

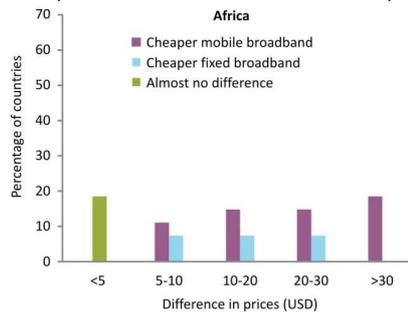


24

- Mobile broadband is the only affordable alternative for broadband access in some countries



Comparison of fixed- and mobile-broadband prices



- ... but there are major regional differences in the affordability of mobile broadband

Source: ITU MIS Report 2014

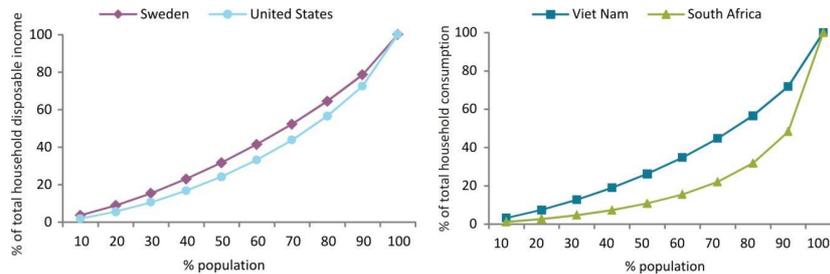
## Affordability of broadband services in view of income inequalities



25

- Data on household disposable income and expenditure:
  - ▣ Reflect people's economic welfare
  - ▣ Provide insights into differences in affordability within countries

Distribution of household disposable income (left) and household consumption (right)

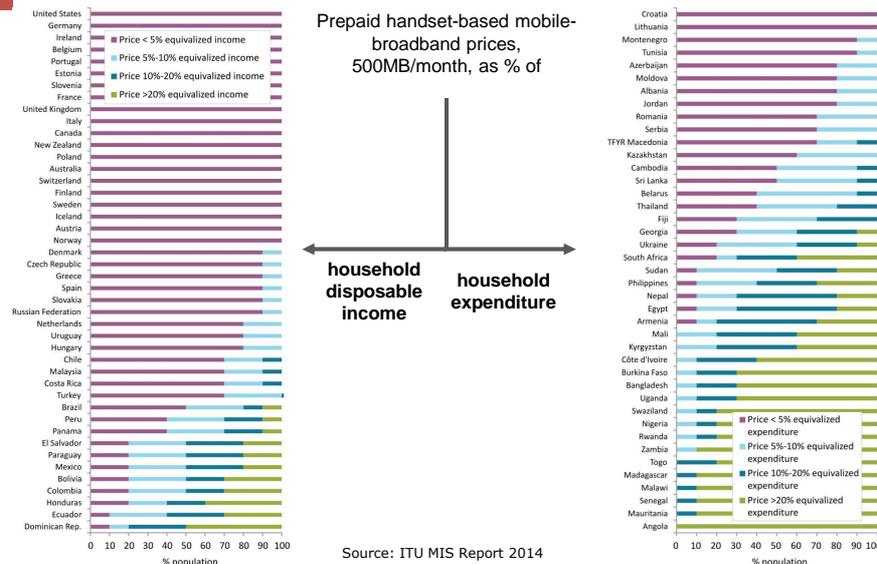


Source: Data for the United States and Sweden are sourced from the OECD Database on Income Distribution and refer to 2011. Data for South Africa and Viet Nam are sourced from the World Bank's PovcalNet and refer to 2008.

## Households income inequalities greatly influence the affordability of mobile broadband



26



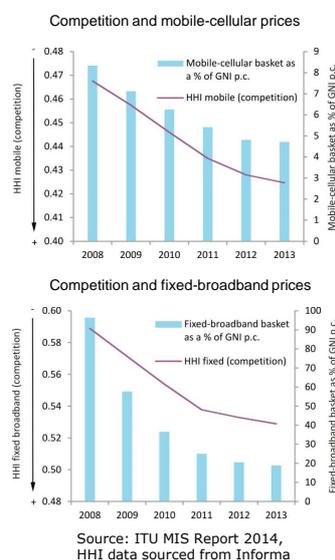
Source: ITU MIS Report 2014

## Impact of competition and regulation on ICT prices – Quantitative assessment



27

- Descriptive statistics suggest a link between competition and ICT prices
- Econometric model to assess the impact of regulation and competition:
  - ▣ Data for up to 144 economies
  - ▣ 2008-2013 period
  - ▣ ITU data on prices and regulation
  - ▣ Mobile cellular and fixed broadband

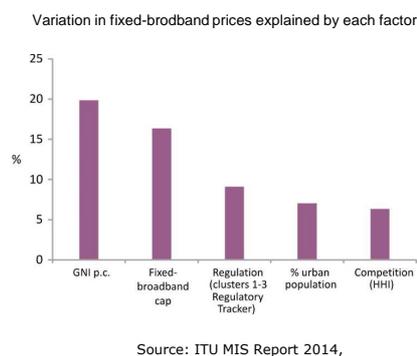


## Competition and regulation could help reduce fixed-broadband prices by 10% in developing countries



28

- Factors that are purely attributable to the ICT sector are together the main determinant of fixed broadband prices
- An increase in competition in developing countries could lead to a 5% reduction in mobile-cellular prices
- International regulatory best practices, such as the ones adopted at the ITU Global Symposium for Regulators, may serve as guidelines for effective regulatory frameworks

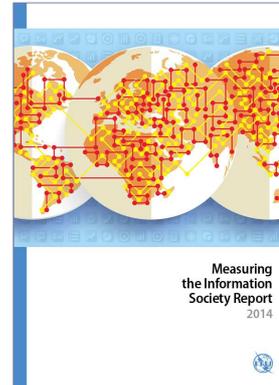


## Index



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- Recent information society developments
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## Behind big data...



Rapid transformation of ICT sector and advances in technology

- ❖ Capture, store, and process more data from more sources

An increasingly digitized world

- ❖ Datafication & digitization of human activity into digital footprints



31 What is 'big data'?

The diagram illustrates the five Vs of Big Data as interlocking puzzle pieces:

- VELOCITY** (Red piece): Speed at which data are generated and analyzed.
- VARIETY** (Green piece): Different types and forms of data, including large amounts of unstructured data.
- VALUE** (Dark Blue piece): Potential of big data for socio-economic development.
- VERACITY** (Yellow piece): Level of quality, accuracy and uncertainty of data and data sources.
- VOLUME** (Teal piece): Vast amounts of data generated through large-scale datafication and digitization of information.

ITU logo is present in the top left corner of the slide.

Big data to complement official statistics

32

**A WORLD THAT COUNTS**

- ❖ Improve timeliness and completeness of official statistics
  - ❖ Complement, not replace!
- ❖ Formulate social and economic development policy
- ❖ An important element in the data revolution and part of the post 2015 development agenda

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## Big data from the ICT industry for social and economic development



Data captured through the use of ICTs are one of the richest sources of big data & producing development insights for better policy making

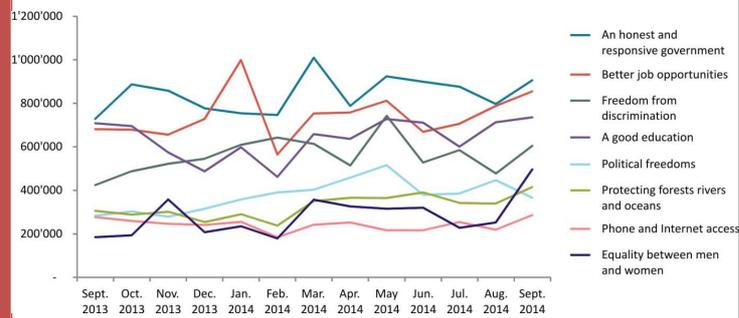


## ICT sector big data



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Using Twitter to visualize trends in global development topics



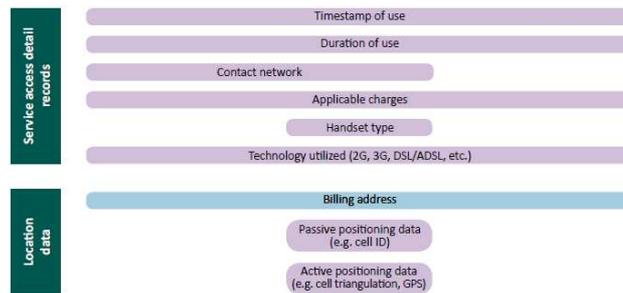
Source: UN Global Pulse

# Mobile operator data



35

- ❖ Real-time and low-cost
- ❖ Huge development potential, also because of its high representativeness



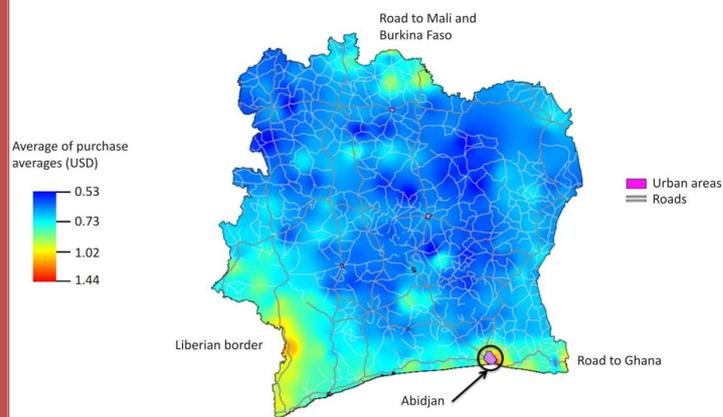
# Mobile data for poverty mapping



36

Poverty mapping in Côte d'Ivoire

Source: Gutierrez et al. (2013)



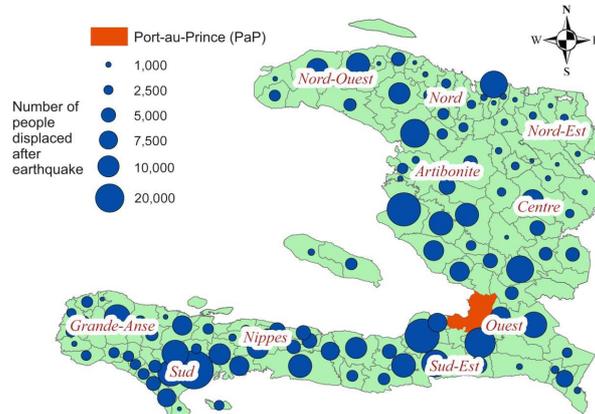
# Mobile data in emergencies



37

Tracking mobility through mobile phones

Source: Bengtsson et al. (2011)



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## Big data to monitor the information society



To analyze the digital divide

To understand uptake and access and usage patterns by pooling data from different sources

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## Challenges



- Privacy
- Security
- Standardization
- Continuity
- Data curation etc...



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## How to maximize potential of big data



- Cooperation among international stakeholders
- Public private partnerships
- Bring proof of concept studies to replicable scale



Thank you



For more information and data:  
[www.itu.int/en/ITU-D/statistics](http://www.itu.int/en/ITU-D/statistics)

**12<sup>th</sup> World Telecommunication/ICT Indicators Symposium  
(WTIS-14)**

**Tbilisi, Georgia, 24-26 November 2014**



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***Presentation***

**Document C/24-E  
26 November 2014**

**English**

**SOURCE:** Information Technology Authority, Oman

**TITLE:** Side-event: ICT Access & Use by Households & Individuals Survey 2013



# “ICT Access & Use by Households & Individuals Survey 2013”

**Presented By:**  
**Hamed Al Shekaili**  
Executive Statistics  
Information Technology Authority (ITA)- Oman



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



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## Agenda

- ❖ Introduction
- ❖ Survey Methodology
- ❖ Results & Findings:
  - ✓ Household Indicators
  - ✓ Individual Indicators
  - ✓ eGovernment Services
  - ✓ eCommerce
  - ✓ Feedback on Internet Speed and Price
- ❖ Challenges

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## Sultanate of Oman

<b>Capital:</b>	Muscat
<b>Time Difference:</b>	GMT +4 Hours
<b>Area:</b>	309,500 sq. km.
<b>Admin. Governorates:</b>	11
<b>Total Population:</b>	4,064,660 (Sept. 2014)
<b>Population Density:</b>	13/ sq. Km
<b>GDP/ Capita (current US\$):</b>	\$ 22,180 (World Bank 2013)
<b>GNI/ Capita:</b>	\$ 25,250 (World Bank 2012)
<b>Currency:</b>	1 (OMR.) = \$2.58

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## Introduction

### Information Technology Authority (ITA)- Oman:

The ITA is set up by the Royal Decree 52/2006 promulgated on the 31<sup>st</sup> May 2006.

The ITA is the body responsible for implementing the Digital Oman Strategy and eGovernment in the Sultanate of Oman.

### Vision:

To transform the Sultanate of Oman into a sustainable Knowledge Society by leveraging Information and Communication Technologies to enhance government services, enrich businesses and empower individuals.

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## Introduction

### Objectives:

- To measure Access to and Use of ICT by the Households and Individuals to assist Key Decision Makers and Strategic Planners to formulate initiatives related to ICT in Households and Individuals.
- To assess the digital divide.
- For Benchmarking internationally.

### Implantation:

- Stand alone
- Outsourced to a local vendor with international Experts



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## Survey Summary

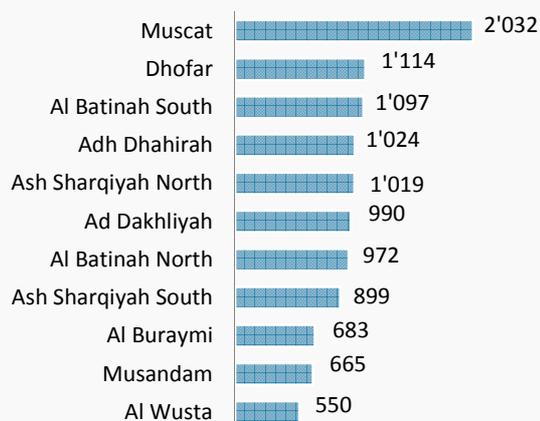
Survey Characteristics	
Target Population	All households Individuals 5 years or older.
Domains	Oman / Governorates
Tabulation Groups	Urban, Rural
Clustering	Enumeration Areas (Hillas)
Sample Frame	2010 Census Sample Frame
Confidence Level	95%
Design Factor	2
Absolute Precision	5%
Population Proportion	0.5, for maximum sample size
Minimum Sample Size (minimum sample size times 11 Governorates times 2 strata rural and urban)	8448

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## Survey Methodology

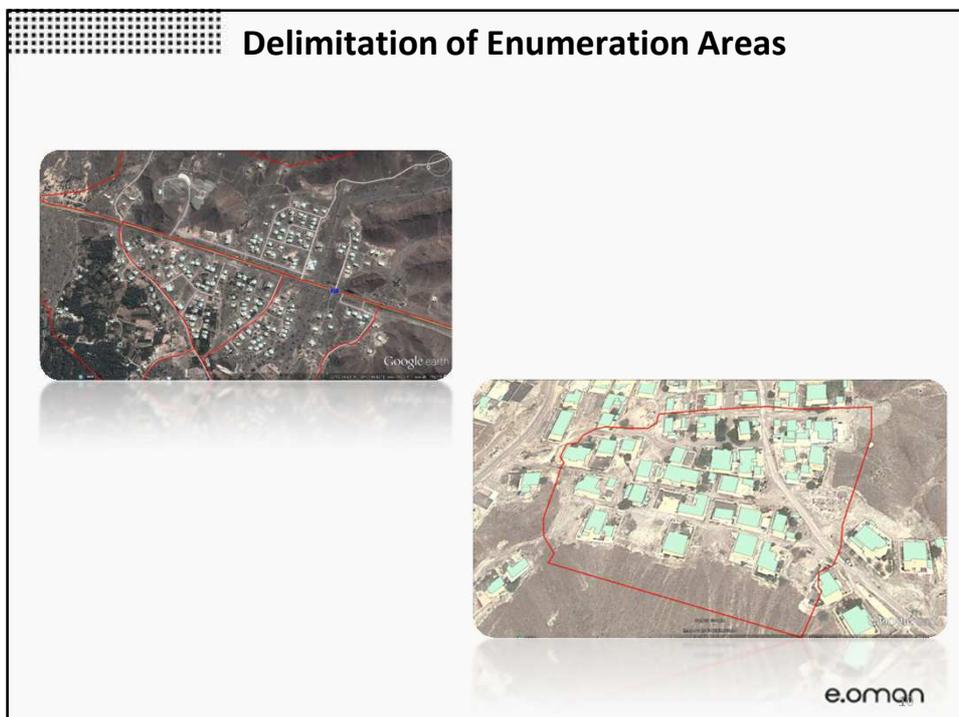
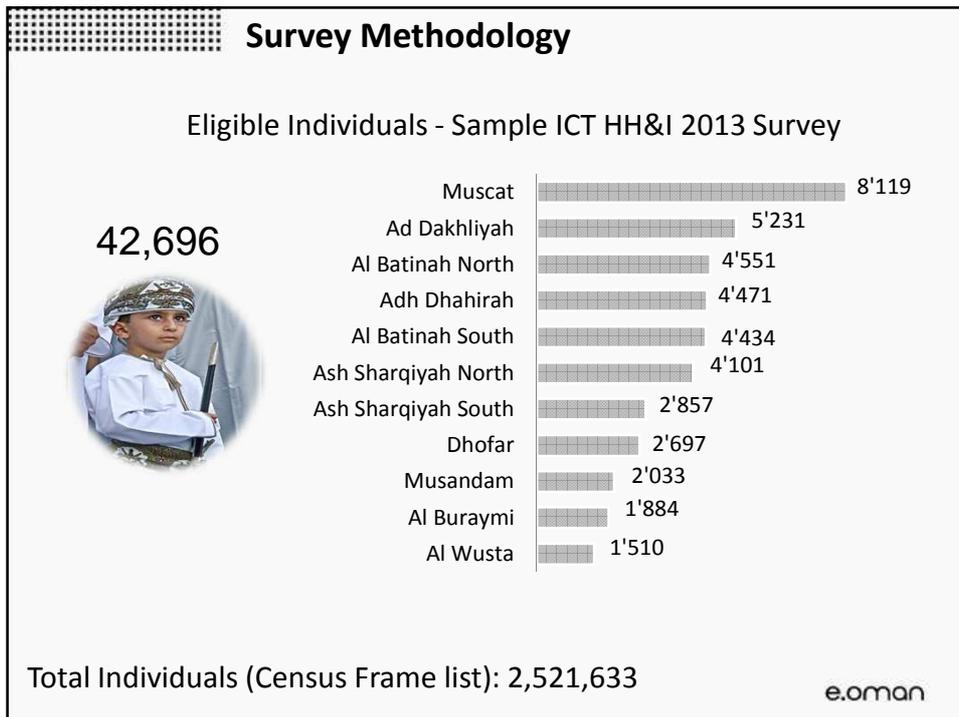
Participating Households - Sample ICT HH&I 2013 Survey

11,045



Total Households (Census Frame List): 399,274

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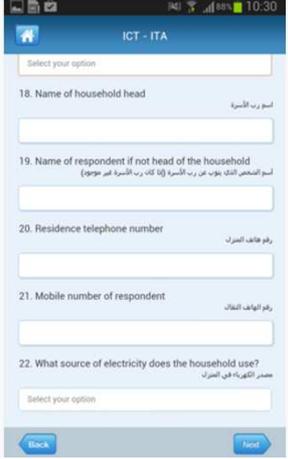


## ICT Tablets & Mobile Application Used

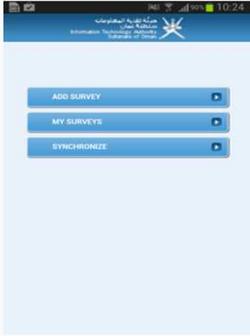


**Feature:**

- ✓ 7" Touch Screen
- ✓ 1.0 GHz Processor
- ✓ Android 4.1
- ✓ WIFI Internet
- ✓ HDMI output
- ✓ 3G Build in
- ✓ GPS Enabled
- ✓ Dual SIM
- ✓ Dual CAM







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## Training



**Training: Supervisors**

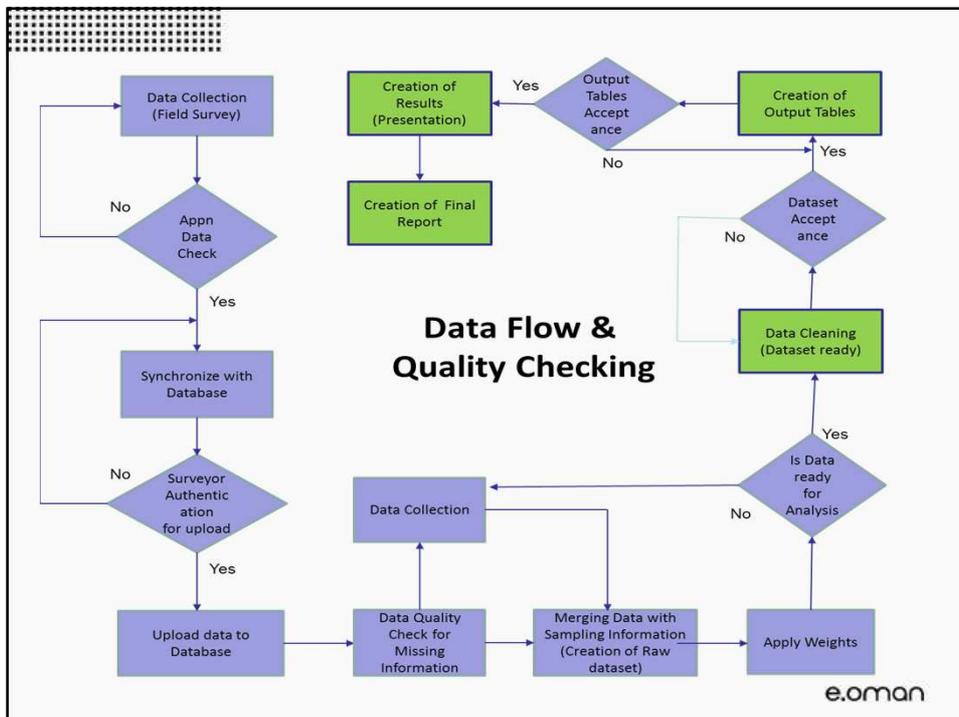


**Training: Delimitating EAs**



**Training: Identifying Structures**

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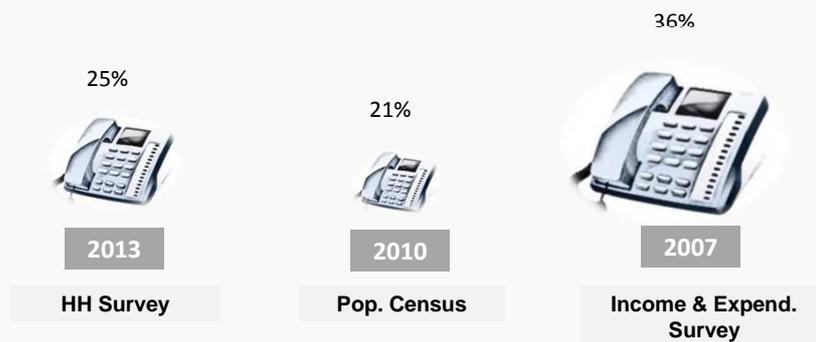
## Results & Findings

- Households
- Individuals
- eGovernment Services/  
eCommerce/Feedback on Telecom

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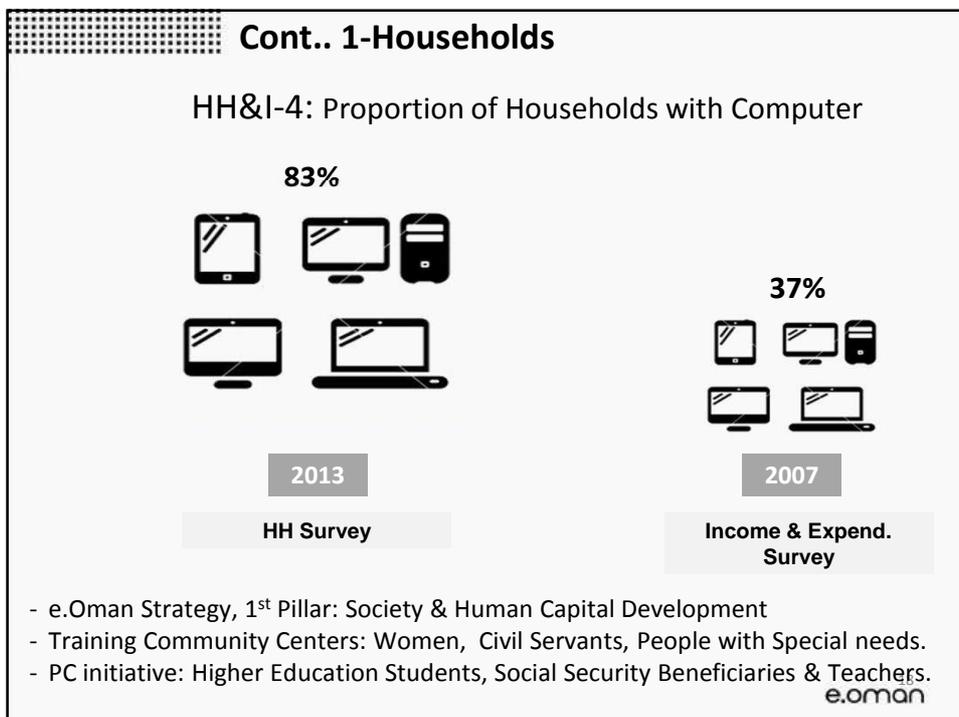
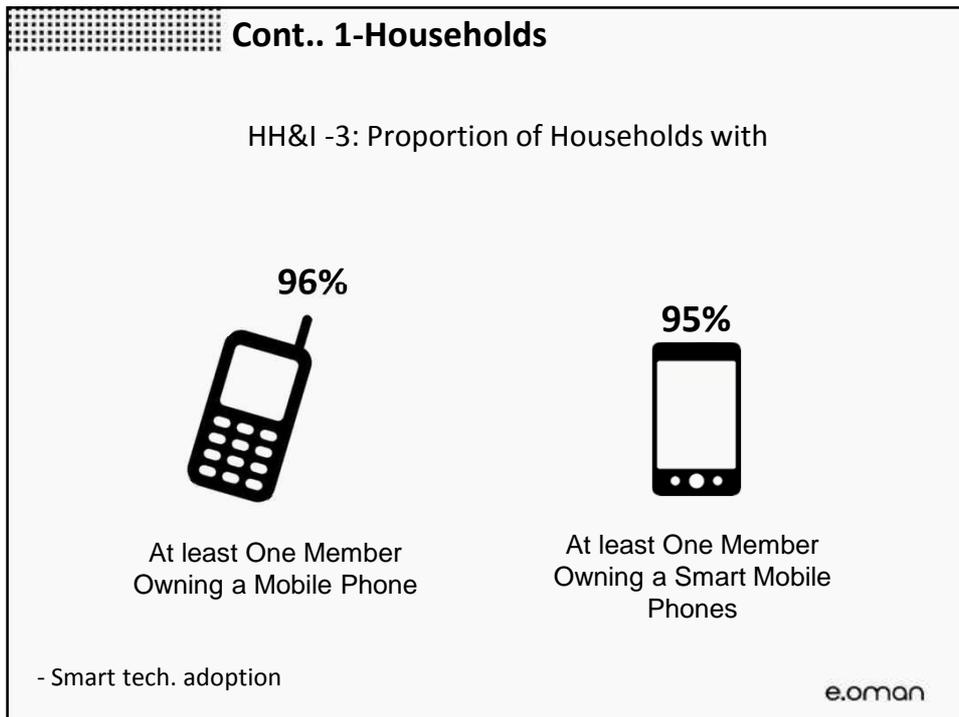
### 1- Households

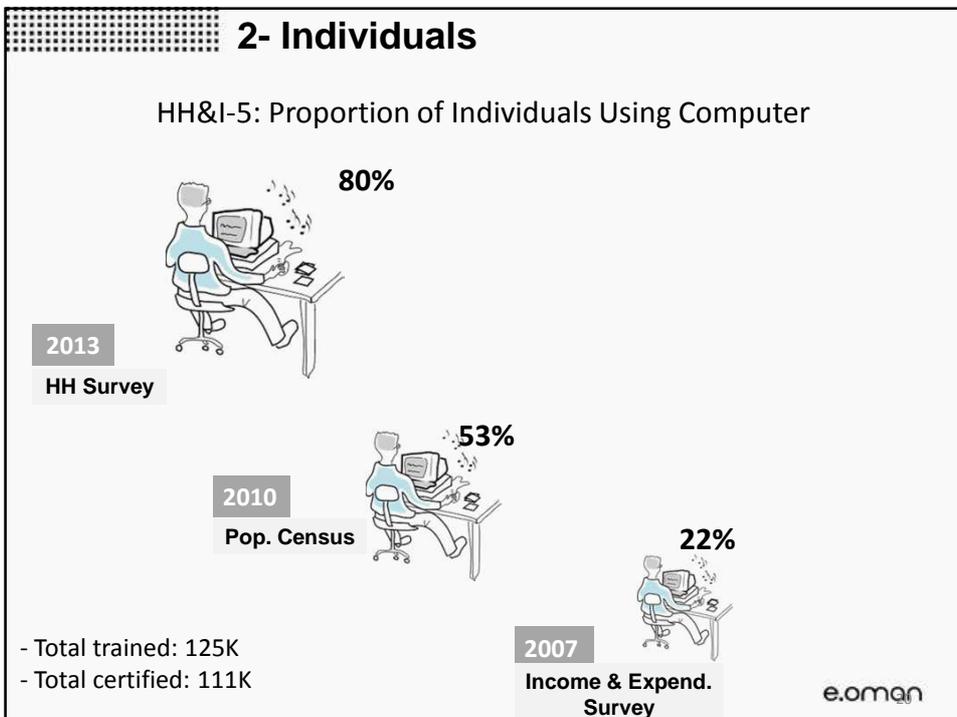
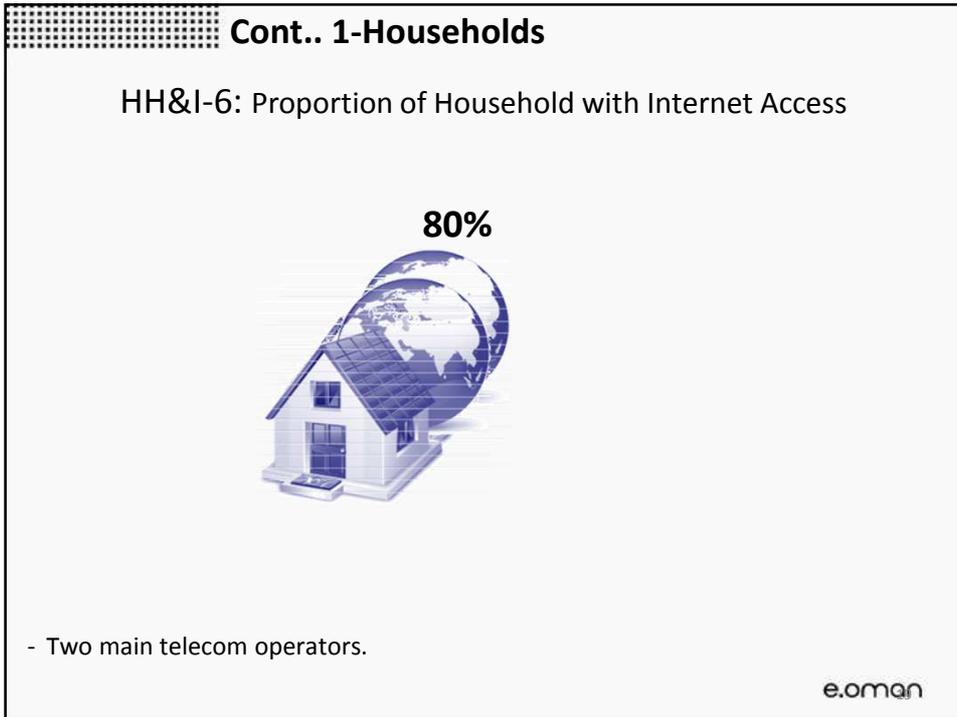
HH&I -3: Proportion of Household with Fixed Telephone

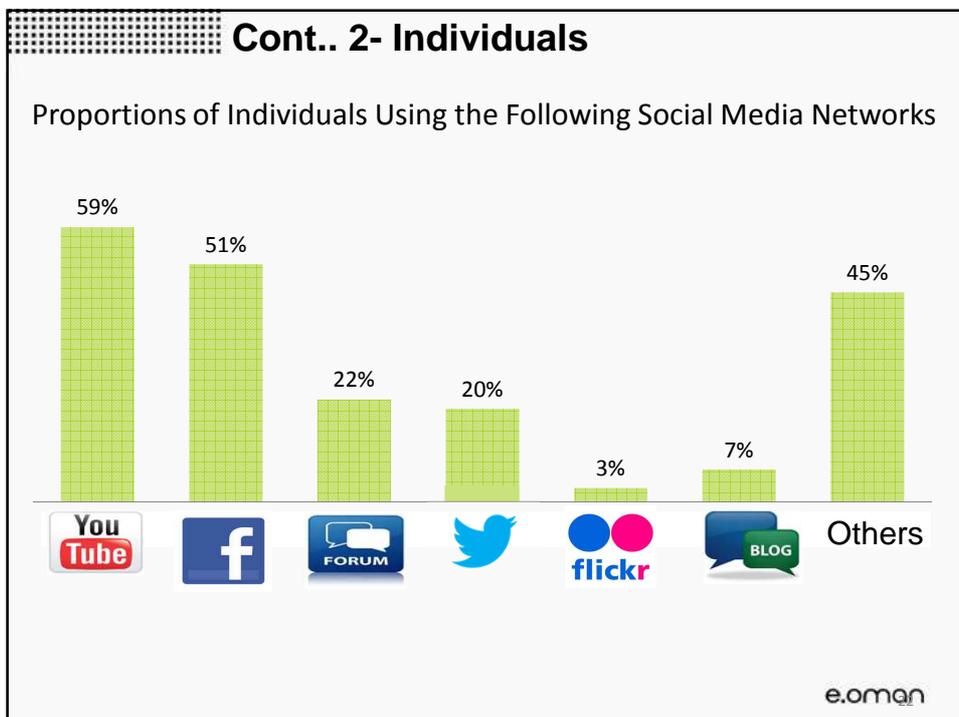
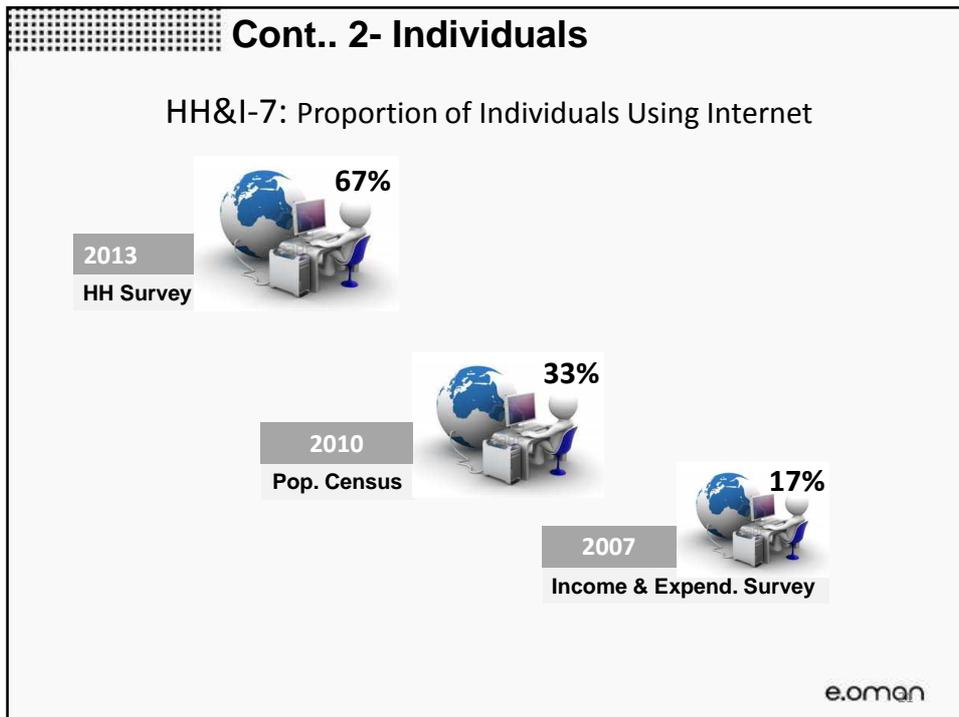


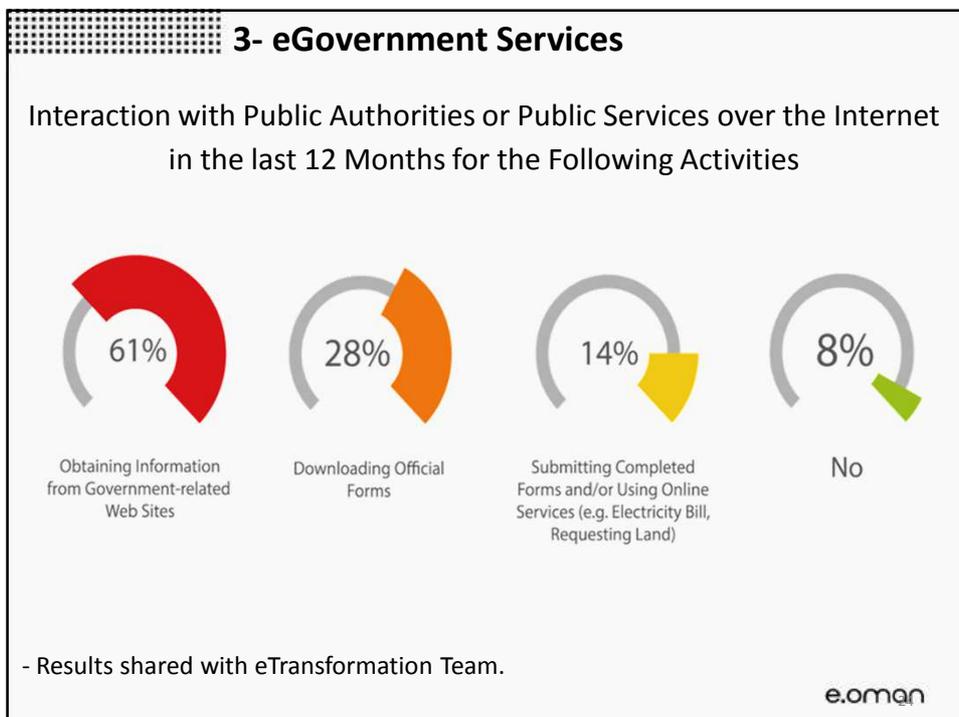
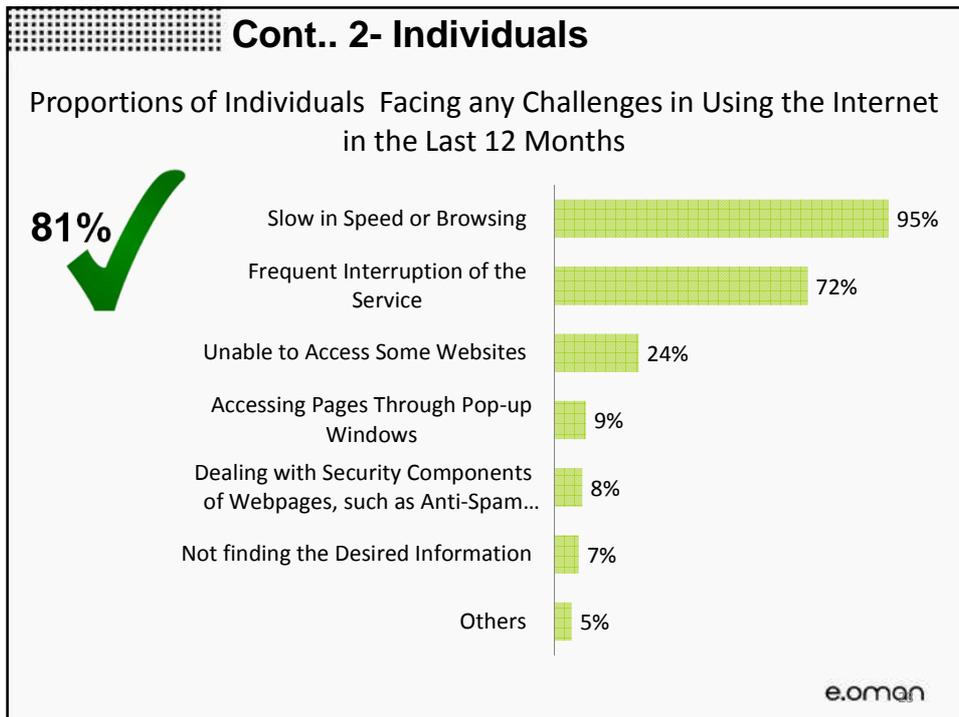
- Telecom Market Change

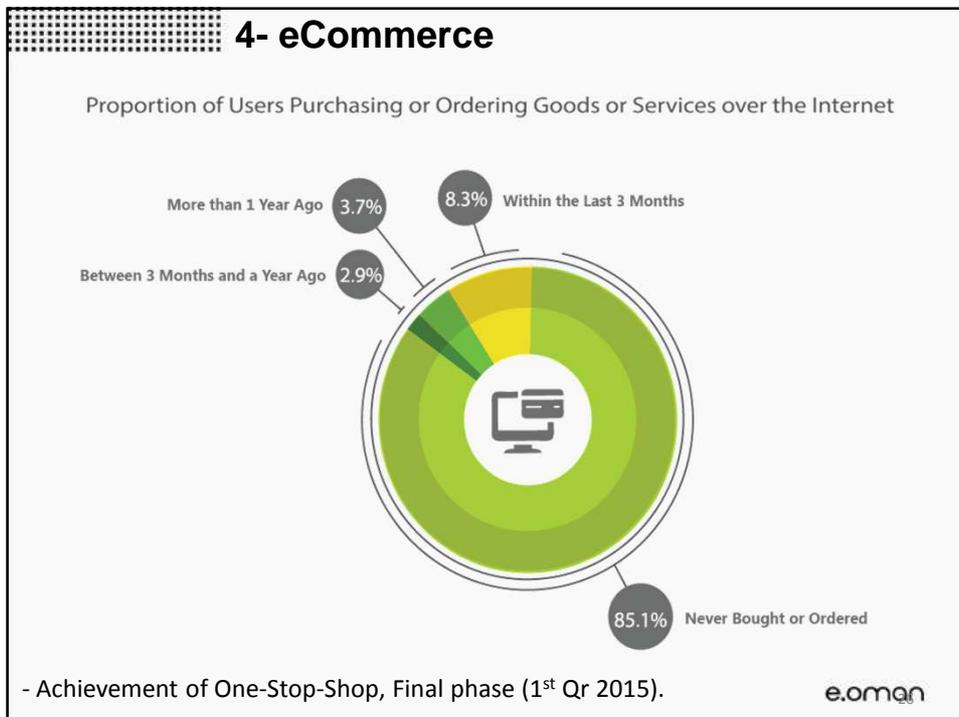
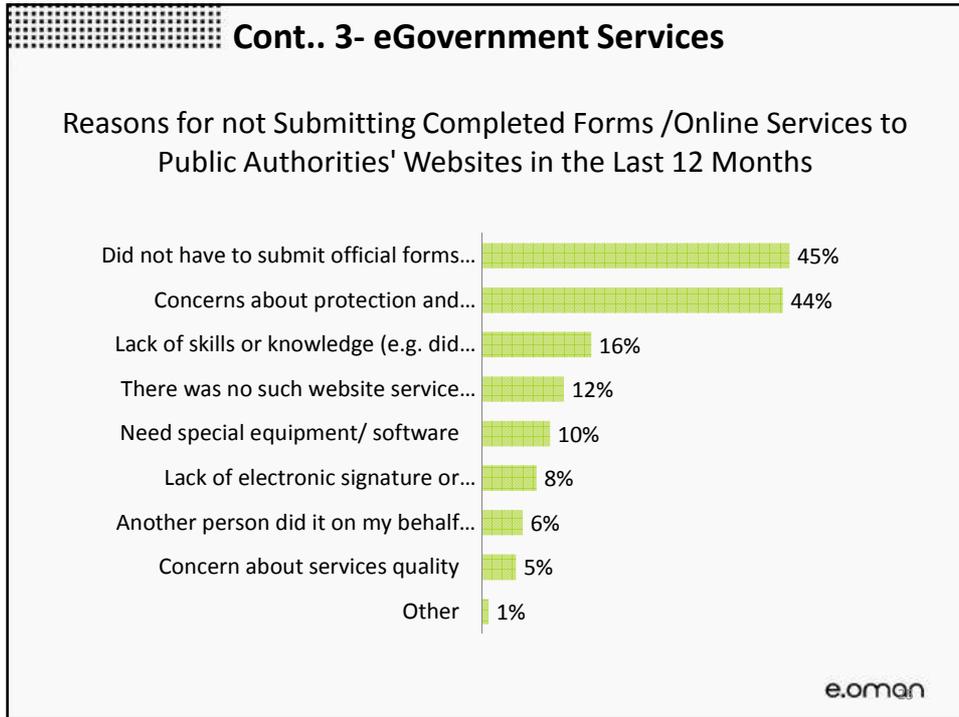
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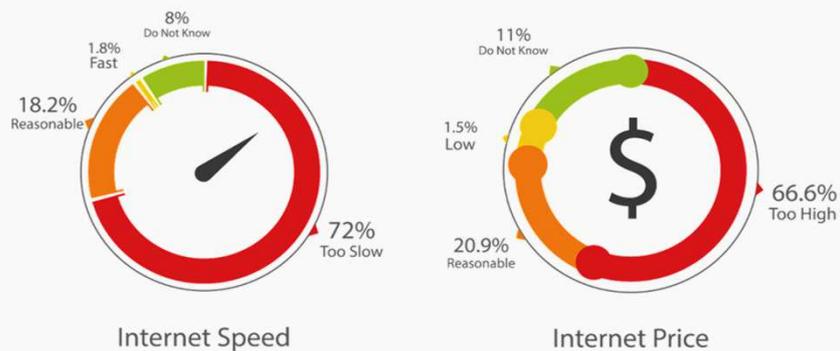








## 5- Feedback on Internet Speed and Price



- Results Shared with TRA.
- Results shared with OBC

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## Challenges

- The use of temporary enumerators does not guarantee sufficient quality of collected data nor of the sampling process. More trained and experience enumerators needed.
- Data validation should be done by experienced team with background knowledge in ICT Statistics to ensure on high quality of data collection.
- Female enumerators are a necessary based on our culture, some individuals refused to be interviewed by male enumerators.
- Households located in the Empty Quarter Desert couldn't be interviewed in the scheduled time.

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- ✓ Survey results are available on our Website: [www.ita.gov.om](http://www.ita.gov.om)
- ✓ We also have a publication outside on the table.

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**Thank you**

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**12<sup>th</sup> World Telecommunication/ICT Indicators Symposium  
(WTIS-14)**

**Tbilisi, Georgia, 24-26 November 2014**



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*Presentation*

**Document C/25-E  
26 November 2014**

**English**

**SOURCE:** Ministry of Communications and Cetic, Brazil

**TITLE:** Side-event: ICT in Public Access Center Survey 2013

**ICT IN PUBLIC ACCESS CENTER SURVEY 2013**

MINISTRY OF COMMUNICATIONS OF BRAZIL

12th World Telecommunication/ICT Indicators Symposium (WTIS)

cetic.br nic.br cgi.br

## INTERNET IN BRAZIL

# Facts and figures

Accesses: Dec/2010 to Aug/2014 (in Million)

**+361,6**  
MILLION ACCESSES

**76%**  
ARE MOBILE

**277.4**  
MOBILE

**23.5**  
FIXED BROADBAND

**19.2**  
PAY TV

**43**  
FIXED TELEPHONY

**MOBILE INTERNET GROWTH (3G+4G)**  
**603%**

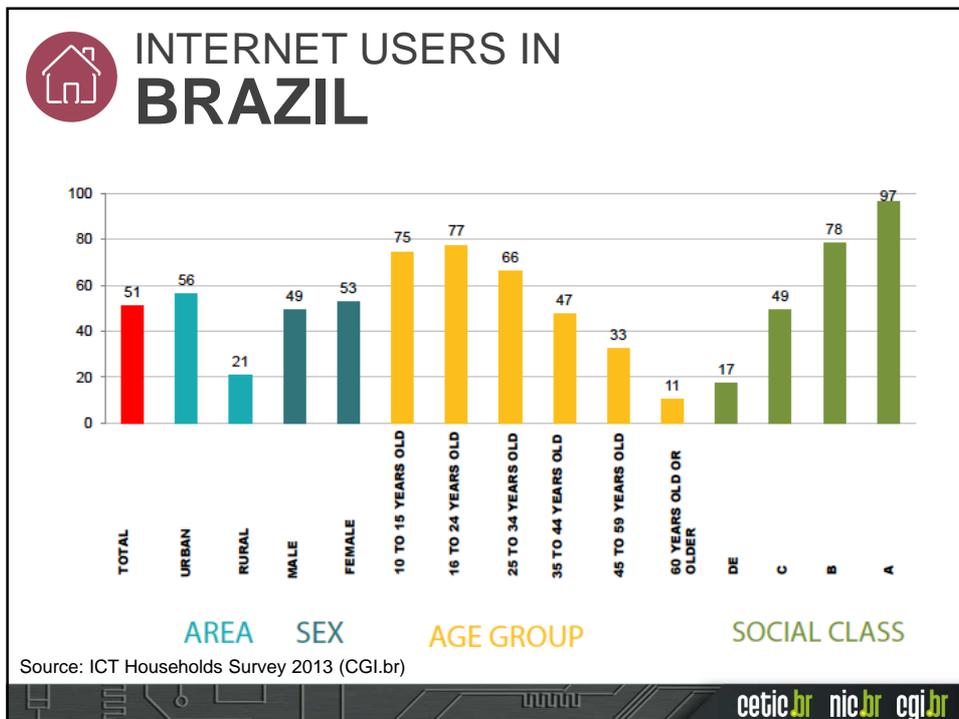
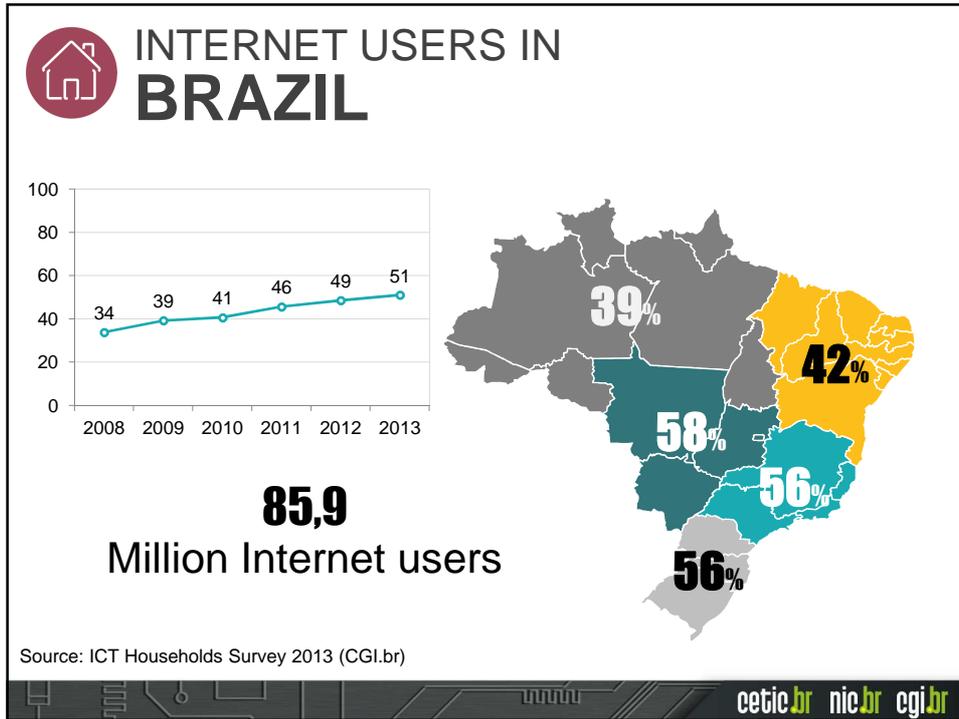
**FIXED INTERNET GROWTH**  
**53%**

**CITIES WITH 3G COVERAGE**  
FROM 824 TO 3,3599

**337%**

Source: ANATEL (2014)

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## HOW TO INCLUDE THIS POPULATION?

- Deployment of infrastructure via state-owned company (TELEBRAS)
- National Broadband Program (popular broadband, tax exemption program)
- 700MHz Auction for rural area coverage
- Telecenter Policies**

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## TELECENTERS: HOW TO MEASURE IMPACT?

Telecenters are non-profit, public centers that provide free computer and Internet access for use by individuals. They are aimed at promoting social and economic development of local communities, reducing social exclusion and creating opportunities for digital inclusion.

### **How do they work?**

Through a partnership between Ministry, municipalities and entities that are responsible for the maintenance of these spaces.

### **From the Federal Government:**

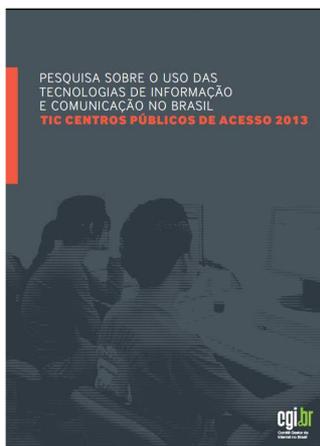
Computer hardware, connectivity and furniture  
Monitors Training

### **What about effectiveness and impact?**

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## ICT PUBLIC ACCESS CENTER



### Objectives:

- ❑ Investigate the contribution of Federal Government's Telecenters policies for digital inclusion;
- ❑ Institutional support: Ministry of Communications and Institute for Applied Economic Research (Ipea).

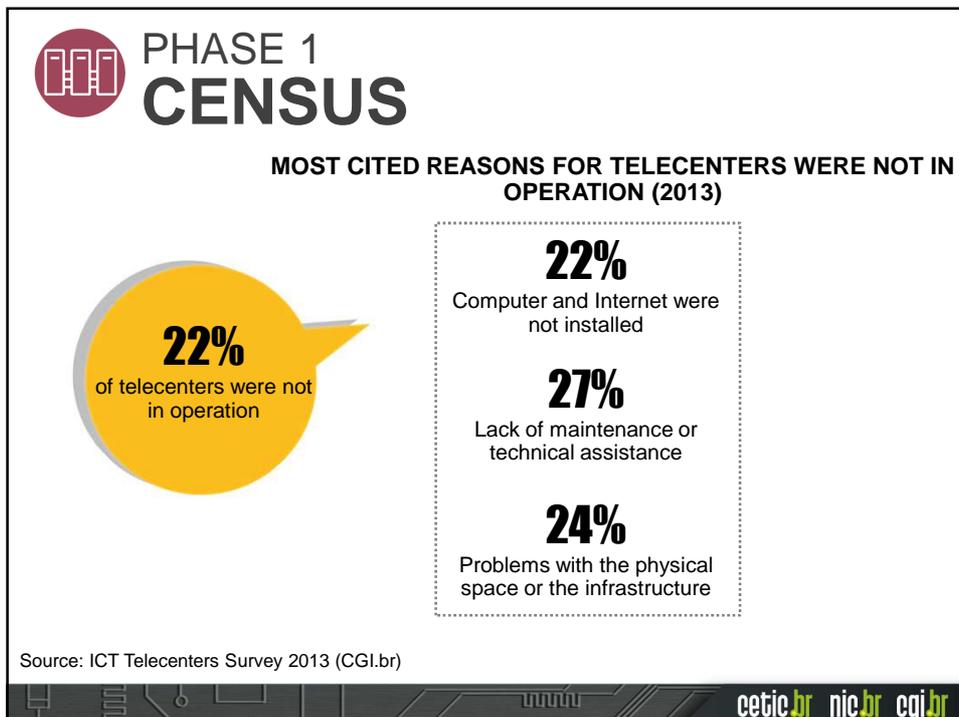
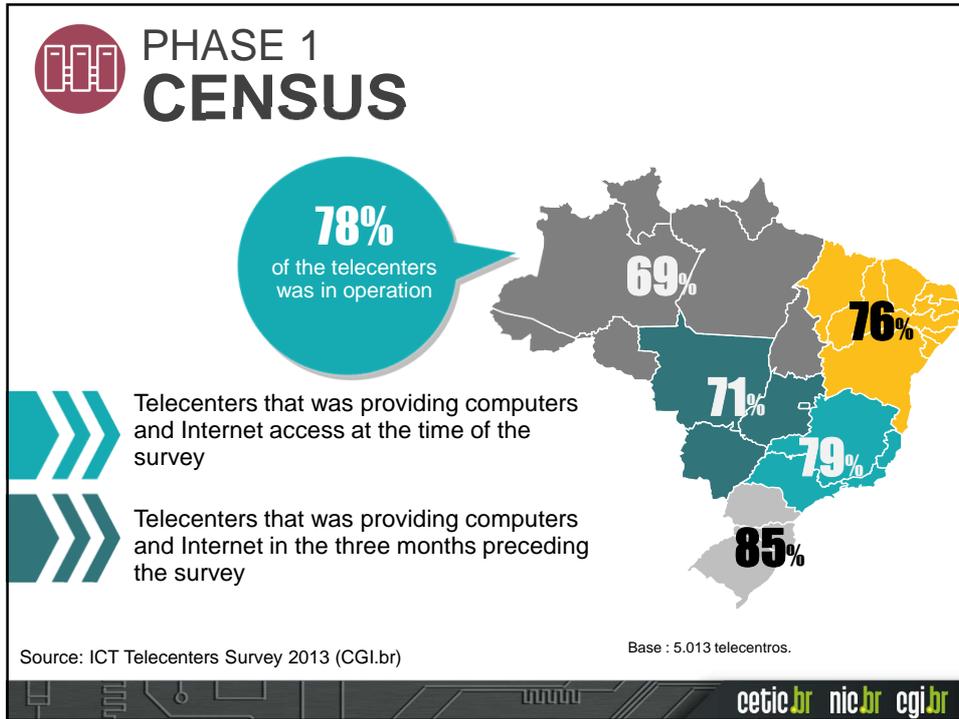
cetic.br nic.br cgi.br

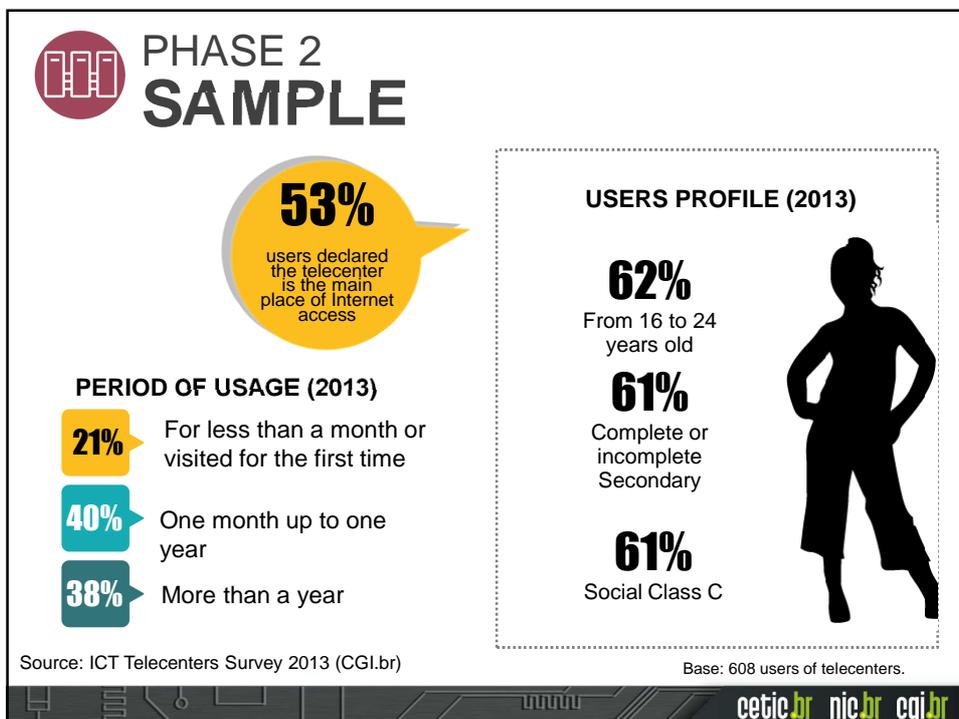
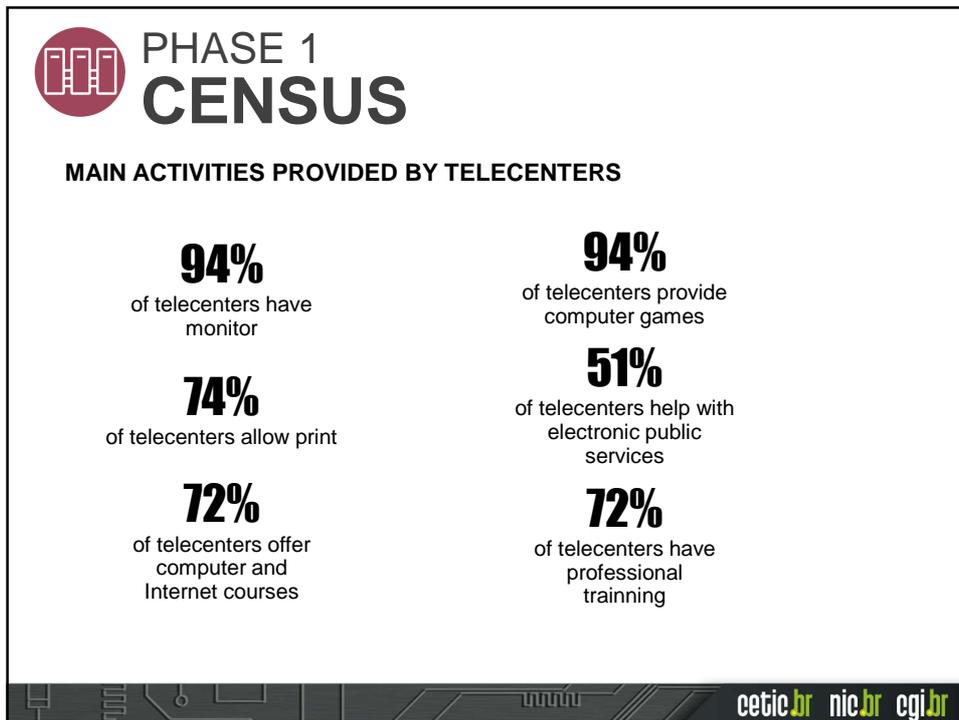


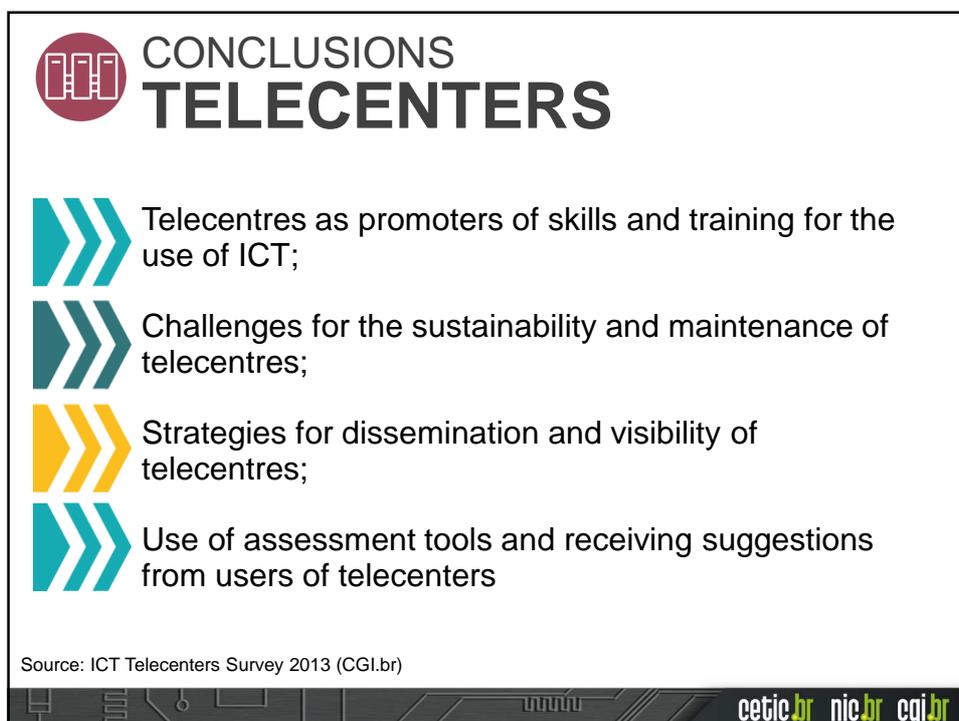
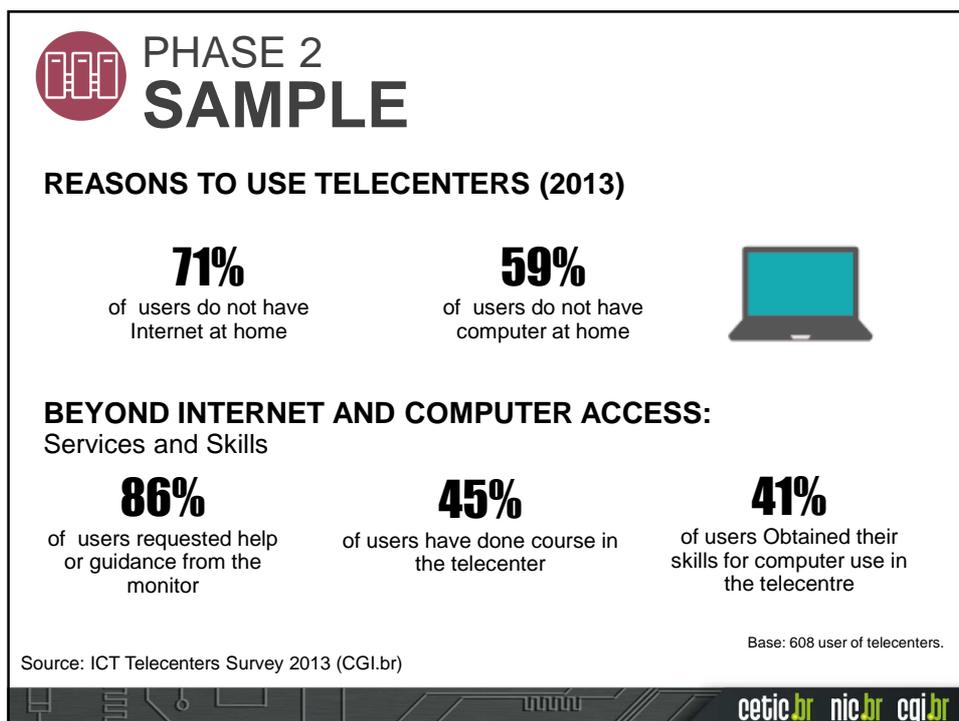
## SURVEY METHODOLOGY

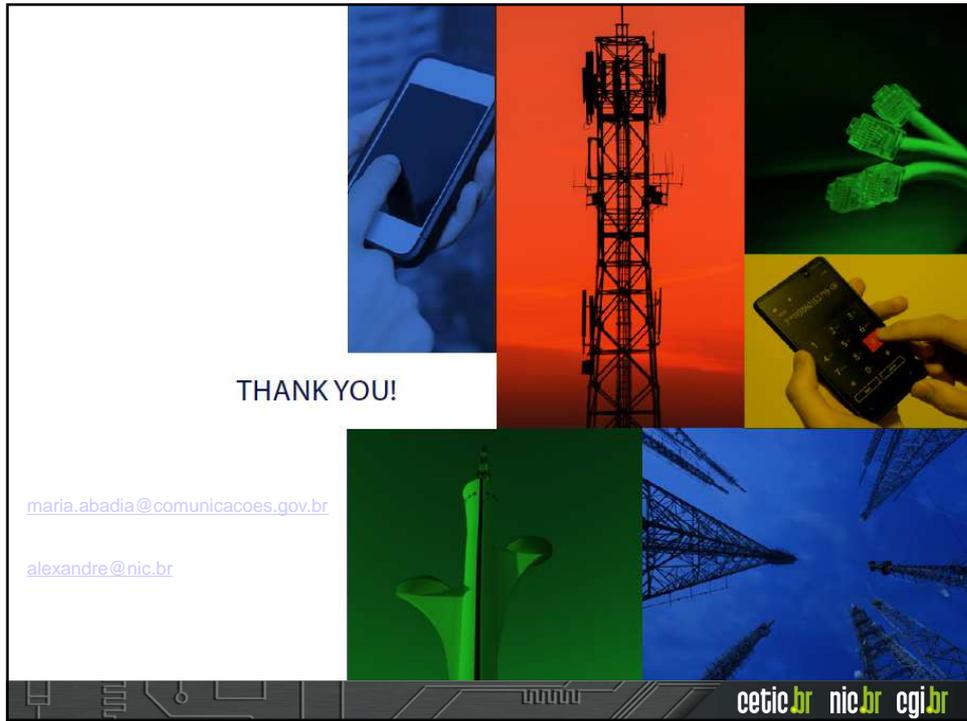
Phase	Scope	Methodology	Target Population	Mode of Data Collection	Number of cases	Period of Data Collection
1	Operational status of telecenters	Census	Telecenters from Ministry of Communications' records	Web form and CATI	5.013 telecenters	September 2012 – January 2013
2	Characteristics of telecenters and it's users	Sample of telecenters	Telecenters managers and users	PAPI Interview, structured questionnaire	362 managers/ 608 users	May – August 2013
3	Impacts of telecenters within its community	Qualitative case study	Users of telecenters	In depth interview	22 users	December 2013

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THANK YOU!

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[alexandre@nic.br](mailto:alexandre@nic.br)

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