

ICTs for a Sustainable World

#ICT4SDG

ITU Telecommunication Development Bureau's Actions on Regulation and Related Economic Issues

Jaroslav K. PONDER
Head of the ITU Office for Europe

Hosted by



Organized by





How ICTs can help achieve SDGs

The United Nations' **Sustainable Development Goals (SDGs)** and associated targets will **stimulate action** until **2030** in areas of critical importance for humanity and the planet.



<https://www.youtube.com/watch?v=xziCiGvgOm8>



2030 Agenda

- ▶ ICTs as the backbone of **today's digital economy**;
- ▶ **ICTs have an enormous potential to fast forward progress on the SDGs** and improve people's lives in fundamental ways;
- ▶ **ITU participation** in forums and other activities to achieve the SDGs...
 - ▶ High-Level Political Forum 2019 (HLPF)
 - ▶ World Summit of the Information Society (WSIS)
 - ▶ Broadband Commission for Sustainable Development
 - ▶ Others

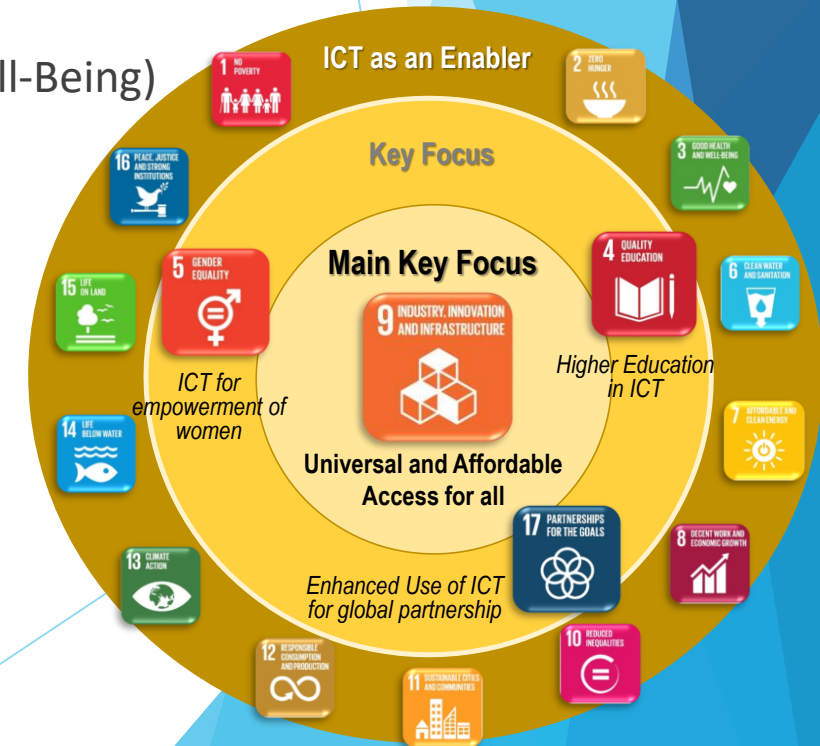




ITU's contribution to the 2030 Agenda for Sustainable Development

- ▶ ITU as the specialized UN agency for ICTs
- ▶ ITU's primary focus : addressing SDG 9 (Industry, Innovation and Infrastructure) and Target 9.c
 - ▶ Increase access to ICTs
 - ▶ Provide universal and affordable access to Internet.
 - ▶ Enable ICT and telecommunications to be a catalyzer towards fast forwarding all SDG.
- ▶ SDG17 (Partnership for the Goals)
 - ▶ ICTs as a means of implementation, with crosscutting transformative potential

- ▶ SDG 11 (Sustainable Cities and Communities)
- ▶ SDG 10 (Reduced Inequalities)
- ▶ SDG 8 (Decent Work and Economic Growth)
- ▶ SDG 1 (No Poverty)
- ▶ SDG 3 (Good-Health and Well-Being)
- ▶ SDG 4 (Quality Education)
- ▶ SDG 5 (Gender Equality).





Indicators under ITU's responsibility

The Global SDG Indicator Framework includes 7 ICT indicators covering 6 targets under Goals 4, 5, 9, and 17. The following five are under ITU:

- ▶ Indicator 4.4.1: Proportion of youth and adults with **ICT skills**, by type of skills
- ▶ Indicator 5.b.1: Proportion of individuals who **own a mobile telephone**, by sex
- ▶ Indicator 9.c.1: Proportion of population **covered by a mobile network**, by technology
- ▶ Indicator 17.6.2: **Fixed Internet broadband subscriptions** per 100 inhabitants, by speed
- ▶ Indicator 17.8.1: Proportion of individuals **using Internet**

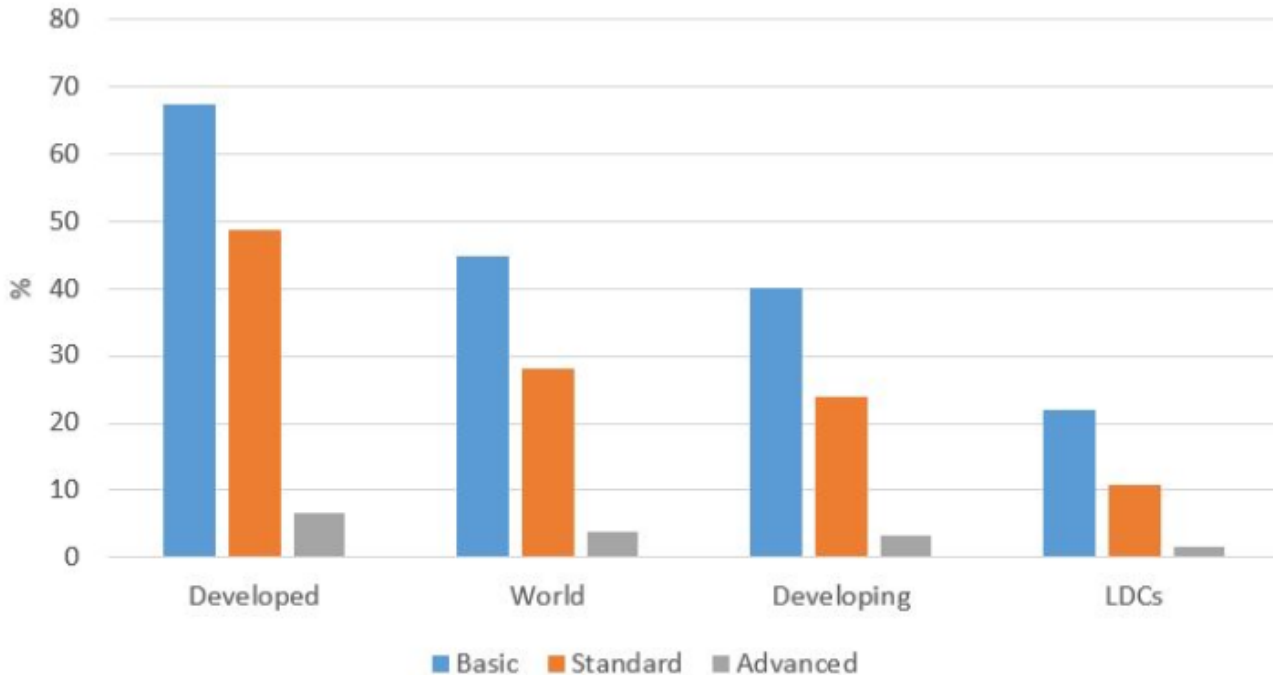


Indicators under ITU's responsibility

Indicator 4.4.1: Proportion of youth and adults with ICT skills, by type of skills

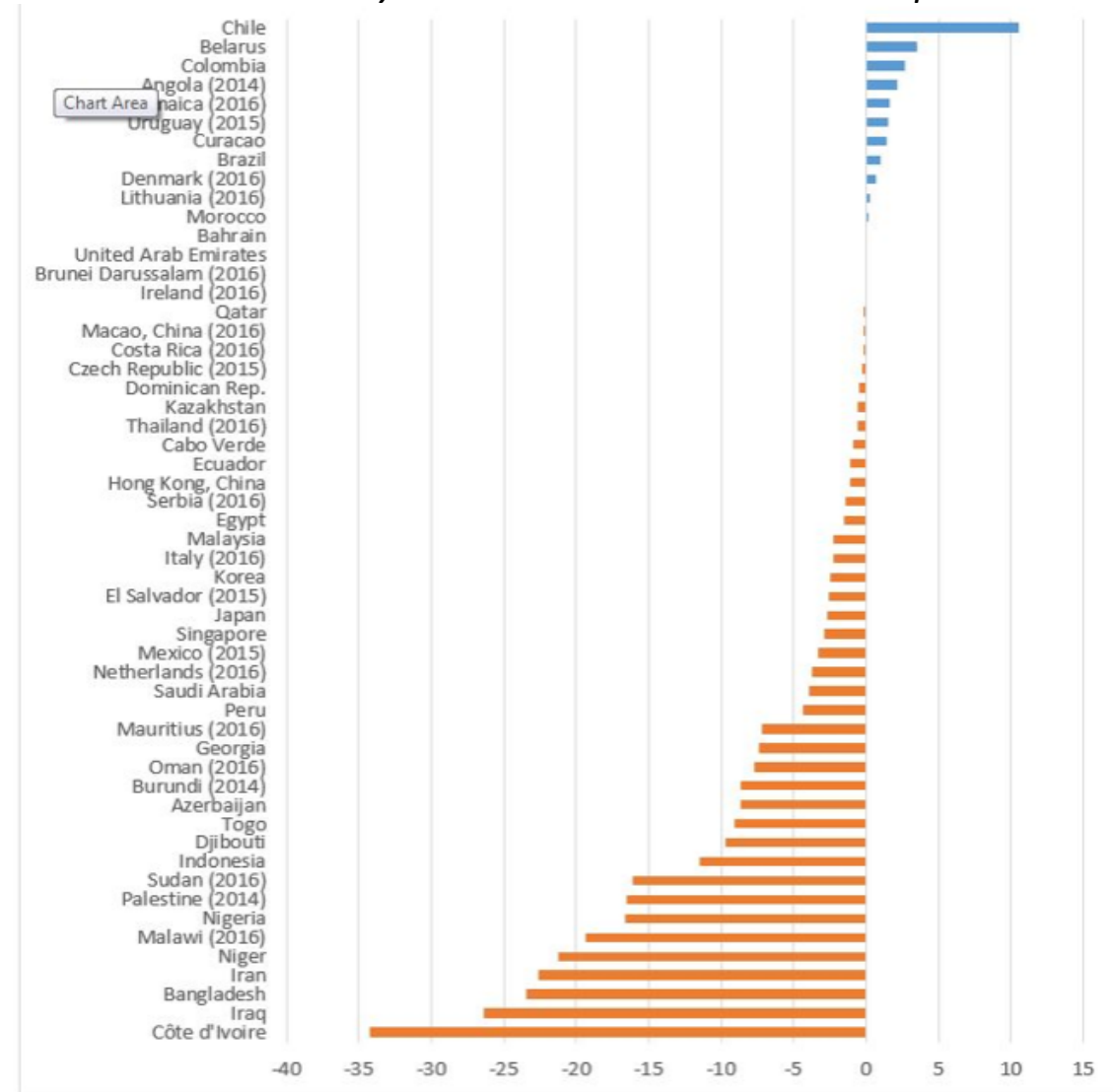
Lack of ICT skills is an important impediment to access Internet

Percentage of individuals with ICT skills, by development status, 2017



Indicator 5.b.1: Proportion of individuals who own a mobile telephone, by sex

Men are more likely than women to own a mobile phone



Note: For each country, the gap is calculated as the percentage of females owning a mobile phone minus the percentage of males owning a mobile phone

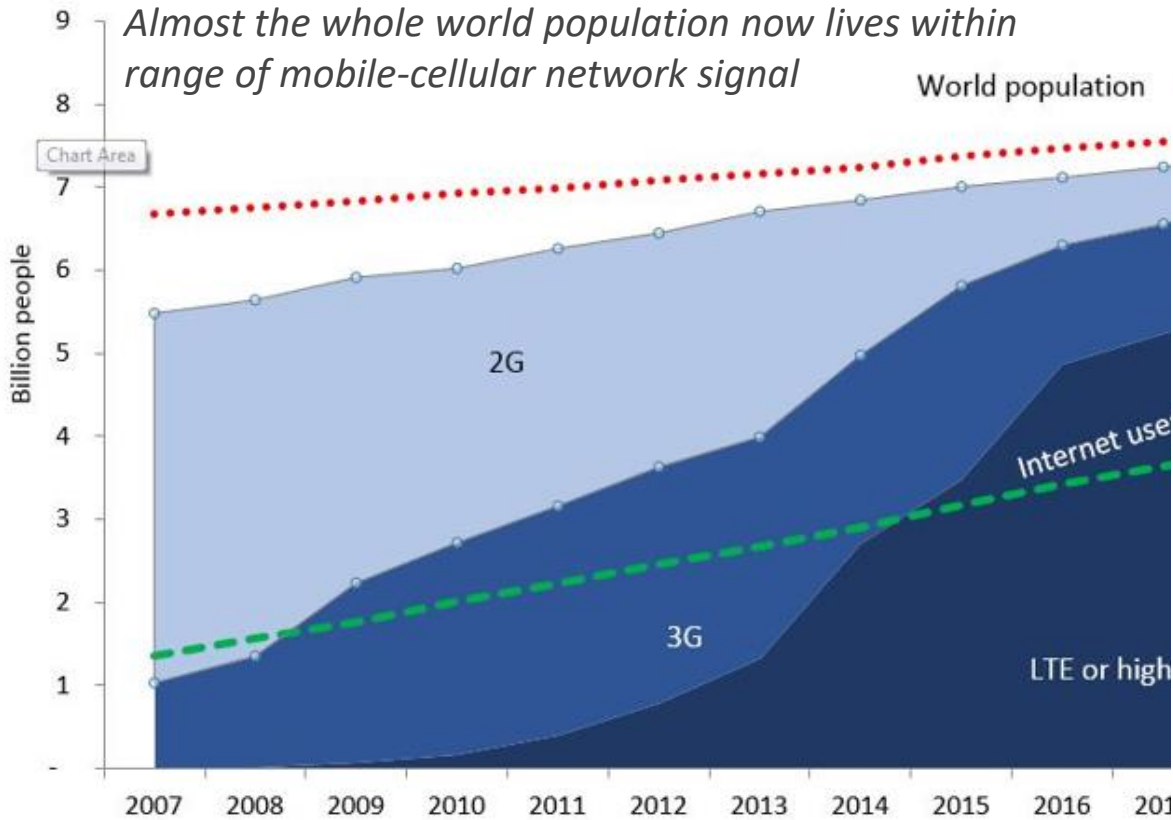
Source: ITU.



Indicators under ITU's responsibility

Indicator 9.c.1: Proportion of population covered by a mobile network, by technology

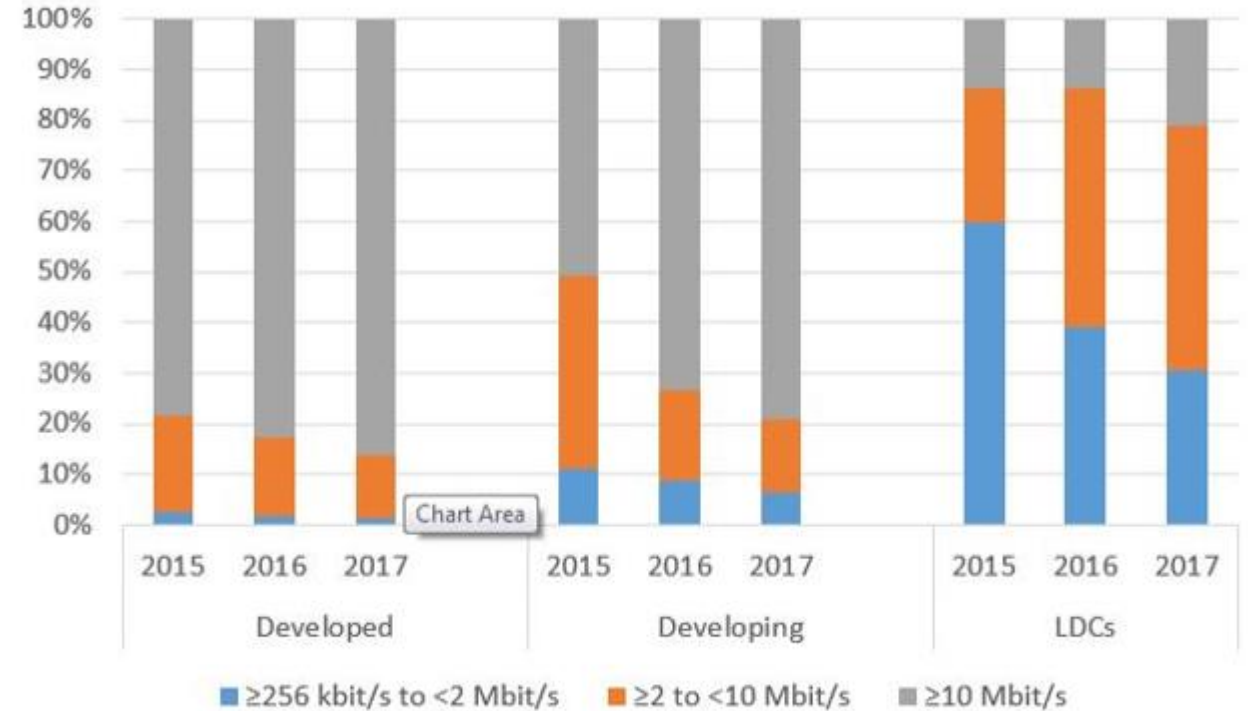
Almost the whole world population now lives within range of mobile-cellular network signal



Indicator 17.6.2 Fixed Internet broadband subscriptions per 100 inhabitants, by speed

Broadband access continues to demonstrate sustained growth

Fixed-broadband subscriptions by speed, by level of development, 2015–2017



Source: ITU

Note: * Estimate.

Source: ITU

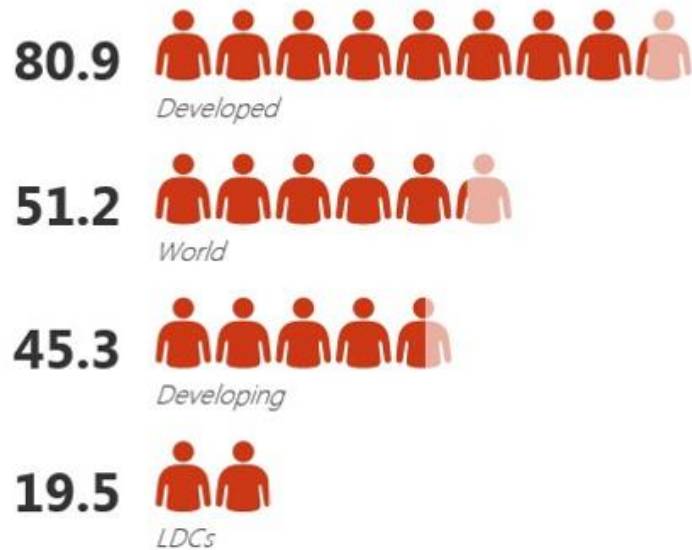


Indicator under ITU's responsibility

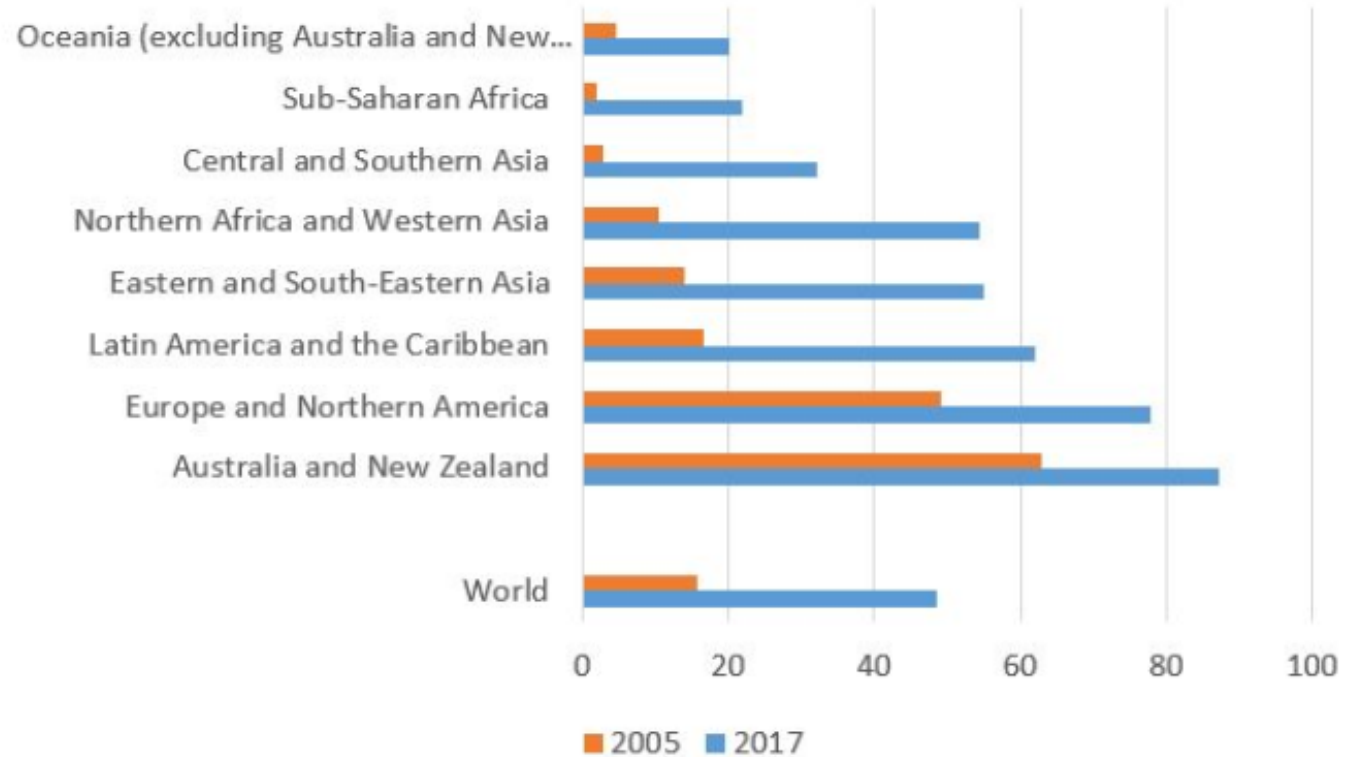
17.8.1: Proportion of individuals using the Internet

Individuals using internet, by development status

PERCENTAGE OF INTERNET USERS



Proportion of individuals using the Internet by region



Source: ITU

More than half of the world's population is online



ITU-D Study Groups: Questions

Study Group 1: Enabling environment for the development of telecommunications/ICTs

Study Question	Relevant SDG WSIS Action Line
Q1/1: Strategies and policies for the deployment of broadband in developing countries	8 DECENT WORK AND ECONOMIC GROWTH, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 11 SUSTAINABLE CITIES AND COMMUNITIES, ACTION LINE C2, ACTION LINE C6
Q2/1: Strategies, policies, regulations and methods of migration and adoption of digital broadcasting and implementation of new services	8 DECENT WORK AND ECONOMIC GROWTH, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, ACTION LINE C2
Q3/1: Emerging technologies, including cloud computing, m-services, and OTTs: Challenges and opportunities, economic and policy impact for developing countries	4 QUALITY EDUCATION, 8 DECENT WORK AND ECONOMIC GROWTH, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION, ACTION LINE C2, ACTION LINE C6, ACTION LINE C7
Q4/1: Economic policies and methods of determining the costs of services related to national telecommunication/ICT networks	4 QUALITY EDUCATION, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 11 SUSTAINABLE CITIES AND COMMUNITIES, ACTION LINE C6
Q5/1: Telecommunications/ICTs for rural and remote area	4 QUALITY EDUCATION, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 11 SUSTAINABLE CITIES AND COMMUNITIES, ACTION LINE C2, ACTION LINE C6
Q6/1: Consumer information, protection and rights: Laws, regulation, economic bases, consumer networks	4 QUALITY EDUCATION, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 12 RESPONSIBLE CONSUMPTION AND PRODUCTION, ACTION LINE C5, ACTION LINE C6
Q7/1: Access to telecommunication/ICT services by persons with disabilities and other persons with specific needs	8 DECENT WORK AND ECONOMIC GROWTH, 10 REDUCED INEQUALITIES, ACTION LINE C3, ACTION LINE C4, ACTION LINE C7

Study Group 2: ICT services and applications for the promotion of sustainable development

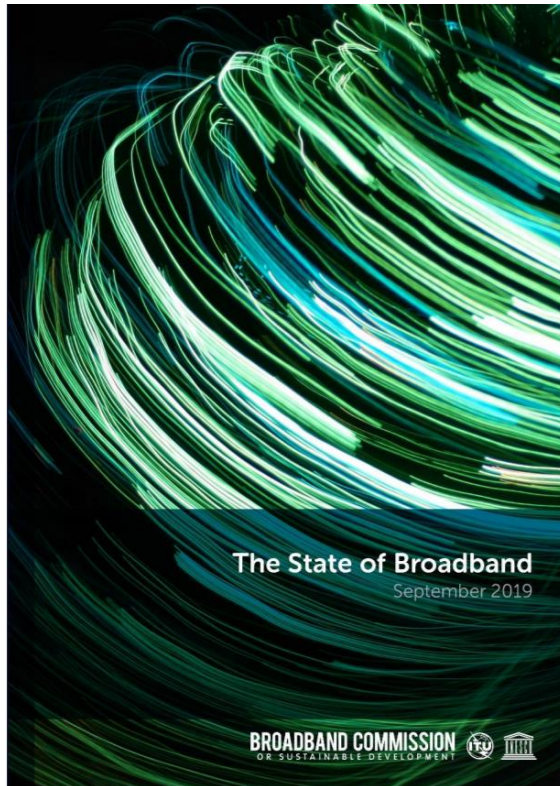
Study Question	Relevant SDG WSIS Action Line
Q1/2: Creating the smart society: Employing ICTs for sustainable social and economic development	2 ZERO HUNGER, 4 QUALITY EDUCATION, 7 AFFORDABLE AND CLEAN ENERGY, 11 SUSTAINABLE CITIES AND COMMUNITIES, ACTION LINE C7
Q2/2: Information and telecommunications/ICTs for e-health	3 GOOD HEALTH AND WELL-BEING, 6 CLEAN WATER AND SANITATION, ACTION LINE C2, ACTION LINE C7
Q3/2: Securing information and communication networks: Best practices for developing a culture of cybersecurity	4 QUALITY EDUCATION, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 11 SUSTAINABLE CITIES AND COMMUNITIES, ACTION LINE C5
Q4/2: Assistance to developing countries for implementing conformance and interoperability (C&I) programmes and combating counterfeit ICT equipment and theft of mobile devices	8 DECENT WORK AND ECONOMIC GROWTH, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 11 SUSTAINABLE CITIES AND COMMUNITIES, ACTION LINE C2
Q5/2: Utilizing telecommunications/ICTs for disaster risk reduction and management	11 SUSTAINABLE CITIES AND COMMUNITIES, 13 CLIMATE ACTION, ACTION LINE C2, ACTION LINE C7
Q6/2: ICT and the environment	11 SUSTAINABLE CITIES AND COMMUNITIES, ACTION LINE C7
Q7/2: Strategies and policies concerning human exposure to electromagnetic fields	3 GOOD HEALTH AND WELL-BEING, 11 SUSTAINABLE CITIES AND COMMUNITIES, ACTION LINE C2



The Broadband Commission for Sustainable Development

Measuring and reporting in its flagship 'State of Broadband' annual report on a set of ambitious Broadband Targets for the SDGs. The **State of Broadband report 2019** was launched **22th September**.

<https://broadbandcommission.org/Pages/default.aspx>



Publications

Annual Reports Working Group Reports Advocacy Documents Other Reports Case Studies Other



The Promise of Digital Health: Addressing Non-communicable Diseases to Accelerate Universal Health Coverage: Executive Summary, French version



Resumen Ejecutivo: La Promesa de la Salud Digital



Broadband Working Group on Epidemic Preparedness- Executive Summary



Working Group Digital Health: Infographic



Executive Summary on Digital Health



Report: Working Group on Digital Health



Report: Working Group on Epidemic Preparedness



Report: Working Group on Digital Entrepreneurship



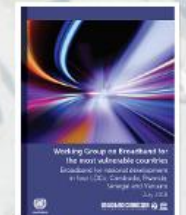
Progress Report: Working Group on the Digital Gender Divide



The State of Broadband 2018



Report of the Working Group on Broadband for most Vulnerable Countries



Teaser Working Group on Broadband for Most Vulnerable Countries



Policies, regulations and economic approaches for the digital ecosystem toward SDGs

*Based on the GSR Best practice Guidelines 2019

To achieve sustainable digital transformation, policy and regulation:

- **More holistic approach**
- **Cross-sectoral collaboration based**
 - new forms of collaborative regulation based on common goals such as *social and economic good, and innovation*.
- **Consultation and collaboration based**
 - regulatory decision making including expectations and expertise of all market stakeholders and players, academia, civil society, consumer associations, data scientists, end-users, and relevant government agencies from different sectors.
- **Evidence-based**
 - Benchmarks and metrics to guide regulators in rule-making and enforcement, enhancing the quality of regulatory decisions and their impact.
- **Outcome-based**
 - The rationale for any regulatory response to new technologies should be grounded in the impact on consumers, societies, market players and investment flows as well as on national development as a whole.
- **Incentive-based**
 - Regulators should keep investment incentives at hand to provide impetus for markets to innovate while maximizing benefits to consumers.
- **Adaptive, balanced and fit for purpose**
 - Flexible regulation-making – improving, refining, and adjusting regulatory practices.
- **Focus on building trust and engagement**
 - Collaborative regulation provides the space for co-creating win-win propositions, working towards regulatory objectives



What regulatory tools and approaches are at hand for enabling a sustainable digital transformation?*

*Based on the GSR Best practice Guidelines 2019

Pro-competition frameworks for digital transformation

should consider longer value chains, more diverse market players, services and devices, stakeholder partnerships and digital infrastructure layers, and ultimately, their impact on markets and consumers

Regulatory incentives and Stakeholder engagement

Incentives can create a positive market dynamic and improve market outcomes with less regulatory effort. Stakeholders engagement such as public hearings and expert workshops and roundtables can allow pooling resources and expertise to inform major regulatory decisions

Robust and enforceable mechanisms for consumer protection

including a set of rules on data protection, privacy and data portability

Market-based and dynamic mechanisms for spectrum management

can allow for flexible, simplified and transparent use of scarce radio frequencies, also promoting technology neutrality

Regulatory Impact Assessment (RIA) and dynamic collaboration among regulatory authorities

RIA should be introduced as a regular practice before major regulatory decisions are made as well as throughout the lifecycle of regulation. Effective collaboration channels with other regulatory authorities are necessary to ensure coherent and reasonable regulations across economic sectors

Regional and international cooperation in defining regulatory rules on cross-border issues

can ensure consistency, predictability and fluidity of digital markets

Regulatory expertise needs to be developed continuously

to integrate new technologies, competencies and skills and allow for data and evidence-based decision-making.



Setting the Scene for 5G

• 5G overview

- The role of the ITU
- What is 5G?
- 5G use cases
- Socio economic implications of 5G
- Digital divide

• 5G technology and spectrum requirements

- Radio access networks
- Core networks
- Backhaul
- Fronthaul
- Spectrum for 5G

• Key challenges in rolling out 5G

- Small cell deployment challenges
- Fibre backhaul
- Spectrum
- Other factors

• What does 'good' look like?

- Streamlining small cell deployments
- Policy intervention - fibre and spectrum
- Infrastructure sharing
- Transition to fibre
- Addressing local planning challenges
- Spectrum harmonization
- Spectrum licensing
- 5G pilots

• Example of costs and investment implications

- Overview
- Methodology
- Scenarios
 - Scenario 1 - large densely populated city
 - Scenario 2 - small medium density city
- Independent cost estimates
- Investment models

Setting the Scene for 5G:
Opportunities & Challenges



@ITU | September 2018



Setting the Scene for 5G

Setting the Scene for 5G: Opportunities & Challenges



@ITU | September 2018

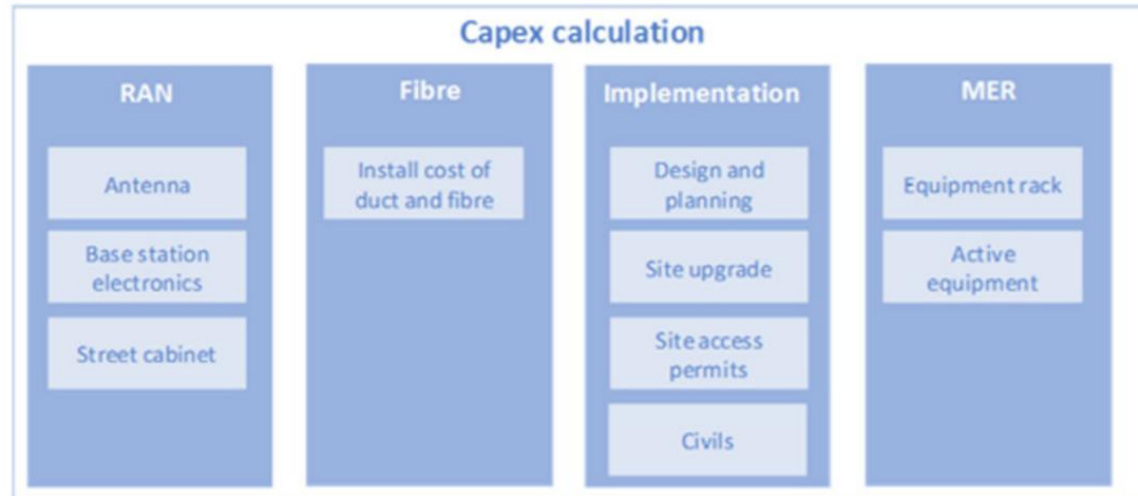
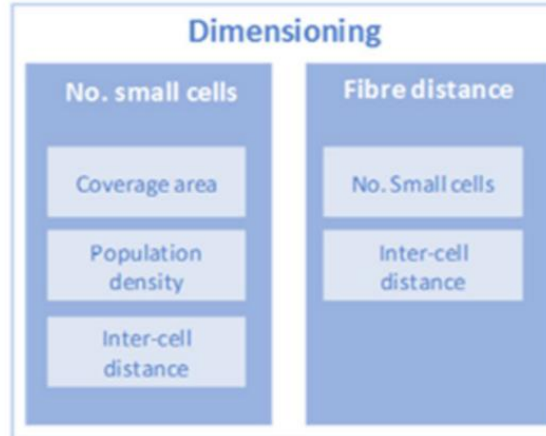


Figure 9: CAPEX for scenario 1 – large dense city

Item	Value
Total CAPEX (USD millions)	55.5
Number of small cell sites	1 027
Cost per square km (USD millions)	3.7
CAPEX per site (USD thousands)	54.1

Figure 10: CAPEX for scenario 2 – small less dense city

Item	Value
Total CAPEX (USD millions)	6.8
Number of small cell sites	116
Cost per square km (USD millions)	2.3
CapEx per site (USD thousands)	58.6



ITU GSR PORT VILA 2019

Global Symposium for Regulators (GSR) 2019

Best Practice Guidelines

fast forward digital connectivity for all



Looking back over nearly 20 years of GSR, the role of the ICT regulator has never been more important. ICTs are at the heart of efforts to attain the 17 UN Sustainable Development Goals, and accessible, affordable ICT infrastructure is the pre-condition of every nation's ongoing socio-economic development. Based on the contributions of regulators from all regions and adopted by consensus, the new guidelines will lit the way towards achieving inclusive digital connectivity globally.

Mrs Doreen Bogdan-Martin,
Director, Telecommunication Development Bureau (BDT),
International Telecommunication Union



The regulatory landscape of digital markets is fast-moving and extremely complex. There is still much work to be done and regulators across all sectors must rise to the challenge of connecting the other half of world's population. The GSR-19 Best Practice Guidelines we adopted are an invaluable tool that enables regulators to address the challenges ahead and navigate through rapidly evolving technologies, business models and market structures that are affecting economies, society and people around the world.

Mr Brian Winji,
Regulator, Office of the Telecommunication, Radiocommunications
and Broadcasting Regulator (TRBR) of Vanuatu and GSR-19 Chair

Global Symposium for Regulator annual event for and with regulators and Members to network, exchange, learn and collaborate

Thematic Events:

- *Regulatory Associations (RA) Meeting*
- *Private Sector Chief Regulatory Officers Meeting (CRO)*
- *Heads of Regulators Executive Roundtable*

GSR Panels

GSR Best practice Guidelines

ITU Regional Economic Dialogues - REDs and thematic workshops

Events in line with ITU's commitment for universal access to affordable and secure broadband services and Resolution 25 and 37 of WTDC-17, and Bueno Aires Declaration on bridging of the digital divide and increasing cooperation between member states, sector members and associates for an inclusive ICT growth.

Create and manage High Level ICT Policy and Regulation Exchange Platforms



BDT products to support you on regulatory and economic issues...

Tools to support in elaborating, implementing and reviewing transparent, coherent and forward-looking strategies, policy, legal and regulatory frameworks and moving towards evidence-based decision-making, including:

- ✓ **ICTeye**, a unique one-stop shop for telecommunications/ICT regulatory data collection from the annual Telecommunication/ICT Regulatory Survey and Tariff Policies Survey
- ✓ **ICT Regulatory Tracker**, a tool covering 185+ countries for the period 2007-2018, showcasing regulatory progress at national, regional and worldwide level
- ✓ **Global ICT Regulatory Outlook**, a series of publications tracking market and regulatory trends in the ICT sector and their implications across the economy

Data & analysis in focus



ICT Regulatory Tracker 2018

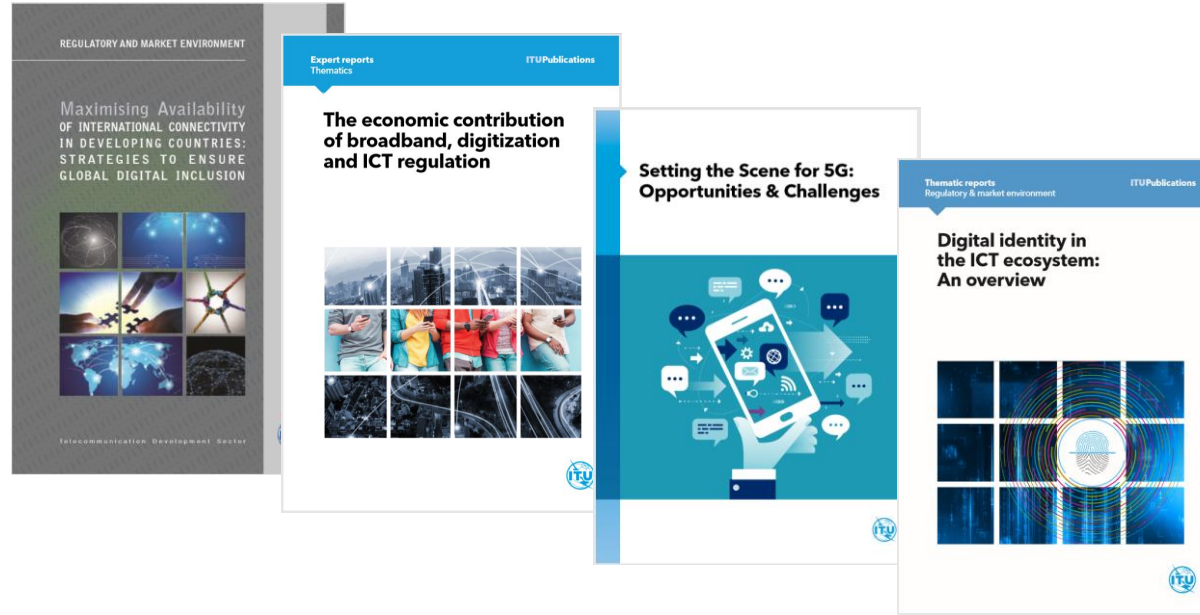
#ITUdata

ICTEYE





Cutting-edge research and publications on best practice regulation to enable digital transformation



Research, Publications & Portals

Thematic Portals on

- Digital Ecosystem
- Infrastructure development and sharing
- International Mobile Roaming Portal
- Quality of Service Regulation

Quality of Service (QoS) Regulation



INTERNATIONAL
LET'S ROAM THE WORLD Initiative
ITU International Mobile Roaming (IMR) Portal



ITU Digital Ecosystem Portal



"To meet the expectations of a rapidly evolving digital ecosystem, policy makers and regulators need to adapt and develop more flexible, innovative and light-handed regulatory frameworks expanding beyond the traditional core telecom sector to take into account the multi-facet and multi-stakeholder dimensions of the digital world."
Mr Brahima Sanou, Director,
ITU Telecommunication Development Bureau (BDT)

ITU Infrastructure Development Portal





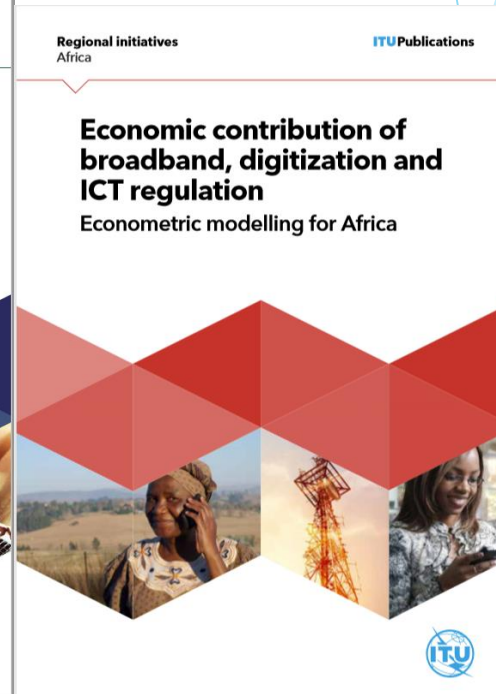
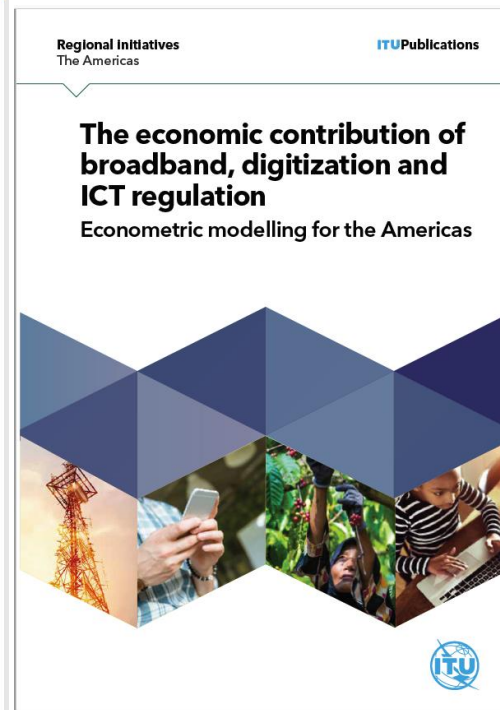
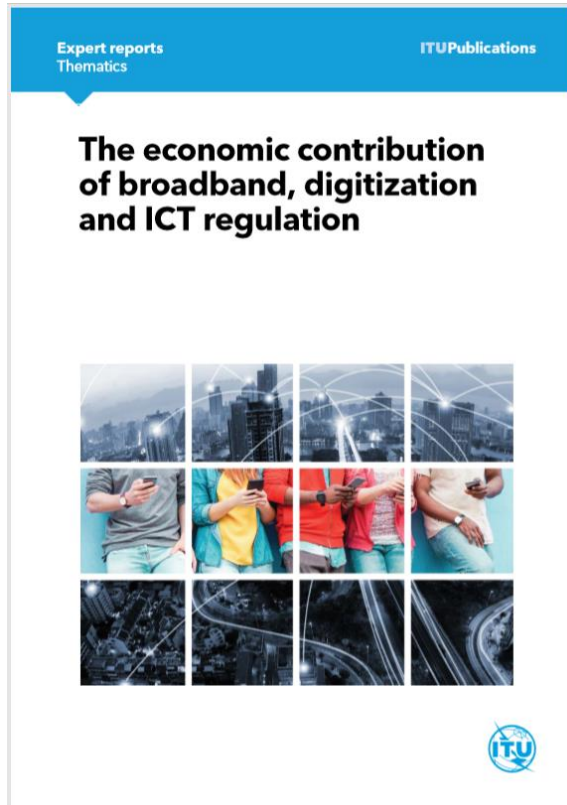
2018 ITU Global Study on the economic contribution of broadband, digitization and ICT regulation

- uses econometric modelling
- provides evidence of broadband and digital transformation's contribution to the economy
- Provides impact of institutional and regulatory variables to the digital ecosystem's development.
- <https://www.itu.int/pub/D-PREF-EF/en>

Economic contribution of broadband, digitalization and ICT regulation

2019 Regional econometric modeling coming soon.

- **Africa and Americas now available.**
- **Europe and CIS will be launched soon.**



The economic contribution of broadband, digitization and ICT regulation

Econometric study on the impact of broadband, digital transformation, and the interplay of ICT regulation on the economy



GSR



▸ **GSR19: Inclusive connectivity: The future of regulation**
Port Vila, Vanuatu, 9-12 July 2019

▸ Previous GSRs, Best Practice Guidelines and documents

Since its launch in 2000, the annual Global Symposium for Regulators (GSR) provides a unique venue for regulators and policy-makers from both developed and developing countries to meet and exchange views and experiences. The meeting fosters an open dialogue between regulators and industry.

ONLINE TOOLS

We have designed and are constantly enhancing a series of resource and collaborative platforms for regulators, policy makers and the broader audience.

- ITU Regional Regulatory Associations Portal
- ICT Regulatory Tracker
- Infrastructure Development portal
- Digital Ecosystem portal
- QoS Regulation portal
- International Mobile Roaming Resources portal
- ICT Regulation Toolkit
- ICTEye Database

PUBLICATIONS & STUDIES

- ITU Thematic Reports Series
- Publications on Economics & Finance
- Trends in Telecommunication Reform Series
- Other publications

We produce a number of flagship reports including Trends in Telecommunication Reform focusing on best practice regulation to enable ubiquitous broadband markets to thrive. Various thematic studies provide valuable viewpoints and strategies on multiple issues that affect regulation and economics in a converged broadband world.

SURVEYS

In order to build an extensive knowledge base, information analysis, and facilitate decision making, we conduct annual surveys on the most pressing issues in the area of ICT policy, regulation and finance.

- ITU Telecommunication/ICT Regulatory Survey
- ITU Tariff Policies Survey
- ICTEye Database

Quick links

About us

- GSRs and Best Practice Guidelines
- ICT Regulatory Tracker
- International Mobile Roaming Resources portal
- Infrastructure Development portal
- Digital Ecosystem portal

HIGHLIGHTS

ICTEYE

Events

Links

▸ ITU Regional Economic Dialogue for Africa RED-AFR2019 and Workshop on Economics, Finance and business models for 5G and new Technologies for Digital Africa

Lomé, Togo
9-13 September 2019

▸ Session on the Economic Impact of OTTs on National Telecommunication/ICT Markets ITU-D Study Group 1 Question 3/1 and Question 4/1
Geneva, Switzerland
1 October 2019

▸ ITU Policy and Economics Colloquium IPEC-19: Regional Economic Dialogue RED-AMS
Santo Domingo, Dominican Republic
28-30 August 2019

▸ ITU Workshop on 5G and New Technologies
Santo Domingo, Dominican Republic
26-27 August 2019

▸ Workshop on "Collaborative approaches for consumer protection in Digital Financial Services (DFS)"
Ezulwini, Eswatini
31 July 2019

▸ ITU Digital Consumer Forum 2019: Powering digital Africa through data protection, consumer privacy, trust and security
Ezulwini, Eswatini
29-30 July 2019

▸ Global Symposium for Regulators - GSR19 Inclusive connectivity: The future of regulation
Port Vila, Vanuatu
9-12 July 2019

▸ Recent Events

Thank you!



WSIS: World Summit on the Information Society 2019-2020 Stocktaking

- Regular reporting on [WSIS Stocktaking](#) is the outcome of the Tunis phase of the Summit, launched to serve as a valuable tool for assisting with the [WSIS follow-up](#).
- WSIS Stocktaking has played a crucial role over many years, and this role takes on even greater significance in the light of the WSIS 2015-2025 process, where besides collecting data on the implementation of WSIS outcomes, it also started to collect data on how ICTs are helping advance the [UN Sustainable Development Goals](#) on the ground, seeking to provide evidence for future strategy and policy making.

WSIS Stocktaking exercise role:

- **to leverage the activities of stakeholders working on the implementation of WSIS outcomes**
- **share knowledge and experience of projects by replicating successful models designed to achieve SDGs of 2030 Agenda for Sustainable Development.**

WSIS Stocktaking process has come to :

- exchanges of information on projects
- sharing of best practices of the regions
- initiatives related to the 11 WSIS action lines implementation
- linkage between the 11 action lines and the SDGs