



Implementation of WSIS Action lines for Eradicating Poverty and Promoting Prosperity in a Changing World



Information and
Knowledge Societies for
Sustainable Development Goals
www.wsis.org



World Summit
on the Information Society
Turning targets into action
Geneva 2003 | Tunis 2005 | New York 2015



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Chapter 1: Introduction



The year 2015 marked a significant milestone for the WSIS process and the global debate on the role of ICTs for sustainable development. UNGA Overall Review on the Implementation of the WSIS Outcomes (Resolution A/70/125) agreed on the continuation of the WSIS process beyond 2015 while identifying fresh priorities for the implementation of WSIS towards 2025. In addition, in 2015 the UN Sustainable Development Summit adopted the 2030 Agenda for Sustainable Development, which acknowledges the important contribution that ICTs can make to delivering on the aspirational, transformational, and universal targets of the post-2015 framework and achieving the 17 Sustainable Development Goals (SDGs). In line with the call of UNGA for a close alignment between WSIS and SDG processes the WSIS Action lines facilitators have been working together to further implement the WSIS-SDGs Matrix that was www.wsis.org/sdg.

The UNGA Resolution A/70/125 that was adopted on 16 December 2015 provides guidance on the implementation of the WSIS Outcomes till 2025. In particular it calls for close alignment between the WSIS process and the 2030 Agenda for Sustainable Development (para.5) and requests all stakeholders to integrate ICTs into their approaches to implementing the Goals, and request UN entities facilitating WSIS Action Lines to review their reporting and work plans to support implementation of the 2030 Agenda, (para.12). ICTs are identified as targets in the SDGs for education, gender equality, infrastructure (universal and affordable access to the internet) and in the implementation goal as a cross cutting tool to be utilized for the

	C1	C2	C3	C4	C5	C6	e-gov	e-bus	e-lea	e-hea	e-emp	e-env	e-agr	e-sci	C8	C9	C10	C11
SDG 1																		
SDG 2																		
SDG 3																		
SDG 4																		
SDG 5																		
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achievement of all of the SDGs. The effective implementation of the WSIS Action Lines can help accelerate the achievement of the SDGs. To that end, the WSIS SDGs Matrix, developed by the UN Action line Facilitators, clearly shows the linkage between each Action line and the 17 SDGs and provides rationale for each www.wsis.org/sdg .

At the WSIS Forum 2015, ITU coordinated the WSIS Action Lines and SDG matrix with the UN Action Line Facilitators. This is a new tool developed by a number of United Nations agencies based on their expertise and mandate to map how ICTs may contribute to the implementation of the new SDGs. The Matrix serves as an easy reference for stakeholders engaged in shaping the future of both, the SDGs and the WSIS processes beyond 2015 and the 2030 Agenda for Sustainable Development.

Since then the WSIS Action Line Facilitators have been working together to further implement the Matrix, in 2016 ITU-WSIS coordinated a publication with the WSIS Action line Facilitators entitled “Advancing Sustainable Development Through Information and Communication Technologies: WSIS Action Lines Enabling SDGs” which was a multistakeholder outcome of the WSIS Action line Facilitators meeting. In 2016 the outcomes of each workshop at the WSIS Forum 2017 were mapped by WSIS Action Lines and SDGs and is available here [WSIS Forum 2016 and SDGs Matrix](#).

For the WSIS Forum 2018, building on the WSIS-SDG Matrix developed by UN WSIS Action Line Facilitators, a mapping tool is available to emphasize the linkages between the Action Lines and the SDGs identified by WSIS Stakeholders in their respective sessions and workshops.

This document is focuses on the contribution of the respective Action Lines on the Theme for the High level Political Forum for this year “Eradicating poverty and promoting prosperity in a changing world”. It further seeks to encourage and promote effective multistakeholder cooperation in implementation of WSIS action lines and the Sustainable Development Goals (SDGs). Each UN agency responsible for facilitating the WSIS Action lines has submitted their input to the report.

Chapter 2: WSIS Action Lines and SDGs Matrix

The WSIS Forum has proven to be an efficient mechanism for multi-stakeholder implementation of WSIS Action Lines and cross-cutting commitments on gender equality, information exchange, knowledge creation, the sharing of best practices and continues to provide assistance in developing multi-stakeholder and public/private partnerships to achieve the sustainable development goals. WSIS Forums are organized each year, hosted by the ITU, co-organized by ITU, UNESCO, UNCTAD and UNDP in close collaboration with all WSIS Action Line Facilitators/Co-Facilitators (UNDESA, FAO, UNEP, WHO, UN Women, WIPO, WFP, ILO, WMO, UN, ITC, UPU, UNODC and UN Regional Commissions).

The WSIS-SDG Matrix developed by UN WSIS Action Line Facilitators serves as the mechanism to map, analyze and coordinate the implementation of WSIS Action Lines, and more specifically, ICTs as enablers and accelerators of the SDGs. This Matrix builds upon the WSIS-SDG Matrix and provides guidance on the outcomes of the workshops and other sessions held during the forum, emphasizing linkages between the WSIS Action Lines and SDGs as well as highlighting rationale for each linkage that has been established. WSIS Stakeholders identified a clear relation and connection between the WSIS Action Lines and SDGs in their respective workshops.

This mapping exercise draws direct linkages of the WSIS Action Lines with the proposed SDGs to continue strengthening the impact of Information and Communication Technologies (ICTs) for sustainable development. Each UN Action Line Facilitator has analyzed the connections and relations of their respective Action Line with the proposed SDGs and their targets. The goal is to create a clear and direct link and an explicit connection between the key aim of the WSIS, that of harnessing the potential of ICTs to promote and realize the development goals, and the post 2015 development agenda, so as to contribute to the realization of the latter. Methodology: UN Action Line facilitators have created a direct link and have derived all possible linkages between the Action Lines and the SDGs. The matrix presented maps the

linkages with a rationale for each¹.

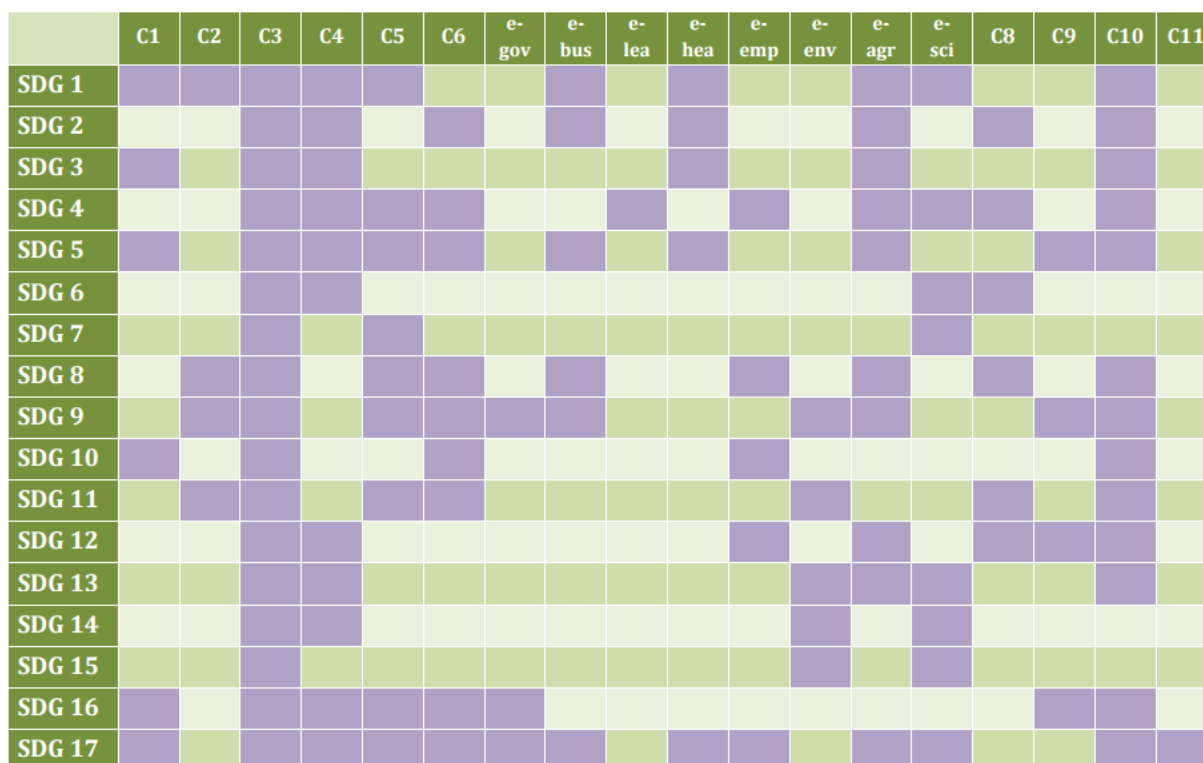




















Figure 1: WSIS Action Lines -SDGs Matrix (at a glance)

Table 1: WSIS Action Lines and SDGs Matrix²

	WSIS Action Lines	SDGs
	C1: The role of governments and all stakeholders in the promotion of ICTs for development	Goal 1, 3.8, 3.d, Goal 5, 10.c, 16.5, 16.6, 16.10, 17.18
	C2: Information and communication infrastructure: an essential foundation for the Information Society	1.4, 8.2, 9.1, 9.a, 9.c, 11.5, 11.b
	C3: Access to information knowledge	Goal 1, Goal 2, Goal 3, Goal 4, Goal 5, Goal 6, Goal 7, Goal 8, Goal 9, Goal 10, Goal 11, Goal 12, Goal 13, Goal 14, Goal 15, Goal 16, Goal 17
	C4: Capacity building	1.b, 2., 3.7, 3.b, 3.d, 4.4, 4.7, 5.5, 5.b, 6.a, 12.7, 12.8, 12.a, 12.b, 13.2, 13.3, 13.b, 14.a, 16.a, 17.9, 17.18
	C5: Building confidence and security in the use of ICTs	1.4, 4.1, 4.3, 4.5, 5.b, 7.1, 7.a, 7.b, 8.1, 9.1, 9.c, 11.3, 11.b, 16.2, 17.8
	C6: Enabling environment	2.a, 4.4, 5.b, 8.2, 8.3, 9.1, 9.c, 10.3, 11.3, 11.b, 16.3, 16.6, 16.7, 16.10, 16.b, 17.6, 17.14, 17.16

¹ Please read the complete document at www.wsis.org/sdg

² https://www.itu.int/net4/wsis/sdg/Content/Documents/wsis-sdg_matrix_document.pdf

 ACTION LINE C7 E-GOVERNMENT	C7 ICT Applications: i. e-government	9.c, 16.6, 16.7, 16.10, 17.8
 ACTION LINE C7 E-BUSINESS	C7 ICT Applications: ii. e-business	1.4, 2.3,5.b, 8.3, 8.9, 8.10, 9.3, 17.11
 ACTION LINE C7 E-LEARNING	C7 ICT Applications: iii. e-learning	Goal 4
 ACTION LINE C7 E-HEALTH	C7 ICT Applications: iv. e-health	1.3, 1.4, 1.5, 2.1,2.2, Goal 3, 3.3, 3.8, 5.6, 5.b, 17.8, 17.19
 ACTION LINE C7 E-EMPLOYMENT	C7 ICT Applications: v. e-employment	4.5, 8.5, 10.2, 12.6, 17.9
 ACTION LINE C7 E-ENVIRONMENT	C7 ICT Applications: vi. e-environment	9.4, 11.6, 11.b, 13.1, 13.3, 13.b, Goal 14, Goal 15
 ACTION LINE C7 E-AGRICULTURE	C7 ICT Applications: vii. e-agriculture	1.5, 2.3,2.4,2.a, 3.d, Goal 4, 5.5, 8.2, 9.1, 9.c, 12.8, 13.1, 13.3, 17.16, 17.17
 ACTION LINE C7 E-SCIENCE	C7 ICT Applications: viii. e-science	1.5, 4.7, 6.1, 6.a, 7.a, 13.1, 13.2, 13.3, 14.a, 15.9, 17.6, 17.7
 ACTION LINE C8	C8: Cultural diversity and identity, linguistic diversity and local content	2., 4.7, 6.b, 8.3, 8.9, 11.4, 12.b
 ACTION LINE C9	C9: Media	5.b, 9.c, 12.8, 16.10
 ACTION LINE C10	C10: Ethical dimensions of the Information Society	1.5, 2.3,3.8, 4.7, 5.1, 8.36, 9.1, 10.2, 10.3, 11.3, 12.8, 13.3, 16.7, 16.10, 17.6, 17.7, 17.8, 17.18, 17.19
 ACTION LINE C11	C11: International and regional cooperation	17.9, 17.16, 17.17

Chapter 3: WSIS Action Lines contributing towards Eradicating poverty and promoting prosperity in a changing world



1. Action Line C1. The role of public governance authorities and all stakeholders in the promotion of ICTs for development - UNDESA

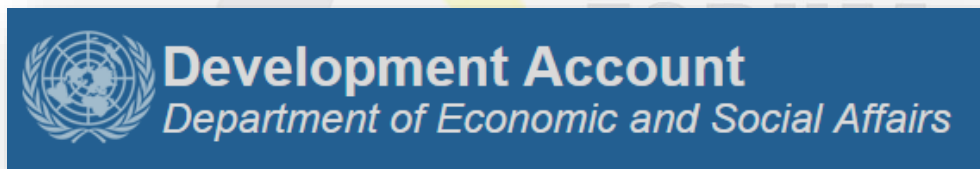
a. Summary

Information Communication Technologies (ICTs) have been playing a crucial role in promoting and advancing Sustainable Development Goals (SDGs). In December 2015, the General Assembly adopted the outcomes of the World Summit on the Information Society (WSIS+10), as ICTs becomes fundamental tools to accelerate 17 SDGs across the fields. The 2030 Agenda for Sustainable Development also recognized that the spread of ICTs and global interconnectedness has “great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies”.

Mobilizing the full potential of ICT for realizing the Sustainable Development Goals (SDGs) is a major challenge. There have been major advances in access to ICT. There are already ongoing break-through innovations that can be used in eradicating poverty and promoting prosperity in a changing world. However, as widely documented in different platforms, various digital divides still persist. Bridging this digital divide and leaving no one behind will only be possible with the engagement of all stakeholders. There are critical immediate measures for governments to take such as provision of a robust enabling environment for ICTs to flourish can accelerate the implementation of the SDGs. Capacity-building, particularly for vulnerable groups, is equally important as is demand-driven policy advice and technical assistance. Public authorities are also expected to provide such support during the implementation of the SDGs.

There also responsibilities of private sector ensuring that the benefits of ICTs reach the poorest and most vulnerable countries and people. It requires imagination to make the link between sustainable business and sustainable development. Each CEO should imagine the world of 2030 with and without progress on the goals and consider what the differences would be for their respective companies. The role of the private sector to mobilizing ICT for realizing the SDGs can take various forms. The 2030 Agenda called on all businesses to “apply their creativity and innovation to solving sustainable development challenges”. The UN General Assembly, when it reviewed the implementation of the WSIS after ten years, recognized the critical importance of private sector investment in ICT infrastructure, content and services. The WSIS also asked for building on and accelerating public-private partnerships, focusing on the use of ICTs in development. And the original WSIS mandate emphasized the effective participation of all stakeholders in development of e-strategies including through public/private partnerships, in devising e-strategies for the Information Society and for the exchange of best practices.

b. Case Study: UNDESA Development Account Project on Evidence-based E-government Policies



Despite the widespread recognition of e-government as both an enabler and multiplier of sustainable development, the least developed countries (LDCs) have not been able reap sufficient sustainable benefits through e-government. In this context, UN DESA is currently implementing a Development Account Project (10th Tranche, 1617B) to help LDCs in developing evidence-based e-government policies for advancing governmental service delivery and accountability in support of the SDGs. In collaboration with UNDP Bangladesh and a2i, Office of the Prime Minister of Bangladesh, six goals (Goals 1, 4, 8, 14, 16, 17) and selected targets have been identified. To support the implementation of these targets, specific e-government strategies and applications will be implemented through first identifying data

gaps, setting baselines and relevant indicators. Another two LDCs will also participate in the project following the same approach. Please visit below link for more information about the project: http://www.un.org/esa/devaccount/projects/proposed_projects.html





2. Action Line C2. Information and communication infrastructure - ITU

a. Summary

ICT/telecommunication infrastructure has been played a key role in social and economic development and indirectly contributed to eradicating poverty and promoting prosperity in a changing world.

In this aspect, ITU, the facilitator of the WSIS Action Line C2: Information and Communications Infrastructure and the leading International Organization in the field of ICT/telecommunications, has been working for broadband infrastructure in rural and remote areas from country to country, contributing towards Eradicating poverty and promoting prosperity in a changing world.

Considering the importance of ICT/telecommunication infrastructure, the WSIS Action Line C2 Facilitators Meeting will focus on the “Implementation of Information and Communication Infrastructure Goals, covering technical, economic and policy aspects”, identified by the WSIS-SDG Matrix. The Meeting will discuss on latest and affordable technologies, innovative ways for promoting ICT development and expected challenges that must be overcome in order to accomplish SDGs. The meeting will invite high-level officials and active participants from the industry, international organizations, administrations, and others to share their views as Panelists.

b. Case Studies from the Action Line C2 Facilitator’s Meeting

This section presents one selected case study, ITU-McCaw Foundation Broadband Wireless Network Project for Africa.

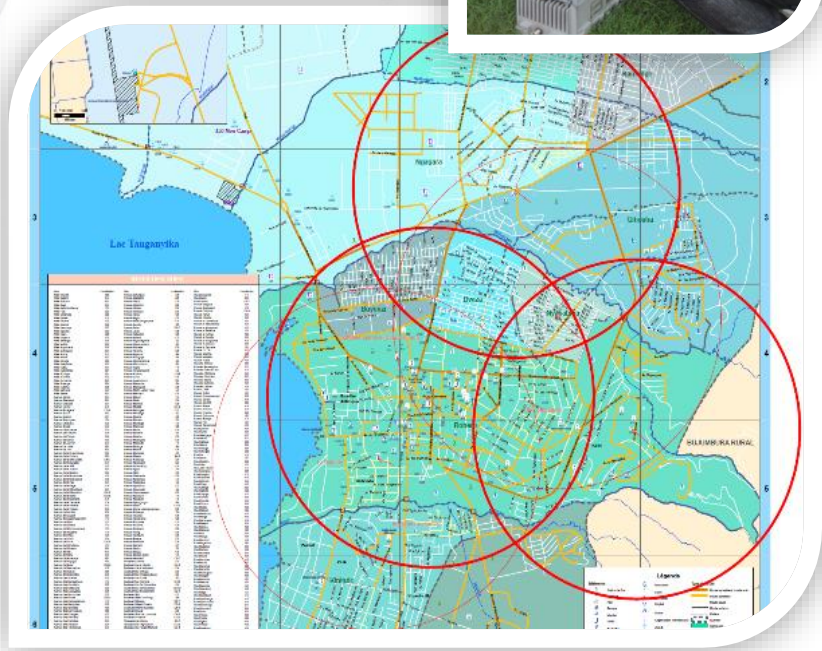
As a follow-up to the Connect Africa Summit, ITU is implementing broadband wireless networks and developing ICT applications to provide free or low cost digital access for schools and hospitals, and for underserved populations in rural and remote areas.

- **Djibouti Case:** The implementation of Wireless Broadband networks in Djibouti has contributed to the improvement and efficiency of the healthcare system. Under this platform

and based on analyses of the issues involved, a plan of action for electronic health (E-health) has been developed.



- **Burundi Case:** ITU implemented to deploy wireless broadband connectivity and develop ICT applications to provide free or low cost digital access for schools and hospitals, and for underserved populations in rural and remote areas. Within Burundi, ITU deployed up to 10 sites (Provinces of Bujumbura, Bururi, Cankuzo, Gitega, Kirundo, Muramvya, Muyinga, Mwaro, Ngozi, Kayanza and Ruyigi). For the equipment installation, local engineers were trained for radio frequency and network installation experts.





3. Action Line C3. Access to information and Knowledge - UNESCO

a. Background and context:

The ability for all people(s), without discrimination or exclusion, to access and contribute information, ideas, knowledge is essential for creating an inclusive society that will “leave no one behind”, creates a level playing field, dissolves inequalities and divides between the “haves” and the “have not's”, the “can” and the “cannot's”.

UNESCO’s vision of knowledge societies is built upon its mission *“to contribute to the building of peace, the eradication of poverty, sustainable development and intercultural dialogue through education, the sciences, culture, communication and information”*.

Knowledge societies are “about capabilities to access, identify, produce, process, transform, disseminate and use information to build and apply knowledge for human development”³. This debate initially focused on the thin balance among “knowledge economy” as driver for economic growth, to pursue of effective cultural and social goals, which impacts people's lives, creates new opportunities and gateways to local development and self-resilience.

Research on the economics of technological innovation increasingly reflect the complexity of socio-economic and cultural change and reinforce the evidence that markets and technological innovation cannot alone bootstrap people out of poverty or onto a sustainable development path, without creating inclusive societies and ensuring the free flow of knowledge and information across all segments of the populations, especially the poor, marginalized and excluded populations.

UNESCO contributes to the sharing and strengthening of local and global knowledge for development, and works to remove barriers to equitable access to information and knowledge for economic, social, political, health, cultural, education and scientific activities, by including universal inclusive design and the use of assistive technologies for the disabled and other

³ UNESCO (2003c; 2005: 22) “Towards Knowledge Societies”.

marginalized groups.

In light of the widespread of ICT innovations, from smartphones to the Internet of Things (IoT), it is ever more important to understand the usability and accessibility of these technologies. UNESCO's renewed vision for knowledge societies stressed that "information and knowledge are not the same because knowledge requires interpretation by human beings. What matters is participation in change, enabling people's choices, universal values, preferences and voices that can be expressed, heard and taken into account"⁴ into sound poverty alleviation policy design.

UNESCO strives to an inclusive ICT that is integrated into development, as vehicles to bring knowledge, empowerment and opportunities to people. Thus, in order to make a change, especially in the lives of the poor in developing countries, investments have been directed to improve the digital and information literacy, encompassing "the competencies, skills and attitudes that enable persons to seek, evaluate, use and create information, thereby empowering them to effectively participate in the knowledge societies"⁵. Acquiring such skills is as a "pre-condition for using digital services"⁶ to ensure access to information and knowledge is relevant to the upliftment of people(s) and communities from poverty.

The UNESCO Netexplo Forum (UNESCO 2017, Paris) highlighted a myriad of tools and technologies for an inclusive and sustainable development. One of the highlights of this year's event was a project called India-Stack, an unified infrastructure through which the Indian governmental bodies, as well as private entities can use India's database of digital identities to deploy new innovative services and track progress of public service delivery. India has had an increasing internet penetration from 10% (2010) to 36% (2015), the Indian Government sustained inclusive policy measures that, in addition to infrastructure investment, could enable citizens to take full advantage of online services. For example, the Aadhaar platform was launched in early 2009 in an attempt to provide all citizens with a reliable identity document. As of May 2017, nearly 90% of the population of India has been attributed a unique

⁴ UNESCO (2013, 11) "Renewing the knowledge societies vision for peace and sustainable development"

⁵ UNESCO IFAP (2016, 25th Bureau meeting , 8)

⁶ UNESCO (2013, 19)

digital identity number. While India Stack can potentially provide access to information and services to all Indian citizens, it also raised a number of concerns in terms of digital security and privacy, in a discussion on which many citizens lack the necessary skills and competences to understand.

b. Case Study:

Among the efforts of UNESCO in this context, is the YouthMobile initiative, which aims to include young people, and particularly young girls in developing countries, in getting the skills and confidence to participate fully in the digital revolution. YouthMobile, which has been deployed in 25 countries worldwide, builds on the experience of many worldwide initiatives that introduce young people to computer science programming (learning-to-code) and problem solving (coding-to-learn).



This is where UNESCO's facilitation of projects, research and networks play a key role, demonstrating that "digital technologies and information access can enable empowerment and conflict resolution, but only if the role of ICTs is understood within the wider social, political, cultural and economic contexts in which people live their lives"⁷.

However, it is important to underline the great challenges in developing countries, where up to 43% fewer women have access to internet than men, and that, globally, the Internet user gender gap is decreasing, as increasing women and girls access information and knowledge online, from 11% in 2013 to 12% in 2016, and up to 23% in Africa. In such a context, smartphone ownership and locally relevant applications can be a key to women's empowerment, shattering women isolation and unleashing their potential. Enabling more women to embrace digital career and create mobile applications themselves, can give them an even bigger push: it is about enriching their skill-sets, creating new job opportunities and giving women an empowerment platform in both the emerging digital economy and the traditional informal economy in Africa that is largely occupied by women.

Finally, digital ecosystems prove more than ever that a multi-stakeholder approach is essential to ensuring youth, and particularly young women are empowered to make the most of the opportunities ICTs provide.

⁷ UNESCO (2013, 48)



4. Action Line C4. Capacity Building - ITU

a. Summary

Capacity building within the ICT ecosystem is about creating the awareness and developing the knowledge and the skills to use ICTs. As ICT infrastructure, services and devices are becoming commonly available, developing the knowledge and skills to use those ICTs is the most important requirement for guaranteeing digital inclusion for all. In this respect, strengthening capacities in the field of ICT is a source of empowerment to people and communities.

Education and capacity development are complementary endeavors, and education can be considered as the basis for capacity development. Education has been referred to as the passport to human development. The role of education in improving livelihoods has been observed in areas such as in the link between women's education and health of children, family nutrition, and welfare. Despite this knowledge and efforts to provide education to all, there are constraints on delivering education to those who need it at the right time and desired quality. Constraints such as lack of qualified teachers, limited financial resources and scarcity of training materials, have encouraged the use of ICTs in education. Therefore education through the use of ICTs can be used to help individuals escape poverty through developing skills they need to improve livelihoods.

In light of the above, it is important to ensure that individuals have the necessary skills to use ICTs. ICTs are used today to improve livelihoods in many different ways such as the use of mobile technology in the health sector to send health check reminders to patients; in the agriculture sector where ICTs are used for farmer's education, dissemination of required information such as climatic conditions and changes in the market. The use of ICTs can improve individual and family welfare, which contributes to poverty eradication. It is therefore necessary to concentrate efforts in developing capacity for the use of ICTs. When ICTs skills are acquired, they can be used to leverage more opportunities for education and development of other skills, creating a circle of skills development that can assist individuals to move out of the poverty trap.

In 2016, WSIS Action line C4 on capacity building introduced a theme focusing on e-

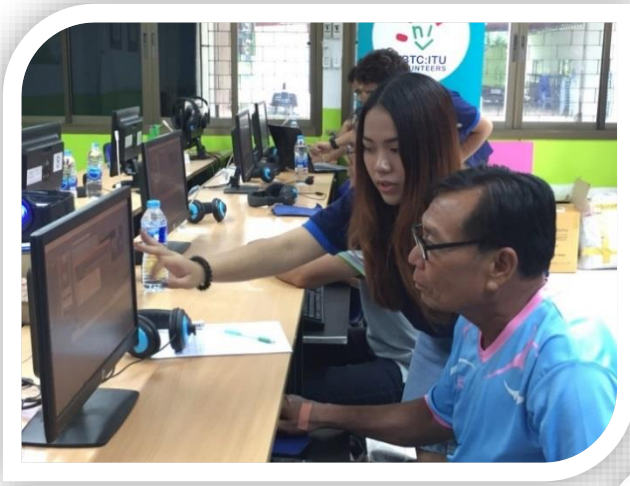
applications and the critical capacity building factors that will enable people to adopt, use and benefit from different applications. The theme will run as a series looking at one specific e-application for each year.

The focus in 2017 is on e-agriculture. This topic is chosen because of the importance of food security in poverty eradication, and the growing use of ICTs in agriculture to improve food security. ITU in collaboration with FAO has carried out capacity development activities to promote the use of ICTs in agriculture. The need to expand these efforts to reach all stakeholders has been expressed by different beneficiaries. This confirms the importance of building capacity to enable individuals to harness ICTs and improve their livelihoods.

Capacity building in ICTs is therefore a necessary condition for poverty eradication and the attainment of the SDGs. The following is an example of ITU's work.

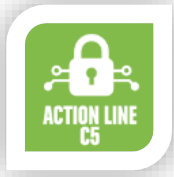
b. Case Study: Capacity Building at Rural Internet Centres in Thailand project

This project is implemented jointly by ITU and the National Broadcasting and Telecommunication Commission (NBTC) in Thailand. The main objective of this project is to strengthen human capacities of officers of NBTC, USONET administrators, students and youth as well as people living in rural/remote communities, in the use of ICTs for community development thereby promoting national social and economic development. This objective is achieved through the selection of a group of volunteers, called NBTC-ITU Volunteers (NIV), training and dispatching them to rural Internet centers called USONETs in various locations in Thailand. At the USONETs, the communities were provided with access to ICTs. The volunteers, who conducted a community needs assessment, trained the communities in basic IT skills, developed video materials for IT training and for promoting the community. As a result of the programme, USONETs have become widely known and people in the local communities have gained confidence in using ICTs.



USONET centre in Bo Kaew showing persons from the community using the facilities with the assistance from the volunteers.





5. Action Line C5. Building confidence and security in the use of ICTs - ITU

a. Summary

As we move towards the implementation of the Sustainable Development Agenda, it becomes obvious that achieving each of the individual Goals and Targets cannot happen in isolation. Linkages between the different SDGs should be drawn to ensure a coherent effort by all relevant actors.

Although eradicating poverty and promoting global prosperity is specifically reflected in SDG1, achieving substantial progress in this direction clearly depends on the implementation of a set of other relevant Goals. Providing quality education (SDG 4), access to energy (SDG 7), decent work and economic growth (SDG 8) and modern infrastructure, including ICTs (SDG 9), to name a few, can enhance the potential of the human capital, foster innovation and entrepreneurship and contribute to the socio-economic transformation of the developing world.

The cross-cutting role of ICTs as a driver of the entire development process is indisputable and has been particularly stressed by the global community forging the way ahead. Trust is however a decisive factor in the process of ICT deployment and adoption within each country. Experience so far has shown that ICTs can bring tremendous benefits, but they can also entail security risks (i.e. data breaches, financial losses etc.). Considerable as these risks may be, they should not be a deterring factor. Countries, who may be at an earlier stage of digital transition, can avail themselves of the experiences and good practices of more advanced countries to establish a robust and secure digital ecosystem that can underpin their economy and boost overall prosperity.

The [WSIS-SDG Matrix](#) elaborates further on areas of the adopted framework, where security in the use of ICTs can play a particularly important role in the overall SDG implementation process.

With ICTs being a global phenomenon, ICT trust and security cannot be addressed through

individual or sporadic efforts. It instead requires close collaboration among countries, private sector, academia, civil society and other international organizations. ITU as the sole facilitator for Action Line C5 adopted its Global Cybersecurity Agenda (GCA) in 2007 as a framework for global cooperation in this area. The GCA takes a holistic approach building on five strategic pillars: Legal Measures, Technical & Procedural Measures, Organizational Structures, Capacity Building and International Cooperation.

The following are some examples from ITU's work towards facilitating cooperation for a secure cyberspace, as a basis for a prosperous global economy:

b. Case Studies:

The following are some examples from ITU's work towards facilitating cooperation for a secure cyberspace, as a basis for a prosperous global economy:

▪ Child Online Protection (COP) Initiative⁸

ITU launched the **Child Online Protection (COP) Initiative** in November 2008 as a multi-stakeholder effort within the Global Cybersecurity Agenda (GCA) framework. The initiative brings together partners from all sectors of the global community to create a safe and empowering online experience for children around the world. In cooperation with diverse stakeholders, ITU has been providing guidance and building capacity in various countries - involving policy makers, parents, educators and children.

▪ ITU-D's National Computer Incident Response Team (CIRT) Programme⁹

ITU's National CIRT Programme is helping countries build their national capacity in responding to cyber-attacks and protecting their national critical infrastructure from cyber-threats. ITU provides assistance to its Member States in four stages:

- a) Assessment of cybersecurity readiness,
- b) Design phase (identifying services, resource requirements etc.),
- c) CIRT establishment phase,
- d) CIRT improvement/enhancement phase.



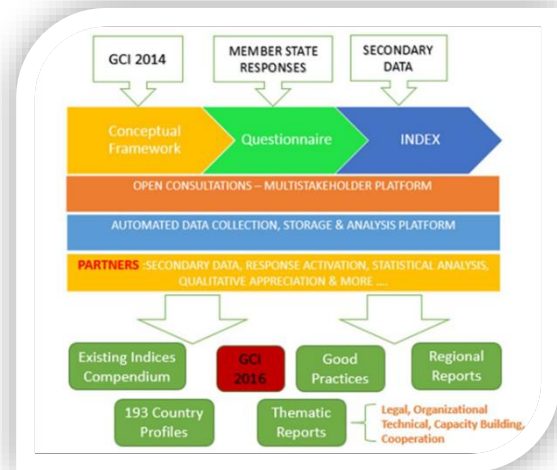
⁸ For more information, please visit: <http://www.itu.int/en/cop>

⁹ For more information, please visit: <http://www.itu.int/en/ITU-D/Cybersecurity/Pages/Organizational-Structures.aspx>

Cyberdrills are also organized as regular regional exercises to improve coordination among the different National CIRTs within the different regions.

▪ **Global Cybersecurity Index (GCI)¹⁰**

The Global Cybersecurity Index (GCI) is a multi-stakeholder initiative to measure the commitment of countries to cybersecurity within five categories: Legal Measures, Technical Measures, Organizational Measures, Capacity Building and Cooperation. A first version was launched in 2014. Work is ongoing on the second version of the GCI.



▪ **National Cybersecurity Strategy (NCS) Initiative¹¹**



The NCS initiative to co-author a functional toolkit to help governments develop and improve their Cybersecurity strategies has seen the consolidation of a partnership of 15 key players. Following three partner workshops within the course of last year, the guide is expected to be available at the end of 2017.

▪ **Cybersecurity Technical Standards¹²**

The ITU Standardization Sector through its Study Group 17 “Security” has produced over 330 Recommendations (Standards) in the area of cybersecurity, anti-spam, identity management, X.509 certificates, information security management, ubiquitous sensors networks, telebiometrics, IPTV security, virtualization security towards cloud computing security, and security architecture and application security, often in cooperation with external SDOs and Consortia.

¹⁰ For more information, please visit: <http://www.itu.int/en/ITU-D/Cybersecurity/Pages/GCI.aspx>

¹¹ For more information, please visit: <http://www.itu.int/en/ITU-D/Cybersecurity/Pages/National-Strategies.aspx>

¹² For more information, please visit: <http://www.itu.int/en/ITU-T/studygroups/2017-2020/17>



6. Action Line C6. Enabling environment - ITU

a. Background and context:

ICT/Telecommunication regulators and policy makers and the wider community recognize that ICTs play an important role in the achievement of the SDGs, and that issues such as affordability and availability as well as in terms of creating incentives for innovation and entrepreneurship must be addressed holistically and comprehensively at policy level. The issues are complex and multi-faceted, but what is clear is that there is an interdependence of targets and goals and that ICTs have an important role to play in helping to achieve such Goals, in particular to eradicate poverty and promote prosperity in a changing world.

In less than a generation, the ICT sector has grown beyond recognition. From a silo network industry with prevalent public service, it has transformed into a constellation of technologies, services, applications and products. Challenges are along the way and regulation is put forward to ensure opportunities outweigh those challenges. Greater complexity and a cross-sectoral view, addressing the interaction of the ICT sector to stimulate growth in the digital economy alongside other sectors has challenged telecommunication/ICT regulators and policy makers to continuously review, adapt and anticipate changes to ensure that their national ICT legal/regulatory framework can address how ICTs can help achieve economic and social development goals.

Telecom/ICT National Regulatory Authorities (NRAs) can easily see themselves caught in the tussle between the old way of doing things and the new ways disrupted markets are calling for. In the search for right touch regulation, regulators have become more explorative, reflective and creative looking at both setbacks and drivers for innovation, investment and market growth. Incentive regulation has complemented and, to some extent, substituted regulatory obligations. New regulatory tools have come out of age to match the new market and competition realities. New, collaborative approaches are being developed to leverage on the expertise and powers of all parties involved in ICT markets and beyond to other

governmental sectors¹³. At present 163 NRAs had been established out of 195 countries in the world, and more than 121 countries have adopted National Broadband Plans¹⁴ to make ICTs to become a strong means for social inclusion and economic development.

Connecting the next billion is a prospect clearly in view. ICTs can be leveraged for e-services making a real difference to people's lives and welcoming millions into the digital economy. ICTs have the potential to empower advances on poverty reduction, and an enabling environment provides the framework and tools to achieve such goal. Resilient infrastructure can be built, innovation achieved and inclusive and sustainable industrialization can be achieved through holistic and targeted ICT policies, regulations, and strategies as well as by promoting building confidence and security in the use of ICTs.

ICTs have made a difference in achieving digital financial inclusion and an enabling environment is key to success. DFS have driven financial inclusion in a growing number of countries, and ICTs have been at the center of such developments. A recent ITU Report on Digital financial services provides an overview of Regulating for Financial Inclusion - An ICT Perspective¹⁵, and illustrates that where banks traditionally did not reach populations, the rapid growth of mobile networks and subscriptions has offered people with the possibility to have access to different financial services. The role of Governments and NRAs is very important to the success of mobile financial services, especially in safeguarding user funds, protecting against fraud, terrorism financing, money laundering, as well as data customer protection and privacy, and disputes and complaints processes. It is also important to consider and guarantee connectivity and interoperability as the base for the provision of these services. Adopting the appropriate regulatory framework and policies related to the digital financial services will encourage Service Providers to reach out to the unserved and underserved areas.

Collaboration among different governmental sectors, such as financial, telecom/ICT, consumer protection, competition authorities is vital to make progress so as to facilitate growth and fair competition in mobile financial services and guarantee access to all and

¹³ ITU Global ICT Regulatory Outlook (https://www.itu.int/pub/D-PREF-BB.REG_OUT01-2017)

¹⁴ ITU ICT Eye (www.itu.int/icteye/)

¹⁵ www.itu.int/pub/D-PREF-BB.REG_OUT02-2016

achieve poverty reduction. The rewards of doing so are a successful mobile financial services sector that can play a valuable role in lifting populations out of poverty and promoting prosperity.

Borrowing practices of the unbanked

People in lower income countries borrow as often or even more than in higher income countries. Life is precarious and emergencies could happen often, and goods /services that are public and taken for granted in higher income countries and necessary to advance (e.g., health and education) are provided privately and require payment. One of the main concerns is who to borrow from – and on what terms and conditions. They borrow markedly more from family and friends, and relatively little from formal financial institutions such as banks, microcredit lenders, and also from informal money lenders at high rates of interest. The lack of access to formal financial institutions for loans results from a combination of high cost to banks, lack of credit histories, costly due diligence compared to the small amounts involved, and time. Where banks do make loans available, large numbers of people do not avail themselves of such finance because of the burdensome process involved and cost of legal fees.

In this context, mobile credit enters the market with an extraordinary potential to transform financial inclusion, bringing people into the formal lending market easily. Distribution costs are low because the customer is already identified, the telecommunication network and many agents are already in place, people have handsets, and the technology allows multiple automatized micro-loans at tiny marginal cost.

The key missing piece is the assessment of the customer's ability to repay. This is doubly difficult where the customer has not borrowed before in the formal sector. Even if credit bureaus were already collecting data, they likely only collected 'negative' data about defaults and not 'positive' data about successful repayments. It is in the face of such lack of data on the customer's creditworthiness that mobile money customer data enters the scene and makes the difference.

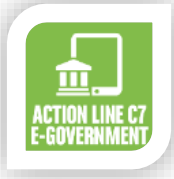
Source: ITU Digital Financial Services Report 2016

Another important contribution from ICTs towards poverty eradication and promoting prosperity is in relation with the development of education and professional perspectives for people in lower income countries. The provision of connectivity and affordable access to voice and data services is enabling access not only to financial services but also e-learning to support education programmes in rural and remote areas. Going forward, it is essential to focus on the necessary skills to be able to access the digital ecosystem for everybody (including women,

young and persons with disabilities) the idea is not only be users of ICT, but create and contribute in the ICT ecosystem. In this sense, it is necessary to improve the digital skills of individuals and communities not only in terms of using a computer or a smartphone to access Internet and exchange information but beyond that, it is necessary for governments to encourage the improvement of skills to permit people to develop content and applications, and in addition to innovate and create new digital business opportunities and employment. This dynamic entrepreneurship will create economic growth based on the development of digital applications, services and content, which will require more investment in infrastructure development which will then increase the GDP of the country¹⁶.

Using telecommunication/ICTS to enhance agriculture around the world offers a great opportunity for economic growth and poverty alleviation. Universal access and service programs as well as Broadband strategies can overlap with e-agriculture strategies since they can be used to provide remote populations with information and communication options, thus bringing services closer to the rural population and helping to reduce poverty.

¹⁶ GSR-2016 – discussions - Session 5: Be Included.



7. Action Line C7. ICT Applications: E-government - UNDESA

a. Summary

Digital technologies and innovations are disrupting the public sector and impacting people's everyday lives. Aware of these technologies, governments around the world are investing more and more on ICTs to deliver public services. According to the 2016 United Nations E-Government Survey¹⁷, there has been a sharp rise in the number of countries that are using e-government to provide public services online through one stop-platforms – an approach that makes it easier to access public services. Some countries like Denmark and the United Kingdom are aiming for 'digital by default', meaning that "digital services are so straightforward and convenient that all those who can use them will choose to do so whilst those who can't are not excluded".

Digital government is an important factor for achieving the SDGs and can generate benefits in the form of eliminating poverty and increasing prosperity. Exploiting ICTs through digital government has far-reaching potential in improving public services that are critical to the poor. ICTs can ensure inclusion and participation to fulfil the motto of leaving no one behind. Increasing access to digital technologies brings more choice and greater convenience for the most vulnerable. Through inclusion, and innovation, poor and disadvantaged are provided by opportunities that were previously out of reach. Governments by exploiting ICTs can provide new services or improve existing ones that are critical to the poor in ending poverty, hunger and achieving food security as well as ensuring healthy lives and empowering women and girls.

Digital government can improve processes and workflows for greater efficacy and effectiveness of public service delivery. It can also help ensure a participatory approach by creating structures for communication and collaboration, strengthening accountability and decision-making among various agencies. According to the 2016 United Nations E-

¹⁷ <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2016>

Government Survey, least developed countries achieved large gains in e-government development during the period 2003-2016. Bangladesh has made the largest gains with a global ranking of 124th in the 2016 Survey, partly due to the fact that the role of e-government is recognized at the highest level of its administration, with the Prime Minister of Bangladesh highlighting its “state of the art” digital technology. Among the e-government services, digital identity offers the potential to leapfrog from analogue ID infrastructures and scale access to, and participation in, the digital economy. Without proof of identification, a citizen’s right to vote, open a bank account or access essential health services may prove prohibitively difficult. Identity registration at birth is also a UN proclaimed human right and a specific target of the 2030 Agenda (Target 16.9 – A/RES/70/1).

b. Case Study: United Nations E-Government Survey

UN DESA conducts the United Nations E-Government Survey every two years. The Survey itself is a systematic assessment of 193 Member States of the UN from various perspectives¹⁸. It provides a policy-relevant analysis on how government utilize technologies and ICTs in their management to achieve sustainable growth. As a powerful tool for Member States to achieve SDGs, the Survey can potentially transform the public sector by increasing effectiveness and transparency. It also serves as a tool for the decision makers in the public sector to identify what can be improved in the future.

World and regional e-government leaders

TOP E-GOVERNMENT PERFORMERS	REGIONAL TOP E-GOVERNMENT PERFORMERS	
United Kingdom	AFRICA	Mauritius
Australia		Tunisia
Republic of Korea	AMERICAS	United States of America
Singapore		Canada
Finland	ASIA	Republic of Korea
Sweden		Singapore
Netherlands	EUROPE	United Kingdom
New Zealand		Finland
Denmark	OCEANIA	Australia
France		New Zealand

18

<http://workspace.unpan.org/sites/Internet/Documents/E%20Gov%20Survey%202016%20Press%20Releaseds%20FINAL.docx.pdf>

In the 2016 edition, the Survey featured the global and regional trends in e-government. The United Kingdom, followed by Australia and the Republic of Korea, lead the world in providing government services and information through the Internet. The Survey provided new evidence that e-government has the potential to help support the implementation of the 2030 Agenda and its 17 sustainable development goals (SDGs). At the regional level, the Survey found that Europe continued to lead on e-government, followed by the Americas, Asia, Oceania and Africa.

For more information about the Survey, please visit the United Nations E-Government Knowledge Database: <https://publicadministration.un.org/egovkb#.WSMEBIUrKUK>





8. Action Line C7. ICT Applications: E-Business - UNCTAD

a. Summary

E-business and e-commerce can help eradicate poverty and promote prosperity by supporting the Sustainable Development Goal 8 for "sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" and Goal 17 in its target to increase significantly the exports of developing countries. In addition, actions on e-business support Goal 1 in its target to ensure inclusive access to appropriate new technology and financial services, Goal 2 in its target to double the agricultural productivity and the incomes of small-scale food producers, Goal 5 in its target to enhance the use of enabling ICT to promote women's empowerment, as well as Goal 9 in its target to increase the integration of small-scale industrial and other enterprises into value chains and markets.

Within e-business, e-commerce in particular represents a significant opportunity. The estimated worth of the global e-commerce market in 2015 was \$25.3 trillion, and there were an estimated 850 million online shoppers in the world's top 10 e-commerce markets. With 3.5 billion Internet users across the world in 2016, the potential market is set to rapidly continue its growth.

E-commerce can be a driver of economic growth, inclusive trade and job-creation; including in low-income countries. It can help bring micro, small and medium-size enterprises (MSMEs) from the informal to the formal sector and from domestic to international markets. E-commerce can allow entrepreneurs and small business to produce and trade goods and services, source inputs, reach customers and clients in local and international markets, and connect to global and regional value chains.

However, the digital divide remains and risks becoming larger between developed and developing countries in terms of their access to the ICT that enable e-business and e-commerce, in particular broadband internet and mobile network platforms. Internet access is still difficult and not affordable for most people in least developed countries. To leverage the

potential that e-commerce has to offer, individuals and MSMEs must have access to affordable and inclusive powerful devices and networks, as well as to improved ICT and transport connectivity, better legal and regulatory frameworks and new platforms and payment solutions.

The launch of the eTrade for All initiative in 2016 brings together many international organizations, including the co-facilitators of the C7 e-business action line, regional development banks, national agencies, and the private sector to facilitate technical assistance to developing countries on e-commerce, in effect "connecting the dots" between beneficiary countries, partners and donors. Effective promotion of e-commerce requires cross-sectoral and cross-institutional approaches, making collaboration essential. The eTrade for All initiative aims at addressing existing knowledge gaps, including increasing the availability of reliable and comparable data and statistics on e-commerce, and maximizing synergies with partners.

The eTrade for All initiative focuses on seven policy areas, the first of which is strategy formulation and assessing of e-commerce readiness. An e-commerce readiness assessment is an essential step for developing countries to identify opportunities and bottlenecks. Such an assessment is particularly suited to least developed countries, such as in the recent cases of Bhutan and Cambodia¹⁹.

b. Case Study: Cambodia

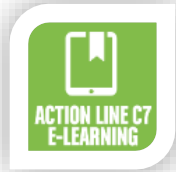
In the case of Cambodia, the e-Trade Readiness assessment noted that most e-commerce transactions are for imports or domestic trade, consumers still prefer traditional markets or retail stores and the financial markets still rely on cash. However, rapid improvements in internet accessibility and affordability, the adoption of an e-Commerce Law, the development of mobile money platforms and the update of ICT-related curricula are already being implemented. Cambodia has an emerging IT-hungry urban middle class and a majority of citizens below the age of 25. The majority of Cambodians go online via their mobile device, with 20.5 million mobile subscribers, and 90% of the online population using Facebook. The number of citizens with regular Internet access is expected to reach 9.5 million by 2020 (60 %

¹⁹ <http://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=1470>

of the population). There is a real opportunity for small entrepreneurs to sell products online mainly through Facebook or Instagram platforms, including by building on existing online exports of handicrafts and services. The eTrade readiness assessment also identifies key barriers to developing e-commerce and makes recommendations.

The eTrade readiness assessments and other solutions offered by partners in this and other policy areas, are available through the eTrade for All platform²⁰. The platform is at the heart of the initiative, as an information hub about e-commerce development and a forum for exchange between different stakeholders. Through the platform, potential partners can connect, learn about trends, development solutions, and best practices, access up-to-date e-commerce data and be informed about upcoming e-commerce related events. The platform brings together developing countries officials, donors, and Partners. The seven policy areas are: E-commerce assessments, ICT infrastructure and services, payments, trade logistics, legal and regulatory frameworks, skills development, and financing for e-commerce.

²⁰ <http://etradeforall.org>



9. Action Line C7. ICT Applications: E-LEARNING, OPEN-EDUCATIONAL RESOURCES (OER) - UNESCO

a. Background and context:

Each person should have the opportunity to acquire the necessary skills and knowledge in order to understand, participate actively in, and benefit fully from, the Information Society and the Knowledge society, to increase opportunities for increase self-reliance, access opportunities for job creation, training and entrepreneurship. Over the last 15 years since its inception, OER has proven to be an effective tool for transforming education and supporting knowledge creation and accessibility and diffusion.

Today, with the commitment of the International Community to achieve the 2030 Sustainable Development Goals (SDGs), and notably SDG 4 'Education' which calls for "*ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all*", it is even more urgent that the full potential of OER be harnessed, to build a people-centered, inclusive information and knowledge society for people(s) to achieve their full potential and to attain the SDGs with particular focus on creating new and innovative opportunities to eradicate poverty, the lack of access of knowledge and opportunities, and promoting prosperity in an ever changing world.

ICT are dramatically increasing the transfer of information and knowledge through local and global communication systems. This leads to an explosion in the generation and collective sharing of knowledge and opens up new opportunities to create and share a wider array of educational resources, thereby accommodating a greater diversity of student needs. Increased online access to OER has further promoted individualised study, which, coupled with social networking and collaborative learning, which drives new opportunities for pedagogical innovation, self-learning and self-resilience, especially for people(s) excluded from economic society.

The growing demand for education and the ongoing rollout of ICT infrastructure have created unique challenges for education institutions in an era of tight resources. It has become

increasingly important for educational institutions to support, in a planned and systematic manner:

- Development and improvement of curricula and learning materials;
- Ongoing programme and course design;
- Organization of interactive contact sessions with and among students;
- Development of quality teaching and learning materials;
- Design of effective assessment tools for diverse environments; and
- Links with the world of work.

OER can make a significant contribution to these processes. However, OER do not automatically lead to quality, efficiency and cost-effectiveness; much depends on the procedures put in place. The transformative educational potential of OER depends on:

- Improving the quality of learning materials through peer review processes;
- Reaping the benefits of contextualisation, personalisation and localisation;
- Emphasising openness and quality improvement;
- Building capacity for the creation and use of OER as part of the professional development of academic staff;
- Serving the needs of particular student populations such as those with special needs;
- Optimising the deployment of institutional staff and budgets
- Serving students in local languages;
- Involving students in the selection and adaptation of OER in order to engage them more actively in the learning process; and
- Using locally developed materials with due acknowledgement.

The transformative potential of OER also includes the benefits of sharing and collaborating among education professionals, institutions and countries, and the creatively disruptive role of OER in opening up new educational models.

b. OER IN THE EDUCATION 2030 AGENDA

OER has a central role to play in Education 2030 in the framework of SDG 4 which calls for the international community to '*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*' with its key pillars of access, equity and inclusion²¹

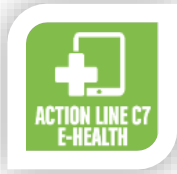
²¹ See <http://www.un.org/sustainabledevelopment/education/>

It is recognized in this document that governments have a key fundamental responsibility for successfully implementing this Agenda. The Education 2030 Agenda reaffirms a political commitment to establish legal and policy frameworks that promote inter alia, coordinated partnerships at all levels and across sectors and to uphold the right to participation of all stakeholders. It entrusts UNESCO, to lead and coordinate the 2030 Education Agenda by undertaking advocacy to sustain political commitment, facilitating policy dialogue, knowledge sharing and standard setting. In this regard, as stated in the Qingdao Declaration 2015²², during the international Conference on ICT and Post 2015 : OER provide education stakeholders with opportunities to improve the quality and expand access to textbooks and other forms of learning content to catalyse the innovative use of content, and to foster knowledge creation. This Declaration also calls for sector-wide strategies and capacity building programmes to fully realize the potential of OER to expand access to lifelong learning opportunities and achieve quality education.



- E-environment – **WMO/ ITU**
- E-environment – **WMO/ ITU**

²² See <http://www.unesco.org/new/en/education/resources/in-focus-articles/qingdao-declaration>



10. Action Line C7. ICT Applications: E-health – WHO

a. Background and context

In the past decade, the public health sector has witnessed a tremendous increase in the use of **digital health**, the application of information and communication technologies (ICT) to health service delivery through data, images, and other forms of digital information. Through online web-based services, mobile devices, or more conventional software applications, digital health information systems can be found throughout a country's health infrastructure.

These systems help manage and improve the quality of care at a broad range of facilities, from community clinics to long-term care centers. Digital health systems also assist with essential public health functions, gathering surveillance data during disease outbreaks, serving as repositories for vital statistics and population health data, and tracking service delivery data to help with resource and health commodity planning. Digital health also helps health workers follow the best practice guidelines and algorithms established for delivering high quality care.

In addition, mobile computing technologies, such as cell phones, tablets, and medical/fitness devices, have spawned the rapid growth of specific-purpose, mobile software applications (“apps”) that provide or track health information. These “apps” send health education messages and reminders for appointments and medication to patients, enable clinicians to engage in telemedicine, and allow users to monitor health indicators such as blood pressure and exercise data. In doing so, digital health is moving the point-of-care out of the doctor's office and to the patients themselves.

Accompanying the adoption of these digital health information systems is a tremendous volume of digitized information. In principle, such data can be searched, analyzed, and made available to support informed decision making at all levels. Unfortunately, the design of many existing systems hamper easy access to these data, resulting in islands of isolated information that have yet to generate efficiency and improve health outcomes as hoped.

To address those issues, significant efforts need to be deployed today at country level to allow

one digital health application to work with other applications, helping these applications share health information and data about patients or clients, health workers, health systems, and even health commodities such as medical devices and pharmaceuticals. So, instead of patient data being available only at the clinic admitting desk, other clinic departments can access these data, such as the clinician or the laboratory. Moreover, relevant patient or health commodity information can be shared with health system entities outside the clinic and throughout the organization, such as regulators, pharmacies, suppliers, referral clinics, and health ministries.

b. Case studies:

- **Joint ITU-WHO initiative on mHealth for Non-communicable Diseases (NCD): “Be Healthy, Be Mobile”**

The joint ITU-WHO mHealth programme for mHealth for Non-communicable Diseases “**Be He@lthy, Be Mobile**” successfully continues its goal to engage in mHealth work in its eight partner countries. Highlights from a couple of countries are set out below.

Requests for technical support were also received from tens of other countries. The level of interest has clearly highlighted a global demand for mHealth services, meaning a large part of future work will focus on how to expand country-level support.

- **mTobaccoCessation in India**

Through the initiative, India saw the launch of not one but two national-scale mHealth services: mTobaccoCessation and mDiabetes.

The first, mTobaccoCessation, was officially launched on December 25 2015, but came into full force in January 2016. The service is based on the global mTobaccoCessation handbook, adapted for use in India by national experts and the Ministry of Health. It has added a number of country-specific innovations to suit India’s needs. Content has been developed to help people quit smokeless tobacco (given the high prevalence of chewing tobacco in the country) and is offered in both English and Hindi. There is also a unique feature in registration whereby users can use a missed call to sign up for the service, as an alternative to sending an SMS.

Within the first week 160,000 people registered to use the service, and as of June 2017 more than 2 million people have registered. In the past 5 years national tobacco cessation clinics have managed to service around 35,000 individuals – in 8 months mobile technology has multiplied this number by almost 57 times.²³ Clinical trials indicate that SMS cessation services can be 2-3 times more effective than traditional cessation services alone, meaning the impact on reducing tobacco use could be huge.

The service uses the Government’s existing digital platform for SMS delivery, known as mSeva. This has helped to ensure the service is government-owned and directed from the outset. This makes the service more sustainable and simplifies the process by which the government can add new mHealth components to respond to national health priorities.

India demonstrated how this could be achieved when it launched its next mHealth service, this time for diabetes, in July 2016. As of December it has already seen over 26,000 people register to learn about diabetes risk factors via SMS.

Initial evaluation of the programme is ongoing, and in October 2016 global experts met with the Ministry of Health in India to discuss the programme’s monitoring and evaluation strategy. Preliminary results of the service are expected to be published by the Government in the first half of 2017.

- **mDiabetes in Senegal**

Senegal has continued to lead the way in mDiabetes. The 2017 version of its mRamadan campaign, an SMS-based information service for people with diabetes during Ramadan fasting, saw the largest use numbers to date, with roughly more than 100,000 individual users signing up for the service. A formal evaluation of the health outcomes of the service is being organized and findings are expected in 2017.

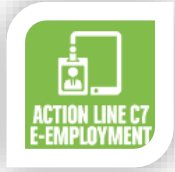
The intention is for these additional services to reinforce the usefulness of the SMS service for specific groups (children pregnant women, patients with foot problems), as well as other

²³ Murthy P, Saddichha S. “Tobacco cessation services in India: recent developments and the need for expansion.” Indian J Cancer. 2010;47(Suppl):69–74.

disease areas or risk factors which may affect diabetes, such as diet or exercise.

In the meantime, Senegal has been a strong champion of country-country collaboration. The SMS content and experiences of managing a national programme have been shared directly with both Tunisia and Egypt to inform the design of their own mDiabetes services, with Egypt following their lead to create their own mRamadan campaign. It is a strong model for horizontal collaboration, which positions the country as an mHealth champion in the region.





11. Action Line C7. ICT Applications: E-employment - ILO

a. Summary

The digital economy is changing the employment landscape across industries including financial services, health, ICT, entertainment and transportation²⁴. A growing number of countries now seek to foster the building blocks of the digital economy, which includes increasing the number of citizens possessing digital skills. This includes Argentina, the Dominican Republic, Indonesia, Kenya, Nigeria, Rwanda as well as the European Union, the G20²⁵ and OECD Member States. These countries recognize that digital skills, especially high-level skills “enable innovation in a digital economy to flourish... [and] support the infrastructure that firms, governments, commerce and users rely on.”²⁶

Moreover, the digital economy is creating job opportunities and salary advances for those with digital skills. Indeed, estimates show there will be at least 10 million unfilled jobs globally for people with advanced digital skills between now and 2030. That’s because currently not enough young people are being trained with advanced digital skills, leaving employers unable to find enough staff. Digital skills are also linked to higher pay. On average, workers in OECD countries who perform mid- to more advanced ICT skills earn 27 per cent more than workers with no or only basic ICT skills. In Ghana, digital jobs can have wages up to 5.5 times higher than the official minimum wage.²⁷

Governments and a range of stakeholders, including the private sector, academia and NGOs, can ensure that young people are equipped with digital skills to ensure that they benefit from the many employment related opportunities and ensure an inclusive digital economy and

²⁴ ITU, 2014, *Digital Opportunities: Innovative ICT solutions for youth employment* at http://www.itu.int/en/ITU-D/Digital-Inclusion/Youth-and-Children/Documents/YouthReport_2014.pdf and ITU 2016, *Coding bootcamps: a youth employment strategy* at <http://www.itu.int/en/ITU-D/Digital-Inclusion/Pages/Reports.aspx> and World Economic Forum, *The Future of Jobs*.

²⁵ G20 Member States include Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, the United States and the European Union.

²⁶ OECD, *Skills for a Digital World*, December 2016 at <http://www.oecd.org/employment/emp/Skills-for-a-Digital-World.pdf>

²⁷ http://www.dalberg.com/documents/Digital_Jobs_in_Africa.pdf

society.

b. Case study. ILO-ITU Digital Skills for Decent Jobs for Youth campaign

The Global Initiative on Decent Jobs for Youth, led by ILO together with 22 United Nations entities, is promoting job-ready digital skills to improve employment outcomes and open entrepreneurship opportunities for young people. ITU and ILO launched the Digital Skills for Decent Jobs for Youth campaign at WSIS 2017 to support the digital skills work of the Global Initiative on Decent Jobs for Youth.



The objectives of the Digital Skills for Decent jobs for Youth campaign are to:

- Bring digital skills to five million young people around the world by 2030 creating a positive impact on their labour market outcomes;
- Encourage the creation of new job opportunities in order to integrate more young women and men in the labour market and help digital economies flourish;
- Promote an enabling environment where youth can seize the employment and entrepreneurship opportunities offered by the growing digital economy.

Ministers of ICT, Labour and Education, national governments, the private sector, training providers, Academia, NGOs, other members of the UN family as well as other interested parties are actively encouraged to participate to:

- Organize advanced or basic digital skills development programmes for youth (e.g. coding bootcamps or mobile apps development trainings);
- Run special basic or advanced digital skills development programmes for young women;
- Train young entrepreneurs on how to use ICTs to grow their businesses and learn the business, technical and soft skills they need as digital entrepreneurs;
- Include digital skills training in apprenticeships and educational and professional development programmes across sectors;
- Train education providers how to adapt school curricula and incentivize professional

development, entrepreneurship activities, on-the-job learning and job insertion of youth;

- Provide financial support to existing digital skills development programmes or the creation of new ones.

For more information see: www.ilo.org/decentjobsforyouth. To make a contribution to the campaign please contact: decentjobsforyouth@ilo.org





12. Action Line C7. ICT Applications: E-environment – WMO/ ITU

a. Summary

Achieving this ambitious vision will require overcoming many challenges including connecting the unconnected. Connecting the unconnected provides us with an unprecedented opportunity to make this vision a reality once and for all. The 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals provide the international community with a plan of actions for addressing the root causes of poverty in a sustainable way. It is the first comprehensive and universal blueprint for all Member States by which we can achieve a better world that spans the social, economic and environmental dimensions of sustainable development. While governments are in the driving seat of implementing the Agenda and the SDGs, the contribution of Telecommunication/ICT sector is key to empower all nations to universally achieve the SDGs by the target year of 2030. Also, it is of a vital importance to understand that the use of ICTs has negative impacts on the environment if at the end of life ICTs becoming e-wastes are not managed in an environmentally sound manner. Action Line C7 on e-environment focuses on the creation of awareness on and promoting innovative solutions to benefit from the use of ICTs in the development agenda while keeping negative impacts on environment at a minimum. This includes raising awareness of the critical role of ICTs in facilitating the implementation of SDGs; i. e. by supporting various stakeholders' activities in designing and implementing innovative projects for environmental protection, monitoring climate variability and change, early warning to protect people from disasters linked to weather, water, climate and environment and promoting technologies designed to prevent and minimize hazardous wastes, establishing environmentally sound e-waste management, recycling and sound final disposal.

b. Case Studies

ITU has started a project with Universidad de La Plata of **Argentina** which aims at establishing an Experimental Pilot Plant to support the environmentally safe disposal and recycling of discarded hardware and components used in ICTs.

ITU with the Government of **Uganda** jointly have implemented a project for establishing an Early Warning System based on dissemination of weather alerts to minimize the impact of natural weather related disasters.

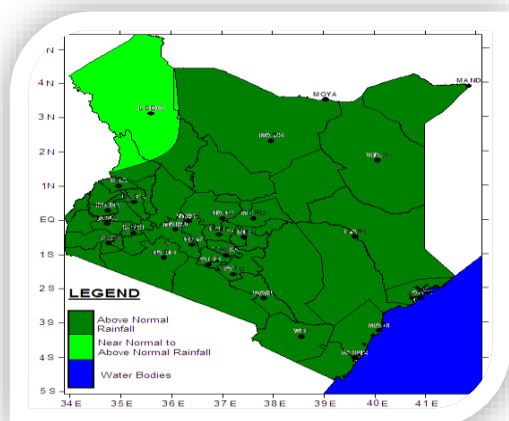
Using modern in-situ and space based observations and model predictions WMO successfully monitored and predicted the onset and evolution the strong E-Nino 2015/2016 which affected among other nations **Kenya**. The Kenyan Meteorological Department successfully released in 2015 an advisory that helped the Government to act to mitigate the expected negative impacts while benefiting from the induced excess of rains for improving food availability and water storage

The Basel Convention adopted policy tools, practical manuals and launched a course on all you need to know about e-waste in a Massive Open Online Course (MOOC), developed in cooperation with the University of Leuven, to help countries to arrive to the sound management of e-wastes. Examples are PACE (Partnership on Action for Computing Equipment) manuals on recovery and recycling of e-wastes, Technical Guidelines on e-waste to distinguish between waste and non – waste in transboundary movements or a practical manual on Extended Producer Responsibility policies.



The official release of the Oct-Nov-Dec 2015 forecast by Mr. Peter Ambenje, on behalf of the Director of Kenya Meteorological Department.

The Rainfall prediction map for months October-December 2015 - “Short-Rains” Season showing enhanced rainfall over most parts of the country.





The E-waste Challenge MOOC

Sign-up for the course at
[learning.climate-kic.org / courses / e-waste-mooc](http://learning.climate-kic.org/courses/e-waste-mooc)

will launch from
4 APRIL 2016





13. Action Line C7. ICT Applications: E-Agriculture - FAO

a. Summary

Poverty, unsustainable management of natural resources, distressed migration, food insecurity and conflict are all connected. About 75% of the world's poor live in rural areas and most of them depend – partly or entirely – on agriculture for their livelihood. 90% of the world's 570 million farms are owned by smallholders. However, these are often not considered as main players in the agricultural sector and investments in small-scale agriculture and technologies for the rural poor have been neglected. Their ability to benefit from the increasing demand in agricultural products is hampered by limited access to agricultural inputs, services, information, technologies, sometimes combined with poor infrastructure. They also tend to be more affected by crises and disasters, whether it is natural or man-made. Malnutrition went down from 20% to 17% of the global population, but has increased in absolute terms from 840 million to 925 million people between 1990 and 2010. Almost half of those affected by malnutrition are children²⁸ (2010). The highest levels are found in sub-Saharan Africa and South Asia. (IFPRI). Forty-three million children worldwide are overweight and rates in all regions are increasing, with the highest increase in Africa, from 4 to 8.5 % since 1990²⁹ (2011).

Internet and digital usage has increased rapidly in the last 16 years; the global internet population has grown to 3.5 billion (47% of the world population). More people now have mobile phones than electricity, clean water, or sanitation, and millions are now better connected, increasing access to new or better products and services with a positive impact on their livelihoods and the economy. In 2016, 84% of the world urban population and 67% of the world rural population have mobile-broadband network coverage. In Sub-Saharan Africa, it is estimated that the usage rates of 3G and above will reach 38% in 2020 (from 20% in 2015). However, the impact of these technologies are not all positive, increasing inequality between

²⁸ See Global Hunger Index by IFPRI: <http://www.ifpri.org/publication/2010-global-hunger-index-challenge-hunger>

²⁹ See Scaling up Nutrition in the African Region: http://www.who.int/nutrition/Harare_regionalconsultation_May2011.pdf

those who use them and those who can't widening rewards for people with skills and access, while upping the penalties for those not having them. These inequalities are reflected too between industrialized and agricultural economies, urban and rural areas and the digital divide affects women and youth even more. ITU estimates that there are some 250 million fewer women online than men and the global Internet user gender gap grew from 11% in 2013 to 12% in 2016, and is as high as 31% in the world's Least Developed Countries. The agency shows that in some low-income countries, between 20 and 40 per cent of people still do not own a mobile phone and that the gender gap in mobile phone ownership is substantially higher.

b. Case Study: Agricultural Services and Digital Inclusion in Africa Project – Rwanda and Senegal

FAO and its partners are involved in the development and implementation of digital inclusion initiatives and the scaling up of innovative digital services. Bringing solutions closer to the needs of poor households in Africa and other regions is a direct contribution to poverty reduction and food security. ICTs help maximizing the impact of existing rural advisory services, financial services, social protection programmes. ICTs facilitate access to markets, information and entrepreneurship opportunities. Digital inclusion initiatives address the barriers to mobile internet adoption through infrastructure and policy, affordability, digital literacy and availability of local content.

- **Mobile Applications for Local Content**

This project focuses on the development of four apps that will help improving agricultural services and availability of local content. It will make useful data, information and statistics available and accessible as digital services to the rural poor.

The applications are being developed initially for use in two countries in Sub-Saharan Africa: Senegal and Rwanda. The apps and services can then be adapted for use in other countries as well. A particular emphasis will be put on needs of young, self-employed entrepreneurs, female headed households, breaking down the barriers for access and use of information through digital technologies. This project is part of a broader initiative that leverages the

knowledge of FAO and its strategic partners in the mobile world, promoting digital inclusion for smallholders and family farmers.

- **Cure and Feed your livestock:** An application providing real time information on animal diseases control and animal feeding strategies. The application will provide real time information and advice to livestock owners for help reducing losses in assets and optimize productivity using locally available resources.
- **e-Nutrifood:** An application providing information on production, conservation and consumption of nutritious foods. Adequate information concerning the quality and combination of essential nutritional values of food are vital in fighting undernutrition, stunting and food insecurity. Inhabitants of rural areas do not receive enough good quality information and technical orientation to produce and consume adequately nutritious food.
- **Weather and Crop calendar:** An application combining information on weather forecasts and crop calendars. The mobile application provides early warning services to highlight potential risks and help increase resilience. Climate Risk Management has proven to help farmers “make informed decisions, better manage risk, take advantage of favourable climate conditions, and adapt to change”.
- **AgriMarketplace:** An application that will connect producers and traders to facilitate trade and access to prices. Farmers often do not have good sources of information about who are - and where are - the best providers of supplies for raw material purchases neither know the best marketplaces to sell their products and the market prices.

▪ **Project Countries**

- **Rwanda** - 90% of the labour force is involved in agriculture (5.67 million people in agriculture) and an estimated half of rural households own livestock (the country counts 1.13 million heads of cattle, 3.5 million sheep and goats and 4.8 million chicken). Livestock is usually an important component of women livelihoods. The apps are being developed taking into account that 93% of the population speaks only Kinyarwanda and illiteracy rate is 30%, so special attention is given to voice services in

the local language.

- Senegal - The population of Senegal is 15.1 million. The median age is 19 and 62% of the population is below 24 years old. 55% of the population is rural and 47% of the population lives below the poverty line. 13% of children under the age of 5 years are underweight. 77% of the labour force is involved in agriculture (5 million people in agriculture) and an estimated two thirds of rural households own livestock (the country counts 3.5 million heads of cattle, 11 million sheep and goats and 49 million chickens). The app will be developed taking into account distribution of languages in the country (Wolof 38.7%, Pular 26.5%, Serer 15%, Mandinka 4.2%) and a national illiteracy rate which is still at 40%, and higher in poor rural communities.

Reference:

http://www.minagri.gov.rw/index.php?id=469&tx_ttnews%5Btt_news%5D=1487&cHash=ae a8ab00ec66cd2a026a2ff46ee48c51

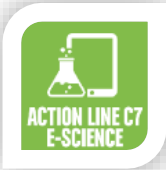


c. E-agriculture Strategy Guide and E-agriculture in action

FAO and ITU published E-agriculture Strategy Guide (2016) and E-agriculture in action (2017) to assist countries to develop their National E-agriculture Strategy/Masterplan.

For more information, please visit following websites:

- E-agriculture Strategy Guide: <http://www.fao.org/3/a-i5564e.pdf>
- E-agriculture in action: <http://www.fao.org/3/a-i6972e.pdf>



14. Action Line C7. ICT Applications: E-Science - UNESCO

a. Background and context: Context of Big Data and Analytics for Knowledge Societies

For the United Nations, ‘data is the lifeblood of decision-making and the raw material for accountability. From the scientific angle, it can be stated that Big Data is a necessary condition to achieve current global goals of reducing the incidence of poverty, climate change impacts, achieving food and water security. Without high-quality data providing the right information on the right things at the right time, designing, monitoring and evaluating effective policies becomes almost impossible.’ The analysis, monitoring and making of such policies will be vital to taking up the challenges facing humanity, as defined by the 17 Sustainable Development Goals and 169 targets that make up Agenda 2030.



As a specialized agency, UNESCO is committed to making open access and open data (grouped in WSIS framework as C7: e-science) one of the central supporting agenda for achieving the Sustainable Development Goals. A mapping exercise undertaken in May 2015 gives a clear understanding of how openness in scientific big data links to the Sustainable Development Goals. This exercise recalls the interconnectedness between the action lines on access to knowledge and access to science and the sustainable delivery of social goods and services to improve lives and alleviate poverty – an interconnectedness that has been the guiding light for the formulation of the Sustainable Development Goals.

b. The data revolution

Science is not only created using data; but the principle output of any scientific investigation is also data. The science-led data revolution has allowed Web 2.0 and Science 2.0 to co-evolve.

The second-generation World Wide Web (Web 2.0) has made it easier for people to share information and collaborate and, in turn, the second-generation open science movement (Science 2.0) has used these new web-based technologies to share research and data more rapidly with a greater range of collaborators. This growth in interconnectedness, information-sharing and data reuse has helped to develop a modern approach to science. As Science 2.0 is maturing, it has gradually begun replacing existing methods of teaching and learning science. Primarily characterized by the exponential generation and utilization of data for scientific purposes and ICT penetration, this paradigm shift has both assisted and benefited from this data revolution (IEAG, 2014).

c. Enhanced collaborative e-science

Researchers and academics are now sharing their data and research results across web-based platforms, so that the global scientific community can utilize them and further build upon these raw scientific datasets, through collaboration. One example of this type of collaborative science can be seen in the big data generated for climate change projections developed by using global-scale models (Cooney, 2012). Research, such as this, provides a case for the utilization of large datasets assimilated and compiled in different parts of the world to solve local problems. This type of big data ‘downscaling’ bridges the gap between global and local effects by layering larger-scale data with local-level data. Another example is the recently digitized and openly accessible rice breeding project 3K RGP, 2014 which now provides virtual access to the genomic sequence data of 3000 rice cultivars from 89 countries. CERN’s latest move to open LHC (Large Hadron Collider) data consider as a milestone in big data movement. Local researchers can use such information to breed improved rice varieties that are locally customized for distribution at farmer level, or utilized outside of CERN’s collaboration, for research and for building educational tools. Both of these moves are certain to open new vista for education and science, especially in the developing countries.

The combined impact of online tools and advocacy for a culture of open science at the institutional and national levels has fueled the accumulation and sharing of big data in virtual knowledge banks. Such sharing of metadata will, for example, allow for the generation of locally relevant projections of weather patterns and the development of cultivars that can

best adapt to a particular climatic condition. In this way, studies in various scientific disciplines have become increasingly interconnected and data-heavy. This has made science more dynamic and given rise to two dimensions of scientific practices.

d. Without citizen engagement, no social good can come of open data

Another shift in the focus of science from basic research to an applied and developmental approach fueled by Science 2.0 technologies is underscored by scientists' easier access than before to big data. Access can be defined firstly in the context of inclusiveness. If basic research is to be used for the betterment of human lives, there is no better way to identify a citizen's needs and challenges and to serve the interests of that person's wider community than to involve citizens themselves in the associated developmental processes.

Science can only be inclusive if all parties at all levels (government, academic and general public) are duly involved. Thus, access can be defined secondly in the context of openness. Citizens cannot participate if science is not open and transparent. Without citizen engagement, no social good can come of open data, since there will be no recognition of local needs for subsequent data downscaling and data mainstreaming. For example, a regional scientific project aiming to identify the local impact of an increase in pollution levels can only be successful if citizens are able to report on the state of their health in real time to the scientific surveyors through a virtual platform that makes them active, yet informal participants in the project. Increasingly, discoveries that support early disaster warning – such as three-dimensional simulation models – are being considered more important than those that improve the capability to handle the post-disaster recovery.

Because of ICT proliferation, there are many scientific experiments in which ordinary citizens are both able to access and contribute to scientific big data in real time across virtual platforms to influence scientific processes – and sometimes, government decision-making processes that affect their daily lives. Engaging citizens in this way enables the general public to take part informally in the collection and analysis of big data and to influence, for example, the local customization of a developmental technology from the West, so that it is adapted to the local needs of a community in the developing world. One such example is the project on ecosystem

services management implemented by UNESCO and its partners, which has evident linkages to poverty alleviation. The project blends cutting-edge concepts of adaptive governance with technological breakthroughs in citizen science and knowledge co-generation. A set of environmental virtual observatories enable marginalized and vulnerable communities to participate in solving various local environmental problems (Buytaert et al., 2014).

e. Researchers are awash with information

With rapidly evolving technologies that range from genome sequencing machines to particle accelerators like the Large Hadron Collider, researchers are awash with information (Hannay, 2014). A survey of the research community undertaken by the DataONE project showed that 80% of scientists were willing to share their data with others in the research and education community (Tenopir et al., 2011). Increasingly though, researchers working in data-intensive scientific fields, in particular, are wondering how best to manage and control the sharing of their data and where to draw the line between data transparency for the social good and the risks of an uncontrollable 'data explosion'.

f. Avoiding the uncontrolled explosion of big data

Given that interdisciplinary and highly collaborative research fields such as bionanotechnology, astronomy or geophysics are data-intensive and require frequent data-sharing and access, in order to interpret, compare and collaboratively build upon previous research results, resources should be similarly allocated for defining, implementing and communicating about big data governance and for establishing big-data sharing protocols and data governance policies at higher levels of formal scientific collaboration. Even at the level of citizens, the possible implications of 'sharing without control' in an attempt to make science more citizen-friendly could result in citizens being bombarded with an overwhelming amount of scientific information that they can neither make sense of, nor utilize. The creation of scientific big data must therefore go hand-in-hand with big data security and control, in order to ensure that an open and inclusive scientific culture can function properly.

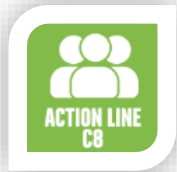
g. A code of conduct for digital science?

Big data governance applies to all stakeholders involved in the research enterprise, including

research institutions, governments and funders, commercial industries and the general public. Different stakeholders can contribute at different levels. By imposing this type of data usage agreement, terms of use clauses and policies targeting funders on open knowledge banks, the way in which these data are globally searched, viewed and downloaded by those interacting with the data archive could be controlled. This would, in turn, shape and differentiate how e-discovery of scientific data takes place both at the formal levels of scientific collaboration and scientific communities, as well at the informal level of citizens.

h. Big Data and Openness for Poverty Reduction, Knowledge Societies and Sustainable Development

With evolving scientific practices nurturing a gradual shift towards virtual science, there is a lot of potential for using and processing openly accessible big data generated from scientific research to help achieve the Sustainable Development Goals adopted in 2015 and for the overall goal of WSIS of creating informed Knowledge Societies.



15. Action Line C8. Cultural Diversity and Identity, linguistic diversity and local content - UNESCO

a. Background and context:

The promotion, affirmation and preservation of diverse cultural identities and languages are reflected in relevant United Nations documents, including UNESCO's Universal Declaration on Cultural Diversity³⁰, which recognizes the need to “*enhance the potential of culture as a means of achieving prosperity, sustainable development and global peaceful coexistence.*”

The implementation of Action line 8 has enabled ICTs and knowledge management to be increasingly integrated into UNESCO's Culture Sector priorities towards the protection and promotion of cultural diversity, tangible and intangible heritage, especially in emergency and conflict situations, as well as cultural expressions and the creative industries. This enhances the role of culture as an enabler and a driver of inclusive sustainable development per the United Nations 2030 Sustainable Development Agenda. Promotion of culture and cultural diversity creates important opportunities for employment, trade, and foreign direct investments, as for example through tourism, which lends to the circulation of goods and ideas, people and cultural trends, and helps revitalize local economies.

The protection and promotion of cultural heritage subject to threats posed by conflict, looting, and disasters are important to the rebuilding of peace, integrated societies, vibrant identities, and thriving economies. The use of digital technologies can facilitate the restoration of destroyed cultural heritage, notably in relation to the proposed mechanical reconstruction of monuments based on their 3D models. The restoration of sites such as Palmyra or Nimrud will nonetheless require many years of research, reflection, studies and careful work. The fact that many of these places have been intentionally destroyed will have to be taken into account in determining a future vision for these sites, which the affected communities might wish to see restored to reaffirm their identity, dignity and resilience in the face of the deliberate attempts to erase their cultural heritage.

³⁰ <http://unesdoc.unesco.org/images/0012/001271/127160m.pdf>

UNESCO believes that ICT applications have a significant role to play in the protection of culture in the event of armed conflicts and disasters through at least three major aspects:

1. The digital documentation of cultural assets (buildings, artifacts, archival documents etc.) for scientific purposes and identification in the context of the fight against illicit trafficking. This is especially critical for items at risk of being damaged or looted;
2. The use of virtual representations of damaged or at-risk cultural heritage – including through online platforms, virtual museums, etc. - for educational and awareness-raising purposes, i.e. as a means to mobilize public support and contribute to intercultural dialogue;
3. As a tool to support people affected or displaced by humanitarian emergencies, who are temporarily prevented from accessing their cultural heritage and from practicing their cultural expressions, as an alternative means to securing their cultural rights. This can be done, for example, through social media and other platforms that facilitate the sharing of information within a community.

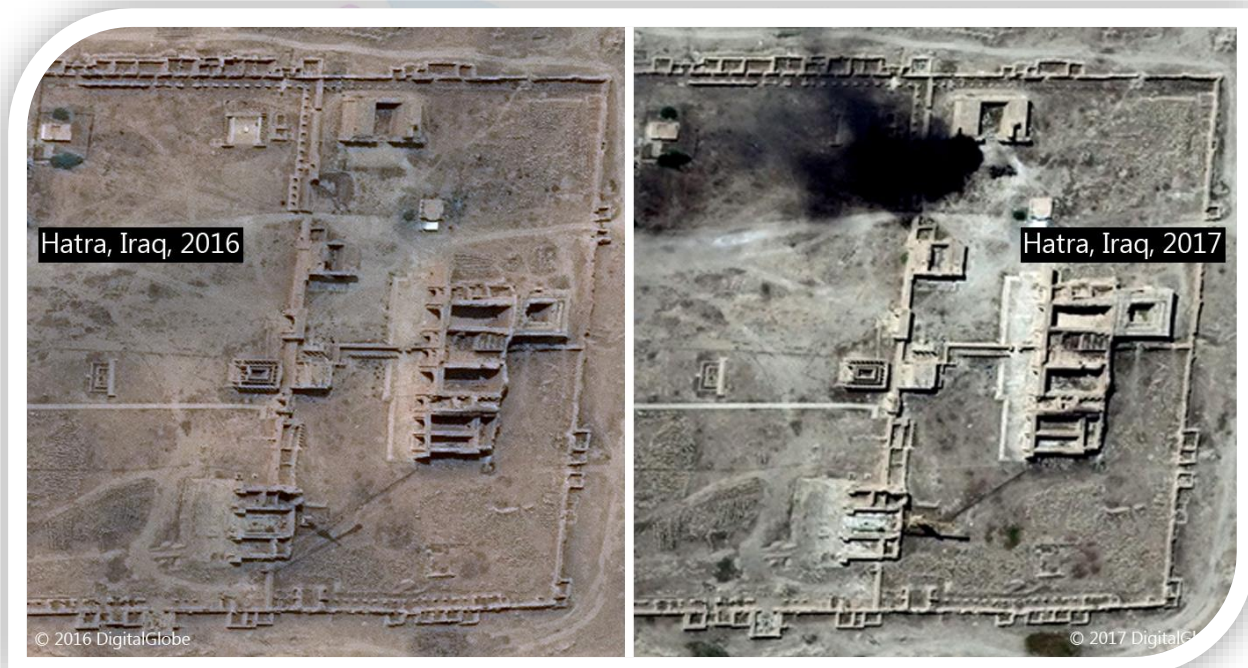
b. Case Study:

In terms of heritage protection and pursuant to an agreement between UNESCO and UNITAR/UNOSAT³¹, the monitoring of heritage sites under threat of looting, destruction and/or damage is taking place via satellite imagery in Iraq, Syria, Libya and Yemen. UNOSAT provides imagery and imagery analysis to UNESCO, while UNESCO provides advice on experts to conduct the analysis. This information helps heritage stakeholders follow developments, prepare damage assessments, and plan for restoration of sites. UNOSAT have also made available UN-ASIGN, a free crowd-sourcing application that geo-references pictures, and that UNESCO's networks in conflict- or disaster-affected countries can use to support damage assessment of sites in countries to which access is restricted. Remote assessment via satellite imagery allows accessibility to otherwise non-accessible areas in conflict-affected countries.

UNESCO in Beirut, from 2-3 March 2017, brought together Syrian stakeholders and international experts to evaluate damage to historic monuments including the citadel,

³¹ <http://whc.unesco.org/en/news/1308/>

Madrasa Al-Sultaniya, Grand Serail, and souk of the Ancient City of Aleppo, a World Heritage site. This coordination meeting contributed to mobilize and share knowledge, technology and financial resources, to support the achievement of the sustainable development goals in developing countries. This work will be facilitated by a joint report of UNESCO with UNITAR-UNOSAT, to be published in October 2017, on the ongoing destruction of and damage to cultural heritage in Syria. The publication will compile damage assessments of Syrian cultural heritage sites undertaken thanks to satellite imagery and carried out in cooperation with UNITAR-UNOSAT, providing a solid technical basis for future planning of rehabilitation works into a post-conflict society. The publication will include a special segment on the Old City of Aleppo, and cover educational and social facilities with a view to contributing to larger planning for recovery at the UN level.





16. Action Line C9. Media - UNESCO

a. Background and context:

Action Line C9 Media recognizes that independent and pluralistic media function as vehicles for the flow of different viewpoints and of multiple voices, both online and offline. They allow people to exercise their rights of participation and criticism, within the principals of freedom of the press and freedom of information, as well as pluralism and diversity of media. Better informed citizens are more able to actively participate in their societal decision-making processes, especially the pro-poor and gender-sensitive development strategies that support accelerated investments in poverty eradications actions, and therefore contribute to tackling poverty in all its forms everywhere.

Action Line C9 has been facilitated by UNESCO. After WSIS, subgroups were established to consider freedom of expression, press freedom and legislation to guarantee media independence and plurality. This includes information access through community media and gender related aspects, the status of journalists and the security of those contributing to news media.

UNESCO has facilitated global, regional and national efforts to provide traditional and ICT-driven, media development opportunities to local and national media players in developing countries so as to strengthen their access and contribution to information and knowledge to achieve local and international development goals including the eradication of poverty. Access to information does translate to access to opportunities for economic, social, cultural development, both in remote rural areas and urban cities.

UNESCO has worked to strengthen the media's capacity in developing countries, and most particularly in Less Developed Countries (LDCs), to provide timely and reliable access to information and knowledge on key development issues, flow of content especially in rural areas. This knowledge on governance, public services, education, employment, environment or climate change has greatly helped marginalized communities tackle some of the important structural constraints that keep them in poverty.

b. Case Study

UNESCO's project "Empowering Local Radio with ICTs", funded by Sweden, provides training to local radio practitioners on journalism and ICTs skills to improve their coverage on development issues of local concern, interaction with audiences and financial sustainability. Trained journalists and correspondents are able to collect testimonies and interviews from community members, including women and girls, to produce a participative and gender-sensitive programming, using local radios, mobile phones, the Internet, where available. Fifty-nine stations from ten countries in Sub-Saharan Africa (Burundi, DRC, Lesotho, Namibia, Kenya, Tanzania, Uganda, Rwanda, South Africa and Zambia) have benefited from the project since 2012. Local communities, especially women and girls, feel encouraged to participate in the public debate when they have access to information on poverty-related issues that affect them. They are able to react to radio programmes and raise their concerns on the airwaves through text messages, call-ins or social media.



Photo: UNESCO/Leandro Pereira Franca

Caption: Journalist from Mtegani FM in Zanzibar, Tanzania, interviewing community members



17. Action Line C10. Ethical Dimensions of Information Society- UNESCO

Ethical, legal and Societal challenges of Information Societies and its implications on eradication of poverty and promoting prosperity in a changing world.

a. Background and Context

The international debate on information ethics (infoethics) addresses the ethical, legal and societal aspects of the application of Information and Communication Technologies (ICTs). Ethical principles for knowledge societies derive from the Universal Declaration of Human Rights, and the International Covenant of Economic and Social and Cultural Rights. UNESCO supports and promotes the ethical dimensions of the information society as one of its priorities to implement the decisions of the WSIS to create peace and security, and common welfare in society. Free and unhindered access to information on the interactive networks remains a key goal for development especially in eradication of poverty and promoting prosperity.

In recognition of the trans-boundary nature of the Internet, UNESCO supports regional and international cooperation, capacity-building, research, the exchange of good practices, and development of broad understanding and capabilities to respond to ethical challenges. UNESCO continued to support research to assess the impacts on privacy of digital interception, collection, storage and use of data and other emerging trends.

Changes brought about by the rapid development of ICT not only open tremendous opportunities to humankind to promote prosperity but also pose unprecedented ethical challenges. Along with the benefits of a digitally connected world to eradicate poverty come the threats of misuse and abuse. UNESCO, in collaboration with its partner institutions seeks to address these challenges towards a fair and multicultural information society towards achieving Strategic Development Goals.

Developmental goals could be attained only where there is society free from violence and extremism. Internet bridges the development goals like eradicating poverty and security gaps. Goal 16 of the 2030 Sustainable Development Agenda launched in late September 2015 points

to the need to prepare all citizens, in particular youth, to utilize on-line engagement and leverage ICT and digital networks as a pillar for building peace and realizing sustainable development including eradication of poverty. Reflection is therefore required on what it means to promote the Internet's virtual community as a space for citizens to practice their citizenship and rights online and offline to expand peace and security. At a minimum, this requires an enabling social, technical, policy and educational environment, the ability to access networks as well as individuals equipped with the appropriate skills, attitudes and competencies to use the Internet judiciously. More than that, it requires understanding the extent to which social media can be abused, and where this fits into the variety of factors that can promote or threaten peaceful behaviors.

Goal 16 explicitly provides an entry point for development and security actors to come together to promote inclusive, multidimensional approaches to achieve a peaceful society. One of the targets of Goal 16 (16A) is to: "strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime".

b. Case Study

UNESCO recognised the importance of the role played by Internet in radicalising youth leading to violent extremism by unethical use of information and its implications on eradicating poverty and promoting prosperity. In this context, UNESCO organized two major international conferences and several follow-up initiatives to counter youth radicalization on the Internet, leading to violent extremism. UNESCO and the Government of Québec organized in Québec City, Canada from 30th October to 1st November 2016, the International conference "Internet and the Radicalization of Youth: Preventing, Acting and Living Together"³². It was a concrete follow-up to the organisation of the first-ever International conference on "Youth and the Internet: Fighting Radicalization and Extremism"³³, held in Paris, in June 2015.

The Québec's Call for Action³⁴ is a concrete result of the International Conference in Canada. It calls upon governments and the international community to take action to fight and prevent radicalization through the development of counter-narratives, information and media literacy

³² <http://en.unesco.org/ConfQcUNESCO/home>

³³ <http://en.unesco.org/youth-and-internet-fighting-radicalization-and-extremism>

³⁴ <https://www.agora-inscription.ca/UNESCO-QUEBEC/en/qc-call>

programmes and education on ICTs policies that are inclusive and that emphasize the empowerment of youth by stimulating critical thinking, tolerance and respect for human rights and for a culture of peace. It also calls governments to engage and empower youth to lead new digital projects that foster peace, tolerance and mutual understanding and to spread the message far and wide.





18. Action Line C11. International and regional cooperation - UNDESA

a. Summary

International cooperation among all stakeholders is vital in implementation of WSIS action lines and the Sustainable Development Goals (SDGs). As stated by the General Assembly in the WSIS+10 outcome document, the value and principles of multi-stakeholder cooperation and engagement that have characterized the WSIS processes since its inception have been and are vital in developing the information society.

Cooperation is particularly needed in promoting universal access and bridging the digital divide as stated in the Geneva Plan of Action. There is also need for strengthened cooperation international and regional cooperation against threats that may hinder the further development of information society. More efforts are needed to build robust domestic security in ICTs consistent with countries' international obligations and domestic law. Further cooperation is also needed on transnational issues regarding ICTs, including capacity-building and cooperation in preventing and combating the misuse of the technologies for criminal or terrorist purposes.

b. Case Study: UNDESA Development Account Project on Open Government Data

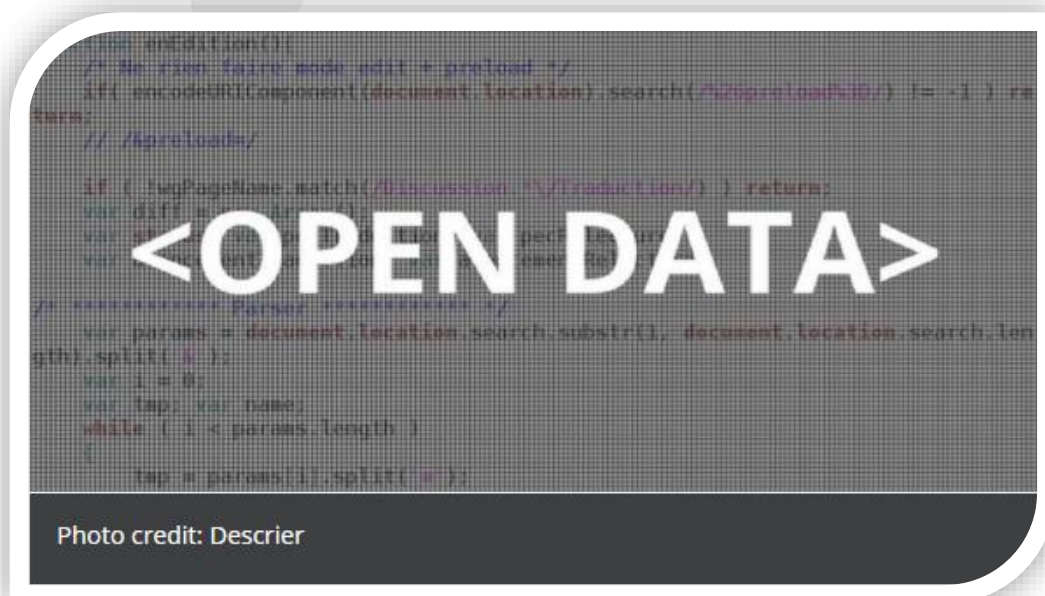
Opening up government data is fundamentally about more efficient use of public resources and improving service delivery for citizens. The effects of open data utilization are potentially far reaching for sustainable development with a positive impact on innovation, transparency, accountability, participatory governance and economic growth. Open Government Data (OGD) can help countries improve development programmes and track progress, prevent corruption and improve aid effectiveness. The benefits of open data and improved access to public information gain greater visibility and relevance today in the context of the 2030 Agenda for Sustainable Development.

The development account project on "Strengthening of Capacities of Developing Countries to

Provide Access to Information for Sustainable Development through Open Government Data (OGD)”, was approved in the summer of 2014, and is being implemented by DESA through its Division for Public Administration and Development Management (DPADM). It focuses on four developing countries: Bangladesh, Nepal, Panama and Uruguay. The project aims to support the needs for increased awareness of OGD requirements among government officials and other stakeholders while addressing capacities needed for developing action plans for implementing OGD initiatives. DPADM is working in close collaboration with relevant government agencies in host countries, as well as the UN regional commissions in Latin America and Caribbean (ECLAC), Asia and the Pacific (ESCAP), and UNDP country offices.

In partnership with national counterparts in Bangladesh, Nepal, Panama and Uruguay, the project aimed at developing a policy framework and strategic Action plans for advancing open data initiatives for SGD implementation. Over the course of 3,5 years DESA/DPADM conducted 8 national and 2 regional level capacity building events for beneficiary countries in East Asia and Latin America. In addition 3 study tours were arranged to Colombia, USA and the Republic of Korea for an enhanced peer-to-peer exchange learning between participants. Countries has also developed and/or revised national OGD Action Plans using the knowledge and technical support provided by the project.

For more information, please visit: <https://publicadministration.un.org/en/ogd>





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