



WTIS-15  
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ICT INDICATORS  
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# Measuring the Information Society Report 2015

2 December 2015, Hiroshima, Japan

ICT Data and Statistics Division  
International Telecommunication Union

# Index

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- **Monitoring global ICT goals and targets**
- The ICT Development Index (IDI)
- Monitoring the price and affordability of ICTs
- The Internet of Things: data for development



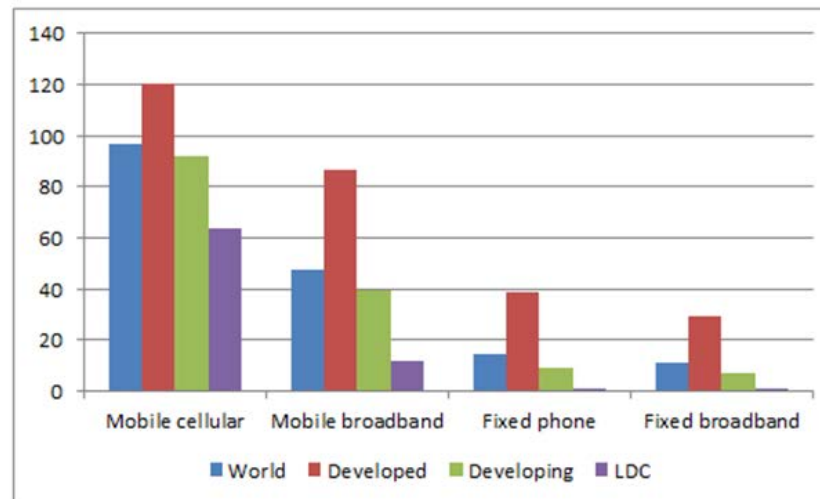
# Measuring the Information Society Report 2015

## statistical highlights

### Substantial growth in global access to and use of ICTs ...

- Mobile-cellular subscriptions grew from 2.2 to 7.1 billion in the last 10 years
- 3G population network coverage grew from 45% to 69% between 2011 and 2015
- Mobile-broadband subscriptions grew from 0.8 to 3.5 billion in the last 5 years
- Rapid growth of Internet usage, over 40% of the world's population online in 2015
- Steady but slow growth of fixed-broadband subscriptions, reaching 0.8 billion in 2015

### ... but significant digital divides persist (2015)



# ITU strategic goals and targets

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## Global ICT goals



### **GROWTH**

Enable and foster access to and increased use of telecommunications/ICTs



### **INCLUSIVENESS**

Bridge the digital divide and provide broadband for all



### **SUSTAINABILITY**

Manage challenges resulting from the telecommunication/ ICT development



### **INNOVATION & PARTNERSHIP**

Lead, shape and adapt to the changing telecommunication/ICT environment

- ITU Plenipotentiary Conference (PP-14)
- Strategic Plan
- Connect2020 Agenda
- **Measurable targets – ICT indicators**



# ITU strategic goals and targets

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

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

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

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

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

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

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

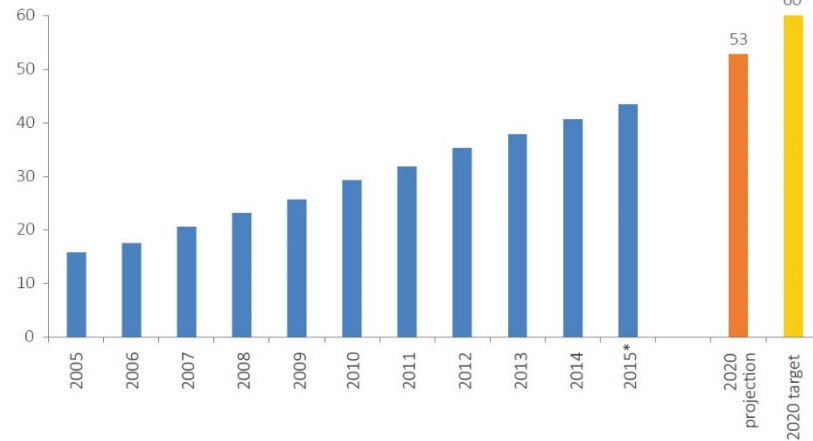
- **Target 4.1:** Telecommunication/ICT environment conducive to innovation
- **Target 4.2:** Effective partnerships of stakeholders in telecommunication/ICT environment

**Target 1.2:** Worldwide, 60% of individuals should be using the Internet by 2020

**Target 1.3:** Worldwide, ICTs should be 40% more affordable in 2020 than in 2012

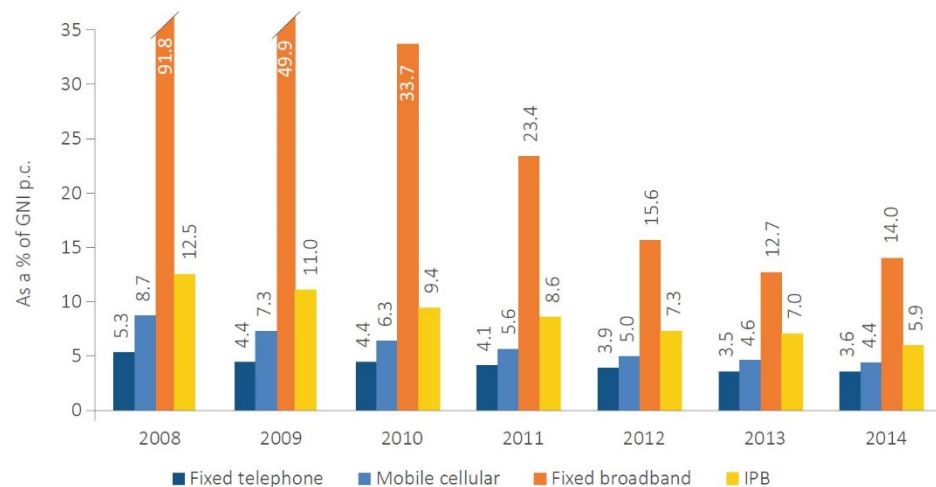
❑ % Internet users worldwide predicted to fall short of the Target

% individuals using the Internet worldwide



❑ ICT services affordability is improving significantly but fixed broadband prices are stagnating

The IPB and sub-baskets, global averages

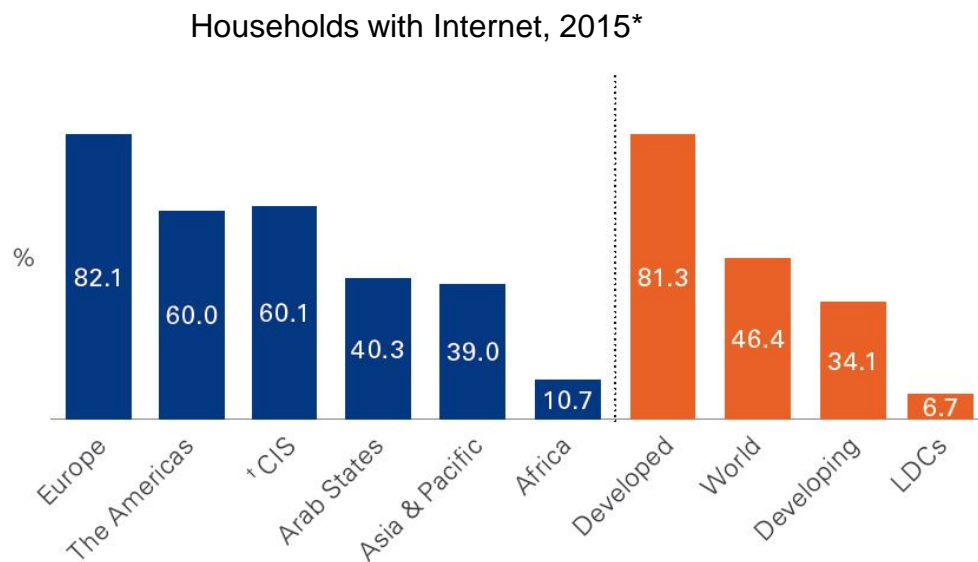


**Target 2.1:** 50% of households should have Internet by 2020 in developing countries, 15% in LDCs

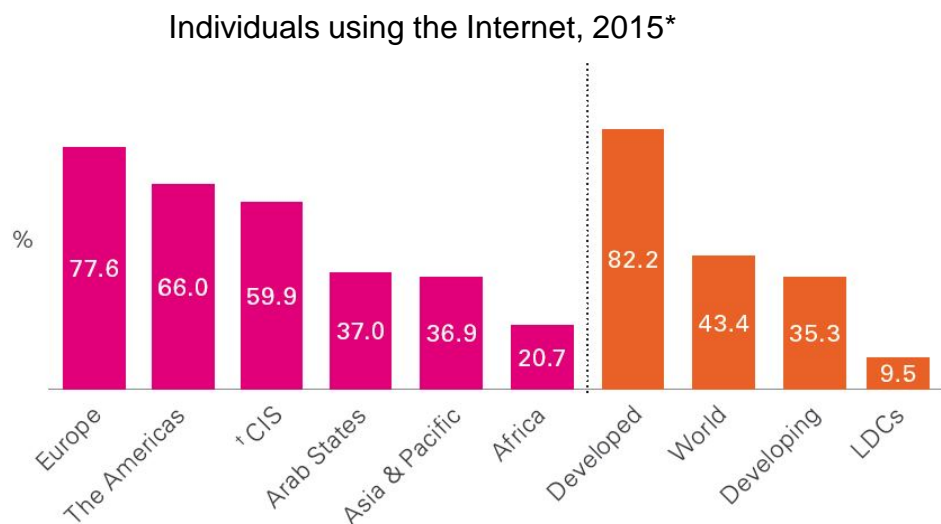


**Target 2.2:** 50% of individuals should be using the Internet by 2020 in developing countries, 20% in LDCs

Households with Internet	target	projection
Developing	50%	45%
LDCs	15%	11%



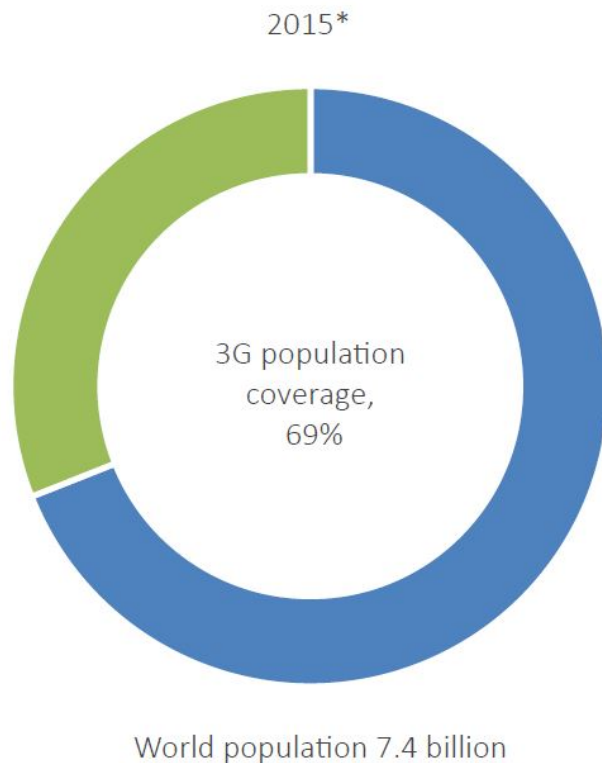
Internet users	target	projection
Developing	50%	46%
LDCs	20%	16%



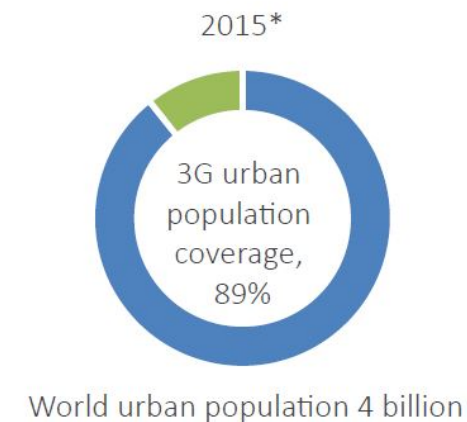
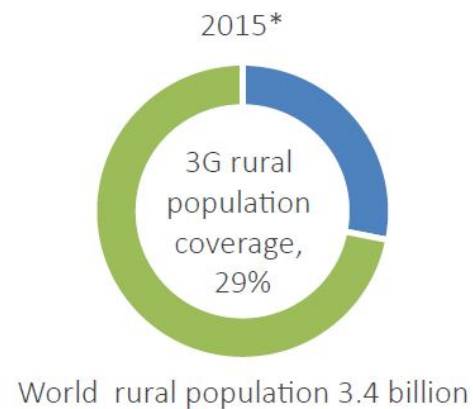
Note: \*Estimate. Source: ITU.

## Target 2.4: Worldwide, 90% of the rural population should be covered by broadband in 2020

### 3G still absent in many rural areas



- 3G coverage
- No 3G coverage



Note: \*Estimate. Source: ITU.



## Target 2.5A: Gender equality among Internet users should be reached by 2020

- ❑ There is a significant divide in ICT access and use between men and women
- ❑ The gender Internet user gap in LDCs is twice as high as in developing countries

Region	Gap 2013 (%)	Gap 2015 (%)
Developed	6.3	5.4
Developing	15.6	15.4
World	11.0	11.1
LDC	29.9	28.9
Africa	20.7	20.5
Arab States	15.5	14.4
Asia & Pacific	17.7	17.6
CIS	7.5	7.0
Europe	9.4	8.2
The Americas	-0.4	-0.7

Note: The gap represents the difference between the Internet user penetration rates for males and females relative to the Internet user penetration rate for males, expressed as a percentage.

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- Monitoring global ICT goals and targets
- **The ICT Development Index (IDI)**
- Monitoring the price and affordability of ICTs
- The Internet of Things: data for development



# The ICT Development Index (IDI)

- 11 indicators, covering 3 areas
- 167 economies
- Comparison of data from 2015 and 2010
- Regional analysis

## ICT access

1. Fixed-telephone subscriptions per 100 inhabitants
2. Mobile-cellular telephone subscriptions per 100 inhabitants
3. International Internet bandwidth (bit/s) per internet user
4. Percentage of households with a computer
5. Percentage of households with Internet access

## ICT use

6. Percentage of Individuals using the Internet
7. Fixed-broadband subscriptions per 100 inhabitants
8. Active mobile-broadband subscriptions per 100 inhabitants

## ICT skills

9. Adult literacy rate
10. Secondary gross enrolment ratio
11. Tertiary gross enrolment ratio

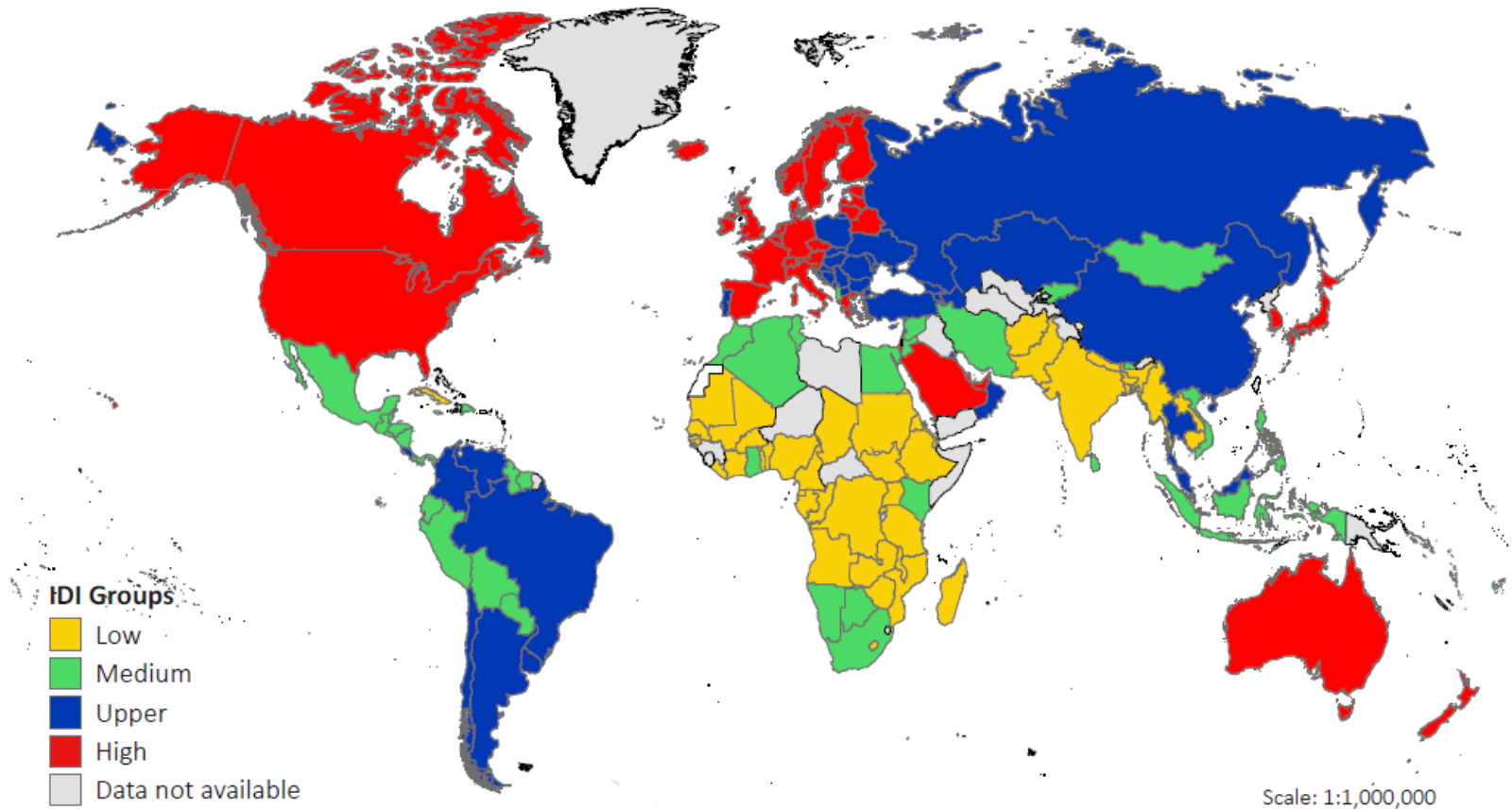
# IDI 2015 top ten

1. Korea (Rep.)
  2. Denmark
  3. Iceland
  4. United Kingdom
  5. Sweden
  6. Luxembourg
  7. Switzerland
  8. Netherlands
  9. Hong Kong, China
  10. Norway
- The Republic of Korea leads the IDI rankings for both 2010 and 2015
  - There has been relatively little change in the highest performers in the Index since 2010
  - Top IDI performers have high income levels, competitive markets and a skilled population

# Dynamic IDI improvements are found at all levels of the ranking...

Change in IDI ranking				Change in IDI value			
IDI rank 2015	Country	IDI rank change (2010-15)	Region	IDI rank 2015	Country	IDI value change (2010-15)	Region
57	Costa Rica	23	Americas	27	Bahrain	2.22	Arab States
27	Bahrain	21	Arab States	57	Costa Rica	2.14	Americas
56	Lebanon	21	Arab States	56	Lebanon	2.12	Arab States
109	Ghana	21	Africa	41	Saudi Arabia	2.09	Arab States
74	Thailand	18	Asia & Pacific	32	United Arab Emirates	1.94	Arab States
32	United Arab Emirates	17	Arab States	54	Oman	1.92	Arab States
41	Saudi Arabia	15	Arab States	109	Ghana	1.92	Africa
85	Suriname	15	Americas	36	Belarus	1.88	CIS
97	Kyrgyzstan	15	CIS	74	Thailand	1.74	Asia & Pacific
36	Belarus	14	CIS	61	Brazil	1.74	Americas
54	Oman	14	Arab States				

# IDI values by quartiles



# ... but disparities in IDI value remain LDCs are falling behind

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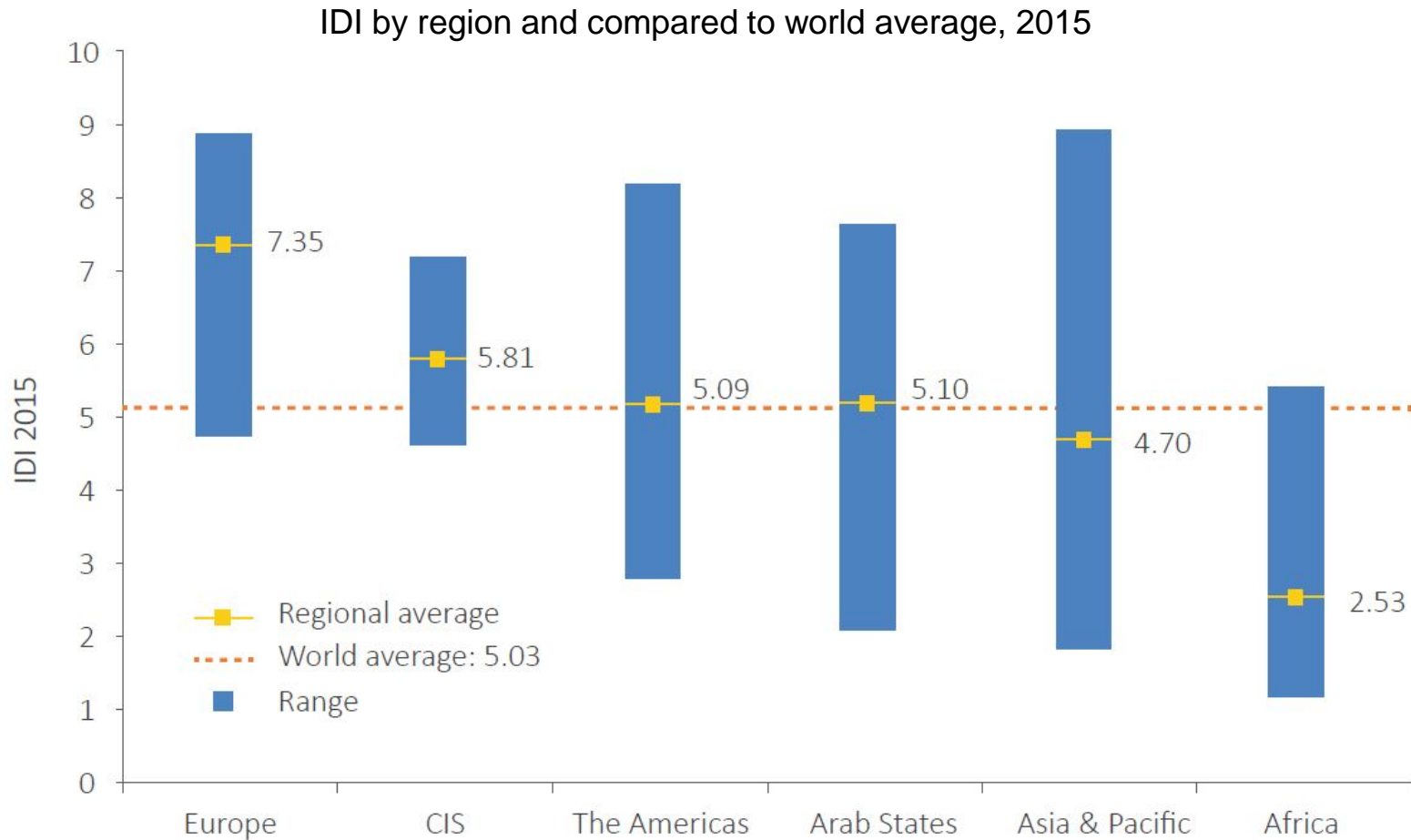
Group	IDI 2010					IDI 2015				
	Countries	Average*	Min.	Max.	Range	Countries	Average*	Min.	Max.	Range
High	42	7.02	5.82	8.64	2.82	42	7.90	7.00	8.93	1.93
Upper	41	4.74	3.91	5.80	1.88	41	5.95	5.05	6.93	1.88
Medium	42	3.19	2.14	3.82	1.69	42	4.13	2.93	5.00	2.08
Low	42	1.61	0.88	2.09	1.22	42	2.16	1.17	2.93	1.76
<b>World</b>	<b>167</b>	<b>4.14</b>	<b>0.88</b>	<b>8.64</b>	<b>7.76</b>	<b>167</b>	<b>5.03</b>	<b>1.17</b>	<b>8.93</b>	<b>7.76</b>

Note: \* Simple averages.

Source: ITU.

## 34 countries out of the 42 LCCs are LDCs

# Regional IDI





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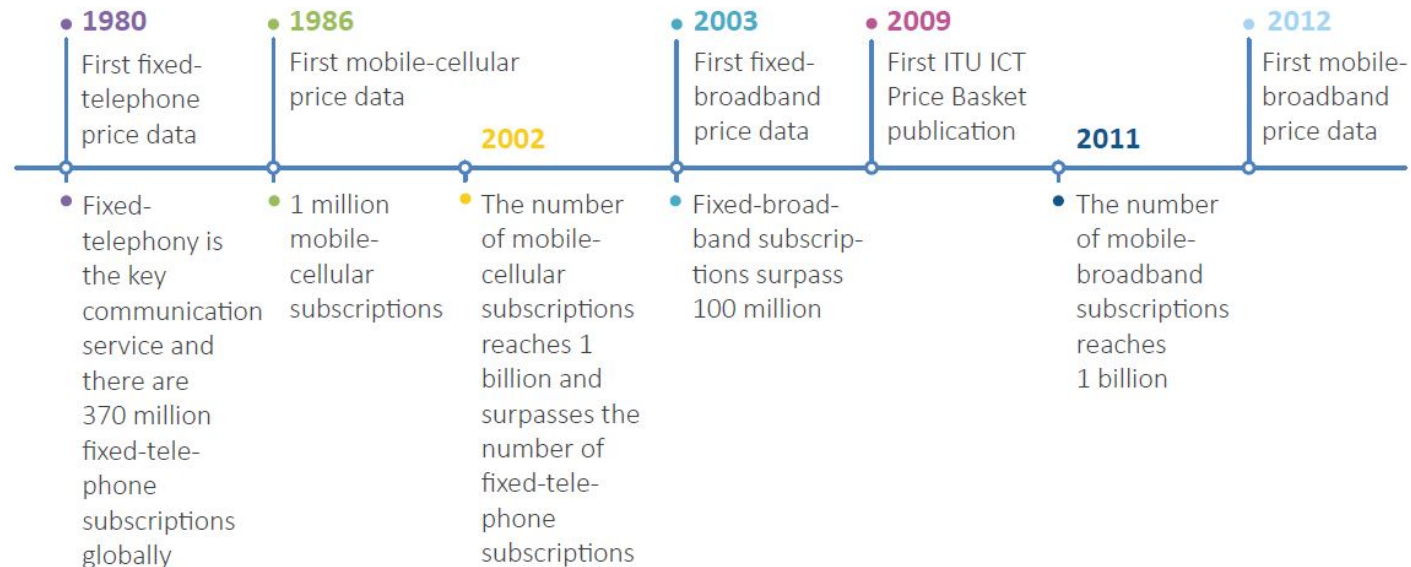
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# ICT prices matter

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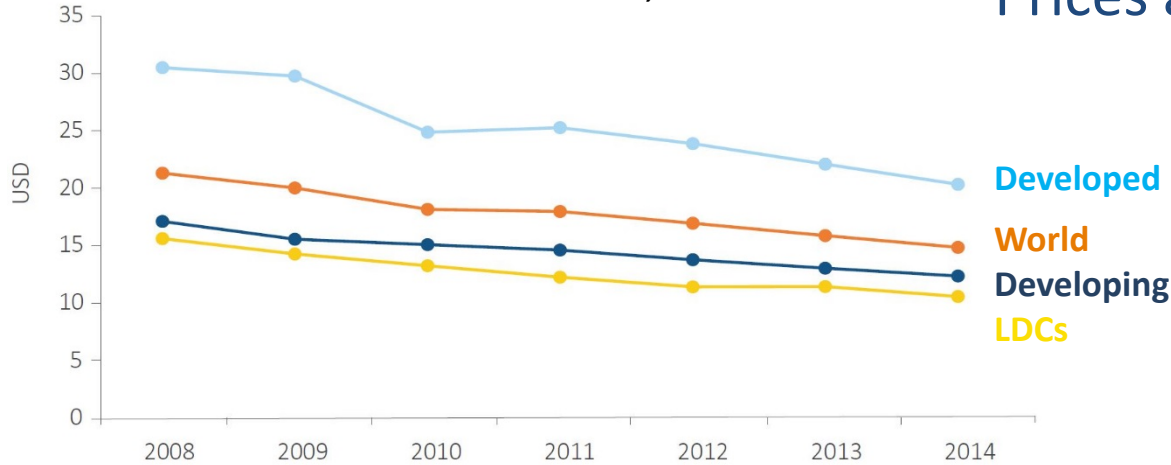
ITU adapts price data collection to ICT uptake & trends



# Mobile-cellular prices

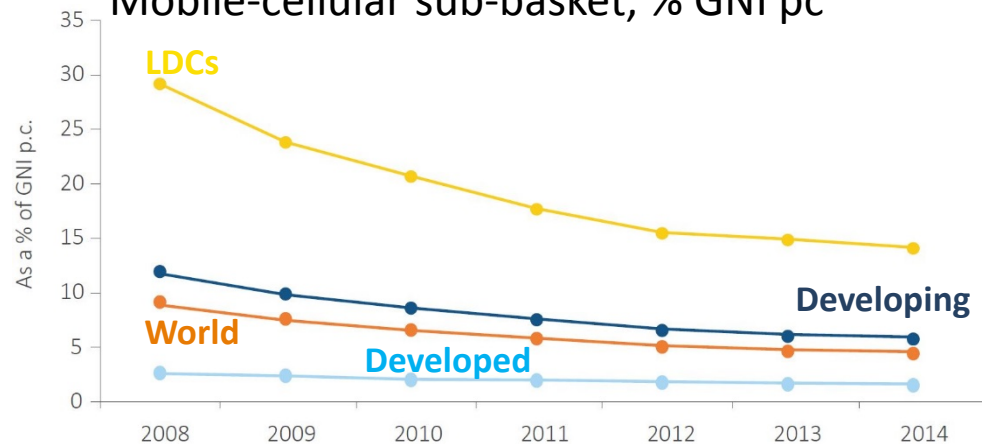
Mobile-cellular sub-basket, USD

Prices are falling



The service is becoming more affordable

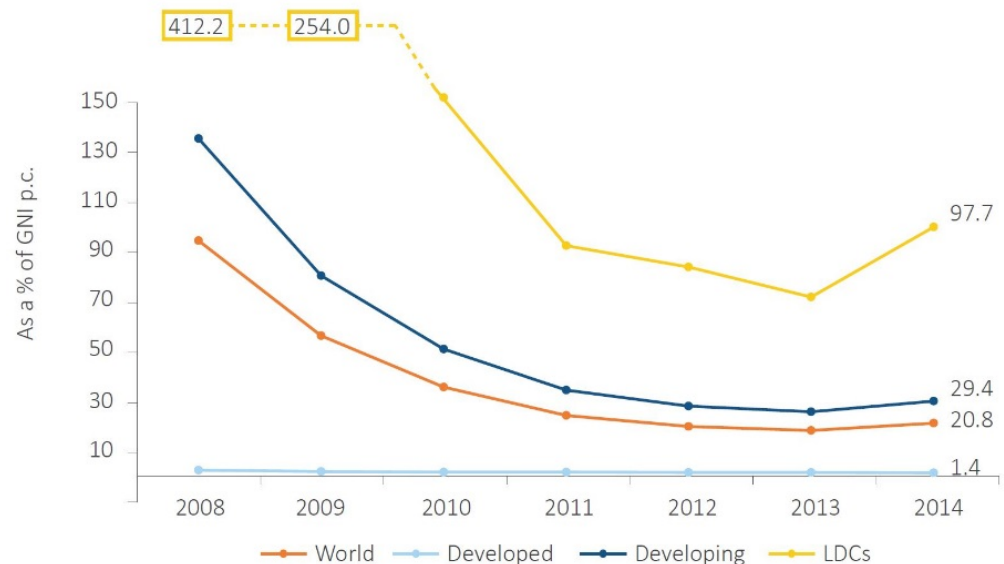
Mobile-cellular sub-basket, % GNI pc



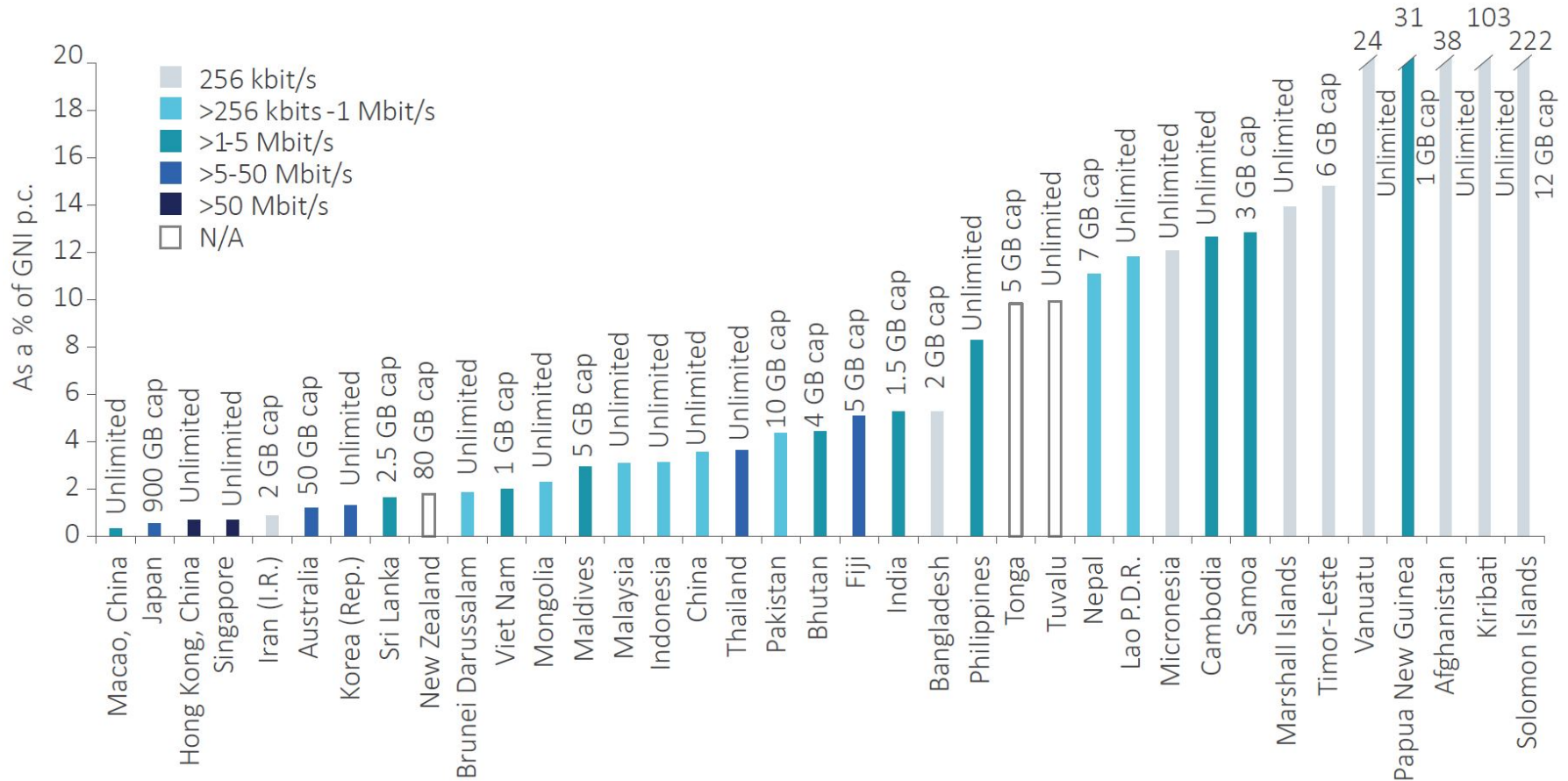
# While fixed-broadband prices fell throughout the world until 2013, they increased in 2014

- In more than half the countries prices stagnated or increased between 2013 and 2014
- In the LDCs, fixed-broadband services remain unaffordable
  - Major constraint: International Internet bandwidth

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

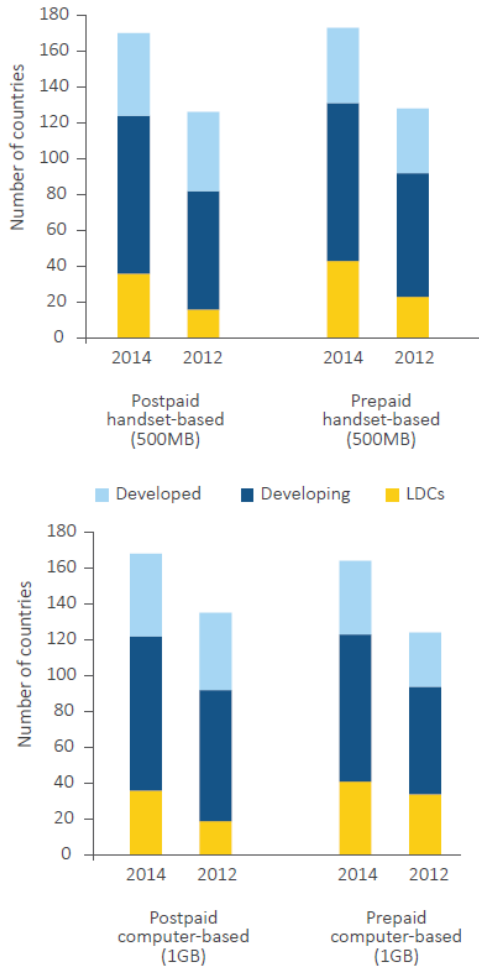


# Fixed-broadband prices in Asia & Pacific

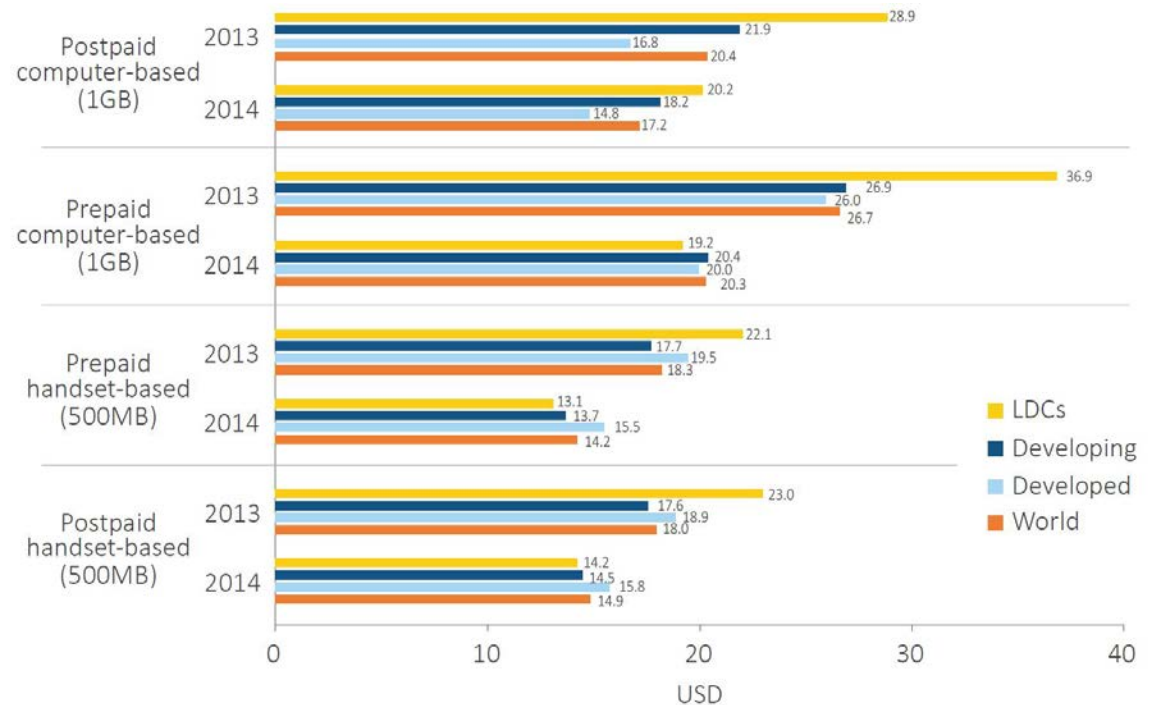


# Mobile-broadband: more offers, lower prices

## Availability by type of service



## Mobile-broadband prices, USD, by level of development



Note: Simple averages. Based on 119 economies for which 2013 and 2014 data on mobile-broadband prices were available for the four types of data plan.

Source: ITU.

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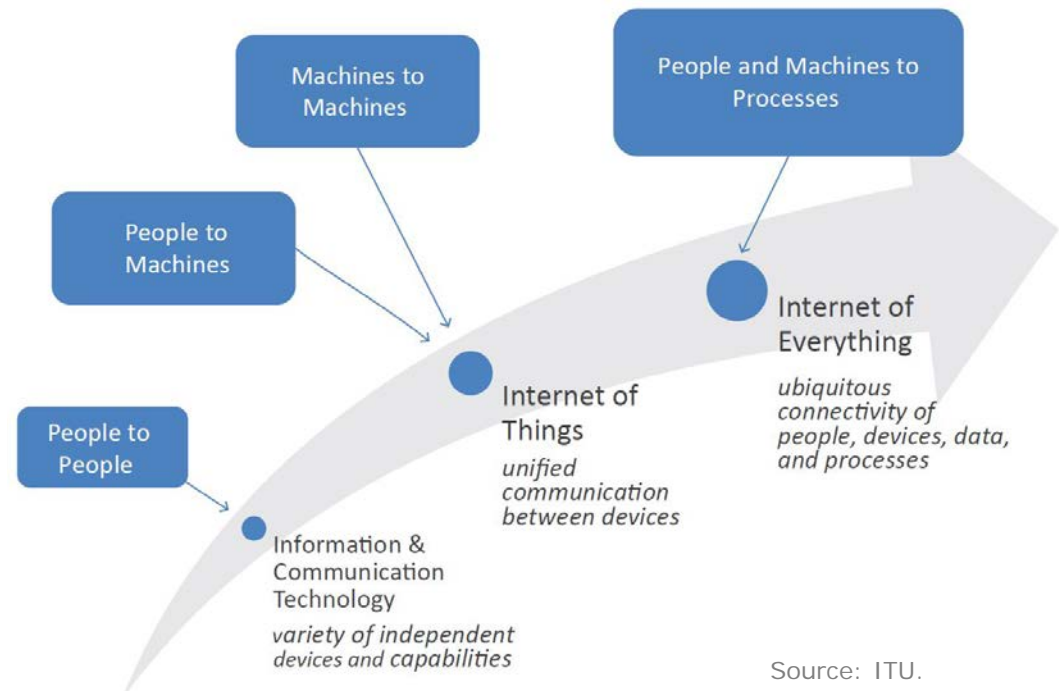
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# What is the Internet of Things ?

**IoT** is a global infrastructure for the information society, underpinning the network of physical objects or devices which have an IP address for Internet connectivity, as well as the communication that occurs between these objects and other devices and systems that thus become Internet-enabled

- ❑ IoT enables to share data and exercise control over the Internet
- ❑ Wide variety of devices
- ❑ Diverse telecom protocols
- ❑ Different connectivity





# Relevance of IoT

Most of the value derived from **IoT** comes from the generation, processing and analysis of new data

## ICT and data perspective

**IoT** is extending ICT connectivity into new sectors

□ ICT developments are underpinning the progress of **IoT**:

1. Increased affordability of IoT devices
2. Increased connectivity
3. Rapid innovation (WSN, SoC)
4. Adoption of IPv6

# Size and impact of IoT

## Sectors in which IoT can play an enabling role

- It is estimated that from 3 to 100 billion devices will be connected as part of IoT by 2020\*
- IoT is expected to generate several trillions of USD of market value by 2020\*\*



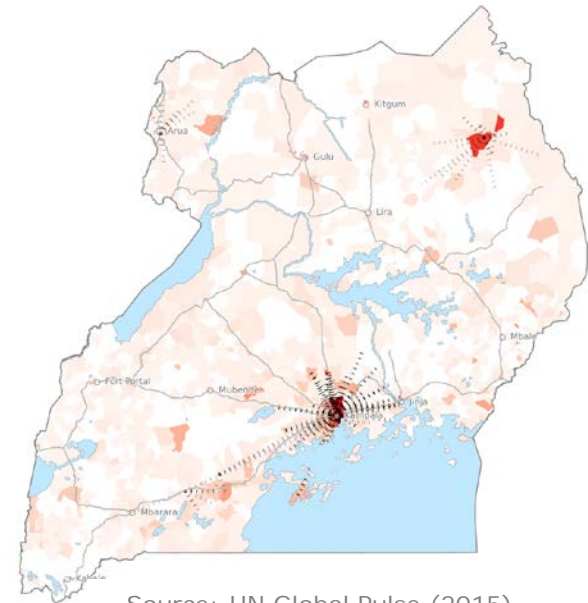
\* ABI (2013), Gartner (2013, 2015), IDC (2014)

\*\* Forbes (2014), Gartner (2013) and McKinsey (2015)

# Opportunities of IoT for development

- IoT is cross-cutting and can contribute to several SDGs:

- ▣ **Health:** epidemics, healthcare delivery
  - ▣ **Climate change:** climate monitoring, energy-managing systems
  - ▣ **Disaster management:** monitoring of extreme weather events
  - ▣ **Agriculture:** precision agriculture, management of water resources, drones
  - ▣ **Megacities:** transportation, electric grids, water and sanitation management



# IoT data for development – challenges

## Infrastructure

- ❑ **Interoperability** key to unlocking as much as 40 to 60 % of IoT's potential value
- ❑ **Fixed-broadband connectivity and large bandwidth** are required for the development of IoT

## Data management and analysis

Similar to those of other **big data** applications:

- ❑ Need to set statistical and data standards, identify analytical best practices and **facilitate data sharing**
- ❑ Mechanisms to **protect privacy** and foster competition and openness in data markets are required
- ❑ Public administrations could also contribute by adopting **open data policies** for their IoT datasets

+ need for reliable statistics on IoT

Thank you



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