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Transforming **emerging technologies** *into* **economic opportunities** *with* **better data**

A *Snapshot Report* on the World Telecommunication/ ICT Indicators Symposium (WTIS-17)

Measuring ICTs for Development

Brahima Sanou

Director, ITU Telecommunication Development Bureau

At the World Telecommunication/ICT Indicators Symposium 2017 (**WTIS-17**), held from 14 to 16 November in Hammamet, Tunisia, we reinforced the importance of good data and statistics on current and emerging technologies and their role in creating investment and economic opportunities.

We shared the view that, in order to unlock the potential of information and communication technologies (ICTs) for development, reliable and up-to date data are needed to inform policy-makers and guide investment to where it is most needed.

We had interesting discussions about the **Measuring the Information Society Report 2017** and the ICT Development Index (**IDI**) which we launched at the event.

The IDI is important in that it allows countries to carry out self-assessment and track their progress on a year by year basis. To complement the IDI we have, for the first time, published a second volume of the report focusing on economy profiles in order to adequately reflect the efforts made by each country.

The ICT sector is changing fast and new indicators have to be defined to reflect current ICT trends.

By measuring the information society, we can track progress, or identify gaps, towards achieving socio-economic development for all.

I express my gratitude to the Government of Tunisia — our host for this year's WTIS, and I am pleased to present you here a snapshot of the Symposium. ◢

> **❝ By measuring the information society, we can track progress and identify gaps, towards achieving socio-economic development for all. ❞**

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* *This 'Snapshot Report' is intended only to recap some of the highlights of WTIS-17. It is not an official WTIS-17 report.*

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WTIS-17 highlights video

Tunisia welcomes ICT leaders to WTIS-17

From left to right: Brahima Sanou, Director, ITU Telecommunication Development Bureau;
H.E. Dr Mohamed Anouar Maarouf, Minister of Communication Technologies and the Digital Economy, Tunisia;
H.E. Adel Chelioui, Governor of Sousse, Tunisia; and
H.E. Habib Dababi, Secretary of State for the Digital Economy, Tunisia, and Chairman of WTIS-17

See more photos on flickr

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Setting the agenda …

At the World Telecommunication/ICT Indicators Symposium 2017 (**WTIS-17**), government ministers, business leaders, regulators, national statisticians, top academics, and information and communication technology (ICT) data producers and analysts, from all parts of the globe convened to discuss important issues related to information society trends and their measurement.

ITU launched the latest "**Measuring the Information Society Report**" containing the results of the latest ICT Development Index (IDI), the leading global index that benchmarks the level of ICT development in over 170 economies worldwide.

The symposium featured a packed agenda over three days under the theme "Transforming emerging technologies into economic opportunities with better data".

Plenary sessions

Fostering a healthy investment climate with better data	Big data for measuring the information society
Measuring the Information Society Report 2017	New data needs for the digital economy
New metrics for broadband and cybersecurity	Measuring emerging ICT trends
Smart data for smart sustainable cities	Transforming emerging technologies into economic opportunities with better data

Demos/tutorials/lightning talks

Data visualization and Big Data analysis tools	Crowdsourcing ICT data
Country experiences	Partnership for measuring ICT on development

… to measure the new digital economy

See the full **programme**.

Click to see WTIS-17 at a glance

Biographies

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MIS Report

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> **" ICT statistics are key to countries' development. In Tunisia, for example, we propose to strengthen training programmes on statistical indicators to better respond to the needs and expectations of developing countries. "**

H.E. Dr Mohamed Anouar Maarouf

Minister of Communication Technologies and the Digital Economy, Tunisia

(Speaking at WTIS-17)

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" *It was a pleasure to have had the discussion yesterday in the plenary session about statistics and how we collect data.* "

H.E. Habib Dababi

Secretary of State for the Digital Economy, Tunisia

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(Speaking at WTIS-17)

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❝ *WTIS-17 reinforced the importance of good data on current and emerging technologies and its role in creating economic opportunities.* ❞

Brahima Sanou

Director, ITU Telecommunication Development Bureau

(Speaking at WTIS-17)

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TUNISIA 2017

Data for powering development

The 15th ITU World Telecommunication/ICT Indicators Symposium (WTIS-17) – the main international forum for telecommunication and information society measurements worldwide – took place in Hammamet, Tunisia, from 14–16 November, under the theme "Transforming emerging technologies into economic opportunities with better data".

WTIS provides a unique platform for information and communication technology (ICT) data users and producers to meet and share knowledge and best practices, identify business opportunities and enhance cooperation.

The importance of timely, good quality and internationally comparable data

WTIS-17 featured plenary sessions that discussed the importance of data in creating a healthy investment environment, especially in developing countries; new metrics for broadband and cybersecurity; new data needs for the digital economy, ICT skills, e-waste, Big Data for measuring the information society; as well as innovative technologies, including the Internet of Things, cloud computing, artificial intelligence and smart data for smart sustainable cities.

About WTIS

The ITU World Telecommunication/ICT Indicators Symposium (WTIS) is the main global forum for telecommunication and information society measurements.

Since 1996, WTIS has convened government ministers, business leaders, regulators, national statisticians, top academics, and ICT data producers and analysts from all parts of the globe to discuss issues related to information society trends and their measurement.

The adopted outcomes of discussions at the WTIS provide strategic guidance to the international community, including ITU, on future work priorities related to international harmonization of information society measurements.

It is during WTIS that ITU's Measuring the Information Society Report 2017 is launched. This report contains the results of the latest ICT Development Index (IDI), the leading global index that benchmarks the level of ICT development in over 170 economies worldwide.

WTIS is open to all ITU members as well as to experts in the subject of information society measurements. ■

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> **" The debates and discussions that took place at this Symposium will go a long way to unlock the potential of ICTs for development. "**

Houlin Zhao
ITU Secretary-General

Participants recognized that both public and private investment are needed to meet national and international targets for expanding ICT access and use. Timely, good quality and internationally comparable data are needed to serve as an evidence-base to support the design of investment-friendly public policies and to provide accurate market signals for potential investors.

Countries share experience of big data for measuring the information society

The Symposium appreciated the experience of six countries that participated in the ITU project on "**Big Data for Measuring the Information Society**" and welcomed the **ITU big data methodology document** that can be used by operators and service providers, and compiled at the country level.

"Information and communication technologies are driving global development in an unprecedented way, providing huge opportunities for social and economic development," said Houlin Zhao, ITU Secretary-General.

"WTIS-17 was held after the successful completion of the World Telecommunication Development Conference where participants adopted a forward-looking agenda to advance the use of ICTs to achieve the United Nations' Sustainable Development Goals. The debates and discussions that took place at this Symposium will also go a long way to unlock the potential of ICTs for development."

On day 2 of WTIS, ITU released the 2017 edition of the highly anticipated annual flagship statistics publication, the Measuring the Information Society Report (MISR), which features the ICT Development Index (IDI), the global benchmarking tool that tracks countries' progress in the development of their information societies. The MISR is extensively relied upon by governments, international organizations, development banks and private sector analysts and investors worldwide.

The Symposium also featured a tutorial on data visualization and big data analysis tools, demos on crowdsourcing ICT data, and lightning talks on the collection of ICT statistics and work of the Partnership of Measuring ICT for Development.

WTIS-17 also adopted the work of the Expert Group on Telecommunication/ICT Indicators and the Expert Group on Household Indicators. Outgoing Chairs of the groups are Alexandre Fernandes Barboza and Inigo Herguera. New chairs are Candido Astrologo and Joâo Noronha.

The Symposium was hosted by the Government of the Republic of Tunisia and chaired by H.E. Habib Dababi, Secretary of State for the Digital Economy. ◢

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Flagship report reveals key ICT data

T he Measuring the Information Society Report is the ITU's annual flagship report featuring key ICT data and benchmarking tools to measure the information society, and is extensively relied upon by governments, international organizations, development banks and private sector analysts and investors worldwide. The latest report was launched on 15 November 2017, day 2 of the World Telecommunication/ICT Indicators Symposium (WTIS-17), held in Hammamet, Tunisia.

Key global ICT findings at a glance

- An overall upward trend in the availability of communication services, driven by rapid growth in broadband.

- Mobile-cellular networks are increasingly pervasive and now dominate the provision of basic telecommunication services.

- Mobile-cellular subscriptions per 100 inhabitants grew from 2005 to 2017 from 33.9 to an estimated 103.5.

- A more impressive growth on mobile cellular subscriptions is in the least-developed countries (LDCs), increasing from 5.0 in 2005 to an estimated 70.4 in 2017.

- Young people are more likely to be online than their elders.

- There is still a significant digital gender divide.

- There are still substantial digital divides between countries and regions, and between developed and developing countries.

See inside **Volume 1** to learn about:
- The current state of ICTs
- The ICT Development Index – global analysis
- The ICT Development Index – regional and country analysis
- Emerging ICT trends

Volume 2 to learn about:
- ICT economy profiles

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Track your country's ICT progress

This year in two volumes, the Measuring the Information Society Report 2017 tracks the performance of 176 economies with regard to ICT infrastructure, use and skills. The report features the key ICT data and benchmarking tool to measure the information society, the ICT Development Index (IDI).

The IDI includes findings at the regional level, country rankings and those that have improved their position most dynamically since 2016.

By tracking your country's own year on year progress, and making the necessary policy adjustments, you can help grow further your country's telecommunication/ ICT sector.

Iceland at the top in ICT development

This year it is Iceland that tops the IDI rankings, with an IDI value of 8.98. A celebration will take place in Geneva to acknowledge Iceland's achievements. Six other countries in Europe and three economies in the Asia and the Pacific region, which have competitive ICT markets that have experienced high levels of ICT investment and innovation over many years, followed Iceland.

Countries at the top of the IDI distribution also have high levels of economic prosperity, literacy and other skills that enable citizens to take full advantage of access to communications.

The most substantial improvements in IDI value were recorded by Namibia, the Islamic Republic of Iran and Gabon. While Uzbekistan was the most dynamic in terms of rank.

See more country rankings with **IDI data visualization**.

IDI performance indicators reviewed for 2018

The IDI has been based on 11 indicators. However, recent developments in ICT markets have led to their review. The table below summarizes the revised list of indicators to be included in the IDI that was adopted by the **Extraordinary Meeting of the EGTI and EGH**:

Access
- Percentage of households with a computer
- Percentage of households with Internet access
- International Internet bandwidth (bit/s) per Internet user
- Percentage of the population covered by mobile networks
  ‣ At least 3G
  ‣ At least LTE/WiMAX
- Fixed-broadband subscriptions by speed tiers as a % of total fixed-broadband subscriptions
  ‣ 256 kbit/s to 2 Mbit/s
  ‣ 2 to 10 Mbit/s
  ‣ Equal to or above 10 Mbit/s

Use
- Percentage of individuals using the Internet
- Active mobile-broadband subscriptions per 100 inhabitants
- Mobile-broadband Internet traffic per mobile-broadband subscription
- Fixed-broadband Internet traffic per fixed-broadband subscription
- Percentage of individuals who own a mobile phone

Skills
- Mean years of schooling
- Gross enrollment ratio (secondary level)
- Gross enrollment ratio (tertiary level)
- Proportion of individuals with ICT skills

Read more about the **IDI methodology**.

Awards were given to the two most dynamic countries, Namibia and Uzbekistan, for having made great progress in terms of IDI value and rank

From left to right: H.E. Habib Dababi, Tunisia's Secretary of State for the Digital Economy, and Chairman of WTIS-17;
Mbeuta Ua Ndjarakana, Permanent Secretary and Accounting Officer, Namibia's Ministry of Information and Communication Technology;
Timur Mashanpin, Head of Mobile Communications Department, Uzbekistan's Ministry for Development of Information Technologies and Communications;
and Brahima Sanou, Director of the ITU Telecommunication Development Bureau

Most dynamic countries

Improvements were particularly significant in middle-income developing countries.

Change in IDI ranking				Change in IDI value (absolute)		
IDI rank 2017	Country	IDI rank change		IDI rank 2017	Country	IDI value change
95	Uzbekistan	8		118	Namibia	0.57
159	Afghanistan	6		81	Iran (I.R.)	0.54
36	Croatia	6		114	Gabon	0.50
88	Suriname	6		139	Lao P.D.R.	0.47
152	Uganda	6		28	Cyprus	0.47
42	Uruguay	6		111	Indonesia	0.47
				112	Bolivia	0.47

See changes in **IDI rankings and values**, 2016–2017, Chapter 2, Measuring the Information Society Report 2017. ◢

Takeaways from WTIS-17 plenary sessions

Here are some takeaways from the **plenary sessions** at WTIS-17.

Fostering a healthy investment climate with better data

This session, moderated by Cosmas Zavazava, Chief of ITU's Projects and Knowledge Management Department, highlighted the importance of developing investment-friendly policy frameworks and the role of better data in signaling areas for potential market growth.

Participants addressed the following questions:

- Which policy actions are key to developing an investment-friendly climate, in particular in the information and communication technology (ICT) sector?
- What data are required to support the development of investment-friendly policies, in particular in developing countries?
- What are the different perspectives of public and private actors on the use of data in economic decision-making?
- How can governments and technology leaders work hand-in-hand to improve the availability and quality of ICT data that can serve as evidence-base for both policy making and investing?

The panelists, from left to right:

- › **Hédi Saidi**, Chief Executive Officer, National Statistics Office, Tunisia
- › Chairman: **H.E. Habib Dababi**, Secretary of State for the Digital Economy, Tunisia
- › Moderator: **Cosmas Zavazava**, Chief, Projects and Knowledge Management Department, ITU
- › **Shahjahan Mahmood**, Chair, Bangladesh Telecommunication Regulatory Commission, Bangladesh
- › **Mbeuta Ua-Ndjarakana**, Permanent Secretary, Ministry of Information and Communication Technology, Namibia
- › **Soumalia Abdoulkarim**, Secretary-General, African Telecommunications Union
- › **Hichem Besbes**, President, Telecommunication National Regulatory Authority of Tunisia (INTT)

See session video

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In his keynote address, Bowei Gai, Founder of the World Startup Report, gave an insightful presentation on **A data-driven approach to government investing and policy-making**. Gai encouraged policymakers to ask themselves three questions: What is your realistic goal? What are your hard metrics? How do you collect and maintain data? His rule of thumb: "If the metric can be disputed, it's not a very good metric." For people to use it, he said that data needs to be transparent for everyone to see and accessible. He encouraged the audience to take a look at Singapore's great efforts in this regard. ∎

Big data for measuring the information society

This session, moderated by Alexandre Barbosa, Head, Regional Center for Studies on the Development of the Information Society (CETIC.br), Brazil, and EGH Chair, showcased the results of the ITU project on using big data for measuring the information society.

Participants explored the following questions:
- What new insights are generated from using big data to derive ICT indicators vis-a-vis traditional data collection methods?
- How can the insights from the big data pilot projects be turned into actionable knowledge and support efforts to bridge the digital divide?
- What were the challenges faced by pilot countries in the use of big data to generate ICT indicators?
- How were pilot countries able to overcome these challenges and benefit from the use of big data for producing ICT indicators?

The panelists, from left to right:
- › Keynote speaker: **Louis DiCesari**, Head of Big Data Implementation, Vodafone Group
- › Moderator: **Alexandre Barbosa**, Head, Regional Center for Studies on the Development of the Information Society (CETIC.br), Brazil, and EGH Chair
- › Chairman: **H.E. Habib Dababi**, Secretary of State for the Digital Economy, Tunisia
- › **Esperanza Magpantay**, Senior Statistician, ICT Data and Statistics Division, ITU – **Presentation**
- › **Mohammed Ahli**, Executive Director, National Statistics and Data Sector, Federal Competitiveness and Statistics Authority, United Arab Emirates **Presentation**
- › **Alana G. Ramos**, Division Chief, Program Monitoring Evaluation and Statistics Coordination, Department of Information and Communications Technology, Philippines – **Presentation**
- › **Juan David Olarte Torres**, Head of Planning and Sectoral Studies, Ministry of Information and Communication Technologies, Colombia – **Presentation**

See session video

This session began with an interesting keynote address by Louis DiCesari, Head of Big Data Implementation, Vodafone Group, who shared with the audience the practises and beliefs of Vodafone in terms of how it is using big data to optimize the telco. He explained how the company looks at the essential pillars to setting up a big data capability.

ITU presented the outcomes of a pilot Big Data project that was launched at last year's WTIS in Botswana. Six countries have taken part: Colombia (Americas); Georgia (CIS); Kenya (Africa); Philippines (Asia and Pacific); Sweden (Europe); United Arab Emirates (UAE) (Arab States). See presentations from the **UAE**, the **Philippines** and **Colombia** to find out about their experiences, best practices and challenges.

The Symposium welcomed the document developed by ITU describing the big data ICT indicators and methodologies and how these can be produced by operators and service providers, and compiled at the country level. The document was developed and enhanced based on experiences by pilot countries. The use of the methodology document will ensure international comparability of the ICT indicators that are produced from big data sources. ■

Tutorial

Data visualization and big data analysis tools

Brief interactive tutorials on open-source and/or commercial tools for visualization and big data analysis.

See presentations
- **Flowminder.org**
- **GridGain Systems**
- **IFT, Mexico**. ■

Demos

Crowdsourcing ICT data

A series of demos on innovative initiatives to crowdsource the collection of ICT- related data.

See presentations
- **RIPE NCC**
- **Bandwidth Signal and Statistics** (BASS)
- **Statistics Sweden**. ■

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Measuring the Information Society Report 2017

The panelists, from left to right:

› Moderator: **Johannes Bauer**, Chair, Department of Media and Information, Michigan State University and Associate Editor, Telecommunications Policy

› Chairman: **H.E. Habib Dababi**, Secretary of State for the Digital Economy, Tunisia

› **Esperanza Magpantay**, Senior Statistician, ICT Data and Statistics Division, ITU **Presentation**

› **Lourdes O. Montenegro**, Economist, ICT Data and Statistics Division, ITU – **Presentation**

› **Rati Skhirtladze**, Head, ICT Data and Statistics Division, ITU **Presentation**

See session video

For the ninth consecutive year, ITU published the **Measuring the Information Society Report** (MISR). It features the latest ICT Development Index (IDI) and its global and regional analyses, highlighting progress made by countries and areas that need improvement.

This year, MISR includes economy profiles of ICT developments. The report also features chapters on current and emerging ICT trends such as artificial intelligence, big data, Internet of Things (IoT), cloud computing, and smart devices. This much-awaited session presented the main findings of the report, focusing on the results of the IDI 2017, followed by a question and answer session.

Moderating this session, Johannes Bauer, Chair, Department of Media and Information, Michigan State University and Associate Editor, Telecommunications Policy, cited the report as unique because it is based on data from ITU Member States. The IDI is the one index that is available globally that is most strongly based on consultation with ITU Members, requiring a lot of their input.

Presentations were made by: **Rati Skhirtladze**, Head, ITU's ICT Data and Statistics Division; **Esperanza Magpantay**, Senior Statistician; and **Lourdes O. Montenegro**, Economist (see pages 11–13 for more on MISR 17). ■

New data needs for the digital economy

The panelists, from left to right:

› **Alexandre Barbosa**, Head, Regional Center for Studies on the Development of the Information Society (CETIC.br), Brazil, and EGH Chair **Presentation**

› Moderator: **Linah Ngumba**, Senior Statistician, Kenya National Bureau of Statistics, and EGH Vice-Chair

› Chairman: **H.E. Habib Dababi**, Secretary of State for the Digital Economy, Tunisia

› **Kees Baldé**, Associate Programme Officer, United Nations University (UNU)-ViE SCYCLE – **Presentation**

› **Elif Koksal-Oudot**, Economist, Directorate for Science, Technology and Innovation, OECD – **Presentation**

See session video

During 2017, the Expert Group on Household Indicators (EGH) has strengthened its role as the key international standard-setting body for measuring ICT access and use by households and individuals.

This session, moderated by Linah Ngumba, Senior Statistician at the Kenya National Bureau of Statistics and EGH Vice-Chair, featured:

- The work of the EGH since WTIS 2016, in the context of new data needs as a result of increasingly mobile and consumer-driven use of the Internet.
- Discussions on e-commerce and ICT skills, indicators on e-waste from household surveys.
- Recommendations and proposals for the future work of EGH.

Alexandre Barbosa **reported** on the outcomes of the **EGH** and cited three documents that the EGH had produced over the past year: Measuring and aggregating ICT skills; New indicators on E-commerce activities; and Definition of smartphones. Proposals for the future work of the EGH include improving the measurement of ICT skills, reviewing the indicator on location of Internet use, defining methodologies on how to collect data on indicators such as cybersecurity, e-waste, child online protection, Internet of Things (IoT), and digital content. The Symposium welcomed the creation of the subgroups on measuring ICT skills, and on reviewing the indicator on location of Internet use.

Kees Baldé, Associate Programme Officer, United Nations University (UNU)-ViE SCYCLE, addressed the issue of e-waste and in particular the quality and recycling of **e-waste** data and statistics and the necessity for regions to begin to produce good e-waste data.

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Elif Koksal-Oudot, Economist, Directorate for Science, Technology and Innovation, OECD, presented **New measurement challenges in the digital economy**, covering trends in terms of convergence and connectivity in the digital economy. She addressed topics such as child online protection, trust in the digital economy, and cross border e-commerce issues. ◼

New metrics for broadband and cybersecurity

The panelists, from left to right:

› **Silvio De Nicola**, Officer, AGCOM, Italy – **Presentation**

› **Syrine Tlili**, CEO, National Digital Certification Agency, Tunisia – **Presentation**

› Chairman: **H.E. Habib Dababi**, Secretary of State for the Digital Economy, Tunisia

› Moderator: **Mansour Al Shehry**, Market Study Specialist, Communication and Information Technology Commission, Saudi Arabia

› **Ivan Vallejo**, Market Analyst, ICT Data and Statistics Division, ITU – **Presentation**

› **Iñigo Herguera**, Associate Professor of Economics, Complutense University of Madrid, Spain, and EGTI Chair **Presentation**

Over the past year, the Expert Group on Telecommunication/ICT Indicators (EGTI) has stepped up a gear in its efforts to update the ICT metrics collected from the supply-side and keep abreast of the latest ICT developments.

This session, moderated by Mansour Al Shehry, Market Study Specialist, Communication and Information Technology Commission, Saudi Arabia, featured:

◼ The work of the EGTI since WTIS 2016, including updates to the ICT price data collection methodology and the development of new fixed-network coverage indicators.

◼ Discussions on the measurement of broadband traffic and cybersecurity.

◼ Recommendations and proposals for the future work of the EGTI.

Iñigo Herguera, Associate Professor of Economics, Complutense University of Madrid, Spain, and EGTI Chair, presented the results of last year's work of the **Expert Group on Telecommunication/ICT Indicators** (EGTI), including the online forum and several subgroups.

See session video

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Among others, a decision had been taken to focus on measuring fixed network coverage indicators. Methodological issues had been discussed including the problem with overlapping (i.e. several fixed networks deployed in one area). The group had also looked into what is being measured in terms of Over the top (OTT) and Internet of Things (IoT) services.

It was agreed that some measurement should be developed on spectrum allocation and that collaboration with the ITU Telecommunication Development Sector (ITU–D) as well as the ITU Radiocommunication Sector (ITU–R) would need to be sought. Subgroups were created to deal with all the different topics and issues. The group also had the task of reviewing the indicators to be used as from 2018 onwards for the IDI.

Silvio De Nicola, Officer, AGCOM, Italy, presented the **New metrics for broadband and cybersecurity**. Syrine Tlili, CEO of Tunisia's National Digital Certification Agency, Tunisia spoke about **Measuring cybersecurity effectiveness**, and Ivan Vallejo, Market Analyst in ITU's ICT Data and Statistics Division made a presentation on **Measuring real broadband speeds using crowdsourcing data from the Internet Foundation**. ■

Lightning talks

Country experiences

Countries shared their experience with the collection of information and communication technology (ICT) statistics. Topics discussed included coordination, ICT skills and big data for tourism statistics and e-commerce.

See presentations
- **Zimbabwe**
- **Pakistan**
- **Indonesia**
- **India**

Partnership on Measuring ICT for Development

The Partnership hosted a session on tracking the digital economy. The Partnership Task Group on ICT for the United Nations' Sustainable Develpment Goals (**SDGs**) presented the work on developing a thematic list of ICT indicators to measure ICT availability and use in sectors relevant to the SDGs that are not covered in the global SDG indicators framework.

See presentations
- **Information Economy Report** (UNCTAD)
- **Digital Economy of Bangladesh and SDGS**
- **OECD Digital Economy Outlook**
- **Developing a thematic list of ICT indicators for the SDGS** (ITU). ■

Measuring emerging ICT trends

The panelists, from left to right:
› **João Noronha**, Head of Statistics and Market Research, Autoridade Nacional de Comunicações, Portugal – **Presentation**

› **May Amr**, Director, Data acquisition and annotation, Cairo Operations Lead, Affectiva **Presentation**

› Chairman: **H.E. Habib Dababi**, Secretary of State for the Digital Economy, Tunisia

› Keynote speaker: **Johannes Bauer**, Chair, Department of Media and Information, Michigan State University and Associate Editor, Telecommunications Policy **Presentation**

› Moderator: **Jinqiao Chen**, Deputy Chief Engineer, China Academy of Information and Communications Technology, China

› **Nicolas Friederici**, Postdoctoral Researcher, Oxford Internet Institute, University of Oxford **Presentation**

This session moderated by Jinqiao Chen, Deputy Chief Engineer, China Academy of Information and Communications Technology, China, introduced new technologies and participants discussed emerging statistical challenges related to monitoring their development. The session highlighted the uneven level of adoption of these new technologies in different regions of the world, and proposed ways to accelerate their uptake and bridge these new divides.

In particular, the session addressed the following questions:
- What is the context giving rise to these emerging ICT trends?
- Which disruptive innovations are driving these emerging ICT trends? What implications do they have for ICT policies?
- Are new digital divides arising from the uneven spread of these innovations worldwide? How can they be tracked?
- How can effective evidenced-based policies be designed to accelerate the adoption of these emerging trends and ensure that nobody is left behind?

Johannes Bauer, Chair, Department of Media and Information, Michigan State University and Associate Editor, Telecommunications Policy, gave a **keynote presentation**. He began by making a point that transforming emerging technologies into economic and social opportunities requires three things: firstly, a need to document the new ICT value chain much better than we currently do. Secondly, a need to inform policy governments in new ways; and thirdly, in order to do so, there is a need to develop new ICT indicators.

See session video

May Amr, Director, Data acquisition and annotation, Cairo Operations Lead, Affectiva, spoke about going **Beyond artificial intelligence**. She highlighted that we are turning into a world devoid of emotions, and that in future devices will be emotionally aware.

Dr Nicolas Friederici, Postdoctoral Researcher, Oxford Internet Institute, University of Oxford, in his **presentation**, wished to alert the audience of some stark divides in the global digital economy which had important implications for the topic of the session. He used studies by his colleagues at the Oxford Internet Institute, often focusing on Africa, which highlighted in particular the extreme geographical divides in digital production. ■

Smart data for smart sustainable cities (SSCs)

This session moderated by Mohamed Hamdi, Director of Innovation, El Ghazala Communication Cyberparc, Tunisia, discussed the public policies needed to promote smart and sustainable cities and looked into indicators to measure their development and operation.

In particular, this session addressed the following questions:
- How are governments tracking progress towards achieving smart and sustainable cities? Which additional indicators would be needed to track this progress?
- Which data and data policies are needed to enable smart sustainable cities?
- How can the impact of innovations related to the use of ICTs in smart cities (e.g. in transport, energy, waste management) be monitored?

The panelists, from left to right:
- › **Xiaobing Wei**, General Manager, Xianyang Branch, China Telecom **Presentation**
- › **Faruk Tuncer**, Public Policy Expert for Urban and Regional Policy, Germany – **Presentation**
- › Chairman: **H.E. Habib Dababi**, Secretary of State for the Digital Economy, Tunisia
- › Moderator: **Mohamed Hamdi**, Director of Innovation, El Ghazala Communication Cyberparc, Tunisia
- › **Kwan Kee Ng**, Executive Manager, Research and Statistics Unit, Info-communications Media Development Authority, Singapore – **Presentation**

See session video

Faruk Tuncer, Public Policy Expert for Urban and Regional Policy, Germany, presented: **Smart governance for smart cities** focused on the city level. More than 60% of global GDP of today is generated in 600 cities, and projections state that in 2050 approximately 75% of the global population will live in cities, said Tuncer.

This means 2 billion will migrate from rural areas to cities in the next years. "This is a huge challenge", he said, which would give rise to more pollution; global poverty; inequality; also traffic congestions; and tons of waste that has to be collected. "All these challenges have to be solved and that is where digitalization comes in and the concept of the smart city. Smart city is not a technology, it's a concept, and it's a solution concept for a very complex system — the urban system."

Kwan Kee Ng, Executive Manager, Research and Statistics Unit, Info-communications Media Development Authority, Singapore talked about the role of data in making **Singapore "smarter"**. One key point he emphasized is the need for a standardized set of indicators that will also enable data use for benchmarking across other cities or countries. Singapore, he said, had a very well-established decentralized national statistical system.

Xiaobing Wei, General Manager of Xianyang Branch, China Telecom, China gave a presentation on providing the people with ubiquitous accessible information services and the new **Smart city case for Xianyang City**. ■

Transforming emerging technologies into economic opportunities with better data

The panelists, from left to right:

› **Alexandre Barbosa**, Head, Regional Center for Studies on the Development of the Information Society (CETIC.br), Brazil, and EGH Chair

› Moderator: **Cosmas Zavazava**, Chief, Projects and Knowledge Management Department, ITU

› Chairman: **H.E. Habib Dababi**, Secretary of State for the Digital Economy, Tunisia

› **Mohamed Hamdi**, Director of Innovation, El Ghazala Communication Cyberparc, Tunisia

› **Jinqiao Chen**, Deputy Chief Engineer, China Academy of Information and Communications Technology

› **Johannes Bauer**, Chair, Department of Media and Information, Michigan State University and Associate Editor, Telecommunications Policy

This multi-stakeholder panel reviewed insights from the various sessions of WTIS-17 that shed light on the policy challenges related to balancing the economic gains and losses from the coming widespread adoption of big data, IoT, cloud computing, and artificial intelligence.

Panelists shared their main take-away messages from the Symposium and made suggestions for key topics to be addressed by WTIS-18. ◢

See session video

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TUNISIA **2017**

IT startups cannot survive on their own, they need government help. And more increasingly so, governments need IT startup support.

Mr Bowei Gai
Founder, World Startup Report

Speaking during his keynote address at the session:
Fostering a healthy investment climate with better data

We believe that the future is exciting at Vodafone, and we believe that we in this room as telcos and using big data, have the power to change the world and to do well by doing good.

Louis DiCesari
Head of Big Data Implementation, Vodafone Group

Speaking during his keynote address at the session:
Big data for measuring the information society

I was impressed by the level of detail and expertise that was presented in the Measuring the Information Society Report.

Johannes Bauer
Chair, Department of Media and Information,
Michigan State University and Associate Editor, Telecommunications Policy

Speaking about the session he moderated:
Measuring the Information Society Report 2017

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" We are going to discuss a very exciting topic on new data needs for the digital economy. "

Linah Ngumba
Senior Statistician, Kenya National Bureau of Statistics, Kenya and EGH Vice-Chair

Speaking as moderator, introducing the session:
New data needs for the digital economy

" If you want to manage your cybersecurity, you need to be able to measure it. "

Syrine Tlili
CEO, National Digital Certification Agency, Tunisia

Speaking at the session:
New metrics for broadband and cybersecurity

" Devices will be able to read and sense your emotions, and respond back accordingly, just the way an emotionally intelligent friend would. "

May Amr
Director, Data Acquisition and Annotation
Cairo Operations Lead, Affective

Speaking at the session:
Measuring emerging ICT trends

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" *It is very important that cities have a comprehensive strategy of measurable outcomes and goals to become a smart city.* "

Faruk Tuncer
Public Policy Expert for Urban and Regional Policy, Germany

Speaking at the session:
Smart data for smart sustainable cities (SSCs)

" *It is necessary that our countries have well established data production processes in place to respond to this data need.* "

Alexandre Barbosa
Head, Regional Center for Studies on the Development of the Information Society (CETIC.br), Brazil, and EGH Chair

Speaking at the session:
Transforming emerging technologies into economic opportunities with better data

Video-interview insights

Thought leaders shared their insights with us on the various topics and sessions discussed at World Telecommunication/ICT Indicators Symposium (WTIS-17).

> *We are working on a number of projects which will enable Tunisia's IDI score to increase next year.*

Dr Mohamed Anouar Maarouf
Minister of Technologies and the Digital Economy, Tunisia

> *The World Telecommunication/ICT Indicators Symposium is one of the ITU Telecommunication Development Sector's main events that we organize every year.*

Brahima Sanou
Director, ITU Telecommunication Development Bureau

> *When you make a law or policy today to level the playing field, in less than a year you are already behind schedule with the rapid development of ICTs.*

Mbeuta Ua Ndjarakana
Permanent Secretary and Accounting Officer, Ministry of Information and Communication Technology, Namibia

> *We need to understand what the IDI means for us and for the country so that we are able to come up with really good indicators.*

Maria Teresa Garcia
Director of the Policy and Planning Service of the Department of Information and Communications Technology, Philippines

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> " *We are offering lots of incentives. For example, if anyone invests in the ICT sector, they will not pay any taxes for the next twelve years.* "

▶ **Shahjahan Mahmood**
Chair, Bangladesh Telecommunication Regulatory Commission

> " *Bosnia and Herzegoniva is an emerging market and we recognize that indicators and analysing data is our future.* "

▶ **Nadzida Saric**
Head, Marketing, RAK, Bosnia and Herzegovina

> " *We appreciate the efforts that have been made by ITU to come up with the ICT measurement report.* "

▶ **Maitseo J. Ratladi**
Deputy Director — Market Research BOCRA, Botswana

> " *Gender statistics are very important throughout the world and we understand that there is a lack of statistics being produced in this sense.* "

▶ **Tatiana Jereissati**
Coordinator, UNESCO Projects, Brazilian Network Information Center NIC br, Brazil

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Go to the WTIS-17 **YouTube playlist** to view all videos.

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Closing ceremony

During the closing ceremony, the Government of Tunisia offered a gift to the ITU symbolizing the door which was the main logo of WTIS-17. In return, the Government of Tunisia was presented with an ITU award for hosting WTIS-17.

The Symposium closed with a **video of the event highlights**, and closing remarks by ITU and the host. ◢
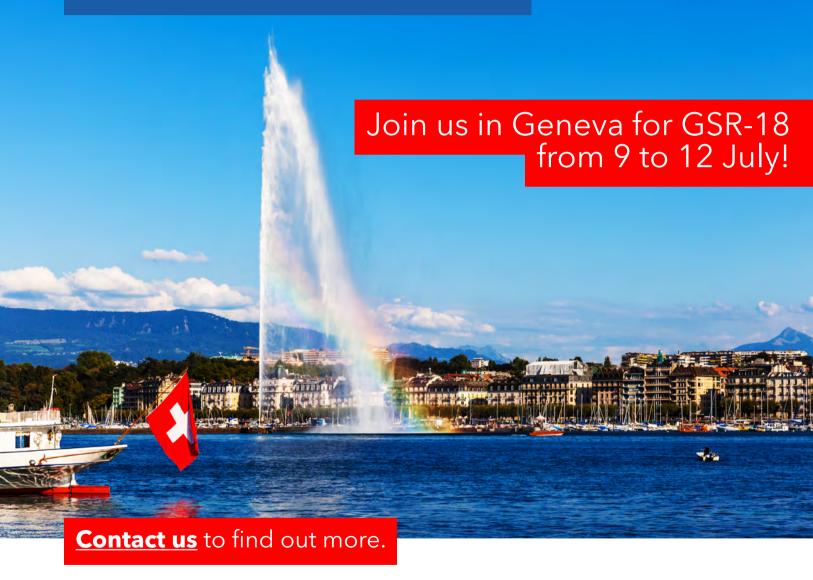
From left to right: Ebrahim Al-Haddad, Regional Director of ITU's Arab regional office;
Samy Trimech, Director of International Development, Arab Information and Communication Technologies Organization (AICTO);
H.E. Dr Mohamed Anouar Maarouf, Tunisia's Minister of Communication Technologies and the Digital Economy;
Brahima Sanou, Director of ITU's Telecommunication Development Bureau;
Cosmas Zavazava, Chief of ITU's Projects and Knowledge Management Department; and
H.E. Habib Dababi, Tunisia's Secretary of State for the Digital Economy, and Chairman of WTIS-17

Global Symposium for Regulators 2018

Geneva, Switzerland

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ITU invites Heads of national telecom and ICT regulatory authorities, policy-makers, industry leaders, and other key stakeholders from the region and across the globe to join the event.

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ICTs can help us do more – **faster**.

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▸ Stay current with fresh examples of how tech is boosting the SDGs

▸ Share your successes globally

▸ Use our communications tools

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fast forward together
#ICT4SDG

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Stay informed.

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Key ICT trends worldwide

Insights from ICT Thought Leaders

The latest on ITU events and initiatives