Index

- 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
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

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

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

- ICT services affordability is improving significantly but fixed broadband prices are stagnating.
**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, 2015*

<table>
<thead>
<tr>
<th>Region</th>
<th>Target</th>
<th>Projection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing</td>
<td>50%</td>
<td>45%</td>
</tr>
<tr>
<td>LDCs</td>
<td>15%</td>
<td>11%</td>
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</tbody>
</table>

### Internet users, 2015*

<table>
<thead>
<tr>
<th>Region</th>
<th>Target</th>
<th>Projection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing</td>
<td>50%</td>
<td>46%</td>
</tr>
<tr>
<td>LDCs</td>
<td>20%</td>
<td>16%</td>
</tr>
</tbody>
</table>

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

World population 7.4 billion
- 3G coverage
- No 3G coverage

World rural population 3.4 billion
- 3G rural population coverage, 29%

World urban population 4 billion
- 3G urban population coverage, 89%

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

<table>
<thead>
<tr>
<th>Region</th>
<th>Gap 2013 (%)</th>
<th>Gap 2015 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed</td>
<td>6.3</td>
<td>5.4</td>
</tr>
<tr>
<td>Developing</td>
<td>15.6</td>
<td>15.4</td>
</tr>
<tr>
<td>World</td>
<td>11.0</td>
<td>11.1</td>
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<tr>
<td>LDC</td>
<td>29.9</td>
<td>28.9</td>
</tr>
<tr>
<td>Africa</td>
<td>20.7</td>
<td>20.5</td>
</tr>
<tr>
<td>Arab States</td>
<td>15.5</td>
<td>14.4</td>
</tr>
<tr>
<td>Asia &amp; Pacific</td>
<td>17.7</td>
<td>17.6</td>
</tr>
<tr>
<td>CIS</td>
<td>7.5</td>
<td>7.0</td>
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<tr>
<td>Europe</td>
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<td>8.2</td>
</tr>
<tr>
<td>The Americas</td>
<td>-0.4</td>
<td>-0.7</td>
</tr>
</tbody>
</table>

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.

Source: ITU.
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The ICT Development Index (IDI)

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

Source: ITU.
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...

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<thead>
<tr>
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<td>57</td>
<td>Costa Rica</td>
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<td>Bahrain</td>
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<tr>
<td>109</td>
<td>Ghana</td>
<td>21</td>
<td>Africa</td>
<td>41</td>
<td>Saudi Arabia</td>
<td>2.09</td>
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<td>74</td>
<td>Thailand</td>
<td>18</td>
<td>Asia &amp; Pacific</td>
<td>32</td>
<td>United Arab Emirates</td>
<td>1.94</td>
<td>Arab States</td>
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<td>32</td>
<td>United Arab Emirates</td>
<td>17</td>
<td>Arab States</td>
<td>54</td>
<td>Oman</td>
<td>1.92</td>
<td>Arab States</td>
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<tr>
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<td>Saudi Arabia</td>
<td>15</td>
<td>Arab States</td>
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<td>Ghana</td>
<td>1.92</td>
<td>Africa</td>
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<td>15</td>
<td>Americas</td>
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<td>Belarus</td>
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<td>CIS</td>
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<td>Kyrgyzstan</td>
<td>15</td>
<td>CIS</td>
<td>74</td>
<td>Thailand</td>
<td>1.74</td>
<td>Asia &amp; Pacific</td>
</tr>
<tr>
<td>36</td>
<td>Belarus</td>
<td>14</td>
<td>CIS</td>
<td>61</td>
<td>Brazil</td>
<td>1.74</td>
<td>Americas</td>
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<tr>
<td>54</td>
<td>Oman</td>
<td>14</td>
<td>Arab States</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: ITU.
IDI values by quartiles

Source: ITU.
... but disparities in IDI value remain
LDCs are falling behind

<table>
<thead>
<tr>
<th>Group</th>
<th>IDI 2010</th>
<th>IDI 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Countries</td>
<td>Average*</td>
</tr>
<tr>
<td>High</td>
<td>42</td>
<td>7.02</td>
</tr>
<tr>
<td>Upper</td>
<td>41</td>
<td>4.74</td>
</tr>
<tr>
<td>Medium</td>
<td>42</td>
<td>3.19</td>
</tr>
<tr>
<td>Low</td>
<td>42</td>
<td>1.61</td>
</tr>
<tr>
<td>World</td>
<td>167</td>
<td>4.14</td>
</tr>
</tbody>
</table>

Note: * Simple averages.
Source: ITU.

34 countries out of the 42 LCCs are LDCs
Regional IDI

IDI by region and compared to world average, 2015

Source: ITU.
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ICT prices matter

ITU adapts price data collection to ICT uptake & trends

- **1980**: First fixed-telephone price data
- **1986**: First mobile-cellular price data
- **2002**: The number of mobile-cellular subscriptions reaches 1 billion and surpasses the number of fixed-telephone subscriptions
- **2003**: First fixed-broadband price data
- **2009**: First ITU ICT Price Basket publication
- **2011**: The number of mobile-broadband subscriptions reaches 1 billion
- **2012**: First mobile-broadband price data

Source: ITU.
Mobile-cellular prices

Prices are falling

The service is becoming more affordable

Source: ITU.
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.

Source: ITU.
Fixed-broadband prices in Asia & Pacific

Source: ITU.
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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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

Source: ITU.
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

- 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**

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