



9th World Telecommunication/ICT Indicators Meeting (Port-Louis, 2011)

Presentations (Part I)

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**9th World Telecommunication/ICT Indicators
Meeting (WTIM-11)
Mauritius, 7 - 9 December 2011**



Contribution to WTIM-11 session

**Document C/1-E
12 December 2011**

English

SOURCE: INSEAD

TITLE: Measures, Indicators and Targets - Sensing and Shaping the Future of ICT

Measures, Indicators and Targets Sensing and Shaping the Future of ICT

Keynote Address

by

Bruno LANVIN

Executive Director, eLab INSEAD

9th World Telecommunication/ICT Indicators Meeting
7 December 2011 - Port Louis, Mauritius

Four Points

- What should be measured and why ?
- A major challenge : broadband
- Recent progress and the road ahead
- Additional challenges and possible action

What should be measured and why ?

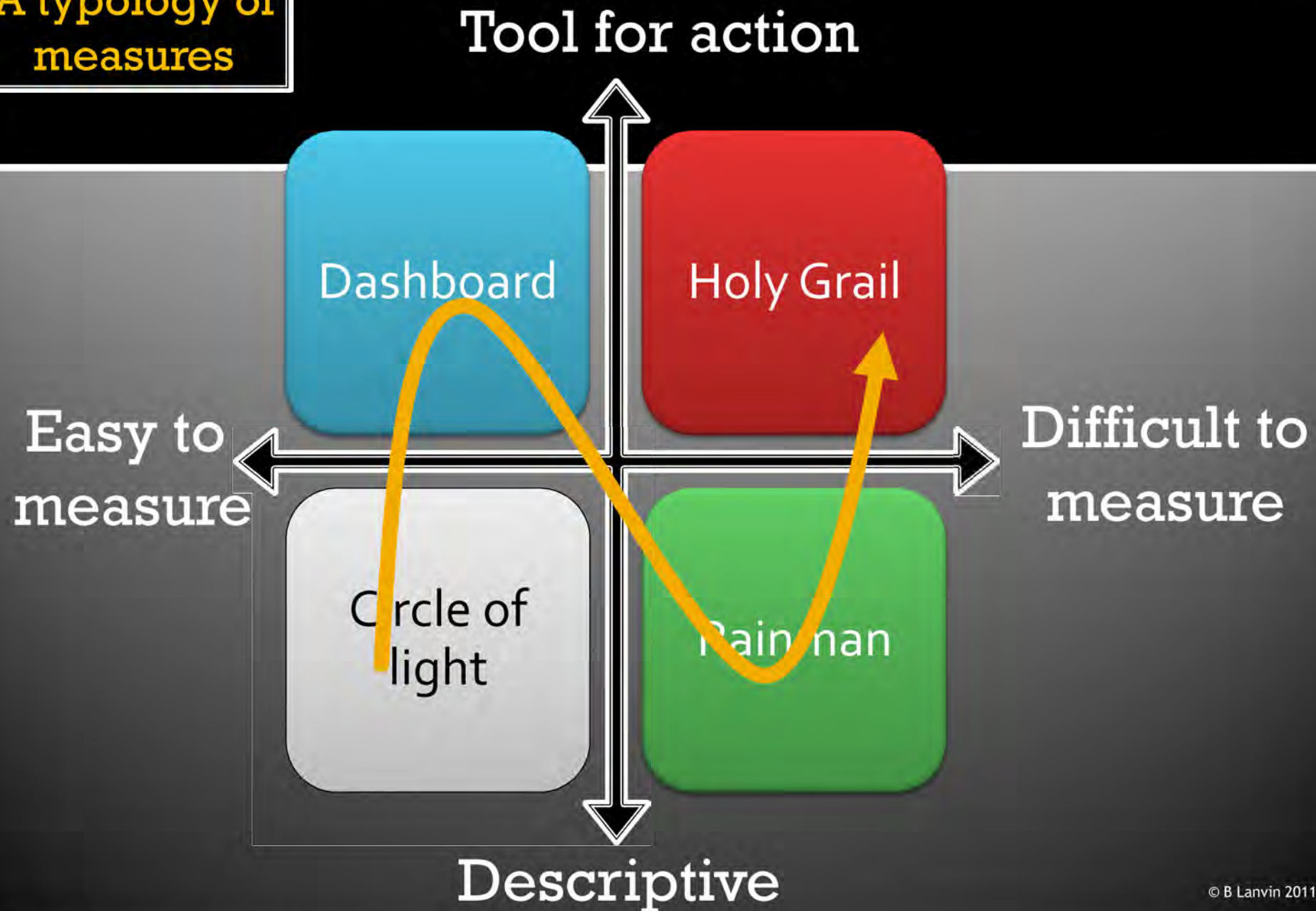
WHAT ?

- What we do not know
- What we have invested in
- What we want to improve
- What we think deserves action, priority, resources

WHY ?

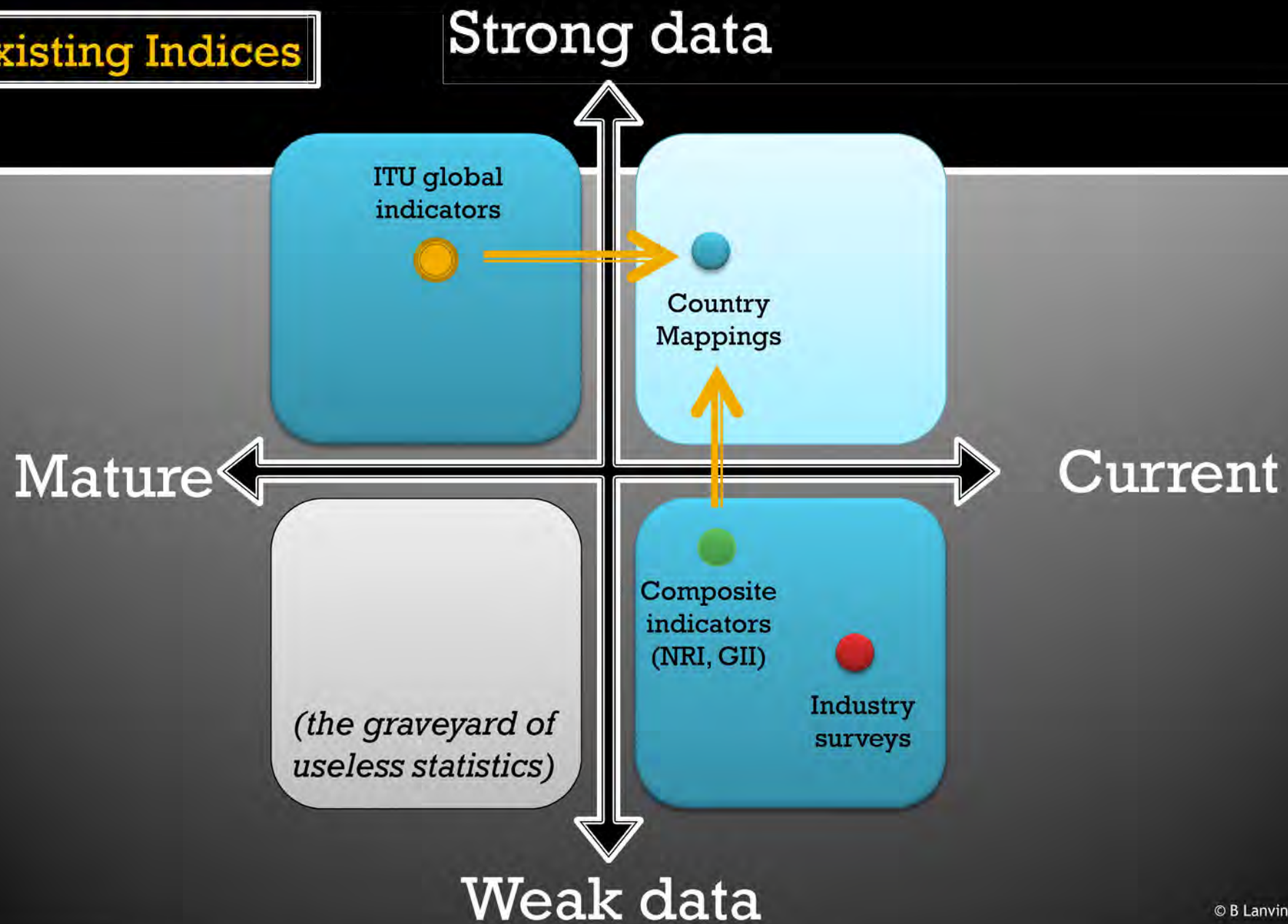
- To understand it (phenomenon, correlation)
- To keep track (of trend, effort, results, returns)
- To improve it (you cant improve what you cant measure)
- To encourage action (simulate, modulate, emulate, stimulate)

A typology of
measures



© B Lanvin 2011

Existing Indices



© B Lanvin 2011

The Power of Dynamics

- Time series and benchmarking
- A target is an ambition
- An ambition is vision turned into an objective
- A vision without implementation is called an hallucination
- Combining realism and proactivity : what have we learned from the work of the Broadband Commission ?



BROADBAND COMMISSION

FOR DIGITAL DEVELOPMENT

- Launched in May 2010 by ITU and UNESCO with the support of UN Secretary-General Ban Ki-moon
- Chaired by President Paul Kagame of Rwanda, and Carlos Slim Hélu, Honorary Life Chairman of Grupo Carso, with the Secretary General of ITU, Dr Hamadoun Touré and Director-General of UNESCO Ms Irina Bokova as vice chairs.
- 52 Commissioners '*intuitu personae*' from government, private sector, academia
- Totally independent
- Issued the Broadband Challenge and a set of Broadband Targets in October 2011

Why targets for 2015?

- To accelerate the diffusion and uptake of broadband
- To accelerate the achievement of the MDGs
- To continuously monitor progress against measurable benchmarks

Four key targets for 2015

Target 1: Making broadband policy universal

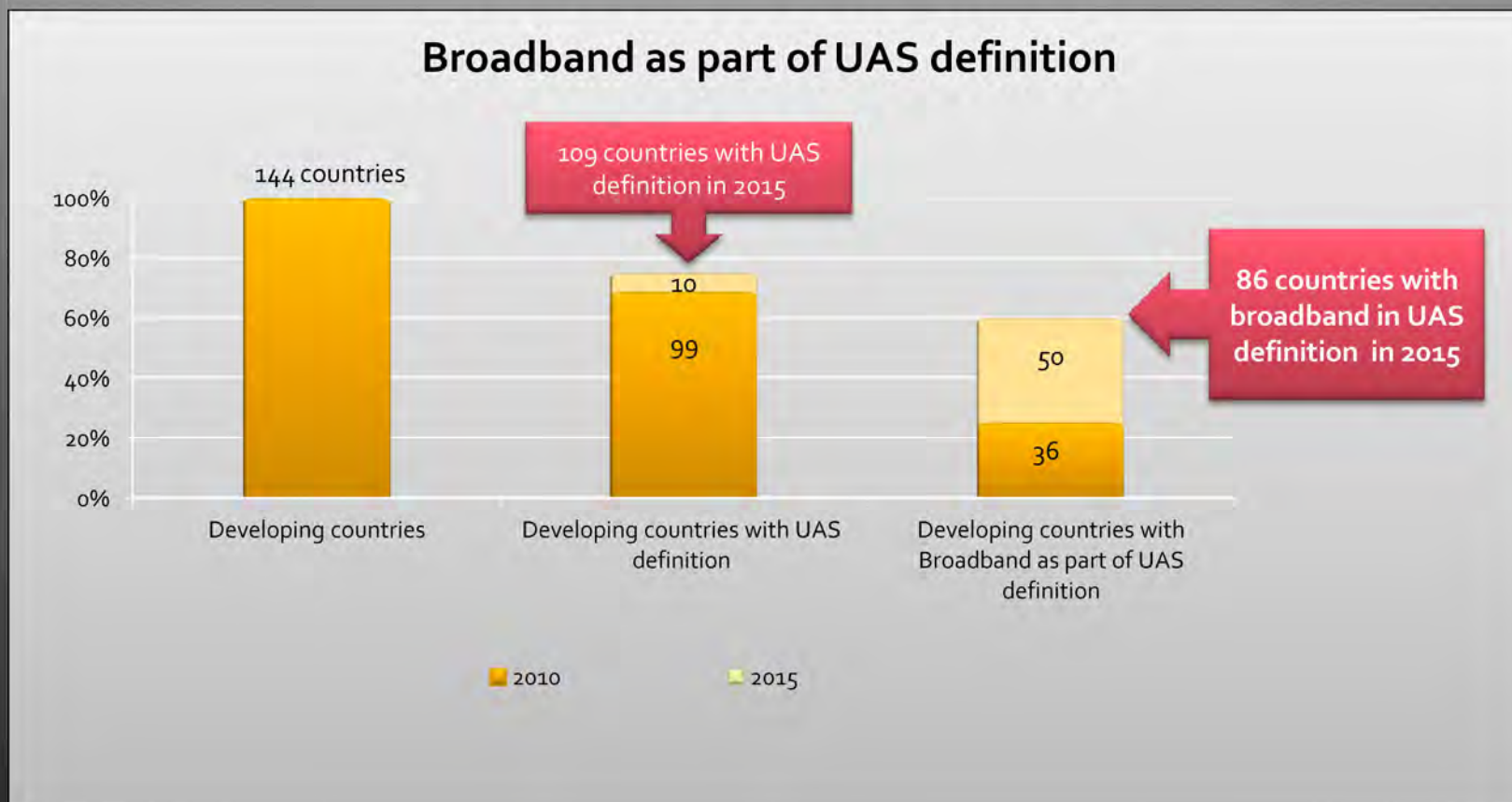
Target 2: Making broadband affordable

Target 3: Connecting homes to broadband

Target 4: Getting people online

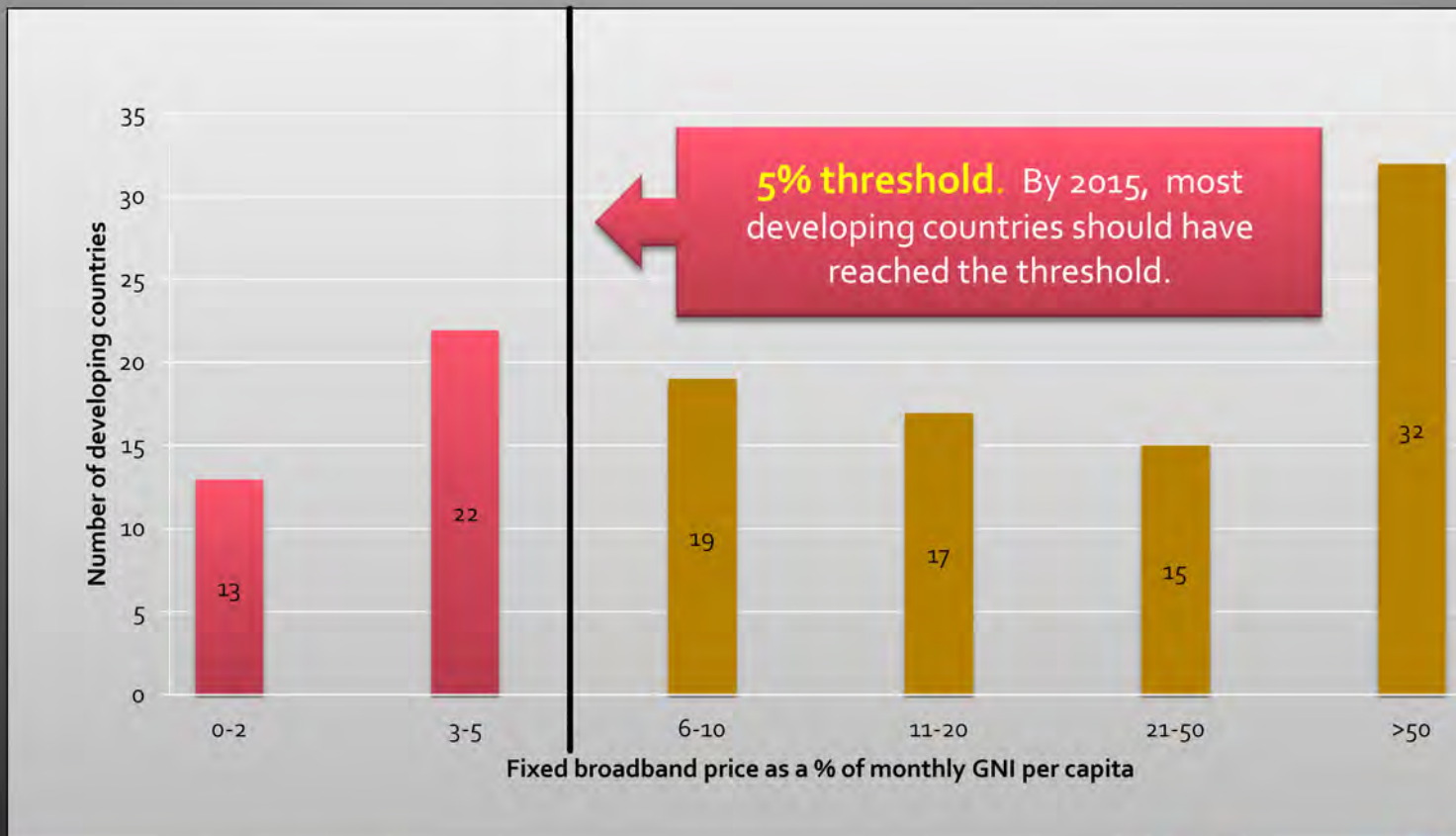
Target 1: Making broadband policy universal

- 60% of developing countries should include broadband in their Universal Access/Service Definitions



Target 2: Making broadband affordable

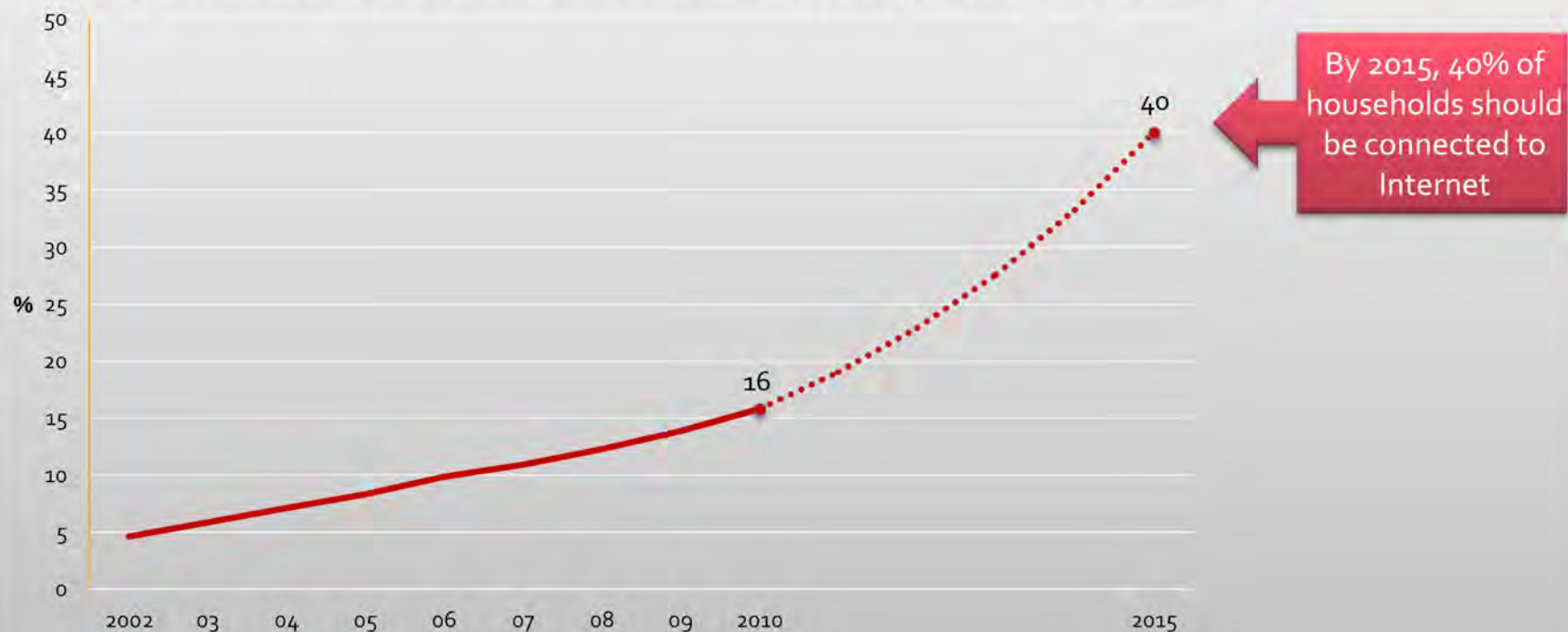
- Entry-level broadband prices should amount to 5% or less of monthly GNI p.c. in developing countries



Target 3: Connecting homes to broadband

- 40% of households in developing countries should have Internet access

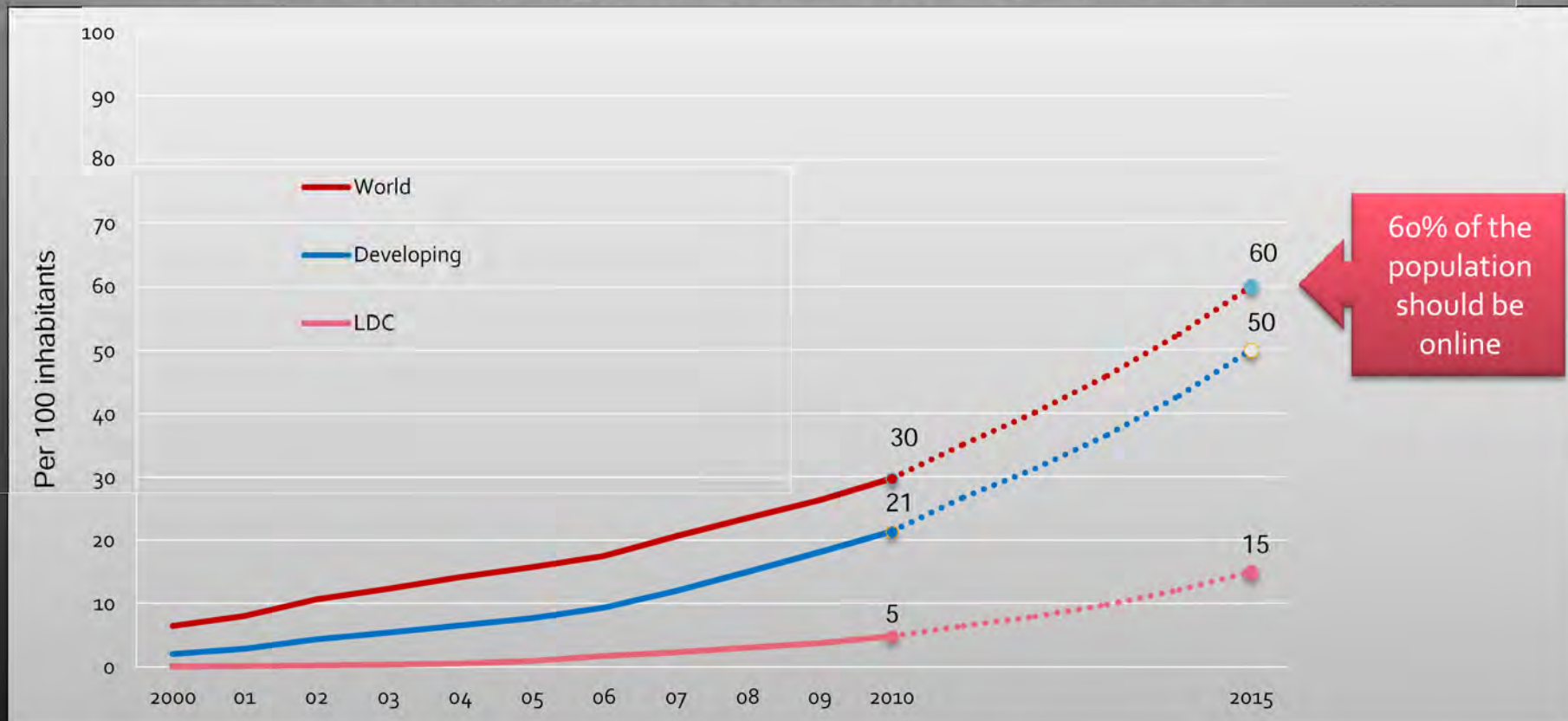
Proportion of households with Internet access (developing countries)



The developing country classifications are based on the UN M49, see:
<http://www.itu.int/ITU-D/ict/definitions/regions/index.html>
Source: ITU World Telecommunication /ICT Indicators database

Target 4: Getting people online

- Internet user penetration should reach 60% worldwide, 50% in developing countries and 15% in LDCs



What next ? Four challenges to WTIM

- **Content, value, impact** (Definitions, comparability, goals)
 - Measuring broadband capacity, quality and speed
 - Measuring ICT sector investment, revenue and value added
- **New metrics for new flows ?** (Web 2.0, cloud, big data)
 - Refining household ICT access and individual ICT usage indicators
 - e-waste ? Content valuation ? Web semantics ?
- **Disseminate and illuminate** (Interactive/open data)
- **The development dimension as central**



Thank you for your attention

**9th World Telecommunication/ICT Indicators
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Mauritius, 7 - 9 December 2011**



Contribution to WTIM-11 session

**Document C/2-E
7 December 2011
English**

SOURCE: ITU

TITLE: Introduction



INFORMATION & COMMUNICATION
TECHNOLOGIES AUTHORITY



Committed to Connecting the World

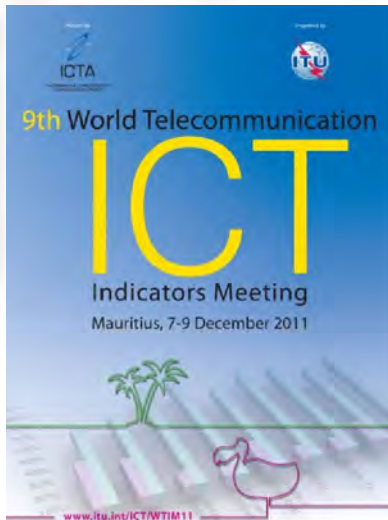


9th World Telecommunication/ICT Indicators Meeting (WTIM) Pailles, Mauritius, 7-9 December 2011

Introduction

Susan Teltscher, Head
ICT Data and Statistics Division
BDT/ ITU

9th WTIM - objectives



- Main global forum for discussing and shaping telecom/ICT statistics
- Data producers and users (ICT Ministries, regulators, NSOs, private sector, international agencies)
- Reviewing standards and definitions
- Sharing experiences
- Networking opportunity
- Exploring emerging issues on ICT measurement
- Guidance on ITU's future work

Interactive debate

Recent/ongoing ITU activities on ICT statistics

- Data collection 2011
- Data dissemination
- Data analysis
- Methodological work
- Technical assistance
- International collaboration

ITU data collection 2011

- **Short questionnaire:** data collection March-April, data published June; *response rate 68%*
- **Long questionnaire:** data collection June-August, data published December; *response rate 55%*
- **Price/tariff questionnaire:** data collection September, data published June 2012; response rate 31%
- **Household questionnaire:** data collection April, data published June; *response rate 48% (incl. those with no new data)*

Not all fields are filled in, in some cases only very few data per questionnaire

Data dissemination

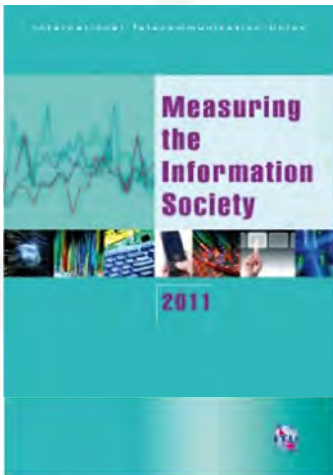


- ICT Eye
- WTI database (June & December 2011)
- Yearbook of Statistics 2010 & 2011
- The World in 2011: ICT Facts and Figures (ITU Telecom World 2011)



Latest update of WTI database, Yearbook 2011 and other publications will be distributed on USB stick this Friday (concluding session)

Measuring the Information Society (MIS) 2011 Report



www.itu.int/ict

- Launched in September 2011
- ICT Development Index (IDI)
- ICT Price Basket (IPB)
- Broadband quality, speed and bandwidth - needs to be addressed in the future
- Internet user divides (age, education, income)

Capacity building in ICT statistics

- Regional and national workshops (e.g. Bhutan)
- ICT Household Survey training course delivered in 2011: Fiji (Pacific island countries), Jordan (Arab countries)
- If interested in receiving capacity building or technical assistance: submit official request (through ITU regional offices) for the following calendar year

Defining indicators and setting international standards

- Expert Group on Telecom/ICT indicators (EGTI)
 - Revised indicators are collected in long questionnaire as of 2010
 - ITU Handbook will be launched today
- Planned (2012): revision of core indicators on ICT access in households and ICT use by individuals – ITU Manual, HH questionnaire
- Other ICT indicators – in cooperation with members of

 PARTNERSHIP ON
MEASURING ICT
FOR DEVELOPMENT



International cooperation

- WSIS Forum 2011 - Partnership
- Inter-agency and Expert Group on MDG indicators, MDG Gap Task Force – reporting on ICT statistics
- Broadband Commission for Digital Development – four new measurable targets
- UN Statistical Commission 2012: ICT statistics item for discussion



World Summit
on the Information Society
Turning targets into action



9th WTIM - Agenda

- **Sessions 1:** Jointly with Partnership on Measuring ICT for Development – Towards 2015
- **Session 2-5:** ICT Infrastructure and access: indicators and definitions; EGTI report; launch of ITU Handbook; broadband capacity; mobile broadband (tariffs); speed and quality of service
- **Sessions 6&7:** Measuring revenue and investment in the telecom/ICT sector

9th WTIM - Agenda

- **Session 8:** Measuring e-waste – cooperation with UNEP/SBC and link with other ITU work
- **Session 9:** Household ICT surveys – latest revisions (ITU and OECD) and new measurement topics
- **Concluding session** – Chair's recommendations and future work

We hope you enjoy the meeting!



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Contribution to WTIM-11 session

**Document C/3-E
7 December 2011**

English

SOURCE: ITU

TITLE: Monitoring global development targets

Monitoring global development targets

**9th World Telecommunication/ICT Indicators Meeting
7-9 December 2011**

Vanessa GRAY
Senior ICT Analyst
ICT Data and Statistics
BDT/ ITU

Setting global development targets

Purpose

- To evaluate, measure and benchmark progress
- To identify shortcomings, challenges and priorities
- To initiate partnerships and encourage donations
- To inform and guide policy makers (governments), donors, experts, the media etc

Requirement

- Indicators to measure targets have to be measurable, internationally harmonized and available

Setting global ICT targets: The 10 WSIS targets

- The World Summit on the Information Society (WSIS, 2003/2005) outcome documents included reference to 10 WSIS targets to assess global progress towards the information society by 2015 (in line with Millennium Development Goals)
- Targets range from connecting villages, schools, and health centers to developing online content and providing people with ICT access

Original WSIS targets

1. To connect villages with ICTs and establish community access points
2. To connect universities, colleges, secondary schools and primary **schools** with ICTs
3. To connect scientific and research centres with ICTs
4. To connect public **libraries**, cultural centres, museums, post offices and archives with ICTs
5. To connect health centres and **hospitals** with ICTs
6. To connect all local and central **government departments** and establish websites and e-mail addresses
7. To adapt all primary and secondary school curricula to meet the challenges of the information society, taking into account national circumstances
8. To ensure that all of the world's population have access to television and radio services
9. To encourage the development of **content** and put in place technical conditions in order to facilitate the presence and use of all world **languages** on the Internet
10. To ensure that more than half the world's inhabitants have access to ICTs within their reach

Monitoring the World Summit on the Information Society (WSIS) targets – process

- 2009: Measurement process initiated by ITU, as part of its role in the *Partnership on Measuring ICT for Development*
- ITU World Telecommunication/ICT Development Report (WTDR) 2010, jointly with other partners
- Launch of the new *Partnership on Measuring ICT for Development Task Group on Measuring the WSIS targets*



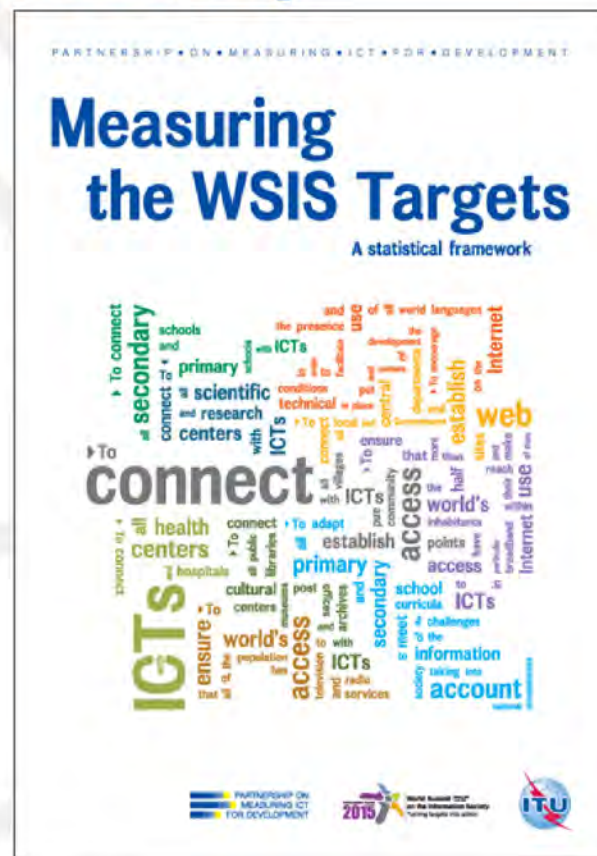


Partnership Task Group on Measuring the WSIS targets

- Launched during WSIS Forum 2010 (Geneva, May 2010)
- Includes Partnership members and external collaborators (WSIS community)
- Open consultation process: online forum to refine and discuss indicators and definitions:
<http://groups.itu.int/wsis-targets>
- Published the **Measuring the WSIS Targets – A statistical framework** in May 2011, at the WSIS Forum

Measuring the WSIS Targets: 10 targets & 49 indicators to assess the global information society

- **Measuring the WSIS Targets**
 - A statistical framework with indicators, definitions, benchmarks and collection methodologies
 - To guide countries in their data collection efforts and help them measure progress towards becoming information societies
 - Expected to be the main reference document for the final review of the achievements made towards meeting the WSIS targets in 2015



WSIS+10

- ITU High-level event on the Overall Review of WSIS in 2014 (in conjunction with WTDC) (ITU Council resolution 1334, 2011)
 - Countries will be approached to provide data to evaluate/measure the WSIS targets
 - Partnership is expected to prepare final quantitative review (report)

Setting global ICT targets: The 4 broadband targets

- In 2011, the Broadband Commission for Development identified 4 broadband targets, to be achieved by 2015, in line with the MDGs
 - Making broadband policy universal
 - Making broadband affordable
 - Connecting homes to broadband
 - Getting people online

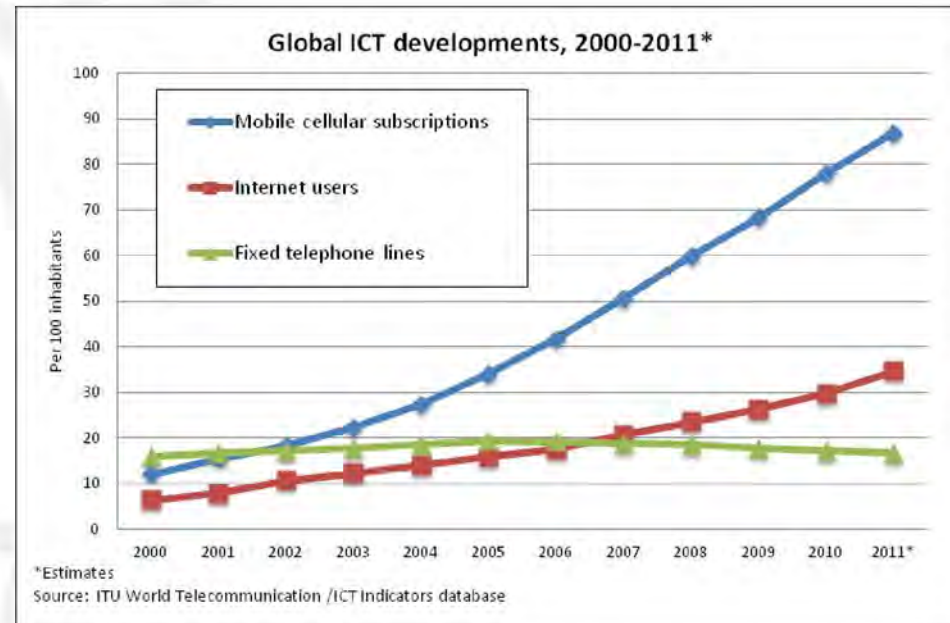


UN Millennium Development Goals (MDGs)

- 8 goals, 21 targets and 60 indicators
- Goals were adopted at the Millennium Summit in September 2000 by 189 member states
- Target date is 2015
- Targets cover the areas of poverty and hunger, education, gender equality, health and the environment
- ITU has the responsibility to measure Target 8F: *"In cooperation with the private sector, make available the benefits of new technologies, especially information and communications"*.

MDGs and ICTs

- Specifically, ITU monitors three indicators: fixed telephone lines, mobile cellular subscriptions and Internet users
- No numerical targets were attached to goal 8 of the MDGs
- This inclusion of ICT indicators in the MDGs highlights the importance of the role of ICTs as development enablers



Thank you

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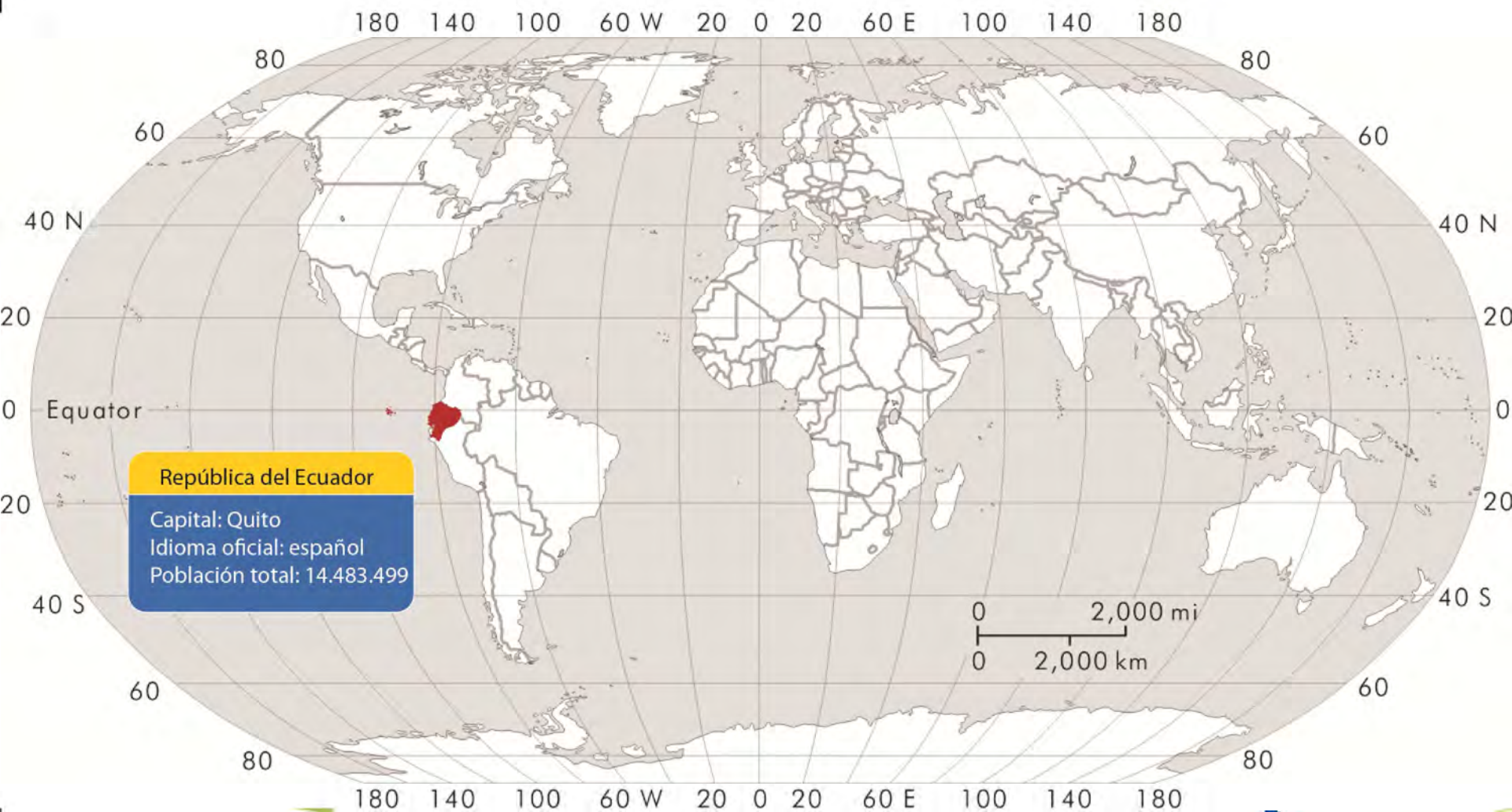
**Document C/4-E
7 December 2011**

English

SOURCE: Ministerio de Telecomunicaciones, Ecuador

TITLE: Action framework of the WSIS in Ecuador

WORLD TELECOMMUNICATIONS INDICATORS MEETING (WTIM) - ECUADOR





The Ministry of Telecommunications and Information Society, as a rectorial entity for the development of Information and Communication Technologies, emits policies, general plans, and conducts follow-up and evaluation of their respective implementation, coordinating assessment and support actions to guarantee equal access to services and to promote their effective, efficient, and effectual usage, to ensure the harmonic development of the Society of Information for the good living of the entire population.



The Republic of Ecuador, through the National Secretariat of Telecommunications, executes the policy of the telecommunications sector, oriented towards satisfying the necessities of the entire population, with the firm conviction of guaranteeing the growth of Technologies of Information and Communication in the population, incrementing and improving the Infrastructure of Telecommunications.

These indicators measure the involvement of ICT in society.

Through public policies, the State orients and optimizes efforts to diffuse and increment ICT so they may be within reach of all citizens.



INFORME

CUMPLIMIENTO DE OBJETIVOS
DE LA CUMBRE MUNDIAL
DE LA SOCIEDAD
DE LA INFORMACIÓN

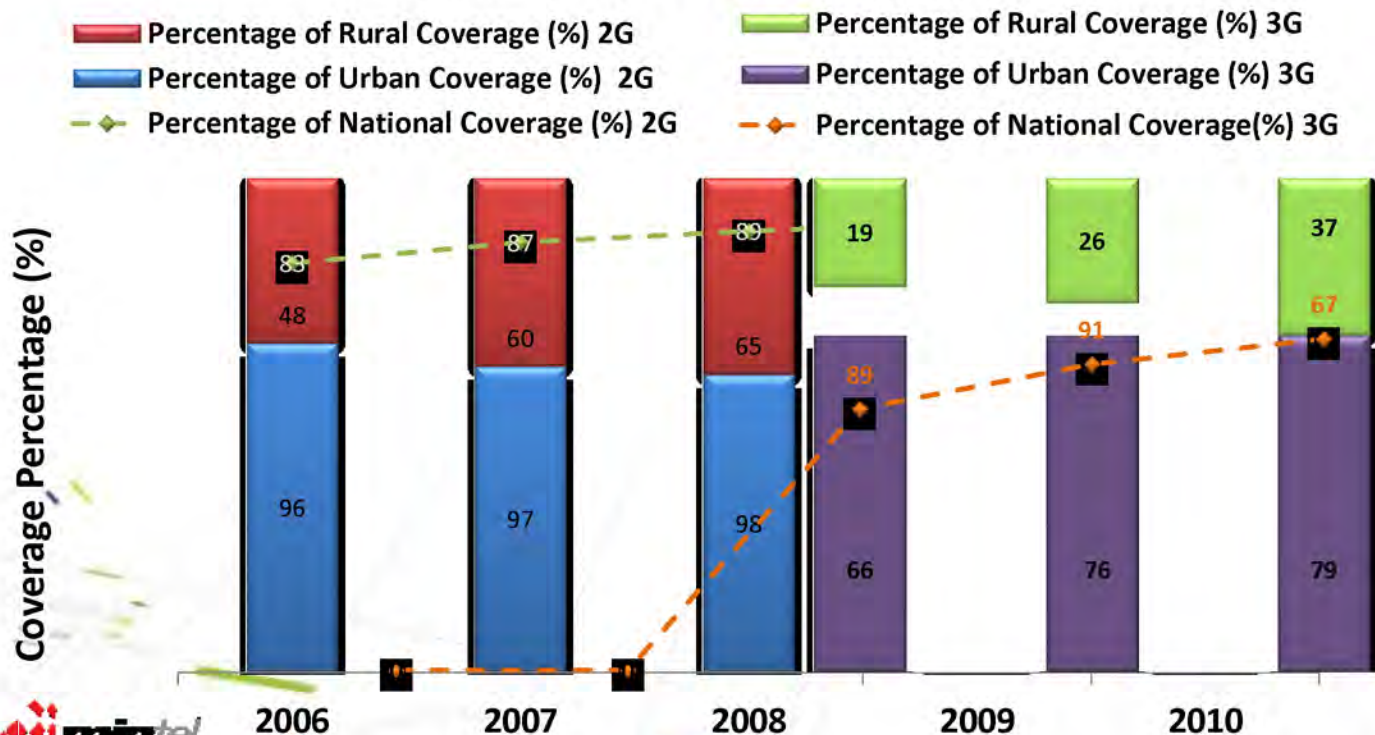
WSIS OBJECTIVES - ECUADOR

INDICATORS



This indicator was determined in function of the location of the Advanced Mobile Services (AMS) radiobases, over each one of the parishes of Ecuador. The coverage of the mobile telephone networks corresponds to the three operators of this service in Ecuador.

National AMS Coverage - Technologies

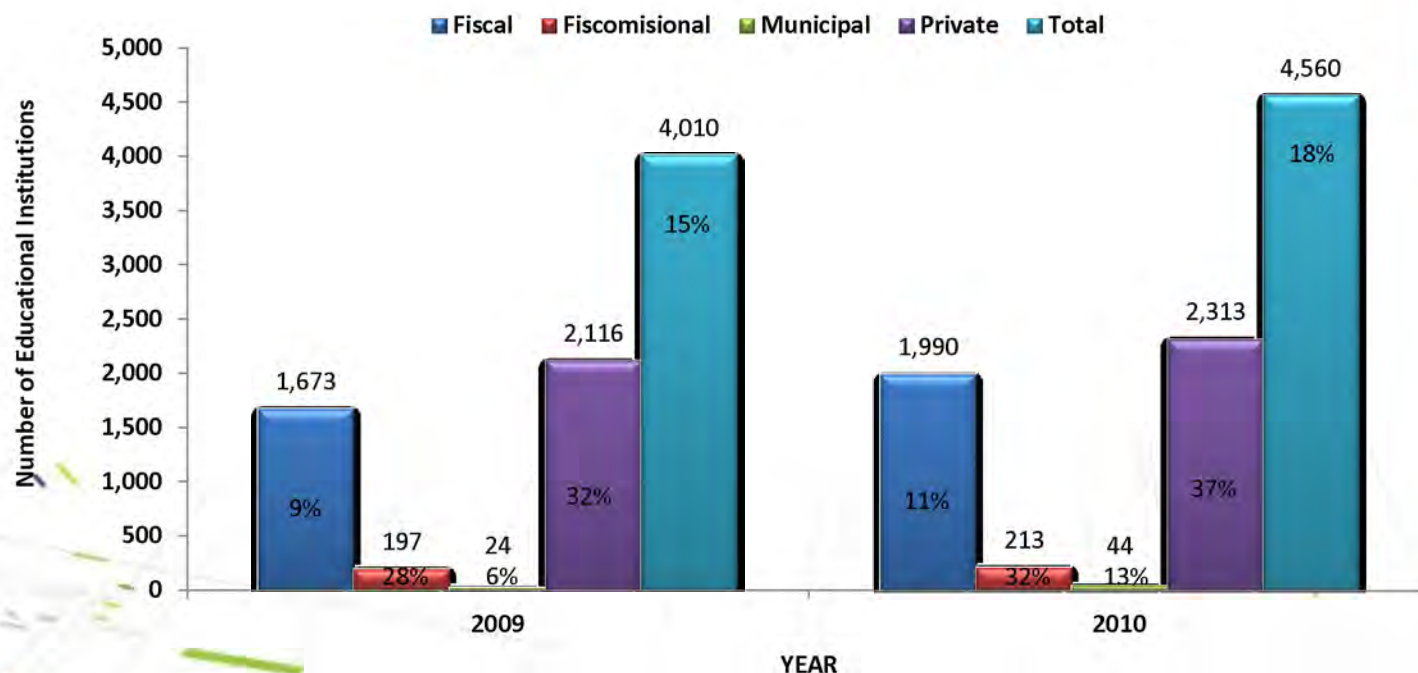


The 2G coverage in rural zones is equal to 78.95% and in urban zones equal to 99.25%. It is estimated that coverage in rural areas will increment by more than 6% in 2013.

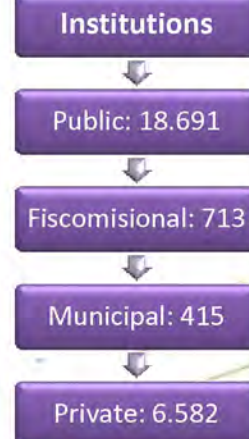
3G coverage is currently 78.62% for urban zones, while 36.56% of the population that lives in rural zones has access to this type of technology. Coverage is expected to grow at the national level by 9% in 2013.

This indicator was obtained through information provided by the Ministry of Education of Ecuador, which is also the entity that carries out the process of obtaining indicators of ICT in the Education sector.

Educational Institutions with Internet Access for pedagogical purposes



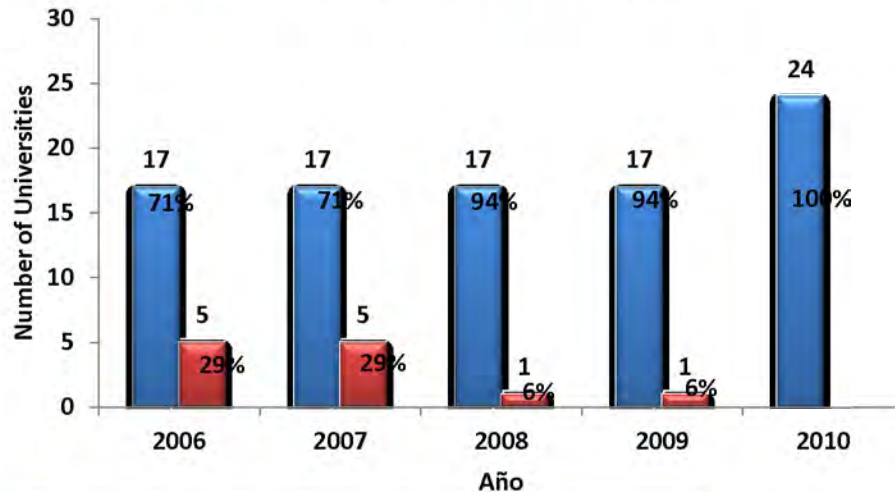
The obtained data reflects that the percentage of educational institutions with access to the internet is still low, especially considering the fact that only 18% of institutions had access to the Internet in 2010.



Objective 3 : To connect scientific and research centres with ICT.

Number of Universities connected to RNEI

■ Broadband > 2 Mbps ■ 256 Kbps < 2 Mbps



In Ecuador's case, great advances have been made in expanding broadband Internet access for scientific and investigation centers as well as for universities, reaching in the majority of cases to a 100% of centers with access to the Internet at speeds greater than 2 Mbps in the year 2010.

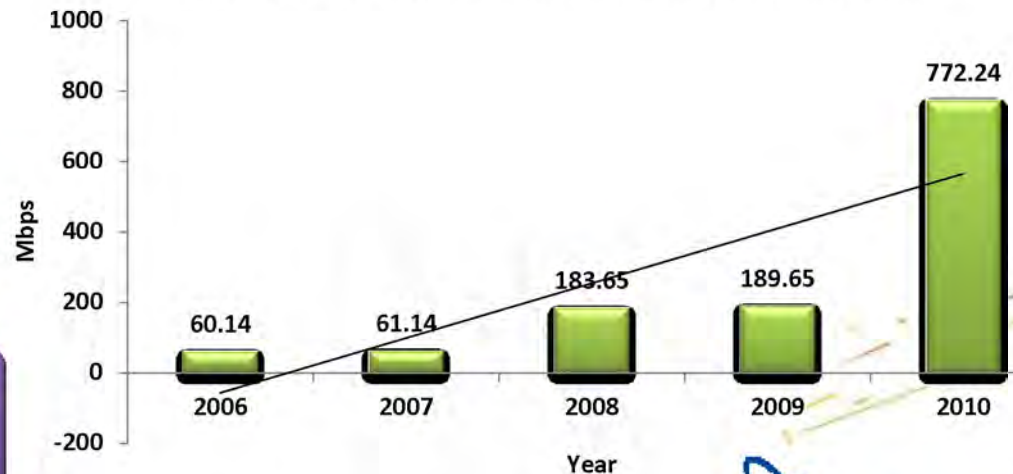
The total number of universities and investigation centers were taken into consideration to determine the indicators of RNEI. The data of the year 2007 was replicated for the year 2006.

Ecuador's research institutions have access to a network of education and investigation denominated CEDIA. However, not all universities belong to this network.

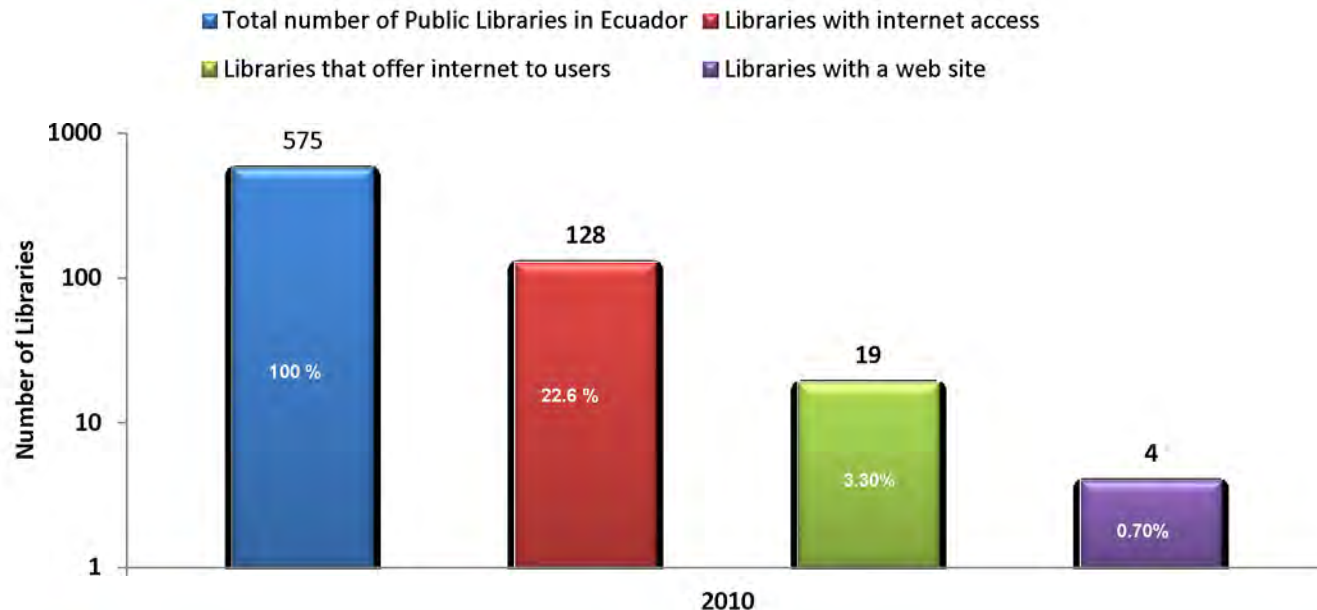
The national network of education and investigation (RNEI), initially had a total capacity of connection of 450 Mbps in the year 2009. However, members of this network can now connect at a speed of 1Gbps.

In general, the CEDIA network is the network with the best connectivity at the national level, and has experienced prominent growth in recent years.

Average of connection speed to the RNEI Network (Ecuadorean Consortium for the Development of Advanced Internet CEDIA)



PUBLIC LIBRARIES OF ECUADOR

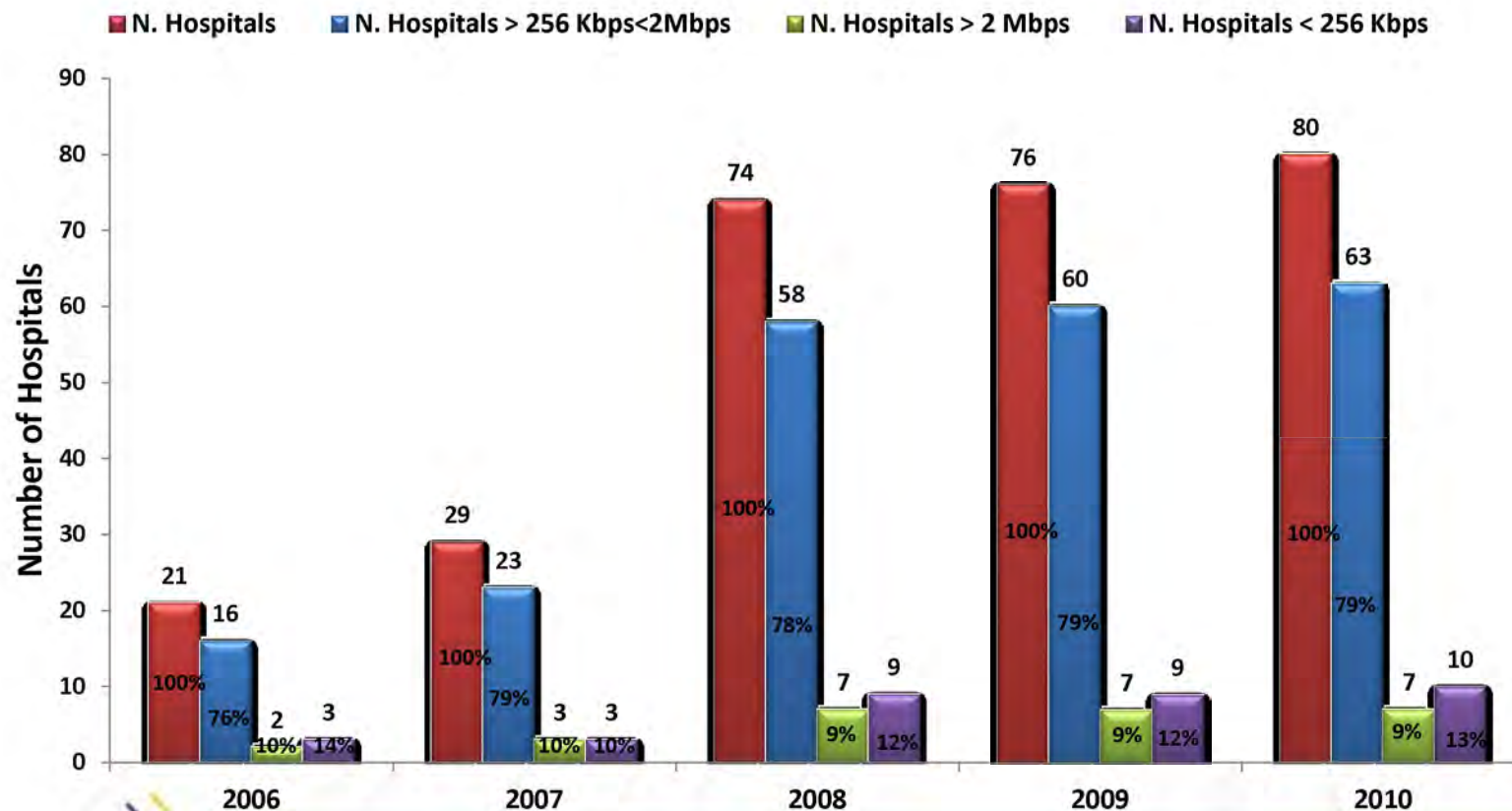


In Ecuador, 575 public libraries were registered in the year 2010, and this value has remained constant since the year 2006.

Information about Ecuador's public libraries was recopilated from the National System of Libraries (SINAB), governmental institution that administers this information.

BIBLIOTECAS PÚBLICAS DEL ECUADOR					
AÑO	TOTAL PUBLIC LIBRARIES	NUMBER OF LIBRARIES WITH INTERNET ACCESS	% OF LIBRARIES WITH INTERNET ACCESS	NUMBER OF LIBRARIES WITH BROADBAND INTERNET ACCESS TO USERS ≥ 256 Kbps	NÚMERO OF LIBRARIES WITH BROADBAND INTERNET ACCESS TO USERS ≥ 2 Mbps
2010	575	128	22.26%	18	1

HOSPITALS OF THE MINISTRY OF PUBLIC HEALTH WITH INTERNET ACCESS



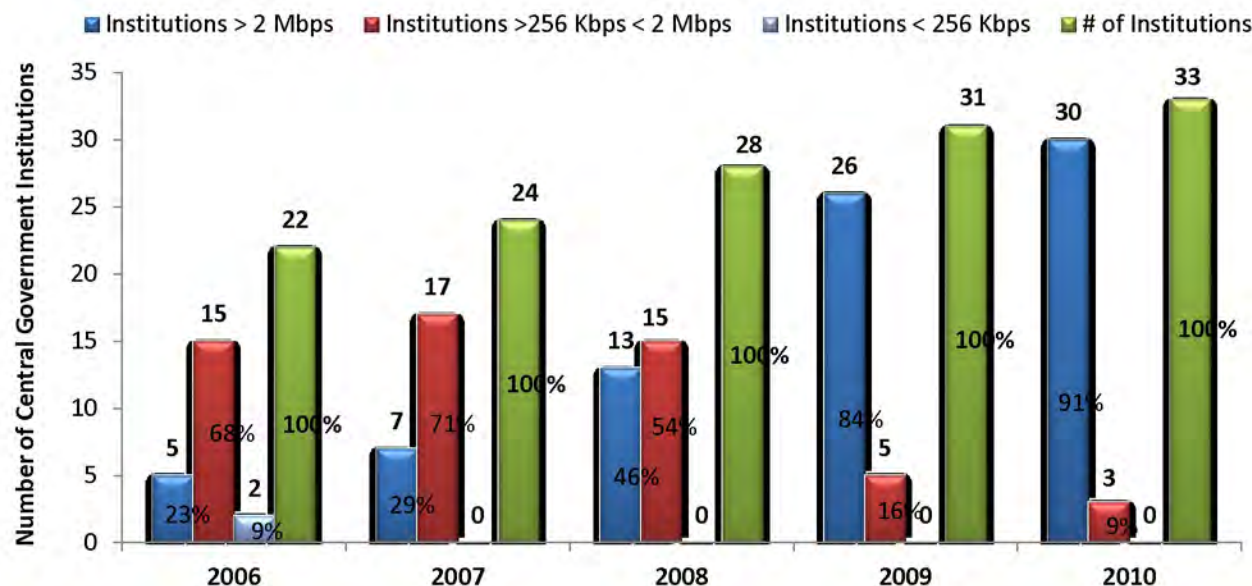
The Ministry of Public Health has 132 hospitals under its jurisdiction, distributed in different locations throughout the country. The hospitals are organized by complexity levels related to patient treatment.

This indicator was constructed with shared information between the Ministry of Public Health and the carrier base of SENATEL, which includes 80 hospitals.

Objective 6: To connect all local and central government departments and establish websites and email addresses.

9

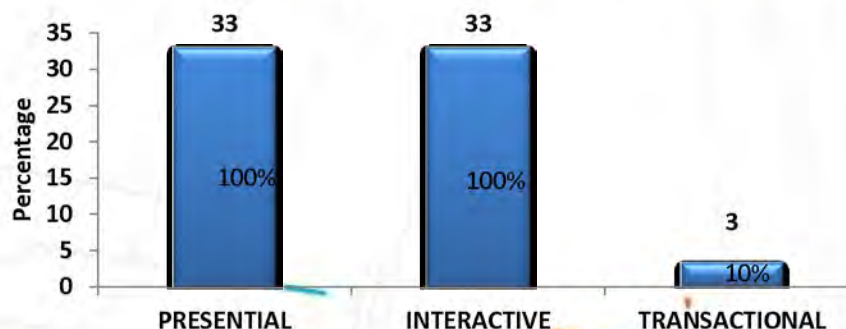
Central Government Institutions with internet access by access type



The data was obtained through information available to the "Subsecretaría de la Informática" of the Presidency of the Republic of Ecuador. Nonetheless, SENATEL, as the administrative entity of concession contracts of Telecommunication Services in the country, conducted an investigation of the bandwidth that public entities have access to through authorized providers, compiling information about the capacity of connection of Internet in public entities from 2006 to 2010.

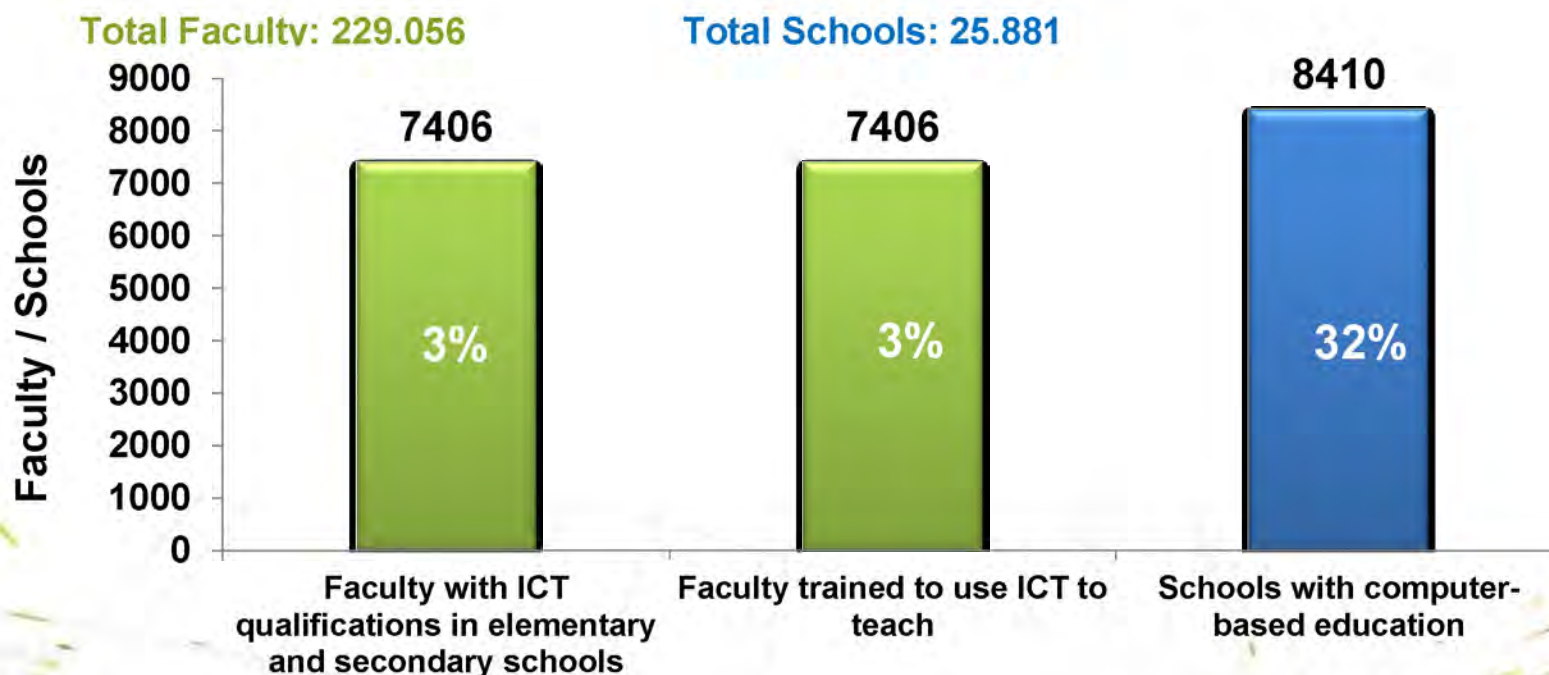
In order to obtain an indicator of governmental institutions that offer online services, the "Subsecretaría de la Informática" of the Presidency of the Republic of Ecuador provided information about the public entities adhered to electronic government that offer online services of a presential, interactive, or transactional nature. It is important to note that the "Subsecretaria de Informaática" labels presential online services as online services of a connected nature.

Governmental Institutions that offer online services

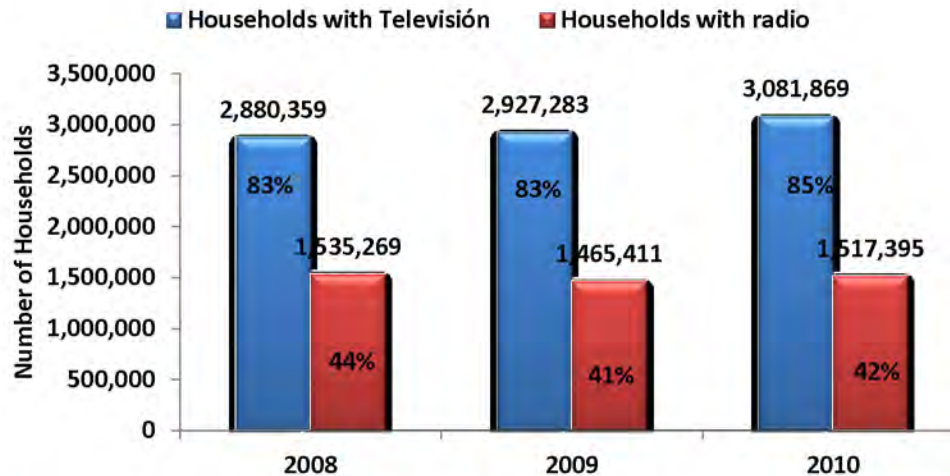


The data was provided by the Ministry of Education, and corresponds to the last course on ICT offered in the year 2010. Elementary and Secondary Faculties with qualifications in Ict, as well as Faculty trained on the use of ICT in education were included.

Faculty and Schools in Elementary and Secondary Education



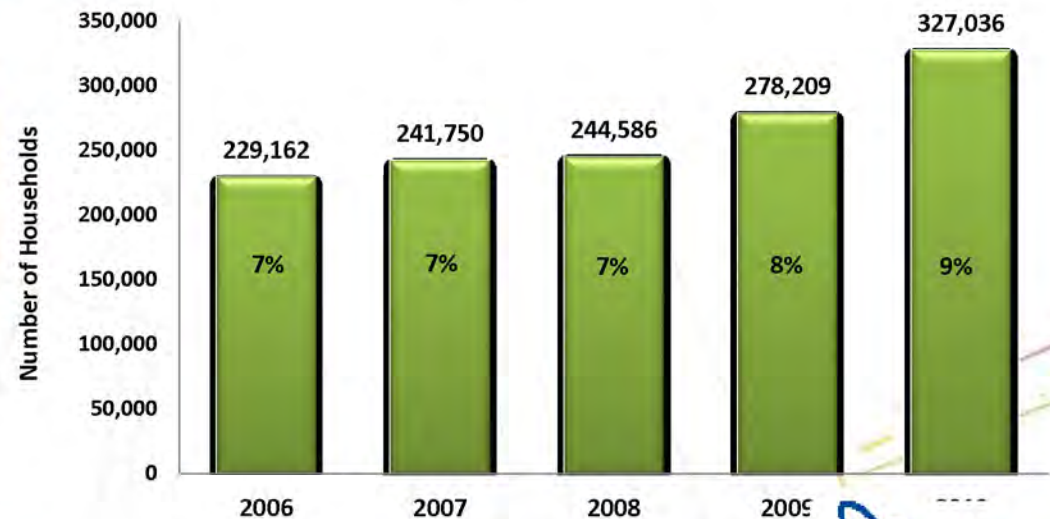
Households with Television and Radio



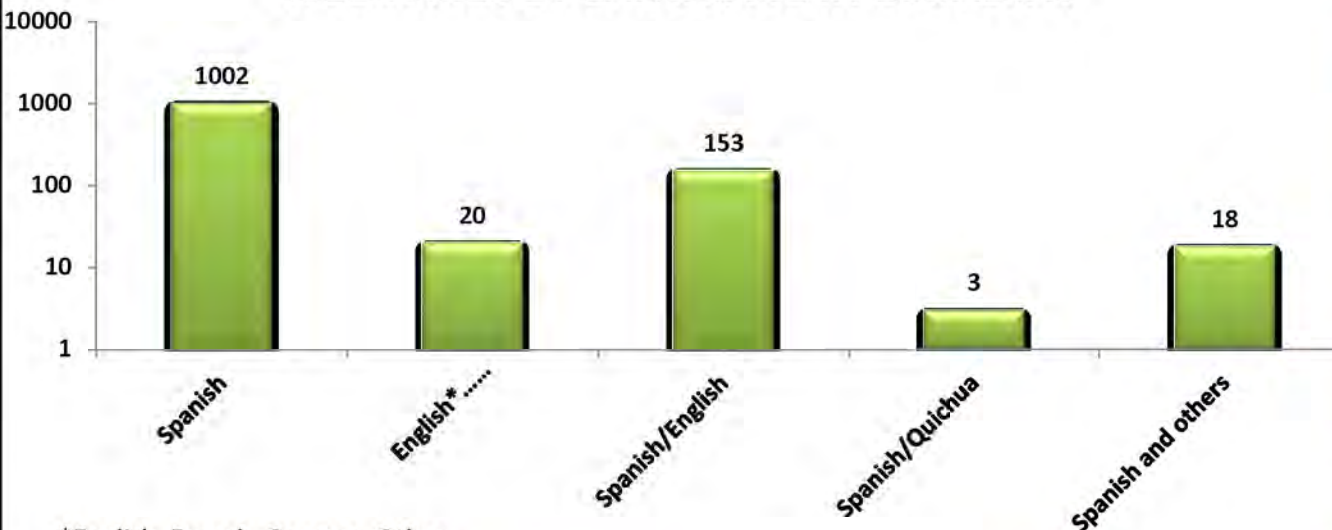
This indicator was constructed with information obtained through surveys conducted by the National Institute of Statistics and Census (INEC), which has carried out the process of consolidating indicators of measurement of ICT in households in the years 2008, 2009, and 2010.

The purpose of this indicator and its measurement goes beyond mere possession of a television device. The use of this device, as well as the capacity that it has to communicate, inform, and educate, must also be considered, because it may serve as an instrument to eradicate illiteracy, promote culture and improved educational instruction.

Households with Paid Multichannel Television



WEB PAGES BY LANGUAGE IN ECUADOR



*English, French, German, Other

WEB PAGES BY LANGUAGE IN ECUADOR		
LANGUAGE	N. OF WEB PAGES	PERCENTAGE
Spanish	1002	83.78%
English	17	1.42%
French	1	0.08%
German	1	0.08%
Other Languages	1	0.08%
Spanish / English	153	12.79%
Spanish/Kichwa	3	0.25%
Spanish/English/French	4	0.33%
Spanish/English/German	5	0.42%
Spanish/English/German/French	7	0.59%
Spanish/English/German/French/Others	2	0.17%
TOTAL	1196	100.00%

An online search was conducted to find a all-inclusive directory of web pages of Ecuador, which was found in the following web page: <http://www.Webs.info.ec/>.

With this directory, all the web pages were visited, and then classified with respect to their language.

Indicators are available only for the year 2010 because related information was not available in previous years.

Commerce and businesses,

Government, entertainment,

The web sites of Ecuador contain information about different sectors.

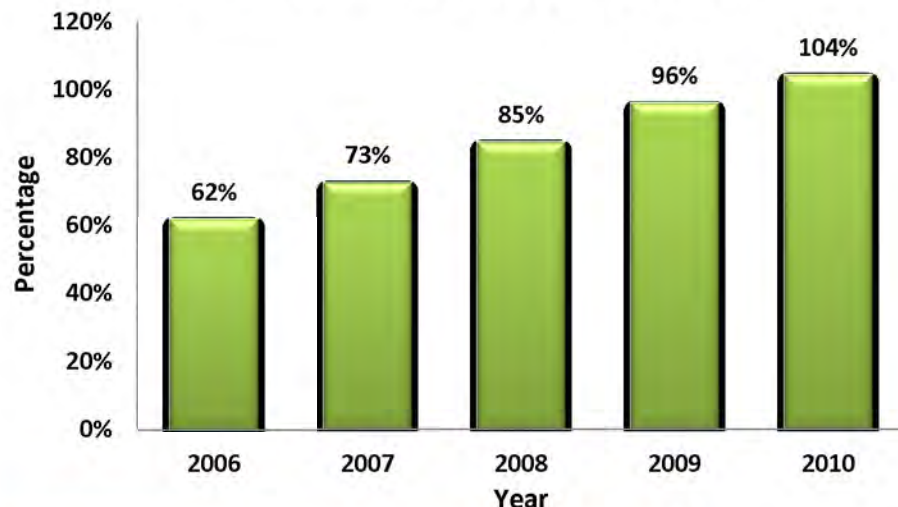
Education / Health

Others.

Objective 10: To ensure that more than half the world's inhabitants have access to ICT within their reach.

13

Subscribers to AMS for every 100 inhabitants

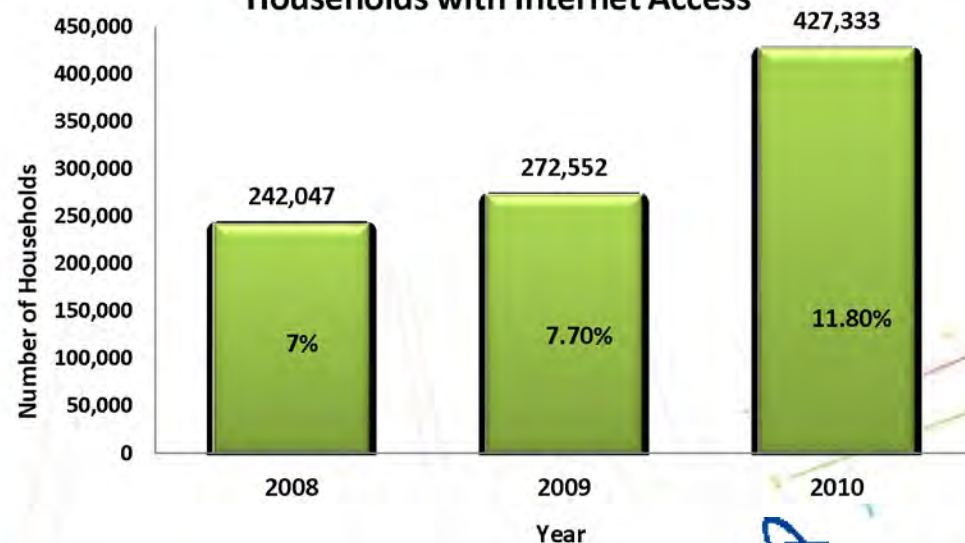


Ecuador has a mobile network coverage of 86.19%, which is in direct proportion to global data.

This indicator is obtained from the information that all operators of mobile telephony report to SENATEL; similarly, the values for the population are provided by INEC for the considered years.

The data for this indicator was obtained from sections of the surveys conducted by the National Institute of Statistics and Census (INEC).

Households with Internet Access







Ecuador Digital 2.0



mintel
Ministerio de Telecomunicaciones
y de la Sociedad de la Información



www.mintel.gob.ec

Alvaro Armijos
Mail: alvaro.armijos@mintel.gob.ec
Skype: armijosa
msn: alvaroarmijos@hotmail.com

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Contribution to WTIM-11 session

**Document C/5-E
7 December 2011**

English

SOURCE: UNECA

TITLE: A Framework for a Set of e-Government Core Indicators

The 9th ITU World Telecom/ICT Indicators Meeting

Mauritius, 7-9 December 2011

A Framework for a Set of e-Government Core Indicators

Mr. Makane Faye

Officer-in-charge

**ICT Policy & Development Section and
E-Application Section**

**ICTs, Science & Technology Division
United Nations Economic Commission for Africa**

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- The Indicators Development Process
- List of indicators
- Challenges
- Development of a Manual for Measuring e-Government
- The Way forward



Objectives of the e-Government indicators

- To capture and measure readiness of government (including in developing countries) in terms of information technology deployment (infrastructure, investment, HR, etc.) and exploitation
- To measure access to government services
- To measure use of ICT in decision making and its role in the governance process
- To assist in promoting administrative efficiency
- To obtain high quality and internationally comparable data
- To help promote ICT investments, etc.



The Indicators Development Process (1)

**Task Group on e-Government (TGEG)
Indicators, created following WSIS Phase2
operated through the following stages:**

- The meeting of the Fifth African Technical Committee on the African Information Society Initiative (AISII), Addis Ababa, December 2006
- The ITU-UNCTAD-ECA Regional Workshop on Information Society Measurements, Addis Ababa, March 2007
- The WSIS Cluster of events and Forums (Action Line C7), Geneva, May 2007, 2008, 2009, 2010 and 2011



The Indicators Development Process (2)

- The OSILAC Consultations, Santiago De Chile, November 2009
- The 14th Session of the WPIIS, Paris, June 2010
- The International Seminar on ICT Statistics, Seoul, July 2010
- The OSILAC Regional Meeting, Montevideo, September 2010
- TGEG Consultations, Geneva, May 2011
- The 8th WTI Meeting, Geneva, November 2010



List of the 7 e-Gov indicators adopted by TGEG members



No	Name of Indicator
EG1	Proportion of persons employed in central government organizations routinely using computers
EG2	Proportion of persons employed in central government organizations routinely using the Internet
EG3	Proportion of central government organizations with a Local Area Network (LAN)
EG4	Proportion of central government organizations with an intranet



No	Name of Indicator
EG5	Proportion of central government organizations with Internet access, by type of access
EG6	Proportion of central government organizations with a web presence
EG7	Selected Internet-based services available to citizens, by level of sophistication of service

EG 7 by type of sophistication

Actions: Voting, filling income tax forms, unemployment benefits, child allowance, passport, driver's license, declaration of theft, birth, death, marriage certificates, vehicle registration, etc.

Level 1: **Obtain information** from publicly accessible websites. It involves little or no interaction.

Level 2: **Request printed forms or download forms** from publicly accessible websites. It is one-way interaction, involving simple requests from the user.

Level 3: **Fill in online forms** available on publicly accessible websites. It reflects more complex website facilities. Information from the form may be processed automatically, thus potentially providing efficiency to the agency.

Level 4: **Undertake the complete process**, via publicly accessible websites. reflects relatively complex website facilities and information processing applications. It enables a complete process (e.g. an application and its outcome). This could include downloading of applications, decision, delivery and payment (from or to the user). This level may also be described as "**full electronic case handling**".

Challenges

Possible challenges:

- statistically feasible
- internationally comparable
- substantively relevant
- sufficiently robust to provide reliable evidence of trends and levels
- understandable and accessible to ordinary citizens as well as researchers and policy makers
- not so complex as to limit their collection and use

Manual for Measuring e-Government: A draft Outline

- Statistical Standards
- Data Sources
- Questionnaire design and content
- Survey design
- Data processing
- Data quality and evaluation
- Dissemination
- Annex: Country examples - details of existing e-government surveys
- Other annexes (these could include more technical details, other core ICT indicators etc)

The Way forward (2012)

■ On the Core Indicators Framework

- Editing and printing: January
- Translation into French: January-February
- Submission to UN Statistical Commission: February

■ On the Manual for Measuring e-Government

- Process on recruiting consultant to undertake/oversee development of the Manual: January-February
- Development of the Manual: March-July
- Capacity Building on use of the manual: September
- Review: November-December
- Printing: December
- Translation into French: From December



Government of Finland



Economic Commission
for Africa

Thank You !

www.uneca.org/istd



ESCWA



**9th World Telecommunication/ICT Indicators
Meeting (WTIM-11)
Mauritius, 7 - 9 December 2011**



Contribution to WTIM-11 session

**Document C/6-E
7 December 2011**

English

SOURCE:

Malaysian Communications and Multimedia Commission, Malaysia

TITLE:

Report of the Expert Group on Telecommunication/ICT Indicators (EGTI) by the Chair

9th ITU World Telecommunication/ICT Indicators Meeting (WTIM)

**7-9 December 2011
Mauritius**

Report of the Expert Group on Telecommunication/ICT Indicators (EGTI) by the Chair

**Koay Hock Eng
Senior Director
Information Management & Knowledge Resource Division
Malaysian Communications and Multimedia Commission**

Outline

- Background of the EGTI
- EGTI online discussion forum
- 2nd EGTI meeting
- Recommendations for future work

Background of the EGTI

- Outcome of 7th WTIM, held in Egypt in 2009
- Worked via EGTI online discussion forum
- 1st EGTI meeting in 2010, Geneva
 - Outcome: Revised indicators included in the Handbook
 - Other indicators left for online discussion between April 2010 to November 2011
- 2nd EGTI meeting, 5-6 December 2011, Mauritius

EGTI online discussion forum

- More than 150 members
- Moderated by ITU
- Worked by exchanging comments in the forum by group of indicators
- Number of comments received vary by indicator group

2nd EGTI meeting

- 5-6 December 2011, Mauritius
- Attended by 38 participants, representing regulators and ministries from 17 countries as well as Intel, European Commission, LIRNEasia
- Discussed inputs received through online forum from April 2010- November 2011, and presentations
- Discussion focused on indicators, definition and inclusion in the ITU data collection 2012
- Future work of the EGTI

Indicators under discussion

- Fibre-optic indicators (FTTN/C)
- Mobile broadband tariff indicators
- Quality of service indicators (mobile, Internet)
- Community access indicators
- Other topics

Fibre subscription indicators

- Discussed fibre to the node/cabinet (FTTN/C) indicator
- Difficulties in collecting the data including the risk of double-counting
- It will not be collected as a separate indicator
- It was agreed that the data will be reported under ITU Handbook *Indicator 20: fixed (wired)-broadband indicators, by technology*
 - DSL
 - Cable
 - Fttth/b
 - Other

Mobile-broadband tariffs

- Presentation of the proposed methodology and experience from the ITU data collection followed by a round-table discussion
- Agreed to use the ITU methodology for collecting mobile broadband tariffs indicators
- The data will be included in the 2012 data collection of ITU
- Details to be presented in session 4

Quality of Service

1. Mobile cellular – voice

- a. Unsuccessful call ratio
- b. Dropped call ratio
- c. Complaints per 100 mobile-cellular subscriptions

2. Fixed (wired)-broadband Internet

- a. Service activation time
- b. Complaints per 100 fixed (wired)-broadband subscriptions
- c. Data transmission speed achieved

➤ **Details to be presented in session 5**

Community access indicators

- ITU first identified indicators on community access at a global conference in Mexico in 2004
- Despite all efforts, very few countries (less than 20) can provide data on Public Internet Access Centre (PIAC) indicators
- Many of the countries that provide the data are city-states or relatively small countries that have reached 100% of locality and population coverage

Community access indicators

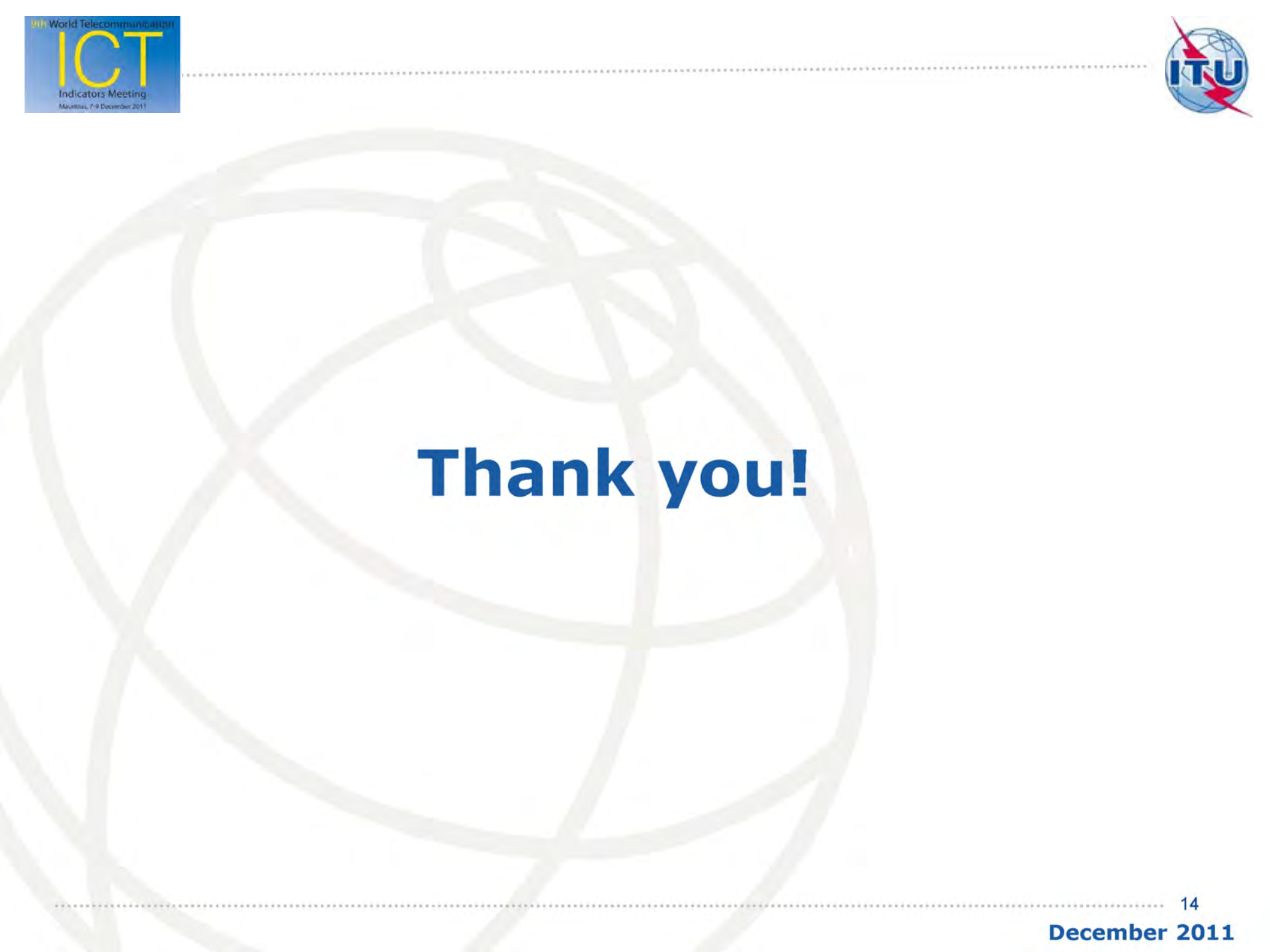
- Decision:
 - PIAC indicators will no longer be collected at the international level
 - PIAC indicators are to be excluded from ITU long questionnaire
 - Countries can collect the data at the national level using existing PIAC indicators and definitions as a guideline
 - Data on the use of public Internet access facilities should be collected through household surveys

ICT Development Index (IDI)

- Comments were received related to the indicators and methodology of the IDI
- The EGTI agreed to continue the discussion on the IDI in the online forum
- Encourage countries and experts to provide more comments, taking into consideration the different aspects related to the methodology of the index

Future work of the EGTI

- Continue discussion on Internet QoS indicators
 - Other QoS indicators
 - Discussion on IDI and ICT Price Basket (IPB) methodology
 - Investment indicators
 - To open a discussion point in the EGTI forum for sharing experiences on collection of active mobile-broadband subscription data
 - Incorporate other indicators suggested by the WTIM 2011
- ✓ The meeting agreed that the EGTI should continue its work

A large, faint, light-colored globe with a grid of latitude and longitude lines is centered in the background of the slide.

Thank you!

**9th World Telecommunication/ICT Indicators
Meeting (WTIM-11)**
Mauritius, 7 - 9 December 2011



Contribution to WTIM-11 session

**Document C/7-E
7 December 2011**

English

SOURCE: ITU

TITLE: ITU Handbook for the Collection of Administrative Data on Telecommunication/ICT
2011

9th ITU World Telecommunication/ICT Indicators Meeting (WTIM)

7-9 December 2011
Mauritius



ITU HANDBOOK for the Collection of Administrative Data on Telecommunication/ICT 2011

Esperanza Magpantay
Senior Statistician
ICT Data and Statistics Division
International Telecommunication Union

ITU Handbook 2011

Main objective:

- To serve as a **key reference document** for internationally comparable indicators
- To improve **availability and quality** of the telecom/ICT data from administrative sources
- To assist countries to **measure telecom/ICT service** sector
- To serve as a practical **tool** for data users

ITU Handbook 2011

- Covers **81 indicators on telecommunication/ICT services**
- Covers data collected from administrative sources (e.g. telecom operators/ISPs)
- Includes updated/revised definitions
- Has been discussed in the ITU Expert Group on Telecom/ICT Indicators (EGTI)
- Covers issues related to data collection, compilation and dissemination

ITU Handbook - Content

- **Chapter 1. Introduction**
- **Chapter 2. Data collection, compilation and dissemination**
 - **Data Collection**
 - *Responsibility*
 - *Sources*
 - *Periodicity*
 - **Compilation**
 - *Aggregation*
 - *Disaggregation by operator and by administrative unit*
 - **Dissemination**
 - **Role of ITU in the collection and dissemination of telecommunication/ICT data**
- **Chapter 3. Indicators**

ITU Handbook 2011 – Chapter 3

Indicator groupings (topics):

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

Information provided for each of the 81 indicators includes:

- Definition of the indicator
- Clarifications and scope
- Method of collection
- Relationship with other indicators
- Methodological issues
- Relevant examples

ITU Handbook

- Total of 81 main indicators
 - 43 indicators included in the ITU long questionnaire
 - 14 indicators included in ITU ICT Price Basket questionnaire
 - Other indicators are for national data collections
- Data for all indicators collected **are included** the World Telecommunication/ICT (WTI) database

Example : Indicator



Indicator 27: Fixed-to-mobile telephone traffic, in minutes (i1313wm)

Definition:

Fixed-to-mobile telephone traffic refers to total traffic from all fixed-telephone networks to all mobile-cellular networks within the country. The indicator should be reported as the number of minutes of traffic during the reference year.

Clarifications and scope:

This indicator refers to the volume of traffic in minutes sent from fixed-telephone lines to mobile networks within the country. The treatment of public payphone-to-mobile network traffic should be clarified in a note if it is not covered here.

Method of collection:

The data can be collected from licensed fixed-telephone operators in the country, and then aggregated at the country level.

Relationship with other indicators:

Indicator 27 is not related to other indicators in the Handbook.

Methodological issues:

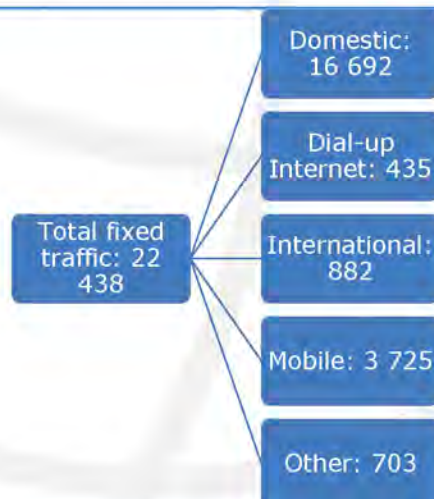
Data should refer to fixed-telephone line voice traffic to all national mobile networks, in minutes. Some operators may report minutes that are included in monthly plans, or may use different approaches for rounding traffic billed in seconds.

Example:

The Swedish telecommunication regulator, the Post and Telecom Agency (PTS), compiles data on domestic fixed-telephone traffic as shown in Example 18.

Example 18: Outgoing fixed traffic, Sweden, millions of minutes, 2010

Source: Adapted from PTS (2011), *The Swedish Telecommunications Market 2010*, available at <http://www.statistik.pts.se/pts2010e/>.



Annex 1: Summary of indicators and their relationships

- Available on pages 123-126
- Provides information on indicator number, indicator name, ITU code and sub-indicators
- Relationship with other indicators
 - Example: $2 = 3 + 4 + 5 + 9 + 75a$

Annex 3: Terms and abbreviations

- Available on pages 128-132
- Provides a list of useful terms and abbreviations
- Supplementing the definition of indicators available in the handbook
- Example: DSL, GSM, DTT, etc.

Annex 4: Classification of information economy activities

- Based on ISIC Revision 4
- Define the scope of indicators covered in the Handbook
 - Particularly relevant to the employment, revenue and investment indicators
- Table 4. Division 61, Telecommunications
 - Wired telecommunication activities
 - Wireless telecommunication activities
 - Satellite telecommunication activities
 - Other telecommunication activities

ITU Handbook 2011

- **Original version in English. It will be translated into the other ITU languages (A, C, S, F, R).**
- **It will be available online, in printed form and distributed to all countries**

Conclusion

- The ITU Handbook is a valuable tool for national and international collection of administrative data on telecom/ICT services
- Countries are encouraged to use the Handbook in their national data collection to ensure international comparability of the data

Conclusion

- The ITU will continue working with the EGTI, and the OECD and the EU in harmonizing/improving the definition of indicators, particularly new indicators
- It is important that countries share experiences with ITU when using the Handbook

Thank you!

e-mail: indicators@itu.int

www.itu.int/ict

**9th World Telecommunication/ICT Indicators
Meeting (WTIM-11)
Mauritius, 7 - 9 December 2011**



Contribution to WTIM-11 session

**Document C/8-E
7 December 2011**

English

SOURCE: University of Southern California

TITLE: How much communication ?



ITU WORKING PAPER



Mapping the dimensions and characteristics of the world's technological communication capacity during the period of digitization (1986 - 2007/2010)

ITU WORKING PAPER PRESENTED AT THE 9TH WORLD TELECOMMUNICATION/ICT INDICATORS MEETING
INTERNATIONAL TELECOMMUNICATION UNION (ITU), MAURITIUS, 7-9 DECEMBER 2011

<http://www.martinhilbert.net/WorldInfoCapacity.html>



NACIONES UNIDAS



Dr. Martin Hilbert

<http://www.martinhilbert.net/>



USC University of
Southern California

Annenberg School of Communication

The lack of information about the flows of information in the information society



To measure is to know

Lord Kelvin (1824 –1907):

“When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the state of Science, whatever the matter may be”

Information is physical and we can measure it!

How to measure the growth of telecommunication capacity?

number of subscriptions

performance of subscriptions

sum up their product

Infrastructure

8%
per year

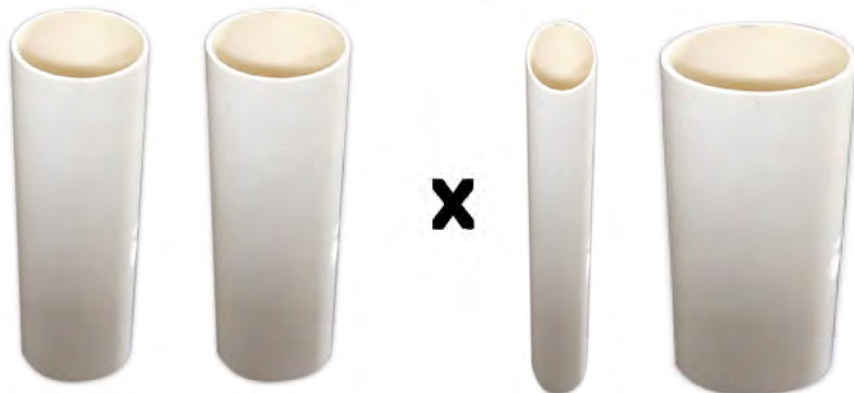
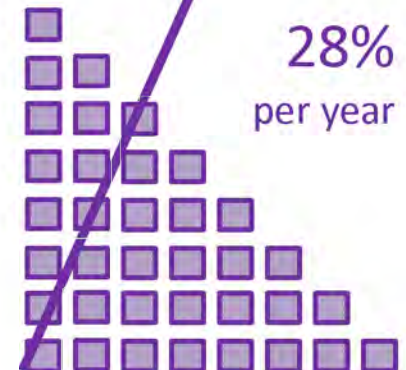
x

Hardware
7% per year

Software
compression
10% per year

=

28%
per year



x

x



= Number of
("stones") bits

Study covers 31 telecom & 12 broadcasting technologies

Category	Technology	Hardware bandwidth (in kilo- binary-digits per second)	Informational capacity (in optimally compressed kilobits per second)
		Downstream/ Upstream	Downstream/ Upstream
Telecommunications (bidirectional)			
Fixed-line telephony	Fixed-line phone analog	104 / 104	8.6 / 8.6
	<i>Fixed-line phone digital</i>	64 / 64	12 / 12
	<i>Dial-up</i>	56 / 48	44 / 38
Fixed-line	<i>ISDN BRI</i>	128 / 128	102 / 102
Internet	<i>ISDN PRI</i>	1,935 / 1,935	1,539 / 1,539
(wireline and wireless)++	<i>Cable Modem</i>	6,563 / 1,009	5,219 / 802
	<i>DSL</i>	2,286 / 654	1,817 / 519
	<i>FTTH/B</i>	18,696 / 4,917	14,873 / 3,912
	<i>Other/unidentified</i>	947 / 897	748 / 709
	Analog (1G)	102 / 102	6.4 / 6.4
	<i>GSM (2G)</i>	8.5 / 8.5	8.0 / 8.0
Voice mobile telephony	<i>cdmaOne (2G)</i>	13 / 13	4.0 / 4.0
	<i>PDC (2G)</i>	6.7 / 6.7	6.5 / 6.5
	<i>TDMA (2G)</i>	8.0 / 8.0	4.0 / 4.0
	<i>iDEN (2G)</i>	4.0 / 4.0	4.0 / 4.0
	<i>GSM/GPRS (2.5 G)</i>	8.5 / 8.5	8.0 / 8.0
	<i>GSM/EDGE (2.5 G)</i>	8.5 / 8.5	8.0 / 8.0
	<i>CDMA2000 1x (3G)</i>	8.6 / 8.6	5.6 / 5.6
	<i>WCDMA / UMTS (3G)</i>	15 / 15	11 / 11
	<i>CDMA2000 1xEV-DO(3G)</i>	13 / 13	12 / 12
	<i>GSM (2G)</i>	14 / 14	11 / 10
	<i>cdmaOne (2G)</i>	19 / 14	15 / 5
	<i>PDC (2G)</i>	29 / 29	22 / 20
Data mobile telephony	<i>TDMA (2G)</i>	10 / 10	7.4 / 6.7
	<i>iDEN (2G)</i>	19 / 19	15 / 13
	<i>GSM/GPRS (2.5 G)</i>	46 / 14	35 / 10
	<i>GSM/EDGE (2.5 G)</i>	100 / 42	77 / 29
	<i>CDMA2000 1x (3G)</i>	80 / 80	61 / 55
	<i>WCDMA / UMTS (3G)</i>	350 / 350	268 / 243
	<i>CDMA2000 1xEV-DO (3G)</i>	500 / 80	383 / 55
Postal	Postal letters^	0.000013 / 0.000013	0.000002 / 0.000002
Broadcasting (unidirectional)			
Postal	Paper Newspapers^	0.015 / 0	0.0016 / 0
	Paper advertisement^	0.00025 / 0	0.00003 / 0
Radio	Radio analog	706 / 0	35 / 0
	<i>Radio digital</i>	192 / 0	71 / 0
GPS	<i>Personal navigation device</i>	0.46 / 0	0.23 / 0
Television	TV-Terrestrial analog (black & white)	59,921 / 0	1,010 / 0
	TV-Terrestrial analog (color)*	87,849 / 0	1,487 / 0
	TV-Cable analog*	87,255 / 0	1,477 / 0
	TV-Satellite analog	90,560 / 0	1,533 / 0
	<i>TV-digital (x3):** Terrestrial / Cable / Satellite</i>	4,256 / 15	2,144 / 11

Communication in optimally compressed MB

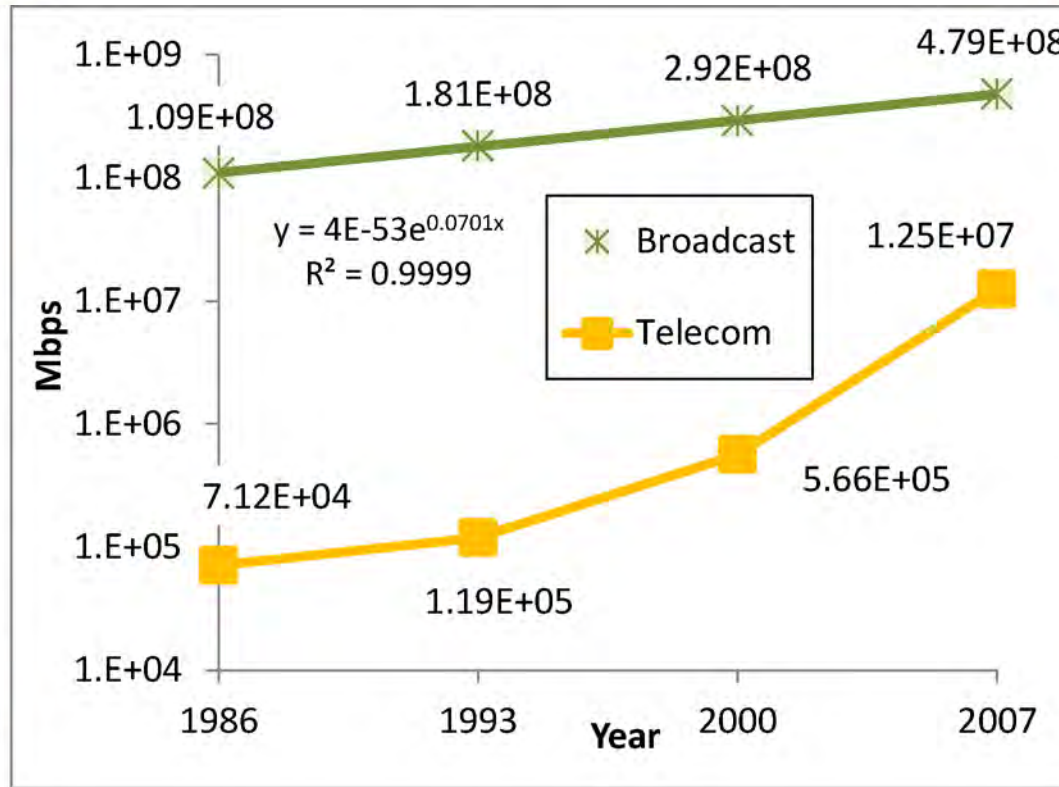
One-way broadcast

Single message for all



Two-way telecommunication

Individual messages



Broadcast / telecom = 1,500 / 1

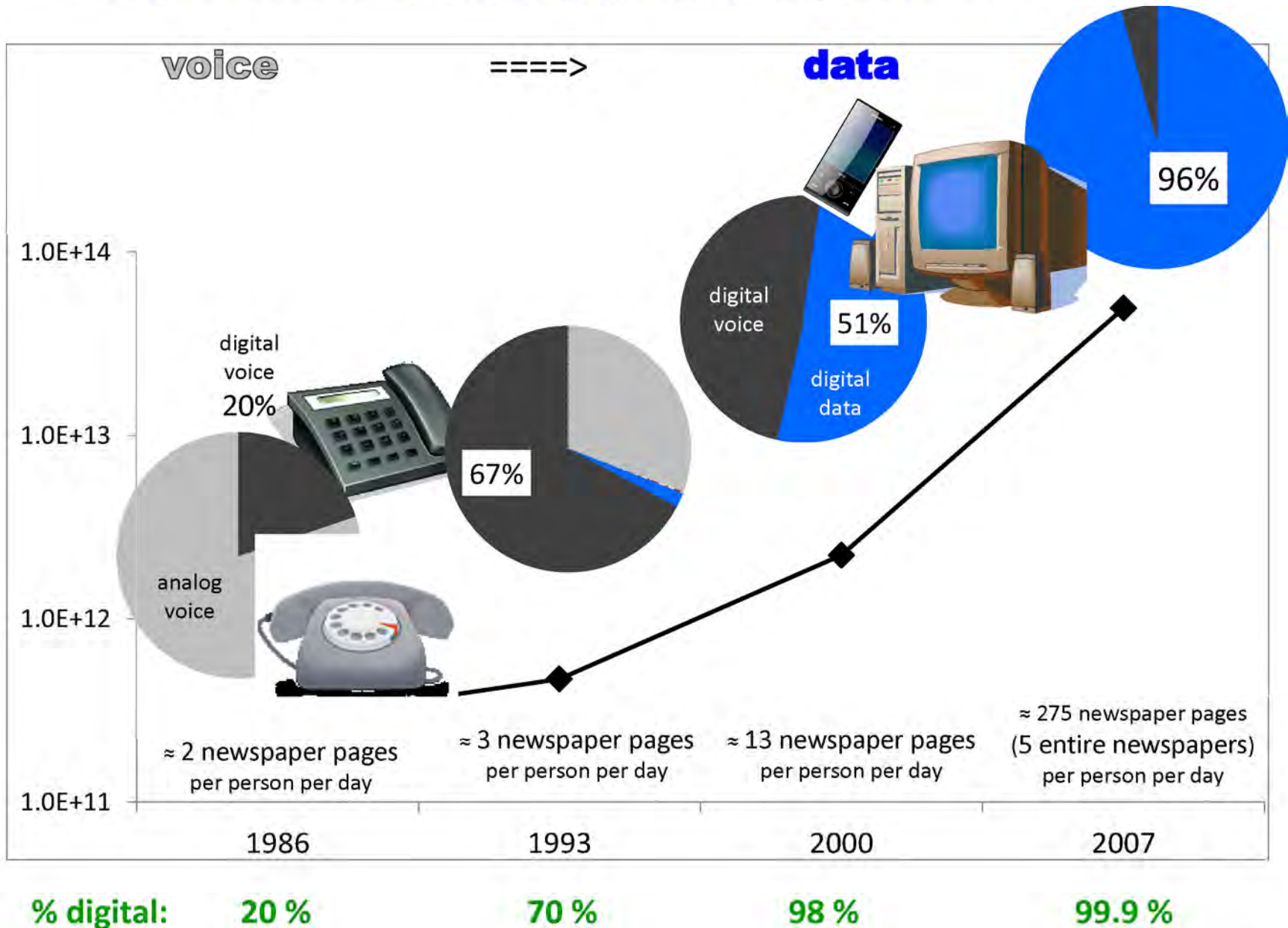
==>

40 / 1

TV $\approx$
3 hours/day
Internet $\approx$
9 minutes/day

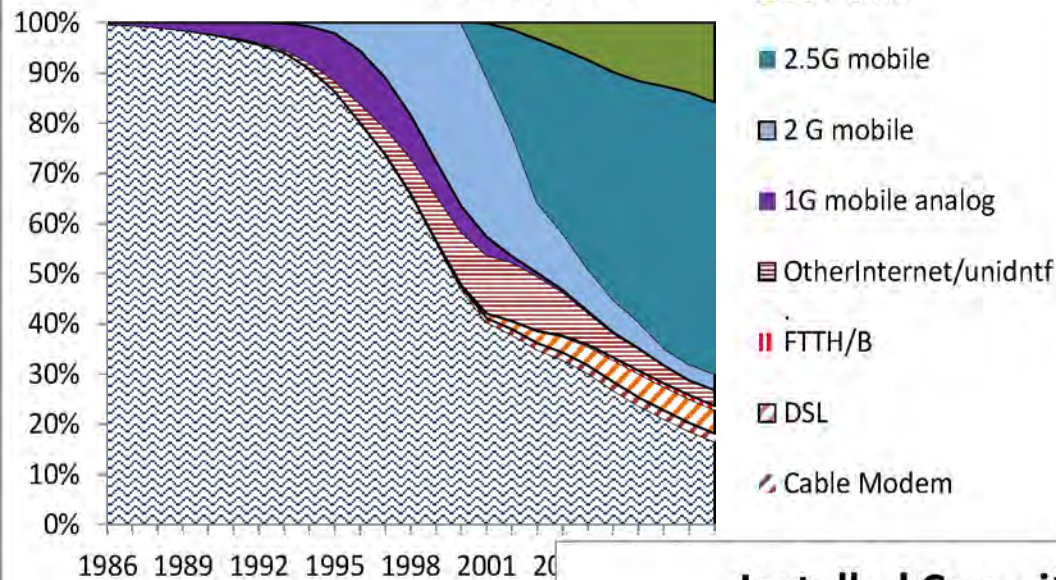


Telecommunication in optimally compressed MB

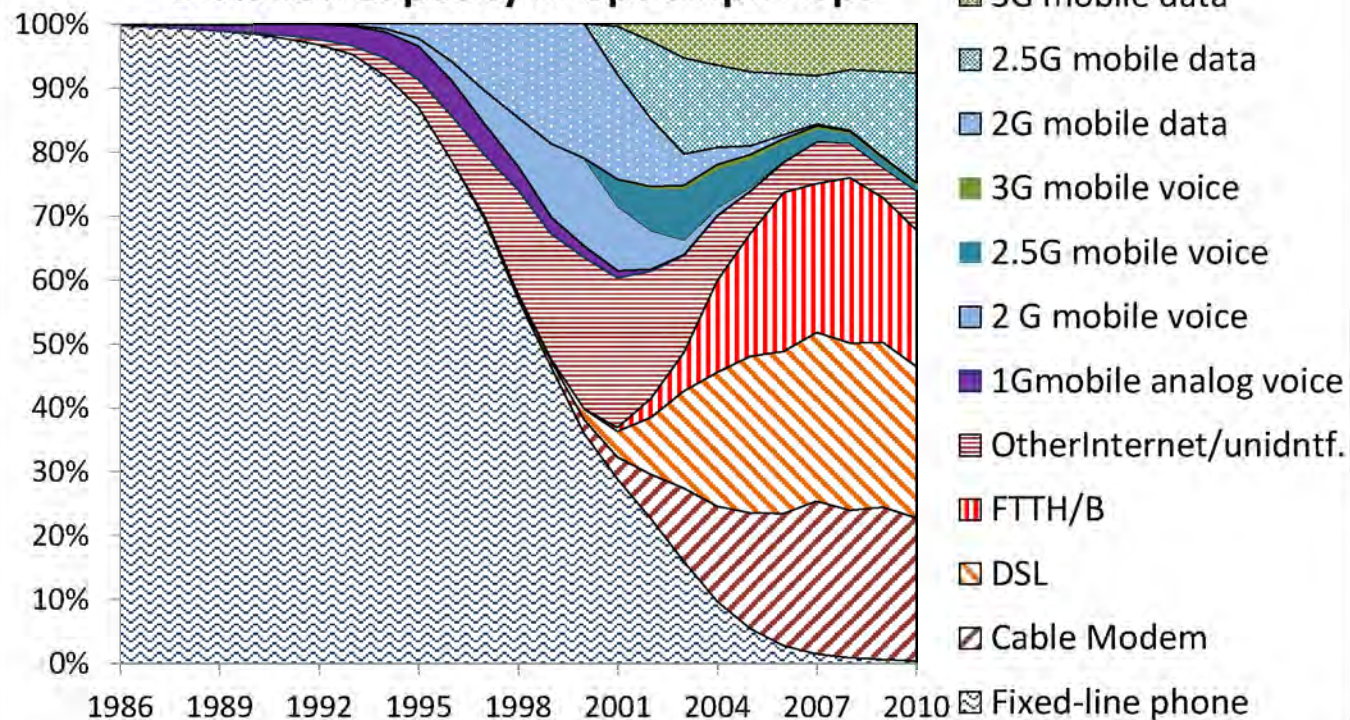


**Capacity in kbps
is different than
subscriptions**

Subscriptions



Installed Capacity in opt.cmpr. kbps



Capacity of countries (digital divide)

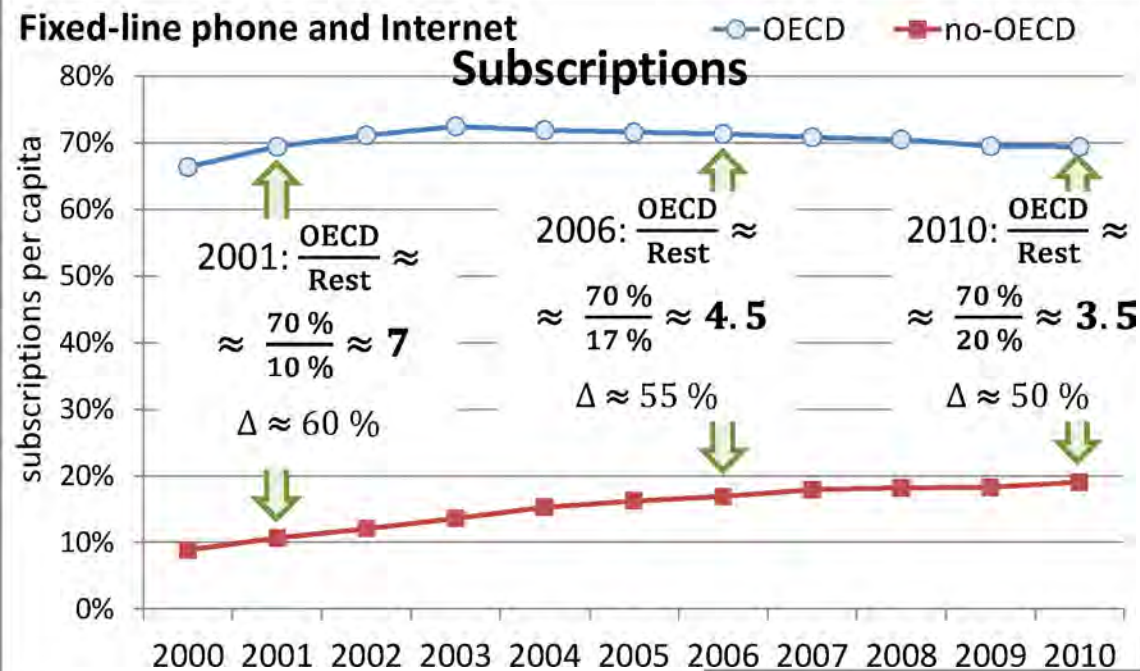
Telecom: OECD vrs. the rest of world
(fixed and mobile Internet and telephony capacity per capita)



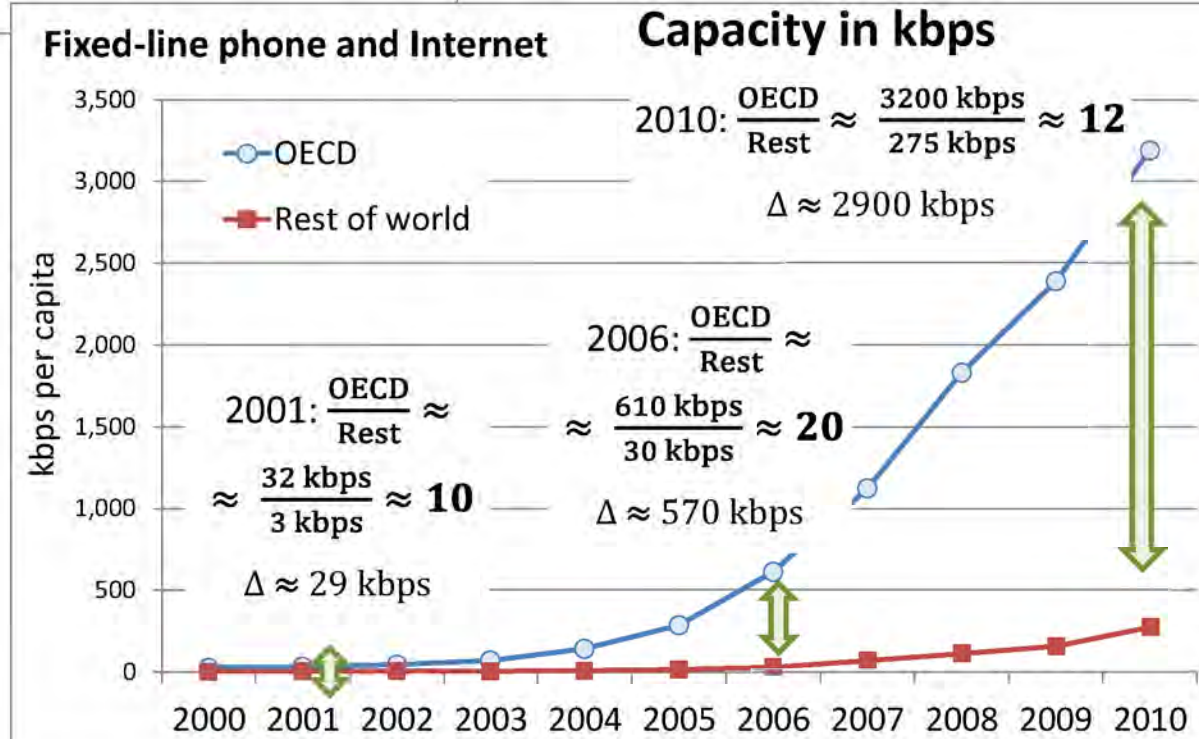
2001



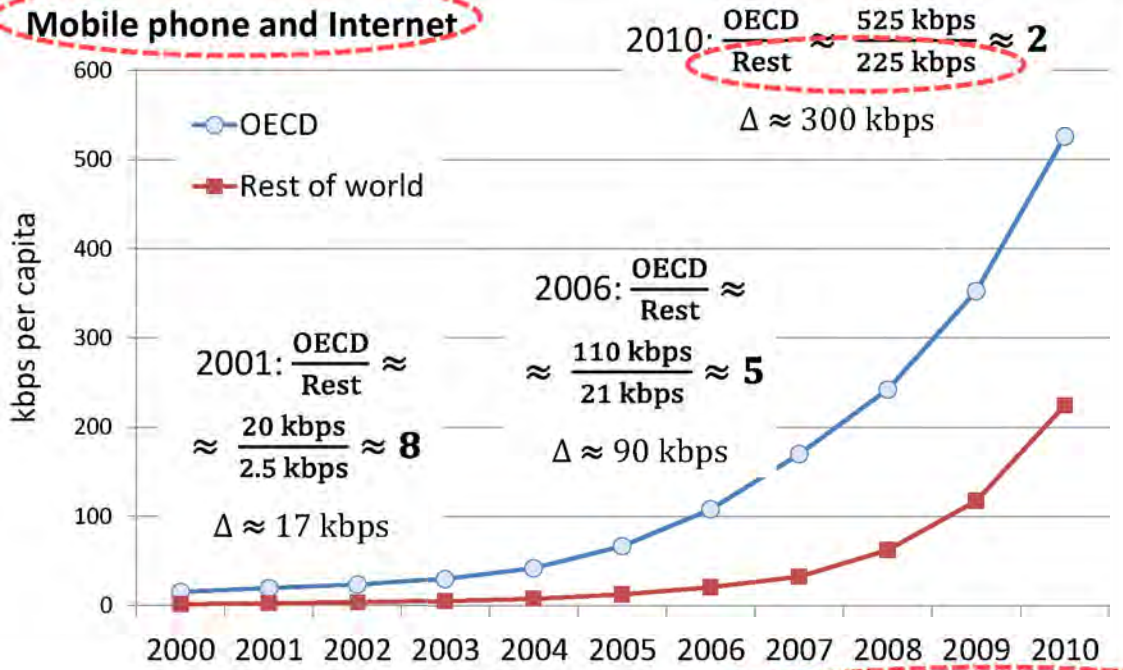
2006



**A different look
at the digital
divide**



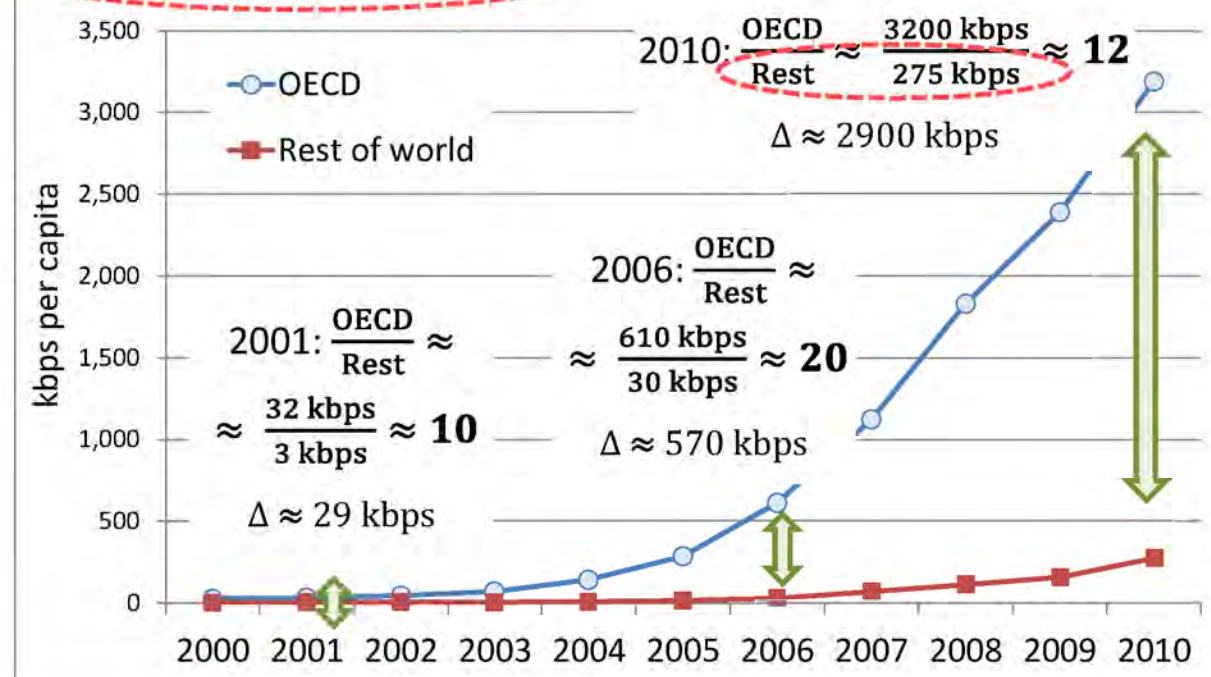
Mobile phone and Internet



Mobile versus fixed-line capacity

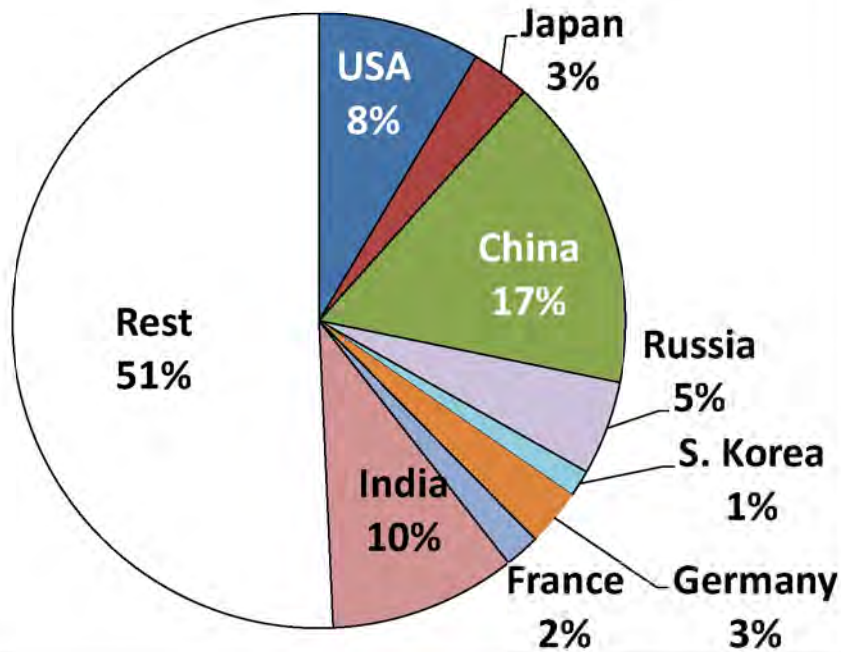
Capacity in kbps

Fixed-line phone and Internet

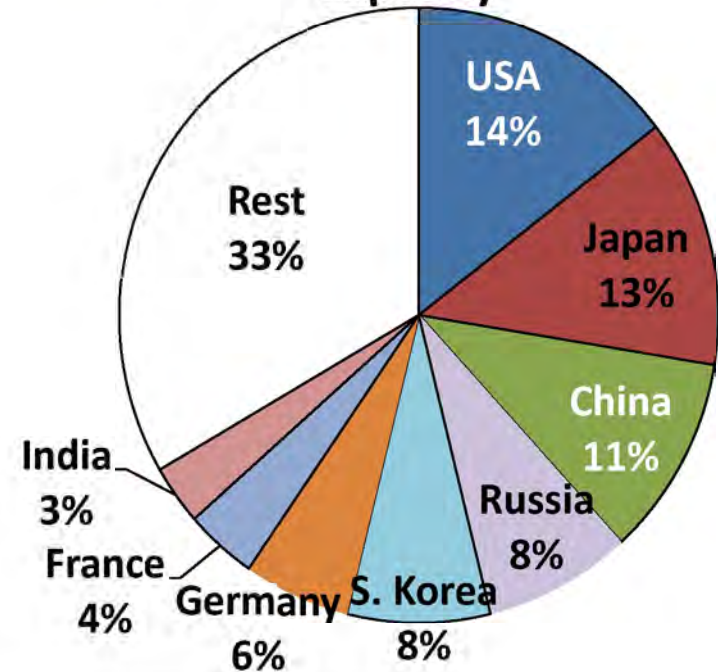


Global concentration

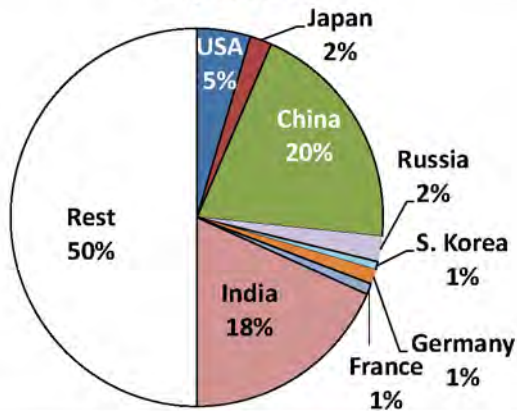
Subscription



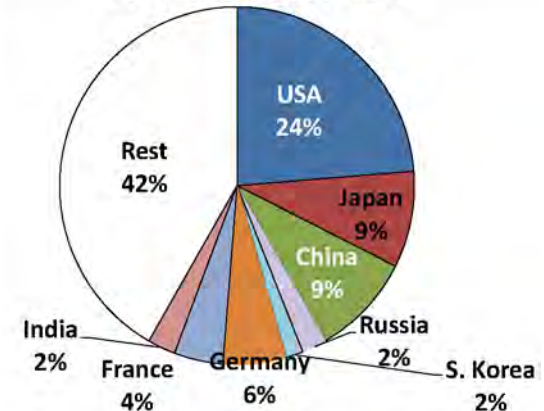
Capacity



Population



Gross National Income



Approximating Effective Usage: ICT purchasing parity (ICTpp)

Country A

1 Mbps costs

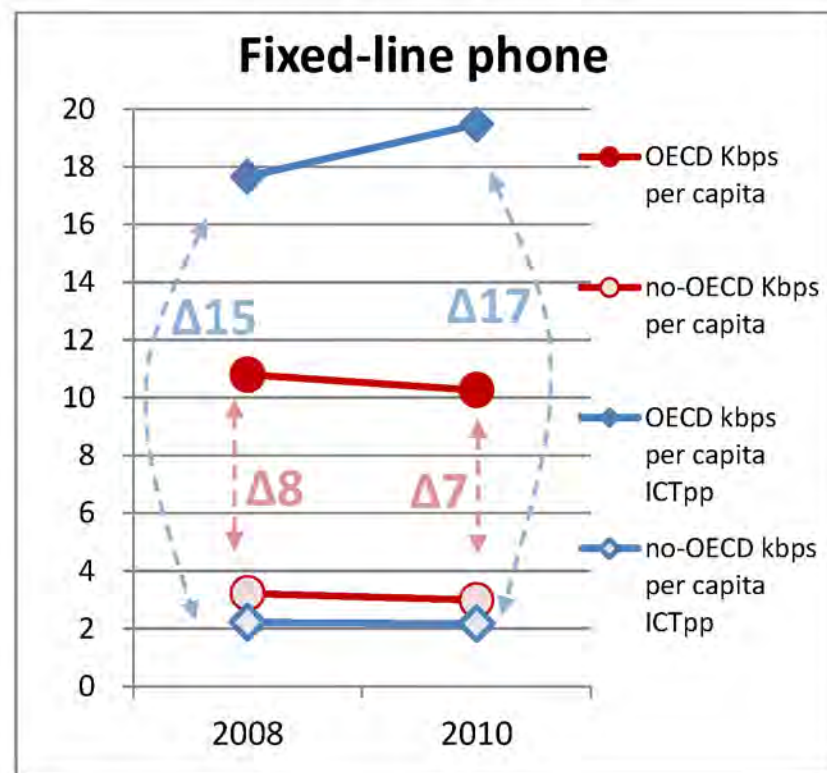
20 % of income

Country B

1 Mbps costs

10 % of income

=> **Country B** has *twice* the
economic possibility for
effective usage of installed
infrastructure



Conclusions and Outlook

Three distinct indicators:

- **Subscriptions and devices**
(becoming irrelevant and obsolete)
- **Installed capacity** in kbps
- **Effective usage** capacity in kbps

...to measure is to know...

Dr. Martin Hilbert

[Mhilbert\[at\]USC.edu](mailto:Mhilbert[at]USC.edu)

University of Southern California (USC),
Annenberg School of Communication;
United Nations ECLAC.

The importance of compression

Digitization
Nyquist theorem
(uncompressed "analog")

Digitization of analog voice:
 ≈ 128 kbps



Law-A/ μ

Historical compression

GSM-AMR

Arbitrary
intermediate level
of compression
(still with
redundancy)

64 kbps



≈ 10 kbps



*Does a fixed-line phone
really transmit 6.4 times
more information
than a mobile phone?*

2007-entropic

Optimal compression
(2007) excellent quality

2007-entropic

Entropy of the source
(non-redundant bits that
actually reduce
uncertainty = surprise)

12 kbps

8 kbps

*=> a fixed-line phone transmits 50%
more information than a mobile phone!*

**9th World Telecommunication/ICT Indicators
Meeting (WTIM-11)
Mauritius, 7 - 9 December 2011**



Contribution to WTIM-11 session

**Document C/9-E
7 December 2011**

English

SOURCE: CISCO

TITLE: Forecasting Internet Growth: Towards A Zettabyte World

Cisco's Visual Networking Index

Forecasting Internet Growth: Towards A Zettabyte World

Robert Pepper
Arielle Sumits

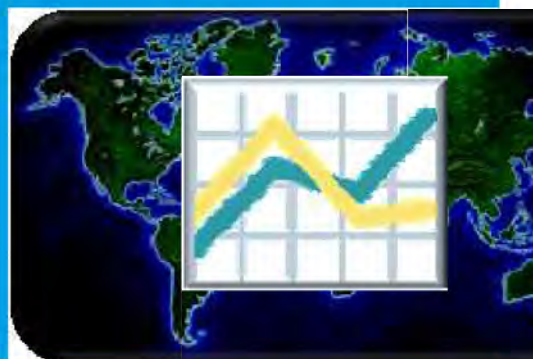
ITU World Telecom/ICT Indicators Meeting
7 December 2011

Cisco Visual Networking Index (VNI)

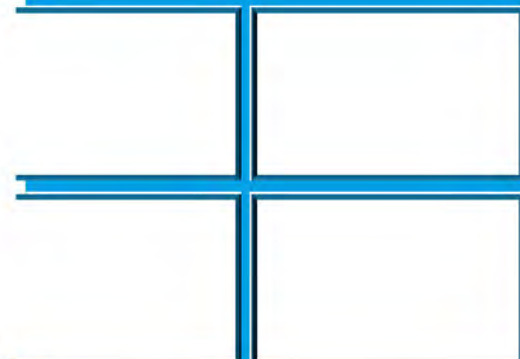
Sharing Global IP Traffic Growth Projections & Analysis

The **Cisco VNI Global Forecast** methodology is built on independent analyst projections; fixed/mobile usage reports and verified with real network data.

Global Forecast Data



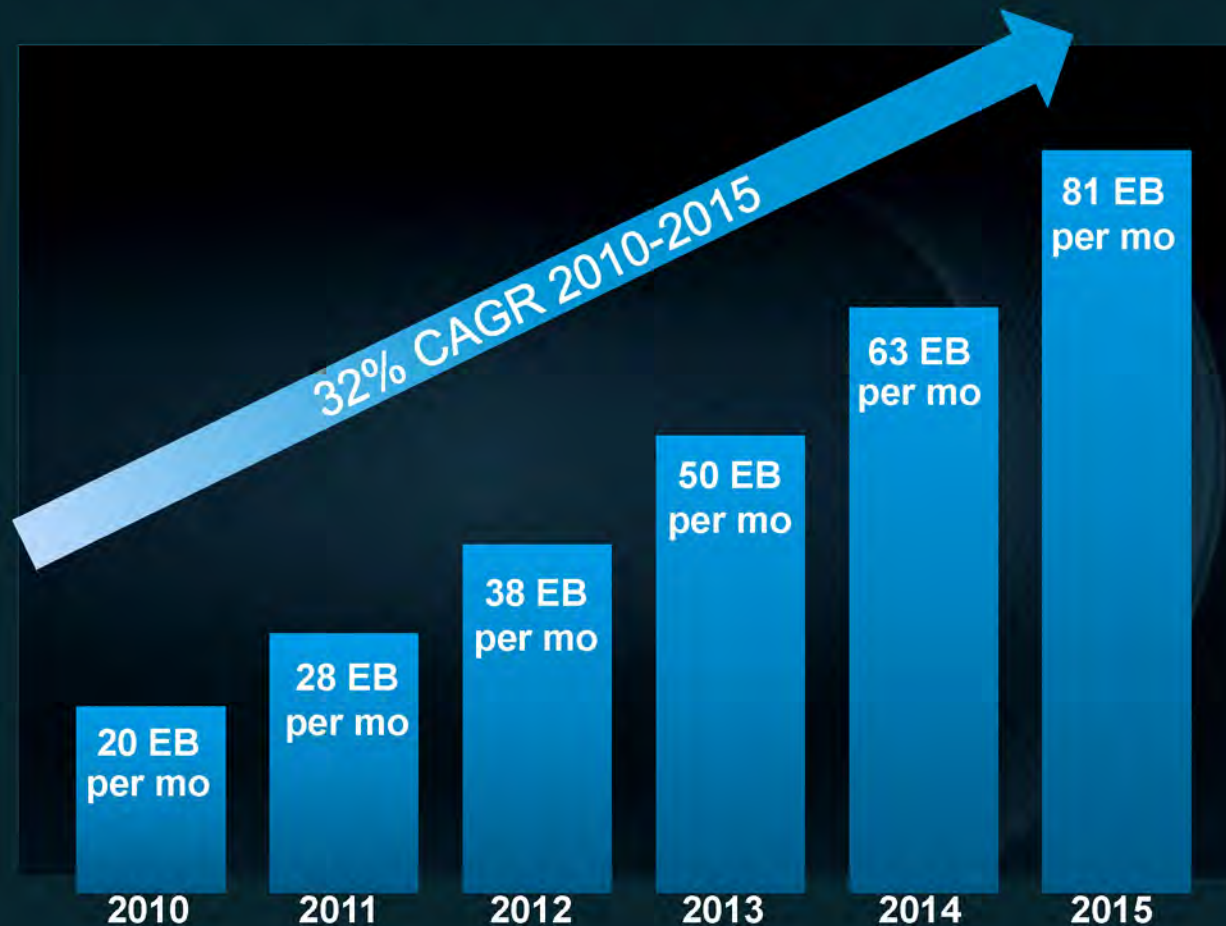
Global Usage Trends



Global, ~~to country~~ modeling
of consumer/business usage trends.

Entering the Zettabyte Era

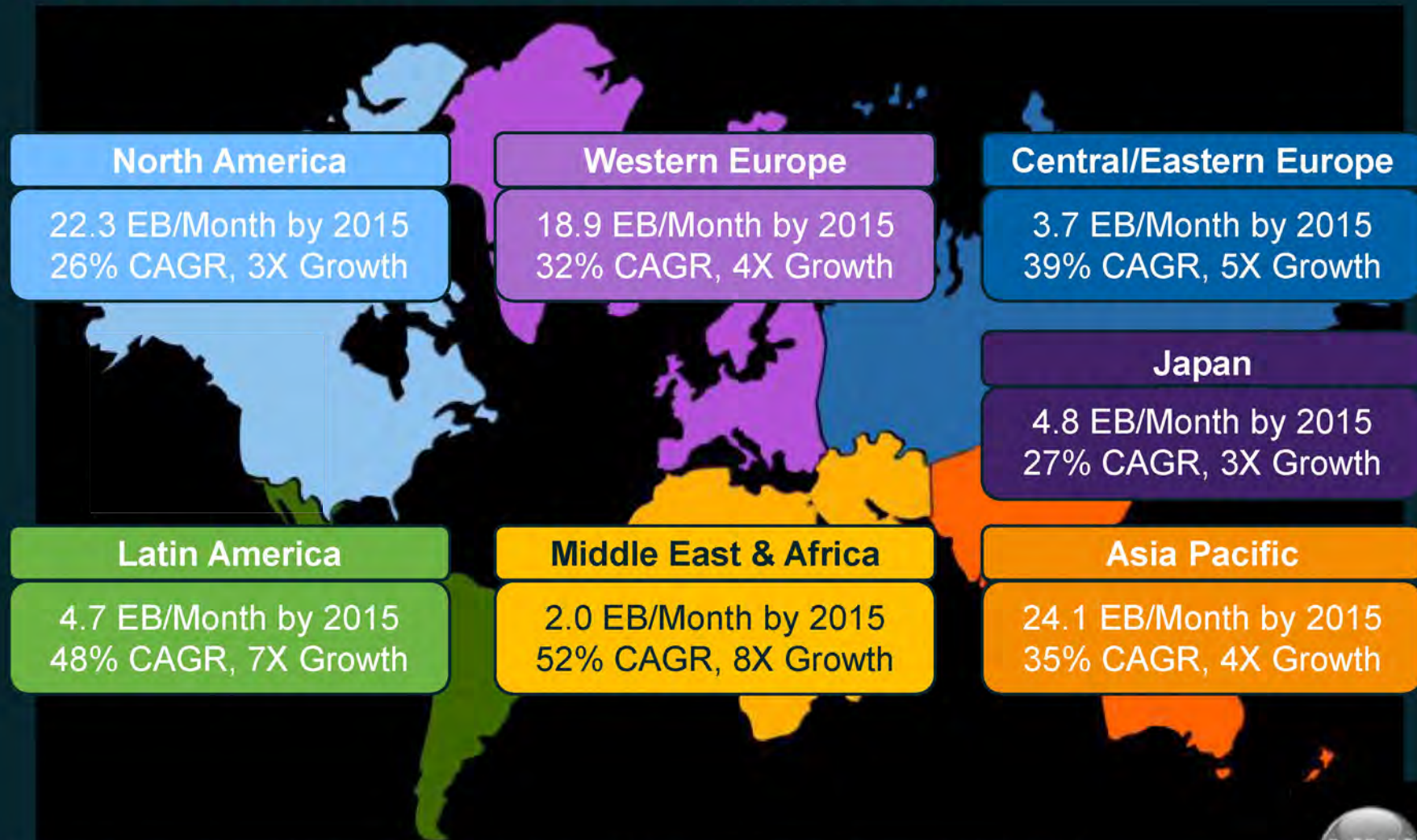
Global IP traffic will increase 4-fold from 2010 to 2015



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

Global IP Traffic Growth, 2010–2015

Regional contributions to the Zettabyte journey



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015



China IP Traffic Growth

In **China**, IP traffic will grow 6-fold from 2010 to 2015, a 43% CAGR.

In **China**, IP traffic will reach 8.7 exabytes per month in 2015, up from 1.5 exabytes per month in 2010.

China's IP networks will carry 285 petabytes per day in 2015, up from 48 petabytes per day in 2010.



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

Global IP Traffic Drivers, 2010–2015



More Devices

Nearly 15B Connections



Faster Broadband Speeds

4-Fold Speed Increase

More Internet Users

3 Billion Internet Users

Key Growth Factors

More Rich Media Content

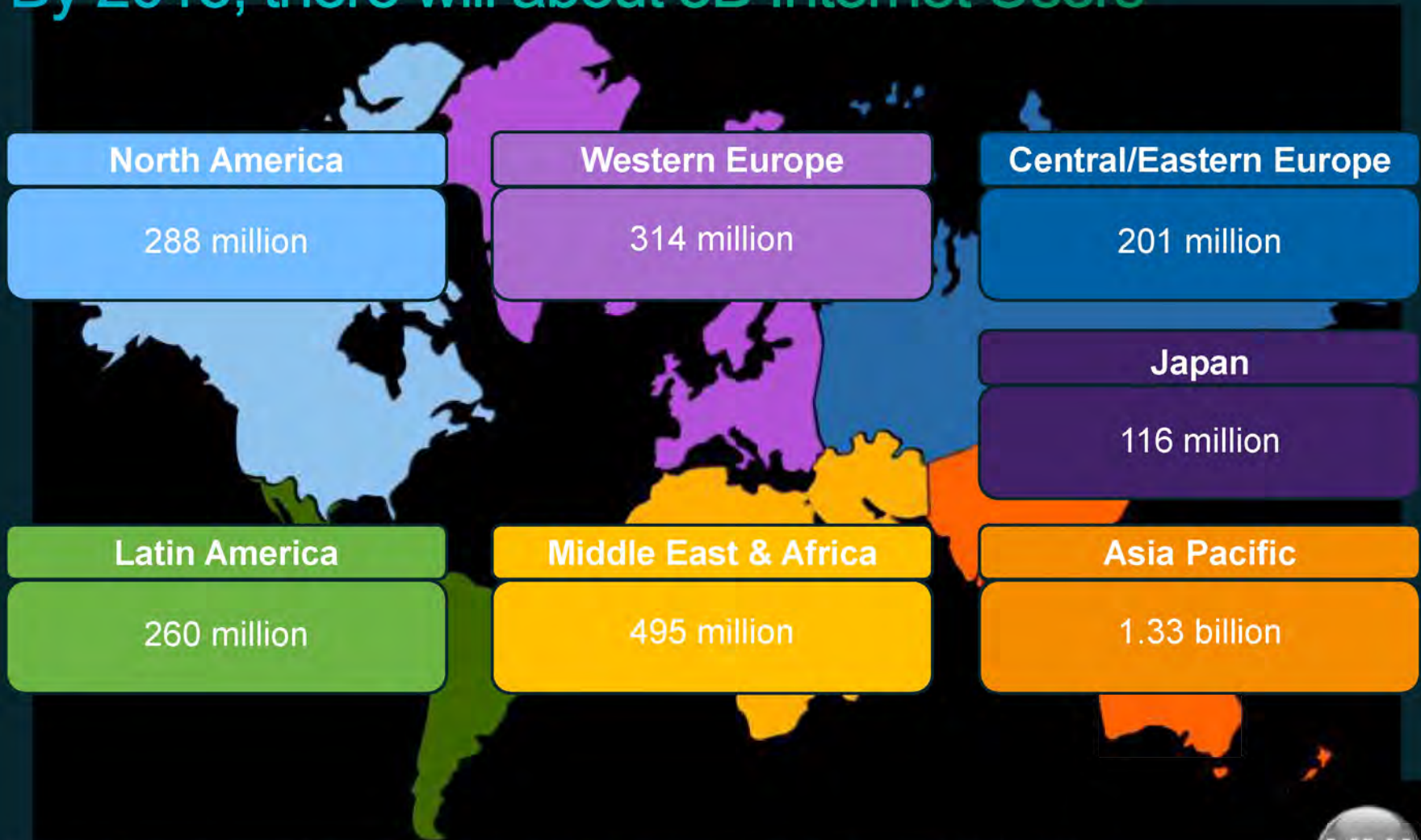
1M Video Minutes per Second



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

Global Internet Users by Region, 2015

By 2015, there will about 3B Internet Users



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015



Western Europe Internet Users

In **Western Europe**, there will be 314 million total Internet users in 2015, up from 262 million in 2010.



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

India Internet Users

In **India**, there will be 196 million total Internet users in 2015, up from 72 million in 2010.



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

China Internet Users

In **China**, there will be 740 million total Internet users in 2015, up from 504 million in 2010.

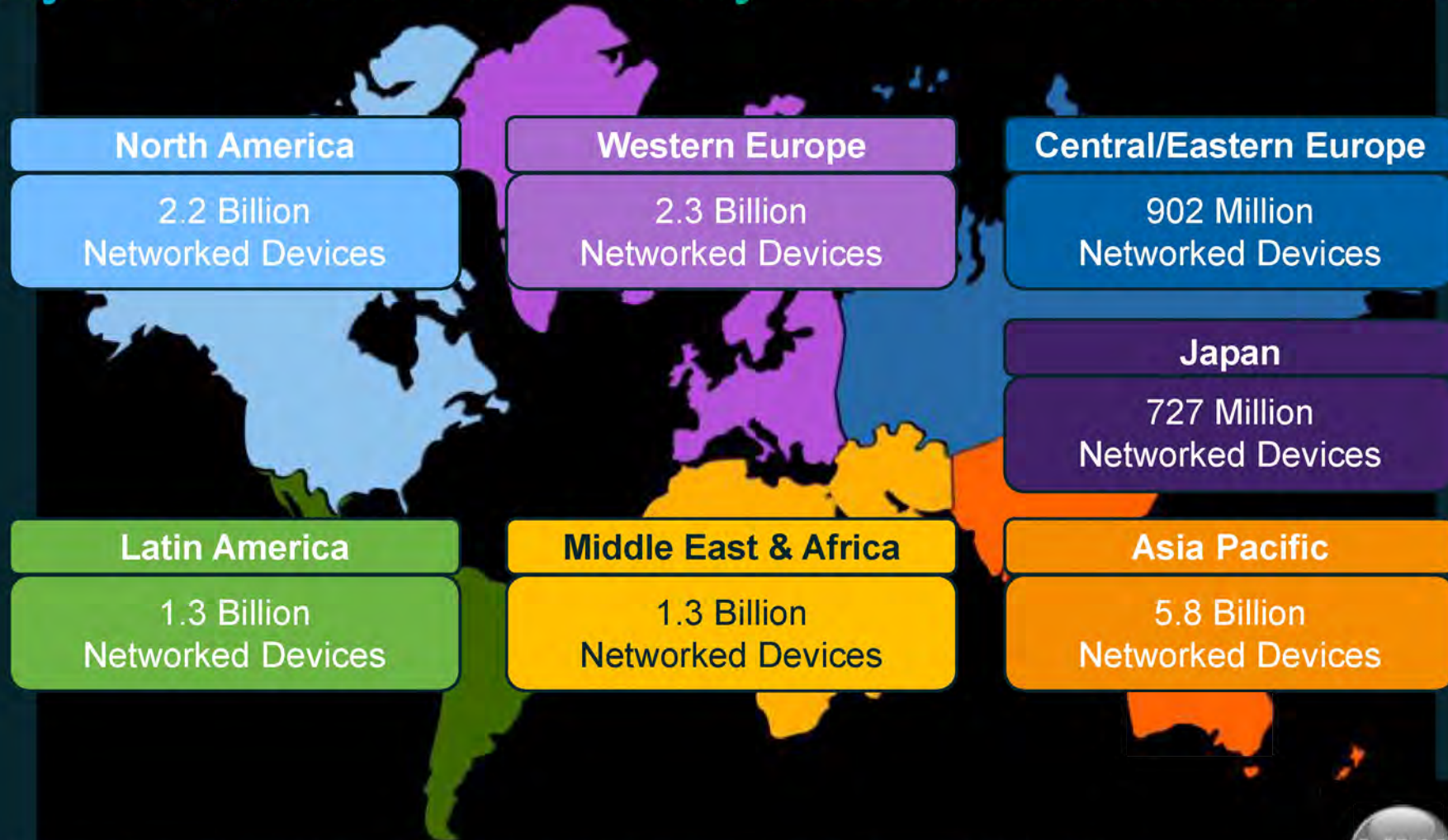


Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015



Global Device Growth, 2010–2015

By 2015, there will be nearly 15B network connections

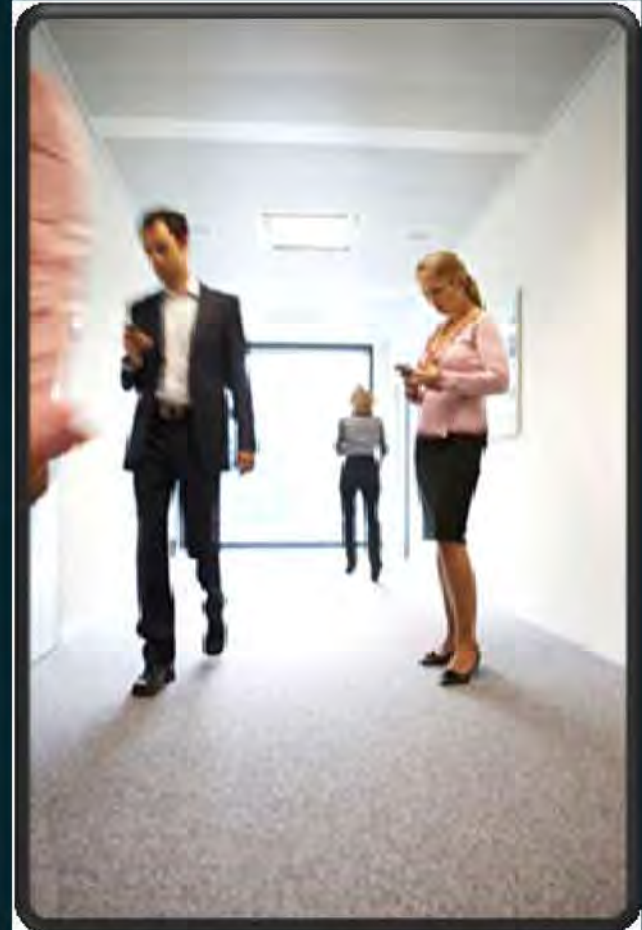


Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015



United States Devices/Connections

In the **United States**, there will be over 2 billion networked devices in 2015, up from 1 billion in 2010.



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

China Devices/Connections

In **China**, there will be over 3 billion networked devices in 2015, up from 1 billion in 2010.

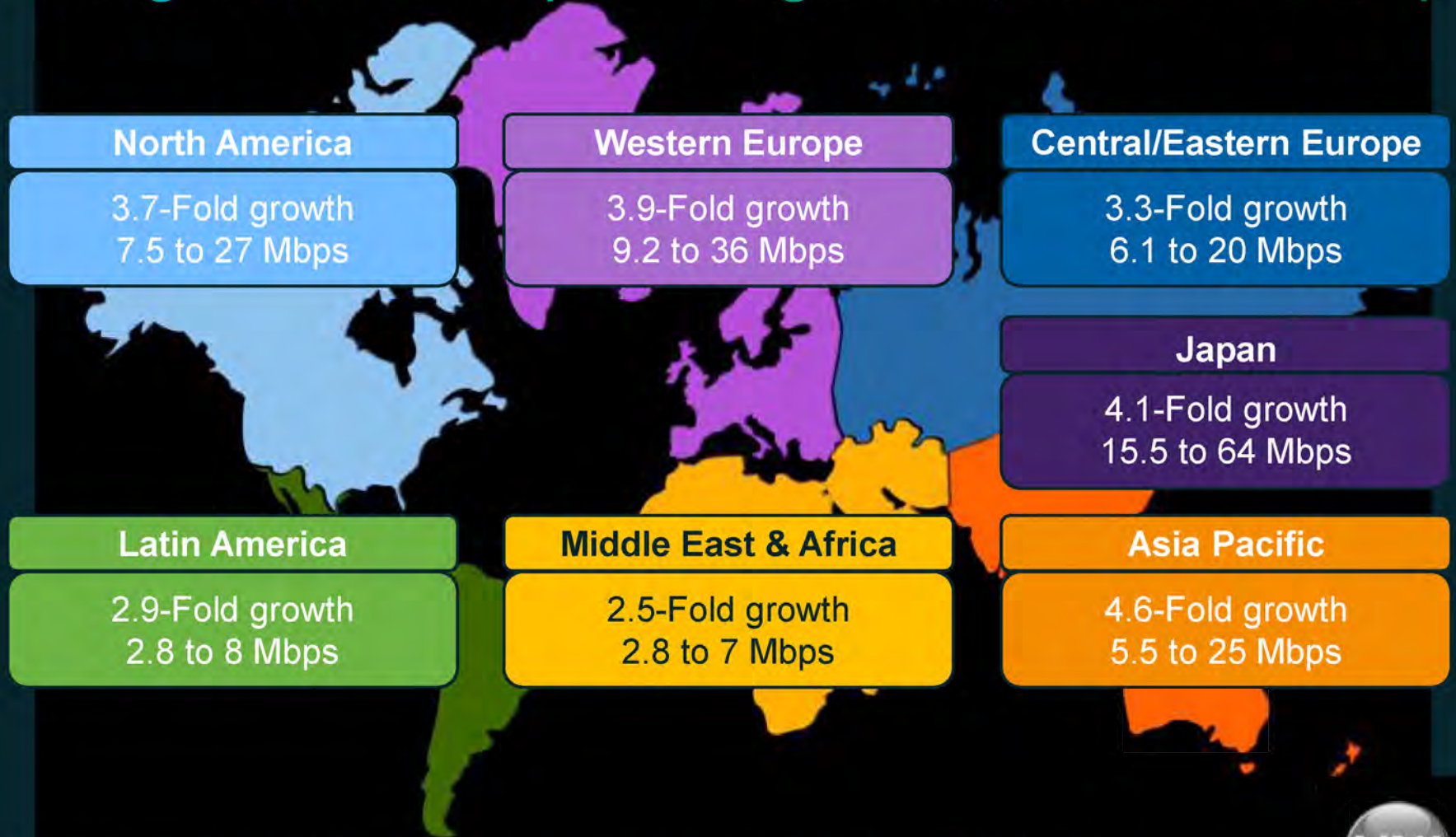


Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015



Global Broadband Speed, 2010–2015

Average broadband speed will grow 4X; from 7 to 28 Mbps



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015



United States Fixed Broadband Network Speed

In the **United States**, the average broadband speed will grow 3.7-fold from 2010 to 2015, from 7.5 Mbps to 28 Mbps.

In the **United States**, 84% of broadband connections will be faster than 5 Mbps in 2015, up from 52% today.

In the **United States**, 55% of broadband connections will be faster than 10 Mbps in 2015, up from 30% today.



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

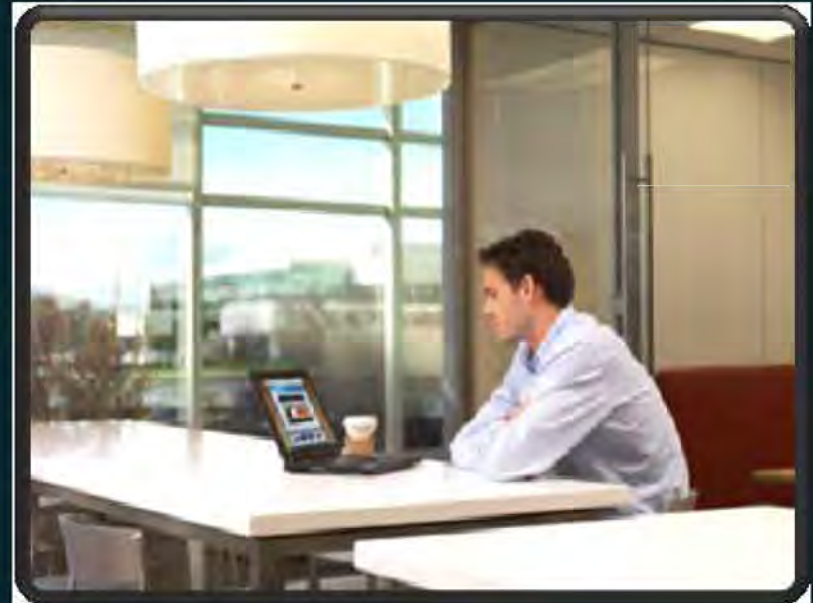
South Africa

Fixed Broadband Network Speed

In **South Africa**, the average broadband speed will grow 2.7-fold from 2010 to 2015, from 1.9 Mbps to 5 Mbps.

In **South Africa**, 15% of broadband connections will be faster than 5 Mbps in 2015.

In **South Africa**, 4% of broadband connections will be faster than 10 Mbps in 2015.



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

Average Internet User; Traffic per Month



2010

7.3 GB
Traffic/month



3 HD videos
5 VoD episodes



50 Audio tracks



2 HD video calls



4 SW updates



2015

24.8 GB
Traffic/month



1 3D movie
6 HD movies
28 VoD episodes



240 Audio tracks



12 HD video calls



10 SW updates



Future

50 GB
Traffic/month



2 3D movies
11 HD movies
52 VoD episodes



410 Audio tracks



33 HD Video calls



14 SW updates

Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

Europe: Average Internet User

In **Europe**, the average Internet user will generate 47.4 gigabytes of Internet traffic per month in 2015, up 270% from 12.8 gigabytes per month in 2010.



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

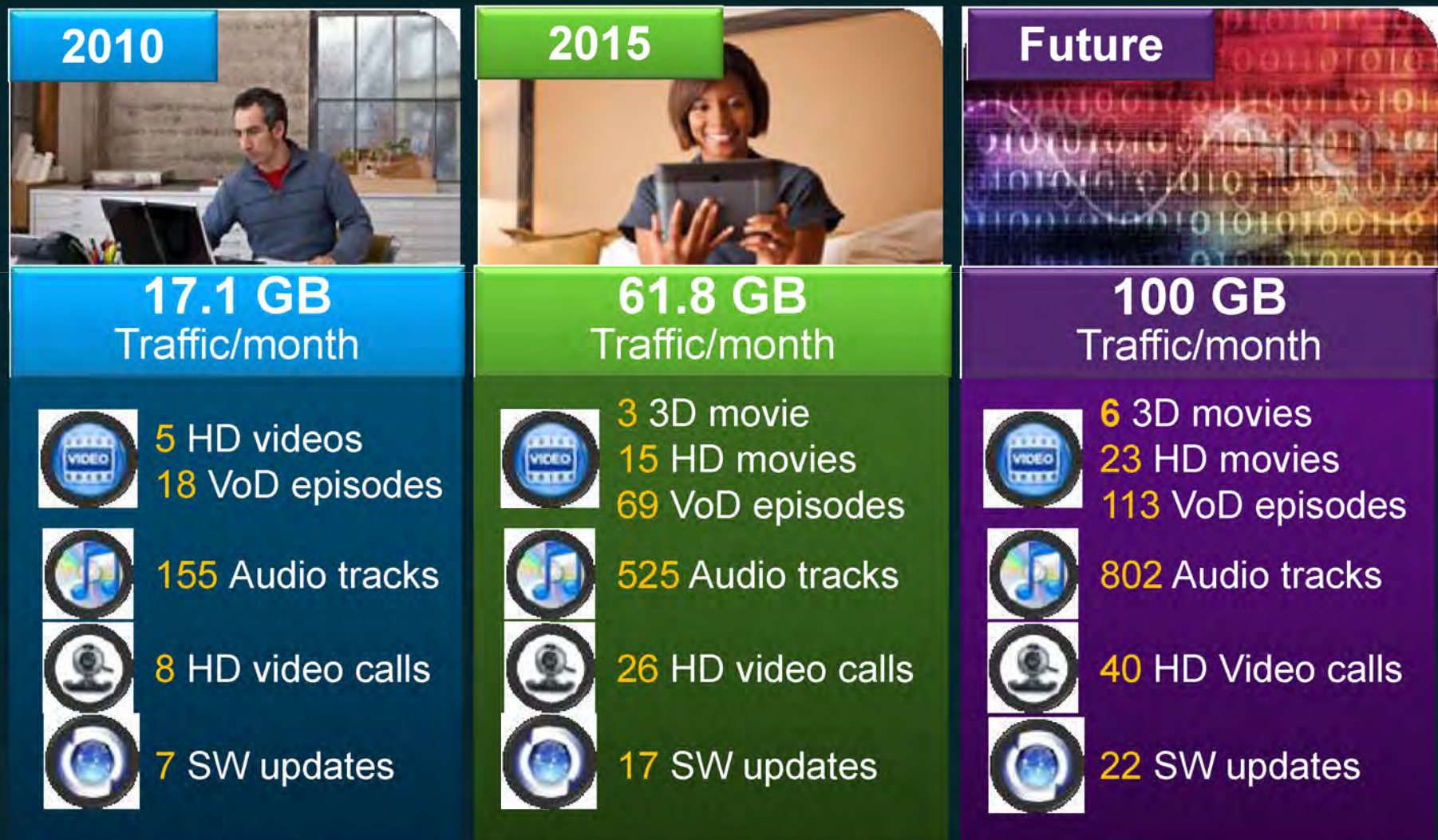
China Average Internet User

In **China**, the average Internet user will generate 12.6 gigabytes of Internet traffic per month in 2015, up 400% from 2.5 gigabytes per month in 2010.



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

Average Internet Household; Traffic per Month



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

Europe: Average Internet Household

In **Europe**, the average Internet household will generate 98.8 GBs of traffic per month in 2015, +278% from 26.1 GBs per month in 2010.



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

China Average Internet Household

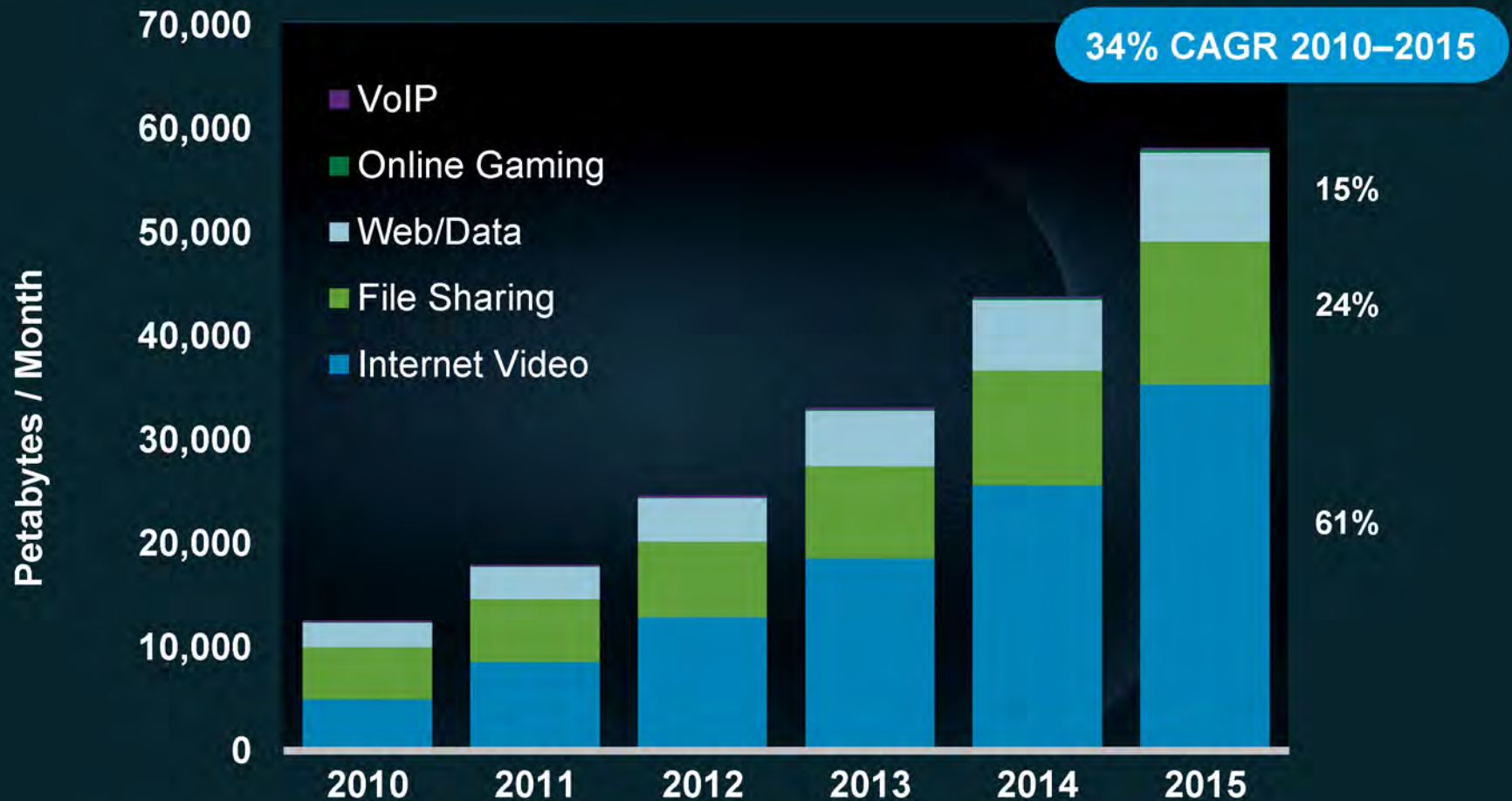
In **China**, the average Internet household will generate 36 GBs of traffic per month in 2015, 329% from 8.4 GBs per month in 2010.



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

Global Consumer Internet Traffic / Applications

Internet Video dominates consumer Internet traffic

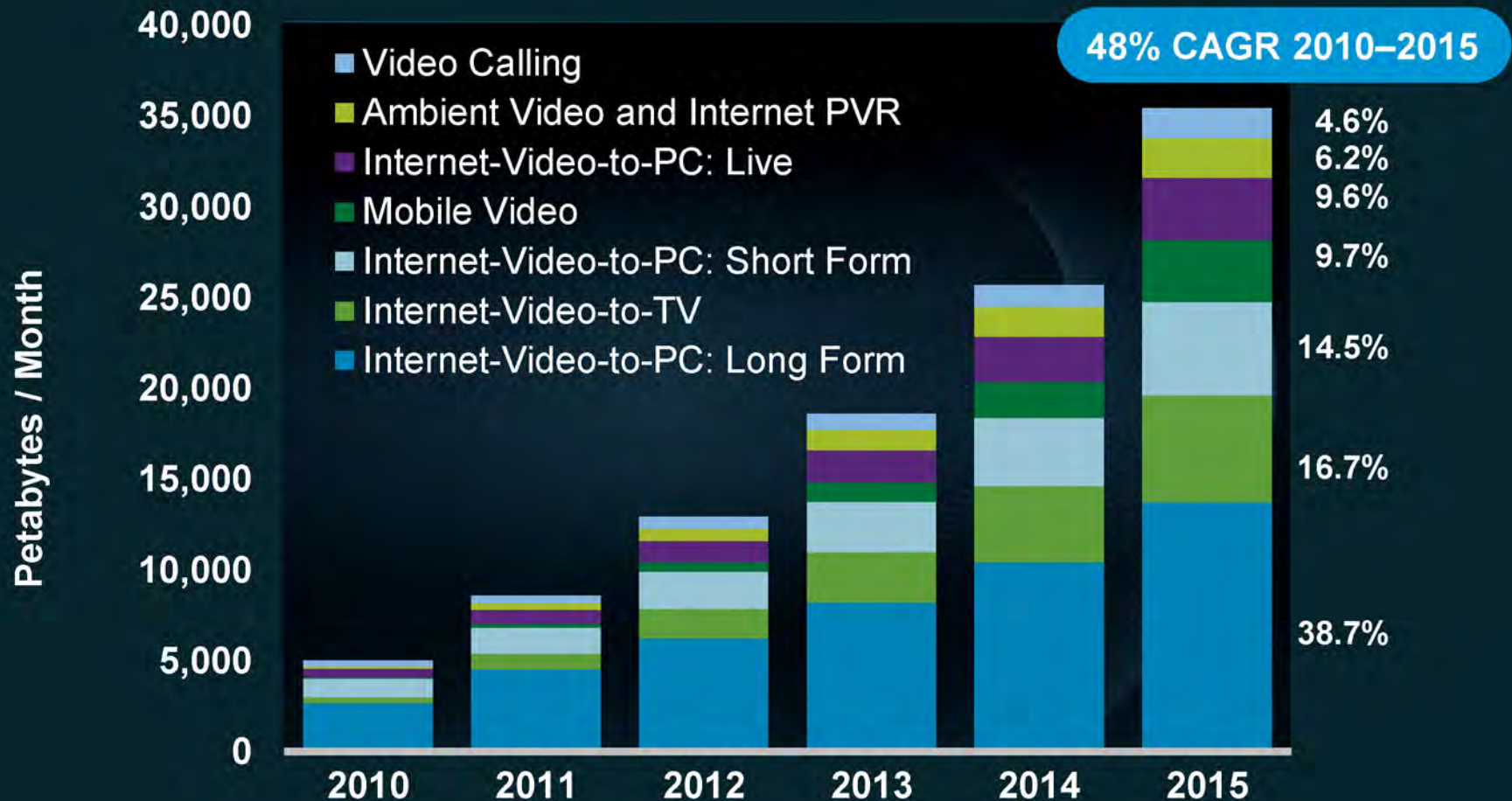


Online Gaming and VoIP forecast to be 0.79% of all consumer Internet traffic in 2015

Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

Consumer Internet Video Composition

Video traffic increasingly driven by long-form video



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

China: Internet Video

In **China**, Internet video traffic will be 83% of all consumer Internet traffic in 2015, up from 57% in 2010.



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

Not Just Fixed: Global Mobile Data Traffic

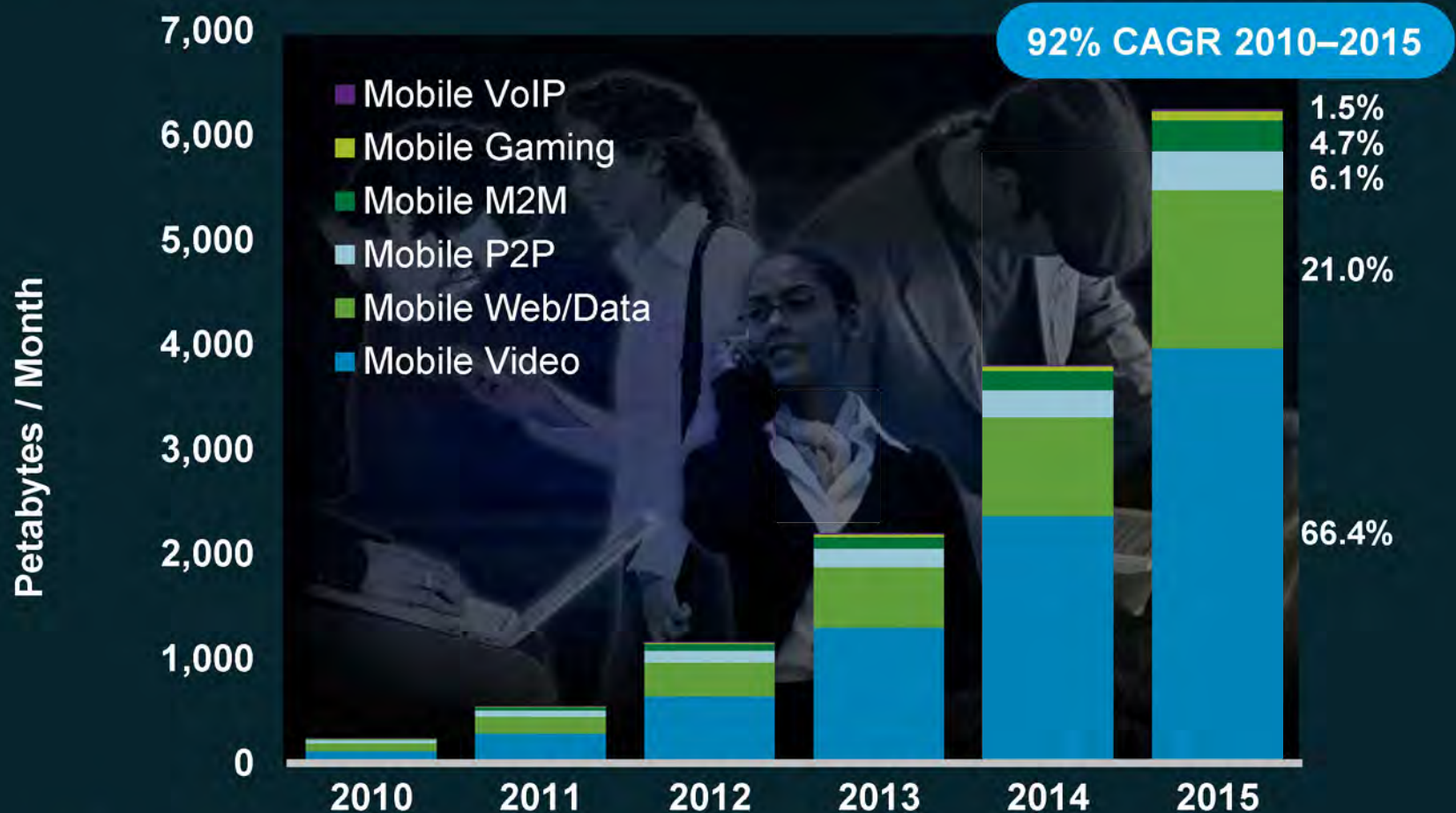
Global mobile data traffic will increase 26X from 2010 to 2015



Source: Cisco Visual Networking Index (VNI) Global Mobile Data Traffic Forecast, 2010–2015

Global Mobile Data Traffic Growth / Applications

Video to reach more than 50 percent of mobile data traffic by 2011

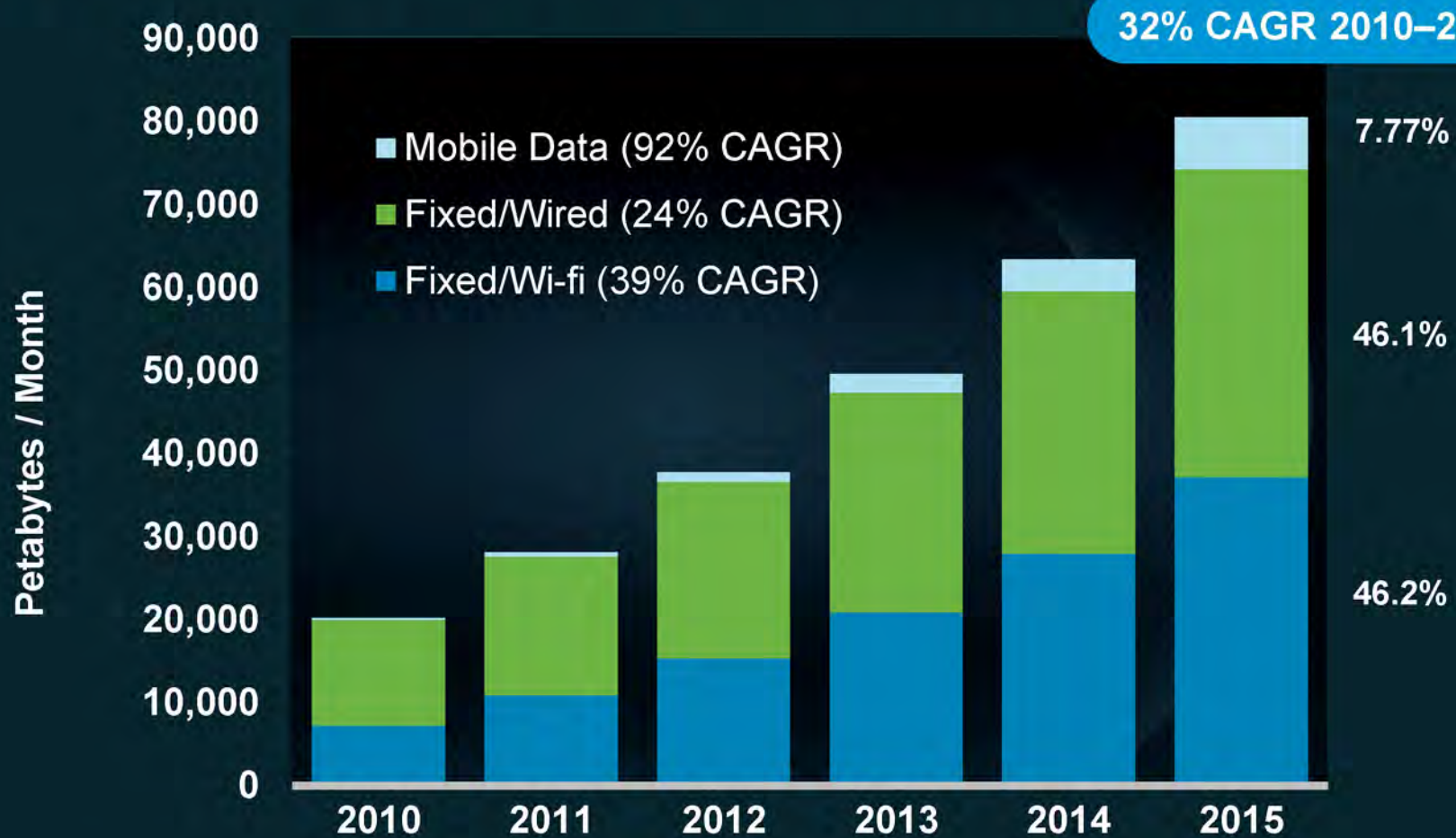


VoIP traffic forecast to be 0.4% of all mobile data traffic in 2015

Source: Cisco Visual Networking Index (VNI) Global Mobile Data Traffic Forecast, 2010–2015

Global IP Traffic by Local Access Technology

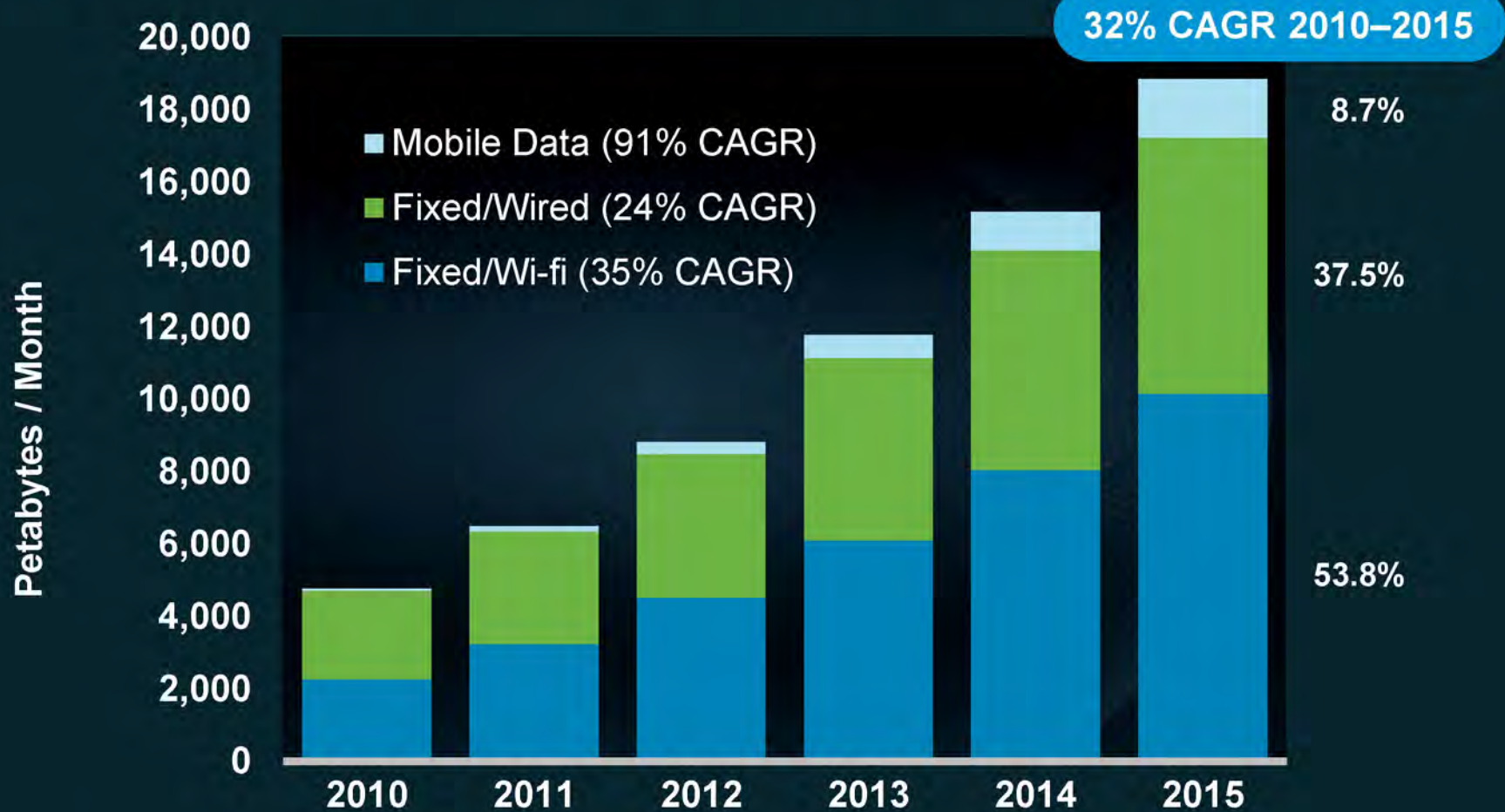
By 2015, fixed/wi-fi traffic equals/exceeds fixed/wired traffic



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

WE IP Traffic by Local Access Technology

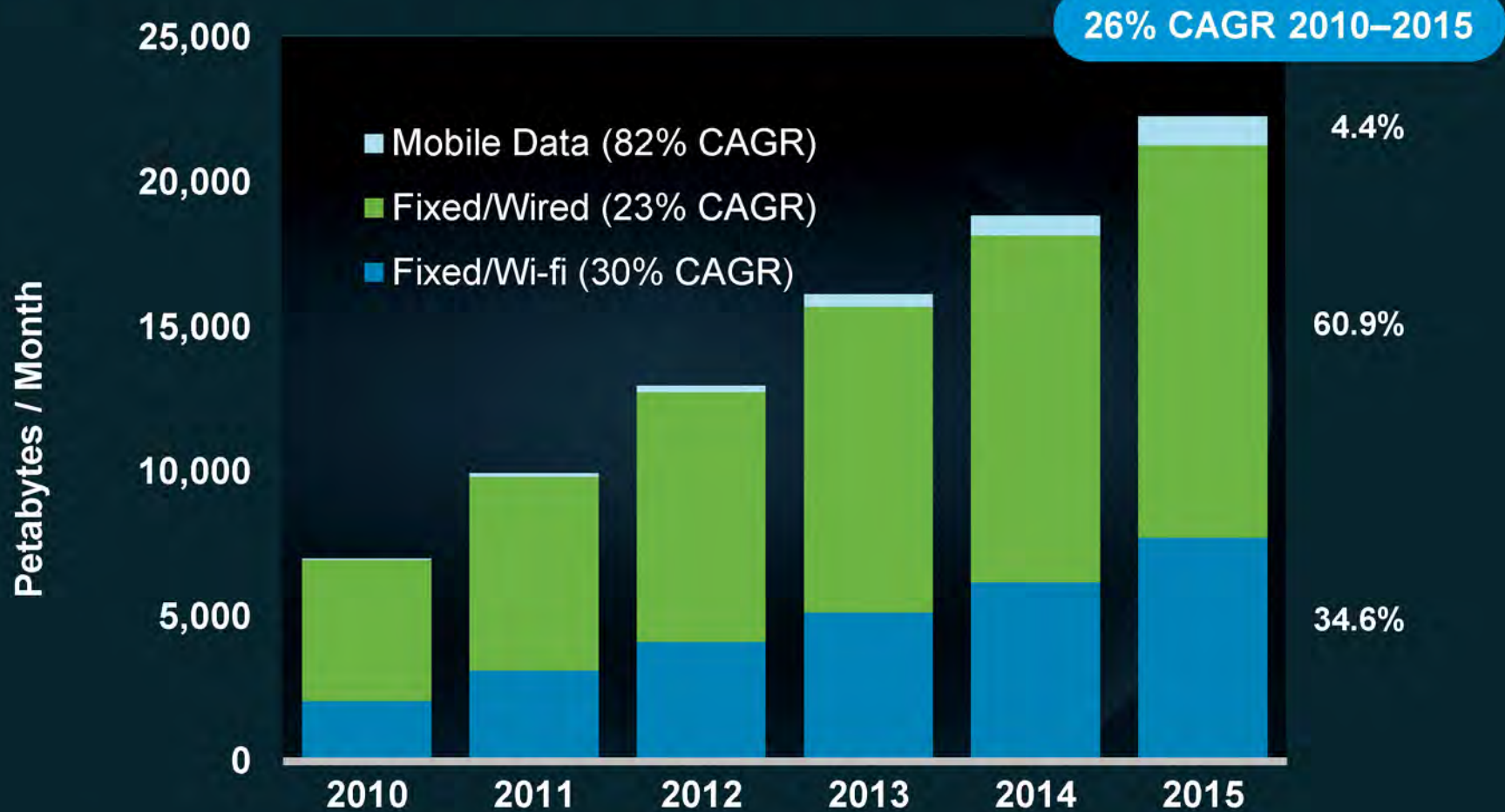
By 2015, fixed/wi-fi traffic surpasses fixed/wired traffic



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

NA IP Traffic by Local Access Technology

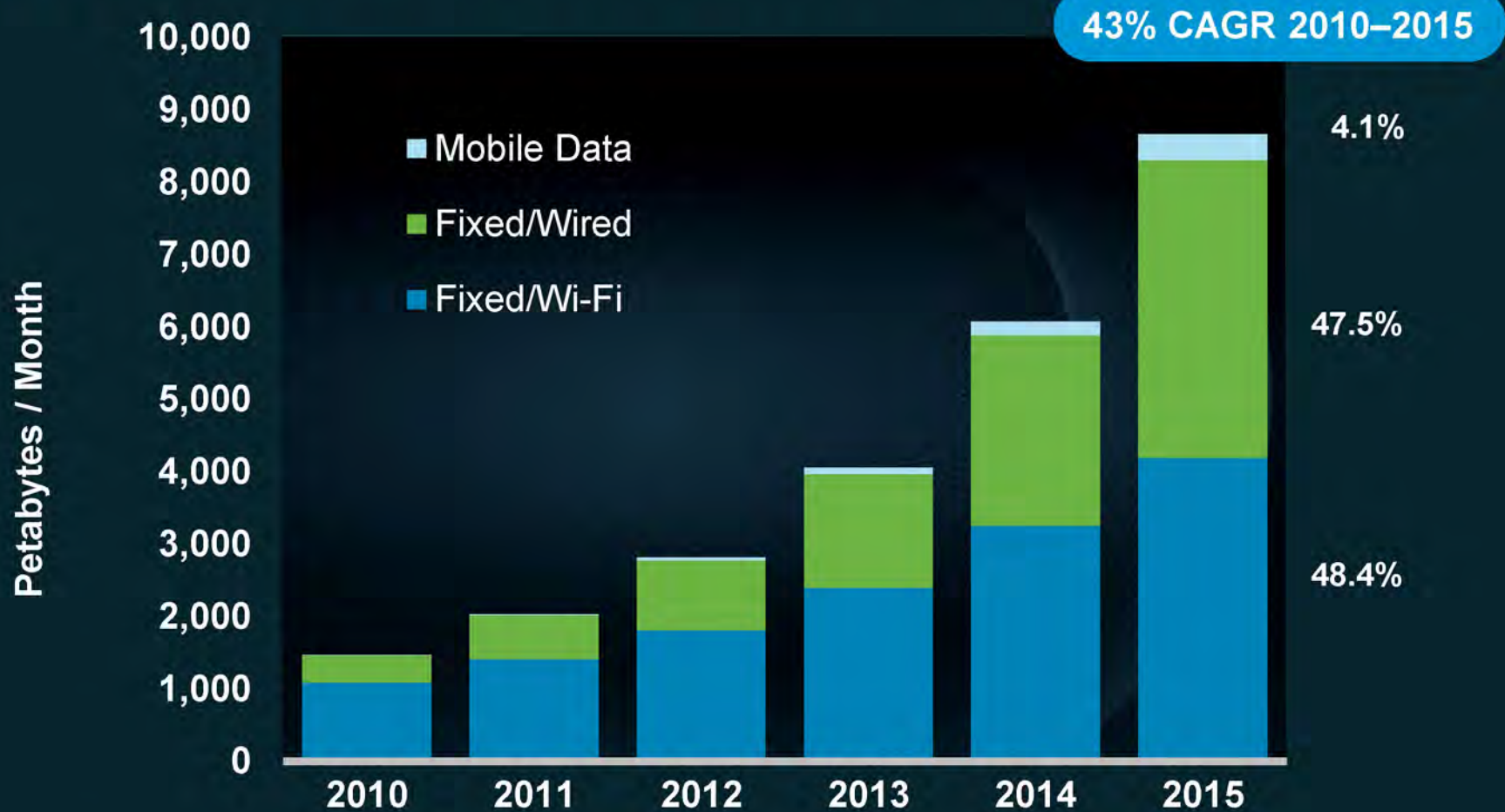
By 2015, fixed/wi-fi traffic surpasses fixed/wired traffic



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

China IP Traffic by Local Access Technology

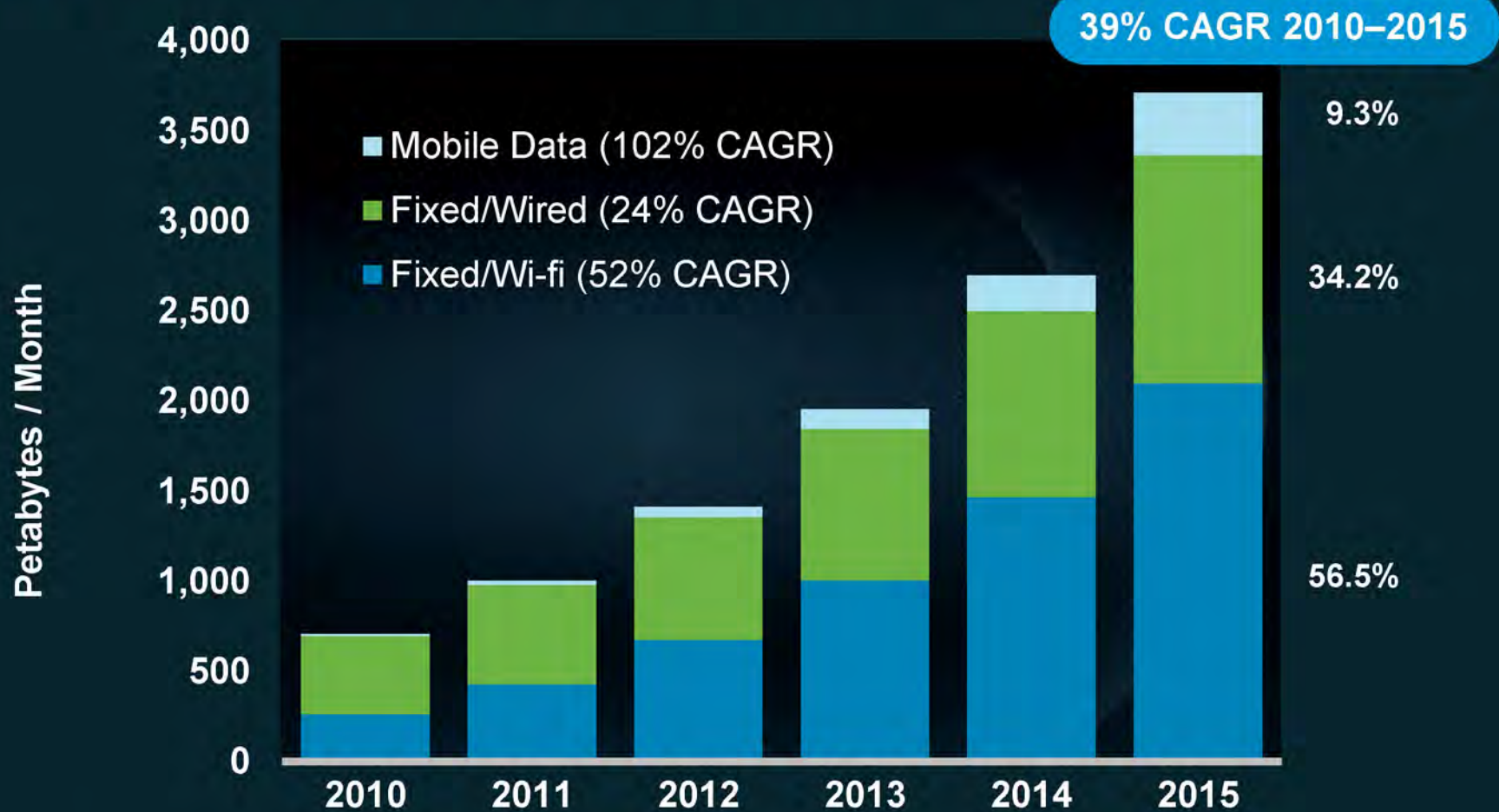
By 2015, fixed/WiFi traffic exceeds fixed/wired traffic



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

CEE IP Traffic by Local Access Technology

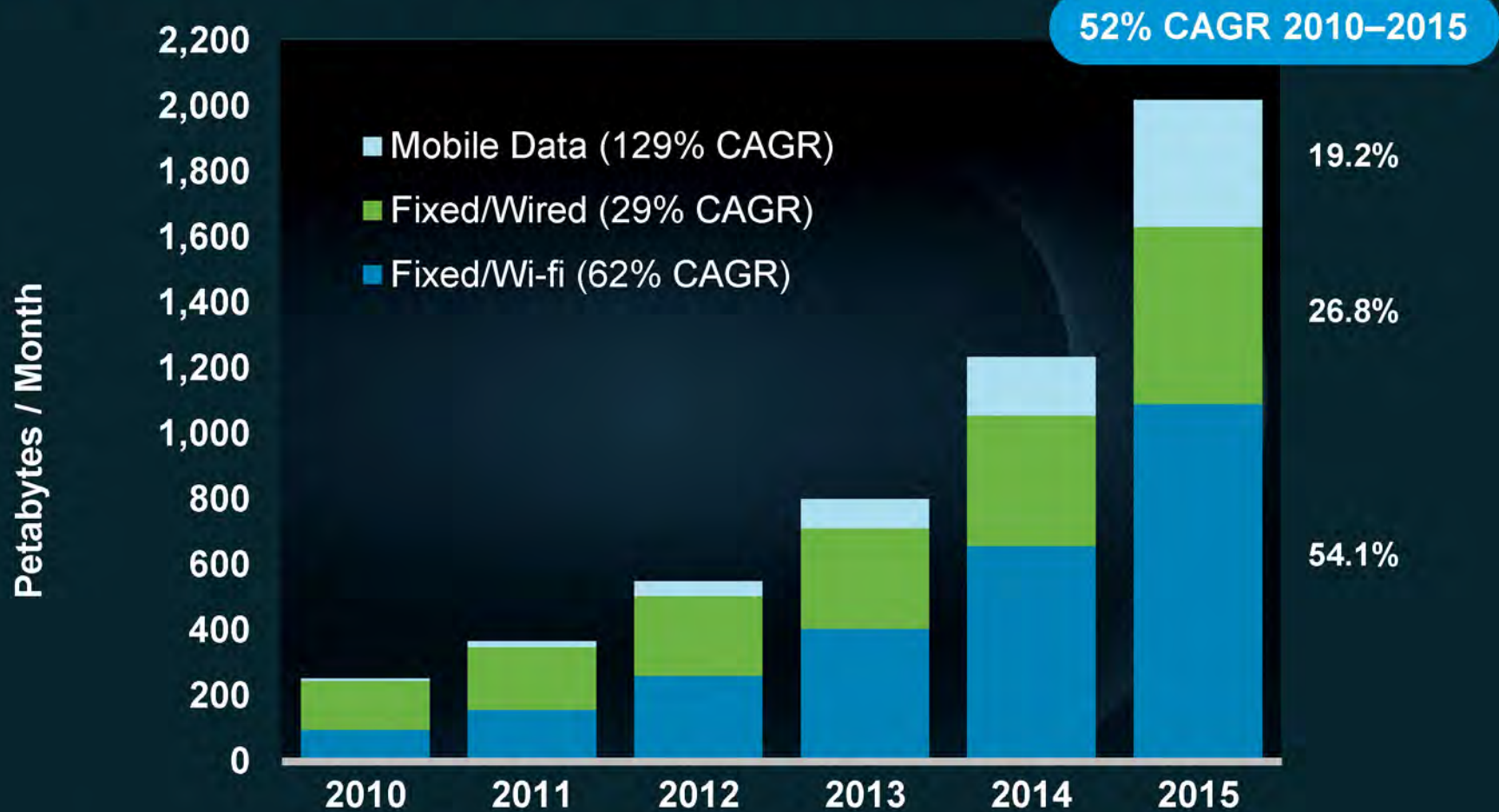
By 2015, fixed/wi-fi traffic surpasses fixed/wired traffic



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

MEA IP Traffic by Local Access Technology

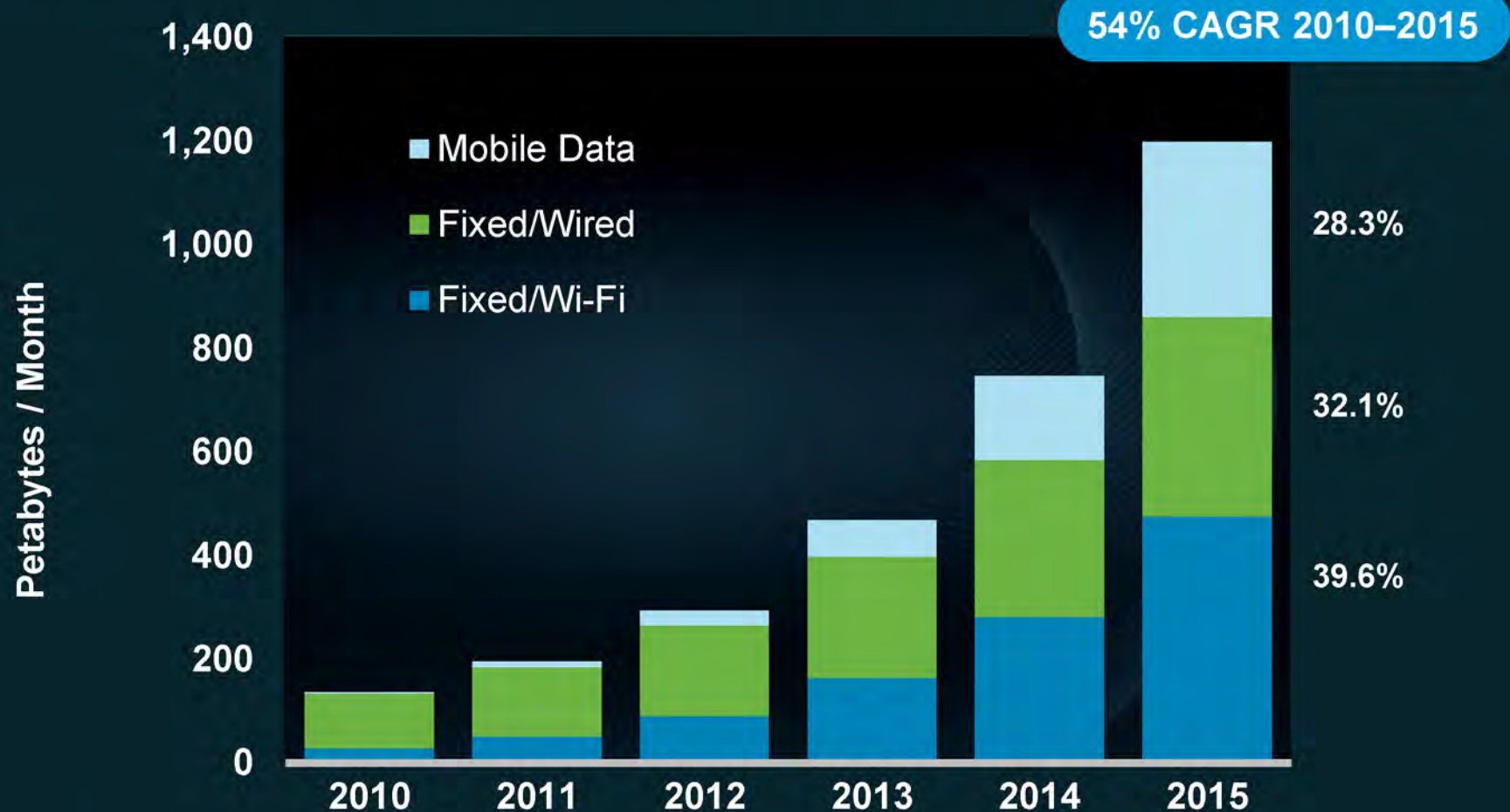
By 2015, fixed/wi-fi traffic surpasses fixed/wired traffic



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

India IP Traffic by Local Access Technology

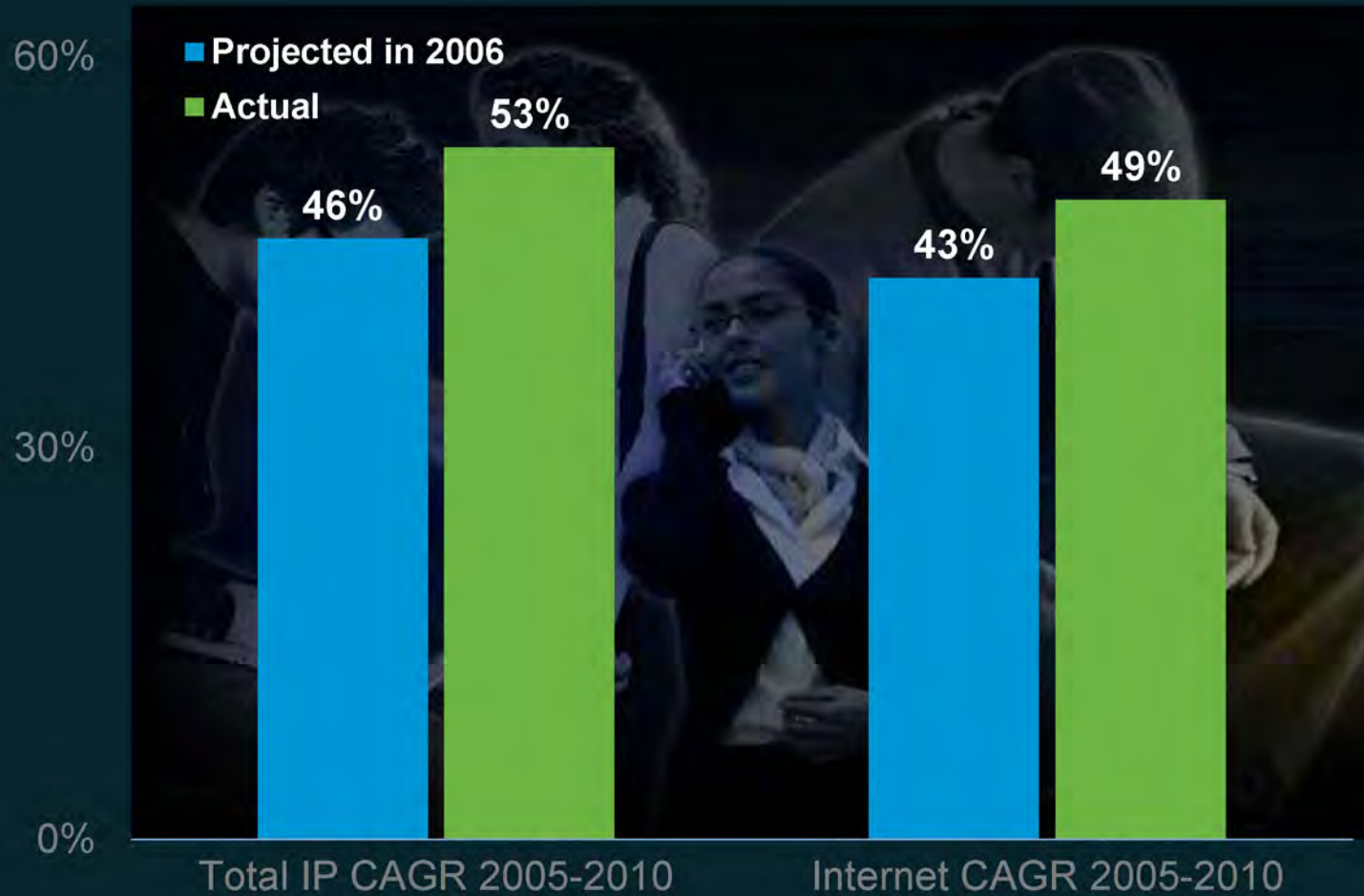
By 2015, fixed/wi-fi traffic surpasses fixed/wired traffic



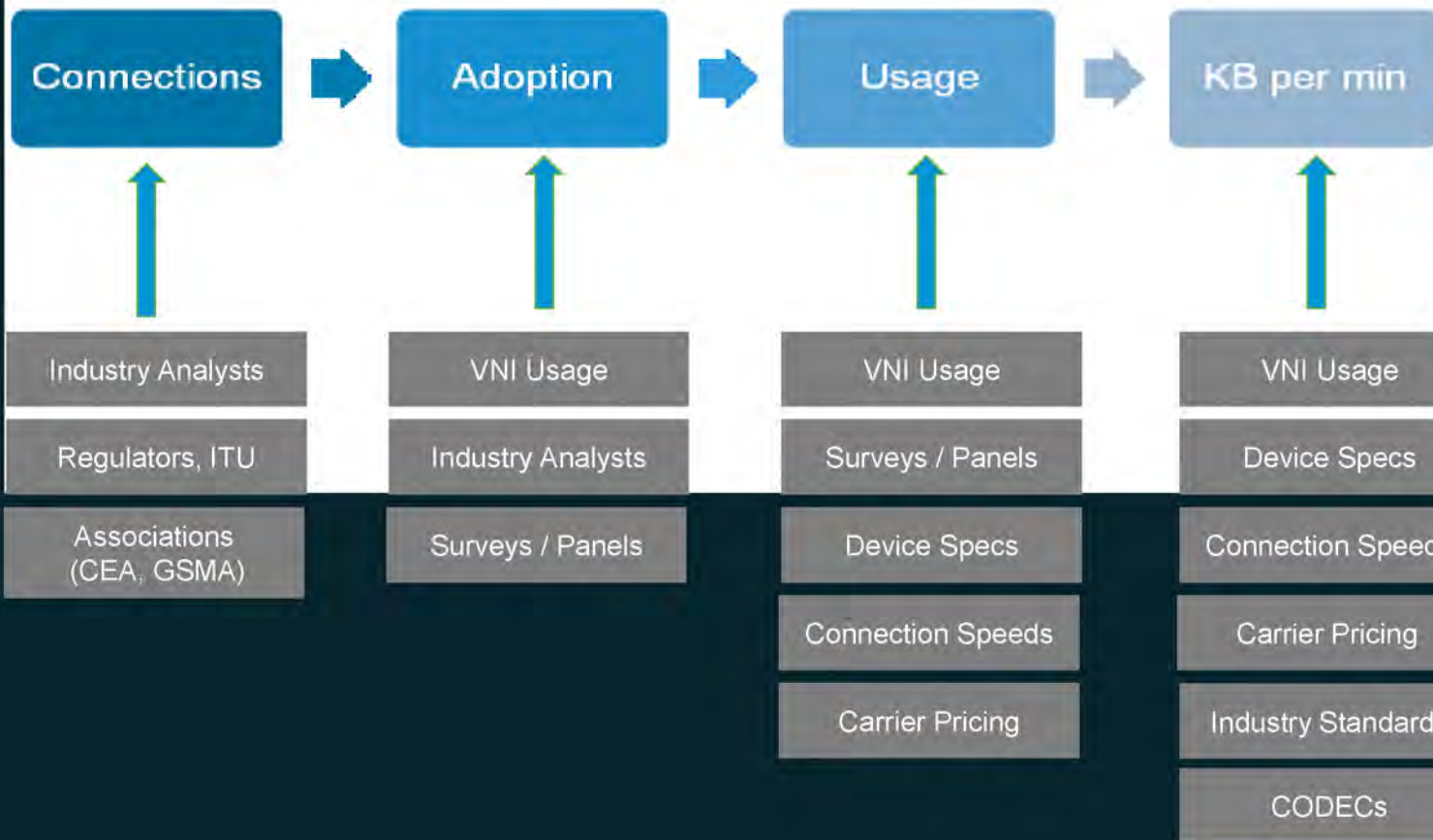
Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

VNI projections vs. actuals

5th
Anniversary



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015



 **Traffic**

Sources for Internet Video Users, 2010

Country	2010	Source
Australia	4,313,00	VNI estimates based on Australia telecom regulator data, ITU
Brazil	26,284,600	VNI estimates based on Brazil telecom regulator data, ITU
Canada	3,259,300	VNI estimates based on comScore, Nielsen, IDC
China	283,980,000	VNI estimates based on China telecom regulator data, ITU
France	17,356,450	IDC, Ovum
Germany	17,785,740	IDC, Ovum
India	9,574,400	IDC, Ovum
Italy	13,051,400	IDC, Ovum
Japan	40,473,650	IDC, Ovum
Korea	15,830,600	IDC, Ovum
Mexico	12,515,400	IDC, Ovum
New Zealand	770,300	VNI estimates based on adoption rates from consumer surveys
Russia	19,266,000	VNI estimates based on adoption rates from consumer surveys
South Africa	1,879,053	VNI estimates based on adoption rates from consumer surveys
United Kingdom	15,665,259	VNI estimates based on UK telecom regulator data, ITU
United States	149,561,804	IDC, Nielsen

Public Cisco VNI Web Site
<http://www.cisco.com/go/vni>

Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2010–2015

Thank you.



**9th World Telecommunication/ICT Indicators
Meeting (WTIM-11)
Mauritius, 7 - 9 December 2011**



Contribution to WTIM-11 session

**Document C/10-E
7 December 2011**

English

SOURCE: Hamilton Research and Africa Bandwidth Maps

TITLE: Measuring Backbone Transmission Networks

Measuring Backbone Transmission Networks

World Telecommunication Indicators Meeting (WTIM),
Mauritius, 7 December 2011.

Paul Hamilton, Managing Director.
Hamilton Research Ltd.,
Bath Brewery, Toll Bridge Road,
Bath BA1 7DE, UK
Tel: +44 (0)1225 852554
Fax: +44 (0)1225 852558
hamilton.paul@btinternet.com



About us

Hamilton Research is a specialist provider of research, analysis and GIS cartographic services for telecom markets, and maintains a quarterly updated database of Africa's transmission networks.

We recently published the 2011/12 edition of the Africa Telecom Transmission Map and Datasets, showing the region's terrestrial fibre and microwave, satellite and submarine cable networks as at September 2011.

Hamilton Research undertakes customised research and consulting projects for a range of clients, with projects ranging from the research and production of maps-to-order, demand and feasibility studies, to the development of market metrics.

Paul Hamilton, Managing Director.
Hamilton Research Ltd.,
Bath Brewery, Toll Bridge Road,
Bath BA1 7DE, UK
Tel: +44 (0)1225 852554
Fax: +44 (0)1225 852558
hamilton.paul@btinternet.com



Measuring Backbone Transmission Networks

- 1) Backbones Underpin the Delivery of Broadband Capacity
- 2) Inventory: Route Kms
- 3) Fibre Reach: Population Coverage
- 4) Capacity: Gbps
- 5) A Conceptual Framework



Delivering Capacity

Broadband services are defined as Internet access speeds of 256 Kbps or more (in one or both directions).

This definition is for the access network. 256 Kbps, to where? Upstream international IP connectivity to a tier 1 IBP. What is the connectivity of the backbone network?

Transmission networks underpin the delivery of all broadband data and Internet services, be they fixed or mobile.

When an operator introduces or upgrades a broadband access network, this dramatically increases the national and international transmission capacity required to deliver that.

This is bringing high capacity national and international fibre backbone networks to dozens of new towns and cities for the first time, increasing the number of people with access to broadband networks.



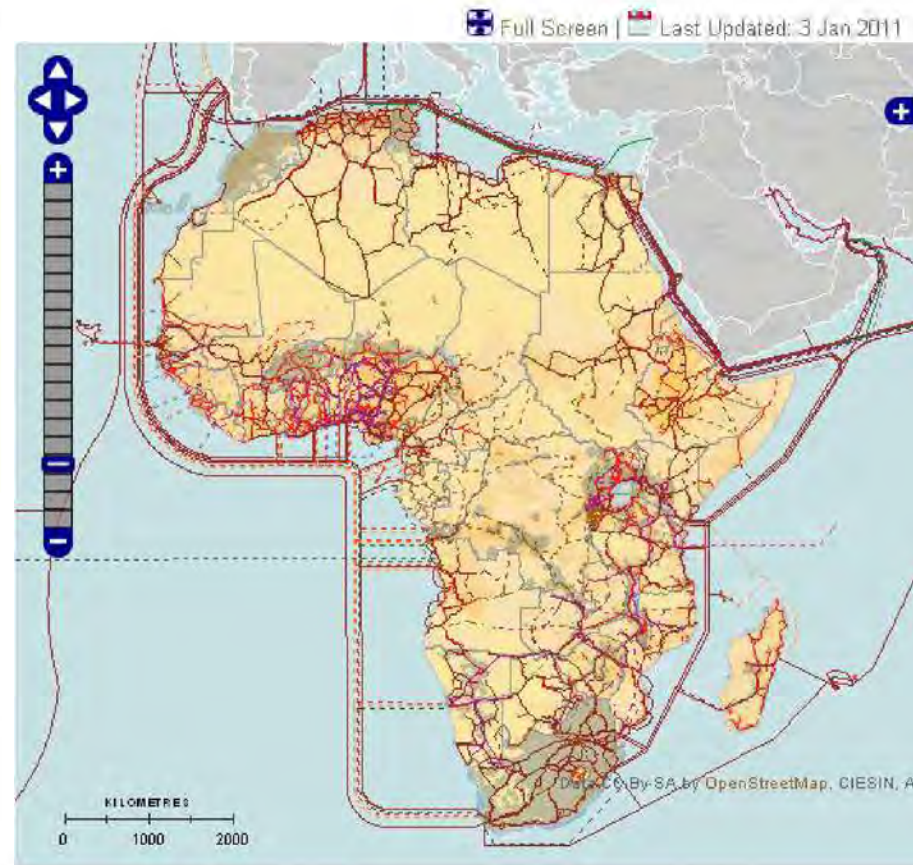
Source: © Hamilton Research, 2011. www.africabandwidthmaps.com

Delivering Capacity



Source: Paul Butler, Facebook. 33.5 million Facebook users in Africa, September 2011 (source: Socialbakers)

<http://www.facebook.com/notes/facebook-engineering/visualizing-friendships/469716398919>
<http://paulbutler.org/archives/visualizing-facebook-friends/>



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Inventory – Route Kms

Route-Kms defined as the total length of network infrastructure, regardless of the number of fibres per cable.

Cables typically contain 18, 24, 36, 48 or 72 optical fibres per cable. More fibres in metro networks.

➤ Measured by the physical distance as drawn on the map. We digitise the network as indicated, then calculate the distance of those links.

➤ In some cases we know the length of an operator's fibre network (for eg annual report), but not the routing of that network. In these cases we add the total as given by the operator to the dataset, but cannot add it to the map.

➤ Found a significant difference between buried fibre and aerial fibre, and break the inventory out by type (microwave, fibre) and operational status:

- Operational
- Under Construction
- Planned
- Proposed

Last Updated: 3 Jan 2011



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Legend

- Capacity
- Submarine Cable
- Fibre Metro
- 2010, Q4

List of Articles Shown in Current Map View

- South Africa: Vodacom Business Expands Metro Fibre Network to Stellenbosch, Somerset West, Paarl and Wellington
- Zimbabwe: Liquid Telecom Completes 740-km Fibre Route To South Africa, Accesses SEACOM

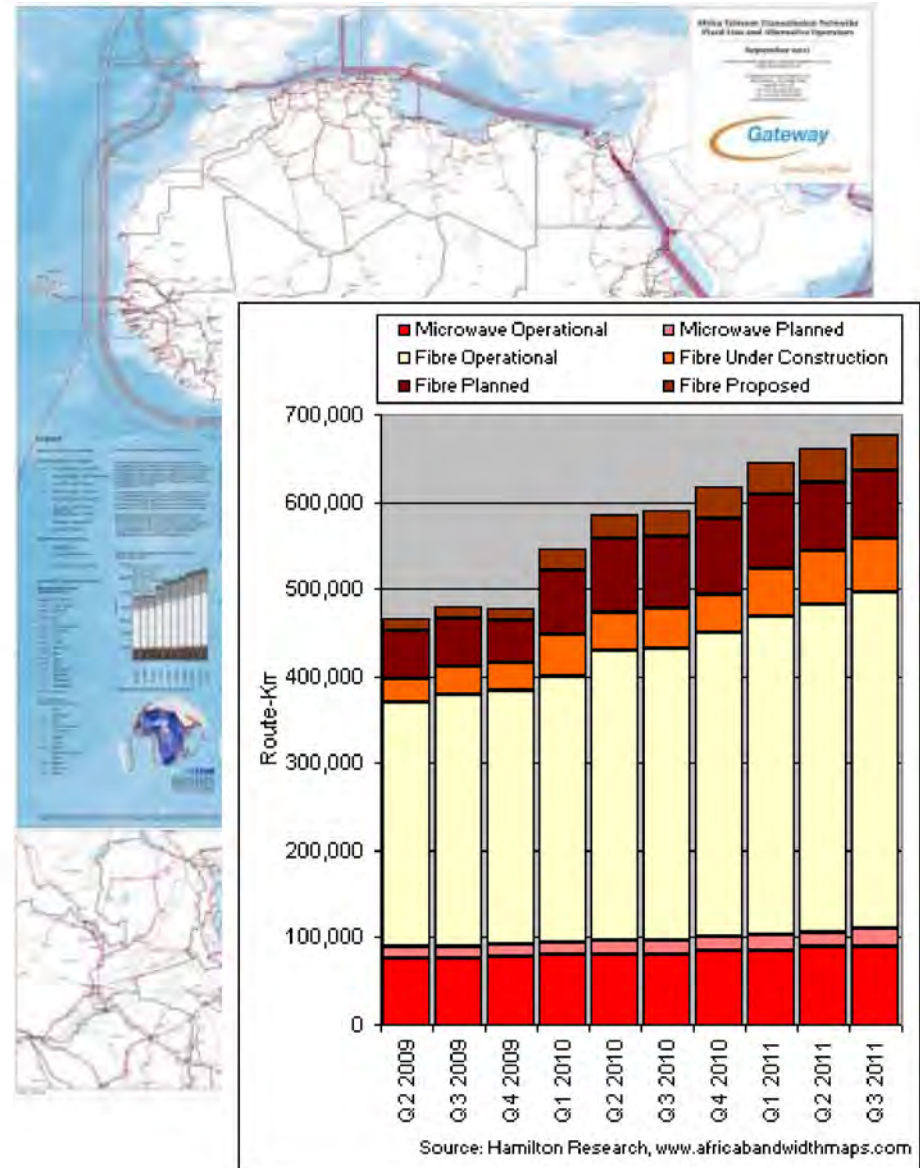
➤ Use this indicator to quantify the levels of investment into terrestrial backbone networks by applying an average deployment cost per route-km and multiplying by the cost per km. Quantify total investment to date and future investment requirement.

Inventory – Route Kms

How much terrestrial transmission network is there in Africa?

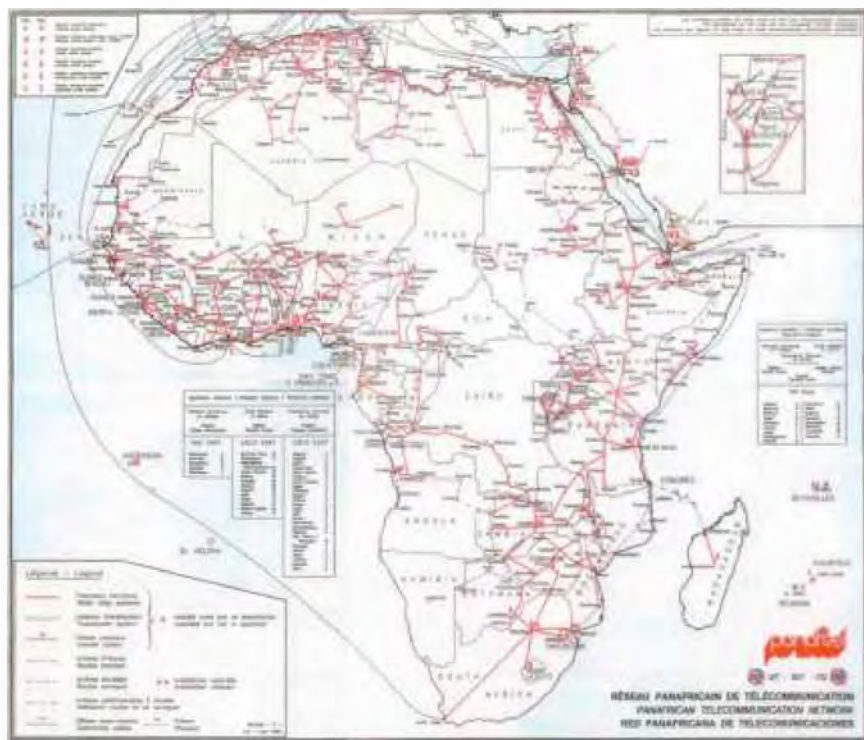
This is bringing high capacity national and international fibre backbone networks to dozens of new towns and cities for the first time, increasing the number of people with access to broadband networks.

- Total inventory: 676,739-kms (Sept 2011).
Compares to:
 - 660,230-km (June 2011)
 - 585,468-km (June 2010)
 - 465,659-km (June 2009)
- Laid end-to-end, that is enough to wrap around the earth almost 17 times.
- In the last twelve months, on average 138-km of new fibre network entered service per day.
- There is now twice as much fibre under deployment across Africa as there was two years ago:
 - 62,255-km (Sept 2011)
 - 45,499-km (Sept 2010)
 - 31,688-km (Sept 2009)



Inventory – Route Kms

How much terrestrial transmission network is there in Africa?



Panaftel.

Started in 1972. By 1990 some 39,000-km of (analogue) microwave radio relay links and coaxial cable.



Source © Hamilton Research, 2011. www.africabandwidthmaps.com

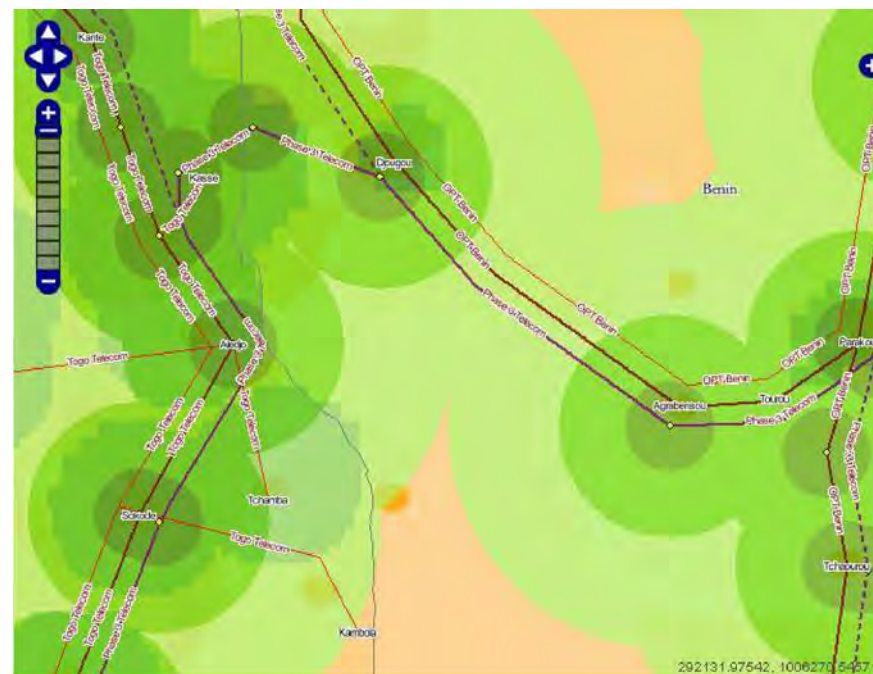
Reach – Population Coverage

How many people are within reach of terrestrial networks?

The inventory is useful for quantifying the investment levels, but it doesn't tell us much about how well covered a country is.

Measure reach by plotting circles of certain radius around nodes on the network. We then process this against a map layer of population density in order to calculate the number of people within reach of these transmission networks.

- Submarine cables: 37.4 million people (4.4%) within 25-km reach of submarine cable landing point June 2011 (SSA).
- This will increase to 47 million (5.5%) once the WACS, ACE, LION2 and SEAS cables enter service.
- Terrestrial fibre: 313.2 million people (36.3%) within reach of operational fibre node (June 2011).
- This was an increase of 53.885 million compared to 259.3 million people (30.8%) in June 2010.



All rights reserved. Copyright © Hamilton Research Ltd., 2009. Full citation and list of sources



Reach – Population Coverage

How many people are within reach of terrestrial networks?

The 13 submarine cables with landing points in sub-Saharan Africa have a total design capacity of 14.0 Tbps, which will almost double to 25.8 Tbps by the end of 2012, but the key is delivering this capacity to customers.

Range from Landing Point	Population within reach of fibre node (SSA)		
	10-km	25-km	50-km
Submarine cable landing point (Operational) 2010	15.3 m 1.8%	37.4 m 4.4%	49.8 m 5.9%
Submarine cable landing point (Operational) 2011	15.3 m 1.8%	37.4 m 4.4%	49.8 m 5.9%
Submarine cable landing point (Under construction or planned)	20.8 m 2.5%	46.6 m 5.5%	61.3 m 7.2%

Reach – Population Coverage

How many people are within reach of terrestrial networks?

The Africa Transmission Map contains over 3,000 fibre nodes. In the Range from Node map layer, we plotted 10-km, 25-km and 50-km radii from these nodes, and calculated the number of people within these ranges.

Range from Fibre Node	Population within reach of fibre node (SSA)		
	10-km	25-km	50-km
Operational (2010)	131.2 m 15.6%	259.3 m 30.8%	401.1 m 47.7%
Operational (2011)	160.6 m 18.6%	313.2 m 36.3%	483.9 m 56.1%
Under Construction (2010)	155.2 m 18.4%	313.3 m 37.2%	486.9 m 57.9%
Under Construction (2011)	181.2m 21.0%	355.1 m 41.2%	542.5 m 62.9%
Planned or Proposed (2010)	194.9 m 23.2%	388.1 m 46.1%	588.3 m 69.9%
Planned or Proposed (2011)	214.1 m 24.8%	417.9 m 48.5%	630.3 m 73.1%

Capacity – Gbps

International Internet bandwidth

Measuring international Internet bandwidth:

Direction: Inbound, outbound, or inbound + outbound.

Type: Which of the following measures:

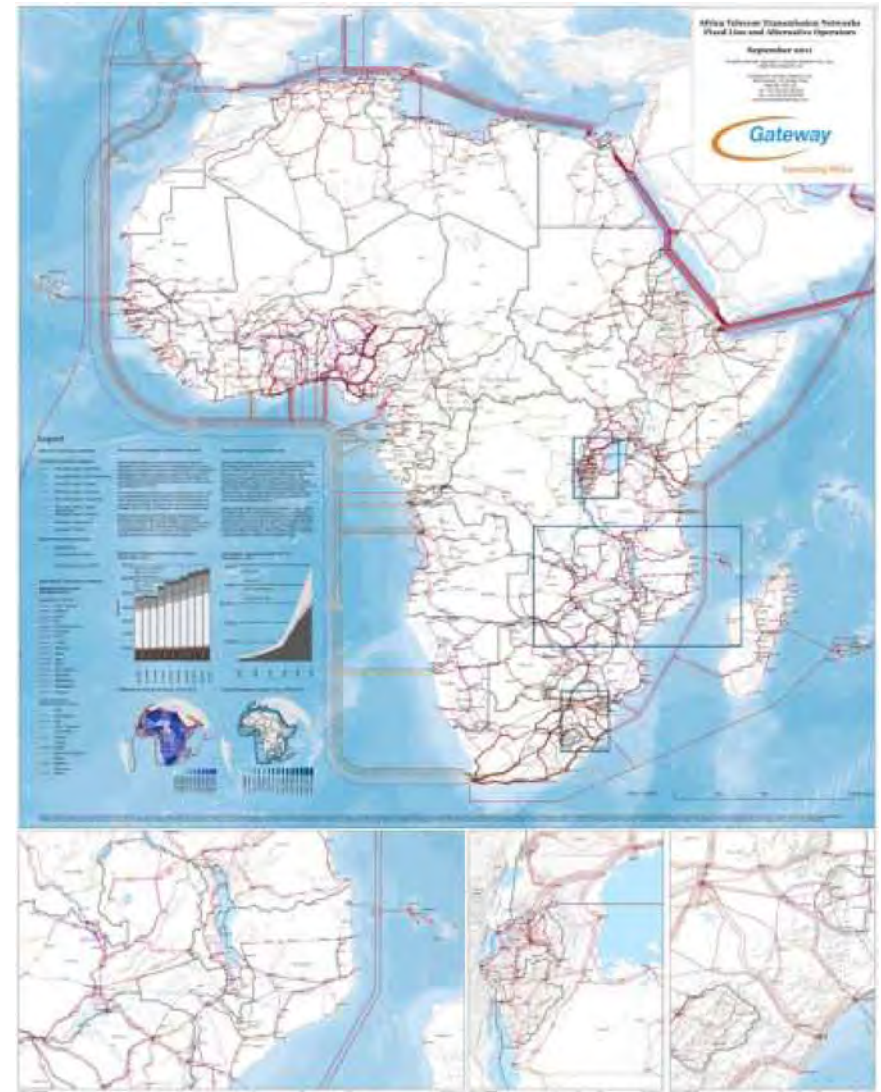
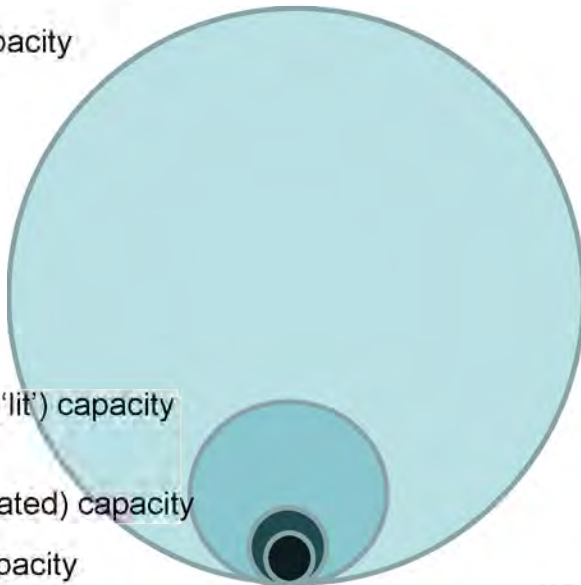
- Design capacity
- Equipped ('lit') capacity
- Sold (activated) capacity
- Utilised capacity

Design capacity

Equipped ('lit') capacity

Sold (activated) capacity

Utilised capacity



Source: © Hamilton Research, 2011. www.africabandwidthmaps.com

Capacity – Gbps

International Internet bandwidth

Submarine Cables

- The 13 submarine cables with landing points in sub-Saharan Africa have a total design capacity of 14.0 Tbps.
- Design capacity will almost double to 25.8 Tbps by the end of 2012. Adoption of 40G rather than 10 G incl: ACE, WACS, EASSy, FLAGEA, SEAMEWE4.
- SAT-1, 1968, 360 circuits (20 Mbps)
- SAT-2, 1993, 560 Mbps
- SAT-3, 2002, 120 Gbps
- SAT-3, 2009, upgraded to 340 Gbps
- WACS, 2011, 5.12 Tbps
- Capacity is lit incrementally to meet demand requirements. Capacity sold (Africa) > 300 Gbps in Q1 2010, > 500 Gbps in Q4 2010.



Source: © Hamilton Research, 2011. www.africabandwidthmaps.com

Capacity – Gbps

International Internet bandwidth

Terrestrial Transmission Networks

- Evolution of terrestrial networks from analogue microwave (1970s, 1980s), digital microwave (1980s, 1990s), optical fibre (1990s, 2000s).
- Analogue microwave 960 circuits (53 Mbps), most links equipped at 480 circuits or less.
- Digital microwave typically at 34 Mbps, STM-1 (155 Mbps), STM-4 (622 Mbps)
- Fibre typically equipped at STM-4, STM-16 (2.488 Gbps) and STM-64 (9.953 Gbps).
- SEAMEWE4 capacity increased from 1.28 Tbps to 4.8 Tbps in Q1 2011, with 100G on terrestrial link from Alexandria to Suez.
- Cross-border networks in SSA more than doubled to 20 Gbps by end 2010.



Source: © Hamilton Research, 2011. www.africabandwidthmaps.com

A Conceptual Framework

Network Adequacy

Terrestrial backbone networks as physical supply constraint (or enabler) to the delivery of all broadband services. Correlates with existing broadband indicators, gives perspective on these.

It is not particularly meaningful to compare the development of an operators' (or country's) transmission networks on the basis of route-kms alone, because they are not comparable on a like-for-like basis.

It is more meaningful to make comparisons between countries, or over time, on the basis of whether the transmission network is 'adequate' in terms of meeting the underlying demand for broadband services.

A fully 'adequate' transmission network would be within reach of 100% of the population, which has sufficient capacity to meet the traffic demand for the population which is served, and has terms of access which are not prohibitive or constraining (price).

This can be tracked over time to measure the progression of a country, or operator, toward achieving this. 'Network adequacy' can be derived on the basis of:

1)Reach. The percentage of the population which is within reach of a transmission network.

Eg, Sub-Saharan Africa terrestrial fibre reach increased from 30.8% - 36.3% in 2010 – 2011.

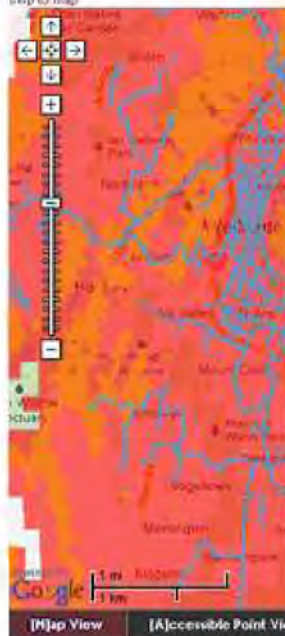
2)Capacity. If the capacity on the network is sufficient to meet the current and future traffic demands of the population to be served.

Eg, Sub-Saharan Africa, activated cross-border capacity to submarine cables increased from 10 Gbps – 20 Gbps.



TeleGeography
 submarinecable

FCC National E
 Broadbandmap



New Zealand National
 www.broadbandmap.gov



Welcome

Interactive infographic tool showcasing the status of broadband deployment worldwide and the regulatory landscape for broadband

Check the box to load map, click the title to download the KMZ file. If multiple boxes are checked, files will overlap.

- ☒ Fixed Broadband Penetration 2010
- ☐ Fixed Broadband Penetration 2005-10
- ☐ Mobile Broadband Penetration 2010
- ☐ Household PC Penetration 2010
- ☐ Broadband Affordability 2010
- ☐ VoIP Penetration 2010
- ☐ Broadband Competition 2010
- ☐ Spectrum
- ☐ Africa Telecom Transmission Map

Notes

This application uses the Google Earth Plugin. If you do not already have this plugin installed, you will be prompted to download and install it into your browser. The Google Earth Plugin is supported in the following browsers: Firefox 3.0+, Google Chrome 5.0+, Internet Explorer 7.0+, Safari 2.1+

The data used is based on self-reported information gathered through the annual ITU surveys. Where the latest year data is not available, previous year data is used.

Disclaimer

Simplified and stylized boundary data indicative only; created using National Earth System Data (NEDS) data. The designations employed and the presentation of

ITU Broadband Atlas

www.itu.int/ITU-D/treg/atlas/broadbandatlas.asp

Fixed Broadband Penetration, 2010



Submissions: treg@itu.int

www.africabandwidthmaps.com

www.africabandwidthmaps.com

Paul Hamilton, Managing Director.
Hamilton Research Ltd.,
Bath Brewery, Toll Bridge Road,
Bath BA1 7DE, UK
Tel: +44 (0)1225 852554
Fax: +44 (0)1225 852558
hamilton.paul@btinternet.com



**9th World Telecommunication/ICT Indicators
Meeting (WTIM-11)
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Contribution to WTIM-11 session

**Document C/11-E
7 December 2011**

English

SOURCE: Korea Association of Information and Telecommunication (KAIT), Republic of Korea

TITLE: Measuring Wireless Broadband Subscriptions in Korea

Measuring Wireless Broadband Subscriptions in Korea

December 2011

Dr. Seung Keon Kim



KOREA
COMMUNICATIONS
COMMISSION



<http://www.kait.or.kr>

Introduction to KAIT

ICT statistics support organization

ICT statistics compilation and provisioning (KAIT)

- ICT statistics compilation and provisioning: The base data used to analyze competitiveness in the ICT industry and policy implementation
 - ※ KAIT consistently complies government-approved statistics and data related to ICT, and is obliged to submit social index-related statistics to the OECD and ITU.
- Collection of domestic and overseas ICT statistics and status analysis
 - ※ Responds to the statistics submission requests from the OECD and ITU.
 - Collects and analyzes statistics from broadcasting and communication committees throughout the world.
- Increases online surveys using the statistical work support system and manages the database efficiently.
 - ※ Provides various information and improves utilization of the statistical data, using the statistics portal service.
- Provides statistics related to the international ICT index, analyzes 12 international ICT index
 - ※ Provides the ICT statistics to the OECD and ITU, analyzes the international ICT index and provides information for policy establishment to the Korea Communications Commission and the Blue House.

Contents

- I. ICT industry of Korea
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- III. Measuring methodology
- IV. Suggestion

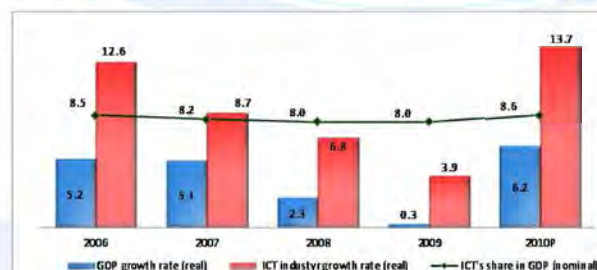
- 3 -

I. ICT industry of Korea

Contribution of the ICT industry to the National Economy of Korea

- **ICT became the core tool to proactively cope with future uncertainty and crises.**
 - * ICT made the greatest contribution in overcoming the IMF crisis in 1998 and the world financial crisis in 2008.
- The ICT industry occupied 8.6% of the domestic GDP in 2010.
- * The ICT industry achieved a 9.1% annual average growth rate since 2006, which was far above the GDP growth rate of the same period (3.8%).

Trend of the ICT industry growth rate (unit : %)



Source: Bank of Korea, KAIT (2011)

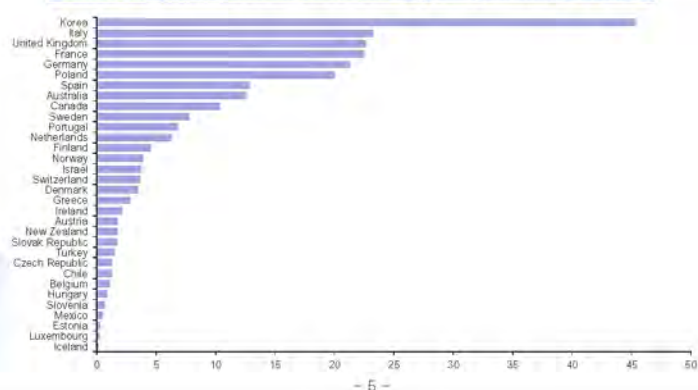
- 4 -

II. Wireless broadband subscription by country

Total Wireless Broadband subscription by country

- The number of Wireless Broadband subscriptions in Korea was 45.4 millions in 2010, which was the 3rd rank in the world. United States ranked 1st(165.4 millions) and Japan ranked 2nd(97.7 millions).

OECD Total wireless broadband subscriptions, by country, millions, Dec. 2010

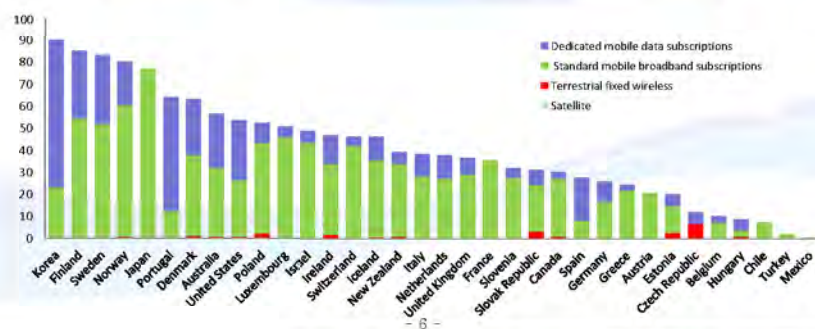


II. Wireless Broadband subscription by country

Wireless Broadband subscriptions per 100 inhabitants, by technology

- Korea is the leading country for wireless broadband subscriptions, with 89.8 per 100 inhabitants, followed by Finland (84.8), Sweden (82.9) and Norway (79.9). This compares to an OECD average of 41.6 and a total of just under 512 million.

OECD wireless broadband subscriptions per 100 inhabitants, by technology, December 2010 (unit : %)



III. Measuring methodology

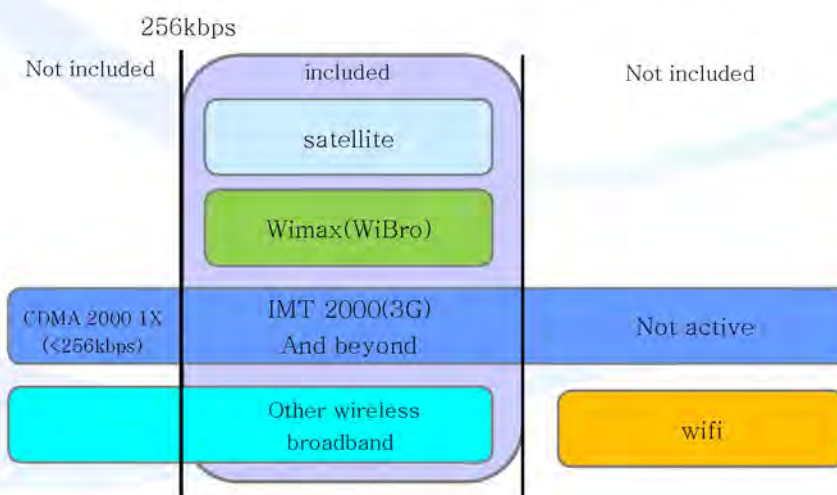
ITU Definitions of WTI Indicators

Index	Definition
271w	Total Wireless broadband subscription Sum of satellite, terrestrial fixed wireless and terrestrial mobile wireless subscriptions. (271s + 271fw + 271mw)
271s	Satellite subscription The number of satellite Internet subscriptions with advertised download speeds of at least 256 kbit/s.
271fw	Terrestrial fixed wireless subscription The number of terrestrial fixed wireless subscriptions with advertised download of at least 256 kbit/s. This could also include fixed WiMax and fixed wireless subscriptions and excludes occasional users at hotspots etc.).
271mw	Terrestrial mobile wireless subscription Sum of active mobile broadband subscriptions and dedicated mobile data subscriptions. (271mb_use + 271md)
271mb_use	Standard mobile subscription with use of data communications at broadband Speeds Standard mobile subscriptions (only included with active use): Includes mobile subscriptions with advertise data speeds of 256 kbit/s or greater and which have been used to make an Internet data connection via IP in the previous 3 months. To be counted, the subscription must allow access to the greater Internet via HTTP and must have been used to make a data connection using the Internet Protocol in the previous three months. Standard SMS and MMS messaging do not count as an active Internet data connection even if they are delivered via IP.
271md	Dedicated mobile data subscriptions Subscriptions to dedicated data services over a mobile network which are purchased separately from voice services either as a stand-alone service (modem/dongle) or as an add-on data package to voice services which requires an additional subscription. All dedicated mobile data subscriptions with recurring subscription fees are included as "active data subscriptions" regardless of actual use. Pre-paid mobile broadband plans require active use if there is no monthly subscriptions. This could also include mobile WiMax subscriptions.

Source: ITU Definitions of World Telecommunication/ICT Indicators, March 2010 Indicators

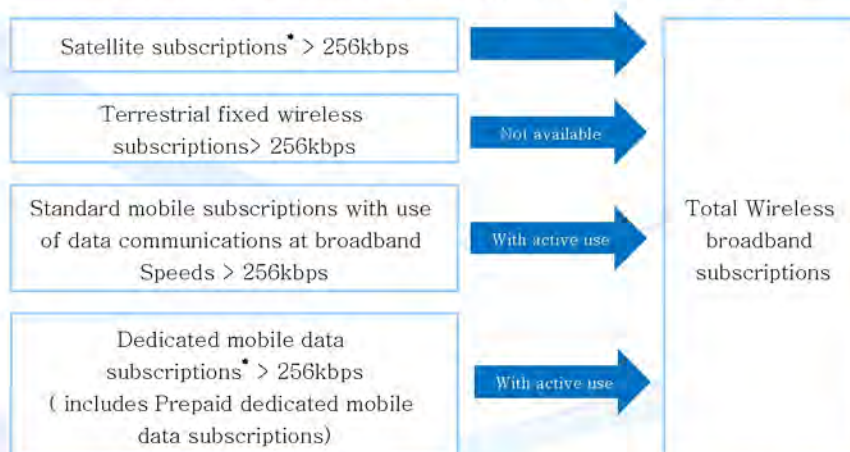
III. Measuring methodology

Composition of Mobile Wireless Broadband Subscription in Korea



III. Measuring methodology

Counting Wireless Broadband Subscriptions

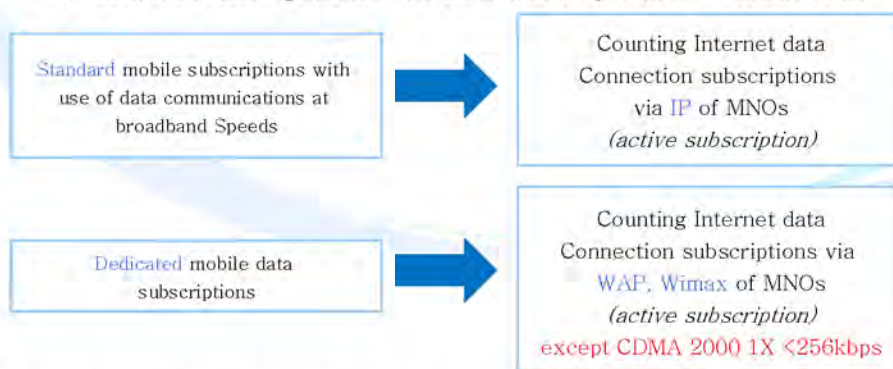


* Net number of subscriptions are collected on a monthly basis from KCC using prescribed forms of MNOs.

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III. Measuring methodology

To answer the questions, two surveys are conducted.



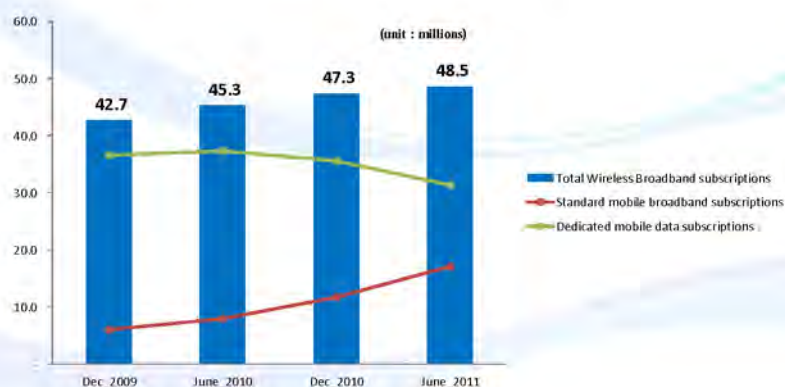
*WAP and CDMA 2000 1X subscriptions are collected on a monthly basis from KCC using prescribed forms of MNOs.

**Challenges to collect data: ① Statistical agency should keep a constant amicable relationships with MNOs ② Mobile operators have burden to submit their data to the regulatory or statistical agencies.

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III. Measuring methodology

Comparison of Standard mobile broadband subscriptions and Dedicated mobile data subscriptions



- 11 -

IV. Suggestions

- Repetitious data request from multiple international organizations
 - To lessen countries' burden to collect and submit their data, harmonizing data collection is needed.
- Various ways to collect data by using ITU indicators
 - Efforts to improve reliability of statistics to enhance comparability
- New technologies & New services
 - With recent launch of 4G services in many countries, indicators which measure new technology such as 4G is needed.

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**9th World Telecommunication/ICT Indicators
Meeting (WTIM-11)**
Mauritius, 7 - 9 December 2011



Contribution to WTIM-11 session

**Document C/12-E
8 December 2011**

English

SOURCE: EGTI chair

TITLE: Mobile broadband tariffs - Report from the EGTI



9th ITU World Telecommunication/ICT Indicators Meeting (WTIM)

**7-9 December 2011
Mauritius**

Mobile broadband tariffs - Report from the EGTI

**Koay Hock Eng
EGTI Chair
Senior Director
Information Management & Knowledge Resource Division
Malaysian Communications and Multimedia Commission**

Overview of EGTI discussion

- Presentation of the proposed methodology
- Data collection experience of ITU and countries followed by a round-table discussion

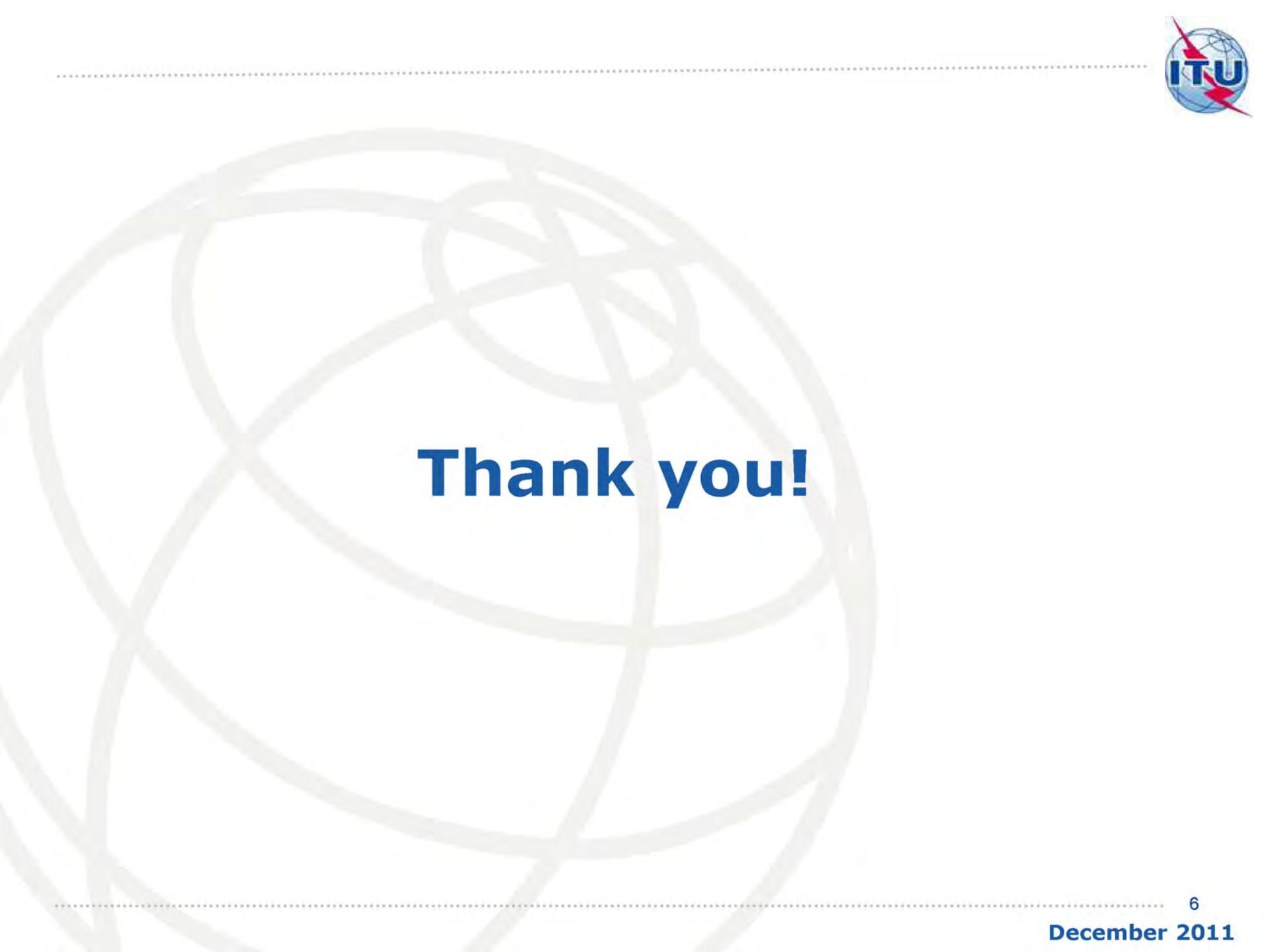
- 1.** Collect data for broadband technologies: UMTS, HSDPA+/HSDPA, CDMA2000, IEEE 802.16e, LTE. Exclude WiFi and hotspots
- 2.** Exclude promotional offers/limited discounts
- 3.** Only residential, single user tariffs
- 4.** Largest mobile-broadband operator (subscriptions) OR mobile-cellular operator
- 5.** Cheapest plan for 1GB of monthly data volume (upload & download volumes)
- 6.** Exclude prices for 'hours of use'
- 7.** Collect data separately for: a) standard mobile-broadband subscription and b) dedicated subscriptions (USB modem/dongle)
- 8.** Collect prepaid tariffs (and postpaid, if prepaid is not available)

- 9.** Collect tariffs for a) connection charge, monthly subscription charge (if postpaid), usage allowance (volume) and charges above cap
- 10.** Specify speed and choose the minimum broadband speed if several available
- 11.** Include any information on limits of data volumes for 'unlimited' plans
- 12.** Choose unbundled packages if cheaper; include information on bundles in a note
- 13.** Exclude tariffs charged per day unless they are the only ones available, or if they are the cheapest per month

Mobile broadband tariffs



- For the initial data collection by the ITU in 2012, the methodology will be used.
- To be revisited based on experience gained

A large, faint, light-colored globe with a grid of latitude and longitude lines is centered in the background.

Thank you!

**9th World Telecommunication/ICT Indicators
Meeting (WTIM-11)
Mauritius, 7 - 9 December 2011**



Contribution to WTIM-11 session

**Document C/13-E
8 December 2011
English**

SOURCE: Comisión del Mercado de las Telecomunicaciones, Spain

TITLE: Comparing fixed and mobile broadband prices: methodologies and problems

“Comparing fixed and mobile broadband prices: methodologies and problems”

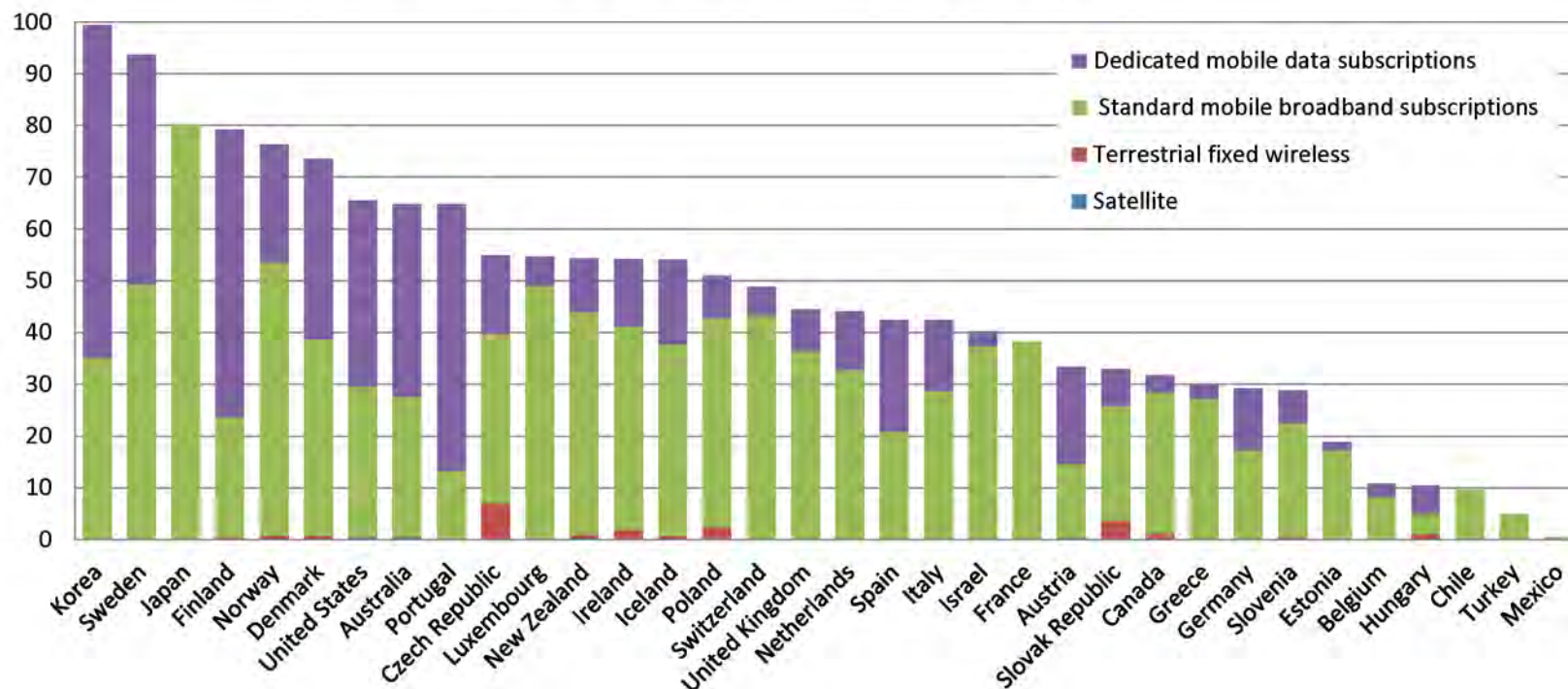
9 World Telecommunication/ICT indicators meeting
December 7-9, 2011

Iñigo HERGUERA

Comisión del Mercado de las Telecomunicaciones, Barcelona (Spain)
iherguera@cmt.es

Mobile BB: at june 2011, there were 47,4 subscriptions/ 100 inhabitants to mobile BB as an average in the OECD area

OECD wireless broadband subscriptions per 100 inhabitants, by technology, June 2011

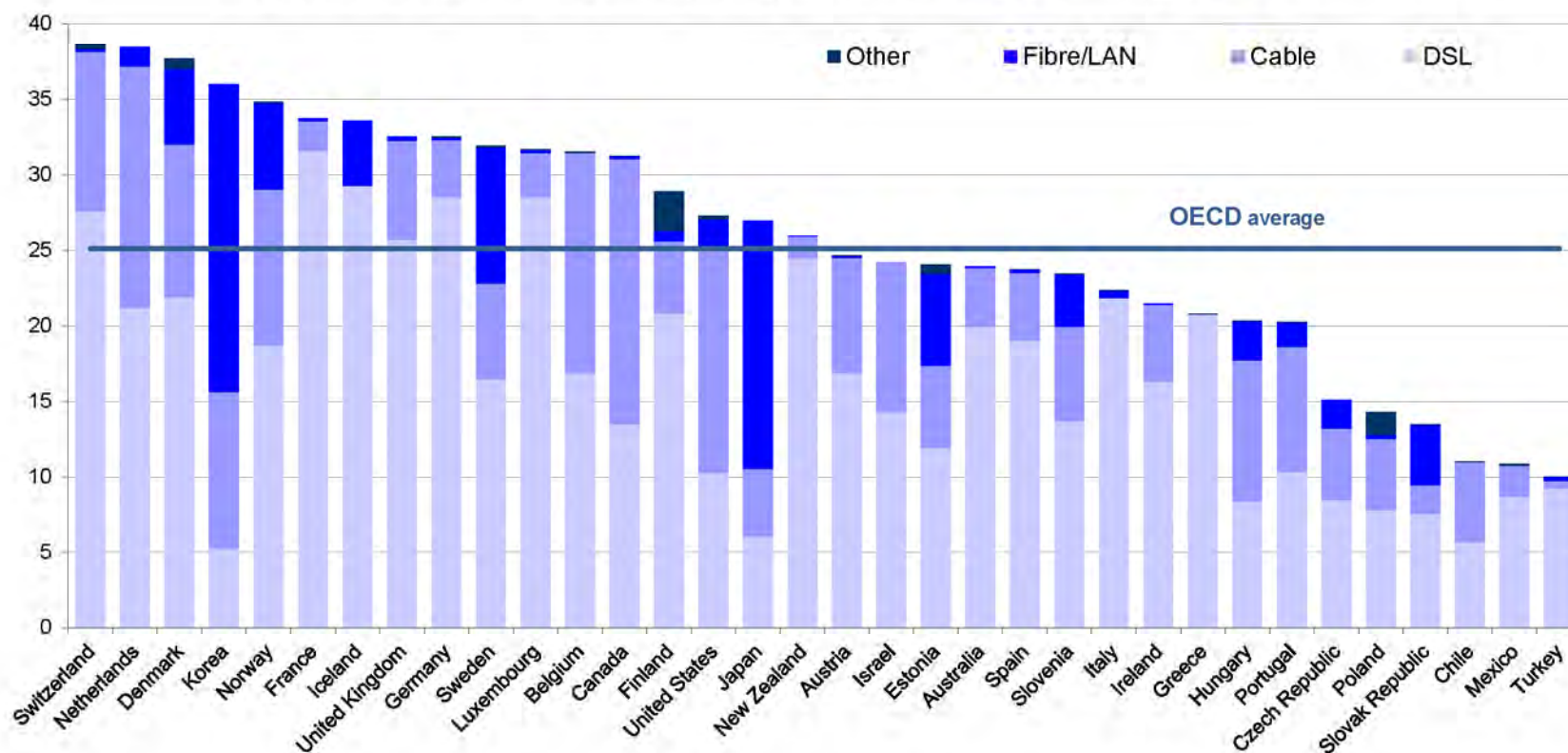


Average Standard Mobile BB Subscriptions: 30,2/ 100 inhabitants

Average Dedicated Mobile BB Subscriptions: 17,2 / 100 inhabitants

Fixed BB: average in the OECD area: 25,1 conexions/ 100 inhabitants

OECD Fixed (wired) broadband subscriptions per 100 inhabitants, by technology, June 2011



Source: OECD

Fixed BB tariff comparisons:

In contrast to mobile BB, tariffs for fixed BB are mostly “flat rates”/ unlimited offers and the majority of them are bundles (double, triple...).

This implies that **USAGE** when comparing fixed BB tariffs are not that relevant. The factors driving price discrimination are:

- **degree of bundling** (number of services included): each country/ region may be in a different development stage of bundling and comparisons may be difficult
- **geography**
- **speed** (download, nominal speed)
- an additional difficulty when comparing fixed BB prices is the degree of **product differentiation**- when TV services are included-
- The methodology followed by several institutions relies on “standard price packages”, whereby the main dimensions of price discrimination are controlled for (separate comparisons for stand-alone, double, triple packs, split by speeds,...)

Mobile BB price comparisons:

USAGE matters because most of the offers/tariffs are limited in volume (Gb) downloaded, or time of usage. It matters for recurrent-fee as well as for pay-as-you-go subscriptions

Tariff (Euros/month), only **post-paid subscriptions for mobile BB via modem/USB/ dongles**
in EU(17), 2010

	Average price	Std deviation	Proportion of offers (%)
Unlimited offers	43,1	22	5,4
Volume metered offers with money penalty	29,6	25,7	35,6
Volume metered offers with speed penalty	31,5	18,4	42,3
Time metered offers with money penalty			10,1
Other (unclassified)			6,7
All volume metered or unlimited offers	31,1	25,3	83,2

Source: based on T- Connect, Teligen, 2010

- relatively few unlimited offers (5,4%), although situation varies across countries. Some “unlimited” offers once reached a certain downloaded volume, restrict speed drastically
- download (nominal) speeds do not vary that much (concentrate on two- three values)
- volume caps with average value 7,4 Gb /month (though big variance)
- predominant presence of volume capped offers (or “unlimited”)- 83% of total

Price comparisons:

- a) **Baskets approach:** define patterns of usage by individuals and apply all tariffs. Select the minimum expenditure tariff thereafter.
- Problem of biases if patterns of usage (i.e, baskets) do not fit the average (or median) consumer in each country/ region.
 - Need demand side micro level data from consumers side to get representative patterns of usage
 - Patterns of usage differ significantly if “big screen” subscription (USB/dongles), in contrast to smartphone or “small screen” type

Consumption patterns of Spanish individuals on mobile BB (per month), 2010

	USB/ dongle with flat	rate smartphone with flat rate
Volume downloaded (GB)	1,12	0,09
Number of connections/ month	98,8	27,8
Expenditure (Euros/month)	32,1	9,9

Source: Household Panel CMT- Red.es

- the joint comparison of volume capped with time- capped offers may bias the comparison,
- Since time based tariffs are on average cheaper than volume metered tariffs
- in the EU the vast majority of tariffs are volume capped (86,6%) for any kind of device
- penalty may be monetary or drastic speed –reduction

Volume and time metered mobile BB tariffs, March 2010, EU(20), *Source:*
Benchmarking EWG (BEREC)

volume capped		Average price	n
86,60%	low speed	27,7	89
	medium speed	20,9	206
	high speed	36,6	186
time capped			
13,40%	low speed	17,9	15
	medium speed	14,9	42
	high speed	17,9	17

Average price for smartphones/ USB and volume metered offers ,
Source: Benchmarking EWG, BEREC (2011).- only flat rate tariffs

	Average Price (Euros/month)	n
Smartphone		
low speed	26,2	23
medium speed	20,6	57
high speed	48,9	85
<i>average</i>	36	165
USB/ modem		
low speed	34,5	40
medium speed	24	100
high speed	25,9	82
<i>average</i>	26,6	222

From some simple regression analysis (and for both smartphones and USB):

- volume caps matter for prices (the higher the volume allowed, the higher the price)
- important country-specific effects (collect many factors at once)

b) Standard offers approach: select types of tariffs that are more “common” and compare only similar tariffs with each other (similar to fixed BB comparisons).

→ Handset subsidies may be taken care of partially

→ Problems with comparability over time, and among countries that differ widely in terms of tariffs available.

Some conclusions:

- Mobile BB tariffs/ prices have many different structures, depending on intensity of usage. To compare prices correctly USAGE matters (in contrast to fixed BB)
- In EU countries volume capped tariffs are clearly the majority (time metered tariffs are in minority)
- If combining time- metered with volume capped tariffs, prices of time- metered tariffs dominate- are lower (but much less representative in EU). This may bias price comparisons made
- Clear different patterns of usage by final consumer if connecting to mobile BB via a smartphone, or if connected via a datacard/USB/modem (much more intensive volume usage if datacards/USB)
- level of prices between datacards/USB tend to vary significantly with respect to prices of smartphone connections

**9th World Telecommunication/ICT Indicators
Meeting (WTIM-11)
Mauritius, 7 - 9 December 2011**



Contribution to WTIM-11 session

**Document C/14-E
8 December 2011**

English

SOURCE: European Commission

TITLE: Measuring Broadband Performance



Measuring Broadband Performance

Carlos Perez Maestro
Economic and Statistical Analysis
Directorate General for Information Society and Media
European Commission

Digital Agenda

1001100101011101110000100 2010-2020

for Europe



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Planned actions

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Interoperability and
Standards

Trust and Security

Very Fast Internet

Research and Innovation

Financing e-Infra

ICT for Social Challenges

Infrastructure

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Pillar IV: Very Fast Internet

New services such as high definition television or videoconferencing need much faster internet access than generally available in Europe. To match world leaders like South Korea and Japan, Europe needs download rates of 30 Mbps for all of its citizens and at least 50% of European households subscribing to internet connections above 100 Mbps by 2020. The Digital Agenda aims to turn this ambition into reality by stimulating investments and proposing a comprehensive radio spectrum plan.

List of actions:

Action 42: Adopt an EU broadband communication

Action 43: Funding for high-speed broadband

Action 44: European Spectrum Policy Programme

Action 45: Foster the deployment of HSPA networks

Action 46: Member States to develop national broadband plans

Action 47: Member States to facilitate broadband investment

Action 48: Use structural funds to finance the roll-out of high-speed networks

Action 49: Member States to implement European Spectrum Policy Programme

Latest News

Incentives to invest in the future: Creating an open, competitive telecoms market

Supporting innovation and investment in ICT

Ex-ante advertising for a negotiated procedure for a service contract of a value below or equal to 60.000€

IRI SD.C4 – Supply of market data on online content, services and applications available on fixed and mobile broadband platforms

Future Network and Mobile Summit – Call for Papers & Workshop Submissions

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Documents

Filling in the gaps: COGEL sees Europeans switch over to broadband over TV white spaces

European Broadband Communication

Getting Europe connected: ALPHA and SARDANA's next generation networks bring fibre to European households

Internet usage in 2010 – Households and Individuals

Internet usage in 2010 – Households and Individuals

Internet usage in 2010 – Households and Individuals

Internet usage in 2010 – Households and Individuals

Internet usage in 2010 – Households and Individuals

Internet usage in 2010 – Households and Individuals

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BROADBAND COMMISSION FOR DIGITAL DEVELOPMENT

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Ms. Neelie Kroes, European Commission, European Digital Agenda



"Broadband is revolutionising the way we live and how we do business - somehow like electricity, telephones, railways and highways changed our world. Culture, democracy, efficiency - it all improves with broadband."

Neelie Kroes was Born 1941 in Rotterdam, The Netherlands, where she also attended school and helped to build her family's transport business.

She studied economics at Erasmus University, before working there for six years as an Assistant Professor.

Her political career started on the Rotterdam Municipal Council, and in 1971 she was elected as a Member of the Dutch Parliament for the liberal VVD party. From 1982-1989 she served as Minister for Transport, Public Works and Telecommunication in the Netherlands.

After politics she was appointed President of Nyenrode University from 1991-2000, and served on various company boards, including Lucent Technologies, Volvo, P&O Nedlloyd.

Prior to serving as European Commissioner for Competition from 2004-2009, her charity work included advising the Nelson Mandela Children's Fund and World Cancer Research Fund, and she has an ongoing interest in mental health issues.

Who — Our Community:

Chairs & Vice-Chairs
Top CEOs & Industry Leaders
Senior policy-makers
ICT agencies
Academia

What

Advocacy & Policy Leadership
Analysis & Evaluation
Call to Action

Why

MDGs
Digital Inclusion for All
Critical Infrastructure
Growth

How

Events
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DAE broadband targets



2013

Internet
for **100%**

2020

$\geq 30\text{Mbps}$
for **100%**

$\geq 100\text{Mbps}$
for **50%** of
households



Benchmarking the broadband targets

- Broadband take-up statistics, including take-up, market shares, technologies, speeds, wholesale prices, mobile broadband (NRA data)
- Survey on broadband usage by HH and enterprises (EUROSTAT)

Studies:

1. Broadband coverage
2. Broadband retail prices
3. In depth study on the ISP market from a consumers perspective
4. Broadband quality



Digital Agenda for Europe

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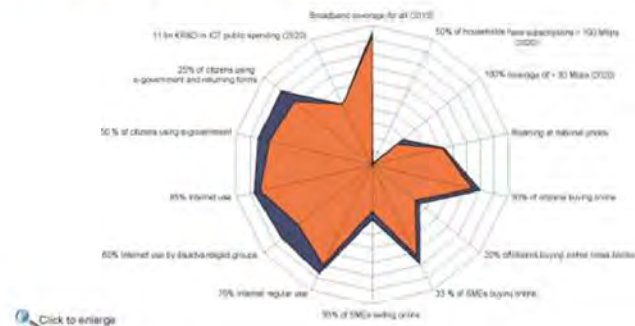
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Digital Agenda Scoreboard 2011

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Find out more about a Digital Agenda pillar



Explore graphs

Compare and analyse data



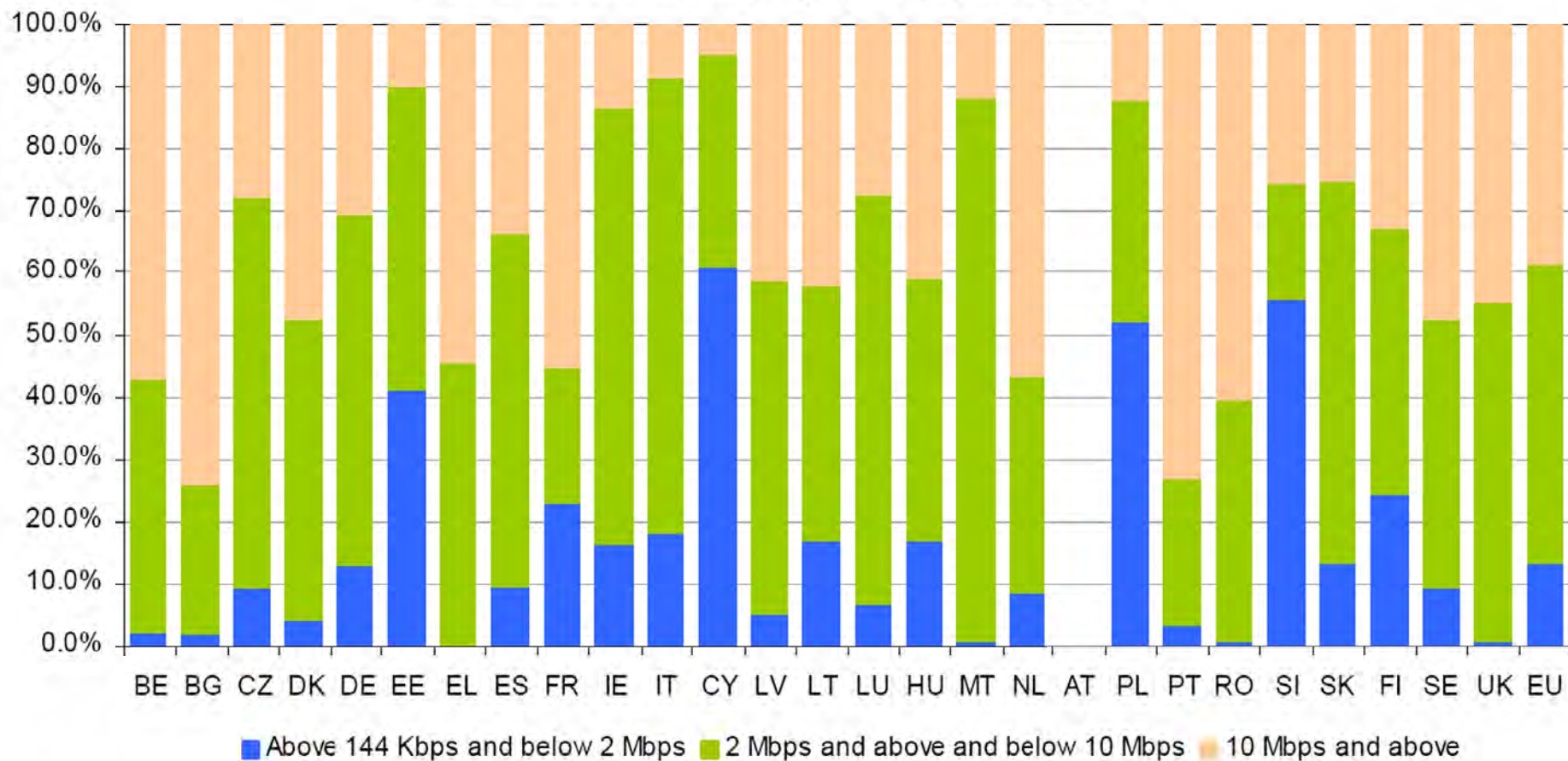
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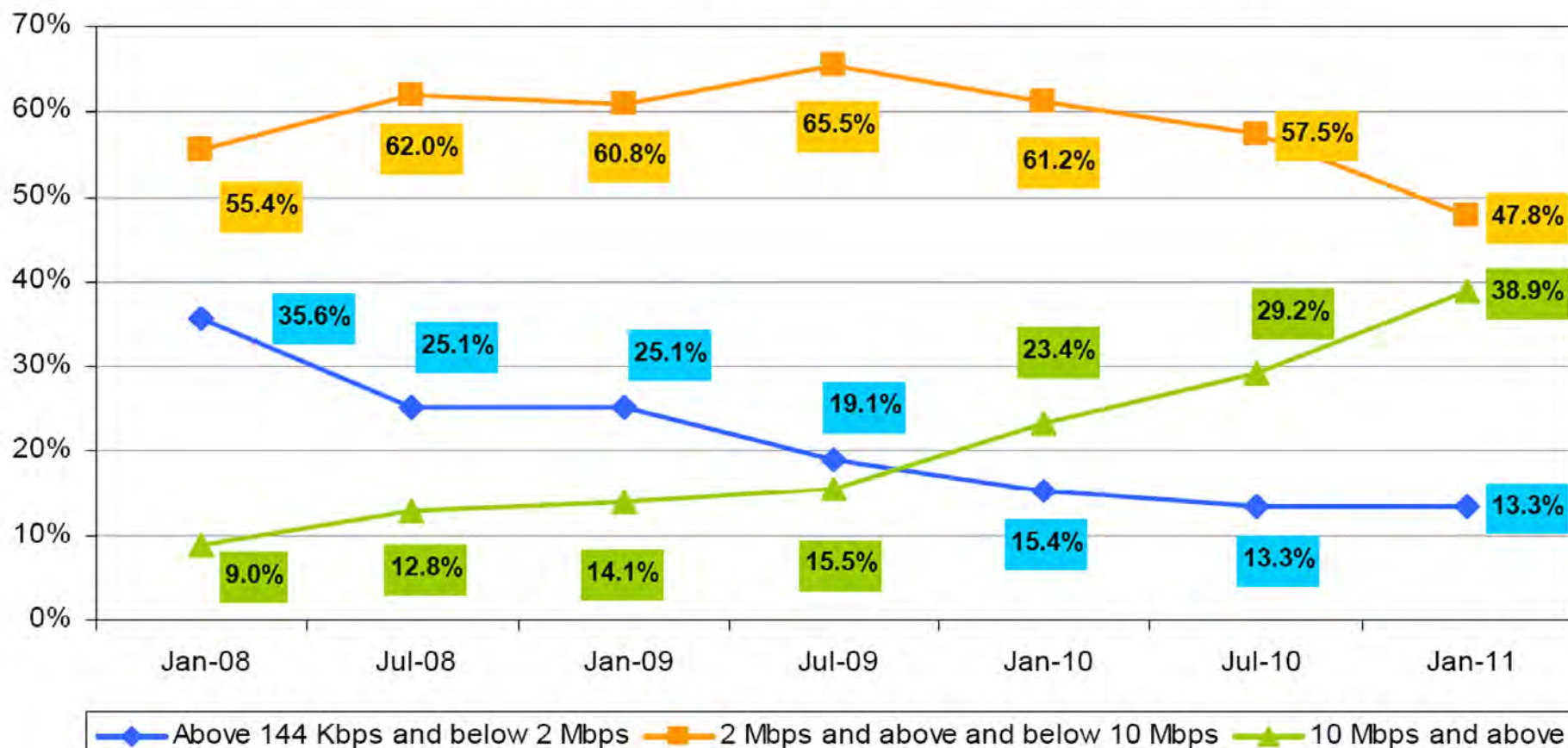


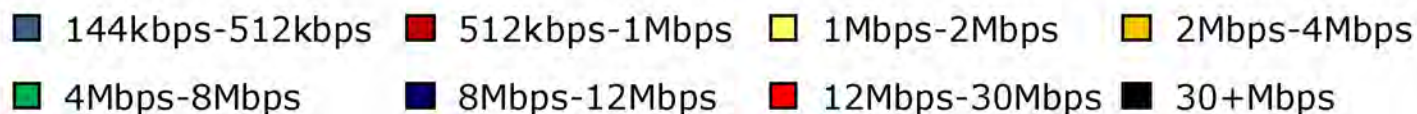
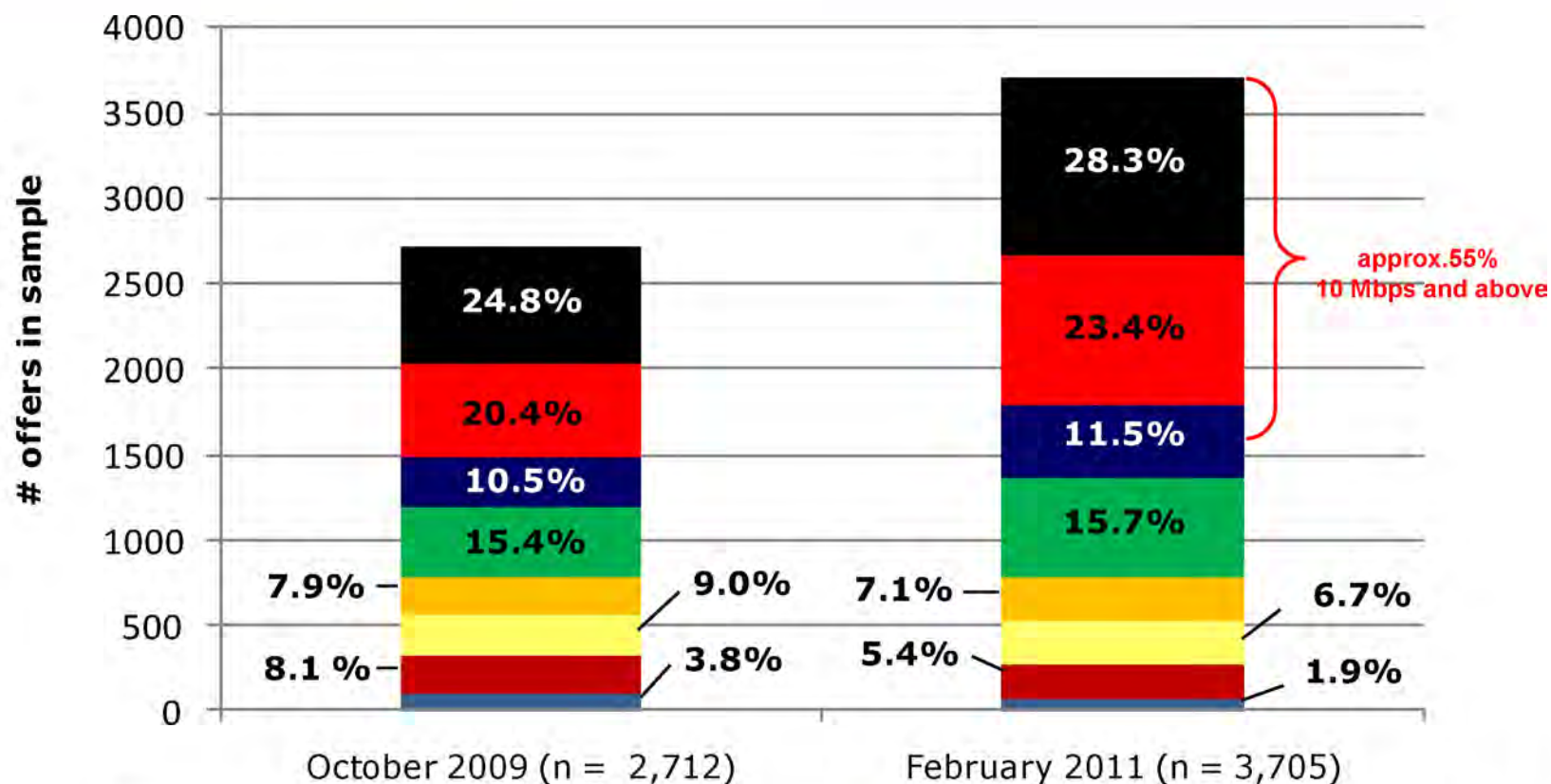
Fixed broadband lines by speed, January 2011





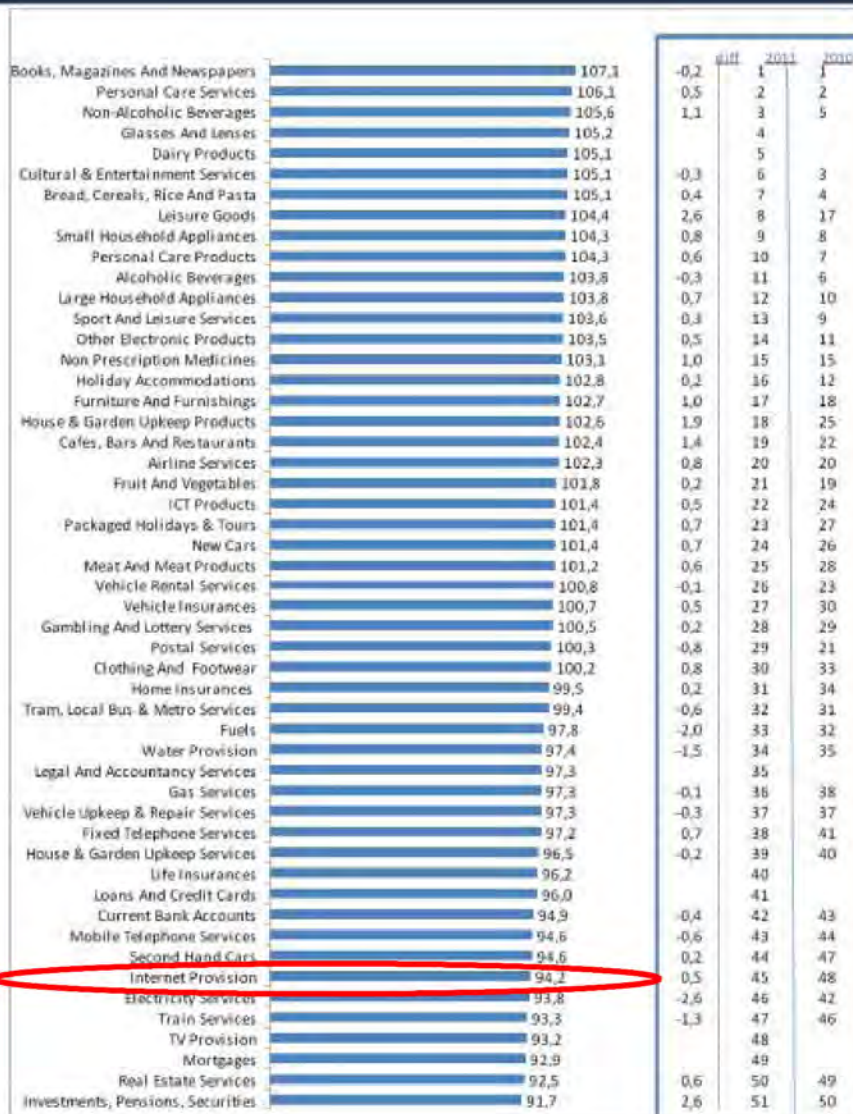
Fixed broadband lines by speed at EU level, January 2008 - January 2011







Consumer (dis)satisfaction





Consumer Satisfaction - Consumer Market Monitoring Survey (2010): overview of markets, the components within the markets etc (EU level)



Part I

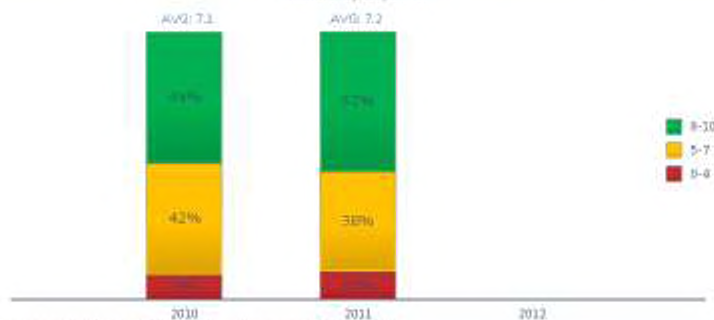
Market: MPI score:

MPI on country level



MPI components

On a scale from 6 to 10, to what extent did the products/services on offer from different suppliers live up to what you wanted within the past period?



* Please note that the wording of the market definition is slightly different between 2010 and 2011.

- Comparability
- Trust
- Problems
- Complaints
- Actual switching
- Ease of switching
- Use up to what you wanted
- Choice
- Print

printable version



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- Publications

Key Documents

- Consultations
- Reports
- Eurobarometers

Quick Links

- ADR
- ECC-Net
- Latest product warnings (RAPEX)
- National consumer organisations
- Tenders and grants



Consumer Satisfaction - Consumer Market Monitoring Survey (2010): overview of markets, the components within the markets etc (EU level)



Part I

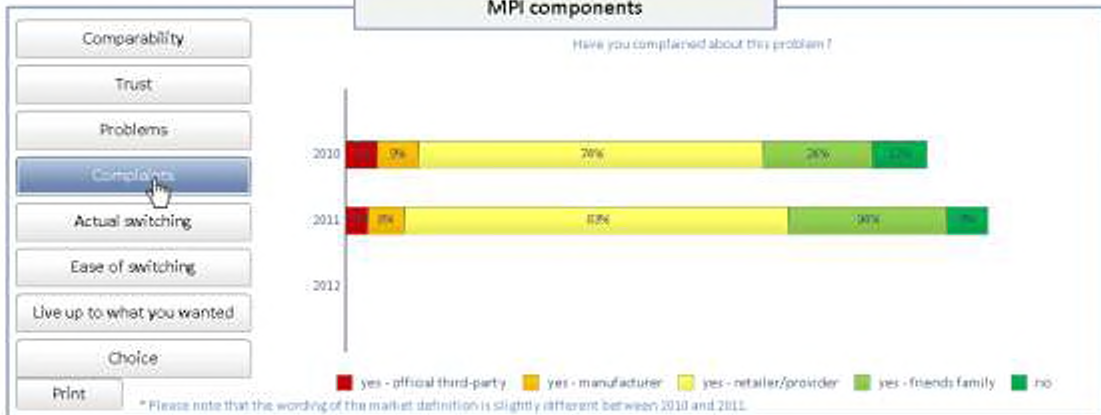
Market: MPI score:

MPI on country level



MPI components

Have you complained about this problem?



* Please note that the wording of the market definition is slightly different between 2010 and 2011.

printable version



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Latest product warnings (RAPEX)
National consumer organisations
Tenders and grants



test vitesse adsl



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Test de vitesse ADSL - mesurer la vitesse d'internet

[www.vitesse-adsl.be](#)

Test de vitesse pour mesurer la **vitesse** de download et upload de ta connexion internet **adsl**

Mesurer téléchargement adsl - Conseils importants avant de mesurer - Tele2

Test ADSL - tester sa connexion, bande passante et débit avec le JON

[www.journalduweb.com / Hightech / Internet](#)

Test de débit ADSL et autres types de connexion ... "La phase de **test download**" : lors de ce **test**, l'outil mesure la **vitesse** avec laquelle vous recevez les ...

Test débit descendant et bande ... Tester sa connexion, bande passante ...

Test ADSL - Speedtest - Test Vitesse ADSL

[www.my-speedtest.com/fr](#)

Test ADSL - Test vitesse : Grâce à notre outil, vous pouvez faire mesurer instantanément et gratuitement la **vitesse** de votre connexion Internet ou ADSL. Speed ...

Mire ADSL

[mire.adsl.net](#)

Votre ligne **ADSL** est opérationnelle. **Test** de connexion **ADSL** : Testez votre ligne **ADSL** pour connaître votre bande passante réelle. Adresse IP ...

Speedtest.net - The Global Broadband Speed Test

[speedtest.net / Traduire cette page](#)

Test your Internet connection bandwidth to locations around the world with this interactive broadband speed **test**.

Speedtest.net - Mobile - Speedtest.net Mini - My Results - Speed Wave

Test de débit ADSL - Testez la vitesse réelle de votre connexion

[www.testadsl.net/test-debit.html - France](#)

Ce **test** mesure votre débit réel, lequel est composé de votre débit montant (upload) et de votre débit descendant (download).

Test de bande passante

[www.zdnet.fr/ovices/test-bande-passante/](#)

Testez votre connexion internet en mesurant le débit de votre ligne **ADSL** (ou fibre ... différents chaque fois que je lance le **test** de **vitesse** de ma connexion ? ...

Test ADSL - testez votre vitesse de connexion

[beuma.chetfranca.fr/page/test-adsl.php](#)

Test ADSL : testez votre ligne **ADSL** et votre **vitesse** de connexion Internet.

Test de débit : Découvrez **Test** : Testez la **vitesse** de votre connexion.

Digital Agenda

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for Europe



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Before you begin the speed test:

Run a free scan for Windows viruses on your PC

Run a free scan



Google

1 Test your connection.

2 Then, get a faster web browser.



SPEED WAVE

Compete with others and gather broadband statistics.

Learn more

PINGTEST.NET

Bandwidth only tells part of the story - test quality as well.

Learn more

MY RESULTS

Examine your past results and see how they compare.

Learn more

Welcome to Speedtest.net

Are you getting what you have paid for? By using Speedtest.net, you can consistently verify if your internet service provider is delivering the connection speed they promised.

Sign up for a [free account](#) to more easily track your Speedtest.net results from multiple computers. It will also enable you to create Speed Waves, manage your test history, label and group your connections and reserve a unique Speedtest.net nickname!

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Become a Host

Host a Speedtest.net testing server in your area



Speedtest.net Mini

Put a mini version of Speedtest.net on your site

Internet

100%



Luxembourg Broadband Speed Test

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£3.25
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AdChoices

Your ISP is **Commission Européenne**
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TA EMOT FILER: **50.27 Mbit/s** | SKICKA FILER: **32.04 Mbit/s**

MÄTNINGEN ÄR KLAR

SVARSTID: 41 ms | LEVERANTÖR: Commission Europeenn... | MÄTSERVER: Stockholm

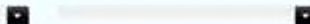
[Värdera ditt resultat](#) | [Delä ditt resultat på Facebook](#) | [Ladda hem resultatbild](#) | [Mät igen](#)

▼ VÄRDERA - Är ditt mätresultat bra eller dåligt?

ÄR DITT MÄTRESULTAT BRA ELLER DÅLIGT?

Genom att ange typ av uppkoppling och vilken hastighet du betalar för, kan du få en utvärdering på om ditt mätresultat är bra eller dåligt.

Välj Uppkopplingstyp



Hur vet jag vilken uppkopplingstyp jag har?

► GUIDE - Förbättra din hastighet steg för steg

► JÄMFÖR - Se efter vad andra fått för resultat





Join our European campaign...
Sign up with us today to accurately
measure your broadband performance.

Sign Up

Requirements

Installation Guides

FAQs

Contact Us

samknows.com

Select language

Select language

SHRPE

Measure your broadband accurately

Together, the European Commission and SamKnows aim to provide Europe with reliable and accurate statistics of broadband performance across Europe.

Volunteers will receive a purpose-built broadband measurement unit which can be plugged into the existing modem/router. This is called the SamKnows Whitebox.

If you are interested in helping us by hosting a SamKnows Whitebox, and playing a part in changing the face of the European broadband industry, then please sign up below!

It's worth taking the time to read through the requirements before proceeding.

Please note that not everyone who registers here will necessarily receive a SamKnows Whitebox - we do however thank all of you for helping to make European broadband better.

**SamKnows & you:
Working together
for better broadband**

☒ I want to measure Europe's broadband...

First Name

Last Name

Email Address

Postcode This should be the postcode of where the unit will be housed.

Select your country

Your ISP

Advertised Connection Speed To:

Home network speed:

Preferred Language

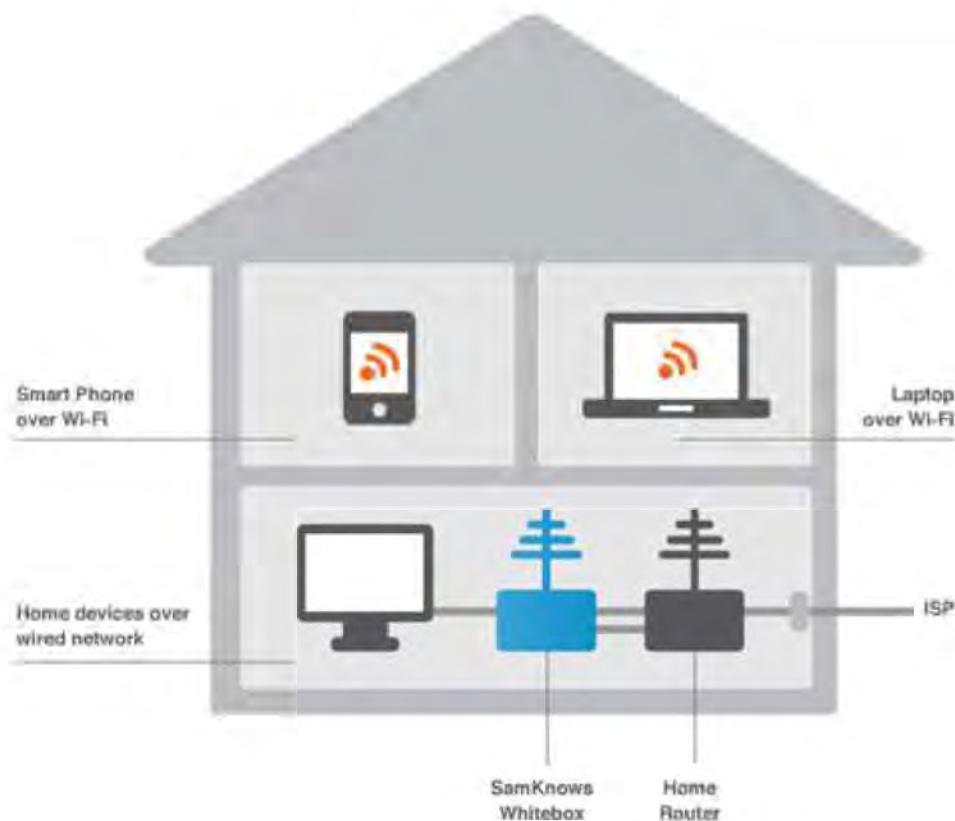
Verification ☐ I have read and understood the requirements

Sign Up now...



1. Speed tests (effective download and upload speeds)
2. Web browsing (user experience)
3. Video streaming (user experience)
4. Voice over IP (user experience)
5. Availability test (reliability of connection)
6. Latency and packet loss
7. Data usage test (network load)
8. DNS resolution

Illustration of how the Whitebox works in the home





[Sign Up](#)
[Requirements](#)
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Select language

We have designed the Whitebox so that it is quick and easy to install. Take a look at the instructions and video below. Once your Whitebox is plugged in we will send you an email so you can access your broadband analytics.

Important installation instructions:

1. Remove the Whitebox and accessories from the box. The box should include:

- A. 1x TP-Link router (model varies)
- B. 1x Ethernet cable
- C. 1-3x wireless antennas (varies with model)
- D. Power supply
- E. Instruction & information sheet

2. Attach the antennas to the back of the Whitebox.

3. Connect the Ethernet cable to the port marked "WAN" on the rear of the Whitebox.

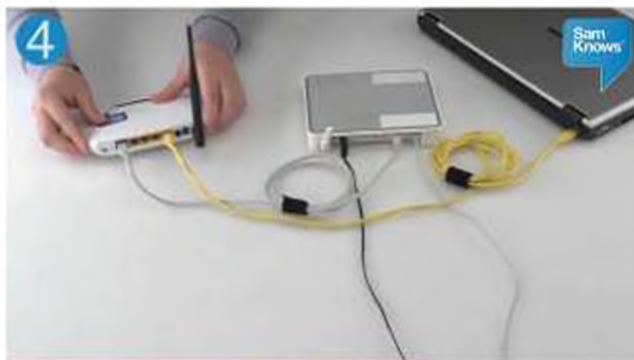
4. Connect the other end of the Ethernet cable to a spare port on your broadband router.

5. Disconnect any other wired network devices from your broadband router, and connect them to the SamKnows Whitebox instead via the ports marked 1-4.

6. Connect the power cable to the Whitebox, and insert the power plug into a power socket.

7. Observe the LEDs on the front of the Whitebox. The QoS light should flicker for 30-60 seconds, then turn solid green when the device is operating correctly.

Support will be provided in English, French and German; volunteers will be required to communicate in these languages.





Vice-President of the European Commission

Neelie Kroes

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EURIPA > European Commission > The Commissioners (2010-2014) > Neelie Kroes > Blog

Digital Agenda

BLOG

• [Bringing Europe's cultural treasures to a new generation](#) | [My Blog](#) | [New IANA contract details published, encouraging news for the future of the Internet](#)

How fast is your broadband? Volunteers wanted across Europe!

★★★★★
Rating: 4.4/5 (5 votes cast)

Small device... important data

In one of my [recent posts](#) I wrote about the need for **fast broadband connections** in Europe. We need more and better broadband access to deliver the digital agenda and get every European Digital. And we need to know more about the current state of the market - so we're looking for [volunteers across Europe](#)!

Over recent years, we have made good progress in terms of broadband take-up; advertised average speeds have also gone up. But what about "real" broadband speeds? Many times I hear people say they upgraded their broadband connection to a "faster" product - but then can't notice any difference between one and another. But then, what's the point in paying a more expensive monthly fee?

The disappointment is often caused by a difference between advertised speeds, and what you actually get for your money. You've probably seen speeds of broadband products advertised as "up to" X Megabits per second. This speed is called "advertised", "nominal" or "headline" speed and it is what we see in the ads. In reality, a broadband connection can never achieve 100% of the advertised speed, because part of the bandwidth is reserved for IP addressing and routing. However, it seems that, sometimes, the effective speed is significantly lower than what we could expect.

To trust in the market, people need to be sure what they're getting. If not, if European consumers are unhappy about their broadband access, we won't succeed in building the Digital Single Market, because people won't have the confidence to sign up and pay the price for the high speed connections needed for new and innovative services.

I want us to understand this problem: I want us to collect **first hand information** from European consumers on the actual quality of their broadband access. To do that, though, first of all we need accurate, comparable and reliable data on effective speeds at EU level.

You can help me collect this data! We are looking for volunteers across all EU27 countries plus Croatia, Iceland and Norway. If selected as part of the "representative sample", you will be sent a small device to plug into your home internet connection. This will run a series of automated tests when the line is not in use, establishing the speed and performance of your broadband connection - helping us to get the data we need to get **every European Digital**.

If you're interested in being one of this community of volunteers helping - visit the site now!

Number of views: 2646

Tags: [broadband](#), [broadband speed](#), [Digital Agenda](#), [fast broadband](#), [samknows](#)

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Independent regulator and competition authority for the UK communications industries.

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Home Consumers Average broadband speed is still less than half advertised speed

Average broadband speed is still less than half advertised speed

Average download speeds remain less than half of 'up to' speeds advertised by some Internet Service Providers (ISPs), particularly for broadband delivered via a phone line.

New Ofcom research shows that the average broadband speed in November/December 2010 was 6.2Mbps – less than half (45 per cent) of the average advertised broadband speed of 13.8Mbps.

The findings come as Ofcom submits its response to the current Committee for Advertising Practice (CAP) and Broadcast Committee for Advertising Practice (BCAP) consultation on broadband speeds advertising.

Ofcom is recommending that if speeds are used in broadband advertising they should be based on a Typical Speeds Range (TSR), so consumers have a clearer idea of what speeds to expect.

Ofcom also recommends that the TSR must have at least equal prominence to any maximum 'up to' speed, and that a maximum speed must be used only if it is actually achievable in practice by a material number of consumers.



The research

Next-generation superfast broadband services – available to a growing number of households – are significantly faster than current generation services.

Broadband services delivered by fibre-to-the-cabinet were measured for the first time and, along with cable services, delivered faster average speeds much closer to advertised speeds than was the case for current-generation broadband technologies.

The research looked at 11 packages provided by the seven largest ISPs in the market, representing over 90 per cent of residential broadband subscribers in the UK.

Over 15 million separate service performance tests were carried out in over 1,700 homes during November and December 2010.

Ask Us Top Questions

Type your question here

Select a subject

View Top Questions

ParentPort: Working together for media standards

Advice and complaints

- Your fixed line, mobile and internet
- TV and Radio Programmes
- TV and Radio reception problems

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- Audience complaints



Chart 4: Average peak period sustained download and upload speeds as a percentage of advertised, by technology

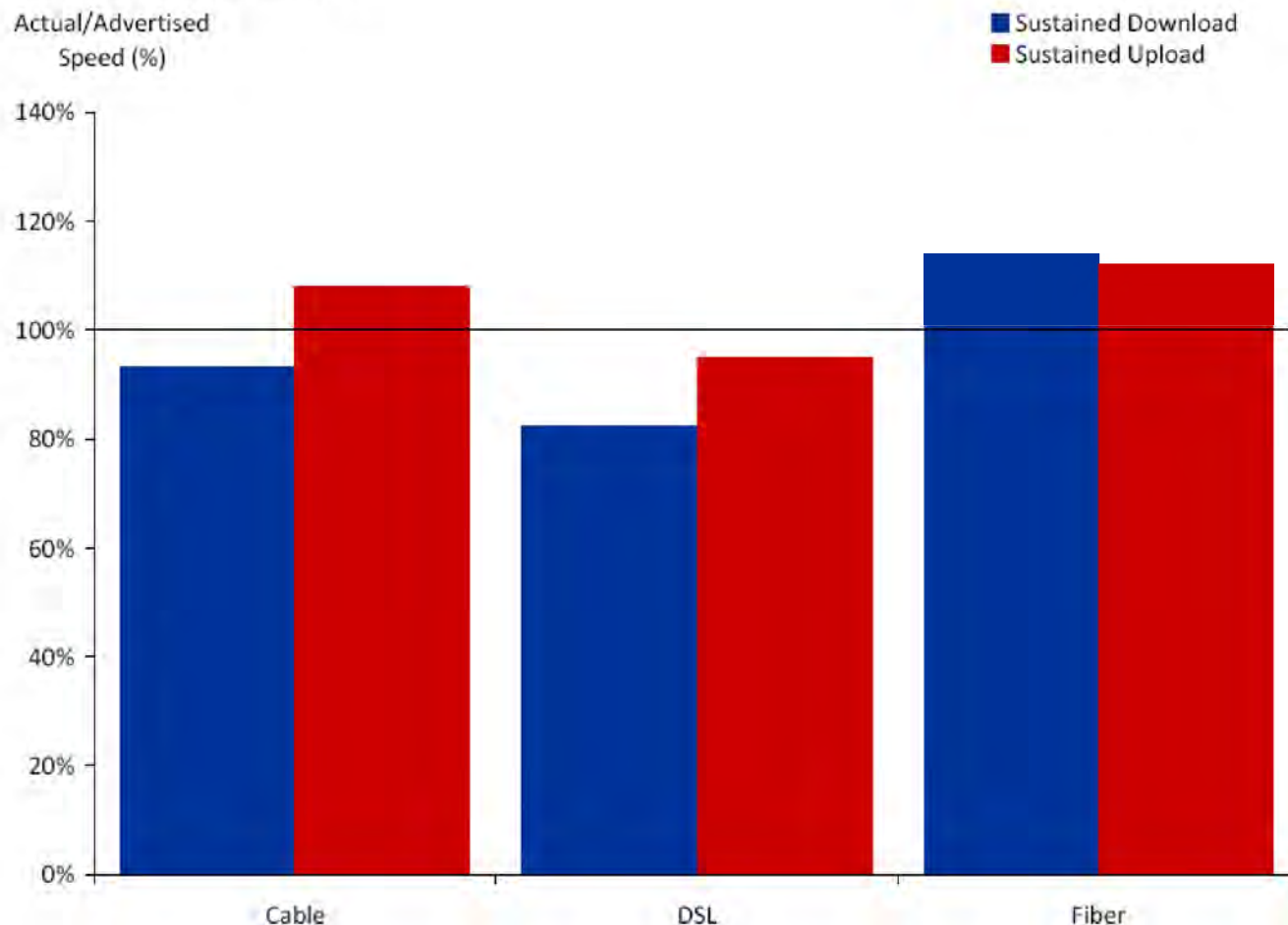
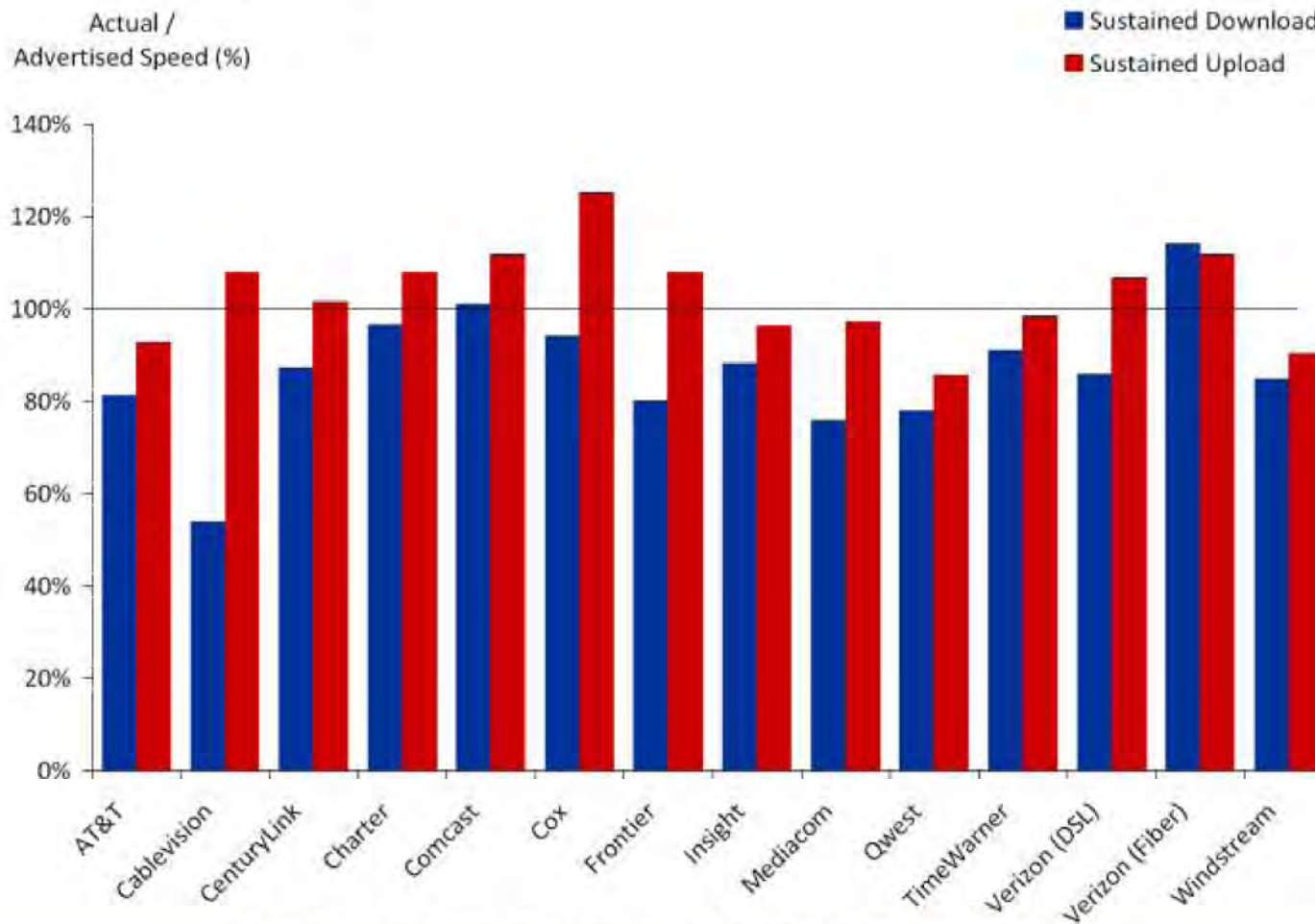




Chart 3: Average peak period sustained download and upload speeds as a percentage of advertised, by provider





Universal Service Directive (2002/22/EC*)

CHAPTER IV - END-USER INTERESTS AND RIGHTS

Article 22 Quality of service:

...national regulatory authorities are (...) able to require undertakings (...) to publish comparable, adequate and up-to-date **information for end-users on the quality** of their services

...National regulatory authorities may specify, inter alia, the **quality of service parameters** to be measured and the content, form and manner of the information to be published

...In order to prevent the degradation of service and the hindering or slowing down of traffic over networks, Member States shall ensure that **national regulatory authorities are able to set minimum quality of service requirements** on an undertaking or undertakings...

* as amended by Directive 2009/136/EC

**9th World Telecommunication/ICT Indicators
Meeting (WTIM-11)
Mauritius, 7 - 9 December 2011**



Contribution to WTIM-11 session

**Document C/15-E
8 December 2011**

English

SOURCE: EGTI chair

TITLE: Quality of service indicators - Report from the EGTI



9th ITU World Telecommunication/ICT Indicators Meeting (WTIM)

**7-9 December 2011
Mauritius**

Quality of service indicators - Report from the EGTI

**Koay Hock Eng
EGTI Chair
Senior Director
Information Management & Knowledge Resource Division
Malaysian Communications and Multimedia Commission**

Quality of Service

1. Mobile cellular – voice

- a. Unsuccessful call ratio
- b. Dropped call ratio
- c. Complaints per 100 mobile-cellular subscriptions

2. Fixed (wired) broadband Internet

- a. Service activation time
- b. Complaints per 100 fixed (wired)-broadband subscriptions
- c. Data transmission speed achieved

Quality of Service – mobile cellular (voice)

1. Mobile-cellular unsuccessful call ratio

- Unsuccessful call ratio is defined as the ratio of unsuccessful calls to the total number of call attempts in a given year.
- An unsuccessful call is a call attempt to a valid number, while in a coverage area, where neither the call is answered nor called-party busy tone nor ringing tone is recognized at the access of the calling user within 40 seconds from the instant when the last digit of the destination subscriber number is received by the network.

Quality of Service – mobile cellular (voice)

2. Mobile-cellular dropped call ratio

In a given year, the proportion of incoming and outgoing calls which, once they have been correctly established and therefore have an assigned traffic channel, are dropped or interrupted prior to their normal completion by the user, the cause of the early termination being within the operator's network.

3. Complaints per 100 mobile-cellular subscriptions

Total number of complaints received over a 12 month period divided by the customer base at the end of the reporting period.

Quality of Service – mobile cellular (voice)

- The meeting agreed:
 - to keep the three indicators and their definitions as proposed
 - Look at other indicators for future discussions of the EGTI
- Include the three indicators in the 2012 data collection of ITU.

1. Service activation time

Service activation time refers to the time from the date of application to date of service activation. The average service activation time of all new applications received within the 12 month reference period should be provided.

2. Complaints per 100 fixed (wired)-broadband subscriptions

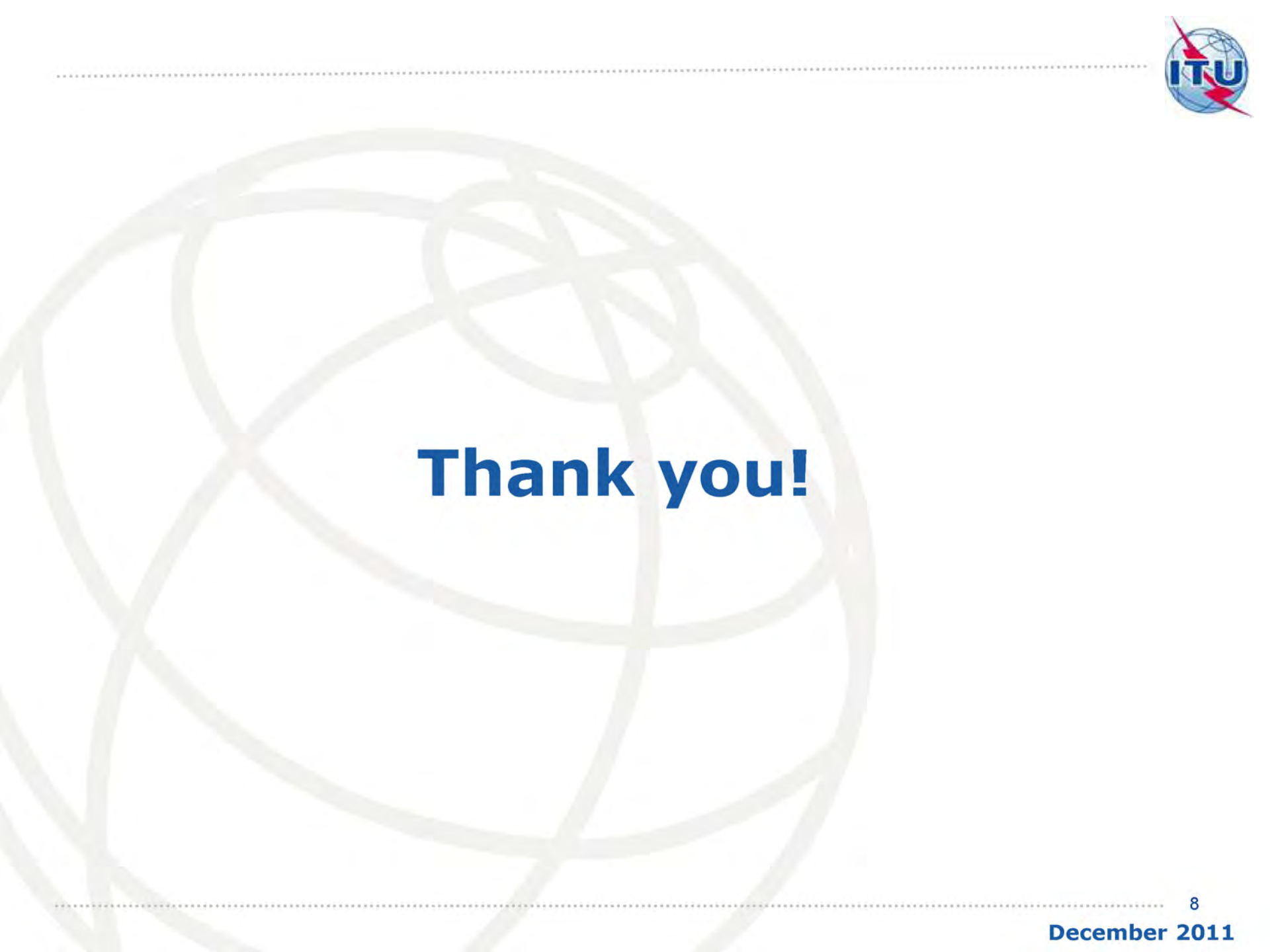
Total number of complaints related to Internet access through fixed (wired)-broadband subscriptions received over a 12 month period divided by the customer base at the end of the reporting period.

3. Data transmission speed achieved

The data transmission speed is defined as the data transmission rate that is achieved separately for downloading and uploading specified test files between a remote web site and a user's computer.

Quality of Service – Internet

- 1. Service activation time** - to be collected at national level and share experience with EGTI
- 2. Complaints per 100 fixed (wired)-broadband subscriptions** – to be included in 2012 data collection of ITU
- 3. Data transmission speed achieved** – to continue discussion in EGTI forum

A large, faint, light-colored globe with a grid of latitude and longitude lines is centered in the background.

Thank you!