REPORT ON THE WSIS STOCKTAKING

2016

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2025

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

ITU

Report on the WSIS Stocktaking 2016

May 2016

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Foreword

The World Summit on the Information Society (WSIS), which was held in Geneva in 2003 and in Tunis in 2005, drew up an action plan to bridge the digital divide and build an inclusive, people-oriented information society. World leaders committed themselves to regularly review and follow up progress in implementing the action lines outlined in the WSIS Outcomes.

Since October 2004, the WSIS Stocktaking Platform has served as a global repository for collecting and reporting on ICT-related projects which implement the WSIS Outcomes. It has also proved to be an efficient mechanism for sharing best practices towards advancing development goals, a role that I am confident will continue to be of value in the post-2015 era.

The outcome document of the UN General Assembly High-level Meeting on the overall review of the implementation of the outcomes of WSIS recognized the importance of reporting and sharing of best practices for the implementation of the WSIS outcomes by all stakeholders beyond 2015, recognizing the WSIS Forum as a key platform for doing so. Moreover, the WSIS Overall Review called for close alignment between the WSIS process and the United Nations 2030 Agenda for Sustainable Development, highlighting the crosscutting contribution of ICTs to the Sustainable Development Goals.

Until 2016, WSIS Stocktaking Reports have reviewed more than 8,000 activities from around the world carried out by international organizations, governments, the private sector, civil society and other stakeholders. I am pleased to note that the WSIS Stocktaking community now comprises of more than 190,000 stakeholders.

By identifying trends in implementing the WSIS Outcomes, the WSIS stocktaking process contributes significantly towards building an inclusive Information Society. I believe that the best practices reflected in this process will serve as models to be replicated around the world, and will encourage stakeholders to move forward towards achieving the WSIS goals.

Since the WSIS Stocktaking Process was established, seven editions of Global WSIS Stocktaking reports have been published, providing an overall picture of progress and an insight into latest WSIS-related activities.

The eighth report focuses on contributions by stakeholders worldwide to WSIS and Sustainable Development Goals. It emphasizes achievements, highlights trends and draws conclusions consistent with the action lines referenced in the Geneva Plan of Action. This Report provides key findings on emerging trends in the development of the information society, and references major activities being implemented in the eighteen areas covered by the eleven WSIS action lines.

I extend my sincere gratitude to all stakeholders who have been engaged in the WSIS Process, sharing their contributions towards achieving the WSIS goals since 2004. Even as we continue to face many challenges, opportunities also abound towards achieving a fully inclusive information society.

I strongly urge all stakeholders to fully use the WSIS Stocktaking platform and align the various ICT-related local and national databases together with our WSIS Stocktaking database for our mutual benefit. Your projects and initiatives will continue to be promoted at the global level in a common endeavour to achieve the goals set out by global leaders at WSIS and taken forward in the WSIS Beyond 2015 and post-2015 development agendas.

Houlin Zhao

ITU Secretary-General

Executive Summary

Stocktaking process overview

The WSIS Stocktaking process was initiated in October 2004 during the Tunis phase of WSIS, and in the years since then it has come to comprise the database of:

- exchanges of information on projects,

- sharing of best practices of certain regions,

- initiatives related to the implementation of the 11 WSIS action lines

- linkage between the 11 action lines and the Sustainable Development Goals (SDGs) - a linkage that becomes more and more important over the years.

The WSIS Stocktaking process provides a register of activities, including, projects, programmes, training initiatives, conferences, websites, guidelines, tool-kits, etc., carried out by governments, international organizations, the private sector, civil society and other entities. To that end, in accordance with § 120 of the Tunis Agenda for the Information Society (TAIS) adopted by WSIS, ITU has been maintaining the WSIS Stocktaking Database as a publicly accessible system providing information on ICT-related initiatives and projects with reference to the 11 WSIS action lines (Geneva Plan of Action) and 17 SDGs.

The WSIS Stocktaking Portal provides a repository of best practices for stakeholders seeking updated information on progress in the implementation of WSIS outcomes (§ 28.e of the Geneva Plan of Action). The WSIS Stocktaking Platform, launched in February 2010, transformed the previous static database into a unique portal to highlight ICT-related projects and initiatives in line with WSIS implementation. The platform offers stakeholders exciting and interactive networking opportunities via Web 2.0 applications. Within the framework of the WSIS Stocktaking Platform, all types of stakeholders can benefit from the "global events calendar", "global repository" and "blog" components. It provides the opportunity for stakeholders to network, create partnerships and add value to projects at the local, national, regional and international levels.

The **redesigned WSIS Stocktaking Platform** was launched at the end of October 2015, introducing a more interactive interface with several innovative aspects that will be more appealing to users. The new stocktaking platform features a new questionnaire that reflects the transition from millennium development goals (MDGs) to SDGs, mirroring the impact of freshly submitted ICT projects on SDGs.

With the year-round ongoing call for updates and new entries, all stakeholders are invited to continue sharing best practices on the WSIS Stocktaking Platform and emphasize how ICT-related initiatives and projects are enabling SDGs.

The direct linkages between the **WSIS action lines** and the **SDGs** set out below are crucial to continuing to strengthen the impact of ICTs for sustainable development. Each UN action line facilitator has analysed the connections and relations between their respective action lines and the proposed SDGs and their targets to create a clear and direct linkage and an explicit connection between the key aim of 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 realization of the latter. The majority of the projects presented in this report clearly showcase the linkage between their related action lines and the various SDGs and targets. At the WSIS Forum 2015, the SDG matrix[1] was extremely well received by the WSIS community, offering as it does a better explanation of the potential of ICTs as enablers for sustainable development. A new component was introduced in the WSIS Stocktaking process in the form of reporting ICT success stories to best showcase the possible achievement of SDGs

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[1]   https://www.itu.int/net4/wsis/sdg/

through the implementation of WSIS action line-related projects. A booklet on *Advancing Sustainable Development Through Information and Communication Technologies: WSIS Action Lines Enabling SDGs* was produced and is available online for download from the ITU Bookshop.

The principal role of the WSIS Stocktaking exercise is to leverage the activities of stakeholders working on the implementation of WSIS outcomes and share knowledge and experience of projects by replicating successful models designed to achieve SDGs.

The WSIS action lines break down into 18 categories:

1) The role of governments and all stakeholders in the promotion of ICTs for development

2) Information and communication infrastructure

3) Access to knowledge and information

4) Capacity building

5) Building confidence and security in the use of ICTs

6) Enabling environment

7) E-government

8) E-business

9) E-learning

10) E-health

11) E-employment

12) E-environment

13) E-agriculture

14) E-science

15) Cultural diversity and identity, linguistic diversity and local content

16) Media

17) Ethical dimension of the information society

18) International and regional cooperation

17 Sustainable development goals (SDGs):

Goal 1. End poverty in all its forms everywhere

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3. Ensure healthy lives and promote well-being for all at all ages

Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5. Achieve gender equality and empower all women and girls

Goal 6. Ensure availability and sustainable management of water and sanitation for all

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10. Reduce inequality within and among countries

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12. Ensure sustainable consumption and production patterns

Goal 13. Take urgent action to combat climate change and its impacts

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

Introduction to the WSIS Stocktaking Report 2016

The 2016 edition of the WSIS Stocktaking Report is the continuation of the WSIS Stocktaking Report series[2]. This eighth edition in the series reflects around 350 activities relating to ICTs for development, submitted to the WSIS Stocktaking Platform for the period March 2015-March 2016, each one highlighting the efforts deployed by stakeholders involved in implementation of the SDGs. The eighth edition offers a considerable number of examples of emerging trends in actions designed to decrease the digital divide and build an inclusive information society. The report is based on the multistakeholder approach, including input from stakeholders from all over the world responding to ITU's official call in 2015 for stocktaking updates and new entries. The inputs from WSIS action line facilitators and co-facilitators also contributed to the present report.

As of March 2016, almost 8 000 updated entries (each entry comprises several activities) and more than 190 000 stakeholders have been registered in the WSIS Stocktaking Database. United Nations Economic and Social Council (ECOSOC) resolution 2015/26 on "Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society", which reiterates the importance of sharing best practices at the global level and recognizes excellence in the implementation of the projects and initiatives that further the goals of the World Summit, encourages all stakeholders to nominate their projects for the annual World Summit project prizes, as an integral part of the WSIS Stocktaking process, while noting the report on the WSIS success stories.

In addition to international stakeholders, including international organizations and companies, all Member States are invited to gather information at the national level with the involvement of all stakeholders in order to contribute to the stocktaking process. In 2013, the new database application was introduced, with additional features that allow stakeholders to use the database in a more efficient way. Users are able to access their project and activities accounts, track all recorded data and update/edit their existing WSIS-related activities at any time. Moreover, the improvement process will continue: other possibilities offered with a view to meeting all stakeholders' needs in the coming years.

Regular reporting on WSIS Stocktaking is the outcome of the Tunis phase of the Summit, launched in order to serve as a valuable tool for assisting with the WSIS follow-up. Since 2005, regular reporting has been a key tool for monitoring the progress of ICT initiatives and projects worldwide. WSIS Stocktaking has played a crucial role over many years, and this role takes on even greater significance this year in the light of the WSIS 2015-2025 review process on the implementation of WSIS outcomes.

Since the WSIS Stocktaking process was first established, seven editions of Global WSIS Stocktaking reports were prepared; each of them included the latest information on WSIS-related activities as contributed by stakeholders. This exercise provided stakeholders with a platform presenting an overall picture of and sharper insight into the latest WSIS activities undertaken toward achieving WSIS goals.

The 8th report aims to describe work contributing to the WSIS goals and SDGs accomplished by stakeholders worldwide. It emphasizes achievements, highlights trends and draws conclusions consistent with the action lines referenced in the Geneva Plan of Action. The report provides key findings on emerging trends in the development of the information society, and a guide to major activities being implemented by facilitators, co-facilitators and other stakeholders in the 18 areas covered by the 11 action lines.

2See the complete WSIS Stocktaking Report series available at http:// groups. itu. int/ stocktaking/ About/ WSISStocktaking. aspx, with the previous editions of the report dated 2005, 2008, 2010, 2012, 2013, 2014 and 2015.

The role of ITU in WSIS implementation

It is important to stress here that ITU has been contributing enormously to WSIS implementation and follow-up from 2005 to the present. The tasks carried out by ITU at the operational and policy level cover all mandates assigned to it relating to the WSIS process, in particular:

- in its capacity as lead facilitator in coordinating the multistakeholder implementation of the Geneva Plan of Action (§ 109 of TAIS) and primary organizer and host of the annual event in May, the WSIS Forum;

- as facilitator for Action Lines C2 (Information and communication infrastructure) and C5 (Building confidence and security in the use of ICTs), as well as C6 (Enabling environment);

- as co-facilitator for Action Lines C1, C3, C4, C7 and C11

- as partner in Action Lines C8 and C9;

- as rotating chair and vice-chair of the United Nations Group on the Information Society (UNGIS) (§ 103 of TAIS);

- as lead partner on Measuring ICT for Development (§ 114 of TAIS);

- as facilitator of the WSIS Stocktaking process (§ 120 of TAIS);

- as organizer of World Telecommunication and Information Society Day (§ 121 of TAIS);

- as lead of the Connect the World Initiative (§ 98 of TAIS).

ITU's contributions to the implementation of the WSIS outcomes: 2011

As at September 2011, over 5 187 entries had been registered in the WSIS Stocktaking Database, the majority of them (58 per cent) having been submitted by governments. In line with § 120 of the Tunis Agenda, the ITU membership is encouraged to continue to contribute information on their activities to this public database. In September 2011, the WSIS Stocktaking Platform attracted 2 718 members from 143 countries. With the aim of engaging the partners in the exchange of knowledge, a series of online interviews with key WSIS stakeholders were conducted.

The Success Stories publications (a **fifth** edition is due to be launched during the WSIS Forum 2016) provide examples of WSIS implementation projects and facilitate the transfer of experience and knowledge at the global level. The publications incorporate a number of voluntary contributions from around the world, collected from active members of the WSIS Stocktaking Platform during the period 2010–2016, and illustrate the key lessons drawn from the management of these projects.

Within the framework of the WSIS Forum 2011, a special interactive session on the WSIS Stocktaking process was held with the aim of discussing the real needs of the WSIS process and ways to address them through the WSIS Stocktaking related activities.

ITU's contributions to the implementation of the WSIS outcomes: 2012

As at October 2012, over 5 718 updated entries had been registered in the WSIS Stocktaking Database, reflecting innovative activities including projects, programmes, WSIS thematic meetings, conferences, publications, training initiatives, guidelines and toolkits. In line with § 120 of the Tunis Agenda and ECOSOC resolution 2014/27, on assessment of the progress made in the implementation of and follow up to the outcomes of the World Summit on the Information Society, the ITU membership is encouraged to continue to contribute information on their activities to this public database. All countries are invited to gather information at the national level with the involvement of all stakeholders, in order to contribute to the stocktaking process.

The 2012 edition of the WSIS Stocktaking Report was the continuation of the WSIS Stocktaking Report series. This fourth edition was officially released during the WSIS Forum 2012. The report reflected more than 1 000 WSIS-related activities for the period 2010-2012, each emphasizing the efforts undertaken by stakeholders involved in the WSIS process. The reporting was based on the contributions of stakeholders responding to the ITU Official Call 2010 and 2011 for updates and new entries.

ITU's contributions to the implementation of the WSIS outcomes: 2013

As at July 2013, over 6 200 updated entries had been registered in the WSIS Stocktaking Database, reflecting innovative activities including projects, programmes, WSIS thematic meetings, conferences, publications, training initiatives, guidelines and toolkits.

In 2013, the new application for the database was introduced, with additional features that allow stakeholders to use the database in a more efficient way. Users are able to access their account of projects/activities and use it to track all recorded data and update/edit their existing WSIS-related activities at any time. The same application is used for the repository of eHealth projects, a joint effort between ITU and WHO.

The fifth edition of the WSIS Stocktaking Report was officially released in May 2013, during the WSIS Forum. It reflected more than 700 WSIS-related activities submitted to the WSIS Stocktaking process between May 2012 and April 2013. This fifth edition included examples of emerging trends in actions geared towards bridging the digital divide and building an inclusive information society.

As at July 2013, the WSIS Stocktaking Platform had attracted more than 20 000 stakeholders representing governments, the private sector, international organizations, civil society and others. As a result, it was recognized as a major ICT for development (ICT4D) online platform.

In 2013, the WSIS Project Prizes initiative, launched on 3 September of the previous year, was continued. More than 280 projects from 64 countries were submitted for the first WSIS Project Prizes contest and more than 3 500 people participated in the online voting phase. The WSIS Prize Ceremony was held on 13 May 2013 during the WSIS Forum 2013 in Geneva, Switzerland, where 18 prizes were awarded in recognition of outstanding efforts from all stakeholders. An innovative component of the WSIS Forum 2013 was the "Showcasing Theatre" which provided an opportunity to promote the winning projects at the international level.

ITU contribution to the implementation of the WSIS outcomes: 2014

As at July 2014, over 6 000 updated entries had been registered in the WSIS Stocktaking Database, reflecting innovative activities including projects, programmes, WSIS thematic meetings, conferences, publications, training initiatives, guidelines and toolkits. Entries may contain information on more than one project.

The sixth edition of the WSIS Stocktaking Report was officially released during the WSIS+10 High-level Event in June 2014. The 2014 report reflects more than 500 WSIS-related activities submitted to the WSIS Stocktaking process for the period May 2013- April 2014, each highlighting the efforts deployed by stakeholders involved in implementing the WSIS goals.

In 2014, the WSIS Stocktaking Platform encompassed 33 000 stakeholders representing governments, the private sector, international organizations, civil society and others, and continued to constitute a major ICT for development (ICT4D) online platform.

One innovative component was the "World Café", which provided an opportunity to promote the winning projects of the WSIS Project Prizes 2014 contest at the international level, share best practices and discuss the purpose and impact of the projects recognized for their excellence in the implementation of WSIS outcomes. Stakeholders highly appreciated the contest's multistakeholder

approach and highlighted the importance of continuing the platform as a mechanism for granting recognition to stakeholders for their efforts to implement WSIS outcomes.

ITU contribution to the implementation of the WSIS outcomes: 2015

In 2015, the WSIS Stocktaking Platform has seen the biggest increase in new entries, including the number of stakeholders registered, reaching a total of more than 100 000 stakeholders representing governments, the private sector, international organizations, civil society and others. This has strengthened its position as the major ICT for development (ICT4D) online platform. As at April 2015, over 7 000 updated entries are registered in the WSIS Stocktaking Database, reflecting all manner of innovative WSIS-related activities.

The seventh edition of the WSIS Stocktaking Report will be officially released during the WSIS Forum 2015 (25 to 29 May 2015, in Geneva, Switzerland). It should reflect the more than 1 000 WSIS-related activities that were submitted to the WSIS Stocktaking process for the period April 2014- March 2015.

In addition, more than 300 international projects have been competing in the prestigious WSIS Project Prizes contest and are also to be included in the 2015 Stocktaking report. This marks an increase of 114 per cent in project nominations since 2014. The WSIS Project Prizes contest is part of the WSIS Stocktaking Process, and is a unique way of recognizing excellence in the implementation of WSIS outcomes.

More than half of the projects submitted this year were government initiatives, while 12 per cent originated from civil society, 11 per cent from the business sector, 10 per cent from international organizations, and another 12 per cent from other, mainly academic, entities. As regards geographic distribution, 31 per cent of the projects in 2015 were submitted by Arab States, 18 per cent were from Europe, 16 per cent each from the Asia-Pacific Region and the Americas, 12 per cent from Africa, and 4 per cent from the CIS, while 3 per cent came from international organizations and international NGOs.

The WSIS multistakeholder community was invited to participate and cast its vote for one project in each of 18 categories. The deadline for votes was 1 May 2015. The list of the 18 most appreciated/ voted projects was identified and winning projects were announced officially to the public during the prize ceremony held during the WSIS Forum 2015. The success stories showcased examples of projects on the implementation of WSIS outcomes, emphasizing the achievements of stakeholders working towards achievement of WSIS goals, transferring experience and knowledge at the global level, and spreading and fostering WSIS values.

ITU contribution to the implementation of the WSIS outcomes: 2016

As at April 2016, almost 8 000 updated entries are registered in the WSIS Stocktaking Database, reflecting all manner of innovative WSIS-related activities.

The eighth edition of the WSIS Stocktaking Report and the fifth edition of Success Stories 2016 will be officially released during the WSIS Forum 2016 (2 to 6 May 2016, in Geneva, Switzerland). It should reflect the more than 1 000 WSIS-related activities which were submitted to the WSIS Stocktaking process for the period March 2015- March 2016.

While last year's contest was already a record-breaker in terms of the number of projects submitted, the **WSIS Prizes 2016** contest has hit a new high with a 15 per cent increase in submissions. Following a comprehensive review of the projects submitted, the ITU Expert Group nominated more than 300 projects and posted them online for public appreciation. The 311 nominated projects break down into 179 projects from the government sector, 41 from the business sector, 31 from civil society, 14 from international organizations and 46 from other entities (mostly academic). As regards regional distribution, 86 projects are from the Arab region, 73 from the Asia and Pacific region, 53 from the Americas region, 36 from the Europe region, 31 from the CIS region and 27 from the Africa region, while five nominated projects come from international organizations.

The members of the WSIS multistakeholder community were invited to participate and cast their votes for one project in each of 18 categories. The deadline for voting was 10 March 2016. The list of the 18 most appreciated/voted projects will be identified and winning projects will be announced officially to the public during the prize ceremony to be held during the WSIS Forum 2015. The success stories will showcase examples of projects for implementation of WSIS outcomes, emphasizing the achievements of stakeholders working towards the achievement of WSIS goals and SDGs, transferring experience and knowledge at the global level, and spreading and fostering WSIS values. Besides the 18 winners, an innovation in this year's **WSIS Prizes** contest is the **WSIS Prize Champions** category, which recognizes those contenders having emerged from the online voting phase with at least 245 000 votes from the WSIS community. Their projects are among those having received the highest number of votes and having gained the best reviews by the members of the Expert Group. Among the five projects selected in each of the 18 categories, one will be the Winner and the runners-up will be WSIS Prize Champions.

WSIS Prizes 2016

Background

The WSIS Prizes contest provides the platform to identify and showcase the success stories and models that could be replicated, to empower the community at the local level, to give everyone the chance to participate in the contest and, in particular, to recognize stakeholders for their efforts in furthering the development of society and commitment towards achieving the WSIS goals and SDGs. The WSIS Prizes contest is an integral part of the WSIS Stocktaking process (www.wsis.org/stocktaking) set up in 2004 to assist WSIS implementation and follow-up. The contest was held for the first time in 2012, and rapidly gained attention and popularity within the ICT for development (ICT4D) community.

WSIS Prizes is a unique international contest developed in response to requests from the WSIS stakeholders to create an effective mechanism to evaluate and recognize individuals, governments, civil society, local, regional and international agencies, research institutions and private-sector companies for outstanding success in implementing development-oriented strategies that leverage the power of ICTs as an enabler of the SDGs. The WSIS Prizes 2016 contest provides a platform to identify and showcase success stories across the WSIS Action Lines defined in the Geneva Plan of Action and SDGs.

WSIS Prizes and SDGs

Building upon the outcomes of the UNGA Overall Review on WSIS as well as the 2030 Agenda for Sustainable Development, WSIS Prizes 2016 started reflecting the linkages between the projects and the SDGs. ICTs are enablers for sustainable development, and reporting on ICT success stories to best showcase the possible achievement of SDGs through the implementation of WSIS action line-related projects constitutes the new objective of the WSIS Stocktaking process, including WSIS Prizes. We invite you to follow the process and learn how ICT projects, submitted for WSIS Prizes 2016, are enabling the advancement of the SDGs.

WSIS Prizes 2016 contest

More than 400 ICT success stories were submitted for WSIS Prizes 2016 by 31 January 2016. This comes as further acknowledgment that the WSIS Prizes contest represents unique recognition for excellence in the implementation of WSIS outcomes. Although last year's contest attracted by far the largest number of projects submitted, the WSIS Prizes 2016 contest has set a new record, with 15 per cent more projects. After a comprehensive review of the projects submitted, the ITU Expert Group nominated more than 300 of them for the voting phase.

Based on entity distribution, 179 of the 311 projects nominated are from the government sector, 41 from the business sector, 31 from civil society, 14 from international organizations and 46 from other

entities (mostly academia). As to regional distribution, 86 projects are from the Arab region, 73 from the Asia and Pacific region, 53 from the Americas, 36 from Europe, 31 from the CIS region and 27 from Africa. Five nominated projects come from international organizations.

All stakeholders are urged to encourage their networks to join this global initiative. In the 2015 edition, over 140 000 stakeholders joined the voting phase thanks to several campaigns set up by the project owners, thus attracting newcomers to the WSIS process.

The 18 winners of WSIS Prizes will be honoured, recognized and presented with an award during the WSIS Prizes 2016 Ceremony at the WSIS Forum 2016, to be held from 2 to 6 May 2016 in Geneva, Switzerland. The contest comprises 18 categories that are directly linked to the WSIS action lines outlined in the Geneva Plan of Action.

The WSIS Prizes 2016 contest is organized in five phases:

- Phase I: 13 October 2015-31 January 2016- Submission phase

- Phase II: 1-5 February 2016- Nomination phase. Revision of submitted projects by Expert Group, resulting in a list of nominated projects.

- Phase III: 6 February-10 March 2016- Public Online Voting. Identification of three projects per category with the highest number of votes (final deadline for voting: 2300 hours, Geneva time).

- Phase IV: 14-18 March 2016- Selection of winning projects by the Expert Group, resulting in a list of winners.

- Phase V: Announcement of winners to the public during WSIS Prizes 2016 Ceremony at WSIS Forum 2016, to be held from 2 to 6 May 2016.

The contest is open to all stakeholders, entities representing governments, the private sector, international and regional institutions, civil society and academia. All stakeholders are encouraged to join the WSIS Prizes process, including the multistakeholder consultations at the WSIS Forum, in order to ensure that all features correspond to the real needs of the WSIS implementation process beyond 2015.

Action Line C1. The role of governments and all stakeholders in the promotion of ICTs for development

The effective participation of governments and all stakeholders is vital in developing the information society, an endeavour which requires cooperation and partnerships among all such parties. This action line is intended to promote the development of national e-strategies, including the necessary human capacity building, taking into account different national circumstances.

The **United Nations Department of Economic and Social Affairs (UNDESA)**, as the lead facilitator for Action Lines C1, C7 and C11, Vice-Chair of the United Nations Group on the Information Society (UNGIS) and administrator of the Internet Governance Forum (IGF) secretariat, continued its efforts to promote policy dialogue and advocacy for the implementation of the World Summit on the Information Society (WSIS) outcomes by United Nations bodies, governmental and non-governmental stakeholders and partners through a number of initiatives listed in Part II of this report. It has ensured, in addition, the comprehensive exchange of views, information and experiences among WSIS stakeholders, as well as providing advisory services and technical assistance to developing countries.

Progress in online service delivery continues in most countries around the world. At the same time the 2014 United Nations E-Government Survey observes a new trajectory in the efforts of governments to put together a national ICT policy and e-government strategy by strengthening institutions and building the capacities of public servants. Collaborative service delivery is now pervasive, where governments, citizens, civil society and the private sector often work together to innovate processes and leverage new technologies. In meeting multi-faceted sustainability challenges, governments are, for example, increasingly using open data and big data analytics to improve accuracy in forecasting citizens' demand for public utilities or to screen for irregularities in public procurement. Predictive analysis is also used to identify issues before problematic scenarios develop, and sentiment analysis is deployed in engaging citizens in public consultation and decision-making processes, notably through e-participation.

This shift is observed in both developed and developing countries, with the focus on adding public value to people's lives in an inclusive manner. As this collective global effort, led by the United Nations, gains momentum towards greater acceptance, and the institutional linkages among the economic, social and environmental pillars of sustainable development are strengthened, there is a need for awareness of the importance of e-government that is for and with the people, in achieving higher standards of living for future generations.

Lastly but very importantly, this action line contributes to several sustainable development goals (SDGs), namely **SDGs 1, 3, 5, 10, 16** and **17**. The actions of governments and all stakeholders aim to reduce existing and emerging socio-economic and gender inequalities, promoting affordable access to ICTs and digital content, ensuring that e-services can be adequately provided to all people through affordable and public access to ICTs. Regarding the health system, by monitoring the spread of diseases, creating related databanks and storing good practices, governments and stakeholders may assist decision makers in health planning, human resources needs assessment, medicines procurement and infrastructure construction, thereby facilitating **targets 3.8** and **3.d**, relating to the achievement of universal health coverage and strengthening of the capacities of all countries to manage health risks. This category creates structures for communication and collaboration to enable coordination, strengthening actions among governments, international organizations, NGOs, the private sector and civil society.

C1.1 National e-strategies

Targeting **African countries**, the organization African Civil Society on the Information Society (ACSIS) has developed the *ACSIS WEB PLATFORM*, which aims to provide African civil society and all partners (African governments, civil society, communities, the private sector, academia and international organizations) with a consistent information system focusing on WSIS and ICT activities relating to the African continent. The project directly meets several sustainable development goals (SDGs), namely **SDGs 1, 3, 4, 5, 8, 9, 10, 16** and **17**, by promoting inclusive and sustainable ICT growth, peaceful and inclusive societies and lifelong learning opportunities for all African countries, ensuring healthy lives and equitable quality education, building resilient infrastructure and fostering innovation. The goal of the programme is to inform, train and educate Africans on issues related to Internet governance and WSIS action lines, as part of a unique platform for Africa and the African Diaspora. The platform will also be progressively establishing an observatory on ICTs and the ICT profile of each African country.

In **Algeria**, the Ooredoo organization has launched the *"Oobarmijoo"* (Arabic for "I develop") project in order to support innovation within the community of Algerian developers. Specifically, Oobarmijoo works as a challenge/competition to stimulate the creation of local content by local publishers, such as mobile applications and innovative solutions in the IoT and ICT spheres, under the label "Made in Algeria". The project highlights the impact of ICT promotion for the purpose of encouraging innovation in Algeria.

 As such, it relates to **SDG 9.5**, where the aim is to enhance scientific research and inspire the local innovation process.
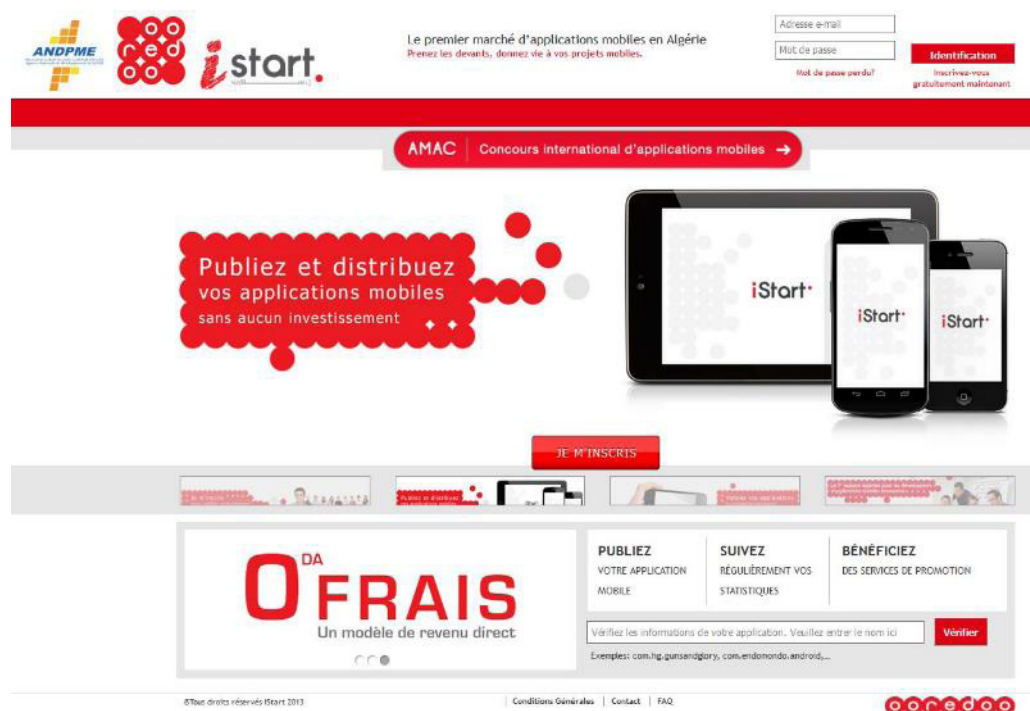
The Ministry of Telecommunication and Information Technology of **Angola** prepared the *ANGOLA ONLINE PROJECT*, whose main goal is the social and digital inclusion of Angolan society by bringing ICT to the neediest communities. The project is framed within the executive guidelines set out in the National Development Plan 2013-2017, focusing on the integration of young people into working life by implementing programmes which foster the use of new information technologies for access to culture and entrepreneurship. The provision of public Wi-Fi areas enables anyone with a wireless or card device (PC, smartphone, tablet, etc.) to access and surf the Internet for a period of two hours per day in all such locations. In the short term, it is expected to achieve 60 000 connected devices per month and some 15 to 30 access points per province.

The project ties in with a number of **SDGs,** particularly **1.4** and **1.a**, by seeking to ensure that Angolan society has access to basic services and by implementing programmes and policies to end poverty in all its dimensions. It is also in line with **SDGs 4** and **11** by working towards inclusive and equitable quality education, promoting lifelong learning opportunities for all, and fostering inclusive, safe, resilient and sustainable cities.

In **Argentina**, a new project entitled *Fostering integration of Argentine academia in the activities of ITU* was created by ENACOM (Ente Nacional de Comunicaciones). The goal of this project is to build human capacity with a high level of specialization in telecommunications and ICT. To this end, all national universities and other associated research institutions (including those focusing on electronic engineering, industrial engineering, IT, medicine, law and economics) with an interest in the work of ITU were invited to participate.

This project gives prominence to a large number of SDGs related to the promotion of ICTs for development. More specifically, *ENACOM* is involved in **SDGs 1, 3, 4, 7, 8, 9, 10, 11, 13, 16** and **17** as it promotes and seeks to ensure healthy, sustainable and secure lifestyles in all social domains, including learning, business, science, environment, agriculture, government, etc., as well as revitalization of the global partnership for sustainable development.

The Ministry of Telecommunications and Information Society (MINTEL) of **Ecuador** came up with a national strategy, *E-money*, which fosters financial inclusion by facilitating access to lower-cost financial services for citizens, thereby improving their quality of life and reducing poverty indicators. Among other benefits, it enables the government to grant nanocredits and focus subsidies. The E-money system, managed by the Banco Central del Ecuador (BCE), is a payment method that allows citizens to make secure and reliable online transactions, using cellphones, without the need for Internet access or a bank account. Under its national legislation, Ecuador must move towards the sustainable consolidation of social solidarity and a reliable economic system, while at the same time developing an efficient alternative payment system. This will help to achieve economic and social inclusion and the well-being of millions of citizens, as well as stronger public finances and a better-regulated economic system. In this context, BCE developed a new mechanism to strengthen the use of electronic and alternative payments.

The project thus relates directly to the promotion of sustained and inclusive economic growth, and achievement of full and productive employment and decent work for all, thereby reflecting **SDG 8** and its relevant targets.

In **Kazakhstan**, the Mazhilis (lower house) of the Parliament adopted the *Laws on Informatization*, in the interests of ensuring the ongoing informatization of Kazakh society through the legislative implementation of an efficient system of organization. It meets contemporary international standards, such as:

- legislative recognition of a new model for the informatization of government agencies, including IT outsourcing and cloud computing;

- legislative recognition of state support for the development of informatization;

- creation of a legal framework for the e-government architecture;

- regulation of basic trends in public policy for the informatization of the State's activities;

- regulation of measures for ensuring information security in the field of informatization.

The Laws on Informatization promote the cultivation of innovation, an inclusive society based on sustainable development and strengthening of the means for implementing an efficient system, all of which is fully in line with the corresponding goals and targets (**SDGs 10, 16** and **17**).

In **South Africa**, the training initiative known as *Empower Educate Econnect Communities* has been created by the Siyafunda Community Technology Centre (CTC) to provide information and community knowledge centres where people can access computers, the Internet and other digital technologies which enable them to gather information, create, learn and communicate with others while developing essential digital skills. The focus is on the use of digital technologies to support community, economic, educational and social development in the interests of reducing isolation, bridging the digital divide, promoting healthcare, creating economic opportunities and reaching out to young people. Siyafunda CTC establishes partnerships and relationships with multistakeholders, local governments and municipalities, private business organizations, community-based organizations, schools and universities to provide community technology centres in previously disadvantaged areas, thereby realizing the vision of "ensuring that all citizens are computer competent and have access to information and communication technologies and the Internet". It thus enables equitable quality education and promotes lifelong learning opportunities for all, as well as economic growth, employment and, ultimately, peaceful and inclusive societies (**SDGs 4, 5, 8** and **16**). Siyafunda CTC provides management and operational skills and capacity in supporting sustainable projects and initiatives that uplift communities by equipping them with ICT. This initiative responds to the

aspiration of national and local government to make ICT access (Internet and e-mail) accessible to all communities, thereby enabling young people, the unemployed, women and persons with disabilities to acquire the skills that will make them employable, and alleviating unemployment through networking with recruitment agencies, government agencies and businesses, thus becoming an enabler for job creation.

In the **United States**, the Ark Earth Foundation Data Revolution (AEF) is promoting the transition forward by creating a knowledge economy trade through which its products and services constitute a sustainable civilization progression. The *Ark Earth Foundation 21st Century Sustainable Civilization Progression* scale moves forward as the Semantic Intelligence Web deploys. The deployment begins with modelling of open governance using Web 3 Intelligent Agent softwares which enable fast-track trade that favours the rapid deployment of sustainable innovations and substantial capital investment. The AEF project is a work-in-progress "data revolution" targeting **all the 17 SDGs** and is intended for implementation in the Digital state of Cumberland, United States.

In **Uruguay**, the Agency for e-Government and Information Society (AGESIC) boosted the *Digital Agenda Uruguay* (Uruguay's digital policy) project, which reflects a sustained and continuous effort through several versions: 2007-2008, 2008-2010 and 2011-2015. It does not constitute a governmental or technology plan, but rather a multistakeholder commitment and social inclusion agenda. The Digital Agenda highlights are:

- Regional leader in ICT access

- Outstanding plans offered by government such as 1GB broadband with no monthly fee

- First country in which all public school students have their own PC

- Reducing the PC access gap between lower-income and upper-income households to only 10 per cent

- No child should have to walk more than 300m from home to access the Internet

- Main software exporter per capita

- First country with 100 per cent livestock traceability.

These key points connect the Digital Agenda to **SDGs 1, 3, 4, 9, 10** and **17** by focusing on healthy lives and the ending of poverty in all its forms everywhere, building of resilient infrastructure, promotion of sustainable industrialization and fostering of innovation.

The *Open Data Policy* is part of fulfilling **Qatar**'s National Development Strategy 2011-16 mandate that requires the efficient and transparent delivery of public services in Qatar to achieve the goals of the Qatar National Vision 2030 for social progress, human development, sound and diversified economy and sustainable environment. The strategy also states that, in order to build a knowledge-based society, it is important in the long term for Qatar to create an open, transparent culture where knowledge bases are kept current and easily accessible, which, in turn, develops the capacity and culture for routinely processing, sharing and interpreting information.

This document outlines the approved Open Data Policy that will assist the State of Qatar in attaining its national development goals of efficient and transparent delivery of public services, and building a knowledge-based society by creating an open, transparent culture where knowledge bases are current and easily accessible (**SDGs 4, 8, 16**, etc.).

In **Bangladesh**, the MCQ Everyday organization adopted the Convention for the pacific plantation of national revolution in online activities, which have begun to work in 2014 by launching the *Start up educational website* project. Established by the founder The project promotes national cooperation and achieves peace and security (**SDGs 11** and **16**).

Indonesia's *Ministerial Decree on ICT Number 23 of 2013* regulates domain name management. Registration is managed by a multistakeholder community in order to ensure the fair and equitable management of the domain name system (DNS), thus contributing to **SDG 16** on the promotion of an inclusive society for sustainable development.

The Government of **Indonesia** adopted *Law Number 11 of 2008 concerning Electronic Information and Transactions* as it totally supports the development of information technology through the infrastructure of law and its regulation. Guidelines are implemented in order to provide security and prevent misuse of ITs vis-à-vis the religious and social-cultural values of Indonesian society, thus promoting equality and open access to information and knowledge for its population (**SDGs 10** and **16**).

The *Rural Visual Journalism Network* gives voice to the unheard in rural **Bangladesh**. Using iPod Touch and smartphone technology, correspondents in rural Bangladesh identify stories of importance to the rural community. Through impactful storytelling and online distribution networks and by linking with mainstream media, the project provides a platform for rural voices. Issues cover gender, the environment, health and education, and highlight role models in rural Bangladesh who have found innovative solutions to local problems (**SDGs 3, 4, 5** and **15**).

Indonesia has formulated the *Indonesian Broadband Plan (IBP)*, a plan to create a better foundation for the Indonesian broadband ecosystem by 2019. By harnessing the full potential of broadband, the Plan envisages the integration of national logistics and transportation systems. It also aims to accelerate the development of broadband infrastructure, digital literacy, as well as a competitive regulatory framework and funding while also accelerating development of a digital services platform.

IBP 2014-2019 is promulgated under Presidential Decree Number 96 of 2014 and included in the National Long-Term Development Plan 2005-2025. It aims to guide the development of a comprehensive and integrated broadband network in Indonesia for the next five years. It highlights the level of ICT prioritization and presence of a digital government strategy, contributing to certain SDGs on the promotion of sustainable industrialization and sustainable use of ecosystems (**SDGs 9** and **15**).

The *National Procurement Portal of **Indonesia** (INAPROC)* is a web-based application system that provides various facilities as well as information related to the procurement process for goods/services in all government offices. The system has been developed to improve the efficiency and effectiveness of the procurement process. Through e-Procurement, suppliers may access certain information including the latest news on procurement updates, information, policy and blacklisted

suppliers or vendors. Suppliers may sign up and register online to be a registered vendor and offer their goods and services for the available tenders.

The successful implementation of e-Procurement in Indonesia has become the example of how ICT can support transparency in pursuing good governance, thus contributing to **SDG 16**, **target 16.6** – development of effective and transparent institutions at all levels.

C1.2 ICT for sustainable development

In **Colombia**, the Ministry of Information Communications and Technologies and Procolombia launched the *Agreement to Strengthen and Consolidate the Commercial Capacity and Support the International Promotion of Mipymes* [SMEs] *in the IT and Digital Content Industries* project. The ministry has, since 2012, been developing strategies to strengthen and consolidate the commercial capacity and support the international promotion of SMEs in the IT and digital content industries, thereby contributing to the increase of sales in the sector, in accordance with the Vive Digital plan. From 2012 until March 2015, a total of 931 IT and digital content companies have benefited from this agreement, exporting to more than 50 countries in Europe, the Americas and Asia, for a total value of USD 166 523 099. This synergy also enabled the launch of the "Colombia Bring IT On" campaign to promote the industry abroad. The project clearly highlights the impact that the ICT and digital content industries can have in achieving the SDGs.

In particular, **SDGs 8** and **9** focus on the promotion of sustained, inclusive and sustainable economic growth, achievement of employment and decent work for all, as well as on the building of resilient infrastructure, promotion of sustainable industrialization and innovation fostering.

Camila Virtual Assistant with Artificial Intelligence is another project in **Colombia**, created by smart companies (empresas inteligentes), which takes the form of a guidance tool directed towards the promotion of ICTs for development. In compliance with the Colombian Government's Manual of Procedures for Government Entities, and in order to maximize the number of student loans and facilitate access for blind people, ICETEX implemented a virtual assistant on its website to respond to frequently asked questions, with an avatar that reads the responses and co-navigates with the user to guide him or her through the website. The project emphasizes the linkage between ICTs and certain SDGs.

In particular, Camila Virtual Assistant seeks to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (**SDG 4**), achieve gender equality and empower all

women and girls (**SDG 5**), promote peaceful and inclusive societies (**SDG 16**), and revitalize the global partnership for sustainable development (**SDG 17**).
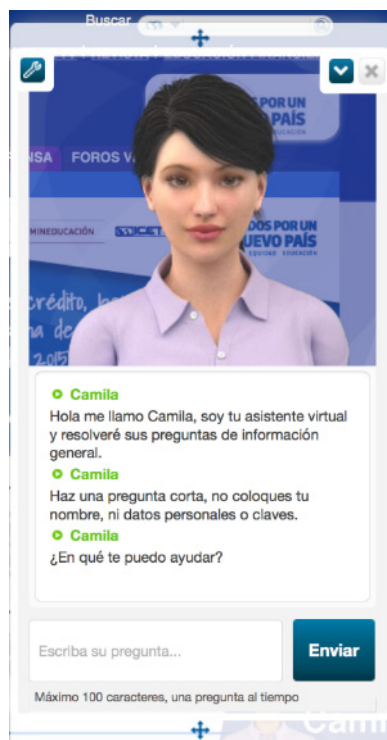
In **Costa Rica**, the *Telecommunications Development National Plan (Plan Nacional de Desarrollo de las Telecomunicaciones (PNDT)) "Costa Rica: A connected society"* aims to boost the growth of and access to ICT and pave the way for the creation of a favourable environment for the fair and proper social and economic development of democratic societies. The strategic paths focus on reduction of the digital divide, efficient use of spectrum and universal and affordable access to broadband. This holistic plan promotes broadband, social inclusion, empowerment of the people, and open and transparent e-government. With two public consultations and some 45 workshops having been conducted, this is an effort on the part of some 50 institutions in the public, private, education and civil society sectors to create value using ICTs.

This national public policy ties in with **most of the SDGs** as it covers all important aspects of sustainable development.

In **Qatar,** the *ICT Landscape Report 2014* released by the Ministry of Information and Communications Technology reveals that all segments of Qatar's population have access to Internet-enabled ICT devices—particularly mobile phones—with newer devices such as smartphones and tablets yet to fully penetrate.

The report is based on a large-scale study of ICT access and the usage behaviours and patterns of residents in Qatar. It also shows that the use of basic online services such as e-mail, Internet browsing, social networking and peer-to-peer file sharing is prevalent across all segments of society. However, advanced online services such as e-commerce, online banking, and transactional e-government services are employed much more frequently among people with higher levels of education, as well as among Qataris and westerners.

Thus, while broad ICT access has almost been achieved in Qatar, there is still much room for improvement when it comes to the sort of advanced usage that will drive future innovation and economic success (**SDGs 8** and **9**).

Malaysia launched two initiatives aimed at promoting ICTs for development.

The *eBorneo Knowledge Fair (eBKF)* is a bi-annual community-based unconference held in the central Borneo highlands of Sarawak. It showcases the local use of ICTs for sustainable development in isolated rural indigenous communities, as well as identifying new research into uses of ICTs that communities will welcome. It is organized in conjunction with the local community, bringing together researchers, practitioners, government officials and policy-makers with the resident indigenous peoples, in both Malaysia and neighbouring Indonesia.

The conference reflects a **considerable number of SDGs** by fighting against poverty and hunger, ensuring access to affordable, reliable and modern energy for all, promoting economic growth, employment and decent work for all, reducing inequality within and among countries, etc.

On 1 January 2008, the Co-operative Development Department of **Malaysia** was transformed to become the Co-operative Commission of Malaysia (SKM). The aim of the Commission is to promote a financially sound, progressive and resilient cooperative sector. All clients are registered in cooperative societies in Malaysia. The *"Perakaunan Sistem Konsep Mudah" (p-SKM)* is a free accounting software that was designed on the basis of the Microsoft Excel platform for the cooperator and Commission staff services. P-SKM's relevance lies in supporting the Commission's objectives, fulfilling the targets of the Malaysian Government and improving the welfare of the people.

The programme is thus in line with several SDGs as it seeks to end poverty and hunger in all its forms, ensure healthy lives and promote well-being for all, promote inclusive and sustainable economic growth, employment and decent work for all and reduce inequality within and among countries (**SDGs 1, 2, 3, 8** and **10**).

In **Tunisia**, Tunisian Post has developed the *Mobile Payment* mobile money platform in partnership with network operators in the market, having launched mobile services in 2010. The Mobile Payment services can be accessed from any mobile phone, including the most basic feature phone, and on any network technology. The platform enables users, through their mobiles, to recharge GSM credit, transfer money, cash money orders nationwide, cash Western Union transfers, pay bills, pay microcredits with microfinance institutions and pay micro-insurance premiums, as in the case of micro-health insurance for students.

Mobile Payment is directly related to ICTs and the corresponding **SDG**s by promoting inclusive and sustainable economic growth, employment and decent work for all, and revitalization of the global partnership for sustainable development.

In **Uganda,** the *Annual Communications Innovation Awards (ACIA)* is a yearly initiative that fosters innovation through the recognition and reward of outstanding ICT innovations. ACIA provides a platform upon which outstanding ICT innovations can be showcased and propelled to further success. Since the initiative's establishment in 2010 by the Uganda Communications Commission, various innovations have been recognized and awarded in different ways. The awards serve as a platform for showcasing innovations within Uganda's ICT industry, raise awareness of the value of ICTs and recognize outstanding innovations in the development and adoption of ICTs in Uganda.

The initiative perfectly meets all the **SDG**s related to ICTs.

Indonesia hosted the *8th Internet Governance Forum 2013* in Bali, with the theme "Building Bridges: Enhancing Multi-Stakeholder Cooperation for Growth and Sustainable Development". This conference addressed the issue of Internet governance and the global architecture of cyberspace. The multistakeholder nature of the Bali conference brought together government, the business sector and civil society.

The conference thus contributed to **SDG 16** and **17** by providing an open access to information, protecting fundamental freedoms and revitalizing partnership within the country.

C1.3 ICT in parliaments

In **Latvia**, the Ministry of Environmental Protection and Regional Development conceived the *Better Customer Service by Cooperation between National and Local Governments* project, with an innovative approach which consists in eliminating borders in the delivery of and access to public services by setting up a Network of State and Municipal Unified Customer Service Centres. This new approach to implementation of the "one-stop-shop" principle represents a significant change in inter-institutional and intergovernmental cooperation by minimizing the distinction between the services provided by local governments or state institutions, as well as by paying significant attention to the development of e-skills and fostering a positive attitude to self-service. Particularly innovative is the voluntary involvement of local governments in provision of the most popular "physical/on-site" state institution services and the use of existing infrastructure/assets and human resources. Restructuring of the delivery of public services in Latvia is making a significant contribution to the development of the public-service system, thereby reducing administrative burdens, improving the business environment, ensuring service availability in the regions and promoting more efficient public administration.

This ongoing policy implementation activity ties in with **SDG 10** as it focuses on reducing inequality within and among countries.


In **Mexico,** government policies should favour assistance to, and the growth of, SMMEs (small, medium and micro-sized enterprises) in the ICT industry, as well as their entry into e-business, in order to stimulate economic growth and job creation as part of a strategy for poverty reduction through wealth creation. *Retos Públicos (Public Challenges)*, the Mexican Government's platform for challenge and prize competitions, is for the first time opening up public contracting of SMMEs in the ICT industry. In this spirit, it promotes inclusive and sustainable economic growth, employment and decent work for all. Since 2014, 11 federal ministries have engaged with over 1 500 participants to create 75 prototypes for 15 open-source solutions for citizen engagement, efficiency, transparency and participation at less than 10 per cent of the normal cost. Winners have the opportunity to provide technology for a market that was previously closed to them and are incentivized to formalize their operations to become well-established, high-impact companies. In its new phase, Retos is expanding in 2016 to become "Reto México", the largest innovation model for both the public and private sectors.

In **Saudi Arabia**, the Saudi Commission for Tourism & National Heritage (SCTH) has set up the *Digital portal for touristic accommodation licensing services,* an online website designed to provide users with a virtual link to SCTH's licensing services. The portal enables all stakeholders to access relevant information in the interests of promoting investment in the tourist accommodation sector. **SDG 16.10** has to do with ensuring public access to information and protecting fundamental freedoms, in accordance with national legislation and international agreements. Such is the case for this portal, which was created by establishing a number of partnerships in the governmental sector, including the Ministry of Interior and Ministry of Commerce and Industry, to enrich databanks and raise standards for all parties involved. The results have shown a 60 per cent reduction in processing times. The portal is flexible enough to accommodate any future changes.

The **United Arab Emirates (UAE)** initiated three projects within this category.

Mashrooi is a smart application launched in 2015 by the **Dubai** Land Department for the real estate community, to provide it with a secure and authentic marketing platform for all real estate investors, both local and international, on which they can find relevant information about real estate projects at different phases and milestones (final façade and related videos, final inspection pictures, cadaster information and trust account details). It is a unique reference for government and stakeholder participation in the promotion of ICT for development, taking into account local, regional and international needs and concerns. It is sustainable over the generations to come and is supported by the Executive Council of the Government of Dubai. The purpose of this mobile application is to enable the building of resilient infrastructure, fostering innovation and the strengthening of global development.

| Real Estate Developer | Project Details | Project Media | Project Location | Project Inspection |
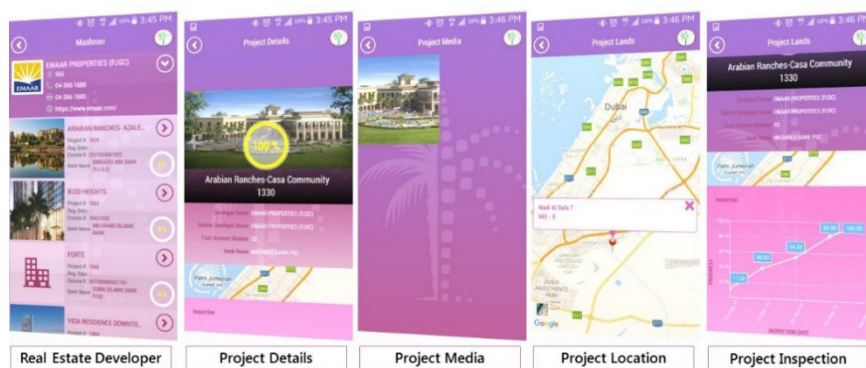
The UAE Government invites the most innovative and creative minds to find solutions that will improve people's lives and provide positive technological solutions to modern day issues. Within this context, the *Drones for Good Award* is designed to offer people from all parts of the world an opportunity to make a genuine difference. With a commitment underlined by the significant prize fund, the Drones for Good Award is considered the first and largest of its kind, rewarding the best practical implementations of drones for the benefit of humankind. Its aim is to serve as a hub for innovators worldwide to demonstrate their prototypes, network with stakeholders and investors, and explore opportunities for collaboration. It consists in an international competition (award of USD 1 million) and a national competition (award of AED 1 million). By establishing strategic partnerships with Microsoft, Samsung, Indra and IEEE, the award attracted over 800 submissions from 57 countries in its first cycle, and 1 017 submissions from 165 countries in the second cycle.

By triggering international implementation and the promotion of country engagement, the Drones for Good Award relates to a **large number of SDGs**.

To achieve the vision and initiative of *Smart Government*, the UAE's Ministry of Interior (MOI) introduced a qualitative shift in service delivery channels by transitioning from e-Government to more advanced

جــائزة الإمـــارات للطــائرات
بــدون طـيار لخــدمة الإنـسان
THE UAE DRONES
FOR GOOD AWARD

and innovative Smart Government concepts, in line with the ambitious UAE Vision 2021 goals – "We want to be among the best countries in the world by 2021" – as well as with **SDGs 3, 16** and **17**, as it deals with ensuring healthy lives, promotion of well-being for all and revitalization of the global partnership for sustainable development. It has involved the development of an intelligent application that enables MOI to deliver its services around the clock, irrespective of location, via smartphones and other handheld devices. Its approach is characterized by innovation, excellence and the application of international service standards.

Action Line C2. Information and communication infrastructure: an essential foundation for the information society

As stated in the Geneva Plan of Action, ICT infrastructure plays an important role in achieving the WSIS objectives and SDGs. This chapter illustrates some of the initiatives that **ITU** participated in and launched of relevance to this category.

The Ninth Interactive Facilitation Meeting on Action Line C2 was held in Geneva on 28 May 2015, entitled Broadband for Sustainable Development. The most debated issues were: public private partnership (PPP) as model for implementing broadband networks, the application of lessons from Moore's law in order to promote broadband and achieve the SDGs, key factors to make rural communication projects successful and sustainable, evolving IMT systems, standards, technologies and architecture supporting mobile broadband, the ITU GIS-based transmission maps as a useful tool for identifying the missing links and and improving broadband connectivity.

Main linkages with the SDGs:

- The existing IMT standards and the further development of IMT-2020 will play a key role in achieving the SDGs.

- The success case from the microchip industry has been significantly increasing affordable access to the Internet all over the world.

At the 2014 ITU Plenipotentiary Conference (PP-14) held in Busan, Republic of Korea, the Connect 2020 Agenda for Global Telecommunication/ICT Development was adopted unanimously. This new Agenda will constitute the new global shared vision, goals and targets to be achieved by 2020 in collaboration with all stakeholders across the ICT ecosystem.

ITU's "Connect a School, Connect a Community" initiative, part of the "Connect the World" initiative, aims to improve access to broadband in schools and enable schools to serve as community ICT centres. ITU is continuing to support the initiative in Comoros, where it is equipping and connecting schools, and in Palestine, in cooperation with the United Arab Emirates (UAE).

To provide a global perspective of broadband connectivity that will allow its membership to identify broadband investment opportunities, ITU has been updating the ITU Interactive Terrestrial Transmission Maps by continuously collecting data from all regions. The maps are a cutting-edge ICT-data mapping platform for taking stock of national backbone connectivity (fibre and microwave) as well as of other key metrics of the ICT sector; it currently covers Africa, the Asia-Pacific region, the Arab States, CIS, Europe and Latin America, with data from more than 300 operators.

ITU has organized conformity and interoperability (C&I) activities on a regional basis in partnership with relevant stakeholders. Capacity building events have been organized on electromagnetic compatibility, type approval of mobile terminals, and C&I regimes. These sessions took place at partnering laboratories in the regions.

Conformity and Interoperability Training for the Arab Region was conducted in Tunis, Tunisia, from 11 to 15 April 2016. This year the C&I training course focused on the organizational aspects of the conformity assessment from the administrative perspective: the roles of and relationship between the designating authorities, conformity assessment bodies, certification bureaux and test labs.

The ITU Regional Workshop for CIS and Georgia on Mobile Number Portability, Conformance and Interoperability was held in Moscow, Russian Federation, from 22 to 24 March 2016. The workshop was aimed at sharing practical experience in the field of the testing (including remote testing) of equipment, new technologies and services. In particular, the workshop covered such issues as:

- Mobile number portability standardization;

- Experience of operation of the Number Portability Database in Russia and European countries;

- Areas of ITU activities in the field of conformance and interoperability;

- Infrastructure of the virtual laboratory for remote testing of equipment, new technologies and services.

During this training, international experiences regarding procedures to establish C&I regimes were presented and practical testing activities on C&I were conducted.

A further Conformity and Interoperability Training for the Africa Region on Type Approval Testing for Mobile Terminals, Homologation Procedures and Market Surveillance was conducted from 14 to 18 December 2015 in Tunis, Tunisia.

The ITU-UMA Experts Meeting on C&I in the Maghreb Countries was held in Rabat, Morocco, from 23 to 25 November 2015. The meeting was devoted mainly to reviewing the results of the evaluation study of the current regimes governing C&I testing in the Arab Maghreb countries and to the review/ approval of the draft Mutual Recognition Agreement (MRA) between the Arab Maghreb countries as suggested by ITU.

A series of meetings and workshops took place in 2015 in different regions:

- Conformance and Interoperability (C&I) Validation Workshop for COMTELCA Countries and Cuba, Tegucigalpa, Honduras, 7-9 December 2015.

- Conformance and Interoperability (C&I) Validation Workshop, Laico Regency Hotel, Nairobi, Kenya, 21-23 October 2015.

- ITU Asia-Pacific Centre of Excellence Training on Conformity and Interoperability, 12-16 October 2015, Beijing, P. R. China.

- Regional Workshop for CIS on Conformance and Interoperability, Moscow, Russian Federation, 7-9 July 2015.

- Conformity and Interoperability Training for Americas Region on Type Approval Testing for Mobile Terminals, NGN Integration and Interoperability Testing, Homologation Procedures and Market Surveillance, 8-12 June 2015, Campinas, Brazil.

On 26 September 2015, in New York, United States, the United Nations Summit for the Adoption of the Post-2015 Development Agenda adopted the proposed set of SDGs, representing a shared commitment on the part of United Nations Member States and the international community to work together to promote sustained and inclusive economic growth, social development and environmental protection, in the interest of creating a world that is just, equitable and inclusive. To this end, the launch of the ITU/UNESCO Broadband Commission for Sustainable Development is aimed at promoting the use of broadband to achieve the SDGs.

Another special session at the World Economic Forum held on 21 January 2016 in Davos, Switzerland, brought together all broadband commissioners and invited guests to discuss collaboration opportunities and initiatives to connect the unconnected.

The Spring Meeting of the Broadband Commission took place in Dubai, UAE, on 12-13 March 2016 at the invitation of Mr Sunny Varkey, Founder and Executive Chairman of the GEMS Education Group. In conjunction with the Global Education & Skills Forum 2016 which, from its inception in 2013, brings together leaders from the public, private and social sectors seeking solutions to achieving education, equity and employment for all, the Broadband Commission convened its spring meeting to discuss, among other issues, how to innovate in education through technology. During the two-day event commissioners had the chance to attend on-site sessions of the current three Broadband Commission working groups on the Saturday, as well as the full-day meeting of the Commission on the Sunday. The full meeting of the Commission also revisited the issue of new broadband targets to help achieve SDGs.

ITU and the United Nations Economic Commission for Europe (UNECE) convened the Future Networked Car within the Geneva Motor Show on 5 March 2015. The year 2015 marked ITU's 150th anniversary

and the 10th edition of the Future Networked Car event. Intelligent transport systems and automated driving are fast moving towards widespread commercialization and market acceptance. High levels of automation – the penultimate step to fully automated driving – are expected on the road by 2020 and hold great promise to improve road safety, reduce congestion and emissions, and increase the accessibility of personal mobility for the elderly and persons with disabilities. The Symposium on the Future Networked Car brought together representatives of the automotive and ICT industries, governments and their regulators, motor sport and international automobile associations to discuss the status and future of ICT's integration in vehicles. The international symposium examined advances in the area of connected vehicles, from the perspectives of business, technology and regulation. Technical sessions highlighted the crucial roles of communication protocols, information security, in-vehicle emergency call systems, location referencing and maps.

ITU's Smart Sustainable Development Model (SSDM) is an initiative intended to promote the measures needed to deploy the crucial telecommunications infrastructure that contributes to providing rapid assistance in the event of natural disasters, and could also be used as a working tool to foster economic and social development, providing community telecommunication services whereby people can have access to education, health or best practices in any particular field. Linking ICT development with emergency telecommunications opens up opportunities for countries to achieve sustainable development, while access to and use of telecommunication services brings innumerable social opportunities and helps to stimulate the economic growth of all nations, thereby benefiting all citizens in their daily lives.

The objectives of the initiative are to:

- Harness the potential of ICTs in changing lives through development and saving lives at times of emergency.

- Link rural telecommunications/ICT development to both disaster risk reduction and management efforts.

- Make optimal use of scarce and high cost resources such as satellite systems by making use of unused satellite capacity.

- Create ecosystems where investments made for deploying telecom infrastructures for economic development are also used for disaster response for public safety.

- Ensure deployment of robust and resilient communication networks which continue to provide services in the immediate aftermath of disasters.

- Avoid duplication of effort by development partners (governments, private sector, intergovernmental organizations and so on) by focusing exclusively on development or exclusively on disaster management, without taking into account the other area.

This action line contributes to various SDGs, namely **SDGs 1, 8, 9** and **11**, promoting economic growth, inclusive and sustainable industrialization, fighting against poverty, etc. Without ICT infrastructure, industrialization, economic development, employment or cities' sustainability is impossible.

C2.1 Infrastructure and broadband

In **Algeria,** Algérie Télécom decided to follow, as from 2013, the Government's direction in terms of the generalization of broadband access and initiated the *Connect every 1 000 inhabitants locality to optic fibre* project. To this end, it drew up a list of 2 000 localities to be connected by the end of 2017. As at October 2015, the number of fibre-optic connected localities has reached 1 271. The project aims to provide Internet access to individuals and companies in the country's far south. Algérie Télécom charges the same Internet connection rates countrywide, and access for primary schools is free of charge.

Being totally financed by Algérie Télécom's own funds, the project triggers a number of SDGs, in particular **SDGs 9** and **10**, by developing quality and reliable infrastructure, promoting sustainable industrialization and reducing inequality within the country.

Led by the Central Agency for Information Technology in **Kuwait**, the *Creation of Discrimination Center for Innovation in Information Technology* project aims to promote knowledge and experience among the State of Kuwait institutions (**SDG 16**). The project focuses on the role of the technology industry management system as mediator between the actor and the invention, production and presentation to the gentlemen officials in the Council of Ministers to make laws and decisions necessary for the establishment of this center and procedures.

In **Angola**, the *ANGOSAT-1 Space Communication and Broadcasting Satellite System of the Republic of Angola* project involves the construction and launch of the country's first communication satellite. Angola's telecommunication companies together spend some USD 30 million per month for the rental and use of satellite capacities. The project will attempt to address some of the most challenging communication access issues, including prices, and the connection of Angolan cities and provinces across a vast land mass, where copper or fibre telecommunication networks would be prohibitively costly. The progress of the ANGOSAT-1 project is currently at 64 per cent.

The launching of this project within the IC domain associates it with a number of SDGs, as it concerns ensuring healthy lives, promotion of sustainable economic growth, building of resilient infrastructure, etc. (**SDGs 1, 3, 4, 8** and **9**).

The Ministry of Communication and High Technologies of **Azerbaijan** initiated an ambitious project called *Trans-Eurasian Information Super Highway (TASIM)*, a major regional initiative aimed at the creation of a transnational fibre-optic backbone targeting primarily the countries of Eurasia from Western Europe to Eastern Asia. The project envisages the construction of a major new transit route from Frankfurt to Hong Kong, i.e. a connection between the biggest exchange point in Europe and the biggest exchange point in Asia. The transit route will pass through China, Kazakhstan, Azerbaijan, Georgia and Turkey on its way from Hong Kong to Germany. A redundant northern route passing through Russia, Ukraine and Poland is also under consideration.

Thus, by engaging several countries, TASIM reflects a number of key SDGs, in particular, revitalization of the global partnership for sustainable development, building of resilient infrastructure, promotion of sustainable industrialization and innovation fostering (**SDGs 9** and **10**).

In **Benin**, ISOCEL SA launched *Le plus grand réseau WiFi de Cotonou (Cotonou's biggest Wi-Fi Network) ISOSPOT* project, its latest access network, which delivers direct Internet connection to end users with Wi-Fi-enabled devices. The name ISOSPOT is derived from the words ISOCEL HOTSPOT. Several micro-stations or hotspots were installed on utility poles every fifty metres to provide the best quality of wireless link to the end user. ISOSPOT has a bandwidth management system to provide the best QoS to subscribers by ensuring a fair share of bandwidth for every active subscriber. Furthermore, the cost-effective pricing model makes Internet connection more affordable for the mass market. The service is intended for users wishing to have Internet access at home, at work or on the move, without any volume limitation.

ISOSPOT meets several ICT for sustainable development goals by promoting sustainable industrialization, inclusive and sustainable economic growth, employment and decent work for all, the building of resilient infrastructure, the development of inclusive, safe, resilient and sustainable cities, as well as revitalization of the global partnership for sustainable development.

Launched by the Ministry of Construction, AICROS in **Cuba,** *Building with Intelligence: Technological infrastructure of Internet access and other services in the construction sector* is a project to automate the construction sector in Cuba by implementing a technology infrastructure as a private cloud,

interconnecting over 300 companies and almost 222 000 employees, 34 per cent of whom are engineers and architects. This opening up to global connectivity and visibility will make for the availability of constructive high-class solutions using tools based on free software, with minimal investment and high levels of security and confidentiality.

The proposed infrastructure can be replicated in national entities or agencies in all ministries of Cuba, and internationally in developing countries, by achieving a high degree of technological independence, thereby reducing inequality within and among countries (**SDG 10**).

The Information Technology Organization of the **Islamic Republic of Iran** initiated the *Cloud Computing for Start-ups* project, the main objective of which is to bring infrastructure-as-a-service (IaaS) infrastructure design into Iranian data centres. It is an appropriate solution for facilitating and meeting the requirements of start-ups and providing the computing infrastructure they need as a service on a cloud-based platform. A package of such services and resources for a limited period (e.g. one year), free of charge, is available to start-ups. This service, tailored to the needs of the user, provides constant and ubiquitous access to intranet and Internet resources.

The project helps start-ups to focus on their creative ideas and provides a database, thereby promoting sustained economic growth of the country (**SDG 8**).
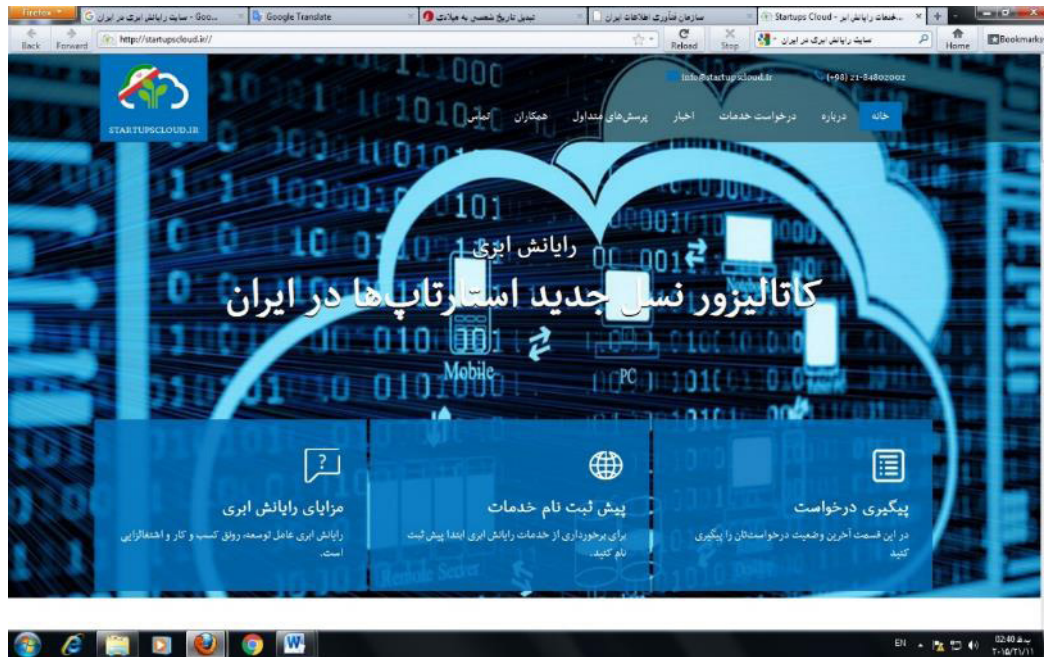
To provide better ICTs, the National Information Technologies JSC of **Kazakhstan** set up the *Data centers for government agencies* project. Each government agency's tasks include service delivery to citizens, making issues relating to information-storage reliability and uninterrupted information systems operation critical. One of the objectives of the Data Centers for Government project is to ensure the continuous operation of e-government components, minimizing failures in the operation of central and local government agency (including local offices) software and hardware, with an assured 99.749 per cent (second level) reliability.

Through this project, economic development is supported, sustainable infrastructure is being built in developing countries and the development of local and central government agencies is guaranteed (**SDGs 9** and **16**).

In **Kuwait,** the Central Agency for Information Technology (CAIT) was established in 2006 as a government initiative responsible primarily for developing and implementing the country's e-government programme. It partnered with an international consultant to establish its e-government strategy for the next five years. The *Kuwait Information Network (KIN)* is one of the early projects, set up to provide the communications infrastructure that paved the way towards efficient and integrated nationwide e-services implementation. KIN was designed to integrate the networks of all government entities to enable the future integration of isolated information systems and develop electronic services.

This is in line with **SDG 17** on revitalization of the global partnership and enhancement of international support for ICT implementation.

In **Poland**, the *Broadband Network for Eastern Poland - świętokrzyskie voivodeship* project encompasses the construction of a fibre-based regional backbone and distribution broadband infrastructure. It complements telecommunication infrastructure belonging to existing operators in the region and provides open and non-discriminatory access to providers of wholesale and last-mile services. As such, the investment is helping to lower the investment barrier for next-generation access-network (NGA) services and eliminate the digital divide in areas currently without access to basic broadband services.

 The project directly contributes to achieving the objectives of the WSIS Action Lines in the Geneva Plan of Action in terms of information and communication infrastructure, and achieves the building of resilient infrastructure, promotion of sustainable industrialization and fostering of innovation (**SDG 9**).

Budowa Sieci Szerokopasmowej Polski Wschodniej - województwo świętokrzyskie, stan na 2015 rok
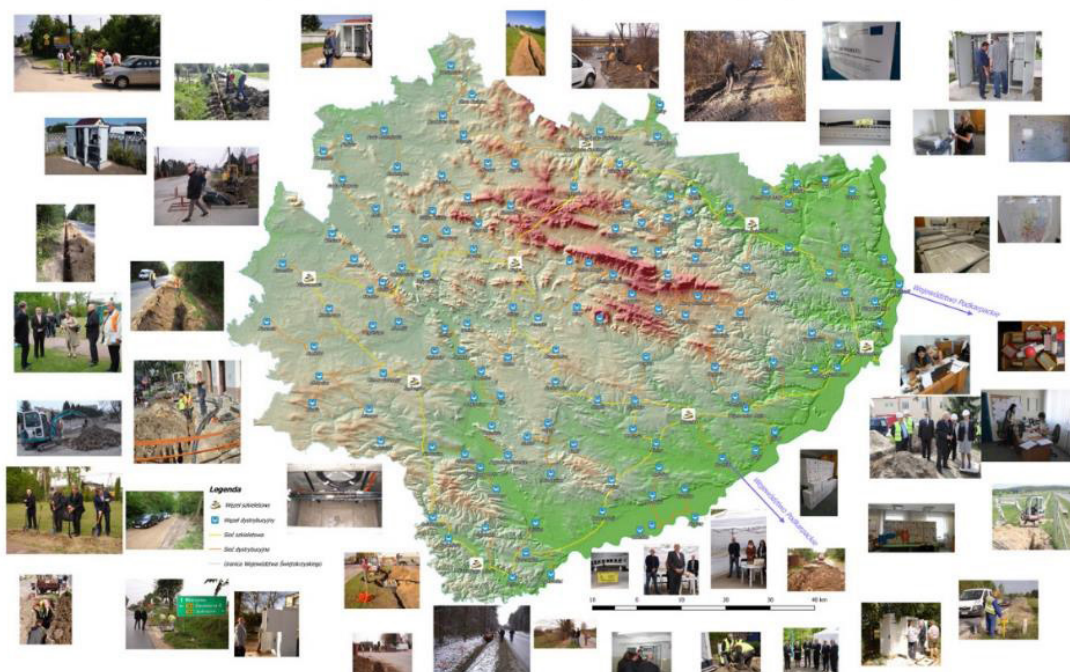
In **Pakistan**, the National University of Sciences and Technology (NUST) created the *Smart Meter Data Collection* project, the aim of which is to enable the collection of data from all smart meters within a community and transfer them to a central facility for billing and other services. The underlying idea of capturing the data and transmitting it over a wireless channel makes use of a specific wireless technique known as cooperative communications, which is low-overhead and can be implemented using low-cost radio sets. This would alleviate the problem of electricity theft and enable online smart decisions by both the end user and the utility company to adjust their respective loads.

 The Smart Meter Data Collection project is conducive to the building of resilient infrastructure, sustainable industrialization, the fostering of innovation and the development of inclusive, safe, resilient and sustainable cities (**SDGs 9** and **11**).

In **Qatar**, IctQATAR's Digital Incubation Center (DIC), with its *Tech Startup Incubation* programme, was created to boost ICT innovation, particularly among young people at the critical early stages of launching or growing a technology-related business. The Center's objectives are to:

• help young entrepreneurs transform innovative ideas into viable businesses;

• provide incubation programmes that nurture and help grow new businesses by offering expertise, professional guidance, and services – including access to, among other things, space, business planning, education and training and legal advice – throughout the phases of the start-up's development.

The Digital Incubation Center is looking for entrepreneurs capable of harnessing emerging technologies to create innovative products, solutions or services that will contribute to Qatar's digital economy. The programme meets a considerable number of objectives of the WSIS Action Lines and SDGs in terms of economic growth, employment, quality education, lifelong learning opportunities, etc.

Two projects from the **Russian Federation** have a strong focus on information and communication infrastructure, in line with a number of SDGs relating to poverty, economic growth, sustainable industrialization, safety of cities, etc.

The Government Commission for Implementation of Information Technology in Government Bodies and Local Authorities has instructed the Russian Ministry of Communications to establish the *e-Government Situational Center*, the purpose of which is to integrate mechanisms for interworking between e-government infrastructure (EGI) participants and agency competence centres. The Situational Center is intended to be an "indicator board", i.e. an indicator of "health" and an instrument for the management of technological and administrative processes. It also unifies all existing information resources used to inform participants on the current status of, modifications to and innovations in the EGI, and is responsible for the promotion of mechanisms for interworking between participants providing public services and executing government functions.

The e-Government Situational Center programme thus relates to **SDGs 8** and **16** – promotion of inclusive and sustainable economic growth, employment and decent work for all, as well as peaceful and inclusive societies.

The Ministry of Telecom and Mass Communications of the **Russian Federation** boosted the "*Development of broadband access in the Russian Federation – building fiber-optic networks for localities with a population of at least 250 people*" project, the aim of which is to eliminate the digital divide, i.e. the difference in the level of communication network development and availability of broadband services between large cities and rural settlements of the Russian Federation. This aim is to be achieved through the provision of communication service availability under the government's guarantee of voice and data services via fixed networks with data rates of at least 10 Mbit/s for each subscriber. The project will cover some 13 800 villages, townships and settlements of the Russian Federation, with a total population amounting to some 5 million. Under the project, the plan is to install almost 200 000 km of fibre-optic links, including 1 300 km of submarine cable, in the period 2015-2018. The project is the largest of its kind worldwide, featuring a wide range of implementation challenges such as geography, geomorphology, climate, economic and social conditions, with a wide variety of tasks to be resolved within a short time-frame (**SDGs 1, 8, 9** and **11**).

In **Thailand,** the Electronic Government Agency (EGA) created the *Government Cloud Computing* project to operate as its cloud computing service, focusing on resource management, cost efficiency and convenient access to virtual systems, namely software-as-a-service (SaaS), platform-as-a-service (PaaS) and infrastructure-as-a-service (IaaS). Launched on 1 May 2012, the system was serving 203 government organizations as at 30 September 2014, covering 58 systems such as rice mortgage information tracking and integration, management of the women's development fund, and the strategic water resource management plan. The implementation of Government Cloud Computing will enable government agencies to optimize available resources and achieve high efficiency. By consolidating all services into a one-stop service, redundancy will be eliminated while access to information and services as well as information security is enhanced. The fact that users can work on cloud computing-based systems as if they were based on their organization's own network enables the organization to make savings in the areas of network and system management. The main objective of this project is to eliminate budget redundancy while increasing return on investment and optimizing shared IT resources, thereby contributing to the building of resilient infrastructure, promotion of sustainable industrialization and fostering of innovation (**SDG 9**).
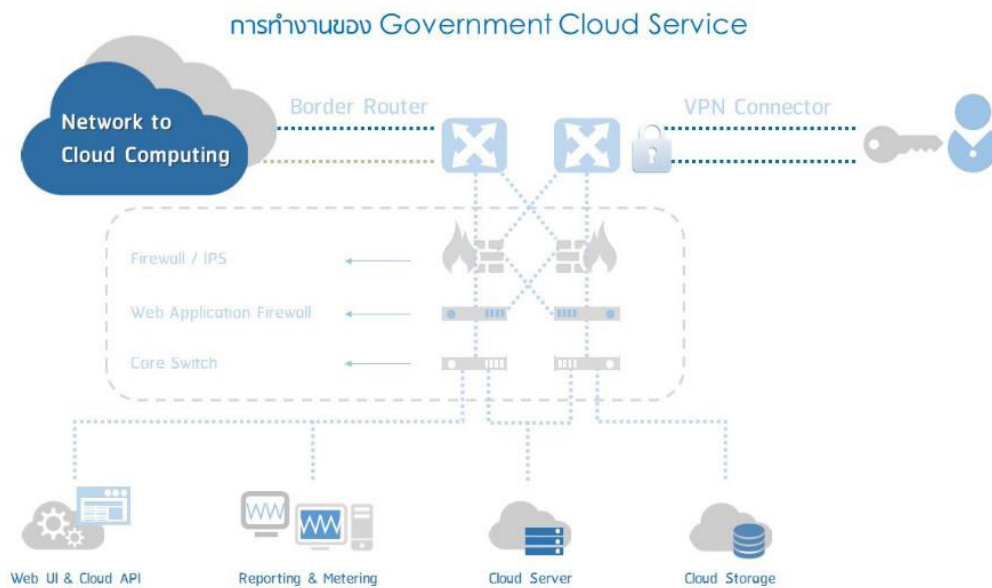
The **United Arab Emirates** set up three initiatives in the information and communication infrastructure domain.

The *SMART* project seeks to improve economic life and the ecological, educational and health systems in the UAE (**SDGs 3, 4, 7, 8, 11, 12** and **16**). The SMART Service Stations will provide world-class self-service facilities that conform to international hygiene, safety, security and eco-friendliness standards. The stations will offer enhanced designs and integrate innovative technologies such as RFID-based authorization and payment, NFC readiness, as well as mobile and B2B/B2C e-commerce platforms – all designed for the comfort and convenience of our customers and partners, providing them with innovative and convenient ways to pay for their purchases. Our SMART customers will be able to manage their accounts from anywhere, at any time, using computers or tablets, and top up their accounts as well as access their account statements online.

Building on the foundation established by the National ID Card system, the *National Validation Gateway* project represents one of the key programmes launched under the strategic plan to support the evolution of e-government in the UAE. The Gateway enables the National ID Card to be used for facilitating improved business services to all public and private organizations and government agencies within the UAE by providing real-time identity verification and validation and strong user authentication capabilities for digital transactions. It also provides a strong boost to local businesses by providing them with a range of new value-added services, such as legally binding digital signatures that accelerate the secure transition from paper-based to electronic transactions.

 The project's goals are in line with **SDGs 1, 8, 9** and **11** as they relate to such issues as fighting against poverty, stimulation of economic growth, employment and making the UAE's cities safe and sustainable.

In **Dubai**, the aim of the *Dubai Electricity Control Centers* project is to establish four state-of-the-art power control centres with substation automation systems and telecommunication networks (two for power distribution and two for power transmission) in three new buildings of 24 000 m^2, controlling Dubai's unmanned electricity substations and power-generation plants, with a system capacity of 500 high-voltage substations and 100 000 medium voltage substations, a suite of advanced energy management applications and smart grids, and a dispatcher training simulator. The sizing and the smart applications are designed and delivered to accompany the ambitious growth of Dubai and the transfer of knowledge to the national workforce.

The overall aims of the project coincide with **SDGs 7, 9** and **12**, having to do with the provision of access to affordable, reliable, sustainable and modern energy, the building of resilient infrastructure, and ensuring sustainable consumption and production patterns.

The Ministry for Development of Information Technologies and Communications of the **Republic of Uzbekistan** initiated the *Sustainable electricity supply facilities in rural and remote areas* project. In all industrialized countries, the rate of energy development has overtaken the rate of development of the other sectors. Economists estimate that global warming relates to issues of a strategic nature, so the "green" economy and investments in new technologies and approaches to mitigate climate change should receive full support. The effects of energy deficits on telecommunication facilities in rural and remote areas diminish the reliability of those facilities and the accessibility of ICT services. The use of diesel power plants in such locations requires the systematic importation of expensive fuel, which is not always possible, especially in the winter, in addition to which it leads to environmental pollution. Under these conditions, there is an urgent need to ensure a sustainable energy supply to telecommunication facilities based on global partnership as well as on environmentally-friendly, autonomous, renewable (solar, wind, hybrid solar-wind-diesel) energy sources (**SDGs 7, 13** and **17**).

C2.2 ICT for all and connectivity for public access institutions

In **Angola**, the Ministry of Telecommunication and Information Technology developed the *National Plan of Rural Telecommunications (NPRT)* in order to guarantee equal access for the Angolan population to the digital society. The project aims to complement the advances made in mobile broadcasting to ensure 100 per cent coverage of the national territory in 2017. The lower demand

for telecommunications in rural areas (eight times lower than in urban centres), combined with an increasing rate of urbanization, limits the achievement of economies of scale in such regions, which in turn disincentivizes investment on the part of private operators. The main objective of NPRT is to establish public access points in municipalities where there is no 3G coverage. This will lead to greater IT infrastructure centralization and to several autonomy gains through interconnection using IP routing and optical fibre connections. The geographical distribution will take place in an evolutionary way and according to a set of socio-demographic criteria.

The NPRT project takes on some of the key SDGs as it seeks to end poverty, ensure inclusive and equitable quality education, promote sustainable industrialization and lifelong learning opportunities for all, build resilient infrastructure and foster innovation (**SDGs 1, 4** and **9**).

The Ministry of Technology, Information and Communication of **Colombia** launched the *Kioscos Vive Digital* programme, whereby community Internet centres are set up in the country's rural and remote areas. Through these centres, children, teenagers and adults in 6 548 remote towns with more than 100 inhabitants have access to telecommunication services such as the telephone and Internet. The infrastructure installed under this project enables the development of appropriation strategies that promote the use of ICTs for the benefit of the community's economic, social and cultural activities, in line with **SDGs 1, 4, 5, 8** and **9** – fighting against poverty, ensuring inclusive and equitable quality education, promoting inclusive and sustainable economic growth and building reliable and resilient infrastructure. The Kioscos Vive Digital programme has driven economic and social development in rural areas, improving the living standards of many Colombians in need.

In **Kazakhstan**, "Astana Innovations" JSC, operating as a facilitator between government and business, launched the *Open Wi-Fi* project that has been implemented as part of "Smart Astana". The project is a city network providing open access to the Internet. Under this project, 15 000 people use free Internet in public places every day (300 000 every month). By providing easy and affordable broadband access to everyone – including the elderly, persons with disabilities, other disadvantaged and vulnerable groups and children – this project promotes sustainable industrialization, the development of technologies and applications, the building of resilient infrastructure and the fostering of innovation (**SDG 9**).
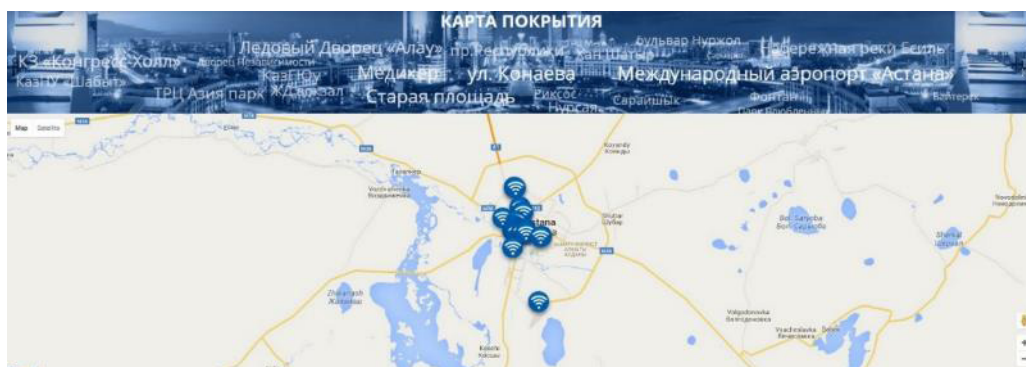
Launched by **Sri Lanka**, where the *Internet connectivity in* **Myanmar** project is concerned, well-designed and well-executed sector reforms connected millions of the hitherto unconnected at an unprecedented rate. As a result, Myanmar advanced eight positions in the International Telecommunication Union's ICT Development Index, overtaking both Pakistan and Bangladesh in the Asia-Pacific region. Although significant progress was made in terms of the number of mobile connections, the main drivers of better performance on the composite index were Internet-related. Clear and well-implemented policies helped to create the conditions for Myanmarese to benefit from the potential of the Internet.

Meeting a considerable number of SDGs in different domains (**SDGs 1, 2, 3, 4, 8, 9, 10, 11, 16** and **17**), the reforms are both sustainable and replicable.

In **Sudan**, the *Gedaref Digital City Organization (GDCO) Sudan e-Education* Project addressed a number of problematic issues relating to such SDGs as ensuring healthy lives, inclusive and equitable quality education, access to water and sanitation, affordable and modern energy for all, as well as achievement of gender equality and empowering of all women and girls, etc. (**SDGs 3, 4, 5, 6, 8, 10** and **17**). The most important among these problematic issues in Sudan are:

- large digital divides: rural/urban, women/men, people with/without disabilities

- education missed by many children because of travelling with their families due to climate change, looking for better grazing areas and water resources for their animals

- the e-infrastructure problem of Gedaref University: over 16 per cent of the population are people with disabilities, who, being poor, cannot afford to access ICTs

- illiteracy and poverty among women, who represent a vulnerable group and are not equally connected.

These are challenges that GDCO and its partners felt obliged to tackle.

C2.3 Adequate and affordable ICT equipment and services

In **Georgia**, the Institute for Scientific and Technical Information came up with the *Development of Bibliometric Tools and their Adaptation to the Study of Georgian Scientific Products* project. The Institute emphasizes the need for special computer facilities in order to process the huge number of sci-tech documents produced within the country. Such computer tools can be created through the use of bibliometric methods. Their information basis will be an aggregate of local (national) and international bibliographic databases, encompassing information about ongoing and completed research works in the country, publications by local scientists, their citation data, defended dissertations, conference reports, patents, innovations in agriculture, industry, power engineering, etc. The main goals of the project are:

- to generate a collection of bibliographic databases describing scientific output in Georgia

- to generate a set of software products to enable the statistical, inter-correlative and correlative processing of said databases with international ones for the purpose of analysing Georgia's scientific research output

- to elaborate a technique for establishing an "information portrait" of Georgian science as a whole, as well as of individual scientists and scientific teams, through the joint development and use of local (national) and international databases.

Implementation of the three above-listed sub-objectives will create a system through which the Georgian scientific products may be analysed by bibliometric methods in various sections, according to the administrative problem facing a specific user. The system's purpose is to improve science management at various levels in Georgia, which coincides with several SDGs.

In **Malaysia**, *Smart community* is a vital building block of a smart nation vision. As Malaysia pursues its transformation into a smart digital nation, its rural communities need to be empowered through proper exposure to knowledge and by being equipped with adequate ICT facilities. This is one of the main objectives under the Smart Digital Nation vision, which is now spearheaded by Malaysian Communications and Multimedia Malaysia (MCMC). The idea behind Smart Community is about using technology to improve the way of life. MCMC has kicked off a Smart Community initiative in Kemaman, in the state of Terengganu, to expose the local community to technology and to ways in which it can address everyday problems and thereby improve living standards.

The Kemaman Smart Community project relates to several key SDGs, such as promotion of inclusive and sustainable economic growth, employment and decent work for all, reduction of inequality within and among countries and ensuring sustainable consumption and production patterns (**SDGs 8, 10** and **12**).

Another project proposed by MCMC is called *Empowering Digital Inclusion Towards Reaching the Connected Communities Through u-Pustaka* Knowledge Services. More than 12 000 libraries in Malaysia provide information and knowledge services for millions of citizens thanks to the quantum leap enabled by various technologies supported by broadband infrastructure. The availability of such services has led to the effort being made to develop the *u-Pustaka* ecosystem in order to transform public service delivery for the benefit of citizens requiring information and knowledge, irrespective of location or time of day. The development of *u-Pustaka* is further encouraged by the existence of the government's "No wrong door policy", which creates a high level of expectation of excellent government services to be delivered to the public by all government servants. The expectations and needs of citizens with respect to information in today's world, which requires rapid decision-making, especially by people on the move, have transformed the public library into the main enabler for achieving this task.

The *u-Pustaka* project relates to **SDG 4** – inclusive and equitable quality education and promoting lifelong learning opportunities for all.
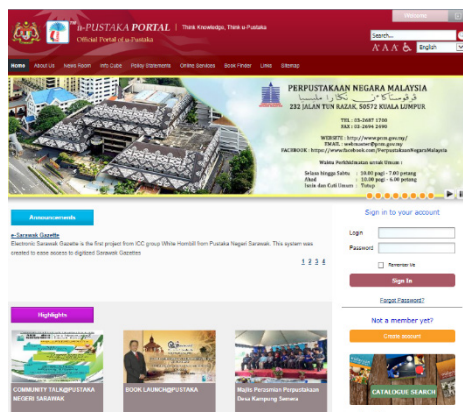
The *Mobile Solar Computer Classroom* programme aims at making computer skills, tools and information accessible to schools and communities at the lower end of the socio-economic scale in **Uganda**. The Mobile Solar Computer Classroom consists of an all-terrain vehicle equipped with solar panels, laptops, an Internet router and two teachers, who take computer literacy to rural and suburban schools and communities. Over a period of two years, the project offers a digital literacy curriculum that focuses on building basic computer literacy, literacy, numeracy and critical thinking skills.

The programme is in line with **SDG 4** as it seeks to provide inclusive and equitable quality education in Uganda.

Action Line C3. Access to information and knowledge

UNESCO is the lead facilitator for Action Line C3, while **ITU** is co-facilitator.

ITU-D held numerous workshops, conferences and symposia, making materials widely available free-of-charge on the web. In addition, a number of information-rich resources have been made available including web-based information portals and practical ICT toolkits, and online databases have been launched and/or existing resources updated.

ITU developed a set of "Guidelines for Promoting ICT Accessibility for Persons with Disabilities in the Americas Region". These guidelines are available in English, Spanish and Portuguese.

Concerning broadband access, ITU, with support from the Republic of Korea, has assisted countries in developing broadband policies and plans. Currently, support has been provided to develop wireless broadband master plans and national broadband plans/policies in Fiji, Cambodia, Brunei, Viet Nam, Samoa, Nepal, Myanmar, Bhutan, Bangladesh, Papua New Guinea, Indonesia, Pakistan, Lao People's Democratic Republic, Vanuatu, Marshall Islands, Philippines, Saint Lucia, Malawi and the Republic of the Congo (Brazzaville).

In addition, ITU has reinforced its internal coordination mechanism for unified action in the area of accessibility. The new ITU Accessibility Task Force (AccTF) focuses on making ITU a fully accessible organization and in mobilizing further resources and partners to increase access to ICTs through ITU activities.

Action Line C3 is crucial to fulfilling numerous established SDGs (**SDGs 2, 4, 6, 8, 9, 10, 11, 12, 13, 14, 15** and **16**). Access to information and knowledge is essential in order to ensure a successful agricultural industry, empower farmers by engaging them in policy/market processes and profitable sales, ensure sustainable educational processes and afford lifelong learning opportunities (**SDGs 2** and **4**). This action line contributes to ensuring the sustainable management of water; it can connect the national government with individual water users and thus increase transparency and raise awareness regarding water-related challenges (**SDG 6**). In order to reduce inequality, obtain transparency in markets and provide predictable trading systems for countries, access to information and knowledge is fundamental (**SDGs 8** and **10**). Open access to information can contribute to controlling levels of marine pollution; it allows cross-border communication and the rapid adaptation of preventive measures, favouring effective climate change-related planning and management (**SDGs 13** and **14**). It plays a critical role in the event of natural disasters and ensures conservation, restoration and sustainable use of terrestrial ecosystems (**SDG 15**).

C3.1 Access to information

In **Algeria**, the *Mobile ICT Centers (Télécentres de Proximité Mobile)* project aims to ensure healthy lives and equitable quality education, promote economic growth and reduce gender inequality by empowering all women and girls in the country (**SDGs 3, 4, 5, 8, 10** and **16**). The Mobile ICT Centers are five ICT-equipped buses intended to provide remote rural populations, especially women, with proper access to ICTs so that they can obtain training, information and new opportunities for communication and access to networking in order to improve their living conditions and level of qualification and give them more employment opportunities. As part of the first phase of the project, five of these fully functional buses are already operational in five southern Algerian regions, namely Adrar, Illizi, Tamenraset, Naama and Djelfa.

In **Costa Rica**, the Presidential Social Council created the *Connected Homes Program*, which is a joint initiative among different state institutions, including the Vice Presidency, the Rector and the Regulator for Telecommunications, implemented by telecommunication companies and supported by NGOs and other institutions. It is one of the wider private-public initiatives in Costa Rica. Being part of the "Bridge to Development Strategy", the main goal is to combat poverty and inequity and to promote job creation and economic growth through increasing access to information technology for vulnerable groups, in line with the **majority of established SDGs**. The objective is to provide subsidies of up to 80 per cent for computers and broadband to almost 150 000 low-income families.

C3.2 Software and open access

The **International Association for Progressive Communications (APC)** created *GenderIT.org - Feminist reflection on internet policies* as a think-tank for women's rights and sexual rights, bringing together Internet rights activists, academics, journalists and advocates from a range of disciplines and contexts. GenderIT.org provides a space for reflection, influence and advocacy on Internet policy and culture, to help ensure that women's needs are met and their rights respected. The site maps the intersections between women's and sexual rights issues and Internet rights issues, and concentrates on bringing voices from the global South into the discussion of these issues, which is often dominated by voices from the North.

 With the emphasis on international implementation, the project is linked to **SDG 5** as it deals directly with the empowerment of women and girls and advocates gender equality.

Ye! Community represents an initiative by Child and Youth Finance International in the **Netherlands**. Ye! is an entrepreneurship platform that provides an online community, country guides, tools, coaching and funding opportunities to young entrepreneurs between the ages of 16 and 30. Ye! connects young

entrepreneurs around the world and links them to various tools, resources and opportunities to support the growth of their enterprises. The objectives of Ye! are to support youth entrepreneurship, promote ethical entrepreneurial culture and stimulate job creation for young people. The initiative fits perfectly into the WSIS Action Lines and SDGs by focusing on sustainable economic growth, employment and decent work and by encouraging global partnership (**SDGs 4, 8, 9, 16** and **17**). On 10 September 2015, Ye! was launched globally as part of the GPFI (Global Partnership for Financial Inclusion) Forum under the Turkish G20 Presidency.
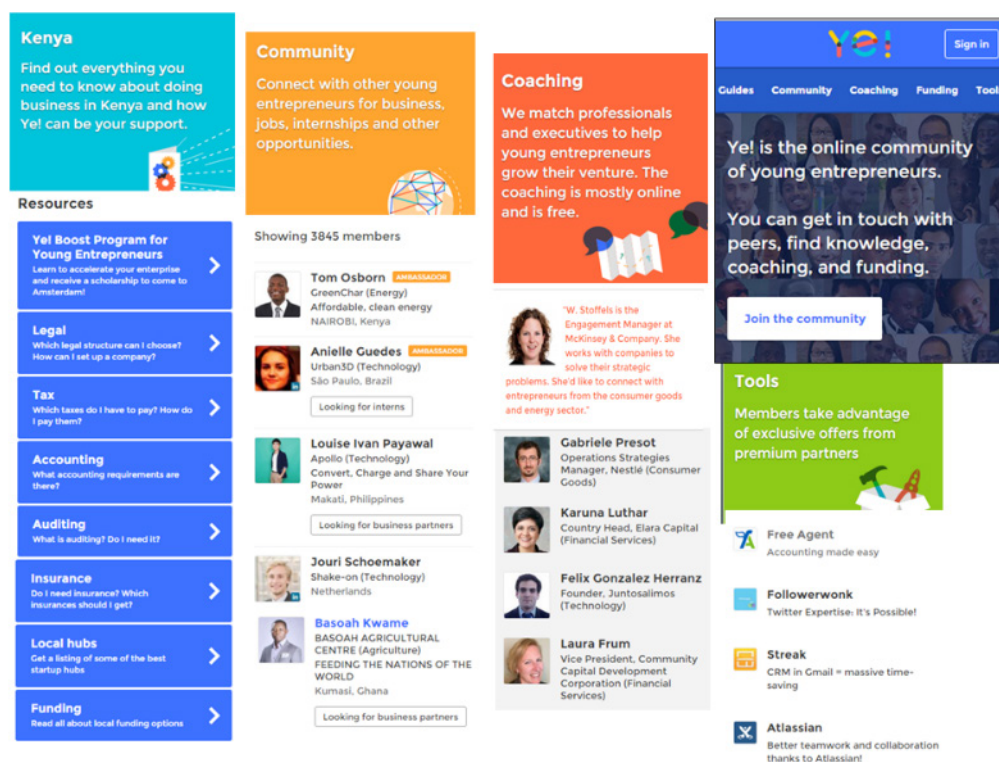
Italy proposed two programmes targeting access to information and knowledge for the global community.

The *Strillone* project has been created to meet the specific needs of blind and visually-impaired people on an international scale. Strillone, a free web application that is also freely available as an Android or iOS app, enables visually-impaired people to browse in an incredibly easy way and to listen, by means of a free embedded TTS system, to everyday news from their preferred newspapers. Moreover, Strillone allows the user to browse and listen to every book and all text content on Earth, making it an extremely useful tool for our time. All content can be converted in a reversed tree, and all content can be used by Strillone.

The application relates to a number of SDGs by ensuring healthy lives and inclusive and equitable quality education; promoting well-being, peaceful and inclusive societies and lifelong learning opportunities for all people; and reducing inequality within and among countries (**SDGs 3, 4, 10** and **16**).

Sensoltre, conceived and produced by Informatici Senza Frontiere NGO (ISF), Italy, for visually impaired people, is a very special way of experiencing an art exhibition. It takes the user along a multimedia, multisensorial path among painted sculptures, bas-reliefs or famous creations printed by 3D printers. The visitor, blind, blindfolded, visually impaired or fully sighted, uses an NFC smartphone with the ISF Sensoltre app and wears HiFi headphones. He or she follows the path, guided by a light rope. As the smartphone comes close to a painting, it automatically starts playing an audio guide, speaking about the artist and the meanings behind the painting, and explaining how to touch it. The background music creates an exciting and unique atmosphere.

With its global exposure, the programme fosters healthy lives and sustainable consumption and production patterns, promotes peaceful and inclusive societies and lifelong learning opportunities for the global community, and helps to reduce inequality within and among countries (**SDGs 3, 4, 10, 11, 12** and **16**).


Development of transparent and accountable government is one of the five key priorities of a number of institutional reforms announced by the Head of State of **Kazakhstan**. Government agency "openness" was defined by the President of the Republic of Kazakhstan in the "100 Specific Steps" national plan. Kazakhstan is embracing the concept of transparency by implementing the *Open Data project*, launched in 2013 with the objective of implementing transparency and accessibility principles and permitting the repeated usage of data generated by government and quasi-governmental

organizations. This project enables citizens to be aware of key and socially-important areas of the government's activities, this being in line with **several SDGs** in terms ensuring well-being for all and providing access to information throughout the country.
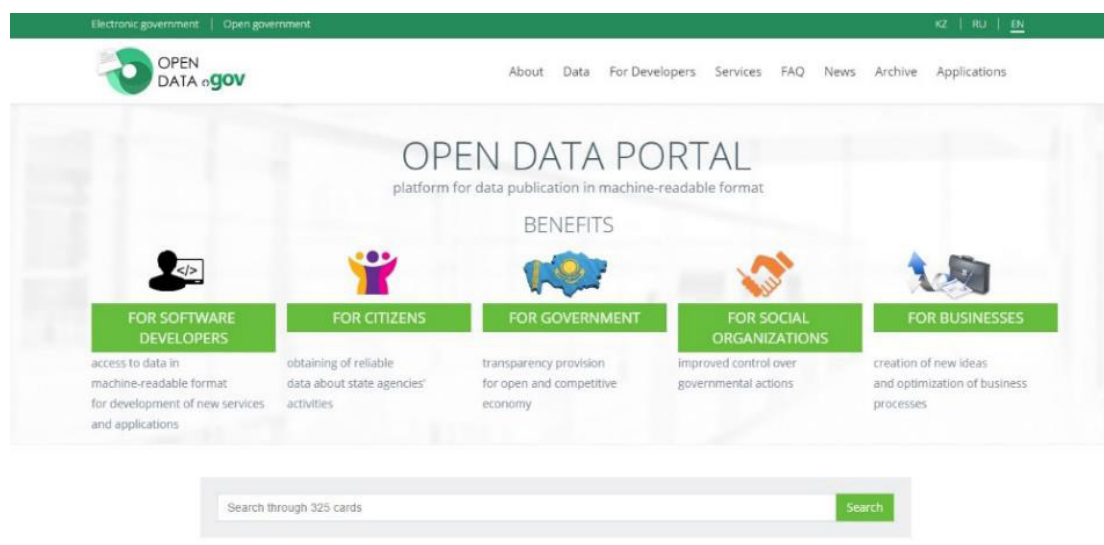
In **Kuwait,** the Public Authority for Civil Information (PACI) has launched the *Kuwait Finder Project* as part of the GIS programme in PACI. Kuwait Finder was released to provide users in the State of Kuwait with a localized GIS-based search engine, thereby meeting **several established SDGs** related to the provision of access to information and knowledge. The programme supports searching for an address down to the individual apartment level, and can search by establishment name and business type. The Kuwait Finder application was developed by PACI to serve users' needs with the following functions:

- Search using PACI electronic numbering for a given building, apartment, etc.

- Search using area name, block number, street name or house number

- Search for points of interest such as hospitals, shops or malls, etc.

- PQuick search via shortcuts representing different categories of entity such as shopping centres, schools or other activities and crafts

- Turn-by-turn voice navigation, with directions in both Arabic and English

- Saving of favourite locations

- PInformation on social activities and their locations

- PFunctionality for displaying both vector and satellite maps

- SLocation-sharing via Facebook, Twitter or e-mail
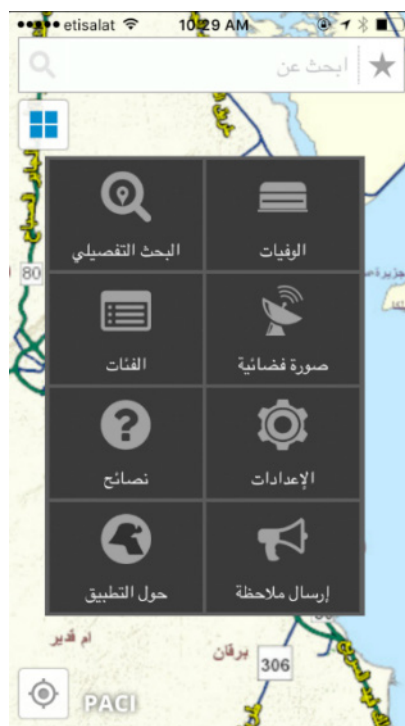
An increasing awareness of the importance of statistics and their many uses has led many government entities in the **Sultanate of Oman** to focus on data collection, data analysis and statistical bulletins and reports. The *Data Portal*, launched and managed by the National Centre for Statistics and Information, is a flagship project which seeks to present socio-economic indicators in a dynamic and graphical manner based on a wide range of criteria and timelines. It includes a powerful map-based tool to portray spatial data about any socio-economic indicator published since the 1970s.

The website provides the population of Oman with the necessary information and knowledge, thereby ensuring well-being for all, economic growth and social development of the society, in line with **SDGs 3** and **8**.

In **Saudi Arabia**, two websites have been created in the interests of achieving an equitable quality education and promoting lifelong learning opportunities – **SDG 4**.

King Saud University launched the *Makhtota* website featuring more than 11 000 manuscripts – the written works of scholars. Manuscripts are considered a valuable treasure of mankind that must be preserved. It is for this reason that the website enables visitors to browse and read manuscripts on

Shari'a Law and Tafseer, as well as other fields of science. The manuscripts also include poems in a number of languages, such as Turkish and Persian. King Saud University provided these manuscripts to assist researchers and establish a procedure for finding rare manuscripts easily.

The Ministry of Education has developed *Rasd Al Fa'aliat Al Ilmiah – Observatory on Scientific Events (Rasd)* that constitutes a one-stop shop for all academic and scientific events and life-long learning programmes in Saudi Arabia. Its *raison d'être* lies in the need to consolidate the efforts of partners and concerned organizations with regard to the documentation of academic material and recommendations for academic events held in the Kingdom, as well as for an institutional tool that can be used to assess the level of sustainable development within the sector.

In **Pakistan**, the NED University of Engineering and Technology created the *Getinfo* programme, a website which informs users, mainly students, about the opportunities offered by various organizations worldwide, for instance scholarships, internships, sponsorships, jobs, competitions, free certified courses, etc. These are opportunities that enable students to enhance their academic learning, so an up-to-date website providing all such information is a valuable asset. Getinfo opens the way for students to prove themselves ahead of a valuable career.

With its links to the global community, the project fosters access to inclusive and equitable quality education and sustainable economic growth, reduces inequality within the country and revitalizes the global partnership for sustainable development (**SDGs 4, 8, 10** and **17**).

MAS Website is the Arabic acronym for Tourism Information and Research, and is an important department of the **Saudi Arabia** Commission of Tourism and National Heritage (SCTH) which is responsible for collecting tourism data and conducting research and related studies. The main task of MAS Center lies in the collection and dissemination of tourist information and data for both internal and external users. It uses the MAS Center website as a tool for the dissemination of this information and makes it available to everyone at any time and from any location, in Arabic and English. The MAS Center intends to develop and improve the website and e-portal to provide the best service for visitors to the website.

The goals of the website are to:

• Provide data and tourism research of high quality

• Measure the economic, social and environmental impacts of tourism development

• Build capacity in statistics and the Tourism Satellite Account

• Provide access to a wide range of knowledge-oriented materials and tourism information database

• Develop, improve and enhance the quality of electronic services provided by the MAS website.

In this spirit, these goals intertwine with SDGs by relating to equal access to information, reduction of inequality, and promotion of well-being all as well as contributing to the economic growth of the country (**SDGs 3, 8, 10,** etc.)

Bend is an innovative mobile application launched in **Algeria** that uses image processing techniques to change Latin characters in Braille. It will enable blind people to search by keywords in books or documents in Braille. Involving international implementation, this revolutionary application will facilitate research and reading for the blind.

The project contributes to several SDGs, ensuring equality and promoting healthy lives, well-being and lifelong learning opportunities for blind people, as well as inclusive societies for sustainable development (**SDGs 3, 4, 10, 16** and **17**).

C3.3 Community centres

The Institute of Electronics and Telecommunications of **Kyrgyzstan** launched the *Create information and training resource centre* project, designed for people with disabilities. The centre, which is equipped with standard and supporting ICT tools adapted to the needs of different categories of user, assists in the development of information and educational materials and the training of teachers to provide people with disabilities with the skills they need to use ICT tools. As it looks towards international implementation (Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan), the initiative relates to several SDGs in view of its focus on the provision of quality education and reduction of inequality, as well as the promotion of economic growth and peaceful and inclusive societies (**SDGs 4, 8, 10** and **16**).

In **Poland**, the Office of Electronic Communications (UKE) created the *Information Centre (Centrum Informacji Konsumenckiej (CIK)*, which aims to provide consumers/subscribers with complete, thorough and up-to-date information on their rights and responsibilities, increasing their awareness and warning them of the problems they can face when using telecommunication services. In order to provide comprehensive assistance, CIK has created and runs:

- a dedicated website: cik.uke.gov.pl

- a special helpline: 801-900-853 or (48 22) 534-91-74 (CIK may be contacted free of charge via VoiceLink by visiting the UKE website at uke.gov.pl);

- education and information campaigns. In 2014, CIK's staff received more than 14 000 phone calls and provided advice in more than 2 000 cases involving individual written and electronic enquiries.

The website creates a fertile background through its association with the SDGs relating to the achievement of economic growth, reduction of inequality within the country and provision of access to information for all people.
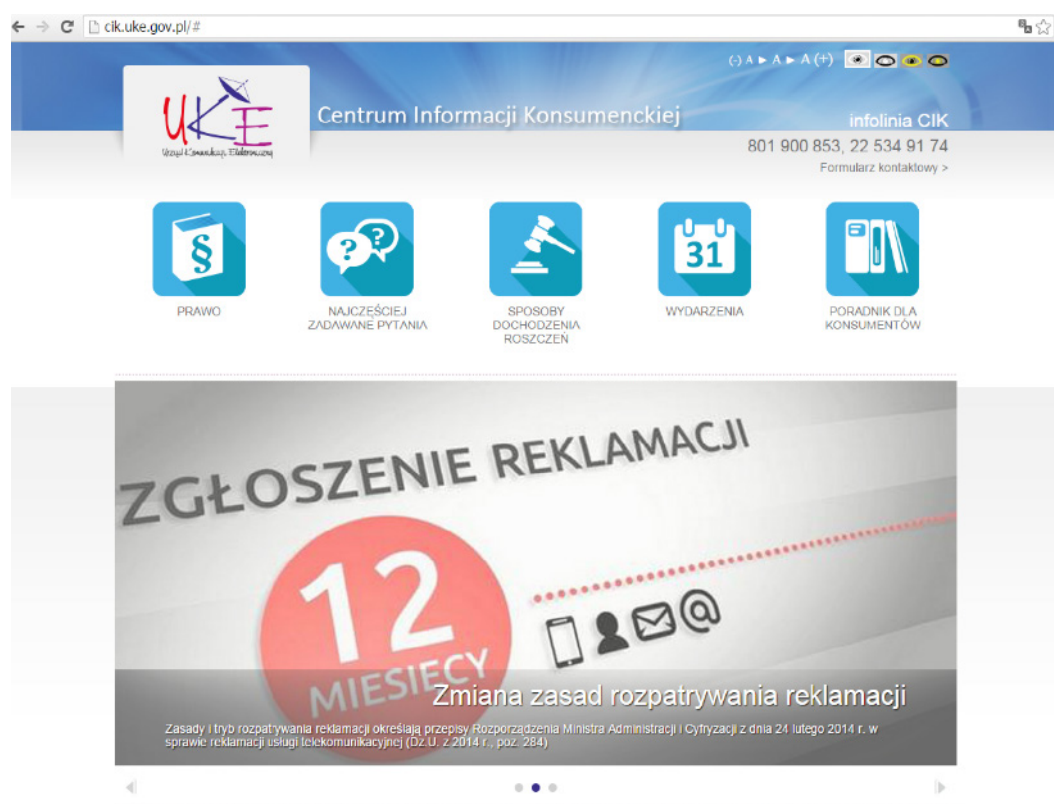
The Ministry of Science and Technology of **Trinidad and Tobago** initiated the *Star.TT Access Centres* project in order to bridge the digital divide in Trinidad and Tobago. A considerable part of the country does not have ready and free access to the Internet. These centres therefore offer training as well as

an outdoor patio for the community to bring their own devices or an indoor cybercafe. Kids, teenagers and adults are now exposed to the world through these free centres throughout the country and government services can be accessed right there in the community through a feature called ttconnect.

Thus, the project contributes to **SDGs 4, 10** and **16**, reducing citizens' inequality, and offering lifelong learning opportunities and free information access to the population.

The *TRA-ITU (Telecommunications Regulatory Authority – International Telecommunication Union) ICT Discovery Museum* is a place of wonder located within the premises of ITU in Geneva, **Switzerland**. Sponsored and designed by the **United Arab Emirates**, it offers its visitors – academics and students, the public and tourists, telecom/ICT stakeholders, including ITU members/delegates – a (re)discovery of the past, a better understanding of the present and an exciting glimpse of the future, in a dynamic, engaging fashion. ICT Discovery is also about the contribution that ITU has made to all the progress in ICT, from 1865 right through to the present and on into the future. Through interactive exhibitions and educational programmes, ICT Discovery's mission is to entertain and educate the public by portraying the evolution and exciting future of ICT together with the role of ITU in connecting our world and facilitating the transformation of people's lives everywhere. ICT Discovery is also an excellent education centre for students, who can explore the fascinating world of ICT and learn about its evolution while broadening their interest in the field of science and technology. Last but not least, ICT Discovery can serve as an original backdrop for social events and presentations.

These are some of the challenges that ICT Discovery faces after four years of operation:

• ICT Discovery to become a self-sustaining facility without any dependence on the ITU budget.

• Ideas to be generated for the effective utilization of space at ICT Discovery and for possible revenue-generation concepts such as group-pricing strategy, sponsorships, voluntary contributions, etc.

• Opportunities for collaboration with leading ICT museums worldwide and with the Museum of Future Government Services and upcoming Museum of the Future, both in Dubai, for enhancing the scope of ICT Discovery through the inclusion of future innovative services.

• Opportunities for collaboration with academic institutions and with ITU Sector Members.

The challenges are perfectly in line with **SDGs 4, 8** and **17** since they have to do with equitable quality education, sustainable economic growth and the global partnership for sustainable development.
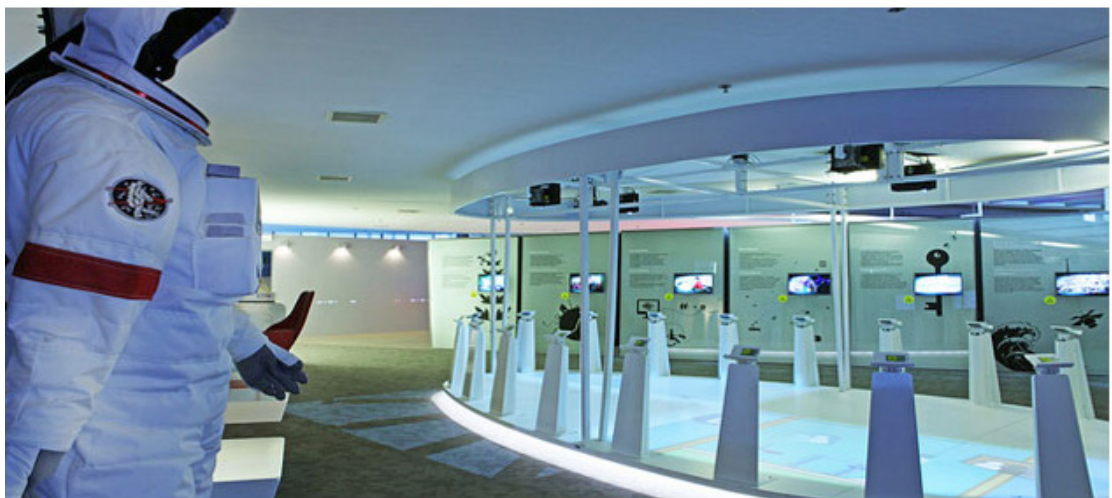
C3.4 Digital libraries and archives

Rede de Mediatecas de **Angola** initiated the *Angola Network of Media Libraries (ReMA)* programme, which seeks to address the information and educational problems of Angolan society. The programme represents an evolution from traditional libraries to libraries embodying information technologies and current digital culture. It envisages the implementation of 25 fixed and 18 mobile Media Libraries countrywide by 2017, and is of key significance since it promotes full citizen participation in the information and knowledge society, strengthening of the educational system and the economic and social development of Angola through the enhanced use of technology.

Thus, the programme falls within the scope of several established SDGs in the educational, gender and social fields (**SDGs 4, 5, 8, 10** and **16**).

The Government of **Indonesia** created the *Cultural Digital Library* website to access publications of the 32 local cultural libraries which include all museums and technical and operational units under the advisory of the Directorate General of Culture. The public can access books, newsletters, reports and articles on Indonesian culture.

The website thus relates to the development and equality of the public, providing it with free access to information and ensuring learning opportunities, promoting economic growth and contributing to cities' sustainability (**SDGs 3, 4, 8, 10** and **11**).

Action Line C4. Capacity building

> The United Nations Development Programme (UNDP) is the lead facilitator for Action Line C4. The co-facilitators are UNESCO, ITU, UNCTAD, UNDESA, FAO and UNIDO.

Capacity building and ICT literacy are essential for building an inclusive information society.

As stated in the Geneva Plan of Action, ICTs can contribute to achieving universal education worldwide, through delivery of education and training of teachers and offering improved conditions for lifelong learning, encompassing people that are outside the formal education process and improving professional skills (**SDG 4**). Governments continue to develop national policies to ensure that ICTs are fully integrated into education and training at all levels. Literacy programmes in schools familiarize children with ICT tools. Capacity-building programmes provide an excellent basis for educating and preparing the national workforce for the future. Governments emphasize the importance of creating a critical mass of qualified and experienced ICT professionals by establishing public access points and local ICT training centres. Knowledge and information are exchanged via webcasts and other portals. In some countries, adult illiteracy is still an enormous challenge, particularly in rural and underserved areas. Numerous efforts have been made to narrow the digital divide between rural and urban areas. New opportunities have been created to provide ICT education for citizens in rural areas through specially equipped vehicles, such as trucks and buses designed to travel across the country and target rural areas. Training is becoming increasingly available for women and girls and aims to engage them with ICTs and increase the number of women pursuing ICT careers. Projects are increasingly focused on facilitating access to new information technology for young people and children. Investment in ICT literacy for older persons is crucial in many countries; worldwide, 2 billion people will be aged 60 or over by 2050. The United Nations and its specialized agencies continue to promote international and regional cooperation in the field of capacity building.

This action line ensures that ICTs are fully integrated in education and training at all levels, thus contributing to reduction of poverty - **SDG 1**. In parallel to the growing adoption of ICTs, the need for access and knowledge is increasing, making this action line very important in the promotion of sustainable agriculture and achievement of food security (**SDG 2**). It is also crucial to **SDGs 5** and **10** – on removing gender barriers, the promotion of equal training opportunities and reducing inequality within and among countries. Steps taken on capacity building can increase scientific knowledge and develop research innovation capacity in order to conserve and sustainably use oceans and marine resources (**SDG 14**). In order to prevent violence and combat terrorism and crime, human capacity building needs to go hand in hand with institutional capacity building (**SDG 16**).

C4.1 ICT literacy

Bangladesh initiated two projects aimed at providing a quality education for its population while at the same time promoting economic growth, employment and decent work within the country.

The Bangladesh Reform Initiative for Development, Governance and Empowerment Foundation (BRIDGE) inaugurated the *IT for Differently Able* project, supported by the United States Department of State under the initiative known as the Alumni Engagement Initiative Fund (AEIF) in 2013. The BRIDGE team currently comprises five people for Friday and Saturday classes, five advisers in the committee, four trainers and one interpreter.

The main objectives of the project are to:

- empower people with disabilities, who are now seen as being differently able
- follow the inclusive policy of promoting sign-language users and persons with physical disabilities

▢   enrich their capabilities through IT, e-graphics, Internet marketing and WordPress

▢   enhance their ability to communicate in English

▢   help them to become self-employed

▢   organize social connectivity and networking.

These goals coincide with the established SDGs as they foster inclusive and equitable quality education, lifelong learning opportunities for all, sustainable economic growth, achievement of gender equality, empowerment of all women and girls and the reduction of inequality within and among countries (**SDGs 4, 5, 8** and **10**).

In Bangladesh, youth unemployment stemming from illiteracy and a lack of ICT knowledge represents a major problem. Since its formation in 1985, the National Federation of Youth Organizations in Bangladesh (NFYOB) has pioneered a number of social movements including Youth Employment, Poverty Eradication, Mass Education, Environment Protection, Child Rights, Human Rights, Drug Abuse Prevention, Treatment, Motivation and Rehabilitation Programmes, Promotion and Construction of a Sustainable Culture of Peace and Nonviolence. The *ICT for Youth Development* project is necessary for the development of young people in the project area. NFYOB has organized many seminars and workshops for young people for the purpose of educating and informing the participants in numerous areas of concern.

The project ties in with the SDGs relating to the ending of poverty, the ensuring of equitable quality education, access to affordable, reliable, sustainable and modern energy, and the promotion of economic growth and employment (**SDGs 1, 4, 7** and **8**).

In **Belarus**, the Educational Centre of High Technologies Park (EC HTP) provides training to junior-level IT specialists under its *IT Education* initiative. During the period January-November 2015, thanks to their training at EC HTP, some 200 graduates, many of whom had no previous IT background or experience before receiving training at the centre, secured employment with IT companies in Belarus.

In the five years that have passed since EC HTP released its first graduates (five from the Java Developer programme and seven from the Software Testing Engineer programme), the centre has experienced considerable progress in the areas of training and development, and is currently providing training to over 200 students on 20 different programmes. The total number of EC HTP graduates having obtained employment is in excess of one thousand.

The initiative's goals relate to **SDGs 4** and **8**, having to do with equitable quality education and the promotion of sustainable economic growth and lifelong learning opportunities.

In **Bulgaria**, the *Financial literacy for children - accessible and funny* project is aimed at transforming a public library into a modern, accessible and innovative environment in which children and young people can acquire basic financial literacy and receive training to become conscious future users by means of ICT, in an environment in which they learn how to use their mobile devices for spending, saving, investing or donating. An interactive auditorium has been equipped and trainers have been trained in the provision of early financial literacy for children and young people. The training programmes impart knowledge of basic financial terms and services in an enjoyable manner, using mobile devices and applications.

This is in line with the provision of quality education and ensuring sustainable consumption and production patterns (**SDGs 4** and **12**).

In **Cameroon**, the Health and Environment Program initiated the *Materials education to pupils in Douala, Cameroon for December 2016* project, which aims to educate pupils on ICT and promote the concept and mechanisms for managing safe Internet practices and intellectual property concerns by training some 150 pupils of a primary school in Douala, Cameroon. This will enable the popularization of ICT tools within the framework of better information management using databases. The reason for creating such an initiative is the lack of knowledge about Internet access and corresponding

educational materials. We therefore thought that it was the right time to implement a project to help schools by giving them such education materials.

Given its aim of strengthening pupils' capacity, the project is associated with numerous SDGs relating to capacity building by dealing with such issues as poverty, healthy lives, gender equality, quality education for all, economic growth, etc. (**SDGs 1, 3, 4, 5, 8, 9, 11, 16** and **17**).

In **Colombia**, *BiblioTICando* is a programme that promotes social, economic and cultural development through the use of ICTs in libraries and related institutions, thereby contributing to lifelong learning opportunities, inclusive and sustainable economic growth and employment (**SDGs 4** and **8**). It is led by the EPM Foundation's Library Network in partnership with the Pontificia Bolivariana University in the department of Antioquia, Colombia. BiblioTICando has been implemented over five years in 59 libraries belonging to the network, having provided training to 8 300 users comprising children, young people, adults, senior citizens and library staff. As a result, people are able to use technology in their daily lives, having developed digital skills that enable them to create content, search for information and be participatory citizens.

In **India**, the *Sakhi Samaveshan Project* pursues financial inclusion through the empowerment of women, enrolling ordinary self-help group (SHG) members as business correspondents. Narmada

Jhabua Gramin Bank, in cooperation with the GIZ-NABARD (Gesellschaft für Internationale Zusammenarbeit – National Bank for Agriculture and Rural Development) Rural Financial Institutions Programme, has launched in four districts of Madhya Pradesh, covering 240 villages with a combined population of 300 000, through 41 Bank Sakhis. The objective is to "leverage on the existing SHG ecosystem for building a sustainable customer service point network to offer formal banking/financial services in un/under-banked villages". The project utilizes the strengths of SHG networks, their wide membership base and the entrepreneurial interest of SHG members in order to work as business correspondents offering doorstep financial and banking services. It has succeeded in breaking down social barriers, and women who previously never stepped out of their house to participate in banking activities and earn are now driving this innovative project. Male clients who used to hesitate to approach SHG members (Bank Sakhis) to engage in banking transactions now do so freely. Bank Sakhis say that their social status has been enhanced and that they take great pride in being able to offer banking services to their fellow villagers.

In achieving these objectives, the Sakhi Samaveshan Project relates to gender equality and the empowerment of women and girls (**SDG 5**).

The following three initiatives in the educational sphere are being pursued in **Italy**.

Organized by Women for Intelligent and Smart TERritories (WISTER), the *Learning Meeting* is a training experience dedicated to women that seeks to reduce the gender digital divide and empower women (**SDGs 4, 5** and **11**). It is held over two days with the participation of national experts in the areas of innovation and digital culture. During the first day, the potential of a more inclusive and more change-responsive society is demonstrated. On the second day, the participants work in thematic groups guided by teachers and coaches. The Learning Meeting represents a new way of working that is based on the exchange of knowledge. The students choose their table and their arguments, and the teachers alternate moments of theory with practical exercises. The WISTER Learning Meetings now have a consolidated format and will be repeated with new participants and new issues: social network practices, work-life balance, the impact of new media on lifestyles, risks and benefits, privacy, cybersecurity and much more.

Digital Literacy for Social Inclusion by Italian NGO Informatici Senza Frontiere (ISF) aims to reduce IT illiteracy among the more vulnerable members of our society such as the elderly, drug addicts in health communities, people with severe diseases, quadriplegics, ALS sufferers, children at risk of criminality, blind people, persons with disabilities including Down Syndrome, and young people in other countries such as Albania, Congo, Nigeria, Sierra

Leone and Mozambique. The *Never Back Down* initiative features free computer-laboratory training by ISF and local or remote training by ISF operators, leading to European e-Citizen certification.

The project's goals tie in perfectly with **SDGs 3, 4, 8, 10** and **16** since they focus on healthy lives, equitable quality education and economic growth, and seek to reduce inequality within and among countries and foster peaceful and inclusive societies.

Created by NGO Informatici Senza Frontiere (ISF) of **Italy**, *the I Speak Again (ISA)* project is a multilingual "communicator", a free web application triggered by the user's eye movements that is available over the Internet at ispeakagain.org, or downloadable for fully local set-up. It is a simple tool that restores some speech capacity to those who, for health reasons (including ALS, sclerosis, quadriplegia), have temporarily or permanently lost the ability to talk and move. ISA features four types of eye-tracking keyboard and offers simple support for home automation. It works with every type of text-to-speech system, including open source, such as Festival or Tingwo.

 With its focus on international implementation, the project aims to reduce inequality within and among countries and to foster healthy lives, well-being and lifelong learning opportunities for all (**SDGs 3, 4, 10** and **16**).

In **Mauritius**, the Ministry of Technology, Communication and Innovation highlights such problematic issues as the "gender divide", characterized by, among other things, the low numbers of women accessing and using ICT compared to men. Similarly, the ICT sector employs fewer women than men. To ensure that women benefit fully from ICT, the National Computer Board (NCB), under the aegis of the Ministry of Technology, Communication and Innovation, promotes *Gender Equality and Mainstreaming through ICT Access and Literacy in Mauritius* by catering for equal access to ICT tools and the Internet for women under the Community Empowerment Programme, and fosters ICT literacy for women through the Cyber Caravan project (**SDG 5**).

Mexico proposed three projects in order to improve the ICT literacy of its population.

The Ministry of Communications and Transportation created the *Puntos México Conectado*, a network of centres for digital inclusion and technology whose main objective is to promote the use of new technologies for the development of digital skills, innovation and entrepreneurship. Within each of these centres, courses, lectures and presentations are held to bring about greater digital inclusion and better informed and more involved citizens, while at the same time contributing to the creation of more efficient and productive micro, small and medium enterprises.

The project's objectives are strongly linked to such problematic issues as poverty, quality education and gender equality, as covered by **SDGs 1, 4** and **5**.

Impacting and Improving Education for Youth in High Poverty Areas is the initiative developed by UNETE (Unión de Empresarios para la Tecnología en la Educación). UNETE's mission is to promote educational quality and equity in Mexico. To this end, it seeks to improve the social-emotional and academic learning process of students attending public schools in high-poverty areas of Mexico. The project accomplishes its aims through the effective use of technology in learning and intensive teacher training and support, as well as through the provision of educational content to those for whom such resources are typically unavailable.

 The UNETE goals are reflected in a number of SDGs dealing with poverty, quality education, gender equality, reduction of inequality and promotion of inclusive societies (**SDGs 1, 2, 3, 4, 5, 9, 10** and **16**).

Web Accessibility Points by HearColors is a programme for persons with disabilities, many of whom are unable to use the Internet because nine out of ten websites are not accessible. Web Content Accessibility Standards have been developed to ensure that websites and their content are accessible to the assistive technologies mainly used by persons with visual, hearing and cognitive disabilities. The project's objective is to give students the capabilities needed to develop and design inclusive websites. Through Web Accessibility Points, students monitor the content accessibility of government webpages, providing governments with a low-priced assessment of that accessibility while at the same time learning accessibility concepts.

The programme encompasses such issues as equitable quality education, economic growth and ensuring healthy lives (**SDGs 3, 4, 8** and **16**).

In the **Philippines**, *Free Basic Digital Literacy Training (FBDLT)* is a training activity conducted free of charge by the Malvar Community eCenter (CeC). Four stationary CeCs and one mobile CeC contain 39 desktop and 13 laptop computers. With the goal of making a difference in the lives of constituents, free training is provided in word processing, spreadsheets, multimedia, Internet browsing, use of social media and e-mail. The clients of *FBDLT* are housewives, retirees, senior citizens, young people not attending school, children with special needs, volunteers, municipal and barangay officials and employees, tricycle drivers, elementary and secondary school pupils and students.

 The initiative fulfils such SDGs as fighting against poverty, achievement of gender equality and promotion of sustainable economic growth of the country (**SDGs 1, 5** and **8**).

Portugal's *0 Robot Ajuda! (The Robot Helps!)* project consists in using robots as an educational tool for the purpose of guiding students' curiosity towards the discovery and learning of basic STEM (science, technology, engineering and mathematics) concepts. The project's goals have to do with the planning and presentation of experimental activities, by and for students, stimulating and promoting their interest in science and self-learning, and in this way responding to **SDG 4** by ensuring inclusive and equitable quality education and promoting lifelong learning opportunities. The use of robots

enhances science-related activities, particularly those relating to engineering and ICT. In addition to planning and building prototypes to solve specific problems, the students organize workshops for students and teachers in schools around the country, and teach hospitalized children in the pediatric ward of the hospital.

In **Thailand**, the Department of International Trade Promotion (DITP) launched the *Smart Online SMEs (S.O.S.)* programme, operated by Thaitrade.com, in an effort to reduce the gap between the country's rich and poor. Following the realization that the provision of an e-marketplace, Thaitrade.com, did not fully address the problem due to a lack of understanding of the importance of online trading and of the ability to use the corresponding online tools, a series of knowledge-sharing sessions and inspiration-building campaigns were conducted in five provinces. During the period 2010–2015, the programme was delivered to over 4 000 people, of whom some 2 700 from rural areas.

The programme ties in with numerous SDGs by addressing poverty issues, educational and economic growth, inequality within the country, etc. (**SDGs 1, 4, 8, 9, 10** and **17**).

In **Uganda**, Zimba Group Ltd initiated the *Zimba Women-Enabling Market Access for Women Using ICT* project which seeks to build strong small and medium-sized enterprises. The aim of Zimba Group Ltd is to build a community of female entrepreneurs to support and inspire one another. They are provided with:

- business education and ICT resources for women

- opportunities to connect, learn and be inspired by mentors, role models and each other

- tailor-made technical support that is adapted to the innovation needs of each individual female entrepreneur.

The initiative relates to **SDGs 1, 5** and **8** by encompassing gender and economic issues, as well as to **SDG 17** – global partnership for sustainable development – through its focus on international collaboration.

Flor de Ceibo, Building Capacity for Development, is a project of the University of the Republic of **Uruguay** that works throughout the country to promote the social appropriation of technology through socio-educational processes. Since 2008, Flor de Ceibo has developed projects with vulnerable populations aimed at the democratization of knowledge, contributing to the linkage between capacity building, technological development and social problems within the country (**SDGs 4, 5, 10** and **16**). This project seeks to facilitate local production and social use of knowledge by coordinating different actors in the field of ICT.

In **Zambia**, *Connecting Learning Institutions* is a project running under the Universal Service and Access Fund (USAF) of the Zambia Information and Communications Technology Authority. The *Connecting Learning Institutions Project* focuses on narrowing the digital divide by making ICTs available and accessible to schools throughout the country. In collaboration with the Ministry of Education, 150 computer laboratories have been set up in 75 primary schools, 75 secondary schools and 50 tertiary institutions countrywide that meet the basic conditions for "ICT readiness".

 The project's goals coincide with most of the SDGs as they have to do with combating poverty and inequality within the country, ensuring quality education and gender equality, promoting inclusive and sustainable economic growth and inclusive societies, and building resilient infrastructure (**SDGs 1, 4, 5, 8, 9, 10, 11, 13, 16** and **17**).

C4.2 National policies

The ICT SME Toolkit by ictQATAR provides Small and medium-sized enterprises (SMEs) with the knowledge they need as they adopt web presence, e-commerce and cloud service technologies. Building on the progress made over the past years, Qatar Digital Government is focused on providing benefits to the people of Qatar. The drive to make Qatar's Government more efficient, effective and customer-centric is driven by the Qatar Digital Government 2020 Strategy, which is built around three main strategic objectives:

- Better serve individuals and businesses

- Create efficiency in government administration

- Develop a more open government with enhanced participation of citizens and residents.

The ICT SME Toolkit thus promotes economic growth, employment and decent work in Qatar (SDG 8).

In **Mexico**, the goal of the *Capacity Building Program in Regulatory and Normativity issues (PFPT)* was to create a programme with national impact to renew established and incumbent "peritos" by creating a new "perito" with an updated and clear vision of the current national and global telecommunications scenario. The idea was to increase the number of individuals licensed to support society, industry and the government in actions, projects, disputes and controversies regarding telecommunication matters. The PFPT programme has the potential to be replicated in other developing countries and emerging economies in order to contribute to the establishment and development of a solid and updated telecommunications regulatory and normative environment.

Thus, the programme contributes to **SDGs 4, 8, 9** and **16** on the promotion of lifelong learning opportunities, economic growth, sustainable industrialization and peaceful and inclusive societies.

C4.3 ICTs for professionals and experts

In **the Islamic Republic of Iran**, the *THINGcubator* is an incubator that supports a network of industry partners, technology entrepreneurs, business advisers and financial investors. The incubation model includes hands-on support in developing and growing Iranian business across functions, from general management to sales and marketing and technology. Access to office space and related services is also provided. The THINGcubator, based on a self-sustaining model, helps to accelerate the pace of innovation by strengthening the path for entrepreneurs, providing support for entrepreneurial communities and helping to grow the worldwide entrepreneurial ecosystem.

 In this spirit, the project responds to a number of SDGs as it builds resilient infrastructure, ensures sustainable consumption and production patterns, promotes sustainable industrialization as well as

economic growth and employment, and revitalizes the global partnership for sustainable development (**SDGs 7, 8, 9, 11, 12** and **17**).

In **Kuwait**, the *Histonano Website* (HNS) serves to educate readers interested in specific nanotechnology-related subjects of particular value to scientists and researchers, thereby corresponding to **SDGs in the educational, economic and social domains**. Ever since its inception in 2012, the website's maintenance and updating is an ongoing process. The HNS attempts to identify and certify in-depth information, which it then provides to researchers, together with the latest textbooks, journals, graphics and videos to enhance users' knowledge. The results of published papers concerning the HNS are currently in the process of being incorporated.
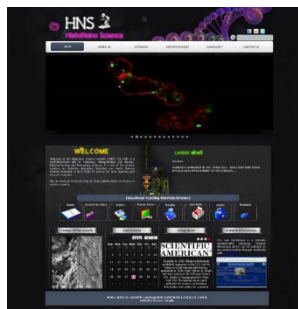
Two projects from **Malaysia** offer new ICTs for specific categories of people.

The *Jayonik RapidBus Simulator System (JRSS)* is a bus training simulator developed by Jayonik and RapidBus with the aim of training highly skilled bus captains for its driver training programme, which teaches bus drivers how to take care of passengers with disabilities and react to "injected" situations that cannot be simulated in the real world. In its memory are 700 km of virtual Kuala Lumpur and Penang city routes, on which real-life training would be hugely costly. The simulator auto-generates a graph of the driver's behaviour so that it can be evaluated with respect to eco-driving, thereby enhancing driver quality and hence ensuring a good service to the public, while at the same time promoting energy conservation.

These goals match with **SDGs 3, 4, 5, 8, 11** and **17** by ensuring healthy lives, quality education, the promotion of inclusive and sustainable economic growth, etc.

The Multimedia University initiated the *Converged Telecommunications Policy and Regulations (CTPR) Master Class* that is designed to offer mid- to senior-level executives in national regulatory agencies, relevant government ministries, telecommunication service providers, broadcasters, and equipment manufacturers/vendors in the Asia Pacific Region a holistic and up-to-date world view on all matters related to the converged telecommunications space. The *CTPR Master Class* achieves:

- exposure to latest global thinking on converged policy and regulatory matters and the way forward in support of capacity building

- a better understanding of related global laws and regulations

- a Holistic understanding of key issues to enable participants to engage in multi-stakeholder and multi-disciplinary discourse, policy-shaping and decision making in the telecommunications space.

In this way, the CTPR Master Class encompasses learning and educational issues (**SDG 4**).

In **Qatar**, the Ministry of Transport and Communications launched the *Better Connections Program* project, which is a collaborative framework for employers and contractors to establish ICT facilities and provide training to their transient workers within the worker accommodation. This initiative provides the beneficiaries with:

- refurbished hardware free of charge

- tailored training content available in five languages

- training and coordination support from the volunteers.

The Better Connections Program facilities are equipped with hardware enabling transient workers residing in Qatar to access the Internet and various ICT tools and thereby take part in the ever-changing digital world.

 The project is working to reduce inequality in the country (**SDG 10**).
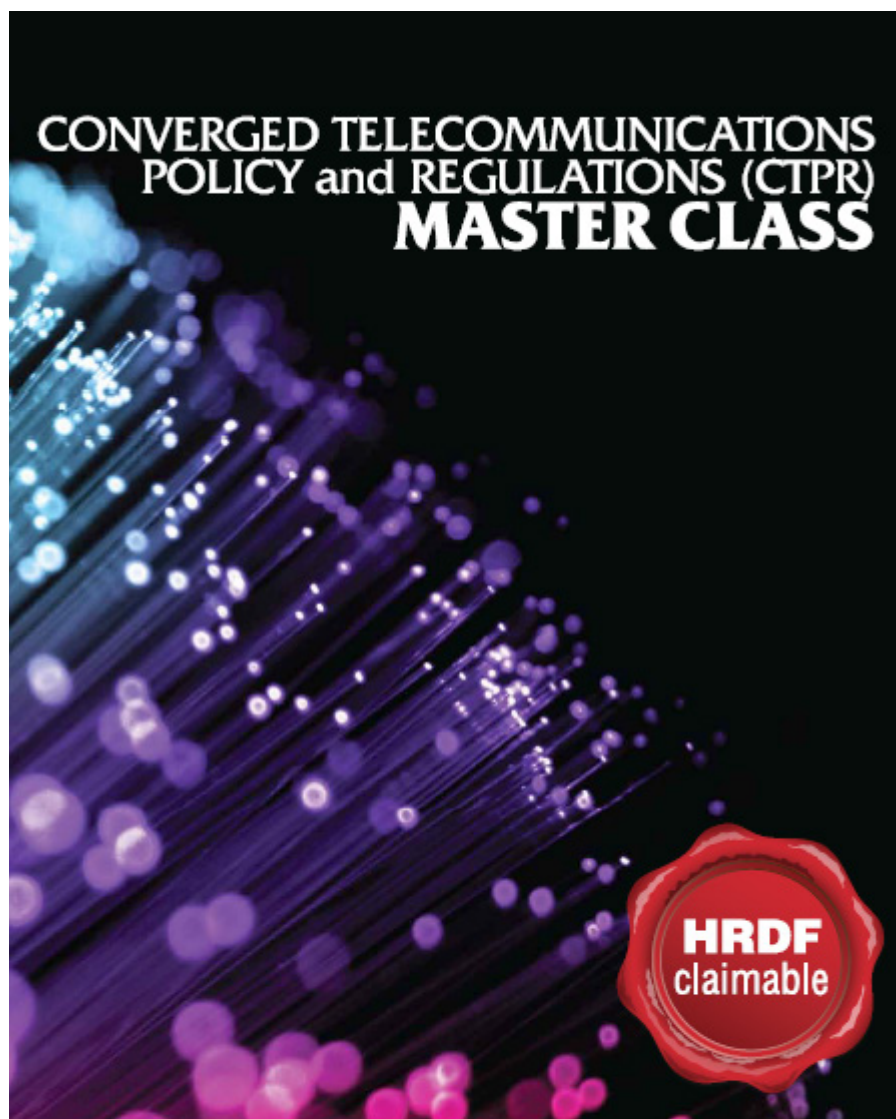
In **Saudi Arabia**, the e-Government Programme "Yesser" is keen to support the change that accompanies the implementation of e-government projects. Such change requires soft skills in addition to technical competencies to move forward successfully. To this end, "Yesser" has launched multiple programmes under its *Capacity Building and Development* initiative, which aims to build and enhance IT competencies in order to deal with implementations involving a high level of skills and professionalism. As at January 2016, over 42 000 government employees have been trained in areas ranging from basic computer usage to professional IT certifications and workshops for CIOs.

The programme relates to **SDGs 1, 4, 5** and **8** as it addresses such issues as poverty, education, equality of people and economic growth of the country.

In the **United Arab Emirates**, the *Dubai Smart Training Initiative (DSTI)* is one of the Dubai Government Excellence Programme's initiatives aiming to enhance the capacities of Dubai Government employees in government excellence knowledge and applications through the latest electronic and smart technology platforms. It thus relates to **SDGs 4, 5, 8, 9, 11** and **16** as it addresses education, gender equality, economic growth and sustainable industrialization, etc. The training content is presented

in a well-designed structure and flow, making the training more effective and enjoyable, and offers alternatives to suit and accommodate the user's preferences. DSTI offers training in both e-learning and smart app channels. The smart channel of this initiative utilizes mobility, interactivity and connectivity capabilities and smart mobile features to offer the convenience of training on a 24/7 basis from anywhere in the world.

C4.4 International and regional cooperation

Led and implemented by the Millennia2025 Women & Innovation Foundation, PUF (public utility foundation), **Belgium**, with the support of The Destree Institute, the concrete action *Millennia2025 Solidarity-Women* seeks to help women in precarious situations escape from poverty, in a win-win partnership with all the stakeholders that has three ultimate aims:

- Valuing women as leaders for their own future and the future of their children

- Generating educational emulation and citizen mobilization in solidarity, aimed at optimizing family resources, women's empowerment and gender equality

- Increasing women's access to quality socio-economic activities, combining performance, efficiency, equity, sustainability and social responsibility.

With the focus on international implementation, the programme addresses gender issues, in particular gender inequality as it affects women (**SDGs 5, 10** and **17**).

In **Indonesia**, the goal of the *Indonesia ICT Volunteer (IICTV)* programme is to empower Indonesian communities towards the country's information society through the provision of ICT knowledge and skills. The programme works to improve community livelihoods and enhance national competitiveness through socialization, education and ICT training by excellent and skillful volunteers (**SDGs 4, 5, 10** and **16**). To achieve the goals of Indonesia's information society, IICTV conducted four main programmes, namely:

1) Community education and development in the ICT sector

2) Community advocacy on ICT technology and infrastructure development

3) Application development and content

4) Creating partnership and public relations.

These programmes were designed to be executed up to 2019 in all of Indonesia's 34 provinces, and to be replicated in almost 50 per cent of the country's regencies and cities. The added value of the project lies in the fact that IICTV is a community-based organization which increases community participation and ownership sustainability. The organization's membership is open to high school and college students, employees and ICT experts who voluntarily participate in this activity. The project focuses on efforts to bridge the digital divide in Indonesia so that ICTs can bring benefit to the community. It is widely recognized that ICT implementation has to be accompanied by appropriate capacity building within the community so that people appreciate the benefits of ICTs and are able to make active use of them to improve their quality of life.

In **Mexico**, the National Digital Strategy launched the *Open Mexico Network (Red México Abierto)*, an intergovernmental partnership for the exchange of knowledge, best practices, technical and methodological tools and resources in order to promote open data at the local level and strengthen technological capacities at the subnational level. It comprises 12 states, 15 municipalities and three autonomous agencies, and aims to include the 32 state governments and their capital cities in 2016. It is supported by Data Squad, a project supported by the Open Data Institute and World Bank in 2012, to promote capacity building and knowledge transfer between government institutions, as well as peaceful and inclusive societies (**SDG 16**).
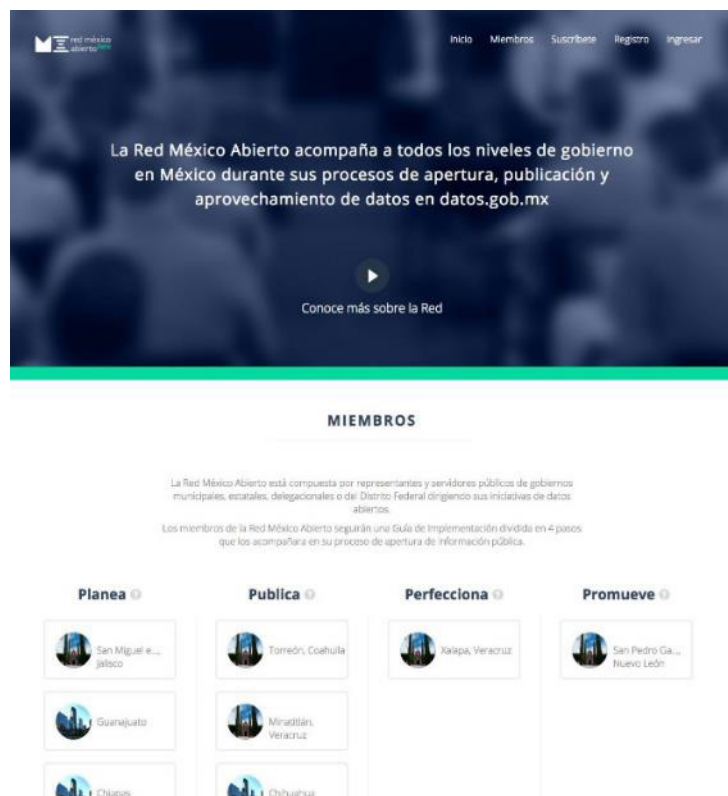
In the **Netherlands**, the international organization Hivos created the *IGMENA Programme*, which builds the capacity of stakeholders in the MENA (Middle East and North Africa) region to advance knowledge on Internet governance. Its objective is to ensure the full participation of civic actors in the Internet policy dialogue at the national and regional levels. In partnership with local NGOs, IGMENA trains civic actors to become future leaders, sponsors their participation in key Internet

forums, organizes round-table discussions about Internet policy, produces educational materials that support advocacy, and conducts outreach to raise awareness about human rights as they apply to Internet users.

Focusing on African countries, the programme deals with gender equality as well as with revitalization of the global partnership for sustainable development (**SDGs 5** and **17**).

In the **United Arab Emirates**, the *IPv6 Roadshow* provides hands-on training in IPv6 deployment. Working with governments and industry in the Arab region and technical experts from around the world, it provides practical capacity building to network operators. Launched in 2011, the Roadshow is a joint initiative of the RIPE NCC (Ripe Network Coordination Centre) and MENOG (Middle East Network Operators Group). A total of 30 events have been held in nine countries across the region, providing instruction to some 1 000 participants. A "train the trainer" programme (whose first graduate delivered an IPv6 Roadshow in November 2015) will see the initiative evolve to meet the growing demand for IPv6 capacity building and empower local technical communities.

The programme provides quality education, promotes sustainable industrialization and fosters innovation (**SDGs 4** and **9**).

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

ITU is the sole facilitator for Action Line C5.

Confidence and security play an essential role in the information society. Governments, in cooperation with the private sector, are working to prevent, detect and respond to cyberthreats and misuse of ICTs by: developing guidelines that take into account ongoing efforts in these areas; considering legislation that allows for effective investigation and prosecution of misuse; promoting effective mutual assistance efforts; strengthening institutional support at the international level for preventing, detecting and recovering from such incidents; and encouraging education and raising awareness. Thus, the projects reported on in this chapter showcase the ways in which stakeholders are contributing on an ongoing basis to building confidence and security in the use of ICTs.

As lead facilitator for Action Line C5, ITU has made available to the international community a global platform for dialogue, coordination and cooperation.

The ITU Global Cybersecurity Agenda (GCA) provides the framework within which the international response to the growing challenges to cybersecurity can be coordinated and addressed. Within this framework, the Union has continued to play a key role in the global community through various partnerships and initiatives. ITU-IMPACT has provided cybersecurity services and capabilities to 149 countries and, together with the United Nations Office on Drugs and Crime (UNODC), ITU is assisting Member States in properly addressing cybercrime.

Within the framework of the GCA, the Child Online Protection (COP) initiative brings together partners from all sectors of the global community to ensure a safe and secure online experience for children everywhere.

The International Conference on Cyberspace, Energy and Development was co-organized and co-hosted by ITU and the Energy Pact Foundation with the support of the International Atomic Energy Agency (IAEA) and the World Economic Forum (WEF). The conference focused on the different aspects of the interaction of cyberspace, energy and development, based on key findings on security issues. There is a need for greater international cooperation among nations on matters pertaining to cyberspace, especially concerning the risks that can affect critical infrastructure such as conventional energy systems. Early initiatives in this area have focused mainly on safety of telecommunication and information networks, as these are the very infrastructure of cyberspace. However, if a cyberattack were to cause deterioration in the electricity supply, it could also impair the operational protection of the telecommunications infrastructure at large. Apart from this ubiquitous role of the electricity system, itself unique compared to all other critical infrastructures, many areas of energy systems are exposed to damage originating in cyberspace, and include energy mining and production centres, logistics or trading platforms, transport infrastructures for primary resources such as oil, gas and coal, or processed electricity, such as smart grids, processing units, such as those for uranium, consumption meters, including smart metering, control systems such as drones, and e-mobility environments, including electric cars. Obviously, the stakes go well beyond ensuring security of supply and involve the constantly shifting national and transnational flows of resources and power grids, the potential damage to key infrastructures, market impacts, theft of general and customer data, and other dormant risks. This interaction of risk issues between cyberspace and energy is in fact the umbrella under which effective cybersecurity should be designed for such critical infrastructure. It requires an exchange between the national level, responsible for critical domestic infrastructures, and the international level, as the extreme interconnectedness of the telecommunications industry and electricity infrastructures will only increase over time.

Furthermore, the fight against online child sexual abuse content is increasingly a global effort. The Internet Watch Foundation (IWF) has been invited by ITU to develop a template that will enable

countries which currently have no provisions in this regard to access IWF's expertise and resources with a view to establishing efficient and cost-effective methods to tackle this growing problem.

Besides child cybersecurity, this action line contributes to several SDGs, namely **SDGs 1, 4, 5, 7, 11, 16** and **17**. Quality education, lifelong learning opportunities and gender equality partly depend on confidence and security in ICTs (**SDGs 4** and **5**). **SDG 7** – ensuring access to energy for everybody – is directly related to this action line. As energy infrastructure increasingly relies on ICTs through management and control of the relevant systems, cyberthreats become a valid risk that must be addressed with adequate security measures. Confidence and security in the use of ICTs are a crucial component in achieving the inclusivity and sustainability of society, institutions and human settlements and in contributing to the economic development of the global community (**SDGs 11, 16** and **17**).

C5.1 Legal measures

In **Mauritius**, the Ministry of Technology, Communication and Innovation launched the *Implementation of Child Safety Online Action Plan* to address an issue that has attracted global attention and which prompted a call for action by Member States during the Tunis phase of the World Summit on the Information Society. The Plan, developed by the National Computer Board and endorsed by the Cabinet in 2009, is currently being implemented. The policy measures it embodies relate to the following:

- Public awareness campaign

- Safety measures for schools and public Internet access points

- Child safety online legislation

- Enforcement and reporting measures

- International cooperation

In 2011 the postal entity of **Morocco**, Poste Maroc, aware that digital services cannot be developed without the requisite technological, operational and legal measures, launched *Barid eSign* in order to satisfy the need for a certification platform to ensure the safety, integrity and probative value of all electronic exchanges. Through the development of Barid eSign, Poste Maroc is positioning itself as the first Moroccan electronic certification service authority and provider for dematerialized transactions. Through Barid eSign, Poste Maroc has reached the first milestone in its development strategy for digital postal services and positioned itself as a leader in the secured electronic correspondence/ exchange market.

The project's goals align with **SDGs 4, 9** and **17** by focusing on lifelong learning opportunities for all, sustainable industrialization and revitalization of the global partnership for sustainable development.

In **Oman**, *Oman Public Key Infrastructure (Oman PKI)* is a national initiative that establishes the infrastructure needed for all government entities to provide e-services in Oman. It serves to enable online transactions for citizens while raising the level of security and authenticity of electronic paperwork. It allows for the secure exchange of information through the high level of confidentiality obtained by using eID, mobile ID or USB Token. Oman PKI aims at providing a secure technology for information, documentation, electronic credibility and identification and user authentication as well as online transaction signature using electronic ID.

In this way, it ensures access to information and protects fundamental freedoms, in accordance with national legislation (**SDG 16.10**).

In **Poland**, the Office of Electronic Communications (UKE) launched the *Certification Programme for better ICT services*, applicable to telecommunication undertakings for one year in five categories: Safe Internet, Senior/Junior, Offer Comparison Website and Handicapped Friendly. Any entity which

meets the conditions for the given category can join the Certification Programme. The project aims to promote equal and effective competition in the provision of telecommunication services and to ensure the widest possible consumer protection, thus meeting **several SDGs**.

The Ministry of Manpower of **Oman** created the Ministry of Manpower e-identity (e-authentication) service for the ministry's employees in a bid to benefit from the e-services that were activated in 2015. The new service is related to the e-nomination of job seekers, e-licensing and e-authentication of Omanis' employment contracts. The service ensures high quality of security, accuracy and credibility, thus contributing to economic development, employment, etc. (**SDG 8**). The e-payment and upload services have been made active for 334 well-performing organizations of which 265 pay the fees electronically through the e-payment portal without the need to report to the ministry.

For the last five years, Internet users in the **United States** have been increasingly vocal about Internet policy. Leadership on Internet policy issues has not emerged from everyday users. Corporations and media figures led these calls to action. The power and effectiveness of these movements clearly demonstrate that the public has opinions. However, these opinions should more properly develop and emerge among users themselves. That is the reason for the founding of the *Association of Internet Users (AIU),* which will provide information and develop and advocate user-selected policy. Three primary functions of AIU are:

• To provide a reliable educational resource for users interested in learning more about Internet policy issues

• To serve as a civil public square enabling interested users to discuss and debate Internet policy

• To advocate Internet policy based upon user preference.

The programme thus contributes to certain SDGs by providing free access for the expression of ideas, protecting fundamental freedoms, etc. (**SDG 16**).

With respect to the interests of cybersecurity and cyber resilience, in 2014 the Government of **Indonesia** established the *Desk Ketahanan dan Keamanan Informasi Cyber Nasional (DK2ICN) (National Desk on Cyber Resilience and Information Security)* project, which includes the representation of ICT multistakeholders. Among other duties, DK2ICN was mandated to effect coordination, collaboration, synchronization, harmonization and control cooperation between institutions of all stakeholders, including government, academia, civil society and business and industry at national, regional and global level. DK2ICN will shortly become the Indonesia National Cyber Agency.

The project contains resources for the implementation of certain SDGs, namely **SDGs 3, 8, 16** and **17,** promoting well-being for all and sustainable economic growth, and building inclusive institutions at all levels and global partnership for sustainable development.

C5.2 Technical and procedural measures

In pursuit of child online protection, the Ministry of Digital Affairs of **Poland** has launched *Risky Online Adventures, starring Sheep Loco and the Kid – the visual information campaign on protecting children online, an information campaign*. The best way to reach out to children is through means they understand and are well accustomed to, such as animated films. The Ministry has produced five films about threats such as cyberbullying, spam, viruses, addictions and chain letters.

The campaign's goals coincide with **SDGs 4** and **11** by strengthening efforts to protect and safeguard ICT access and ensuring quality education for children.

VOICE: Stop the hate speech and a wave of cyber violence.

In the **United Arab Emirates**, the Dubai Electricity and Water Authority (DEWA) began implementing the DEWA Smart Power Plant System (SPP) Project in January 2016 with the aim of establishing a centre to gather data in real time from isolated power stations in order to establish a Generating Power Plants Distributed Control System using real-time and historical data to provide a holistic view of the operational, technical and economic condition of each plant/unit. Plant data can be accessed on the move via smart devices, PCs and laptops equipped with online plant monitoring, evaluation, reporting, performance calculations, dashboards, KPIs, and SMS/e-mail to support the decision-makers.

The project seeks to ensure reliable, sustainable and modern energy and the building of resilient infrastructure, and fosters innovation (**SDGs 7, 9** and **11**).

C5.3 International cooperation

With the aim of making all non-governmental organizations (NGOs) digitally literate, the Digital Empowerment Foundation (DEF), in **India**, embarked upon the *eNGO Program* to help grass-roots NGOs, which dedicate themselves to improving our world, through the Internet. In 2011, DEF, in collaboration with the Public Interest Registry (PIR), the non-profit organization responsible for global management of the ".org" top-level domain, launched the PIReNGO programme (pirengo.org) as a flagship initiative to create a network of legally validated online NGOs/CSOs (civil society organizations) with IT training and capacities in India, South Asia and Africa. As at November 2015, this initiative has reached out to 6 000 NGOs/CSOs in India and South Asia. For the next phase of development under the eNGO Program, DEF has undertaken, together with PIR, to bring all the not-for-profit organizations across India and South Asia under the new top-level domain ".ngo" – which is specifically intended for genuine, validated NGOs – in the interests of fostering transparency and governance in the social sector.

 With its focus on international implementation, the project meets **SDGs 1, 4, 8, 9, 11, 16** and **17** as it addresses such issues as quality education, economic growth, safety of cities and global partnership.

C5.4 Regional actions

In **Ukraine**, the A.S. Popov Odessa National Academy of Telecommunications developed the *Multimedia distance-learning course on the safe use of Internet resources* project, which represents a part of the CIS (Commonwealth of Independent States) regional initiative on "Creating a child online protection centre for the CIS region", adopted at WTDC-14 (Dubai, UAE), with the support of the A.S. Popov National Academy. The course is divided into three parts: basic (for pre-school and junior schoolchildren); intermediate (for children in classes 5 to 9); and advanced (for senior pupils, students, parents and teachers). Each course is based on thematic modules with tests after each module.

The project aims to ensure quality education and promote learning opportunities for the CIS region (**SDG 4**).

Launched by the Telecommunication Regulatory Authority of the **United Arab Emirates** (UAE), the *Cyber Blackmail Campaign* seeks to educate users in the UAE on the risks and potential consequences of careless Internet use and raise their awareness of the need for caution when sharing data on the web, especially with the remarkable growth and development of the online spaces made possible by modern technologies – spaces which unscrupulous users take advantage of in order to harm other people, violate their privacy and then use their personal data and pictures to obtain illegal financial gain.

As they help to build security in the use of ICTs, the campaign's goals reflect **SDGs 5, 11, 16** and **17** by addressing gender equality, promoting a peaceful society and encouraging the global partnership for sustainable development

KioSol aims to create a set of *sun-powered Kiosks* in the capital city of **Burundi** (Bujumbura), running on solar energy to recharge electronic phones or other devices for a small amount of money, as electricity is lacking in Burundi. The purposes of the Kiosks are also to resell newspapers and air time and serve as advertising centres. Kiosks might be in universities, hospitals, not far from residential apartments, suburbs, in the Burundian markets (souks), and ultimately even in rural areas.

The project thus ties in with poverty issues and economic growth of the country, and ensures access to information and affordable and sustainable modern energy (**SDGs 1, 7, 8** and **16**).

Action Line C6. Enabling environment

UNDP is the lead facilitator for Action Line C6, while ITU, United Nations regional commissions, UNCTAD, UNDESA, UNIDO and the Association for Progressive Communications (APC) are co-facilitators.

Governments should foster a supportive, transparent, pro-competitive and predictable policy, legal and regulatory framework that provides the appropriate incentives to investment and community development in the information society.

Governments are invited to facilitate the establishment of national and regional Internet exchange centres; manage or supervise, as appropriate, their respective country code top-level domain name (ccTLD); and promote awareness of the Internet.

Organized by ITU, in collaboration with the Gabonese Autorité de Régulation des Communications Electroniques et des Postes (ARCEP), under the patronage of His Excellency Mr Ali Bongo Ondimba, President of the Republic of Gabon, the 15th Global Symposium for Regulators was held in Libreville, Gabon, from 9 to 11 June 2015. Under its central theme of "Mind the Digital Gap- Regulatory incentives to achieve digital opportunities", participants explored ways to ensure that all citizens can benefit from the social and economic opportunities brought by the digital economy. For digital opportunities to fully materialize in today's increasingly complex and pervasive environment, an adaptive, consultative and innovative approach to regulation is more than ever required. Regulators, policy makers, industry leaders and other key ICT stakeholders shared their views, engaged in interactive discussions and identified best practices moving forward.

Initiated by the ITU's Telecommunication Development Bureau (BDT) and the Infocomm Development Authority of Singapore (IDA), the inaugural ICT Regulators' Leadership Retreat, reserved for heads of ICT regulatory authorities, took place in Singapore from 18 to 20 March 2015. The retreat provided heads of ICT regulatory authorities with the opportunity to engage with internationally renowned experts, exchange views and experiences, challenge preconceived ideas from the ICT sector and identify common approaches to respond efficiently to the challenges of regulation in a data-driven connected world. Under the overarching theme "Getting ready for tomorrow: regulation in a data-driven connected world", the first two days of the retreat provided a global perspective on examining agile and adaptive regulation in a digital ecosystem, and showed how bigger data can mean better decisions. The third day focused on Singapore's regulatory approach in a connected world. The following topics were addressed: competition in the digital age, the changing rules of the game brought about by the advent of over-the-tops (OTTs), big data for bigger decisions, smart cities and open data, and the role of the regulator today and in preparing for tomorrow.

This action line is crucial to achieving such SDGs as **SDGs 2, 4, 5, 8, 9, 10, 11, 16** and **17**. Policies and regulations must contribute to reducing barriers to broadband development, facilitating the build-out of national fibre-optic networks and international connectivity links. This, in turn, is fundamental to building resilient and sustainable agriculture and e-agriculture systems (**SDG 2**). Governments should prioritize the implementation of policies that develop human rights, including gender equality, empowering women for the building of a vibrant and diversified ICT sector (**SDGs 5** and **10**). Economic growth, decent job creation, employment, innovation and industrialization and the building of human settlements are impossible without clear, predictable and stable government regulations and ICT regulatory policies (**SDGs 8, 9** and **11**). Evidently, Action Line C6 may contribute to **SDG 16** as it ensures public access to information and protects fundamental freedoms, with broadband – especially mobile broadband – enabling citizens to access any content anytime and anywhere. Moreover, participatory and representative decision-making may be ensured by the use of various platforms, which will develop a common understanding, setting up vision, strategy and multiple collaboration mechanisms to further dialogue with industry, consumers and other stakeholders. Enabling ICT regulatory policies

also provides the framework for international cooperation towards a harmonized and coordinated approach to oversee the evolution of the information society (**SDG 17**).

Digital **Bangladesh** is a long-term vision of human development through leveraging the flexibility and ubiquity of ICTs. With a whole-of-government approach, a2i (Access to Information) – the facilitator of this innovative agenda from the Prime Minister's Office – has mobilized the entire government machinery through:

- service process simplification (SPS) and the Services Portal – tool

- a systematic capacity development approach – capacity

- annual performance agreements (APAs) – policy support.

This combination has created an enabling environment to empower civil servants at all tiers of government to improve the quality of services by reducing service delivery inefficiencies. The project also aims to increase transparency, efficiency and responsiveness, while addressing the empowerment of women, inequality and global partnership (**SDGs 1, 5, 10, 16** and **17**).
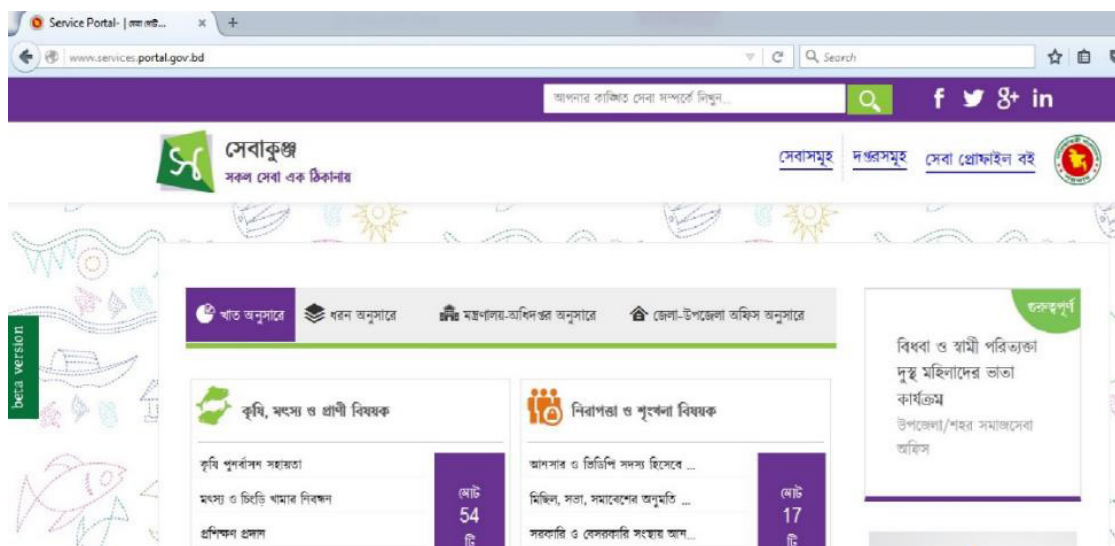

In full cooperation with the persons with disabilities community, a number of prominent NGOs and the CIT Chamber of Commerce, the Ministry of Communications and Information Technology (MCIT) in **Egypt** launched a *Lifelong Learning (LLL)* programme to help persons with disabilities find job opportunities. Such persons are currently not offered the kinds of training programme that enable them to meet job-market requirements and are consequently experiencing high levels of unemployment. The LLL programmes on offer range from basic IT and soft skills to specific technical skills that are specified by IT companies interested in hiring persons with disabilities.

 The programme thus tackles such problematic issues as poverty, quality education, employment of specific people, etc. (**SDGs1, 4, 8** and **16**).

Elaborated by the German Society for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH), the *Promotion of Mini-grids for Rural Electrification* project is to be implemented in **Uganda**, where 70 per cent of the population live outside the cities, and where only 7 per cent of the rural population have access to electricity. The Mini-Grids project focuses on the development of framework conditions at the regulatory level and develops a tendering approach for the selection of a private-sector concessionaire for the implementation and operation of mini-grids. Productive use of electricity in the electrified villages is promoted to ensure affordability of electricity connections for households as well as rural economic development and access to ICTs (**SDGs 7** and **8**).

Elaborated by the Department of Child Development, Women Development & Social Welfare, the *Trackchild 2.0* project is the National Tracking System for Missing and Vulnerable Children in **India**. It provides an integrated virtual space for 17 100 police stations, 5 500 child care institutions, citizens and various national law enforcement and ICPS (Integrated Child Protection Scheme) bodies. It also provides a networking system among all the stakeholders and citizens to facilitate tracking of a child in distress. The portal maintains a nationwide database of missing and found children who are covered by various services under the ICPS and Juvenile Justice (Care & Protection of Children) Act. The portal facilitates data entry and the matching of missing and found children, and also enables the progress of children who are beneficiaries of the ICPS Scheme to be followed up. The software provides facilities for the mapping of vulnerable locations, i.e. those which have a large number of children reported missing, so that corrective action can be taken in those areas.

The project accords with **SDGs 3, 4, 5, 11** and **16** dealing with the establishment of healthy lives, quality education and the strengthening child protection and promotion of peaceful societies.
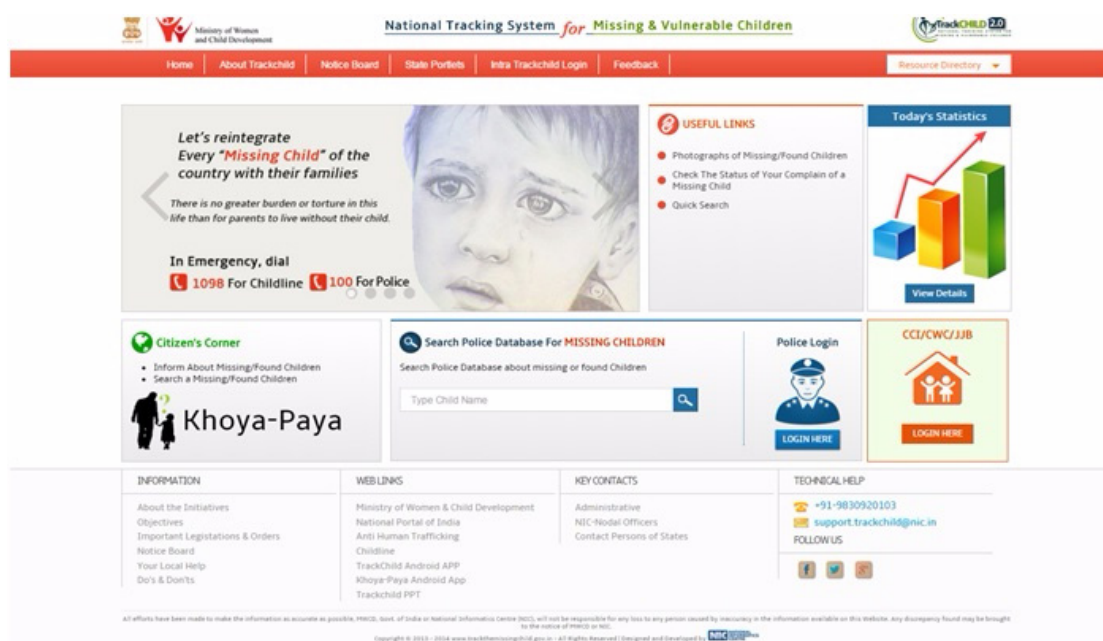
In **Indonesia**, the goal of the *i-CAKAP* programme, launched by the Ministry of Communication and Information Technology, is to raise the awareness and build the capacity of communities with respect to the use of ICTs in a smart, creative and productive way for a sovereign Indonesia. The programme seeks to help those using the Internet to do so effectively and wisely and to teach them how to develop innovative products/services that are beneficial both to themselves and to other people, thereby improving their livelihoods. It consists of the following activities:

- Initial Initiative (2010). i-CAKAP was initiated through the Gema Insani Declaration in 2010, when 21 institutions – ministries, local government entities, religious organizations, Internet provider associations, teacher associations, schools and universities – declared their commitment to safe and secure use of the Internet to create a knowledge-based community in Indonesia.

- Raising Awareness (2011-present).The Declaration was then followed up by various social actions aimed at making the community aware of the need to use the Internet in a safe and secure way.

- Building Capacity (2011-present). The social actions also covered topics for enhancing the community's ICT skills, such as blog creation, e-commerce, etc.

In 2015, there are 21 social actions and training-of-trainers events being conducted in 18 areas within Indonesia. There are 2 966 people, mostly students in junior and high school, gaining knowledge and skills in the use of ICTs in everyday life. Aside from the social actions and training of trainers, the

Ministry conducted a competition in 2013 and 2015 to search for talented high school students to serve as role models in the use of ICTs in smart, creative and productive ways.

The project perfectly reflects **SDGs 4, 5, 10** and **16** as it addresses equitable quality education, gender equality and peaceful and inclusive societies.

The objective of the *Law on access to information* in **Kazakhstan** is to ensure the legal conditions whereby individuals and legal entities can have access to the information held by government agencies and other information holders with respect to:

• the use of funds assigned from the government budget

• legal market entities occupying a dominant or monopolistic position

• prices for goods/works/services manufactured/sold by such entities.

The project also seeks to involve citizens in government-agency decision making at all levels, especially local, through the open-government mechanism. Thus, fostering secure access to ICTs, the project is related to **SDGs 8, 10, 11** and **16**.

In **Kuwait**, the *Tasdeed* website is a service that was jointly designed by the Ministry of Finance (MOF), Kuwait Government Online Portal (CAIT) and a third party from the private sector. It is a convenient tool for collecting amounts owed to the government by individuals/entities (Kuwaiti citizens, other residents, corporations). The following goals have been achieved by Tasdeed as a service-oriented tool:

- The ability for individuals/entities (Kuwaiti citizens, other residents, corporations) to effect payments to government agencies (service providers/invoice departments) irrespective of time of day or location, simply and by various electronic means

- An increase in non-oil revenue

Tasdeed was introduced to enhance accounting receivables for services provided by government agencies. It has taken the lead in MOF Enterprise Resource Planning (ERP) implementation and has been rolled out in 42 government agencies.

Mexico has initiated three programmes aimed at promoting peaceful societies, sustainable industrialization and secure access to information (**SDGs 9** and **16**).

Elaborated by the Federal Institute of Telecommunications (IFT), the *Soy Usuario* system is an electronic tool that supports the reconciliation process between the user and the provider of a telecommunication service following a failure in that service or when a user right is violated. It enables the telecommunication services regulator and consumer protection agency to monitor the conciliation proceedings and advise users as to their rights. It is easy to use and has accessibility features for people with visual disabilities. It also generates reliable information about the service status of each company, enabling IFT to detect generalized service failures and recurrent abusive practices, thus constituting a timely monitoring and verification tool and allowing for the imposition of sanctions, where appropriate.

In Mexico, the *Mobile Telephony Plans Comparator* is an online tool that makes it easy for users to compare the current mobile phone service packages on offer and find out specific contractual details regarding such things as monthly subscription charges, voice minutes, text messages, megabytes, characteristics, tariffs and options. It also offers valuable statistical and user habit information derived from its quality surveys. On the basis of user acceptance and participation, the Plans Comparator is constantly being updated with new data to facilitate decision-making, thereby positioning itself as the only tool of its kind in Mexico backed by a government institution.

Endorsed by the Mexican Presidency, the *ICT Policy for the Federal Public Administration* programme enables alignment of the ICT federal budget in order to guarantee fulfilment of the objectives of the National Digital Strategy. Furthermore, it promotes equality among government agencies of the Federal Public Administration by democratizing access to cutting-edge technology. Agencies that are less developed in terms of ICT have the opportunity to make a technological leap, irrespective of their size, number of staff or general budget, resulting in the equitable acquisition of technology. This is the first time the Federal Government has digitized the ICT procurement processes, creating efficiencies in more than 12 per cent of the ICT budget.

The *Sustainable Land Management for Young Farmers* project from **Gambia** is designed to cover six regional agricultural directorates (RADs) of the low and high lands that are used in agricultural production in the country. It seeks to address the interlinked problems of rural poverty, food insecurity and land degradation, and this ties it in with certain SDGs, namely **SDGs 1, 2** and **15**. The main outputs of the project include national and regional operational Sustainable Land Management Project (SLMP) clubs comprising a multilevel partnership of stakeholder institutions.

Action Line C7. ICT applications: Benefits in all aspects of life

ICT applications can support sustainable development in different sectors such as public administration, business, education and training, health, employment, environment, agriculture and science within the framework of national strategies. This chapter illustrates how ICT applications can maximize social and economic benefits for society.

C7.1 E-government

The **United Nations Department of Economic and Social Affairs (UNDESA)** is the main facilitator for e-government, while **UNDP** and **ITU** are co-facilitators. One of the main instruments for monitoring implementation of this action line at the global level is the United Nations E-Government Survey which draws a systematic assessment of the use and potential of ICTs to transform the public sector by enhancing its efficiency, effectiveness, transparency and accountability, as well as access to public services and citizen participation. By studying broad patterns of e-government around the world, the survey assesses the e-government development status of the 193 United Nations Member States. It serves as a tool for decision-makers to identify their areas of strength and challenges in the field of e-government in order to inform policies and strategies.

E-government aims to implement e-government strategies focusing on applications aimed at innovating and promoting transparency in public administrations and democratic processes, improving efficiency, and strengthening relations with citizens. It develops national e-government initiatives and services at all levels, adapted to the needs of citizens and business, in order to achieve a more efficient allocation of resources and public goods. It also supports international cooperation initiatives in the field of e-government, in order to enhance transparency, accountability and efficiency at all levels of government.

An important aspect of this approach is broadening the scope of e-government, fully embracing the citizen engagement component, thus enabling government to play a transformative role towards cohesive, coordinated and integrated processes and institutions through which such sustainable development takes place.

This action line also contributes to such SDGs as **SDGs 9, 16** and **17**. E-government expansion may be a driver of demand for ICTs, as well as provider of affordable access, promoting effective and efficient public service delivery to all people. Also, reliable and affordable connections to the Internet worldwide can facilitate access to financial services, mobile finance, insurance and market information (**SDG 9**). ICTs represent a key driver and enabler of enhanced efficiency, effectiveness and transparency in public service delivery. Thus, e-government also contributes to expanding participation in decision-making and addressing digital divides, thanks to various forms of ICT-enabled information sharing and consultation within the global community (**SDGs 16** and **17**).

The Ministry of Water Resources and Environment of **Algeria** initiated the *SIGMA project*, which is a geographic information system (database) for the water resources sector, covering dams, wastewater stations, etc. The aim of the project is to make information about water resource infrastructures accessible to the public and enable concerned individuals to submit comments or rectify errors by sending requests to the Administrator. The SIGMA project relates to such issues as sustainable agriculture, healthy lives, access to water and sanitation as well as inequality within the country (**SDGs 2, 3, 6** and **10**).

In **Bangladesh**, the Department of Environment (DoE) developed the *Web-based Environmental Clearance Certificate (ECC) Application System* project. As the single most important agency mandated

to preserve and protect the environment, DoE had to handle the reluctance of businesses to apply for the ECC on account of the cumbersome and time-consuming application process. By developing an innovation supported by the Service Innovation Fund (SIF), it has re-engineered this project, making it more transparent, accessible, accountable and user-friendly, resulting in a 200 per cent jump in applications and a 20/57/33 per cent decrease in time/cost/visits, respectively, within seven months of its launch, doubling the corresponding revenue and demonstrating visible progress on **SDGs 9** and **13** – building of resilient infrastructure, promotion of sustainable industrialization and combating climate change and its impacts.
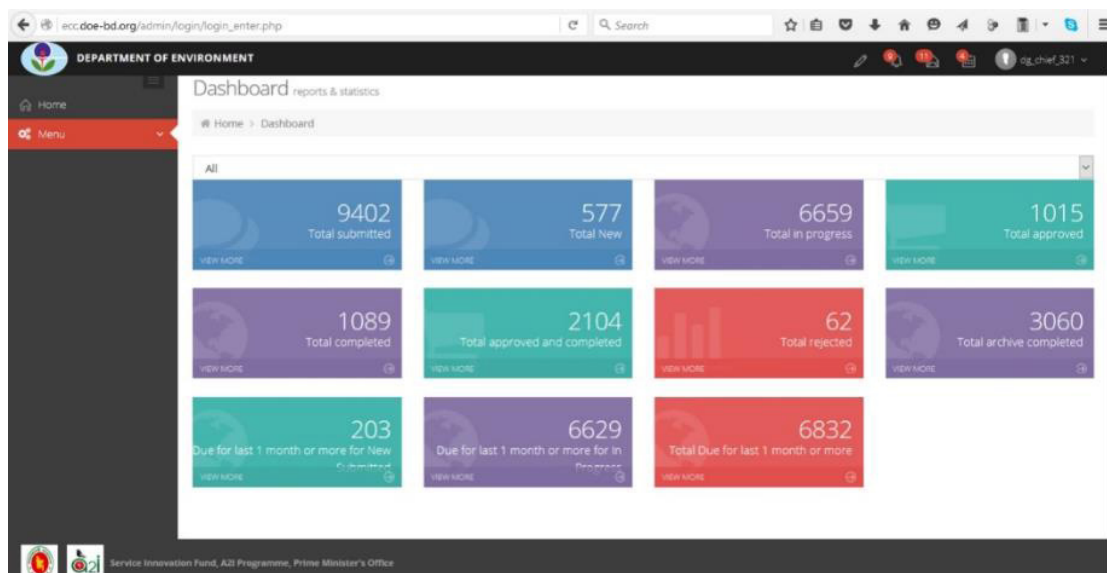
In **Bhutan**, the Ministry of Information and Communications created the *Community Centre (Empowering Rural Communities - Reaching the Unreached)* project, which is a single window where all citizens can access numerous government and business services. It is also the point where all these services converge. Content providers can link up with service provider agencies, be they government or private, and share the community centre platform for delivering services under a revenue-sharing agreement. It is the front-end point for government, business and social-sector entities to deliver their services to the citizens of Bhutan. The main objectives of the project are to reduce poverty, empower communities and improve the quality of life and education in rural and remote areas of Bhutan by facilitating access to ICTs, media, postal, banking and other services (**SDGs 1, 4, 8** and **10**).
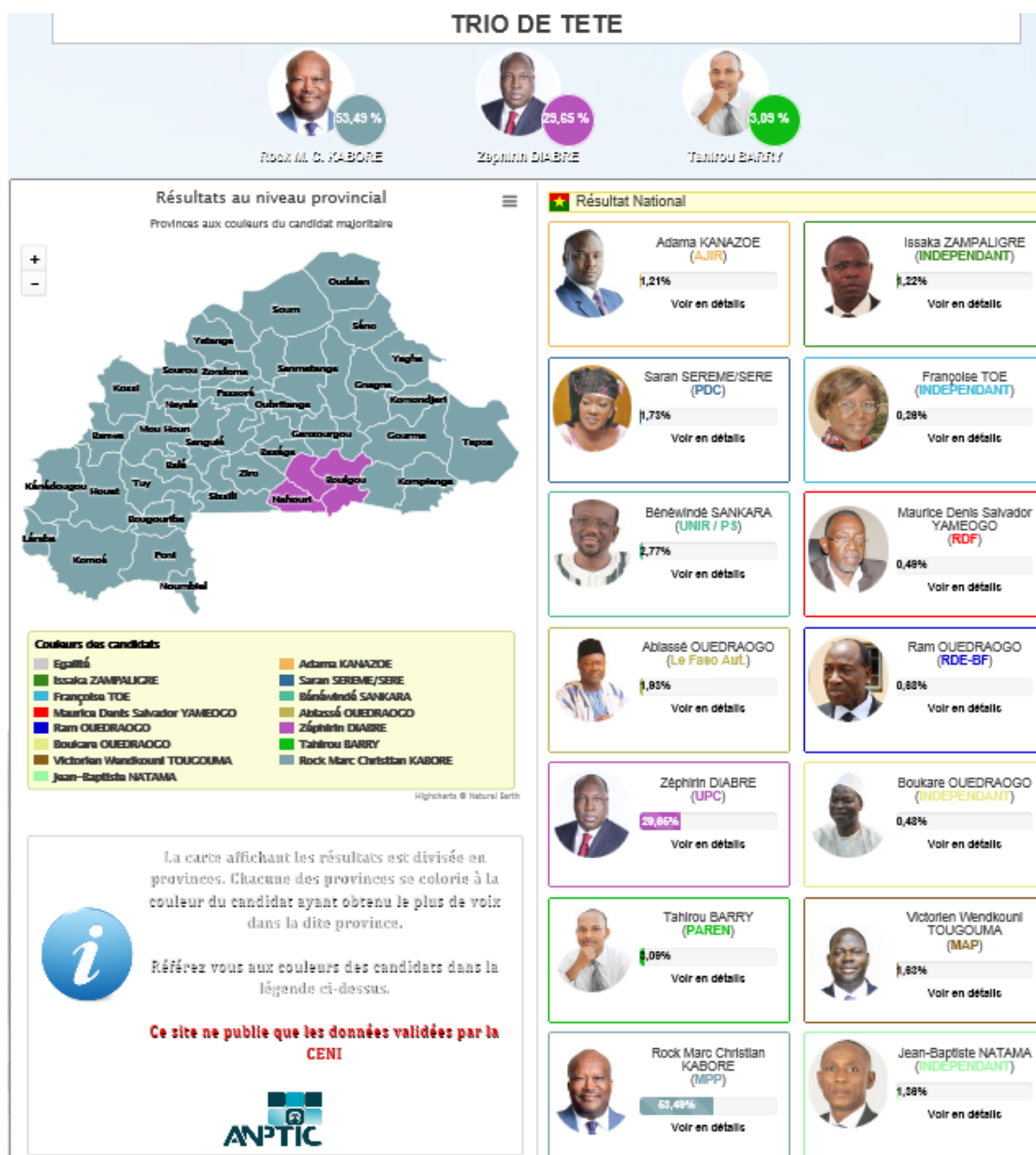
Consumidor.gov.br is a web-based tool that enables direct communication between consumers and businesses in **Brazil**. It aims to solve consumer disputes via the Internet. Monitored by the National Secretariat for Consumers (Senacon) (Brazilian Ministry of Justice), Procons (prosecutors for consumer protection and defence), public defenders, prosecutors and society, the tool is based on principles of transparency and social control, making it possible to resolve consumer-related conflicts both rapidly and without undue bureaucracy. Currently, 80 per cent of complaints are resolved, with consumer demands being addressed within an average period of seven days. Officially launched on 27 June 2014, the platform has already registered more than 200 000 claims and has 180 000 registered users and 293 participating companies, including major telecommunication, banking, retail, manufacturing, air transport and health insurance corporations. The website promotes the rule of law at the national level and provides access to justice (**SDG 16**).

The following two projects have been initiated in **Burkina Faso**.

"Open Election is a project that the Burkina Open Data Initiative (BODI) initiated with a view to supporting the presidential and legislative elections in Burkina Faso by facilitating the publication of election results in real time. It involved the development of a responsive web application (that fits any screen) and an app for Android smartphones. In partnership with CENI, the entity responsible for organizing elections, BODI worked to publish the results in a transparent manner through the Open Election application.

The project has also helped to demonstrate the usefulness and importance of open data, especially in the African context, and relates to **SDGs 11** and **17**.

TRIO DE TETE

53,49 % Rock M. C. KABORE
29,65 % Zéphirin DIABRE
3,09 % Tahirou BARRY

Résultats au niveau provincial

Provinces aux couleurs du candidat majoritaire

Résultat National

Adama KANAZOE (AJIR)	1,21%	Voir en détails
Issaka ZAMPALIGRE (INDEPENDANT)	1,22%	Voir en détails
Saran SEREME/SERE (PDC)	1,73%	Voir en détails
Françoise TOE (INDEPENDANT)	0,28%	Voir en détails
Bénéwindé SANKARA (UNIR / PS)	2,77%	Voir en détails
Maurice Denis Salvador YAMEOGO (RDF)	0,49%	Voir en détails
Ablassé OUEDRAOGO (Le Faso Aut.)	1,83%	Voir en détails
Ram OUEDRAOGO (RDE-BF)	0,88%	Voir en détails
Zéphirin DIABRE (UPC)	29,86%	Voir en détails
Boukare OUEDRAOGO (INDEPENDANT)	0,48%	Voir en détails
Tahirou BARRY (PAREN)	3,08%	Voir en détails
Victorien Wendkouni TOUGOUMA (MAP)	1,83%	Voir en détails
Rock Marc Christian KABORE (MPP)	53,49%	Voir en détails
Jean-Baptiste NATAMA (INDEPENDANT)	1,38%	Voir en détails

Couleurs des candidats

- Egalité
- Issaka ZAMPALIGRE
- Françoise TOE
- Maurice Denis Salvador YAMEOGO
- Ram OUEDRAOGO
- Boukare OUEDRAOGO
- Victorien Wendkouni TOUGOUMA
- Jean-Baptiste NATAMA
- Adama KANAZOE
- Saran SEREME/SERE
- Bénéwindé SANKARA
- Ablassé OUEDRAOGO
- Zéphirin DIABRE
- Tahirou BARRY
- Rock Marc Christian KABORE

Highcharts © Natural Earth

La carte affichant les résultats est divisée en provinces. Chacune des provinces se colorie à la couleur du candidat ayant obtenu le plus de voix dans la dite province.

Référez vous aux couleurs des candidats dans la légende ci-dessus.

Ce site ne publie que les données validées par la CENI

ANPTIC

Also in Burkina Faso, *the System for Recording Births and other Civil Registry Events by SMS (Système d'Enregistrement des Naissances et Autres Faits d'Etat Civil par SMS) – iCivil* programme is an integrated solution based on a mobile application (Android). It allows birth records to be created from an encrypted SMS, and hence for a child's birth certificate to be issued on the day of its birth. This birth certificate is authentic and can be verified. The system automatically records a child's details in the civil registry at birth. It can also be used to record all other civil registry events (deaths, marriages, divorces ...). It is a simple and reliable system. The message, sent by an authorized officer, arrives on the civil registry server, within a coherent ecosystem and in an ultra-secure manner.

In this way, the programme promotes well-being for the population and reduces inequality within the country (**SDGs 3** and **10**).

The **Ghana** *Open Data Initiative (GODI)* is an initiative to make government data available to citizens in a reusable format. The objective of the project is to create a vibrant open data community through community and capacity building in regard to government, civil society and a developer community, to create applications that are user-friendly. The ultimate aim of this project is to achieve transparency, accountability and efficiency within government.

Thus, the project's goals meet several SDGs, by promoting economic development of the country and a peaceful society, ensuring public access to information, reducing corruption and promoting the rule of law at the national level (**SDGs 8, 16, 16.3, 16.5** and **16.10**)

The following four projects from **Colombia** relate to a number of SDGs, in particular those concerning safety of cities and promotion of peaceful societies (**SDGs 11** and **16**).

SUApp integrated application security (SUAPP) is a new platform in the form of a mobile and collaborative application that enables users to report incidents online and improves the police management service through the use and integration of technological tools (photography, videos, GPS, community alarms, radiotelephones, panic buttons, etc.), facilitating description of the facts and the identification of the persons involved. It enables both the administrator and citizens to be in constant interaction. SUAPP can be accessed remotely. Through the 123 hotline, the information is transferred to the police units nearest to the location of the incident. As a result, spatial information regarding the behaviour of the criminal(s) is displayed so that the units intervening can take appropriate routing and logistical decisions.

In order to improve emergency response times by means of a geographic and logistical support network, the Cundinamarca Department implemented the *System of Advanced Geographical Analysis (SAGA)* – a geographic platform that enhances emergency response procedures by pinpointing the location in question when an emergency call is received, or via a mobile app. Additionally, it coordinates the different members of the emergency network, reducing the response time from 15 to 4 minutes. In this way, it optimizes the resources deployed in order to save lives.
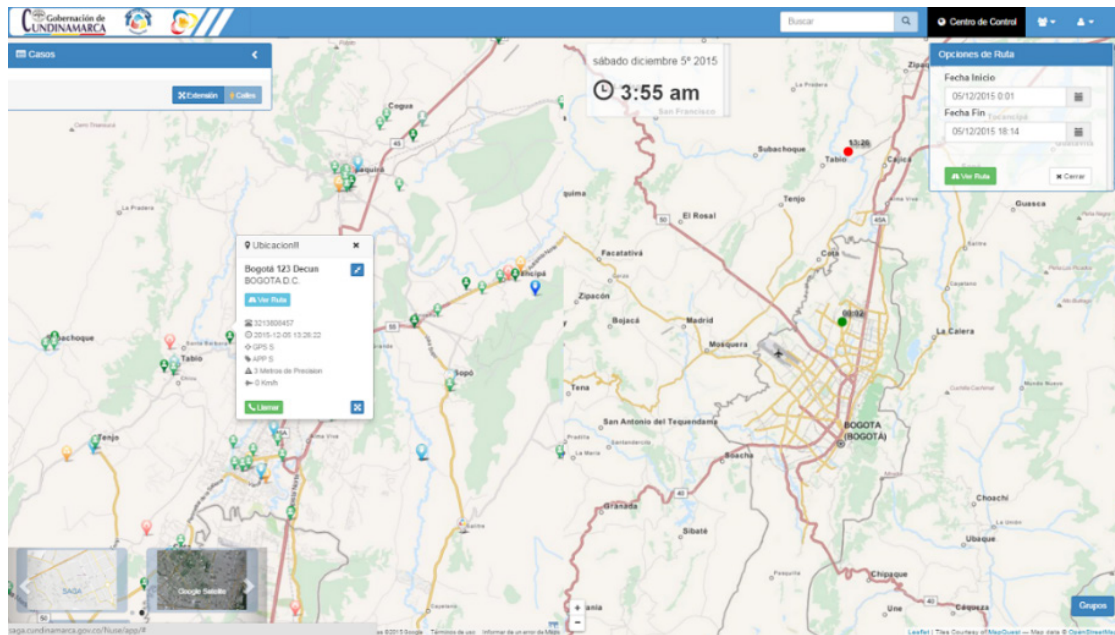
The National Spectrum Agency (Agencia Nacional del Espectro) (ANE) is the entity responsible for the planning, allocation, monitoring and control of radio spectrum in Colombia, providing technical advice for efficient spectrum management and promoting its knowledge. ANE has created the *Web Open National System of Monitoring of Electromagnetic Fields* project – a tool whereby citizens can consult, in real time, the results of the geo-referenced measurements made by ANE's network of sensors of the levels of the electromagnetic fields generated by telecommunication antennas, in the interests of alleviating the fears generated by the belief that those emissions could be harmful to health.

 Besides the contribution to the safety of cities, the project seeks to ensure healthy lives, build resilient infrastructure and foster innovation (**SDGs 3, 9** and **11**).
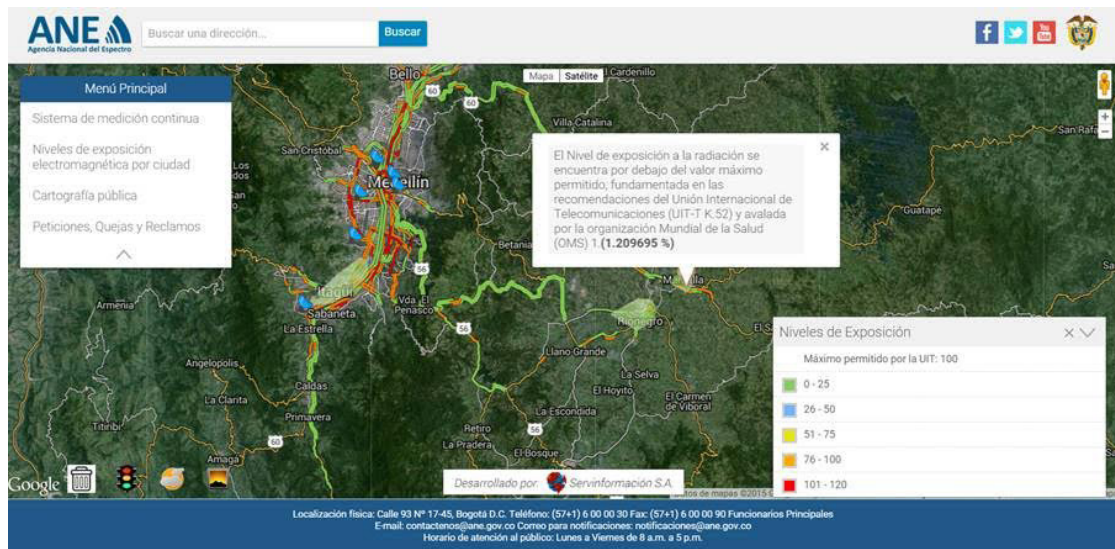
The *Master Key* website is the main initiative for consolidating information relating to beneficiaries belonging to what the Colombian Government refers to as the inclusion and reconciliation sector. It enables government institutions to know the coverage history of each beneficiary and his/her family members. It also permits data analysis in order to create new coverage initiatives for unattended needs within the poor, extremely poor and vulnerable populations in Colombia. Master Key facilitates the implementation of a social public policy that requires the identification of populations in need and the creation of programmes based on those needs, before allowing the spending of public resources.

The website addresses the ending of poverty, food security, the achievement of gender equality and the reduction of inequality within the country (**SDGs 1, 2, 5** and **10**).

Two projects from **Georgia** relate to the educational domain as well as the reduction of inequality and promotion of peaceful societies (**SDGs 4, 10** and **16**)

The *information system of management of general educational institutions (e-School)* targets the efficient management of the educational processes in schools, including data collection and processing as well as online updating and reporting. The system is web-based and can only be accessed by the authorized users registered in it. Its main objectives are:

- Providing support in management and administration of the general education system and its organizational units

- Providing necessary information for researching the general education system and planning future strategies

- Monitoring and evaluating activities in the general education system and its structural units

- Providing all decision-making levels with relevant information.
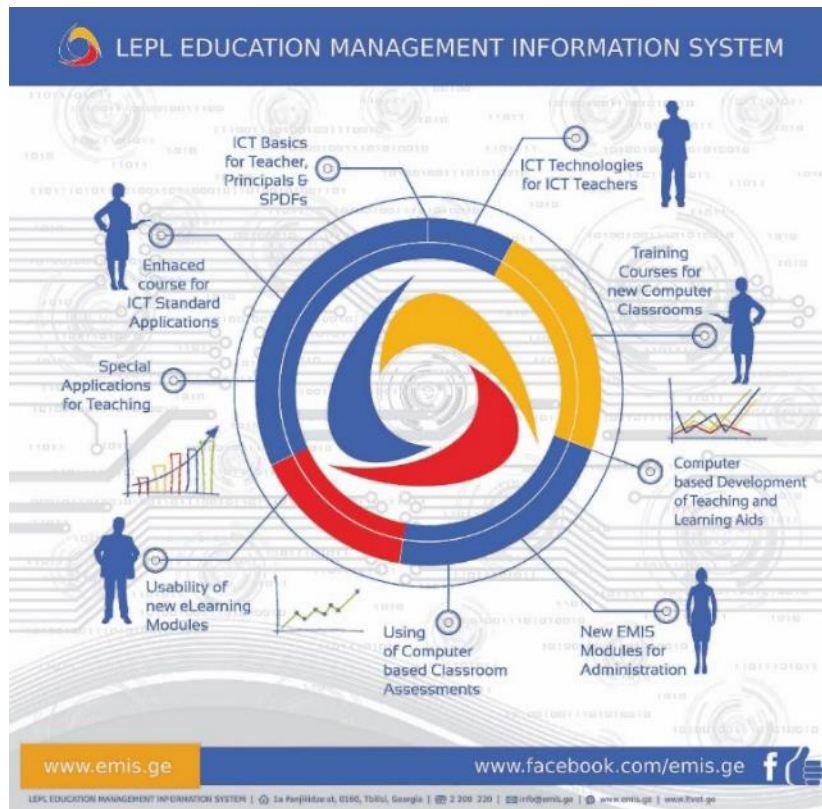
Georgia's project *Increasing Accessibility to Public Services through Express Community Centres* aims at ensuring access to public services for the rural population, including remote villages. Service delivery vehicles, the so-called "express community centres", conduct regular trips to remote villages to ensure access to more than 200 public services. With this unprecedented and unique initiative, the local populations of remote villages benefit from the same privileges as those in more developed areas of Georgia. Express community centres simplify the process for citizens to interact with the government by delivering public services to their doorsteps through e-governance tools.

The Society for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Gmbh of **Germany** has created the *Trade Route Incident Mapping System (TRIMS)* that provides a tool to tackle corruption in the public sector, specifically among security agencies and other public sector actors involved in road management in **Nigeria**. It allows traders and transporters of goods (target group) to anonymously report bribes, harassments and delays faced at mostly illegal checkpoints while transporting legitimate goods. The system uses SMS, a mobile app and a website to illustrate the problems faced by traders in a structured way. Aside from quantitative data, qualitative

data such as interviews with traders and security agencies have been collated. TRIMS uses media such as radio and so-called "market storms" to incorporate both traders and security agencies and to create broad awareness of the problems.

Thus, the project contributes to the economic growth of the country (**SDG 8**).
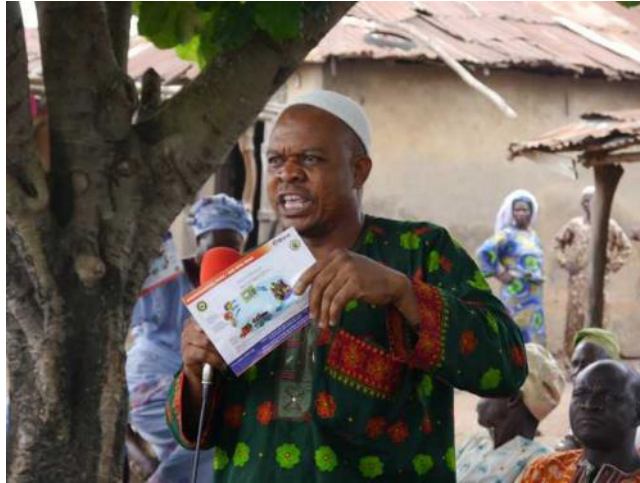
In **India**, *Kanyashree Online 3.0* is a multi-user government to citizen (G2C) application that provides comprehensive e-governance of *Kanyashree Prakalpa*, a conditional cash transfer (CCT) scheme implemented by the government of West Bengal. Kanyashree Prakalpa aims to reduce child marriage and increase the educational status of adolescent girls, thus promoting healthy lives, equitable, quality education, gender equality as well as peaceful and inclusive societies (**SDGs 3, 4, 5, 10** and **16**). Kanyashree Online provides end-to-end ICT-enablement to the scheme, serves as a real-time monitoring mechanism for the scheme's MIS, and promotes the scheme's accountability, transparency and efficiency.

Artwork by Debolina Roy,
Kanyashree recipient
from Paschim Medinipur

A *Convention on the Constitution* of **Ireland** was initiated by the Department of An Taoiseach (Prime Minister) in 2013 to deliberate on the validity and appropriateness of some of the provisions in Ireland's Constitution that might now need to be reviewed in a modern Ireland. In order to obtain a fertile background of building a peaceful and inclusive society, the government decided that citizen engagement in that process was of critical importance to ensure the success of the project (**SDG 16**). Thus, the government decided that a digital e-services solution was required. Escher Group and An Post were selected to deliver that citizen engagement platform.
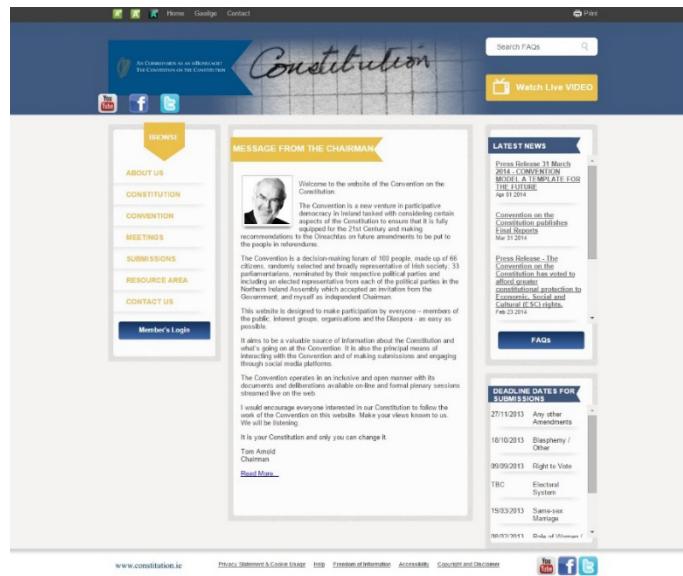
Six projects from **Kazakhstan** trigger a number of SDGs by promoting the rule of law at national level, ensuring public access to information and strengthening relevant national institutions (**SDG 16**).

The General Prosecutor's Office of the Republic of **Kazakhstan** conducts large-scale work on the introduction of innovative technologies that promote the rule of law and protection of human rights. In this regard, a single point of access to innovative capabilities in the General Prosecutor's Office- *Information service of the Committee for Legal Statistics and Special Accounts of the General Prosecutor's Office of the Republic* - was created. The system is used by citizens, businesses and government agencies. Every day the site is visited by approximately one thousand people. The information service consolidates innovative projects of the General Prosecutor's Office based on the "single window" principle.

The Supreme Court of the Republic of **Kazakhstan** is responsible for implementation of the *Internet resources of the judicial system* project whose objectives are to provide a single access for the provision

of information on judicial authorities of the Republic of Kazakhstan. The Internet resources of the judicial system project make it possible to:

- promptly inform individuals and organizations about the services rendered by courts

- make the judiciary's work better understood and open to the public

- provide the necessary services for legal affairs in real time

- reduce the time required for judicial acts

- increase the personal responsibility of the judicial authorities' employees for the quality of the state (municipal) services provided by them and the features implemented

- ensure that citizens have access to the electronic services of the judiciary through a single window.

Initiated by the national infocommunication holding "Zerde", the *Integrated Call Center for public services (ICC)* project is an information and referral service that provides 24x7 consultation assistance on public services to citizens. ICC's main objectives are:

- To provide a single access point for citizens to obtain information on public services

- To improve the level of public awareness about government agencies' activities and the procedure for public services delivery

- To improve the accessibility of information on public services and the forms of delivery thereof to citizens

- To interact with government agencies on issues relating to the provision of information on public services.

The *Electronic government of the Republic of* **Kazakhstan** website is a single mechanism for government interaction between citizens and government agencies that enables their coordination via information technologies. This very mechanism made it possible to decrease queues in government agencies, facilitating and accelerating the obtainment of abstracts, certificates, licensing documents, etc. The e-Gov portal provides detailed information about public services. Two hundred services have been automated on the portal in various fields, such as healthcare, social welfare, employment assistance and employment, and documentation of the population.
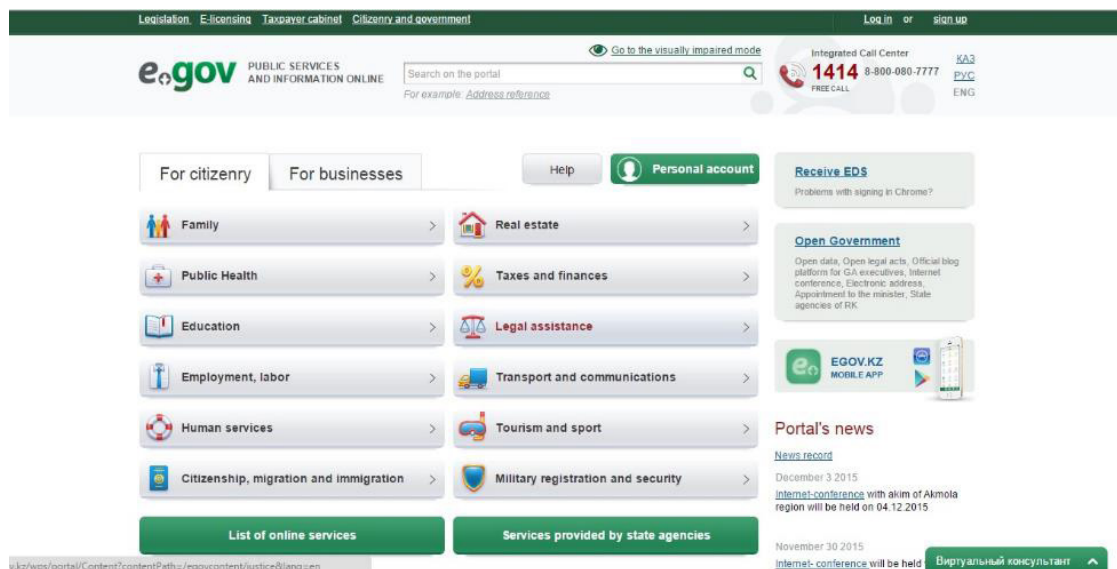
Mobile government of **Kazakhstan** is one of e-Gov's main lines of development. M-Gov evolution is a logical step in the development of e-government, which is a cornerstone in the country's strategy for ensuring affordability of services to Kazakhstan citizens and making those services more accessible and efficient (**SDGs 4** and **10**). M-Gov project implementation will enable a new level of efficiency and convenience in the obtainment of services, which is a new stage of infrastructure development in Kazakhstan. The main benefit of the m-Gov information system is the expansion of e-Gov availability,

namely, public service delivery to those citizens who don't have Internet access but do have mobile communication.

The *Official blog-platform for Government agencies' executives in the Republic of* **Kazakhstan** website affords the possibility for citizens to apply directly to executives (ministers) of central government agencies online, which was not the case before. The main objective of the official blog-platform of government agencies' executives is citizens' involvement in the government's performance. The initiative enabled all citizens to submit their requests (complaints/opinions/recommendations) straight to executives of central government bodies without the need to make personal visits. The initiative enables the instant delivery of a request to a government agency via the Internet.
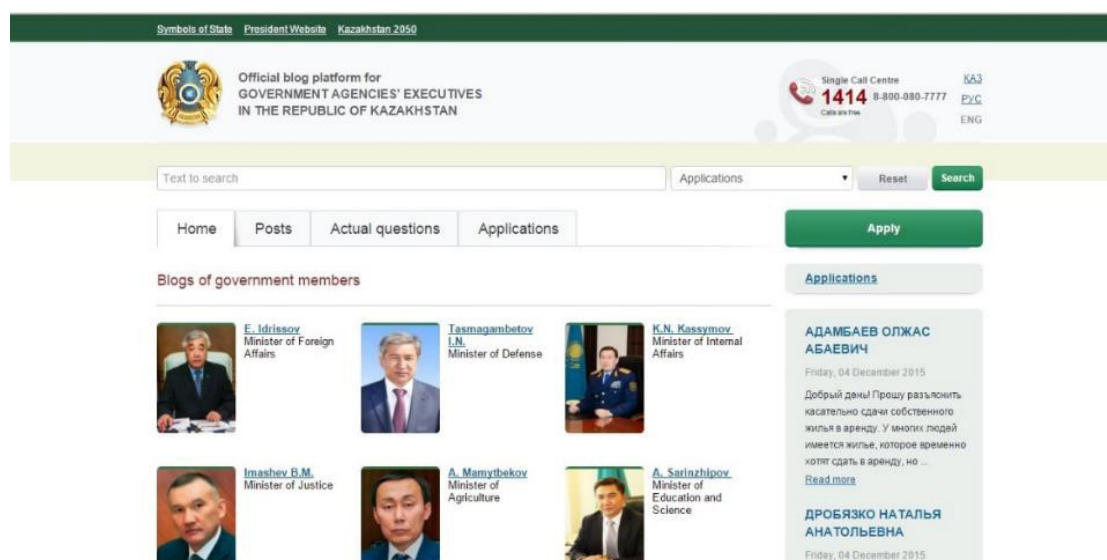
In **Kenya**, Entreconne Global Ltd elaborated the *Integrated Electronic Data System (IEDS),* an online software developed by a dedicated team to revolutionize police stations around the world. Besides being a reporting tool, it is also an analytical tool for policy makers. The project focuses on e-governance in the police security sector. IEDS is able to report crime faster and also to protect witnesses through an anonymous portal. The system can be replicated anywhere to protect lives and bring justice (**SDGs 3, 9, 10** and **16**). The plan for IEDS is to partner with governments and private sectors in regard to deployment in order to make a change by fighting crime within communities, where witness profiling is evident (**SDG 17**).

Three projects from **Kuwait** enable access to secure information and promote rules of law (**SDG 16**).

The Minister's Office of the State for the National Assembly has created the *Ministry Website* in order to reflect parliamentary life in Kuwait. All the general public and professionals in this area can follow all the sessions of the National Assembly, including consultation of the minutes of the meetings, minutes relating to agenda items, proposals made by the House of Representatives, consequent laws and regulations, interviews, discussions. The information provided will help appropriate decision-making and the retrieval of past information with the utmost precision and transparency, which in the past was restricted to certain destinations.

KGO - **Kuwait** *Government Online* - is a government portal which provides a web-based, easy-to-use, mobile-enabled, one-stop, multi-language, single entry-point to user-centric Kuwaiti government information and e-services. Available 24x7, KGO is the gateway and first point of visit when citizens (G2C), businesses (G2B) and visitors wish to find information and e-services provided by the Government of Kuwait. Multiple access channels via the web, mobile and other communication technology tools are established to ensure that KGO portal users can benefit from information and services. To maintain highest usability, performance and security rates, developers designed *KGO* according to international technical standards.

The initiative *Sahem fi Altashrea* was started by the Speaker of the **Kuwait** National Assembly (KNA) in order to extend public participation and was executed in-house by a team of KNA employees. One of the main goals of Sahem is to deliver citizens' feedback to members of parliament via an easy mechanism and friendly format. Citizens are directly involved in policy making and changing the outcome of important discussions inside KNA committee meeting rooms. In addition, the entire Sahem process helps to enrich the democratic experience through direct interaction and sharing of opinions. Also, citizens find it very informative with regard to major upcoming projects discussed.

Latvia set up six projects within this category.

The salary tax booklet is a document providing information on tax calculations and deductions to every employee and to employers on his employees. Since June 2014, the *electronic salary tax booklet (ESTB)* has replaced paper salary tax booklets, which were fully taken out of circulation. Every taxpayer uses this e-service of the State Revenue Service (SRS). The solution is integrated with other state information systems, thus providing automated data linking. The solution implemented ensures fast and convenient information submission on dependent relatives, disability and other grounds for deduction, thus saving about 2.3 hours.

The SRS customers (physical and legal persons) saved more than 173.2 thousand hours of their working time by using the aforementioned solution, which meets certain SDGs in regard to enabling the well-being of citizens, affording equal opportunities for all and promoting industrialization (**SDGs 3, 9** and **10).**
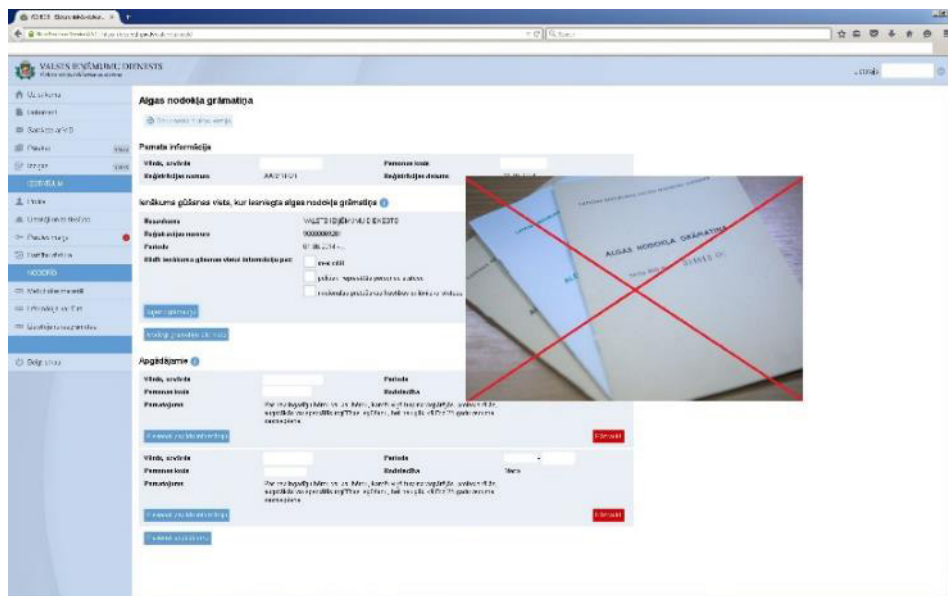
The *mobile app "Football"* initiative by the State Chancellery of **Latvia** is an innovative approach to public participation aimed at improving the customer service culture in public administration, creating an opportunity for individuals to use a list of all public authorities and evaluate their service, as well as giving immediate feedback on the quality of the process, cooperation, and experience with the public administration institutions. The simple and user-friendly digital tool helps take a step towards individuals and encourage them to express their opinions, ideas and suggestions by sending immediate feedback.

The initiative aims to instill more trust in public administration, public participation and cooperation, ensuring well-being and reducing inequality within the country (**SDGs 3** and **10**).

The *Spatial Development Planning Information System (TAPIS)* is a national information system, which consists of the central module (tapis.gov.lv), the regional development indicator module (RAIM), the public part of the section "Spatial Development Planning" in the state unified geospatial information portal ĢeoLatvija.lv, and e-services from the public services portal Latvija.lv. The information in the system's central module Spatial Development Planning is available for state and local municipality institutions in order to ensure more effective involvement in the development of spatial planning documents by providing specific terms, conditions, opinions and information. Involved institutions have the possibility to show their initiative and to provide conditions for the development of the spatial planning documents, which is ensured by notifications received in a timely manner regarding the initiation of spatial planning documents.

In the course of public procurement procedures in Europe, private companies have to provide numerous certificates or statements from state and local institutions. That is the rationale for the *Development of electronic certificate infrastructure* project. The established e-certificate infrastructure provides access to reliable information for both public buyers (for bidder evaluation) and private suppliers (for self-checking and subcontractor evaluation before submission of a bidder's proposal). Thus, e-certificates save administrative resources (time, paper and toner) by using connections to 123 databases.

The project ensures public access to information and protects fundamental freedoms (**SDG 16**).

The *Special Support for the Rural Development Programme* project includes several services to enhance and maintain the common Information System for Rural Support Service of **Latvia**. This may be divided into several main approaches:

- Collaboration with customers (i.e. farmers, rural entrepreneurs)

- Administration of investment projects

- Reduction of bureaucracy and increased speed, effectiveness and quality of processed applications for rural investments

- Transparency of investment distributions

- Task management system for employees of the Support Service

- Reporting and statistics for Ministry of Agriculture and Council of the European Union.

The main goal of this project (information system) is to provide a quick, traceable, justified and collaborative service for investments between government institutions and farmers and rural entrepreneurs.

Thus, the projects relates to such issues as poverty, inequality, and revitalizing the global partnership for sustainable development (**SDGs1, 10** and **17**).
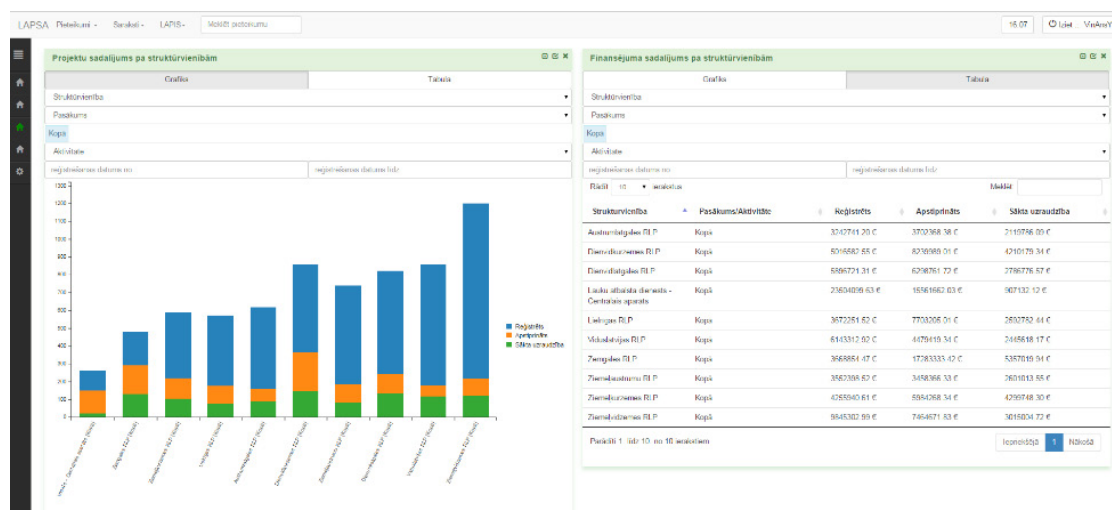
 The **Latvia** State Radio and Television Centre (LVRTC) was the first company in the European Union to launch *Qualified Cloud Signing services* for its citizens in 2011. Virtual e-signature does not require any smart card or other type of user hardware except a computer to produce a legally binding document valid for any institution in Latvia. The website provides information regarding the date, time and country the last time the user used the secure electronic signature. This functionality ensures the possibility for users to trace and monitor usage of all e-signature carriers. According to law, the timestamp has to be used along with e-signature in communications with state or local government institutions. The timestamp records electronically and thus provides proof of the time a document is signed. When the virtual e-signature is used, the timestamp is always added to the document.

By implementing this programme, a high level of economic productivity is achieved (**SDG 8**).

In **Mauritius**, in 2005, the *Government Online Centre (GOC)* was set up as the only data centre of the government providing government services to citizens, business people, government officers and non-citizens abroad. The Government Web Portal is the gateway to access applications online through one of its sub-portals, the Citizen Portal. Among the services integrated in the citizen portal, the e-services represent the main component whereby the citizen may interact with the government anytime, anywhere and in real time. All online transactions are encrypted and secure. These e-services allow citizens to carry out a number of government online applications without any physical displacement. The e-services have a larger impact in terms of both volume of transactions and functionality. To strengthen ICT as a fifth pillar of the economy, the strategy of putting a number of e-services online through the Government Portal supports business development and is an important step towards the ultimate goal of providing a hassle-free, easily accessible single point of contact for all information and services required by both potential and existing members of the Mauritius business community.

The Government Portal thus relates to the economic growth of the country, ensuring a peaceful society for sustainable development (**SDGs 8** and **16**).

**Mexico** initiated two projects promoting an inclusive society for sustainable development.

The Ministry of Communications and Transportation is implementing a digital platform known as *Sigue la Obra Pública e Infraestrctura*, the main objective of which is to provide citizens with the capacity to consult information about strategic infrastructure projects. Presently, the platform contains information on 223 national projects that are at different stages. This effort involved all areas of the ministry in order to ensure the correct publication and updating of project information by the officials in charge of them, giving first-hand information, promoting direct interaction between functionaries and citizens, and creating mechanisms to improve transparency, accountability and participation.

Thus, the project meets various SDGs, such as that of promoting peaceful and inclusive societies, ensuring access to information, etc. (**SDG 16**).
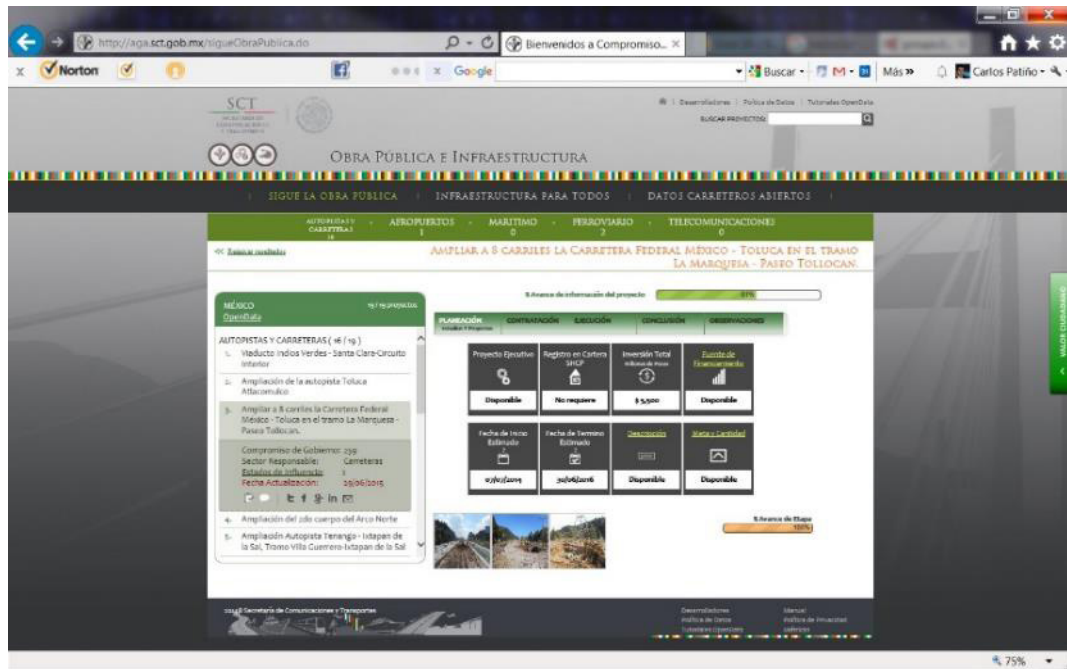
The *National One Stop Shop gob.mx* is one of the most ambitious projects of the National Digital Strategy in **Mexico** aimed at transforming government to adopt a citizen-centred approach. It is a public policy that democratizes access to information, public services and citizen participation through use of ICT. By having access to government information and public services from any electronic device, citizens become equal and have the same development opportunities. Gob.mx fosters a more equal society, impacting fulfillment of the 2030 Agenda for Sustainable Development (**SDG 16**). Currently, it includes the most demanded services (digitized), as well as those from United Nations strategic sectors, such as health, social development, environment and education.
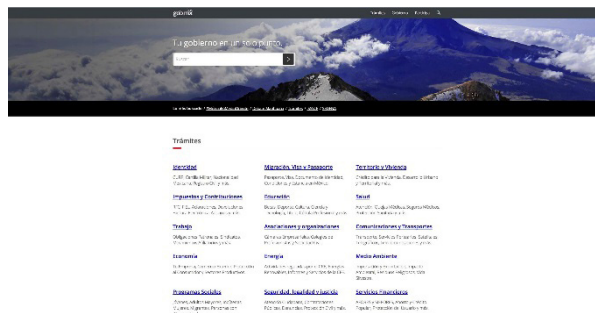
In an effort to improve service delivery and ensure the effective administration of business registration, the Business and Intellectual Property Authority (BIPA), has developed a *web-based integrated company registration system* in **Namibia**. The new system is fully interconnected to the existing, Windhoek-based, registration system. Namibia is geographically a large country with a relatively small number of citizens. The new web-based solution brings public service to the people and enables much faster processing times to register businesses. It significantly reduces travel time and cost for citizens – which also helps the environment.

The project thus relates to a number of SDGs by contributing to economic growth, reducing inequality, combating climate change, etc. (**SDGs 8, 9, 10** and **13**).

The Public Authority for Consumer Protection (PACP) of **Oman** leverages ICT and pervasive mobile technology through the *Tawasul* initiative, which encompasses the entire business process and system architecture to empower consumers by providing them with a way to lodge complaints and provide feedback and suggestions concerning any breach to consumer rights from anywhere and at any time. PACP was recognized as one of the best six practices around the world and taken as a road map by Arab countries.

The programme thus achieves gender equality by providing equal opportunities for citizens (**SDG 5**). It also contributes to safety in cities and promotes peaceful and inclusive societies (**SDGs 11** and **16**).

The Board of Revenue, Punjab, **Pakistan,** initiated the *Land Record Management Information System (LRMIS)* project to improve the land records service delivery in the Province of Punjab, contributing to long-lasting tenure security. The outcomes expected from the project included increased access to land records at a lower transaction cost for the beneficiary, through a client-responsive service and increased level of tenure security for land-right holders. A key component of the project was the development and deployment of an automated land records system (LRMIS). The current LRMIS application was developed in a distributed environment with each Tehsil having its own server, LAN, storage, etc. The local information is processed locally and uses local storage. Periodically, each site uploads the local data to a hosted storage site at the data centre. Now the Project Management Unit (PMU) – Board of Revenue Punjab - has awarded Systems Limited the project of replacing the existing LRMIS application software for extension and enhancement as per additionally perceived user requirements. The new software system will be hosted at a centralized, purpose-built PMU data centre.

The project contributes to the economic growth of the country, which relates it to **SDG 8** of the WSIS action lines.

Two projects from the **Russian Federation** contribute to the strengthening of relevant national institutions and global partnerships, as well as to the development of effective and transparent institutions and inclusive society **– SDGs 9, 16** and **17**.

As part of the global initiatives on the adoption of e-government in the recent 5-7 years, the Ministry of Telecom and Mass Communications of the **Russian Federation** initiated the *Studies on perspectives for the evolution of Russian e-Government and development of the System Project for Russian*

e-Government. The Russian Federation met the new functional and dynamic response requirements. Successful development and use of ICTs within Russian public administration require the aggregation of entirely new ideas regarding e-government organization with existing principles, methods and tools for the implementation of particular ICT systems within e-government.

The *Development of Federal Government Information System of Pre-trial Appeal* project is the information system developed by the **Russian Federation** Ministry of Communications and Mass Media implemented within the framework of the "Information Society" government programme. Through this system, users of government and municipal services can make pre-trial appeals against the work of authorities. This is integrated into the e-government infrastructure, particularly into the Common Government Services Portal. In addition, citizens have an opportunity to appeal directly through the websites of agencies providing government services. The System of Pre-trial Appeal started operation on 1 January 2015.

Saudi Arabia has boosted seven projects within this category.

The Ministry of Health initiated the *Online Toxicology Analysis Requests & Results System "OTARR"* project that aims to implement a fully integrated online toxicology analysis requests and results system that automates all services provided by the poison control and forensic chemistry centres across the kingdom, including installation, configuration and integration with the laboratories information management system (LIMS). In addition, the project includes implementation and integration with call centre and IVR systems as well as the provision of medical libraries related to toxicology to PCC staff.

Thus, the goal of the project is to ensure healthy lives and promote well-being (**SDG 3**).

Five hundred government agencies located across the country interact intensively with the Ministry of Finance (MOF) to submit financial requests or receive financial services regarding their budgets, accounts and payment orders. Paper-based and face-to-face communications have caused great exertion to stakeholders and increased challenges to controlling government finance. In compliance with the e-government programme, MOF has accomplished this prime and first-of-its-kind project (MOFES) and implemented the *MOF financial services as E-Services* with a digital signature mechanism and system-to-system process. Currently, all government agencies are able to use financial services effectively, efficiently and simultaneously, which contributes to the development of resilient infrastructure as well as economic growth (**SDGs 8** and **9**).
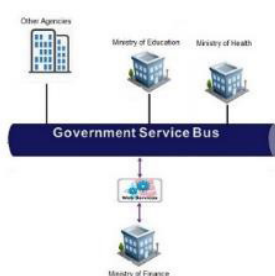
The Ministry of Commerce and Industry exerts best efforts to be a completely electronic ministry, with its customers benefiting from its e-services without visiting its premises. One of its significant e-services consists in issuing, renewing and modifying the *E-Commercial Register* electronically within 180 seconds; the register is dedicated to about 1.3 million private sector entities. This makes it the fastest e-service of its kind worldwide. Dependent on integration with related agencies, it is performed through highly developed processes that have been re-engineered to help customers benefit from the service with no human intervention. It also adopts sustainability and helps raise the national economy,

relating to such issues as gender equality, economic growth and the protection of ecosystems (**SDGs 5, 8** and **15**).

Tawasul (E-Contact System) is an electronic system that provides a reliable tool for communication between citizens, non-citizens and the Ministry of Education of **Saudi Arabia** in order to handle their complaints, requests or suggestions. These complaints and requests would be the subject of further study and analysis by the concerned departments at the Ministry of Education. The results would be conveyed to the submitters of the complaints or requests. It represents one of the most important e-services, allowing people to contact the minister and all levels of the ministry and be assured of a response within a given time-frame.

The creation of this system contributes to gender equality and the safety of cities and promotes peaceful and inclusive societies (**SDGs 5, 11** and **16**).
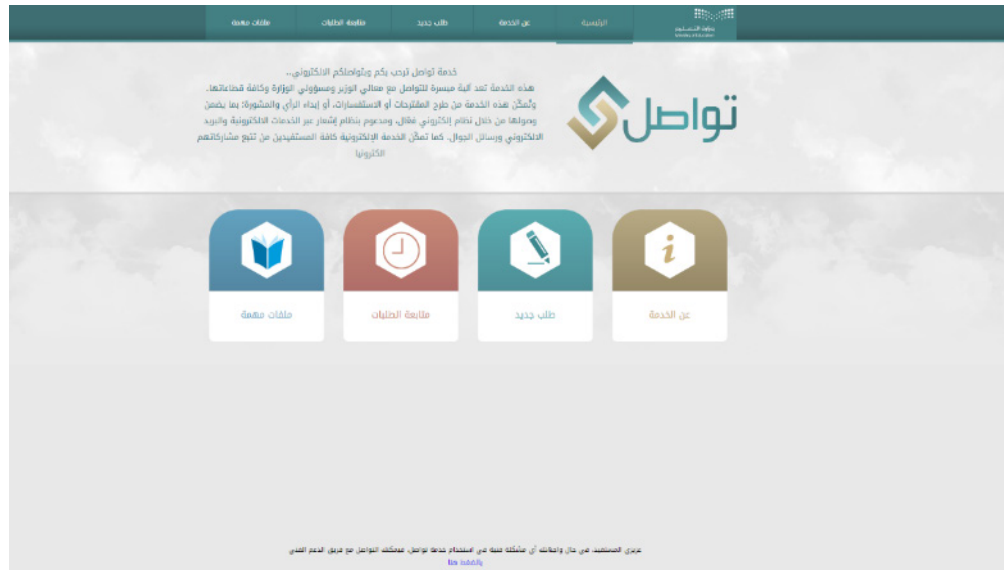
Instant Tele-Trials is the project launched by the **Saudi Arabia** Ministry of Justice aimed at the automatization of all e-services of the minister's office, its branches, the courts and the notaries public in an expeditious and secure manner. Another part of the mission consists in activating linked services between the ministry and other sectors to provide modern technological services and exchange information and experiences. Private rooms for the Tele-Trials are prepared inside prison facilities and are connected with the data centre at the Ministry of Justice headquarters. Each Tele-Trial is executed under the supervision and management of the court in every city in order to ensure legitimate rights for the inmates and protect fundamental freedoms (**SDG 16**).

The *Saudi Tourism Portal* was developed by the **Saudi Arabia** Commission for Tourism & National Heritage, in order to market Saudi tourism in both the Arabic and English languages. It provides a number of tourism services and other valuable interactive integrated content, such as tourist information, photos, short films and interactive maps to help tourists pre-plan their tours and interact with the site to learn more about the tourism destinations, events, programmes, tracks, seasonal offers and discounts. In addition, the tourist can benefit from the reservation services for hotels, flights and car rentals through the site. It also offers a prompt and secure client service by receiving tourists' complaints. The Saudi Tourism Portal integrates with sub-sites, customer relationship management (CRM), mobile app and electronic information centres.

By offering all these possibilities, the project contributes to the well-being of the concerned community and relates to the economic growth of the country (**SDGs 3** and **8**).
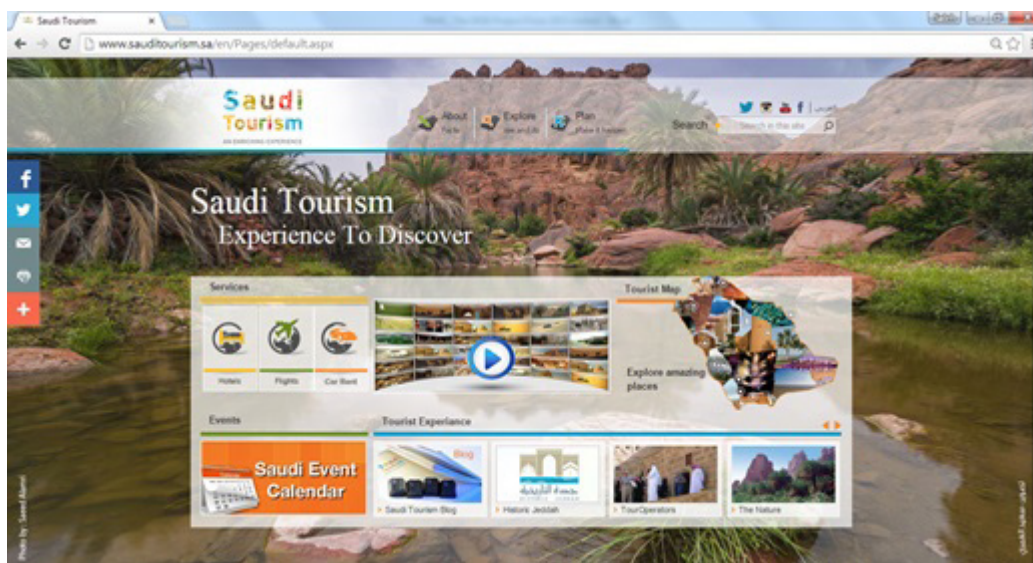
The *Government Channels* project was initiated by the Electronic Government Agency of **Thailand**, to allow people to access useful and reliable information and benefit from the public services provided by government agencies from any location and at any time, using popular communication devices such as computers, smartphones, tablets kiosks, etc. (**SDGs 3, 8, 9** and **10**). Both government agencies and the private sector have been encouraged to increase service channels to serve people, especially in the form of mobile applications, and to develop more software as a service (SaaS). Currently, many services are provided through the following *channels*:

- Government e-Service Website Portal (Website: www.egov.go.th). People can reach the government services and data through the website from a personal computer whenever convenient.

- Government Application Center (GAC). Mobile devices such as tablets and smartphones can be used to access the government services and data.

- Government Kiosk. The Kiosk will be located in public areas for people to access the government services and data.
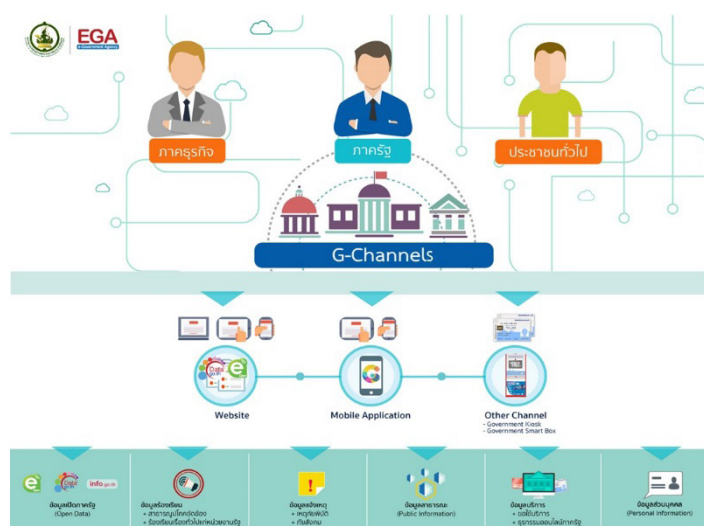
UYAP is an e-national judicial system as a part of the e-government, developed by the Ministry of Justice (MoJ) of **Turkey** in order to ensure a fast, reliable, soundly operated and accurate judicial system. As a central network project it includes all the courts, all citizens, court staff, lawyers, public prosecutor services, prisons, other judicial institutions and government departments in Turkey and

makes use of ICT in all judiciary processes. UYAP is implemented by the IT Department of MoJ with a view to improving the functioning of the judiciary and to creating an effective and less bureaucratic judiciary for the concerned institutions and individuals, thus contributing to resilient infrastructure and sustainable industrialization (**SDG 9**).
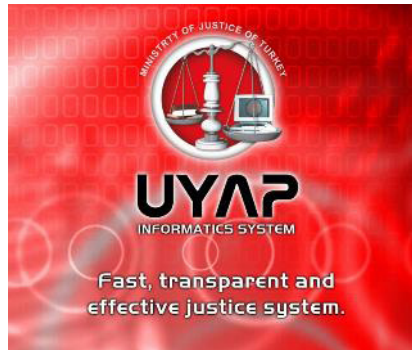
The **United Arab Emirates** provided ten innovative projects within the e-government category.

The Emirates Authority for Standardization and Metrology (ESMA) is working on a number of new standards for the UAE for consumer goods sold in the country to ensure the safety of goods. The *Tires Safety Control System* and in particular tires RFID stickers ensure greater consumer protection by rooting out tampering and duplication in regard to tires. The sticker will have an RFID chip that will be damaged if the sticker is removed, making it impossible to reuse it. The sticker provided by ESMA will have all the specifications of the tire, including the brand name, country of origin, type of tire, temperature rating as well as traction rating and tread-wear figures. All the necessary details of the tire will be labelled on the sticker, including a barcode and a QR code which can be scanned using the app. A customer can check all the details of the tire by scanning the QR code using the app.

The project affords the development of effective and transparent institutions, ensures public access to information and protects fundamental freedoms – **SDG 16** of the WSIS action lines.
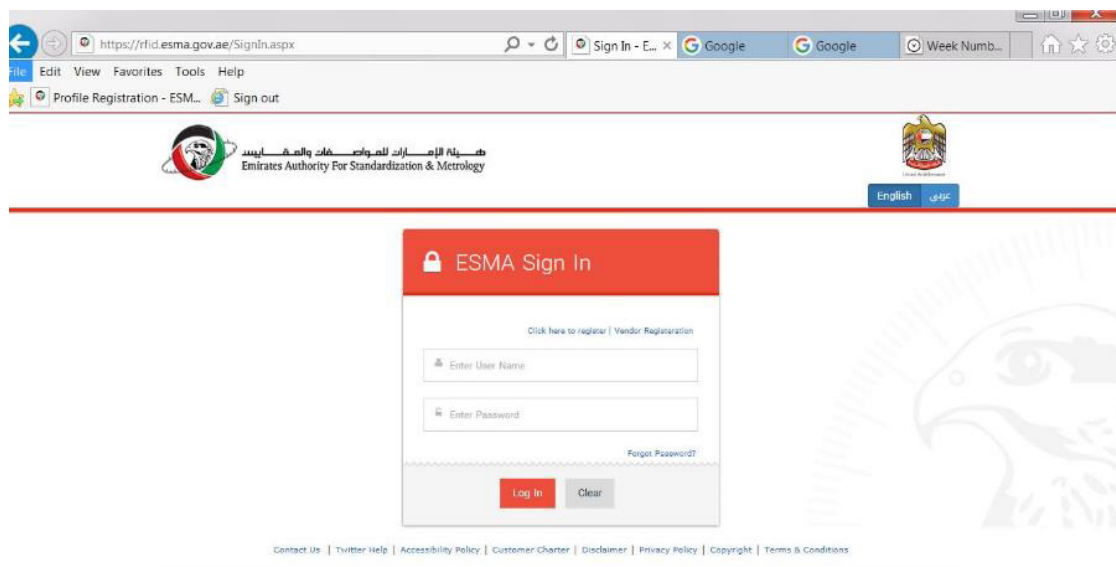
In line with its strategic objective, the **Dubai** Electricity and Water Authority (DEWA) is committed to providing sustainable and seamless high-quality services to all citizens and residents in Dubai. Through its smart services, DEWA meets all customer expectations and needs. The *DEWA smart application* aims to serve more than 750,000 customers by enabling all its services on the app; the app also serves all segments of society including customers, consultants, suppliers, job seekers, government entities as well as unregistered users by providing them access to general services.

The app responds to several SDGs, ensuring water access, modern energy for all and sustainable consumption and production patterns, the building of resilient infrastructure, as well as the taking of urgent action to combat climate change and its impacts (**SDGs 6, 7, 9, 11, 12** and **13**).

Initiated by the **Dubai** Electricity and Water Authority, the *Area Report* is a powerful, automated reporting system tool prepared in-house using available information technology tools within the authority, including the geographic information system (GIS), internally developed database and other information technology tools currently under development. The Area Report serves as a proactive planning tool supporting the core business of the authority, which is the delivery of sustainable electricity services at a world-class level of reliability, efficiency and safety. The Area Report enhances electrical network expansion activities by providing more reliable information about the area under study with one click, thus ensuring access to affordable, reliable, sustainable and modern energy for all (**SDG 7**).
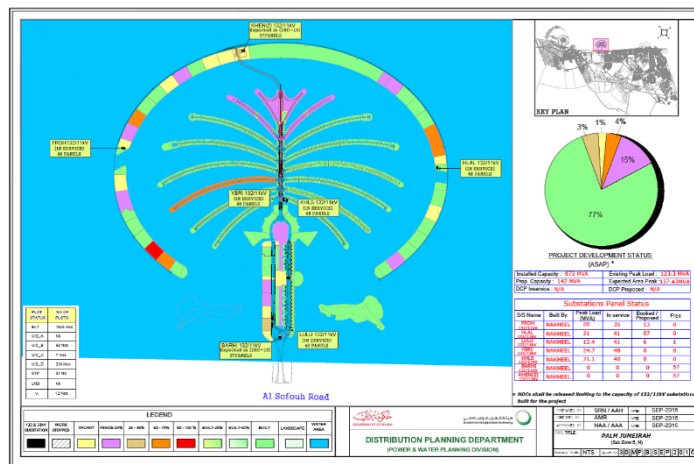
The Human Resources Information Management System in the Federal Government *Bayanati* is deemed an electronic/smart integrated system, providing self-services for employees and entities. All measures and procedures related to human resources in all federal entities are automated, according to the life-cycle structure of government employees: government performance management, financial management, training and development, transfers, irregularities, end of service and career planning.

The Bayanati System ensures inclusive, equitable, quality education, achieves gender equality, and promotes inclusive and sustainable economic growth as well as peaceful and inclusive societies (**SDGs 4, 5, 8, 11** and **16).**

The Sharjah Chamber of Commerce & Industry (SCCI) of the **United Arab Emirates** is keen to include in its membership all the companies and establishments practising an economic activity in the emirate, be it trade, industrial or professional. The Chamber follows the economic and civilizational development witnessed by UAE, regarding it as a matter that naturally requires change to the different services and activities of the Chamber. In order to provide efficient and effective services to its customers and alliances, it came up with the *Membership and Certificate of Origin System* project that offers a set of automated e-services through the currently in-place Jupiter application.

This new system relates to certain SDGs by building resilient infrastructure and promoting sustainable industrialization and peaceful societies (**SDGs 9** and **16**).

The *Directorate of Public Works (DPW)* project in Sharjah, **United Arab Emirates**, aims to ensure modern and sustainable urban development. It works very hard to achieve this objective through

the electronic and smart transformation of procedures in order to provide the best services and keep pace with the latest global developments in building construction and maintenance. Thus, DPW developed a mobile application *Sharjah DPW* that contains the directorate's information as well as two main services, the Hotline, and Projects Payments. This will support collaboration between the customer, contractor and DPW employee, and later sections will elaborate more on both services (**SDG 17**). The project also contributes to the building of resilient infrastructure and promotion of inclusive societies (**SDGs 9** and **16**).

The Federal Authority for Government Human Resources (FAHR) is the legislative authority of the federal government concerned with the development of laws, rules and regulations relating to the human resources jobs in the federal government. According to the directives of the country's wise leadership, and to keep up with the **United Arab Emirates** vision 2021, the *FAHR Smart Application* emerged as an initiative to provide an integrated application that serves the human resources in the federal government and facilitates and helps the efficient conduct of the daily HR transactions and procedures around the clock. The application has achieved a 100 per cent smart transformation. Including 26 services (7 main services and 19 sub-services), it aims to provide different HR services and information and connect them to the HR information management system of the federal government "Bayanati" for the purposes of managing its operations and sequences of procedures efficiently and effectively through the "self-service" system.

In such spirit, the Smart Application provides quality education and gender equality, and contributes to the economic growth of the country, promoting inclusive societies and rules of law for everyone (**SDGs 4, 5, 8, 11** and **16**).

With the emirate's desire to be one of the best countries in the world, the Sheikh Zayed Housing Programme (SZHP), **United Arab Emirates**, launched the *Zayed Complexes* project incarnating the idea of Zayed residential complexes in reaction to the recent but increasingly widespread recognition that with an increasing population there is insufficient land allocated for housing along with unstable construction material prices at country level. SZHP has therefore recently started to adopt the idea of building housing complexes as an alternative in support of UAE nationals. Residential complexes comprise groups of housing units built in a certain area and containing a set of basic services for residents, such as parks, mosques, schools and other service facilities. The Zayed Complexes application was developed on 24 July 2014 to provide a link between the applicant wishing to obtain housing assistance and the Sheikh Zayed Housing Programme through access to current and future projects, thus allowing the applicant to decide to choose and book his or her lifetime house.

Implementation of the project contributes to the building of resilient infrastructure and promotion of industrialization (**SDG 9**).

The *Emirates Vehicle Gate (EVG)* is an ambitious, innovative project in the **United Arab Emirates**. It provides all e-services related to drivers and vehicles by integrating government and private service providers together in one platform. The project supports the UAE e-government strategy and ensures that all government work is conducted according to a set of guiding principles that puts citizens first and promotes an accountable, lean, innovative and forward-looking government. EVG achieved a high level of impact and satisfaction by simplifying all processes, improving efficiency and strengthening relations with citizens at all levels. It meets the needs of citizens and businesses and achieved efficient allocation of resources, most importantly ensuring sustainability and business continuity.

Thus, EVG relates to a number of SDGs by fostering innovation, promoting peaceful and inclusive societies and revitalizing the global partnership for sustainable development (**SDGs 9, 16** and **17**).

The **United Arab Emirates** *Department of Transport Abu Dhabi smart application traveler information system "Darb"* is designed to provide multimodal, real-time information and route guidance using the web (upgrade of DARB), mobile phones (new mobile DARB app) and satellite navigation systems (in-vehicle and OEM). Darb provides the public with basic interactive maps, showing public transport routes and timetables within a fast and user-friendly experience. Furthermore, the smart app provides the public with live road conditions, covering construction works, traffic detours and accidents and congested roads. Moreover, the smart application provides various important services related to airports, such as the location of airport halls and flight schedules. Darb informs the public about parking lots and enables them to pay for Mawaqif services online. Among the distinctive services of Darb, the Book a Taxi feature allows the app users to book a taxi and set their pick-up location and destination directly from the smartphone.

All these services contribute to resilient infrastructure development, increased access to ICTs, and the fostering of innovation (**SDG 9**).

In the **United States**, the *Ark Earth Foundation* is a platform conducive to modeling, resourcing and deploying *an* e-governance system using semantic intelligent web technologies. Ark Earth offers to pilot the e-governance modeling of civilization and knowledge-based structures and gather data for large-scale semantic intelligent web deployments. The data gathered will better rationalize and maximize real social, economic and ecological impact analysis. The pilot demonstration would include the use of civilization and knowledge tooling capabilities that enable the rapid deployment of change in a world driven by content providers and the semantic intelligent web.

The *Ark Earth Foundation e-Governance for the Data Revolution* project relates to a number of SDGs through WSIS action lines.

The main goal of the *Ibirapitá Plan* is to reduce the technological gap in regard to the elderly population of **Uruguay** and provide equal access and instruction on the use of technology and the Internet (**SDG 16**). It also aims at the delivery of 350,000 tablets to retirees with an income of less than $24,416 (approximately USD 800) and at provision of a motivational workshop to encourage their use. The programme is projected to be completed by 2020. In addition to the main goal, secondary aims include:

- Reducing the double digital divide made up of potential Ibirapitá Plan beneficiaries

- Increasing access to and use of information technology

- Creating a space for sociability through the use of digital devices

- Ensuring that everything herein described contributes to the reduction of the technological divide of different socio-economic and age groups in Uruguay.

In 2015, a total of 30,000 tablets reached their users in eleven of the nineteen departments of Uruguay. The aforementioned eleven departments are part of rural Uruguay, and the project is working towards the objective of providing first for those areas of the country most cut off from the capital.

The *e-Participation Policy* of **Qatar** aims at instituting the culture and practices of e-participation across government agencies and improving transparency and people's participation, thereby assisting the State of Qatar in achieving its national development goals.

The Government of the State of Qatar has always recognized the value of engaging the people in governance processes. Qatar's National Development Strategy 2011-2016 acknowledges that people are a country's most valuable asset and their participation in political, social and economic spheres will contribute to sustaining a prosperous society (**SDGs 11** and **16**). Engagement with their people allows governments to tap into wider perspectives, sources of information and potential solutions to improve decisions and services. It also provides the basis for productive relationships, improved dialogue and deliberation and, ultimately, better governance. The objective of e-Participation is to engage people in development policy and decision-making processes through use of information and communication technologies.

C7.2 E-business

The **United Nations Conference on Trade and Development (UNCTAD)** is the lead facilitator for this action line, which is co-led by the **International Trade Centre (ITC)**, **Universal Postal Union (UPU)** and **International Labour Organization (ILO**).

ITC, UNCTAD and UPU jointly organized an action line facilitation meeting on e-business during the WSIS+10 High-Level Event in June 2014. The meeting focused on identifying priorities for the e-business (C7.2) action line beyond 2015 with a view to making e-business more inclusive and sustainable. The meeting drew on inputs received during the open consultations for the WSIS+10 High-level Event. Areas highlighted included: mobile money as an enabler of financial inclusion, requirements for the interoperability of mobile financial systems, strengthening the legal and regulatory framework for e-business, the importance of engaging all stakeholders, the need to assess the social and economic impact of e-business, and the need for comparable statistics on e-business.

The new terms of reference for the e-business action line, as indicated in the WSIS+10 Vision for WSIS Beyond 2015, are as follows:

• Make it possible for businesses to use relevant ICTs and benefit fully from the information economy, including by creating an enabling environment for selling and buying goods or services via ICT networks.

- Enhance the involvement of all stakeholders in promoting the benefits of e-business and stimulating the development of new e-business applications, content and services, including for mobile devices and social media.

- Foster a dynamic ICT sector to underpin productive use of ICTs, sustainable growth and development, job creation, trade and innovation as part of broader strategies for poverty reduction through wealth creation.

- Enhance the entry of micro, small and medium-sized enterprises (MSMEs), and youth and women entrepreneurs, into all sectors of e-business taking new technological developments into account.

- Improve availability of statistical e-business data needed to assess economic and social impacts.

Actions to facilitate e-business

As part of its fiftieth anniversary celebrations in Geneva, UNCTAD held a special event entitled "Cutting the costs of remittances: The role of mobile money" in June 2014. The event provided an opportunity for discussion on ways of making international remittance flows more affordable and inclusive, for example by leveraging mobile money and online transfer mechanisms. Reducing the cost of remittances could enhance financial inclusion in developing countries and is a widely-recognized development goal. This is especially relevant in the context of the post-2015 development agenda. The meeting recalled the commitment by G-20 to reduce the cost of remittances to 5 per cent.

The Trade and Development Report (TDR) 2015: "Making the international financial architecture work for development" reviews recent trends in the global economy and focuses on ways to reform the international financial architecture. It warns that with a tepid recovery in developed countries and headwinds in many developing and transition economies, the global crisis is not over, and the risk of a prolonged stagnation persists. The main constraint is insufficient global demand, combined with financial fragility and instability, and growing inequality.

The third session of the Multi-year Expert Meeting on Enhancing the Enabling Economic Environment at All Levels in Support of Inclusive and Sustainable Development was held at the Palais des Nations in Geneva, Switzerland, on 14 and 15 December 2015. The topic for this session was decided at the fifty-seventh executive session of the Trade and Development Board in June 2013. The session also covered the topics scheduled for the fourth session. The meeting was composed of four sessions: the first three featured presentations by a panel of experts, followed by discussion by participating experts; the wrap-up session covered the outcomes of the first, second and third sessions of the multi-year expert meeting.

The Ad Hoc Expert Meeting on Data Protection and Privacy: Implications for Trade and Development was held on 19 and 20 April 2016 in Geneva, Switzerland. It commenced with the presentation of the UNCTAD Study on Data Protection and International Data Flows. Representatives from public and private stakeholders also took the floor to discuss thematic topics and present their experiences. Invited delegates included representatives from the African Union Commission, Asia-Pacific Economic Cooperation, the Commonwealth, the Council of Europe, the East African Secretariat, the ECOWAS Commission, the European Union, the Organisation for Economic Co-operation and Development, the United States Federal Trade Commission, UNOHCHR, the International Chamber of Commerce, the Computer and Communications Industry Association, Consumer International, Google, Microsoft, and eBay and other e-commerce platforms from developing countries.

The Multi-year Expert Meeting on Promoting Economic Integration and Cooperation took place on 14-15 April 2016 in Geneva, Switzerland. The fourth session of the Multi-year Expert Meeting was held in accordance with the terms of reference approved by the Bureau of the Trade and Development Board. The objective of the session was to discuss how to improve all forms of cooperation and partnership for trade and development with a view to accomplishing internationally agreed development goals. In particular, it focused on identifying how developing countries can collaboratively build capacity to

weather economic crises, ensure macroeconomic stability and enhance long-term resilience in ways that generate inclusive and sustainable economic growth.

The Multi-year Expert Meeting on Commodities and Development, 21-22 April 2016, Geneva, aimed to enable commodity-dependent developing countries to identify measures in order to secure, as a priority, adequate access to food and energy, to use commodity revenues for economic growth and poverty reduction and to cope with the challenges of commodity price volatility.

The meeting was expected to provide a forum for sharing country experiences in terms of:

• Identifying and implementing appropriate policies at the national, regional and international levels.

• Addressing the impacts of declining commodity prices on vulnerable groups.

• Helping commodity-dependent developing countries formulate sustainable and inclusive development strategies, including those that promote value addition and economic diversification.

Finally, in relation to this action line, reference must be made to **SDGs 1, 2, 5, 8, 9** and **17**. **SDG 1,** on ending poverty, can be achieved through e-business services, such as digital currencies and mobile payments. They also empower SMMEs and youth and women entrepreneurs to have equal rights to economic resources (**SDG 5**). **Target 2.3** aims at doubling the agricultural productivity and incomes of small-scale food producers, thus involving this action line as well as e-agriculture. Indeed, ICTs in rural enterprises can increase the productivity of small-scale food producers, conceiving international market places for food sale and distribution – as well as innovative payment solutions – and facilitating access to financial services. E-business undeniably directly contributes to the economic development of countries, sustainable industrialization and innovation (**SDGs 8** and **9**). Lastly, regarding the achievement of **SDG 17** on global partnership, the use of relevant ICTs for businesses and their benefits in regard to the information economy could create an enabling environment for selling and buying goods or services via ICT networks all over the world.

Apps.co is the digital entrepreneurship initiative of the Ministry of Information and Communication Technologies of **Colombia**. It is framed as part of the "Vive Digital" plan which is aimed at generating economic and social advancement with ICT. Apps.co promotes the creation of ICT businesses, focusing on mobile/web applications and digital content. The objective is to transform entrepreneurs and ideas into sustainable and profitable businesses. The entrepreneurship community counts over 107,000 members. More than 50,000 people have accessed online training programmes, and mentoring programmes have contributed to the creation and consolidation of more than 1,000 start-ups across the country.

The programme deals with such problematic issues as poverty, quality education and gender equality (**SDGs 1, 4, 5**). It also contributes to economic growth and fosters innovation (**SDGs 8** and **9**).

In **India**, the Rashtriya e-Market Services Private Limited (ReMS) created the *Unified Agricultural Markets* programme in order to make markets more efficient and competitive harnessing ICT. The

e-auction platform has increased transparency in all market operations, with the effective dissemination of price information to farmers and increased competition for better price realization ultimately leading to enhanced livelihoods. The e-auction platform now connects the state agriculture markets to national buyers. Presently, 2.7 million farmer lots worth USD 1 691.87 million (93.98 million quintals) have been transacted. Farmers have witnessed increased prices and demand for their produce.

The programme's ambitious goals meet SDGs as they deal with poverty and food security, contribute to economic development and promote inclusive societies (**SDGs 1, 2, 8, 12** and **16**).
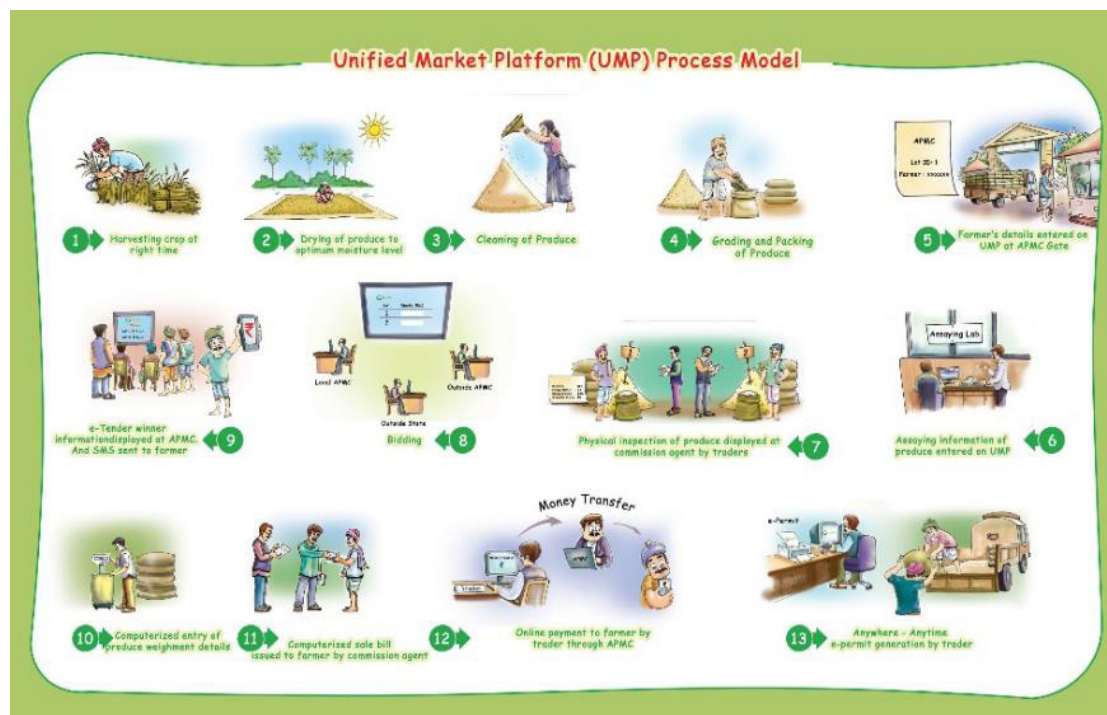
Another project from **India,** *Microlekha-Connecting India to Disconnect Poverty,* uses 3G-connected tablets and an innovative, Android-based Microlekha application to improve the efficiency, profitability and transparency of microfinance institutions (MFIs) by automating and streamlining many routine tasks, expediting the loan application and approval process and improving communication with customers. These improvements work to build the confidence of borrowers in the lending process and stimulate the economic activity of underserved communities, thus fighting against poverty and gender inequality as well as promoting a peaceful society, which coincides with **SDGs 1, 5, 8** and **16** of the WSIS action lines. The new system also stores all know-your-customer (KYC) documents digitally, which eliminates the need for borrowers to submit paperwork each time they apply for a loan. Further, customers making loan repayments receive transaction receipts and account updates via SMS.

Hubco is a web-based service-oriented e-commerce system with ICT development impacts on the businesses of the **Islamic Republic of Iran** that includes a software solution along with all the required processes (e.g. development, training, support, sales and marketing, business consultancy and empowerment) and infrastructures for providing the supply chain management (SCM) functionalities as a service to the suppliers and consumers. Launched two years ago, the Hubco Network acts as

a match-making service among consumers of materials and their suppliers, providing information on the price and quality of the goods they need. The primary target audiences of this network are more than 3 million small and large businesses in the country, which automatically makes the network very efficient. It also contributes to economic development, facilitation of infrastructure development as well as the strengthening of technological capacity to move towards more sustainable consumption and production patterns (**SDGs 8, 9** and **12**). Presently, the system is active in the cement, power, industry, food, transportation and steel industries. One of the services of this network is e-procurement. Consumers send their requests for quotation (RFQs) to this network and interested suppliers provide their responses. The consumer can see and compare the responses and choose the best supplier among the existing suppliers with the help of this system.

Launched by the Ministry of Finance in **Kazakhstan,** the "Financial reports depository" information system provides access to an electronic database where users can find information about the financial and economic activities and corporate events of public interest entities, thus fulfilling certain SDGs in regard to providing equal information access and promoting industrialization in the country (**SDG 16**). The entities include: financial institutions (except for legal entities engaged in foreign currency exchange operations), joint stock companies (excluding non-profit organizations), mining companies (excluding companies that produce commonly occurring minerals) and organizations with a state share in the statutory capital as well as state-owned enterprises based on business law.
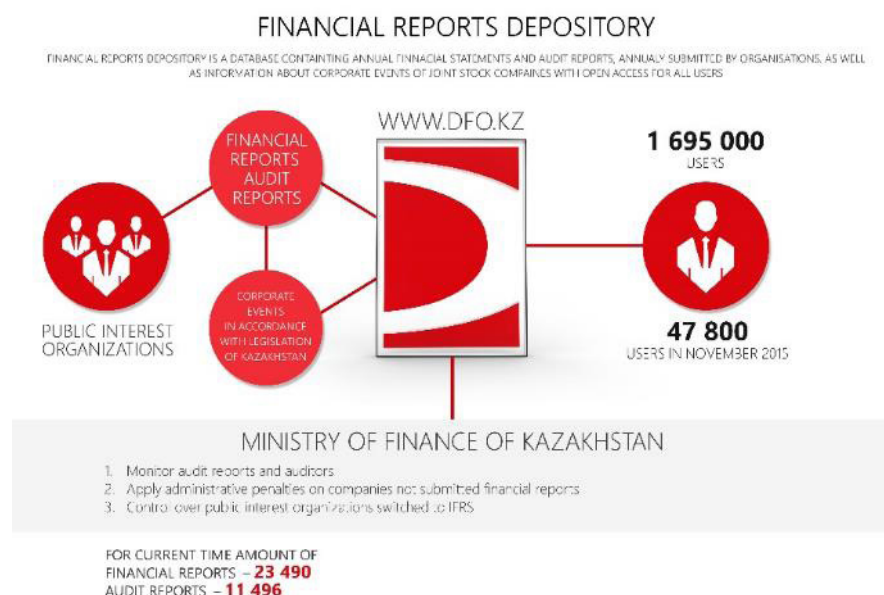
Two projects from the Ministry of Technology, Communication and Innovation of **Mauritius** aim to develop quality and resilient infrastructure as well as to increase access to ICTs in the country (**SDG 9**).

The **Mauritius** *eRegistry Project (MeRP)* was launched to scale up to e-services by harnessing the latest technologies and solutions that can provide integrated workflows and options for businesses, professionals and members of the public to conduct business with the Registrar General Department over the Internet. MeRP allows for the e-submission of documents, e-payment of duties and taxes, e-registration, e-search and e-delivery of registered documents. The Registrar General Department is the winner of the 2014 edition of the Public Service Excellence Award.

An integrated web-based *e-Procurement System (e-PS)* destined for the public sector will improve its procurement processes, enhance transparency and stimulate competition in **Mauritius**. The project is designed to be implemented in three phases with progressive roll-out, namely:

1) E-PS enables the floating of tenders and on-line opening of bids for nine selected public bodies by November 2015. E-PS will progressively roll out to encompass other public bodies and their counterpart suppliers in using the e-procurement portal;

2) E-PS development progresses to include the remaining stages in the procurement cycle and setting up of a complete procurement management information system (MIS);

3) E-PS enables framework agreements and electronic reverse auction.

Women in Technology in **Nigeria** (WITIN) initiated the *Inclusion and Integration of Disadvantaged Groups and Marginalized Women into the Global Digital Economy* project. It relates to the most disadvantaged groups including marginalized women entrepreneurs, especially those in rural and remote communities, thus meeting a number of SDGs by fighting against poverty and hunger and ensuring healthy lives and gender equality (**SDGs 1, 2, 3, 5 and 10**). All beneficiaries' local businesses were properly branded and put online with google maps showing the physical locations of their stores. All have at least a basic mobile (feature) phone with which they communicate with clients and transmit business, overcoming all barriers and benefiting immensely from the Internet. Launched since December 2011, and with resounding success stories, the project is being expanded in order to reach more beneficiaries and groups in Nigeria, promoting economic development and a peaceful and inclusive society, revitalizing collaboration and ensuring sustainable consumption and production patterns (**SDGs 12, 16** and **17**).
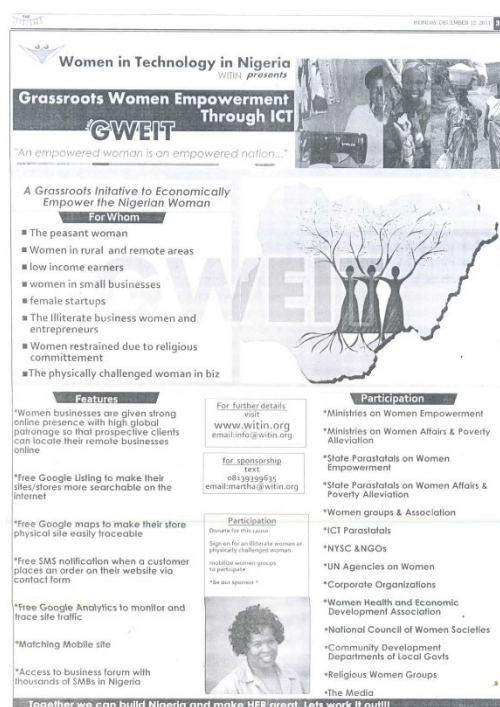
Authorized to disclose information on final goods and services, stating brands, prices, supplier name, offer and types of product, the Public Authority for Consumer Protection (PACP) of **Oman** has taken an initiative with the *Marsad* programme. The programme discloses the local, GCC and international prices of commodity items. Initially, the programme aimed to display 400 items for each supplier for consumers as well as key government officials. The number has been increased to 3 million now for government officials. Furthermore, the project aims to disseminate these prices to the public as well.

Thus, it meets certain SDGs dealing with economic issues, fighting against poverty and providing decent work for society (**SDGs 1** and **8**).

Another project *Invest Easy* is one of the showcase projects of **Oman** launched by the Ministry of Commerce and Industry. It is an outstanding example of using worldwide best practices and standards to develop the country's business environment (**SDGs 8** and **16**). It is a comprehensive collection of e-services aimed at providing investors and businesses with a single point of contact for their interactions with the government, from starting a new company to filing an annual report. The new simplified Invest Easy project has divided all the information and services into four areas; commercial registration, CR renewals, licensing and information availability.

In the **Philippines**, the *Hapinoy Mobile MicroBusiness (Money) Hub*, a programme co-developed with Qualcomm Wireless Reach, addresses the concern of financial and digital inclusion in rural areas. The programme's shared vision is to bring mobile-based services closer to these rural communities, most especially to the financially and digitally excluded. This is done by enabling women micro-entrepreneurs who own hole-in-the-wall-shops with mobile technologies to offer mobile money services, mobile payments and mobile commerce.

Thus, the programme combats poverty and gender inequality and promotes economic development in the country (**SDGs 1, 5, 8** and **10**).

Atta'a System automates the charities system in **Saudi Arabia**, converts them to electronic transactions and links them all in one system. *Atta'a System* offers several benefits and services for the Ministry of Social Affairs (the ministry responsible for charities in Saudi Arabia):

• Increase of the ministry's ability to supervise and follow up the work of charities

• Unification of the system used in all charities to ensure increased effectiveness of the procedures

• Construction of an accurate database for charities in the Kingdom of Saudi Arabia.

The overall objectives of *Atta'a System* are:

• Integrity – adjusts the disbursement of donations and charity funds and adjusts beneficiaries' relations to charities' staff.

• Justice - ensures the arrival of donations and charity to the beneficiaries. It aims to evenly distribute donations to beneficiaries according to the world standard of poverty percentage in the Kingdom of Saudi Arabia.

• Abstinence- reduces the difficulties that beneficiaries face so that they don't need to visit the charities frequently.

• Transparency- helps donors identify their money and find out to whom it will go, and helps the beneficiaries find out their share of donations.

• Reliability- contributes to increased trust in the community work of charities.

• The implementation of these goals governed by a framework of information security, privacy and confidentiality coincides with a considerable number of established SDGs related to WSIS action lines.

Thailand boasted four projects within this category aimed at promoting its economic development, providing lifelong learning opportunities for its citizens and achieving full and productive employment (**SDG 4** and **8**).

Initiated by the Electronic Transactions Development Agency (public organization), the *National Payment Message Standard (NPMS)* project comprises payment message standard setting deemed to be crucial for future phases of payment systems development. The standard enables businesses and financial institutions to exchange payment data more conveniently by using standardized messages complying with ISO 20022 (Financial Services) in order to reduce data handling costs. The NPMS has been continually developed and improved by its stakeholders which include the Thailand Payment Market Practice Group (TH-PMPG), consisting of commercial banks, financial institutes and corporations.

The *Electronic Document Management (EDM) System* aims to improve the organization's filing system, ease file sharing within the organization, increase productivity by providing updated information to the intended personnel, and scrutinize any illegal sharing of files by unauthorized parties, without compromising the security of the organization vis-à-vis outside threat. The environmental impact is also taken into consideration through reduced paper document usage and optimization of office space previously used for storing paper files (**SDG 15**). File back-up and ease of access by designated and authorized personnel at different locations within the organization constitute further advantages of this programme.

Thailand's *Location Information Management System (LIMS)* is an accident notification system available via the customer's smartphone for the motor insurance business. A claim submitted by the customer, including claim details, can be received immediately after the accident. LIMS is easy to use, and enables customers to conveniently submit their claims or make a prompt appointment with the surveyor via the smartphone interface. The precise accident coordinates will be sent by the customer to the call centre using the smartphone's GPS signal, reducing the stress associated with explaining the accident location. The surveyor can refer to the GPS coordinates and find the location quickly and easily.

The project thus contributes to promoting well-being for its customers (**SDG 3**).
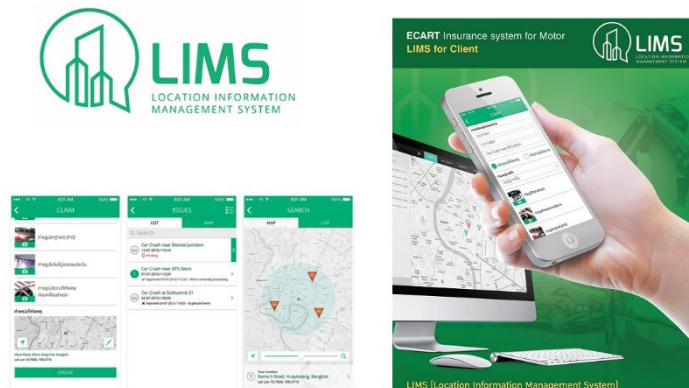
In **Thailand**, the *Location-Based Information System (LBIS)* was developed as the most effective tool for executives to efficiently conduct business analysis, evaluate marketing strategies, and ultimately make optimal business decisions. Moreover, LBIS is fully supported by Microsoft Azure (cloud platform), thereby enabling businesses to swiftly expand their services globally. A key attribute of this fully web-integrated system is to precisely and accurately present business information topographically. For any large organization with massive data distributed across many systems, LBIS effortlessly compiles all information to be analysed without compromising the current systems or altering the staff's roles and responsibilities.

In **Uganda**, *Bizcust* is a mobile web-based application system for expanding the customer, market and transport accessibility base for both businessmen and farmers. Bizcust runs on all mobile devices and computers. The problem resides in the fact that farmers lack information on updated commodity prices offered by different agro-businessmen. Due to this, some businessmen exploit farmers by offering lower prices. Much as farmers have tried to search for better prices from different agro-companies, they have encountered difficulties in reaching them. This is because the agro-companies are far from the farmers and there is also a communication gap between them. Moreover, it is hard for both farmers and businessmen to access quick and affordable transportation.

This project is therefore extremely useful, as it relates to poverty, food-security and gender-equality issues (**SDGs 1, 2, 5**).

 A further project from **Uganda**, the *Money mobile counter (M-Count)* is a mobile application for automatically counting large amounts of money. A number of people in the business sector in Uganda deal with transactions involving large sums of money. These include supermarkets, petrol stations, mobile money shops and banks. Little has been done to ensure safety, transparency and efficiency in their operations. The use of counterfeit money detectors is one of the methods employed to ensure safety. Under this, money is screened to check it for the watermark. This is also done manually, but entails considerable loss of time and inconvenience, and the liability of money laundering and fraud.

Hence, M-Count represents a real possibility for enhancing security with regard to money, the efficiency of the people handling it, for example bank tellers and supermarket attendants, transparency in providing the actual amounts of money available, and time-saving in regard to counting large numbers of notes (**SDGs 8** and **9**).

In the **United Arab Emirates**, the *Smart Navigation System* is an initiative that revolves around developing a smart indoor positioning and navigation (IPIN) mobile application and solutions whereby users can use their smartphone to receive indoor voice-guided navigation and location-based information alerts to easily find and explore places and items in premises like shopping malls, museums or other large buildings catering to the needs of visitors.

Under the UAE-based start-up Smart Navigation System, the project relates to certain SDGs aimed at ending poverty, promoting economic development and sustainable industrialization as well as revitalizing the global partnership for sustainable development (**SDGs 1, 8, 9** and **17**).

In the **United States**, *DIDXchange (DIDX)* enables wholesale communication service providers to trade available direct inward dialing (DID) numbers within one convenient online platform. The project

places all communication providers and operators on an even keel, whether in the first, second or third world, when they come to expand market reach and offer phone numbers to other telephone companies quickly and efficiently. Each wholesale buyer or seller can save money and time, gain and retain users, increase sales, offer new and practical features, achieve geographical market expansion, outsource technical issues, billing and marketing at zero cost, and offer their users a "local virtual presence" via DID phone numbers traditionally exclusive to those outside their location (**SDGs 8** and **10**).

In **Zambia**, Nchitonet Dot Com Ltd establishes the *e-Mentorship Programs for Local Entrepreneurs,* a mentoring programme for 1,500 local entrepreneurs to help local enterprise development that will create jobs and sustainable business. Ten local industries that have business potential to improve socio-economic and environmental challenges faced by young people, women and the nation at large are targeted. The goals of this project are to:

- Establish partnership with at least fifty organizations and companies based locally and abroad to support the mentor programme with at least 500 experts taking up roles as mentors in 2016

- Enroll 150 entrepreneurs as mentees in 10 key business industry categories established for the (3 month, 6 month, 9 month and 12 month) mentorship programme

- Manage and support the mentorship programme with an easy-to-use, secure and user-tailored electronic mentoring platform that engages mentor and mentee in a win-win mentor relationship

- Organize monthly/weekly mentor meet-up events with a target of 500 mentor relationships at each event in 2016.

This ambitious project reaches the majority of the **SDGs (1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 15, 16 and 17**) related to this WSIS action line.

The **UNCTAD** *Global Cyberlaw Tracker* constitutes the first ever global mapping of cyberlaws. It tracks the state of e-commerce legislation in the field of e-transactions, consumer protection, data protection/privacy and cybercrime as adopted in the 194 UNCTAD Member States. It indicates whether or not a given country has adopted legislation, or has a draft law pending adoption.

This database contributes to **SDG 8** on the economic growth of countries, promoting development-oriented policies, etc.

In **Nepal**, *TrackMandu* is a solution allowing the general public and private fleets to obtain information on their cellphones and computers. The information consists of their current location, timestamp, speed and course of their fleet. Basically, there are 4 components to this system: device (GPS/GSM-based), web server that runs the application, database server that handles the database (accessible only by web server) and mobile/web application communicating with the server to request the data required by the application.

The project perfectly contributes to **SDGs 10** and **16,** providing equal public access to information and reducing inequality among Nepal's population.

In the **United Arab Emirates**, *Maqta Gateway* is a state-of-the-art "ports community system" (PCS) that is designed in line with international standards and will serve the port and trade community by interlinking all the relevant parties involved in Abu Dhabi's growing import and export trade business and facilitating information flow among them. These organizations include exporters, importers, ports, shipping lines, customs, and regulatory government agencies. Taking the "one-stop-shop" philosophy to a new level, Maqta Gateway will offer ports and eventually other trade channels a single point of contact and real-time information at any time of the day, even via mobile, significantly enhancing processing times and communication procedures. The Maqta Gateway is a crucial "bridge" for future business opportunities, both nationally and globally.

In such a way, the project meets a considerable number of sustainable development goals **(SDGs 4, 8, 10, 11, 16, 17)** on economic development, development of social life, business sector, global partnership, etc.
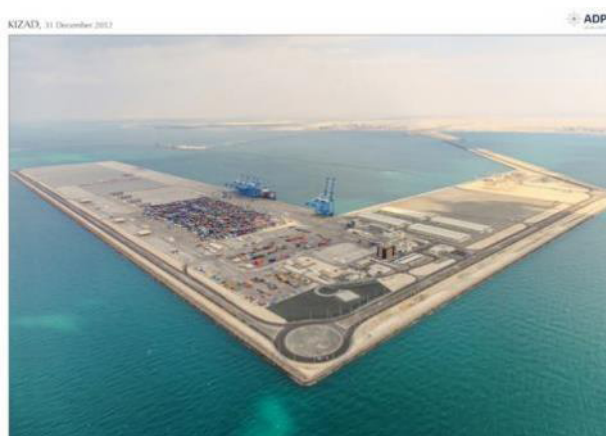
Produced by **UNCTAD**, the *Information Economy Report 2015: Unlocking the Potential of E-Commerce for Developing Countries (IER2015)* examines e-commerce and how ICT can be harnessed to support economic growth and sustainable development. E-commerce continues to grow both in volume and geographic reach, and is increasingly featured in the international development agenda, including in the outcomes of WSIS and the WTO 9th Ministerial Conference. IIER2015 highlights the dynamism of e-commerce in developing countries, recognizing that that potential is far from fully realized. The report examines opportunities and challenges faced by enterprises in developing countries that wish to access and use e-commerce. It benchmarks country performances with a new UNCTAD E-commerce Index, reviews examples of e-commerce in rural areas and low-income countries, addresses relevant legal issues and provides policy recommendations.

This publication thus responds to several SDGs on poverty, food security, gender equality, promoting sustainable economic growth and industrialization, and revitalizing the global partnership for sustainable development (**SDGs 1, 2, 5, 8, 9** and **17**).

C7.3 E-learning

UNESCO is the lead facilitator for e-learning, while the co-facilitators are **ITU** and **UNIDO**. E-learning in essence means the network-enabled transfer of skills and knowledge, and, specifically, the use of electronic applications and processes for learning. Applications and processes may include web-based learning, computer-based learning, virtual classrooms and digital collaboration.

It is important to mention that the e-learning action line is directly linked with **SDG 4** on inclusive and equitable quality education and lifelong learning opportunities.

In **Bangladesh**, the Prime Minister's Office created the *Teachers' Portal for Empowerment* that represents a smart supplement to Bangladesh's ailing teachers' training system that fails to serve 900 000 teachers with classroom facilities limited to 1 500 seats. The costly face-to-face training is often prohibitively expensive for the teaching administration and teachers. The Teachers' Portal, a collaborative, co-creative and problem-solving continuing professional development (CPD) platform, has fast become popular among teachers for creating/sharing digital content on all subjects. As membership exceeds 100 000 and growing, the portal is already the largest local repository of educational content. An offline annual conference started recently has also sown the seed for a vibrant community of learners.

The portal thus provides equitable quality education, reducing inequality and revitalizing the global partnership for sustainable development (**SDGs 4, 5, 10, 12, 16** and **17**).


The BSUIR Open Educational Resource Platform is an open educational platform that offers new opportunities for remote IT education in **Belarus**. It allows a higher education and state diploma to be obtained without leaving the workplace or residence. The platform creates training conditions with a free

choice of academic disciplines, provides dialogue with the tutor by e-mail, and offers lifelong learning opportunities for all citizens of the country (**SDG 4**). Lifelong and e-learning training under BSUIR means:

- The most qualified instructors, fluent in IT usage

- The opportunity to choose a set of disciplines and schedule the studies

- The educational process is provided by 28 university departments and around 200 instructors

- More than 350 e-teaching complexes for a discipline

- Within the second higher education on the faculty – possibility of faster training, with payment for unstudied disciplines only

- Modern and fully functional learning management system by BelITSoft - developer of the e-learning software.

In **Colombia**, the *PLANEA spectrum e-learning platform* is a tool, launched and managed by the National Spectrum Agency (Agencia Nacional del Espectro – ANE), that allows people of all regions of the country (even more remote areas), and deaf people, to access knowledge about the spectrum – what it is, its impact on the lives of citizens – and to obtain information on the installation of antennas and electromagnetic fields. The courses on the platform were chosen according to demand on the part of citizens (based on polls and comments). The platform may be updated to include courses required by stakeholders in the future.

It provides equitable education and ensures access to knowledge (**SDG 4**).
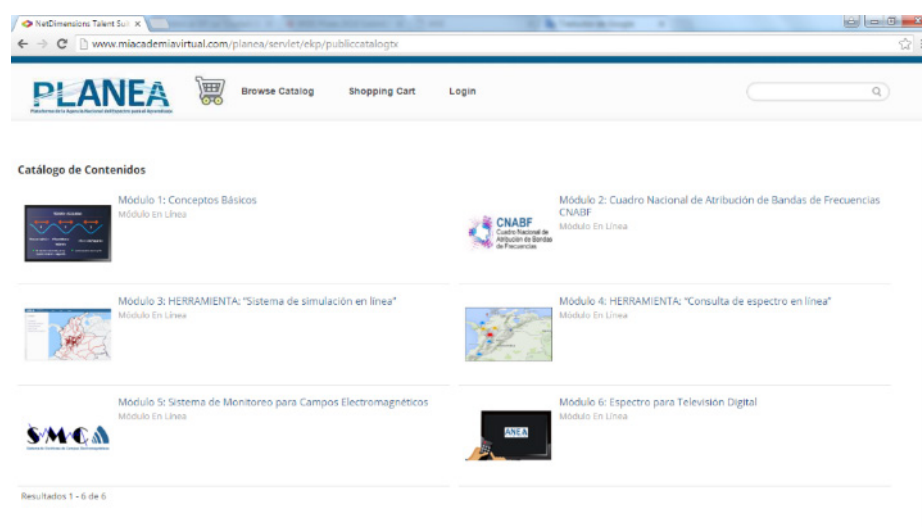
The *Talking Book* service from **Ghana** significantly improves health, income and quality of life for the world's most underserved communities by providing life-changing knowledge through innovative technology (**SDGs 1, 2, 3**). The Talking Book is a low-cost audio computer designed for the learning needs of illiterate populations in the poorest areas of the world. Through partnerships with local government and non-government agencies, relevant, timely and practical audio lessons on sustainable farming methods, gender issues and key health practices are produced and recorded. The messages (in the form of interviews, songs, dramas and stories) are then loaded on to Talking Books and distributed.

Thus, the programme meets a considerable number of SDGs in ensuring quality education, gender equality, contribution to economic development, etc. (**SDGs 4, 5, 6, 8, 10, 13, 15-17**).

In **India**, *the E-Learning Programme* of the Wockhardt Foundation aims at ensuring academic excellence through quality and innovative teaching methods. The e-learning programme is intended to make learning a fun-filled and interactive experience. It is developed by quality e-learning experts and qualified instructional designers. The programme is designed for children from standard 1 to 10 for all subjects. The curriculum is as prescribed and followed by the Maharashtra State board. The complete syllabus is provided in an audiovisual format in the Marathi, Hindi and English languages. The audiovisual format comprises an interactive question bank and is designed with a child-friendly interface.

Hence, the programme ensures equitable quality education and gender equality and promotes lifelong learning opportunities for Indian citizens (**SDGs 4** and **5**).

The Information Technology Management Center of Women's Seminaries (ITMCWS) in **the Islamic Republic of Iran** started its activity with the *E-Learning Integrated Solution (ELIS)* for women in 2007. Its main objective was to upgrade women's knowledge in religious science, which was the basis and prerequisite for playing a role in Iranian communities. In this regard and in an endeavour to reduce communication deficiencies in many small cities, various custom-made softwares like Namad, Atom, Offline Maker, etc., were implemented and incorporated in ELIS.

Specifically, the solution presented and integrated by ITMCWS has increased accessibility for women in small cities or villages to e-learning services and has empowered women's knowledge, thus meeting **SDGs 4** and **5** on educational and gender matters.
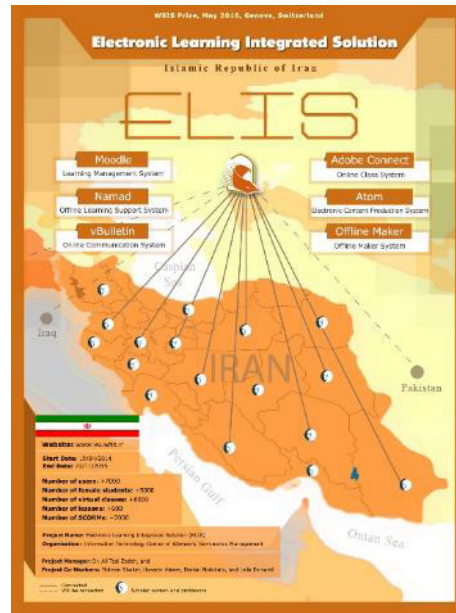
Dr Salah Alnajem's *Educational mobile application* for iOS and Android smart devices provides a mobile tool which allows students and other users to join live and recorded lectures and webinars delivered by Dr Salah Alnajem at **Kuwait** University. The application allows users to participate and interact online in Dr Salah's lectures thanks to videoconferencing, e-collaboration and virtual classroom technologies using HD video and audio in real time, thus offering worthwhile learning opportunities (**SDG 4).** The application also gives students access to Dr Salah's learning management system (LMS), which allows them to download course materials, track grades, track attendance and sit online exams.
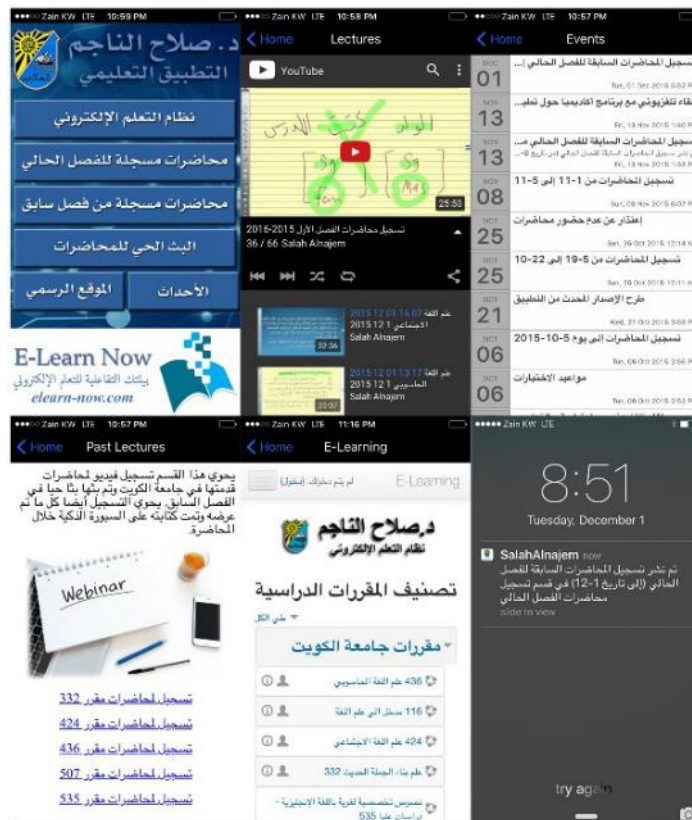
Uzdevumi.lv is an e-learning portal and virtual school in **Latvia**. This web-based e-learning solution has transformed the mundane study process into an adventure. The digital learning for students, teachers

and parents portal contains more than 5 million digital learning materials according to the school curricula in Latvia. Students can train for homework and tests. The portal offers pupils an opportunity to train on their own for future tests and exams, participate in competitions and win amazing prizes, follow their learning progress, solve daily exercises and search for new learning opportunities. As to the teachers, they get a unique chance to prepare and conduct online tests with exercises from the uzdevumi.lv content database or by creating their own exercises. Parents can consult pupil statistics and results.

The portal is a necessary tool in achieving quality education leading to relevant and effective learning outcomes (**SDG 4.1**).

IAM School Manager is a software application that addresses management of information for kindergarten, primary and secondary schools in **Malawi,** thus relating to **SDG 4.1**- complete free and quality primary and secondary education for future perspectives. *IAM Solutions* aims to reach every institution with simple and affordable IT solutions that matter, starting with the education sector. IAM School Manager will therefore comprise modules requiring a licence, such as fee management, and others, such as student assessment, free of charge. Examples of the modules in IAM School Manager include fee management, student assessment, hostel management, library, etc. Free modules are developed under the project "My Country My Solution (MCMS)", which is aimed at identifying problems in Malawi and providing solutions free of charge.

Two projects from **Mexico** aim to offer quality education in the country (**SDG 4**).

The *MéxicoX platform of massive open online courses (MOOCs) programme* is an online platform led by the Ministry of Education and the National Digital Strategy. The main objective of this project is to offer free MOOCs and spread access to education to the entire Mexican population (**SDG 4.3**).The platform uses the Open EdX code developed by Harvard University and the Massachusetts Institute of Technology (MIT). The six major strategic lines covering the content of the courses are:

- Fundamental academic skills

- Specialized skills

- Teacher training skills

- National challenges

- Global challenges

- Promotion of art, culture, history, science and enjoyment of knowledge.

In 2012, high-school level education became compulsory in **Mexico**, but yearly drop-out rates are high on account of demographic, economic and social issues. The National High School Online Service *(*Servicio Nacional de Bachillerato en Línea) initiated the *Prepa en Linea-SEP* project, which is an officially recognized, inclusive, nationwide project which aims to provide a free virtual high school for everyone, allowing students to develop skills through the use of ICT. The programme currently has 52 589 students from all states, of whom 2 507 have a disability. To attend the students, 1 500 facilitators and tutors are employed in order to offer a personalized service.

In the **Netherlands**, the *Can't Wait to Learn (CWtL)* programme proposes new solutions to the urgent challenges facing education for children in emergencies. By utilizing innovative technological solutions with a focus on serious gaming, CWtL builds on concepts which have been successfully piloted in Sudan (e-Learning Sudan) and has the ambition to increase the number of children with access to quality education in Sudan. Developing fresh, interactive materials based on the national curricula and creating effective partnership structures to distribute these create new opportunities for making education accessible to those children who have been excluded from education. In upcoming programme phases, CWtL will integrate psychosocial support and life skills interventions into the programme, thus increasing children's resilience and thereby preparing them for a positive future.

Such aims perfectly meet a lot of sustainable development goals related to this WSIS action line (**SDGs 1, 3, 4, 5, 8** and **10**).

Launched by the Sultan Qaboos University, in **Oman**, The *PresentationTube: A Network for Producing & Sharing Video Tutorials* project aims to help teachers and e-content producers in Oman and many other countries to record and share quality video tutorials effectively. The project offers free presentation recording software and an online video sharing platform. The software allows educators to narrate and annotate slides and synchronize a variety of essential visual media. The online platform uses YouTube API technology to upload and stream video content. By the end January 2016, the PresentationTube project helped more than 15 000 educators and offered more than 3 500 quality video tutorials on various subjects and in many languages, including Arabic, English, Spanish, French and Malay.

Besides ensuring quality education, the project also contributes to revitalization of the global partnership for sustainable development (**SDG 17**).

The **Pakistan** Institute of Development Economics (PIDE) is a degree-awarding institute in Islamabad, Pakistan, that developed the *PIDE Smart Application (PSA)* project. It bridges the gulf between students and teachers and provides relevant information instantaneously to students through the app. PSA consists of notifications to remind students about their classes in accordance with the timetable as well as readings of the day also available through PSA. With the increase in cellphone users in Pakistan, PSA will help to better control and administer student information. The barriers in the traditional ways of sending information to students will be overcome at low cost and with high effectiveness. Furthermore, this will allow students to concentrate on studies rather than keeping check on schedules, plan changes, bus routes and important business economics news.

The project aims to facilitate teacher-student relations and contributes to the effectiveness of sharing information (**SDG 4**).

Another project from **Pakistan,** the *Daakhla.pk* project, is the online platform that provides centralized information on educational institutions and their courses, and free counselling for students. In

Asia, literacy rates are low, so people seeking admission to degree programmes do not have prior knowledge. The project therefore provides such people with complete information. In addition, the unique online admissions portal allows people to apply to different universities without going there.

In this way, the project saves applicants time and money, and provides quality education as well as equal access to all levels of education (**SDG 4.4**).

In **Saudi Arabia**, the King Saud University (KSU) endeavours to spread e-learning in order to provide a distinguished education. Thus, the *Digital Courses Development Initiative* conforms to international standards and meets the local educational needs. This initiative aims at providing appropriate tools for developing the faculty members' digital content (**SDG 4**). Its purpose is to develop their courses and train them in terms of updated methods and international specifications for developing their courses and managing them within the framework of the principles of instructional design and quality requirements.
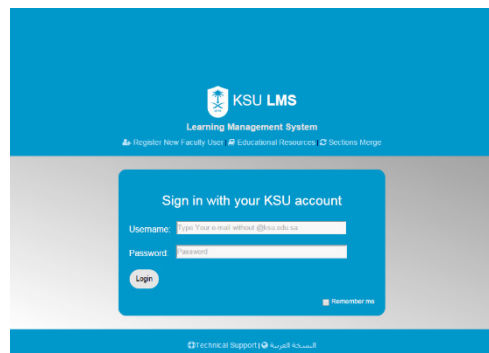
The *Doroob Program* (meaning "paths" in Arabic), is another comprehensive national project in **Saudi Arabia** offering a complete range of technology-enabled tools and incentives, including theoretical knowledge through e-learning, practical experience through on-the-job training and certifications approved and recognized by major companies in the country. The programme aims to achieve a qualitative leap in the field of national employment, increasing the employability of the population, thus supporting the country's objectives for employment, "Saudization", and achieving job security in the private sector (**SDGs 4** and **8**). Doroob helps to achieve the objectives of WSIS Action Line C7 – Information and communication applications: benefits in all aspects of life (E-learning).

 The TOT Public Company Limited (TOT Innovation Institute) of **Thailand** initiated the *Project of Knowledge Storehouse Development through m-Learning and Education Cloud Computing System for the Promotion of Learning Management to achieve the Sustainable Development Goals (SDGs).* Its principal aims are:

• To promote the capabilities of teachers of formal and non-formal education (NFE) through the joint use of learning management resources and increase learning opportunities for students and NFE students

- To allow students to learn and develop by themselves through mobile learning technology (m-learning) and the education cloud computing system together across the country, elevate the body of knowledge and increase lifelong access to learning resources for students, non-formal students and the entire population (**SDGs 4, 11** and **17**).

In addition, the government information network (GIN) brings government information to the public by developing the subdistrict learning centre into an ICT community learning centre for the enhancement of public and local community services. The project provides a knowledge base for research, promoting participation and the exchange of opinions on SDGs relating to learning management. Learners can log in at any time and any location to interact with coursework.
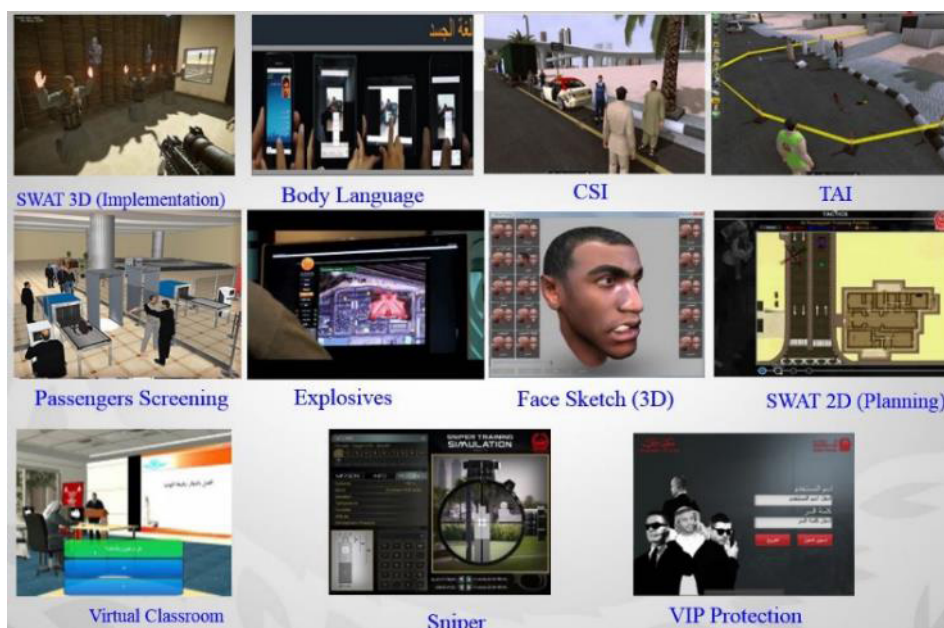

Three projects from the **United Arab Emirates** help to achieve **SDG 4**, on access to quality knowledge and education for all.

The United Arab Emirates University (UAEU) depends on ICT, as it is critical to its academic and administrative success. The UAEU has devoted a lot of energy to implementing the *Mobile Solution for Enhancing Teaching & Learning* project that allows the university community and society to stay connected to the university's systems and services both on and off campus. It allows students, the faculty, staff and the public to stay connected with the UAEU network wherever they are and gives them easy access to UAEU resources while on the move using their tablets and smartphones, and includes real-time transactional services that support students in their academic programmes and student life.

Thus, the project accomplishes **SDGs 4** and **9** on ensuring quality education and building resilient infrastructure.

The **Dubai** police created a *Virtual Learning* project by employing cutting-edge video-game technologies to create innovative virtual incidents ranging from crime scenes to traffic accidents to hostage scenarios in an engaging way. It allows the trainee to learn by doing, and to harness his skills in a safe and practical environment. The importance of such an innovative approach was realized early on as a means to enhance and support traditional learning methods. The Dubai police researched and developed many virtual products that have been replicated in many different fields and are shaping up a technological transformation in the methods used in learning in the police domain and beyond (**SDG 4**).

SWAT 3D (Implementation) — Body Language — CSI — TAI — Passengers Screening — Explosives — Face Sketch (3D) — SWAT 2D (Planning) — Virtual Classroom — Sniper — VIP Protection

The *Future Aviators website* initiative is one of the Emiratization campaign activities targeting Emirati students and their parents on one hand and the education system (teachers, principals and education councillors) on the other. It is being implemented in order to raise awareness about the aviation sector and the career opportunities available to Emiratis (**SDG 4**). This sector is considered to be relatively unknown to a lot of people, not only in UAE but in the entire world. As a result, there are few people working in the aviation sector.

In the **United Kingdom**, the Smart Education System has developed an *E-Learning System*, the first of its kind, with an AVATAR (teacher) that provides real-time feedback on all aspects of student learning in order to steer the student on the path of deep and effective asynchronous learning. The avatar is by the side of the student at all times giving prompts on how well the student is learning, and provides specific recommendations on how to improve. The e-learning avatar, using advanced artificial intelligence (AI) algorithms, is able to adjust to the specific needs of every student and provide differentiated learning that caters for students of all levels and abilities.

In the **United States**, the *k-12math.info* project is a top 5-star Merlot educational open resource (Google's Analytics for 2015 has 68 per cent of its users outside the United States). Begun in Thailand, this continually growing website is presently providing over 140 000 pieces of information and 4 200 links to 1 000 of the most common terms and concepts used in over 220 elementary and secondary school mathematics textbooks. It uses a non-text-based user interface. The HTML programming allows it to be translated into other languages and subject areas.

The project achieves certain SDGs in that it relates to poverty, food security, gender equality, promotion of economic development, sustainable industrialization, etc. (**SDGs 1, 2, 5, 8, 9** and **10**).

In the **United States**, the *Solar Powered Educational Learning Library (SolarSPELL)* is a digital library over an off-line Wi-Fi hotspot, designed to simulate an online experience. The goal is to increase literacy and support education in all subject areas by providing access to books, videos and other valuable educational content through an offline digital library, including content specifically curated for the Pacific Islands (**SDG 4**). Making use of open educational resources and ever-smaller and more efficient technology, SPELL provides an all-in-one, self-powered plug-and-play kit, ready to be deployed with absolute minimal training or maintenance required for start-up and continued operation.

In **Uruguay**, the *Information System for the National Administration of Public Education (Sistema de información para la Administración Nacional de Educación Pública) – GURÍ* aims to implement an information system that allows the unified management of all records for the National Administration of Public Education (ANEP/CEIP). GURI allows ANEP to have a reliable database of children and teachers, enabling access to better information (**SDGs 1, 3, 4, 10** and **16**). In consequence, it makes it possible to:

- have statistics at national level and in real time

- achieve traceability of all the students in the country, their grades and their attendance

- reduce times and improve the response to information requests

- save time in administrative tasks carried out by teachers

Launched by the Government of **Indonesia**, the *Open High School* programme is a form of formal education operated under the regular school institution but applying independent learning methods utilizing web-based modules for its students. The dominant model of online learning services, referred to as "Domon" or "Dominan Online", comprises self-learning guidance services conducted online using ICT facilities, with 80 per cent of tutoring online and 20 per cent face-to-face.

The open and distance high school offers the opportunity for students aged 16 to 21 to learn according to their particular needs and conditions. It targets junior high-school graduates with geographical, social, economic and/or time constraints. Currently, there are 7 schools educating 960 students through no less than 126 modules on the system.

The programme's results meet **SDG 4** by providing lifelong learning opportunities, ensuring equal access to affordable education (**target 4.4**).

The *Universitas Terbuka/UT (Open University)* of **Indonesia** applies a distance and open learning system. The term distance means that learning is not performed face-to-face, but makes use of media, whether printed (modules) or non-printed (audio/video, computer/Internet, radio and television broadcasts). Open means there is no limitation as to age, year of graduation, period of study, registration time, and frequency of examinations. The only limitation applied is that UT students must have graduated from high school (SMA or equivalent). UT students are expected to learn independently. This self-learning method means that a student learns on his/her own initiative.

UT provides learning materials specifically designed for independent learning. Aside from using materials provided by UT, students can also take the initiative to make use of the library, take tutorials, whether face-to-face or via Internet, use radio or television broadcasts, or use computer-assisted learning materials and audio/video programmes. When faced with difficulty in learning, students can request information or tutorial assistance from the local Learning Program Unit of the Distance Learning Open University (UPBJJ-UT).

The project thus provides access to distance education for all people without any gender or age limits (**SDG 4, target 4.4**).

C7.4 E-health

The lead facilitator for e-health is **WHO**, while **ITU** acts as co-facilitator. The aim of the e-health category is to promote collaborative efforts on the part of governments, planners, health professionals and other agencies, as well as the participation of international organizations, in creating reliable, timely, high-quality and affordable healthcare and health information systems and in promoting continuous medical training, education and research through the use of ICTs, while respecting and protecting citizens' right to privacy.

E-health also facilitates access to the world's medical knowledge and locally-relevant content resources for strengthening public health research and prevention programmes and promoting women's and men's health, such as content on sexual and reproductive health and sexually transmitted infections, and diseases that attract global attention, including HIV/AIDS, malaria and tuberculosis. In line with the Geneva Plan of Action, stakeholders should encourage the adoption of ICTs to improve and extend healthcare and health-information systems to remote and underserved areas and vulnerable populations, recognizing women's roles as health providers in their families and communities.

Many governments see the need to enhance healthcare systems at the national level and to put in place policies on e-health as a priority. Various types of initiative are undertaken in order to raise awareness about health issues, create integrated public health systems and databases and build the capacity of the health sector.

The e-health category undeniably helps to achieve various SDGS, for example **SDGs 1, 2** and **3** on poverty, food security and well-being of all. E-health can contribute to finally recognizing the role of women as health providers in their families and communities and to improving and extending healthcare and health information systems to remote and underserved areas (**SDG 5**). Health data and information systems are needed for alerting, monitoring and controlling the spread of communicable diseases, providing evidence for uptake and trends in e-health and its impact on other related socio-economic outcomes (**SDG 17**).

The Social Security National Insurances Fund of Salaried Workers (CNAS) of **Algeria** innovated the *Evolution of the CHIFA System* project based on use of the advanced technology chip card – the Chifa card. This is one of the measures taken to modernize the management of social insurances, improving the quality of services (**SDG 3**). The CHIFA System project focuses on two main areas:

- The first is based on the electronic health card – the CHIFA card-, a central database, a production site CHIFA card and proprietary applications for health professionals

- The second is related to the high availability the CHIFA system, through the establishment of back-up sites and duplication of connectivity.

Under government strategies for the simplification and facilitation of administrative procedures, the CHIFA system has evolved with the remote updating of CHIFA cards among health professionals.

Another programme in **Algeria,** the *Personal Medicalcard,* is based on the idea a magnetic card, or an element of the Chifa card, where electronic medical prescriptions (medical identity) are initialized. This medical card will contain personal information concerning the individual's state of health (chronic diseases, medical prescriptions, hereditary diseases, new symptoms, allergies). Electronic registers will be created, to include all information from all different parties: doctors, pharmacists, hospitals. As soon as there is a new disease, a special programme issues an alert so it can be treated quickly. The information is established and processed in one centre, by specialists in the medical domain and scientific research. The centre will also provide all the regions with different information on economic, social, medical and scientific issues.

This will help in obtaining urgent information for different treatments easily and quickly, thus ensuring healthy lives and sustainable consumption and production patterns (**SDGs 3** and **12**).
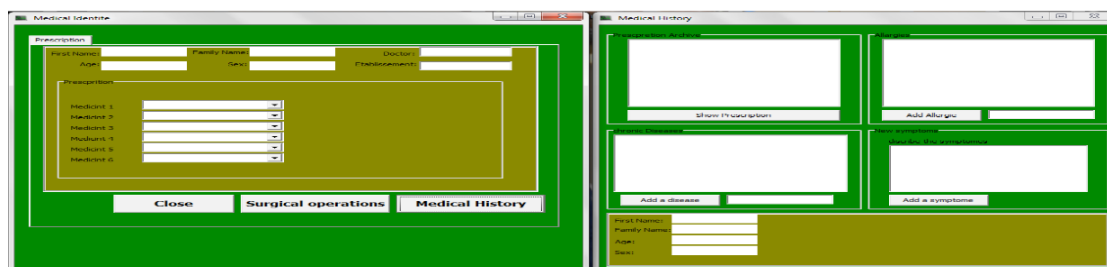
Two projects from **Bangladesh** relate to health quality systems – **SDG 3** of the WSIS action lines.

The Ministry of ICT initiated the *Development of Bangladesh National Formulary (BDNF) Online: The Authority on the Selection and use of Medicines in Bangladesh* project. Prior to this initiative, Bangladesh had no online version of drug information; moreover, there was a risk that the information could be of dubious quality and even misleading, owing to cultural and language variations. The other problem was that unauthorized and commercial online drug indexes could contain advertising, and confusing, biased or wrong information. BDNF Online is an informative pharma-indexing website providing tailored solutions for the Bangladesh market that comprises more than 30 000 prescription drugs, over-the-counter medicines and natural products according to the official publications of the Directorate General of Drug Administration (DGDA). The BDNF Online is designed to be a digest for rapid and easy reference, where one can find drug information specifically on the drugs available in Bangladesh, through ICT.

Bangladesh National Formulary

Search BDNF

search

The BDNF provide Bangladesh healthcare professionals with authoritative and practical information on the selection and clinical use of medicines in a clear, concise and accessible manner.

The Amader Gram Breast Cancer e-Health Center is a diagnostic and treatment programme for women with any kind of breast problem in **Bangladesh**. The centre provides, in one place, affordable and high quality services in order to:

• diagnose breast problems

• keep electronic medical records

• take pathology tissue samples if necessary,

• plan treatment

• provide medical treatments for breast cancer (chemotherapies and hormonal therapies)

• provide symptomatic care at home using regular cellphone communications for women with serious cancer problems.

Thus, the programme meets several SDGs in regard to ensuring healthy lives, promoting lifelong opportunities, gender equality, etc. (**SDGs 1, 3, 4, 5** and **10**).

The Brest State Technical University of **Belarus** created the *Neural Network for Epileptic Activity Detection* programme designed to analyse signals from the electroencephalogram (EEG) and obtain additional information on the signals, thus enabling a more accurate diagnosis. The main function of the module is to identify epileptic activity in the signals of the EEG. In order to implement this function, specially developed algorithms are used, based on neural network theory and chaos theory. These algorithms have made it possible to develop a complex system aimed at effective detection of epileptic activity of different forms and duration, without additional pre-training of the system.

Thus, the programme combats epileptic disease and promotes well-being (**SDG 3.3**).

Informatization of the Public Health System in **Cuba** contributes to the needs of a developing country in accordance with the government's policy to create a high-efficiency information system, responding to the healthcare requirements of citizens with high-quality and reliable health information. It promotes medical training, education and research through the use of ICT, the development of human capacities, and protection of the privacy of citizens (**SDGs 3, 5, 6** and **10**). The project has been developed over 15 years, allowing management of the health system at all levels, focusing on the early detection of diseases and promoting transparency in public administrations, and strengthening relations with citizens (**SDGs 11, 16** and **17**).

The health sector in **Egypt** is facing many challenges, including a shortage of medical services and unequal resource distribution. Initiated by the Egypt ICT Trust Fund, the *Telemedicine Solutions* programme provides better healthcare services in remote areas through the *Telemedicine System,* which remotely connects isolated hospitals and clinics with a network of professional reference doctors. It aims to enhance the local general practitioners' skills with workshops and to strengthen citizens' health-awareness, focusing on women and girls (**SDGs 3** and **5**). The programme served the Siwa oasis (average population 23 000) and the Nubia area (average population 5 660), providing them with teleconsultation infrastructure and services. The project is now expanding its resources to cover all remote and border areas across Egypt (**SDG 17**).
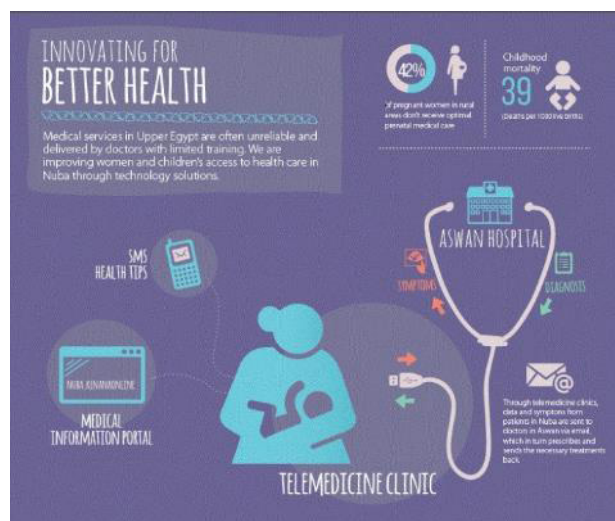
Despite significant health achievements in recent years, the absence of a properly functioning health information system (HIS) in **Bangladesh** has prevented policy-makers from monitoring the population's health in real time and targeting interventions accordingly. Bangladesh's HIS is highly fragmented, with multiple overlapping reporting systems resulting in heavy paperwork and poor data quality. For this reason, the **Germany's** Society for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH) elaborated *A Quiet Revolution: Strengthening the Routine Health Information System in Bangladesh* project that has distributed laptops and wireless modems to almost 15,000 government-run health facilities countrywide (**SDG3.d**). Some 7 000 facilities now report routine information electronically, using DHIS2.

In **India**, *Trust+* is an innovative app solution which uses a social media app platform to connect parents, adolescent girls and boys, differently abled children and teachers so they can discuss sexual and reproductive health-related topics without any hesitation. Trust+ works to eradicate the social stigma which stops users from talking about their sexuality in a contextually fit, age-appropriate, normal and humanly sensitive way. This has a high impact in preparing the next generation to fight against sexual abuse in schools and at home and empower them to talk about such topics in a respectful manner.

The project relates to several SDGs, by ensuring healthy lives, equitable quality education, gender equality, etc. (**SDGs 3, 4, 5** and **11**).

Open Hospital, **Italy,** is an open source, free software by NGO Informatici Senza Frontiere (ISF) for the daily management of hospitals in developing countries. It is currently installed and used in several hospitals in Africa and the Middle East. Some ISF members are working constantly to add features to make it more useful. A collaboration agreement between ISF and certain large NGOs will promote dissemination of the software in many other African hospitals. In Italy, it is used, for example, for the management of a particular current phenomenon, in the form of the health centre for immigrants in Verona, which provides medical services for immigrants with no residence permit or health card.

The project directly contributes to accomplishment of **SDGs 3, 6, 10** and **16** relating to healthy lives, access to water, equal conditions among countries, and the building of inclusive societies.

In **Kazakhstan**, the *Smart polyclinic* initiative provides increased access to information on personal health (electronic health records). The initiative improves access to health services and their quality (web applications, e-services), and helps in the process of medical decision-making (electronic databases). It also helps to reduce the number of medical errors. The constant professional improvement of health workers is also expected as well as an increase in the quality and efficiency of financial, political and administrative decisions.

The service will also increase the efficiency of investment in healthcare, thus achieving **SDGs 3, 9** and **11** on health quality systems, sustainable industrialization and safety in cities.

In **Malaysia**, the *Compact Rehabilitation Robot (CR2)* is developed to help therapists in assisting patients' rehabilitation training and their further motivation using virtual reality games. It is a compact rehabilitation robot that provides multiple customizable therapy modes including smart assistance therapy, wherein the robot assists the patient's training movement when required and applies resistance to improve the patient's muscle strength. The CR2 robot provides three training modes: passive, assistive and active. The training data are uploaded to the cloud and users can easily review progress via the Internet. With interactive robotic assistance, patients are more motivated to do physiotherapy training during the rehabilitation process, hence facilitating healthy life integration (**SDG 3.7**).

NASAM News

COMPACT REHABILITATION ROBOT - CR2 PILOTS AT NASAM PJ

At the handover of the CR2 series – (from left) Dr Yeong of UTM, guest-of-honour Associate Professor Dr Arham Abdullah, Director of Industry Relations Division, Ministry of Education, Chris Low, NASAM Vice-Chairman and Sylvia Chong, NASAM General Manager.

Since October 2014, selected members at NASAM PJ have been training with a new rehabilitation device, the CR2-Haptic and the CR2-Motion, designed to improve muscle control.

The CR2-Haptic is used to improve wrist and forearm movement, more importantly, the system is able to sense and automatically provide assistance when needed or resistance, when the user starts to improve. The CR2-Motion is a rehabilitation system that is used to train arm and trunk movement. Both systems keep members engaged through fun and motivating virtual reality games.

Both systems are on loan for one year following a collaboration between NASAM and Universiti Teknologi Malaysia (UTM). The Compact Rehabilitation Robot was invented by a team of researchers led by Dr Yeong Che Fai, a senior UTM lecturer. **(To know more about the technology visit cr2connect.com)**

Members Vivian Lee (above) and Tan Chin Huat (below) exercising the fun way with the CR2-Haptic.

Another project from **Malaysia** entitled *InnovaBoard* relates to a number of SDGs on health quality, education, economic development, etc. An interactive wobble board called InnovaBoard is developed to help people to improve their body balance through training and strengthen their ankle muscles, and further motivate them with virtual reality games. It is a compact training device that provides multiple levels of difficulty that enable patients to start with a very easy level compatible with everyone. Ankle sprain is an injury that affects many people, in particular athletes engaged in their sport, which is why the InnovaBoard has been developed. Other ankle rehabilitation possibilities are available on the market, but most existing systems are complex, enormous, too basic and less interactive.

The National Digital Strategy from **Mexico** launched the *Prospera Digital* project that uses mobile technologies to promote digital inclusion and improve health outcomes for 7 million beneficiaries of the world's second largest conditional cash-transfer programme. With the generation of direct automated bidirectional SMS communication, Prospera Digital sends timely, personalized and targeted information to low-income pregnant women, promoting better-informed decisions to improve their behaviour and amplify social development. Prospera Digital enables beneficiaries to participate in five Mexican states in order to:

• receive relevant information about particular socio-demographic and health needs,

• provide follow-up

• reinforce the programme's required health co-responsibilities

• evaluate the quality of the health services received as part of the programme.

The website meets certain SDGs as it ensures quality healthcare services, achieves gender equality and reduces inequality in the country (**SDGs 3, 5** and **10**).

Three projects from **Pakistan** meet sustainable development goals on quality healthcare services.

Surgical care in **Pakistan** is very scarce owing to the low number of hospitals and surgeons and the high number of post-operative complications. *SmartSIM - A Cost-Effective Simulator for Minimal Invasive Surgery (MIS)* facilitates quick recovery and reduces post-operative infections. However, it requires special skills, like expert hand-eye coordination and precise handling of instruments. These psychomotor skills can be acquired through rigorous training. Various simulators have been developed for MIS training but their licences are very costly, making them unaffordable for developing nations like Pakistan. In order to overcome this issue, a cost-effective simulator SmartSIM was developed by the National University of Sciences and Technology (NUST).

The initiative has been successfully used to train hundreds of surgeons in order to ensure quality health and education systems (**SDGs 3** and **4**).

Trequant is a tremor quantifier which is used to detect, monitor and track tremor-based movement disorders in Pakistan. Its aim is to help people suffering from tremors to lead normal lives and also help doctors to cure these patients more successfully. At present, there is no proper way to monitor essential tremors and doctors cure such patients on a hit and trial basis. Data collected from this device will help pharmacies to develop medicines specifically for these patients. In such a manner, they can eventually be fully cured and lead normal and healthy lives (**SDG 3**).
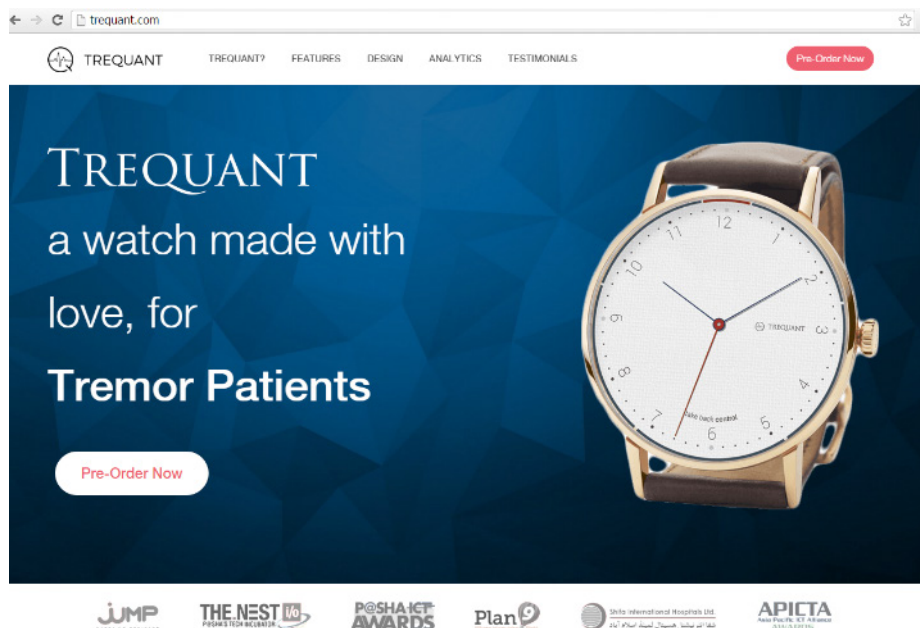
The last project from **Pakistan** within this category, the *Parkinson's Disease (PD) Management System,* is launched by the NED University of Engineering and Technology. Parkinson's disease is a degenerative disorder of the central nervous system. Studying the symptoms and current clinical methods of diagnosis, and focusing on the proposed methods of diagnosing motion-related disorders in people, the NED University proposed a technological solution to diagnose Parkinson's disease more accurately in its early stages by performing different (motion) tests on the patient according to the UPDRS through Kinect V-2 sensor powered by Microsoft.
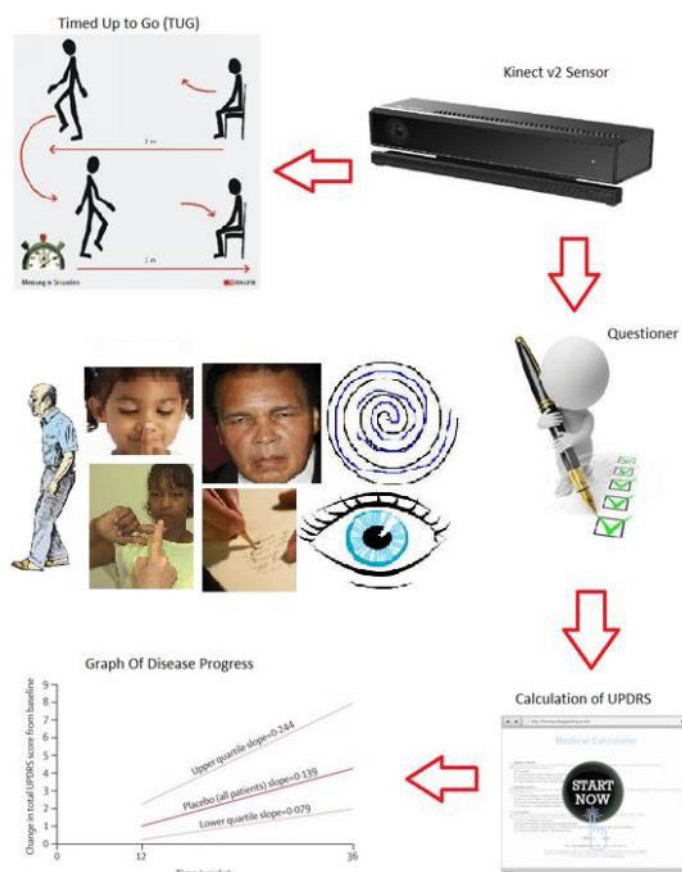
The Ministry of Health (MoH) of **Saudi Arabia** innovated the *Treatment Abroad* system that allows for the e-submission of treatment abroad requests from more than 24 agencies and approval by the High Medical Committee and Minister of Health. The system automates five main processes divided into 28 workflow steps and provides means to facilitate communication among all related parties. The system provides the MoH management with dashboards, KPIs and statistical reports to help in the processes of decision-making, capacity planning and improvements, thus providing quality access to the health system of the country (**SDG 3**).

The *Gezira Family Medicine Project (GFMP)* was initiated in 2010 in **Sudan**, as an in-service training model for Sudanese doctors enrolled in the project and the training programme. The main objective of the programme is to improve the quality of health services provided in primary care (**SDG 3.8**). To achieve this goal, around 300 Sudanese doctors are recruited, trained in family medicine by means of a two-year in-service master's degree programme, and relocated to different urban and rural areas. The Gezira Family Medicine Project represents a modern model in family medicine training that responds to local needs. The project copes with the regional strategy for upscaling family medicine training. Information and communication technology is a cornerstone in performing such a mission. The GFMP will hopefully provide a suitable model for other low-income and middle-income countries that share healthcare challenges similar to those in Gezira state, Sudan.

In **Thailand**, the Village Health Volunteers (VHVs) team working for the Tambon Health Promoting Hospital relates to a subdistrict hospital catering for the rural area. With the development of smartphones and the Internet, the intention is for the Advanced Info Service (AIS) to support VHVs with an application that uses digital means to assist and simplify the working process – the *Social Network for Health Promoting Hospital*. Sharing, monitoring and the prevention of epidemic diseases constitute the major feature the application provides. It also adds the agility of fast reporting which the Tambon Health Promoting Hospital uses to analyse health in the coverage area.

The project meets certain SDGs by ensuring the capacity for warning, risk reduction in regard to diseases, and promotion of lifelong learning opportunities (**SDGs 3.d, 4**).
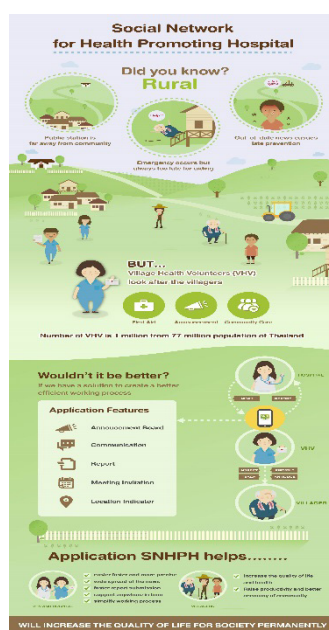
The *Turkish Pharmaceutical Track&Trace System* is the infrastructure designed to track and trace all drug units in **Turkey**. It tracks and checks all steps of the supply chain, from production/import to consumption. This system makes it possible to identify the locations of the products in the supply and distribution chain and provides the health authorities with end-to-end visibility over the supply chain. The benefits of this system consist in:

- Preventing counterfeit drugs
- Avoiding illegal parallel trade of drugs
- Preventing reimbursement fraud and balancing costs
- Effective recall management

- Expiry date control, better inventory and waste management

- Providing statistics to develop policies on rational drug use

The system thus contributes to protection of the health system, achieving **SDG 3.8**.

Launched by the Ministry of Social Affairs of the **United Arab Emirates**, *Nomow* is a free smart application which detects any type of developmental delay in children aged five years or less, within five developmental areas: physical, mental, communication, social and daily life skills. It is applied by parents using a smartphone before the child's referral to specialists as part of an early-intervention programme. The idea of the application is to reach children who are under the risk of disability, in order to provide them with necessary services and then bridge the gap between their developmental skills and their ages, thus preventing any deterioration in their developmental skills at early ages.

The application relates to **SDG 3** by ensuring healthy lives for children, as well as **SDG 17** by revitalizing the global partnership for sustainable development.

In the **United States**, *Jio Health* is a mobile platform that empowers consumers to track and manage their chronic conditions, connect with their care providers in meaningful ways and care for the ones they love. The goal of Jio Health is to provide consumers with seamless and open access to healthcare and care providers with a platform to manage larger patient populations with lower costs and better clinical outcomes, thus meeting **SDG 3** – achievement of health coverage, access to quality essential healthcare services, etc.

In **Uruguay**, *Connectus Medical* is a global network platform for the coordination of hemodialysis centre sessions for patients with CKD (cronic kidney disease). Connectus includes nephrology medical charts already incorporated in the database. It gives patients travelling abroad the possibility to choose freely the centre at which they want to have their hemodialysis effected. Besides indicating the centres in different countries, Connectus also coordinates the hemodyalisis, providing direct access to the best hemodialysis centres covering the costs of the treatment through various prepaid plans. The platform also has different prepaid plans for patients requiring hemodialysis, offering them more accessible fees.

Relating to international implementation, the website contributes to ensuring healthy lives and equitable quality education, as well as reducing inequality within and among countries (**SDGs 3, 4** and **10**).

Another project from **Uruguay**, relating to **SDG 3**, provides the possibility to compare different health service providers. With the *ATuServicio.uy (At Your Service)* website, offering a visualization and comparison tool, the number of people accessing the performance indicator data increased by 6.8 per cent. It was very well received by the public, and spawned several small investigations in the local papers and public debate on health data, with the participation of politicians, press and government authorities. Broad accessibility identified errors and improved data quality, with health providers showing concern for the first time regarding the quality of their data.
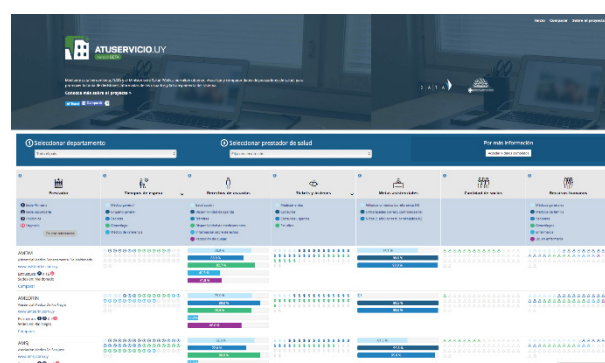
Pompi Club is an initiative from the National Agency for Food and Drugs Control of **Indonesia**, relating to the means of sharing large amounts of information and ideas about health issues, including but not limited to good nutrition, quality products for consumption, pollution, safe and unsafe food, preservatives and food colouring, and many more, thus matching **SDG 2** on achievement of food security and good nutrition for everyone. This website platform is established as a reference for the family, especially children, in terms of health awareness and food safety. The website is also equipped with e-learning materials such as e-book, interactive games, with many of interest to children, making education on health more interesting and exciting (**SDG 4**).

The Ministry of Health (MOH) of **Oman** launched two projects that concern the health system of the country. They relate to such issues as economic development, equality in the country, contribution to sustainability and accountability of institutions and cities in the country (**SDGs 10, 11** and **16**).

The first project launched by the MOH, the *healthcare information system (HIS) "AL Shifa System"*, can be defined as a comprehensive, integrated information system designed to manage the operation of the medical, administrative, financial and legal services in a hospital or networked healthcare units. The MOH has a comprehensive healthcare services management system *(Al-Shifa 3plus)* automating most processes of healthcare delivery in MOH hospitals and health centres to the extent of almost

making them paperless. There are currently 200+ public healthcare institutes adopting this system across the Sultanate, benefiting around 85 per cent of public healthcare seekers in Oman. This "great success" encouraged the decision-makers of the non-MOH governmental healthcare providers to adopt the system too (MOH, 2012b). The "Al-Shifa 3plus" HIS is a client-server system. It is a fully integrated graphical user interface application system for hospital management. The objective is to have a connected, consistent and cohesive national healthcare services management system working within a defined legal framework that regulates the confidentiality and privacy of e-health information.

Another project from the MOH of **Oman**, *the Ministry of Health Portal,* is part of the strategic plan for the digital transformation of the Ministry of Health. The ministry aims to keep up the Sultanate's trend to transform to e-government, as well as to develop the quality of the government health services. It also intends to reduce the digital gap and transform many services in order to ensure integration with various public and private institutions. The portal contains more than 100 e-services and is a joint cooperation between the Ministry of Health and the Information Technology Authority.

C7.5 E-employment

ILO is the lead facilitator for e-employment, while **ITU** is co-facilitator.

E-employment aims to encourage the development of best practices for e-workers and e-employers built, at the national level, on principles of fairness and gender equality, respecting all relevant international norms. It also promotes new ways of organizing work and business with the aim of raising productivity, growth and well-being through investment in ICTs and human resources.

Another priority for this category is the promotion of teleworking to allow citizens, particularly in the developing countries, least developed countries (LDCs) and small economies, to live and work anywhere in their societies, and to increase employment opportunities for women and people with disabilities. In promoting teleworking, special attention should be given to strategies promoting job creation and the retention of the skilled workforce.

Held from 21 to 25 November 2016 at the ILO International Training Centre, Turin, Italy, the "International Labour Standards and Corporate Social Responsibility: Theory, trends and prospects" five-day course aimed to foster a better understanding of the principles of the international labour standards as they relate to company operations and the implications for corporate social responsibility (CSR) policies and practices geared towards decent work and sustainable development. The principles contained in international labour standards (ILSs) have become the essential reference point for companies in addressing labour issues in CSR initiatives. The course drew on the expertise of ILO in addressing labour issues at enterprise level, in particular through the ILO Helpdesk for Business. This service responded to company requests for advice regarding specific labour issues, including child labour, forced labour, freedom of association and collective bargaining, non-discrimination, conditions of work and social protection.

The Millennia2025 Women & Innovation Foundation is developing the action plans resulting from the Millennia2015 Foresight Exercise and International Working Groups (IWGs). One concrete action is Millennia2025 Solidarity-Women, designed to help women in precarious situations out of poverty by mobilizing goods and service providers, women's NGOs, social partners, political and economic leaders and civil society in order to create a citizens' solidarity fund[1]. The Destree Institute is designing actions as a replicable model that could be applied in Europe and in developing countries. To strengthen the foresight process, the Millennia2025 Women & Innovation Foundation and PROMIS@Service have joined forces with the goal of advising women in precarious situations, and providing e-skills,

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[1]   www. millennia2015. org/ Solidari_ Femmes

knowledge, communication and support, among other things, so as to help those who lack access to communication tools but are nevertheless drivers of change. Against the backdrop of the WePROMIS® Pledge made at the European Commission's Third Digital Agenda Assembly, the Millennia2025 e-mentoring platform powered by PROMIS® is going to structure, share and transfer knowledge among Millennia2025 Foundation members[2].

Published in January 2016, the World Employment and Social Outlook: Trends 2016 is the ILO's flagship report on world of work issues. Exploring the interconnected nature of macroeconomic policies on the one hand, and employment and social outcomes on the other, it analyses which policy combinations are most effective in delivering high employment and balanced incomes. The publication also provides readers with the most up-to-date global as well as regional labour market and social indicators[3].

Another ILO report, Women at Work Trends 2016, provides the latest ILO data on women's positions in labour markets, examines the factors behind these trends and explores the policy drivers for transformative change[4].

E-employment is directly related to various SDGs, namely **SDGs 4, 8, 10** and **17**. Early investments in education in rural and remote areas are essential to future employment and economic development, offering affordable and flexible means to access education and enhancing the skills of rural youth, thus enhancing individual and collective decision-making skills (**SDG 4**). E-employment may evidently help in achieving **target 8.5**, dealing with full and productive employment for all; indeed, teleworking could allow citizens to live in their society and work anywhere (**SDG 8**). It could also promote the inclusion of all: teleworking could increase employment opportunities for women, and for those with disabilities (**SDG 10**). Lastly, the development of best practices for e-workers and e-employers implemented at national level, supported by relevant international norms, will contribute to the implementation of effective capacity-building worldwide (**SDG 17**).

MiPyme Vive Digital is an ICT development project launched by the Ministry of Information and Communication Technologies of **Colombia** aimed at expanding the use of ICT in Colombian micro, small and medium-sized enterprises (MSMEs) in order to make them more competitive and profitable. The initiative consists of two main strategic axes:

- The first axis - Digital Entrepreneur - consists in raising awareness and technological adoption within MSMEs so as to demonstrate the positive impact of ICT on their businesses.

- The second axis - Public Call for MSMEs Value Chain - is a strategy that promotes the implementation of Internet solutions for MSMEs that are part of the supply or demand chain of a large private company (anchor company). This strategy has a direct positive impact on productivity and efficiency in the MSMEs benefiting from it.

The programme thus promotes sustainable economic growth, industrialization and employment and fosters innovation (**SDGs 8.3** and **9**).

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[2] www. millennia2015. org/ Millennia2025_ WePROMIS
[3] http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_443480.pdf
[4] http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_457317.pdf

In **Kuwait**, the goal of the *Manpower and Government Restructuring Program (MGRP)* is to support and encourage Kuwaitis to work in the private sector, and find innovative solutions for the development of national employment (**SDG 8**). A further goal is to direct the national workforce towards approaching non-governmental organizations and supporting small businesses. Services provided include:

- Financial benefits for Kuwaitis who work in the private sector

- Summer training courses in private companies for students

- Nominating Kuwaiti job seekers and fresh graduates for vacancies in the private sector and paying them allowances until they work

- Opportunities for employees discharged from the private sector

- Free training courses for those willing to work in the private sector

- On-job training for private sector employees

- Specialized training upon private company's request

- Following up on the quota of Kuwaitis in the private companies to ensure that they have the maximum number of Kuwaitis.

In the **Philippines**, the *Technology for Education, Employment, Entrepreneurs and Economic Development Project (Tech4ED)* seeks to provide access to different aggregated, existing and proven ICT-enabled services and relevant content in one single platform. This platform is accessible through the established Tech4ED centres in the country which serve as a conduit for the efficient delivery of government and other services; a potent tool for the empowerment and participation of unserved

and underserved communities. The project aims to harness technology to deliver public services, thereby empowering and transforming society, and creating an inclusive, integrated and equitable countryside, relating to poverty, education and equality issues (**SDGs 1, 4, 5** and **8**). The platform covers content on education, literacy for special sectors, market, agriculture, industry assessment and government services.

The Ministry of Education of **Saudi Arabia** created the *#YourJob_and_YourScholarship Program* in order to address the critical need to create a partnership between the job market and Saudi students around the world. The third stage of Saudi Arabia's scholarships programme targets alignment of the job market, scholarship graduates and the Kingdom's vision of moving to a knowledge-based economy. It is a massive employment/scholarship programme to create over 50 000 job opportunities while advancing citizens' education to higher levels of knowledge and capabilities.

This effort was designed to further develop Saudi Arabia's information society commitment to gender equality, citizens' education and empowerment, and social justice among citizens (**SDGs 4, 5, 8, 9** and **10**).

Inefficient working processes, the inaccessibility of validated data from outside the company and differing perspectives on the part of colleagues are the most problematic issues of advanced information services (AISs) in **Thailand.** With the mobile application, the *AIS GO NEXT* project can boost productivity and create strong bonds between staff. The person in charge accesses the company's system anywhere and at any time. The app encourages employee engagement, suggesting colleagues who share the same approach or interest. The application is integrated with the achievement system. It provides connectivity between officers and company.

The project deals with such issues as gender equality, economic development and sustainable industrialization (**SDGs 5, 8** and **9**).
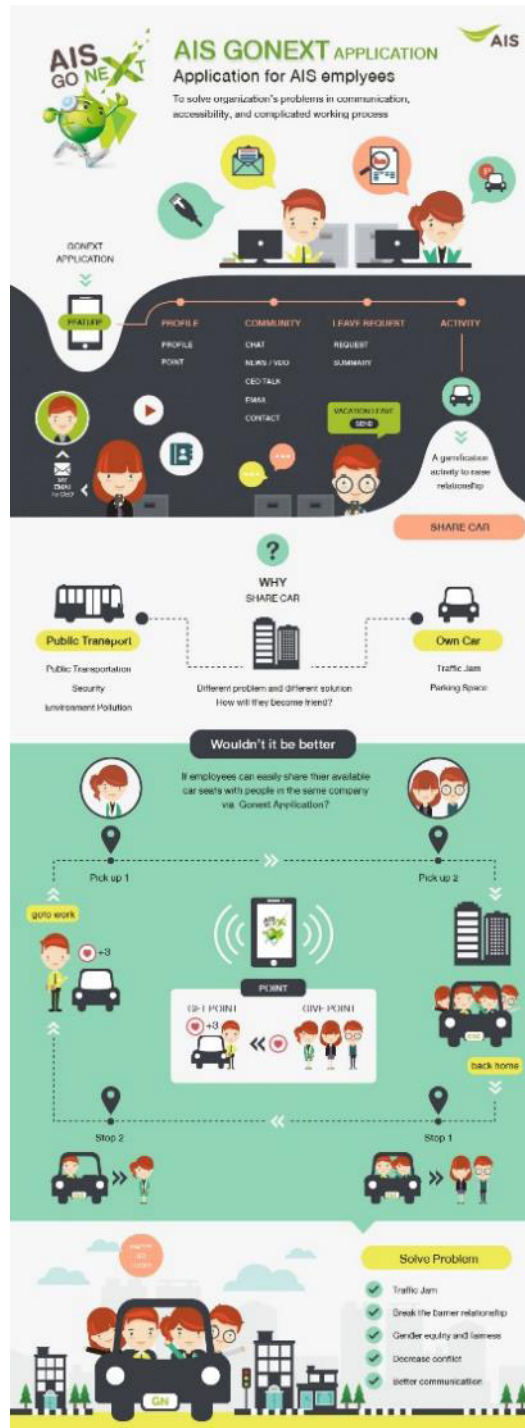
In the **United Arab Emirates**, the Dubai Police initiated the *Smart Recruitment* project which aims to provide a fully electronic mechanism for dealing with the entire job application process – from the department's vacancies, to submission of applications, posting of resumes, management of interviews, sending of job offers, tracking of applications, receipt of correspondence, setting of dates for interviews and finally the selection of eligible candidates.

The project meets **SDG 8** by achieving productive and full employment in the country, providing the necessary conditions to contribute to its economic growth.

By creating the *National Job Market Portal*, the Ministry of Manpower, **Indonesia**, undertook to enhance employment opportunities and increase job placement services to strengthen labour market information and the job market, thus contributing to **SDG 8** by promoting economic development and providing employment for its citizens. The Ministry has built and provides online applications called "Informasi Pasar Kerja" or job market information in the form of a web-based online platform. This platform brings together government, job seeker and business entity for easier information sharing on job offers and opportunities in 34 provinces of Indonesia.

In **Indonesia**, the *Computerized System for Migrant Workers (Sistem Komputerisasi Tenaga Kerja Luar Negeri - SISKOTKLN)* is a data collection system for Indonesian migrant workers which integrates stakeholders associated with the placement of migrant workers, including the district government, placement company, health facility, insurance, psychological assessment, competency testing agency, financial institutions and Indonesian missions abroad (**SDG 8**).

SISKOTKLN uses the latest technology in the implementation process. Biometric technology is used to ensure compliance in regard to attendance and duration for a migrant worker's training in accordance with the regulations of the receiving country.

 Indonesia's website *kios3in1.net* is an online platform for job seekers who wish to participate in job training, certification and placement. The service and information are jointly provided through cooperation with the "Balai Latihan Kerja Industri" (local vocational training centre for industrial jobs), widely spread across 34 provinces of Indonesia, and with the Ministry of Manpower. There is also information concerning job offers and opportunities to apply for a job through the website.

Thus, the website relates to employment for Indonesians, contributing to the economic growth of the country (**SDG 8**).

C7.6 E-environment

WMO is the lead facilitator for e-environment, while **WHO, UNEP, UN-Habitat, ITU** and the **International Civil Aviation Organization (ICAO)** are co-facilitators.

E-environment aims to encourage governments, in cooperation with other stakeholders, to use and promote ICTs as an instrument for environmental protection and the sustainable use of natural resources. It also encourages governments, civil society and the private sector to initiate actions and implement projects and programmes for sustainable production and consumption and the environmentally safe disposal and recycling of discarded hardware and components used in ICT

devices. It establishes monitoring systems, using ICTs, to forecast and monitor the impact of natural and man-made disasters, particularly in developing countries, LDCs and small economies.

iSharkFin is an expert system that uses machine learning techniques to identify shark species from shark fin shapes. The software was developed by FAO in collaboration with the University of Vigo with financial support from the Government of Japan and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Aimed at port inspectors, customs agents, fish traders and other users without formal taxonomic training, iSharkFin allows the identification of shark species from a picture of the fin. The iSharkFin adopts an interactive process. Users only need to take a standard photo, select some characteristics of a fin and choose a few points on the fin's shape, and iSharkFin will automatically analyse the information and tell you the shark species to which the fin belongs. A first version of iSharkFin is now available for the identification of 35 shark species commonly seen in international trade from dorsal fins, and the identification of 7 species from pectoral fins, including some species listed in the CITES Appendices. Future releases will include the capability of identifying all the main shark species in trade.

E-environment relates to the achievement of various SDGs, including **SDGs 9, 11, 13, 14** and **15** on sustainable industrialization and innovation, the inclusivity and safety of cities, combating climate change, and the preservation of marine resources and terrestrial ecosystems.

Relating to the **Africa, Asia and Pacific regions**, the international *Mobilizing Arab-Wide Action for Reliable Environmental Data (MAWARED)* is an online platform that allows users at any time and location to upload their environmental observations to a central server using smartphones. The system also provides information about environmental observations around the user's current location. The users can upload observations through a user-friendly interface by selecting the type of observation and status. The app directly identifies the location (latitude and longitude) and the time, then sends it to the server to be stored. The user can also take a photo of the observation using the phone's camera and upload it to the server. All observations are shown directly on an interactive web mapping system.

Relating to global partnership, the application promotes well-being and contributes to safety of cities, sustainable use of oceans as well as the fight against desertification, etc. (**SDGs 3, 11, 13, 14, 15** and **17**).
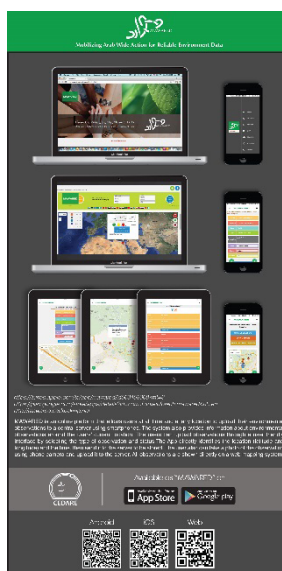
Argentina advanced the *E-Basura/E-Waste: ecological approach to the digital age* project, which is a university extension project that transforms the problem of e-waste into a tool to serve the community, demonstrating the benefits that can be achieved educationally, socially, environmentally and economically. Refurbishing obsolete computer equipment and subsequently donating it to social institutions helps to reduce the digital divide, benefiting the environment by extending the lifecycle of electronic equipment. The project disseminates initiatives in the community that promote and

encourage the development of green-ICT capabilities among university students and society in general, creating environmental awareness. It also contributes to reducing the social gap through its School of Crafts in Repairing PCs aimed at underprivileged citizens.

Thus, the project integrates research, teaching and university extension relating to **such SDGs as 4, 8, 10,** and **13**.

The *Bogotá Environmental Observatory*, **Colombia**, is a space that allows citizens to ascertain, through environmental indicators, the state and quality of the environment in Bogotá, as well as the results of management on the part of various entities of the Capital District Environmental System (SIAC) in dealing with the environmental problems of the capital district. It is a tool for democratizing environmental information, as it integrates multidimensional indicators of development, resources and environmental management issues.

The project thus contributes to ensuring healthy lives for the Colombian people, and the economic development of the country (**SDGs 3, 8**). It also ensures sustainable consumption and production patterns, makes cities inclusive, safe and resilient, and takes urgent action to combat climate change and its impacts (**SDGs 11, 12, 13**).

The *Environmental Monitoring Information System of* **Kuwait** *(eMISK)* is an ambitious system initiated by the Environment Public Authority (EPA) of Kuwait. It aims to establish, build and maintain a comprehensive geo-environmental database for Kuwait along with an enterprise-level geographic information system (GIS) for accessing, updating and analysing the environmental data. This geo-environmental database is made available through eMISK to decisions makers and stakeholders, outside agencies and the public at large.

The main goals of eMISK include raising awareness at all levels of Kuwaiti society in regard to the values of the environment, and placing authoritative scientific information at the centre of decision-making (**SDGs 11, 13, 14** and **15**).
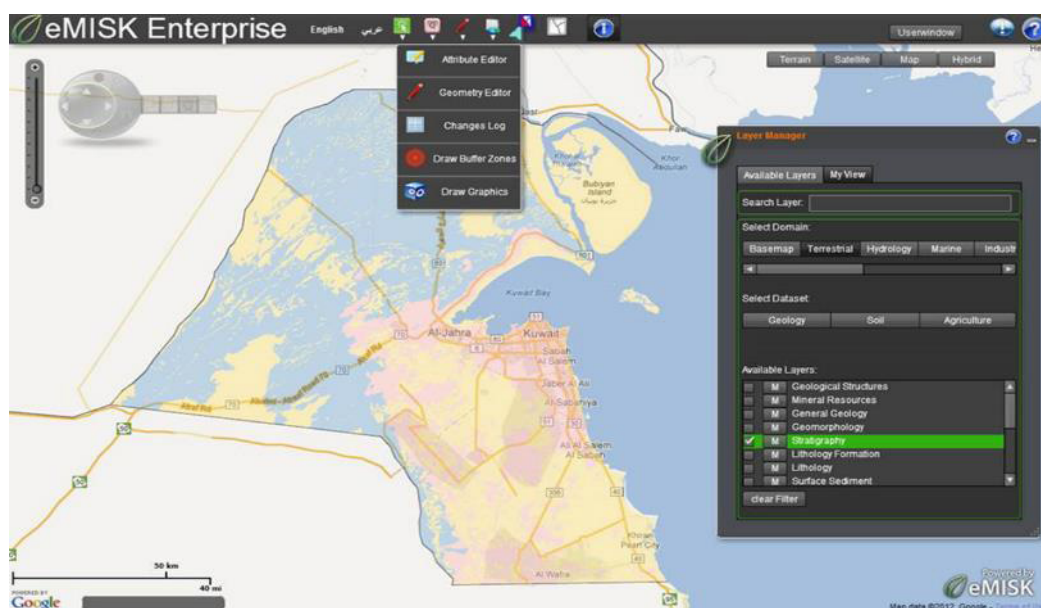
In **Malaysia**, the *Asia Pacific Green Data Center Farm* was launched as an alternative to normal data centres that globally pose a major environmental threat. Data centres contributed 3.3 per cent of the world's carbon emissions in 2014. The Asia Pacific Green Data Center Farm is a next-generation green data centre park utilizing super energy efficient cooling equipment and ICT equipment. The Eco2 technology submerses servers, switches and routers in a revolutionary coolant. This reduces carbon emissions and energy consumption by 50 per cent. The cost of deployment is also 70 per cent less.

Thus, the project meets certain SDGs related to WSIS action lines in regard to affordable, reliable, sustainable and modern energy, promoting sustainable industrialization, making cities inclusive and safe, and taking urgent action to combat climate change by revitalizing the global partnership for sustainable development (**SDGs 7, 9, 11, 12, 13** and **17**).
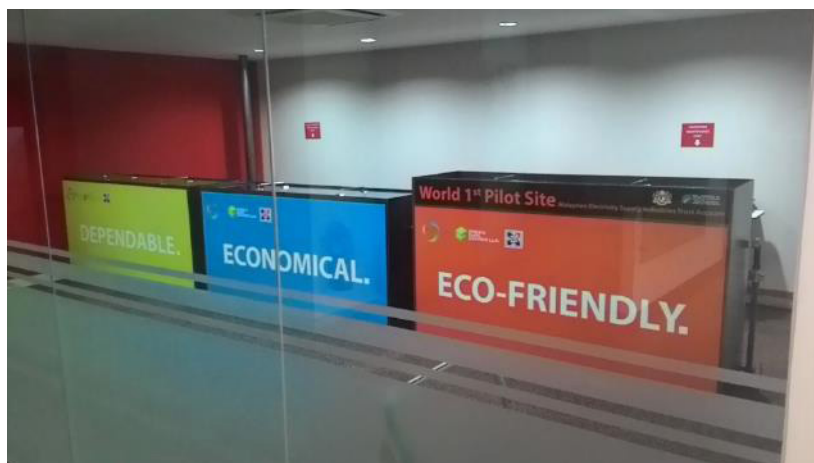
Another project from **Malaysia** is the *Portable Environmental Monitoring System,* a portable instrument for the remote monitoring of physical geographical environments (such as landslides, terrain subsidence, glaciers, avalanches, volcanoes). This innovative solution is designed to serve as an early warning system for life saving. It has the advantages of wide area coverage and simple and quick installation, and can provide continuous monitoring of high-risk areas under all weather conditions. The detection accuracy is in the order of sub-millimetres and the sensing distance is about 1-4 km. It can operate day and night and provide a series of temporal change detection maps through an online portal for real-time analysis.

The project achieves **SDGs 13** and **15**, combating climate change and desertification, and halting and reversing land degradation.

The Government of **Mexico** developed an *Open Data Climate Change Tool*, fed by 50 priority datasets, in order to illustrate and put into context climate change, its consequences, and actions that can be taken by citizens and the government to reduce emissions (**SDG 13**). The tool will be complemented by a public challenge open to innovators and SMEs in Mexico, for the development of an application for the general public to count and reduce their emissions by promoting behavioural changes in their daily lives.

In **Thailand**, the *Low Power Wide Area Network (LPWAN)* is a type of telecommunication network designed to allow long-range low bit-rate communications among things (connected objects), such as sensors operated on a battery. The Internet of Things (IoT) is the network of physical objects or "things" embedded with electronics, software, sensors and network connectivity that enables these objects to collect and exchange data. The Internet of Things allows objects to be sensed and controlled remotely across existing network infrastructure. In terms of the smart city, an urban area needs to be developed that would create sustainable economic development and high quality of life by excelling in multiple key areas – the economy, mobility, environment, people, living, and government (**SDGs 9** and **11**). Low Power therefore constitutes one of the best ways to deploy the smart city ecosystem. The project's objectives are to:

- Promote the LPWAN network provider under the CAT Telecom (public limited company) network infrastructure

  a) Data communication and Internet network existing

    b) 3G/4G mobile network existing

- Deploy LoRa gateway in CAT Telecom network infrastructure

- Build e-environment application at CAT Telecom for smart city

- Smart weather data retrieved in the cities around Thailand

- Integrated API (application programming interface) module for more sensor development.

The *E-license program* is a smart solution that automates the process of obtaining the core business services of the Federal Authority for Nuclear Regulation (FANR) in the **United Arab Emirates**. It enables organizations to register, apply and check the status of their applications for services online. It also enables FANR to receive, track, control, create and maintain, inspect and take decisions regarding these applications. The E-license program aims to improve the services provided, improve sustainability, protect the environment, create and maintain the database and spatial data, minimize the risk, maximize emergency preparedness and optimize response, provide better control and ensure the instantaneous updating of precise records, and share such records with relevant national and international organizations as deemed necessary (**SDGs 9, 11, 13** and **17**).

The **United Arab Emirates** adopted the concepts of "e-government" and "smart government" as part of the UAE vision of 2021. In this context, the Ministry of Environment and Water (MoEW) has developed *M-Environment*, a smart reporting application developed as the ideal analytical tool, which helps decision-makers to analyse and monitor work progress, e/m-applications and the extent to which the service level agreement is dynamically applied on the country map along with a detailed screen with the associated statistics. M-Environment aims to:

- Encourage and increase agricultural areas in the country

- Facilitate the procedures of the services and re-engineer them

- Provide the latest technologies such as online payment and multiple channels for service

- Enrich the animal wealth

- Encourage and preserve the wealth of fisheries

The M-Environment application is an innovative tool to help sustainability and reduce the time, effort and resources needed to complete requests by enabling the M-Environment application on different platforms and channels.

It contributes to building resilient infrastructure, safety in cities, combating climate change and desertification, and conserving oceans, seas, etc. (**SDGs 9, 11, 13, 14** and **15**).

The CICESE Research Center in **Mexico** argues that the elements (subsystems) of a telecommunication system cannot be seen in isolation or be conceptualized only as infrastructure. Hence, a fragmented approach limits the effectiveness of telecommunication systems for disaster relief and recovery. The complexity of the disaster scenario makes it necessary to develop new strategies in order to respond efficiently and in a timely manner to humanitarian needs when disasters occur. The Center proposes a *Complexity Science Approach of Emergence Telecommunications for Managing Disasters* process as a socio-technical system in which the main agents of the ecosystem interact in such a way as to respond to disasters in a coordinated and orchestrated manner using telecommunication technology as an important enabler. Different Mexican government institutions have been contacted to work together in establishing a framework for responding in a timely and effective manner using telecommunication systems.

This project may contribute to sustainable development by providing support to municipal entities to cope with the issues involving the management of disasters and their associated implications and risks prior to, during and after the disaster occurs (**SDGs 3, 9 11, 13** and **17**).

C7.7 E-agriculture

The **Food and Agriculture Organization of the United Nations (FAO)** is the lead facilitator for the C7 e-agriculture category, and **ITU** is the co-facilitator.

This subchapter covers activities related to e-agriculture, the sector that involves the use of ICTs to improve agriculture, animal husbandry, fisheries, forestry and food security by providing ready access to comprehensive, up to date and detailed knowledge and information, particularly in rural areas. Thus, this subchapter contributes to such SDGs as **SDGs 1, 2, 3, 4, 5, 8, 9, 12, 13** and **17** on combating poverty; achieving food security and sustainable agriculture; promoting healthy lives and lifelong learning opportunities; achieving gender equality and equal rights for everyone; promoting economic development and sustainable consumption and production patterns; combating climate change and revitalizing global partnership.

According to The State of Food Insecurity in the World 2015 (FAO, IFAD and WFP)[5], about 795 million people globally are undernourished, down 167 million over the last decade, and 216 million fewer than in 1990–92. The decline is more pronounced in developing regions, despite significant population growth. In recent years, progress has been hindered by slower and less inclusive economic growth as well as political instability in some developing regions, such as central Africa and western Asia.

The year 2015 marked the end of the monitoring period for the Millennium Development Goal (MDG) targets. For the developing regions as a whole, the proportion of undernourished people in relation to the total population has decreased from 23.3 per cent in 1990–92 to 12.9 per cent. Some regions, such as Latin America, the east and south-eastern regions of Asia, the Caucasus and central Asia, and the northern and western regions of Africa have made fast progress. Progress was also recorded in southern Asia, Oceania, the Caribbean and southern and eastern Africa, but at too slow a pace to reach the MDG 1C target of halving the proportion of the chronically undernourished. A total of 72 developing countries out of 129, or more than half the countries monitored, have achieved the MDG 1C hunger target. Most enjoyed stable political conditions and economic growth, often accompanied by social protection policies targeted at vulnerable population groups.

The 2015 edition of the Global Forum for Innovations in Agriculture (GFIA 2015) took place from 9 to 11 March 2015 in Abu Dhabi, United Arab Emirates. The GFIA, which attracts professionals from around the world across the whole value chain, represents an event of paramount importance for all stakeholders involved in sustainable agriculture. Among the six conferences comprising GFIA 2015, one was specifically dedicated to the use of ICT for agriculture: the "ICT for Sustainable Agriculture" conference. This event, organized in partnership with the Club of Ossiach, PROGIS Software and the Global Forum on Agricultural Research (GFAR), focused on how ICT can promote sustainable and climate-resilient agriculture and involved the participation of many key ICT4Ag stakeholders.

E-agriculture provides the basis for the global community to monitor development and validate models and methodologies, and to package and disseminate them once tested. The e-agriculture community must continue to play a role in collecting and disseminating good practices on the use of ICTs in agriculture and rural development and in examining emerging trends, the evolving role of ICTs and the challenges faced in reaching scaled, sustainable information service models.

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5   http://www.fao.org/3/a-i4646e.pdf

The **Food and Agriculture Organization of the United Nations (FAO)** initiated the *Somalia Water and Land Information Management (SWALIM)* programme that serves Somali government institutions, non-governmental organizations (NGOs), development agencies and UN bodies engaged in assisting Somali communities whose lives and livelihoods depend directly on water and land resources. The programme aims to provide high-quality water and land information, crucial to relief, rehabilitation and development initiatives in **Somalia**. The use of ICTs to accelerate, improve and multiply the effects of this work has been a hallmark of the programme since the beginning and remains a key component.

The project is linked with a considerable number of SDGs, fighting against poverty and hunger, ensuring healthy lives and access to water, promoting economic growth and sustainable industrialization, etc. (**SDGs 1, 2, 3, 5, 6, 8, 9, 13** and **15**).

Using remote sensing sattellite image to highlight extend of floods

Display of data after test field data collection exercise

Demonstration of using GPS

Map view of FMT displaying water sources data collected using mobile data collection tools
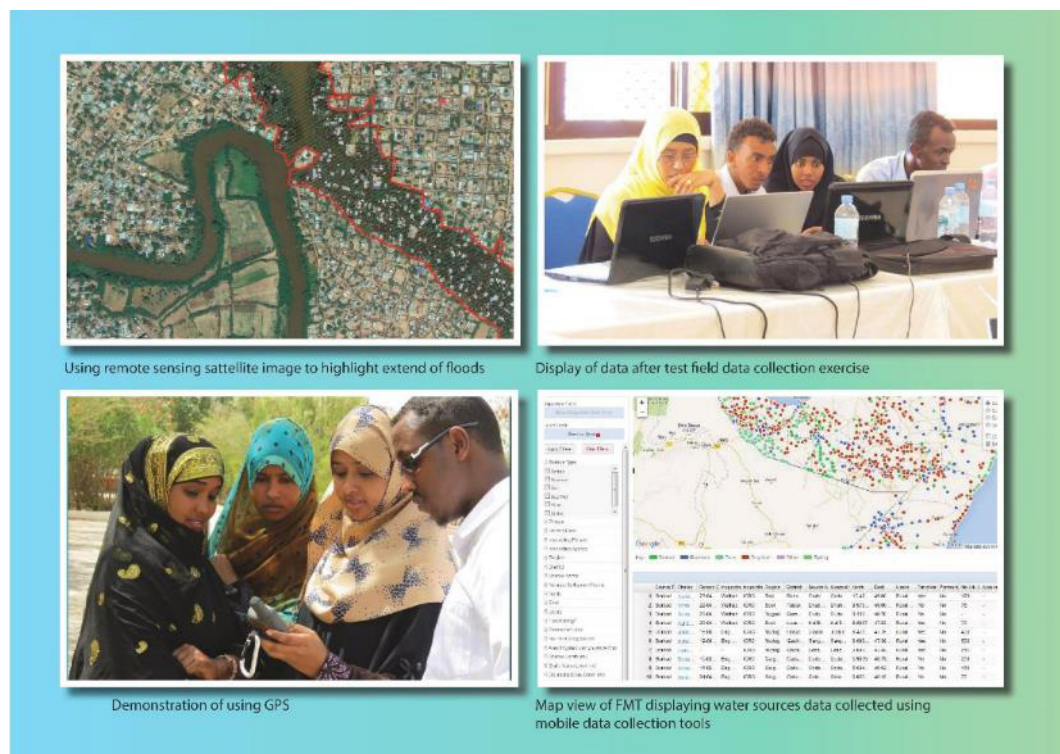
The next three projects from **Bangladesh** relate to such problematic issues as poverty, hunger, healthy lives, gender equality, climate change, and green ecosystem (**SDGs 1, 2, 3, 8, 10, 13** and **15**). They also contribute to the revitalization of global partnership (**SDG 17**).

The Prime Minister's Office of **Bangladesh** launched the *Krishoker Janala (Farmer's Window)* project, an inexpensive-to-build and inexpensive-to-operate, user-centric, indigenous innovation, in order to combat certain challenges in the agricultural domain. The main problems of this sector are:

- Unequal knowledge about the problems any farmer might face during the various stages of pre-production, production and post-production

- Lack of confidence when suggesting solutions to the affected farming communities

- Absence of up-to-date and timely information on ways to identify and treat plant diseases

- Lack of formal education

- Use of crude and inaccurate terms to identify plant diseases.

The Krishoker Janala project aims to combat all these challenges.

The *'Zero Cost' extension model & Advisory Service* is developed by the **Bangladesh** Institute of ICT in Development (BIID), as a business model for extension and advisory services (EASs) to serve smallholder farmers through private sector partners powered by ICT. It is a model which will facilitate free extension-related information and advisory services for the clients (farmers) bundled with input packages. Every farmer who buys an input package will be entitled to receive an information service package whose value will depend on the value of products. As such this model provides a sustainable business case to the private sector which plays a major role in the agricultural extension ecosystem. The Bangladesh Seed Association (BSA) expressed its interest in collaborating with BIID on the new EAS model. BIID is also in collaboration with development partners to pilot and implement the model in the field.
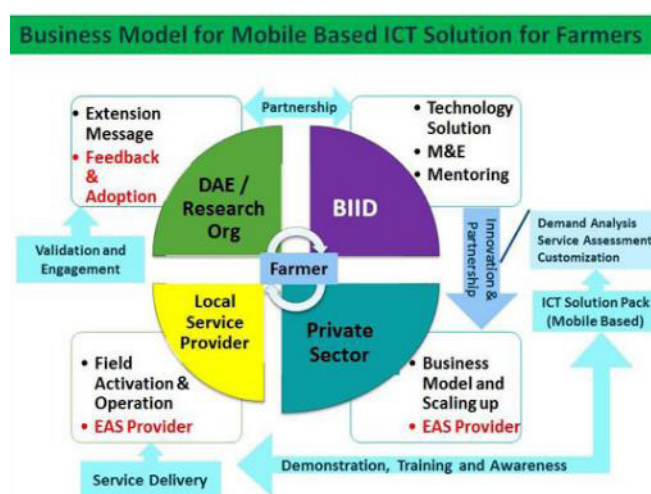
Grameen Intel Social Business Limited (GISB) e-Agriculture is an ICT solution to improve the incomes of smallholder farmers through higher yields and lower costs in **Bangladesh**. A suite of mobile phone and PC-based applications provide expert agricultural advice in critical areas: fertilizer, soil-nutrient analysis, crop/seed recommendations, pest/disease control, harvest management and commercialization. Working successfully in four countries, GISBs yield increases of 20-30 per cent and potential income increases of up to 50 per cent.

Through public-private programmes, the project overcomes major barriers such as literacy, accessibility, and affordability by applying leading-edge mobile and cloud technologies, to contribute to SDGs related to food security, nutrition, poverty alleviation, ICT-literacy and employment creation.

India launched four projects that also contribute to certain SDGs in regard to sustainable agriculture, economic development, gender equality, climate change, etc. (**SDGs 2, 5, 8** and **13**).

Shekru is a smartphone-based free application in both English and Marathi that provides agricultural information as it relates specifically to events and schemes in Maharashtra and beyond. It lists more than 25 types of relevant items ranging from training courses to field demonstrations. An organizer can also add a document or an audio recording describing the event. Events can be submitted by anyone, and the users can express interest in attending events and thus provide an RSVP to the organizer. All schemes- insurance, subsidies, financial assistance, loans etc.- from various stakeholders that involve the ministry of agriculture are listed in the Shekru App.

Besides the SDGs listed above, the initiative also promotes peaceful and inclusive societies and lifelong learning opportunities, and ensures quality education and sustainable consumption and production patterns (**SDGs 4** and **16**).

The University of Agricultural Sciences, Raichur, **India**, initiated *eSAP - a new ICT application for pest management in agriculture* project. It represents the first dedicated system that enables the two-way dissemination of information in real time and relieves Indian agricultural extension from piggybacking mass media. It is the first to integrate tablet-based technologies and cloud solutions to create this dedicated channel that strengthens the agricultural sector of the nation. It brings different players of the agricultural ecosystem to interact on a single platform in real time, thus promoting well-being for all (**SDG 3**). So far, it has made a direct difference to more than a 100 000 farmers, the entire state administrative machinery, four agricultural universities and many other organizations.

The *Harmonized Information of Agriculture, Revenue and Irrigation for a Transformation Agenda - Precision Technology for Agriculture (HARITA-PRIYA)* is a pilot project assigned to the Centre for Development of Advanced Computing (C-DAC), **India**, for the purpose of acquiring microclimate information from farmers' fields using wireless sensor networks (WSNs), thereby enabling the dissemination of location-specific advisories to farmers. "Decision Support Models" are based on the data received from the field and alerts are generated for pest/disease forewarning and irrigation scheduling. Based on the alerts generated by the system, agricultural officers of the state government send personalized crop advisories to the farmers in the regional language, Telugu, via SMS.

In **India**, eKutir is a social business that leverages an ICT platform to progressively build a self-sustaining ecosystem to address multiple facets of smallholder farmer poverty. The *ICT-enabled Ecosystem for Poverty Alleviation* project lies in designing a holistic yet highly personalized approach to the needs of the farmers. The strategy is to leverage technology to harness and analyse the complex factors that affect the agricultural cycle and make them actionable. A logic tree maps different elements that impact the agricultural output of a farmer, factors their influence over each other, and analyses them to provide personalized advisory services.

In **Sudan,** the Gedaref Digital City Organization (GDCO, a civil society NGO) and its partners have developed an *e-agriculture project*. Owing to significant variations in crop prices and lack of information, farmers sell their crops at low prices. Moreover, there is severe conflict between farmers, shepherds (nomads) and the forestry department. The e-agriculture project is a public-private partnership (PPP) for community development. It provides good opportunities to invest in telecentres for better sustainable development. The project's objectives are as follows:

- Development of agriculture through ICT

- Development of national and global online crop marketing, including for illiterate farmers or those with poor computer skills, to help them sell their products (SDGs 1-5)

- Exchange of knowledge and best practices between farmers to establish strong partnerships in the interests of improving agricultural practices so as to increase crop yields and reduce the cost of crop production (SDG 17)

- Enhance capacity building and improve the quality of training in the agricultural sector, thereby promoting the country's economic growth (SDG 8)

- Develop the e-map of the Gedaref State's natural resources to help farmers monitor their farms from any location via satellite (GPS), thereby reducing inequalities between them (SDG 10)

- Disaster control and conflict resolution between farmers, shepherds and the forestry department (SDG 15)

- Achieve the eight Millennium Development Goals (MDGs) and pursue the SDGs.

Gedaref State National Resources e-Map

| Gedaref State Natural Resources Map | Farms plots with Geographical coordinates | Solving conflicts Farmers, forest, Sheppard |
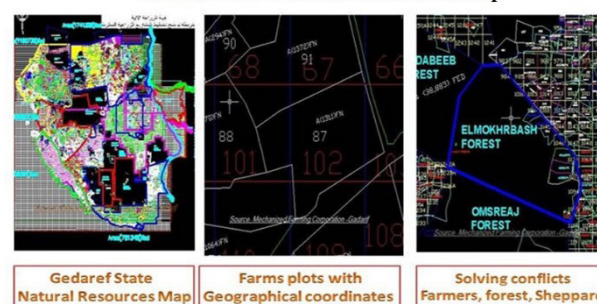
Launched by Advanced Info Services (AIS) of **Thailand**, the *City-to-Farm Agriculture Assisting (CFAA)* project is a service designed to create a sustainable agriculture economy through collaboration between agriculturists, consumers and governments using appropriate technologies. CFAA implements a win-win solution that allows consumers to invest capital in selected agriculturists so that the latter plant the products and deliver them to the consumers in return. This solution eradicates problems on both sides. The agriculturists are not forced to sell their products at low prices, but earn directly from consumers who are willing to pay for healthy products.

The project thus contributes to **SDGs 2, 3** and **12**, on the promotion of sustainable agriculture, well-being for all, and sustainable consumption and production patterns.

King Mongkut's University of Technology in North Bangkok, **Thailand**, created the *Drought Analysis by Using Ground Information Technique (GIT) for Farmers in Remote Areas* project. Using photos taken by smartphone and an application to analyse soil data, GIT is an essential component in remote-sensing data analysis for drought forecasting. An Android-based application will be developed for drought prediction in the future using data provided by smartphone. The method is based on a bottom-up segmentation algorithm that takes into consideration both the colour and texture properties of the image. The risk of drought is defined by threshold values at three levels: normal, risk and damage. The utility of this technique consists in its ease of access, using a smartphone to take photos of surface soil and processing the images via online networks.

The project meets several SDGs relating to agricultural productivity, climate change and the use of terrestrial ecosystems (**SDGs 2, 13** and **15**).
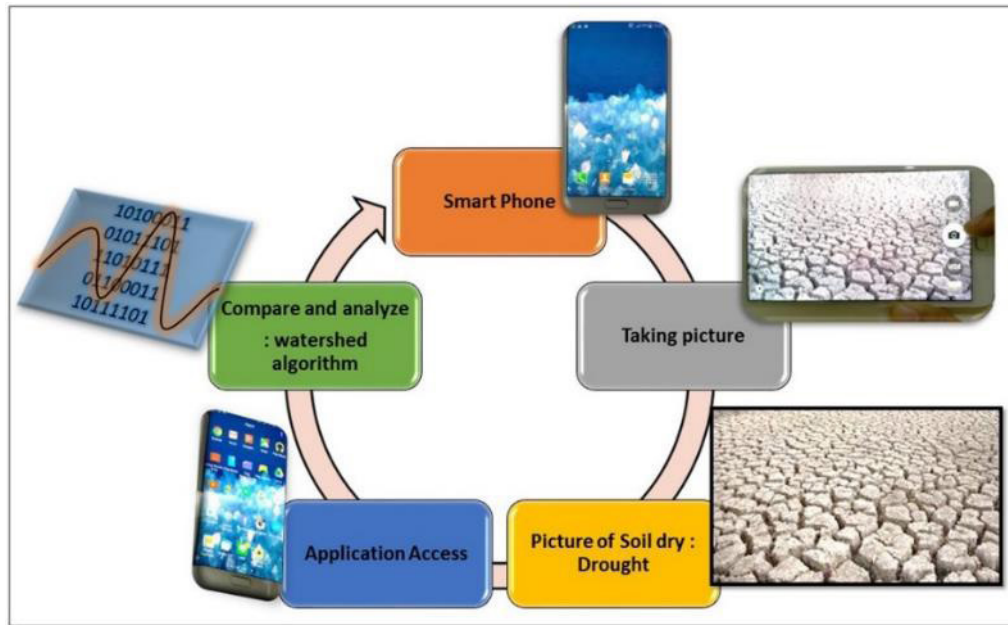
The University of the West Indies in **Trinidad and Tobago** developed the *Increasing Food Production through ICT Research and Development (AgriNeTT)* project, focused on the agricultural sector and addressing two major problems:

- Lack of data at the farm and national levels
- Lack of ICT tools for farmers and policy-makers.

Thus, the project aims to develop a tool-box of applications (mobile and desktop) for use by farmers and policy-makers. Four mobile applications have already been developed. In order to resolve the first problem, the project provides a solution that centres on two open data platforms. This distributed approach provides great flexibility in the publication and curation of data.

Hence, the project contributes to achievement of **SDG 2** by ensuring sustainable food production systems.

The Government of **Indonesia** has mandated the Ministry to utilize ICT in the context of agriculture-based development, namely E-Planning. Hence, the *Guidelines on Agriculture-Based Development Planning* is a platform for the implementation of e-government to support the acceleration of bureaucratic reform. E-planning allows the regional government agency to submit a programme from a local farmers' group association on an online platform through a "top-down policy and bottom-up planning" approach. E-Planning is equipped with supplementing apps in the form of e-Proposal, to

support the planning and budgeting process, and these are transparent, effective and efficient, in the Ministry of Agriculture.

The platform contributes to various SDGs promoting inclusive industrialization and economic development and reducing inequality within the country (**SDGs 8, 9** and **10**).

In **Nigeria**, the Smallholders Foundation launched the *FarmBracket: an Online open collective market for cash crop farmers* project that will establish and develop an online open collective market source for farmers (specifically young farmers) in Nigeria who farm cash crops. This system enables potential buyers to easily access their profile and the quantity and quality of their produce. The system uses an SMS to web platform to inform and educate farmers with current daily markets tips. Through the SMS to web package, poor young rural farmers can update their status in terms of the quantity of goods available for sale by simply dialing a code which is provided for them on their phone.

The project's goals meet **SDG 2, 3, 4** and **8**, promoting sustainable agriculture, lifelong learning opportunities for farmers and well-being for all. It also ties in with economic development and employment in the agricultural sector of the country.

In **Kenya**, Anglican Development Services – Western Region (ADS-WR) promotes farmer entrepreneurship through the value chain development approach. The main objective of the *ICT in Agriculture* programme is to promote fair economic development among participating chain actors especially in the tomato, onion and passion fruit value chains.

In the first phase, the project focused on equipping the three existing collection centres with ICT tools. The collection centres act as business hubs and central places where the ICT tools are operated by the farmers with guidance from ADS-WR. This has accrued benefits to the farmers through the provision of production and market information. In order to deliver this objective, ADS-WR employed the following communication tools:

- Setting up computer labs

- Provision of radio listening sessions

- Development of multimedia and video learning sessions

- Forming a strategic alliance with M-Farm Company

The project objectives meet **SDG 8** on the achievement of high levels of economic productivity for the country and the promotion of sustainable economic development.

Indonesia's agribusiness e-hub, named *e-Petani or e-Farmers*, is a system designed to allow agribusiness stakeholders, especially farmers and agricultural trainers, traders and government, to obtain any information related to agribusiness activity. This platform also facilitates the distribution of income in the agribusiness supply chain, and maintains demand-supply activities to enhance the quality and added value of Indonesian farming products, thus promoting sustainable agriculture (**SDG 2**).

The *Hunger Free Foundation of* **Kenya** *(HFF)* intends to provide programmes and activities designed to build ethical, innovative, entrepreneurial and environmental leadership.

The organization launched the project that aims to improve the livelihoods of the community through agriculture as a tool of economic and social development. The programmes help communities to learn to think critically and act positively, learn to care for themselves and others, and grow into a nation that is productive and self-sustainable in matters pertaining to food and healthcare. This community has a profile published by the ministry of planning and development, year 2007, on poverty rate, crime, unemployment, population density, poor housing, school drop-out, etc. (**SDGs 1, 2, 10**). Together, these form barriers to social success and economic development. This area is underdeveloped despite having adequate rainfall throughout the year (**SDG 8**).

C7.8 E-science

> The main facilitator for e-science is **UNESCO**, while **ITU, UNCTAD** and **WHO** act as co-facilitators. This category aims to promote affordable and reliable high-speed Internet connection for all research institutions, including universities, to support their critical role in information and knowledge production, education and training, and to support the establishment of partnerships, cooperation and networking between these institutions.

It also focuses on promoting electronic publishing, differential pricing and open access initiatives to make scientific information affordable and accessible in all countries on an equitable basis. E-science aims to encourage the use of peer-to-peer technology to share scientific knowledge and pre-prints and reprints written by scientific authors who have waived their right to payment. It also promotes the long-term systematic and efficient collection, dissemination and preservation of essential scientific digital data, for example population and meteorological data in all countries. Lastly it seeks to promote principles and metadata standards to facilitate cooperation and effective use of collected scientific information and data as appropriate to conduct scientific research.

Regarding water and sanitation (**SDG 6**), access to energy (**SDG 7**), and partnerships (**SDG 17**), this category promotes enhancement of the interface between policy, science and society by facilitating more evidence-based and better-harmonized policy-making and the greater involvement of citizens in scientific and policy processes. E-science contributes to building the resilience of the poor and those in vulnerable situations (**SDG 1**) and reduces their exposure to climate-related extreme events, responding to disease outbreaks and other emergencies and enabling better and quicker decision-making to avert and avoid catastrophes. Ensuring quality education for all (**SDG 4**) and gender equality (**SDG 5**) is supported by this category, as early-intervention programmes in science and technology targeting young girls increase the number of women in ICT careers; moreover, early investments in education in rural and remote areas are essential, offering affordable and flexible means to access education and enhancing the skills of rural youth, thus enhancing individual and collective decision-making skills. Climate change (**SDG 13**), marine (**SDG 14**) and land biodiversity (**SDG 15**) rely on ICTs to pursue monitoring, and observing the evolution of global change issues which may enhance the availability of scientific assessments of climate change, biodiversity and ecosystem services, health, agriculture and food security and disaster risk reduction, contributing to the sustainable management of resources and their availability to the global community.

In **Georgia,** the Ilia Vekua Institute of Applied Mathematics (VIAM) of Ivane Javakhishvili Tbilisi State University (TSU) launched the *R-package project to compute confidence intervals for heritability, reliability, and heterogeneity*. Intraclass correlation coefficients (ICCs) are used to quantify different features, such as heritability, reliability, and heterogeneity. They are widely used in the biomedical and engineering fields. To ensure good statistical inference, it is essential to construct confidence intervals on ICCs. This project is motivated by the recently introduced beta-approach that has worked successfully for many variance component models, but has not been implemented in any software package. The more theoretical aspects of the approach are under focus in order to understand its possible limitations (if any) and build an R-package that can be used in combination with any variance component model.

The project contributes to several SDGs by promoting lifelong learning opportunities, sustainable economic growth and industrialization and revitalization of the global partnership (**SDGs 4, 8, 9, 10** and **17**).

Pajoohyar is the first citation organization software in the **Islamic Republic of Iran**. This software assists researchers in research and documentation. Pajoohyar is a research tool that helps users in gathering, organizing and analysing scientific sources. It also documents the results of the research according to citation styles in the form of a book, a thesis or an article. This software has many facilities, including saving and classifying data, noting, using different labels, searching in saved data and so forth. In

addition, Pajoohyar is connected to online sources in such a way that the user can automatically save the sources in the software and then cite them using different citation methods. It was designed by the Islamic Computer Research Center (Noor) and works with three different languages – Persian, English and Arabic – according to the user's requirements.

The project fully contributes to **SDG 4,** providing quality education and promoting lifelong learning opportunities for the country.

The Government of **Indonesia** created the *National Science and Technology Library,* which represents a collective subscription to international scientific journals and management of the digital library. It is available to and easily accessed by researchers, engineers and lecturers working on research and scientific writing.

The National Science and Technology Library targets **SDG 4,** providing lifelong learning opportunities, etc.

The Information Technology Management Center of Women's Seminaries of the **Islamic Republic of Iran** boosted the *Kowsar-Net: Scientific Intelligent Network for Women* project that started in 2014 with the purpose of establishing safe and pure scientific and social relationships among women, especially women scholars, graduates and professors. This project prepares a new, safe social network experience and has changed the negative views of women regarding the negative impact of social networks.

It aims to increase the empowerment of women by increasing women's IT involvement, thus promoting gender equality, equal public access to information and a peaceful and inclusive society for sustainable development (**SDGs 5** and **16**).
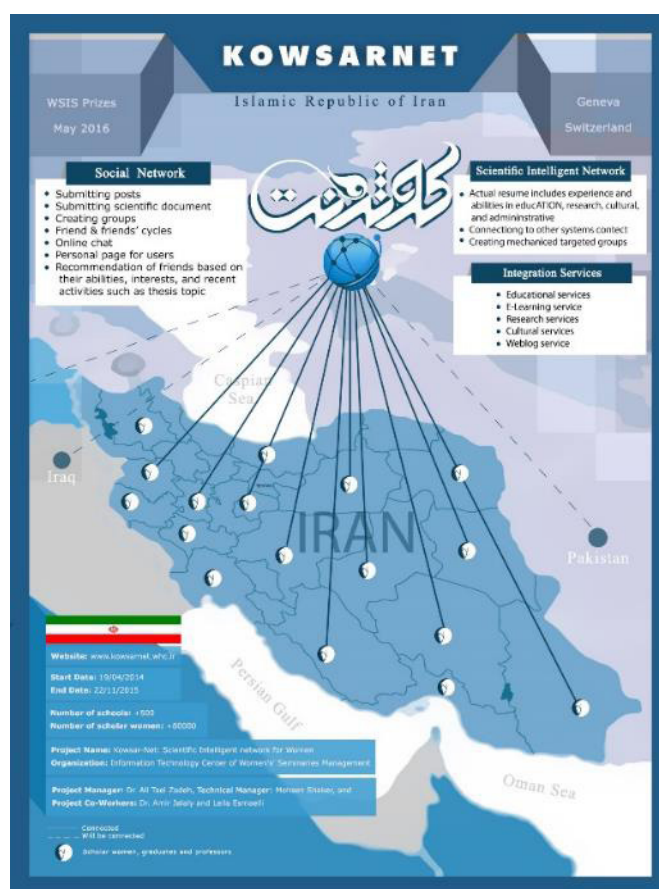
Three projects from the Multimedia University of **Malaysia** aim to meet several SDGs by promoting healthy lives for the Malaysian population, reduction of inequalities, and so on (**SDGs 3** and **10**). They also promote the achievement of higher levels of economic productivity through innovation in the country (**SDG 8**).

The first project represents a computer-aided diagnosis system designed to assist doctors and radiologists in early ischemic stroke detection. The system consists of three modules. The intelligent early infarct detection for brain images module improves the diagnosis time and also the accuracy of the infarct detection process, while the patient database module consists of the details on patient registration, patient diagnosis, and also a statistical analysis tool on the brain infarct patient. Finally, the early infarct training module is a platform for training junior doctors or any doctors lacking experience in early infarct detection.
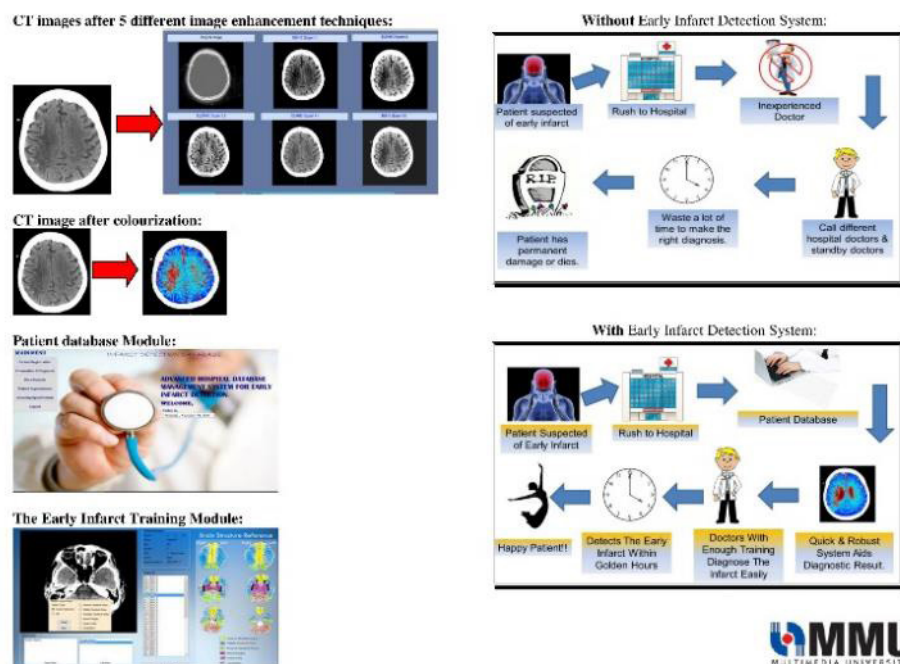
The *Glove Sample Cutting and Biocompatibility Test Platform*, **Malaysia's** second project within this category, aims to build a latex glove sample cutting device with specific size, and to develop a biocompatibility test platform. For the cutting device, its machine prototype is designed to cut the sample from the latex glove with emphasis on the accuracy of the targeted area by preserving the density of the protein powders per unit area. The biocompatibility test platform is a digital image analysis software. It is designed to determine the concentration of protein by comparing the dominance of colour difference between the stained image and raw image of the latex sample.

The *Spatial Based Dynamic Contrast Enhanced Magnetic Resonance Imaging 3Dimensional (3D) Visualization* project represents the last project from **Malaysia** related to the WSIS e-science action line. A computer-aided diagnosis system is designed to assist doctors and radiologists in detecting breast cancer through analysis of magnetic resonance imaging (MRI) screening. It comprises features such as an autoprobing system for lesion detection, 3D modeling of the region of interest, lesion

colour classification and automated parameter computation (lesion dimensions), and deploys a three-dimensional webcam-based navigator with surface interpolation with interfacing hermite surface (SIHE) methodology. The standalone CAD-x system improves noise elimination, refines the breast region of interest (ROI) and detects the breast lesion with minimal false positive detection. The system is designed to be used in parallel with the MRI machine and not to replace it entirely.
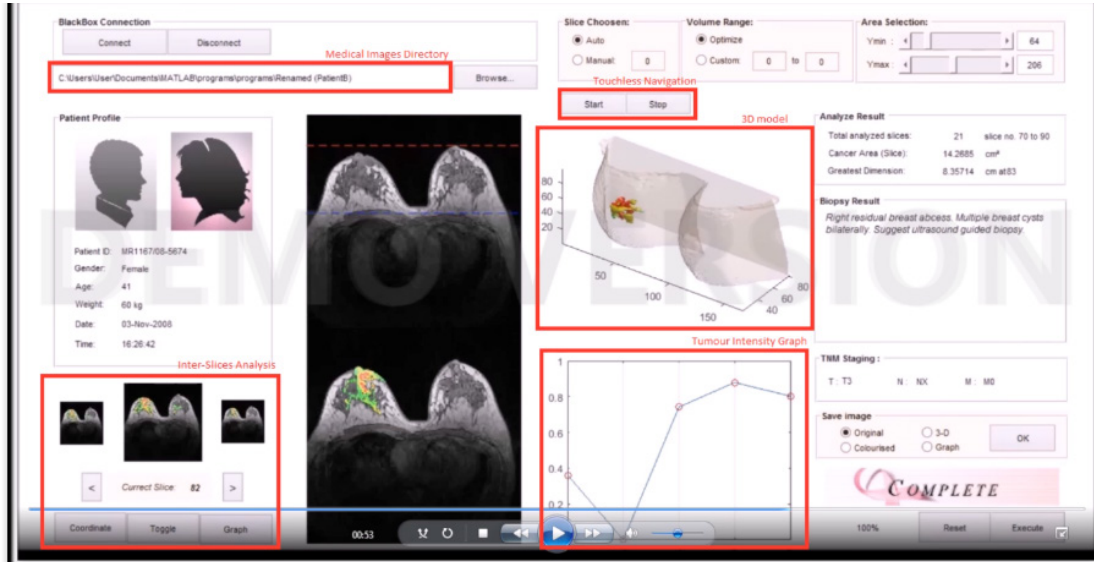
## Action Line C8. Cultural diversity and identity

UNESCO is lead facilitator for the C8 category, while **ITU** acts as partner. This category deals with cultural and linguistic diversity, which, while stimulating respect for cultural identity, traditions and religions, is essential to the development of an information society based on dialogue among cultures and regional and international cooperation. It is also an important factor for sustainable development.

More than 50 per cent of the approximately 7 000 languages spoken in the world are likely to die out within a few generations, and 96 per cent of these languages are spoken by a mere 4 per cent of the world's population. Only a few hundred languages have genuinely been given pride of place in education systems and the public domain, and fewer than a hundred are used in the digital world. ICTs are playing the role of enabler for preserving cultural and linguistic diversity thanks to web- and mobile-based solutions.

This category contributes to maintaining the genetic diversity of seeds, plants and animals (**SDG 2**) and to strengthening participation to improve water and sanitation management (**SDG 6**); ICTs transmit and share local and traditional knowledge and practices, founded on a comprehensive approach to specific rural environment. This action line may also be fundamental to supporting productive activities, job creation, entrepreneurship and creativity (**SDG 8**); indeed, the creative economy is powerful in the local context, acting as an economic driver. At the same time, it plays a crucial role as a platform for identity, dialogue and social integration, thus achieving inclusive and sustainable development. The action line plays a central role in protecting and safeguarding the world's cultural heritage (**SDG 11**) and in ensuring sustainable consumption and production patterns (**SDG 12**). Indeed, ICTs help ensure continued access to cultural and natural heritage via archived digital information and multimedia content in digital repositories and promote the development of tools to monitor sustainable development for sustainable tourism.

The Academy of Public Administration, under the aegis of the President of the Republic of **Belarus**, initiated the *Places to Go* project for students, which is designed to attract tourists to unusual and peaceful places in Belarus. The project is a web product created in the form of a blog owing to the universality and ease of access thereof. It is dedicated to various kinds of tourism in the Republic of Belarus. The blog articles are written in different languages (English and Russian) by various authors using various formats and styles. All the materials used in the blog are unique, just like the site itself, created using the latest technology and trends.

By creating a positive image of the country, the website promotes economic growth and political recognition with a view to global popularization of the country (**SDG 8**).
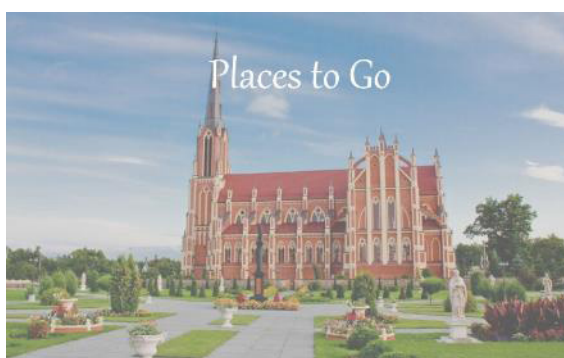

In **Colombia**, the Ministry of Information and Communication Technologies, together with the National Federation of Deaf People (FENASCOL), created the *Relay Centre (Centro de Relevo)* – an initiative

designed to include deaf people in society by enabling them to easily and independently communicate and exchange information with hearing people on a daily basis. The Centre is based on an interactive online platform that works as a bridge to make it possible for deaf citizens to contact hearing people or institutions. Deaf citizens access the platform via the Internet, from computers or smartphones, and communicate with sign language interpreters who take the message in sign language and transform it into a spoken message for the hearing person on the telephone, and then sign back to the deaf user in order to complete the loop. Moreover, this service is free for users and operates from 6 am to 10 pm every day.

This solution enables deaf people not only to communicate with their friends or relatives, but also to have access to government services, book medical appointments, change flight bookings, coordinate meetings and have access to information, thus participating in building a sustainable society, promoting the economic development of the country and enhancing capacities for participatory and sustainable urbanization (**SDGs 11** and **16**).

Samimnoor in the **Islamic Republic of Iran** is a kind of similarity-checking module that focuses on Farsi-language documents. Its main goal is to provide text similarity checking services for Farsi-language journal staff (editors, reviewers, executive managers, etc.), educators (school and university teachers), scientific boards of conferences, and all researchers interested in ethical writing and academic integrity. Samimnoor receives the text from the user and compares it with the database (over 400 000 articles, books, thesis abstracts and other textual materials in the field of humanities and Islamic sciences. It then presents similarity percentages for the user's text and marks the similar sections. Samimnoor is an educational-cultural tool supporting all Farsi-language enterprises and researches in order to generate and publish more ethical research works, thus ensuring that all acquire the knowledge and skills needed to promote sustainable development – **target 4.7** under **SDG 4**.
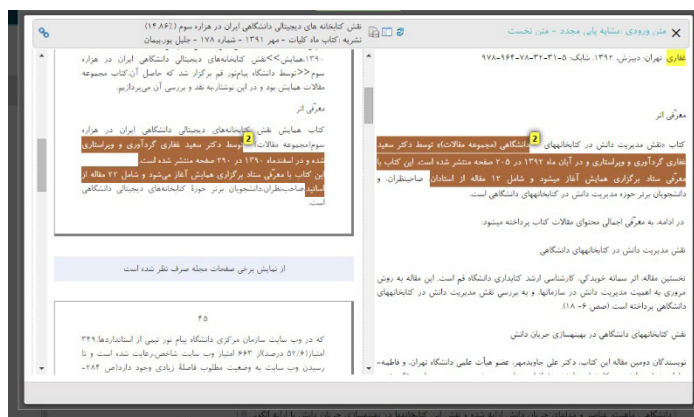
The Latvian language is one of the world's least used languages, with fewer than 2 million native speakers. This explains why global access to Latvia's knowledge and information is somewhat restricted. In order to overcome this language barrier between Latvia and the rest of the world and

open up multilingual access to knowledge, the Culture Information Systems Centre of **Latvia** created its own *publicly available automated translation service, Hugo.lv*. By providing high-quality instant translation of Latvian content into multiple languages, Hugo.lv enriches the global information society with the enormous wealth of Latvian media, educational and cultural information, empowering the Latvian language in the digital age.

In this way, the website promotes sustainable industrialization, ensures access to information for the entire Latvian population and global community and protects fundamental freedoms (**SDGs 9** and **16** – **target 16.10**).
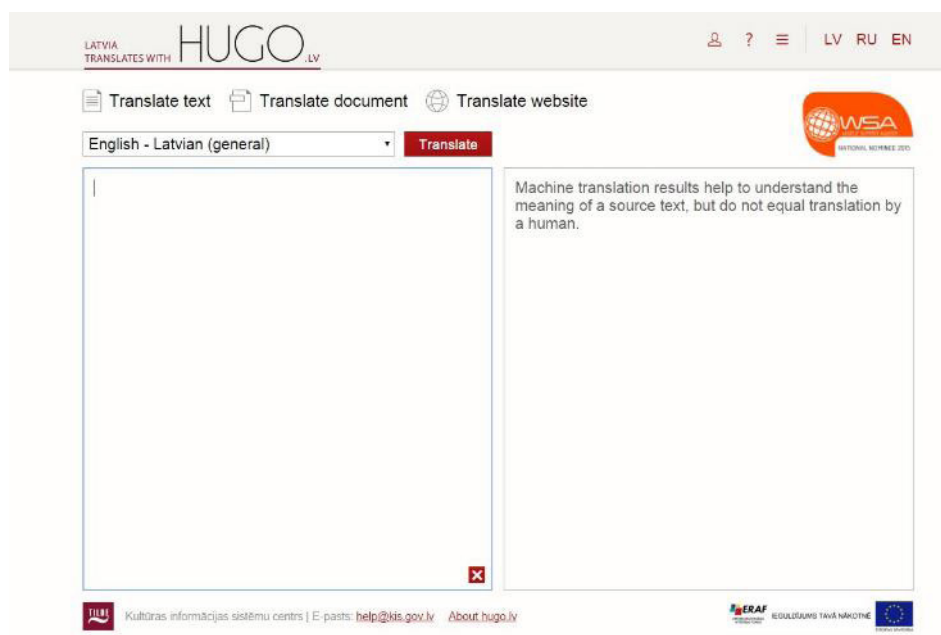
UAEPedia (uaepedia.ae) is the online encyclopedia of the **United Arab Emirates** (UAE) created by the Telecommunications Regulatory Authority (TRA). UAEPedia documents the rich culture, history and heritage of the Emirates along with the selfless leaders whose vision shaped the country. It aims to be the only authentic knowledge repository about the UAE providing information in Arabic – the native language of the land. UAEPedia is the first collaborative effort for preserving, enriching and spreading awareness about the cultural diversity and identity of the UAE. It is being developed in collaboration with 15 federal government entities. Each entity has assigned one or more "knowledge ambassadors" to contribute to UAEPedia by adding new articles and enriching existing ones.

The encyclopedia thus ensures inclusive and equitable education, contributes to the safety and inclusivity of cities and promotes peaceful societies (**SDGs 4, 11** and **16**).

Bridge Africa is a non-profit organization based in the **United States** that launched the *Connectivity is Productivity* project in order to help communities in **Cameroon** create and access online content despite their digital barriers such as access to the Internet. Additionally, the programme reinforces their digital literacy through face-to-face direct educational training. There are 4.2 billion people who do not have access to the Internet, and who as a result create very little online content. The six-month pilot programme based in Yaoundé, Cameroon, helped people create websites and strengthen their ICT-based education. First, the bridgeafrica. com communications platform was set up to help people create websites and access information regardless of whether or not they have Internet access: see the video on text application, youtube. com/watch?v=bdntN3gcfwQ, as well as a demo: youtube.com/watch?v=wTyQHMbmRes. Additionally, Bridge Africa educated 5 000 people on how to utilize the platform and the Internet through face-to-face training. See the pilot: youtube.com/watch?v=Hy-kDuGrdX0.

The Connectivity is Productivity project fully meets **SDG1** as it ensures that all men and women in Africa, in particular the poor and vulnerable, have equal rights to ICTs and economic resources, access to basic services, etc. The project makes a significant contribution to ending poverty in all its forms in Africa.

The *NatiV* project is an e-learning application for a low-cost Android tablet to enable children in rural **Zimbabwe** to learn to read using their own languages (including Shona), as well as to engage children with learning disabilities. NatiV is an Android application under development for e-learning infrastructure that will teach children how to read Shona (Zimbabwean language). NatiV is designed to improve a child's syllable-to-sound (letter-to-sound) association. It implements simple, core Android2 application development concepts, with a UI3 and gestures that are child-friendly and engaging. The aim of NatiV is to become an application used nationwide, catering for all local languages in Zimbabwe (Ndebele, Tonga, etc.) and operating via a central data centre which works on improving the learning software and offering parents data analysis and tips on how they can also help their children improve their reading. NatiV is being made with special consideration for children with reading disabilities such as dyslexia, with the aim of helping them learn to read by implementing technical solutions for special methods prescribed by professional dyslexia researchers.

The project meets several SDGs as it provides quality education, contributes to economic growth and promotes a peaceful and inclusive society and lifelong opportunities for Zimbabweans (**SDGs 4, 8** and **16**).
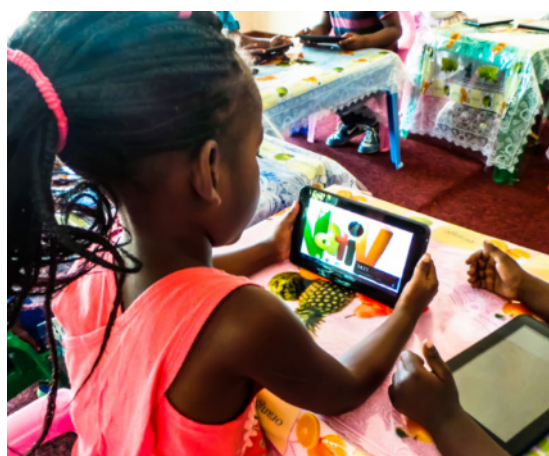
The *Cultural Property National Registration System*, initiated by the Government of **Indonesia**, is a platform for the community's discovery of cultural objects (objects, buildings, structures, locations and/ or units of geographical space) to be proposed as a cultural property to the district/city government or representatives of Indonesia abroad. There are currently 4 387 heritages registered across Indonesia from Aceh to Papua, and 26 of them have been designated as national cultural heritages.

Indonesia's *Cultural Website* is an online platform created by the Government of Indonesia that contains a list and cultural map of Indonesia, news, and articles about Indonesian culture and the activities carried out by the Directorate-General of Culture.

The website provides the Indonesian population with public access to information, protecting fundamental freedoms and promoting economic development (**SDGs 8** and **16**).

Action Line C9. Media

UNESCO is the lead facilitator for this action line, while **ITU** acts as partner. The Geneva Plan of Action states that the media — in their various forms and with a diversity of ownership — as an actor, have an essential role in the development of the information society and are recognized as an important contributor to freedom of expression and plurality of information.

This category encourages the media- print and broadcast, as well as new media- to continue to play an important role in the information society, through the development of domestic legislation that guarantees the independence and plurality of the media. Additionally, it takes appropriate measures - consistent with freedom of expression- to combat illegal and harmful media content, and seeks to encourage media professionals in developed countries to establish partnerships and networks with the media in developing countries, especially in the field of training.

This action line promotes balanced and diverse portrayals of women and men by the media and seeks to reduce international imbalances affecting the media, particularly as regards infrastructure, technical resources and the development of human skills, taking full advantage of ICT tools in this regard. Lastly, it encourages traditional media to bridge the knowledge divide and to facilitate the flow of cultural content, particularly in rural areas.

This action line is crucial to achieving gender equality and empowering all women and girls (**SDG 5**) as well as just, peaceful and inclusive societies (**SDG 16**), as it encourages equal opportunities for all and an expanded media landscape built on ICTs and the Internet is central to inclusive politics and governance. Furthermore, universal and affordable access to the Internet worldwide would certainly expand the media landscape on a digital platform (**SDG 9**).

The **Bangladesh** NGOs Network for Radio and Communication (BNNRC), under the banner of "Voices of the rural people", is working on the project *Youth Women in Community Media and Journalism - the beginning of a new era in rural broadcasting journalism of Bangladesh*. Since 2000, the organization has played a leading role in bringing media focus to bear on rural areas. Community Radio, being the only broadcasting media in rural Bangladesh, created a platform for women journalists at grass-roots level to raise their voices to be heard in the community. The majority of the programmes of the women-friendly community radio stations are designed for the most marginalized people in society: women. Bangladesh currently has 16 community radio stations on air, bringing empowerment and the right to information to rural communities. They are broadcasting a total of 125 hours of programmes per day on information, education, local entertainment and development motivation activities. Around 5.6 million people tune in to the programmes.

Meeting several SDGs, the organization creates equality among people in Bangladesh, contributes to ensuring quality education for all, and fosters economic development and an inclusive and peaceful society (**SDGs 3, 8, 10, 11** and **16**).

In the **United Arab Emirates**, the *M-Government TV Program* was created by the Prime Minister's Office committee as part of the m-Government Initiative of May 2013, launched by H. H. Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai. It is a weekly TV programme dedicated to the m-Government Initiative. As such, it highlights the progress of the initiative in terms of m-transformation and provides information about the new ways of accessing government services while stressing the ease and convenience of the innovative technology.

Being accessible to a large public, the programme contributes to the reduction of inequality in the country and promotes a peaceful and inclusive society, giving everyone equal access to information (**SDGs 10** and **16**).

Initiated in **Uruguay**, *Linguoo* is a smart and inclusive app for listening to narrated news and articles from the web through a global community. The community consists of narrators and developers in 58 countries, united in a global project to fight for more inclusive apps to access web content in a more humanized way than with text-to-speech. Linguoo is a multilingual platform functioning in decentralized mode whereby each narrator records articles from all over the world and uploads the audios to the platform. The articles are then available on smartphones through the Linguoo app.

The project fully meets a number of SDGs by providing the international community with quality information, providing the opportunity to study and develop inclusive societies, foster innovation, etc. (**SDGs 4, 9** and **16**).

Action Line C10. Ethics

UNESCO is the lead facilitator for this category, while **ITU** acts as partner. UNESCO went through a reflection process for its Member States aimed at enlarging understanding, building consensus, identifying key areas of concern and pinpointing capacity gaps. The outcome of this process was a document on UNESCO and the ethical dimensions of the information society.

The information society should be subject to universally held values, promote the common good and prevent abusive uses of ICTs. It takes steps to promote respect for peace and to uphold the fundamental values of freedom, equality, solidarity, tolerance, shared responsibility and respect for nature. All stakeholders should increase their awareness of the ethical dimension of their use of ICTs and all actors in the information society should promote the common good, protect privacy and personal data and take appropriate actions and preventive measures, as determined by law, against abusive uses of ICTs such as illegal and other acts motivated by racism, racial discrimination, xenophobia and related intolerance, hatred, violence, all forms of child abuse, including pedophilia and child pornography, and trafficking in, and exploitation of, human beings. Lastly, this category focuses on inviting relevant stakeholders, especially academia, to continue research on the ethical dimensions of ICTs.

Each year, ITU hosts the Gender Equality and Mainstreaming in Technology (GEM-TECH) Awards to recognize that technology is a uniquely powerful means for transforming the lives of women and helping redress the global gender gap. The GEM-TECH Awards celebrate outstanding personal or organizational achievements and innovative strategies that harness ICTs for women's empowerment, promote women's meaningful engagement with ICTs, including as producers and decision-makers in the technology sector, and create policies and investments that advance women's digital equality.

This category contributes to **SDG 1** on poverty alleviation given that digital platforms are fundamental to accessing services and to participation in all aspects of social life, thus the provision of means and capabilities becomes an ethical imperative. Indeed, assuring meaningful participation will contribute to overcoming poverty and ensuring the common good. To end hunger, achieve food security and improved nutrition and promote sustainable agriculture (**SDG 2**), enhancing participation, providing access to information and sharing knowledge are central to the ethical values of non-discrimination, respect for nature and promotion of the common good, all of which means that this action line is extremely relevant. In order to ensure inclusive and quality education for all and promote lifelong learning opportunities (**SDG 4**), it is essential to take into account the online resources that exist nowadays, and an effective user education and awareness about the risks posed online must be ensured. Capacity building and cybersecurity (with special emphasis on the protection and empowerment of children online) become ethical imperatives, thus also involving Action Line C10. The pursuit of gender equality (**SDG 5**) and ending all forms of discrimination against women everywhere are also relevant to this action line; digital platforms are fundamenatal to social participation, and all barriers to women's participation in virtual spaces must be addressed in order to allow them to benefit from the opportunities of the knowledge societies. **Target 8.6** in particular, aimed at reducing the proportion of youth not in employment, has a bearing on Action Line C10; the factors involved can undermine social cohesion as they militate against the individual's sense of equality and may impair people's ability to assume their social responsibilities, thus increasing their vulnerability to participating in illicit activities due to lack of skills and competencies. To reduce inequality within and among countries (**SDG 10**), the participation of all individuals in digital spaces is crucial to fostering equality, solidarity and responsibility. Action Line C10 is also directly linked to making cities inclusive, safe, resilient and sustainable (**SDG 11**), as the creation of conditions for equitable participation in all aspects of social life is central to realizing peace and the values of freedom, equality, solidarity and shared responsibility. Ensuring sustainable consumption and production patterns is the aim of **SDG 12**, and therein **target**

12.8- ensuring that people everywhere have the relevant information and awareness for sustainable development – has a direct bearing on this WSIS action line. **SDG 13** – dealing with climate change and its impact – is related to the WSIS action lines in so far as ICTs have enormous potential in raising awareness and enhancing education regarding climate change mitigation, adaptation and reduction. In particular, Action Line C10 plays a central role in developing capabilities to ensure the balance between meeting current needs and the ethical values of sustainability and respect for nature. It is also linked with **SDG 16**; the protection of fundamental freedoms – quoted in **target 16.10** – is a core aspect of the ethical dimensions of the information society and central to realization of the overarching goal of peace. Revitalizing the global partnership for sustainable development (**SDG 17**) involves developing the competencies of all peoples to participate on the digital platforms, contributing to equality, solidarity, tolerance, shared responsibilities and peace. Moreover, development of the capacities and competencies of all peoples to effectively participate on the digital platforms implies access to the opportunities of the knowledge societies and contributes to equality, solidarity, tolerance, shared responsibilities and peace, thus closely relating to this action line and its main values.

Created in **Austria**, the *Global Industry Council (GIC)* has been an official contributing partner to ITU for 2014, 2015, 2016 and ongoing in the implementation of **all 11 WSIS action lines** and **17 SDGs**. The GIC 2020 Skills Report published last year clearly demonstrates how GIC is executing all WSIS/SDGs. Through its International Federation for Information Processing (IFIP) members, GIC brings considerable resources to implementation of the WSIS action lines/SDGs. All domains are powered by their underlying dependence on ICT. GIC continues to work to ensure that the ICT profession is grounded in technical expertise guided by ethical, professional practice.

Since 2011, *En TIC confío* – an initiative of the Ministry of ICT of **Colombia** – has promoted policies for the responsible use of the Internet among children and citizens, through digital and real environments. It confronts the enormous challenge of raising awareness and preventing risks on the web. The project has reached 100 per cent of Colombian towns through its website, its social media channels and more than 10 000 conferences open to the public at no cost.

Being widely spread, the programme achieves several SDGs related to ensuring healthy lives, inclusive and equitable quality education and the achievement of equality in the country and promotion of a peaceful society (**SDGs 3, 4, 5** and **16**).

ICT Watch is firmly committed to freedom of information and is keenly aware of the emerging challenges to online freedom of expression in **Indonesia**. It creates the conditions for responsible Internet use and high-quality online content, and involves multistakeholders as partners in the programme's proliferation. Through the *Internet Healthy ("Internet Sehat") towards Indonesian information society programme*, ICT Watch has endeavoured to show multistakeholders that people can take responsibility for their online activities. To this end, ICT Watch released a how-to module under a creative commons licence for parents and teachers, and endorsed several publicly-available comic books for children/youngsters containing basic knowledge about Internet safety. ICT Watch also participates in various offline activities such as workshops, as well as roadshows visiting schools/campuses and communities.

With 73 000 Facebook and 697 000 Twitter followers, and being active on Blog, YouTube, Flickr and Slideshare, the programme provides Indonesian society with equitable quality education, promotes gender equality and fosters an inclusive and peaceful society (**SDGs 4, 5** and **16**).

Since 2012, the Initiative *#SurfWisely*, created by the Ministry for Information Society and Telecommunications of **Montenegro**, has been implemented with the aim of providing education and skills to Montenegrin children and their parents and teachers, while making a positive experience out of using the Internet and at the same time building a sense of safety in the digital environment. It also contributes to **SDG 16** on promotion of a peaceful society, ensuring public access to information and protection of fundamental freedoms. The initiative has been successfully implemented in cooperation with governmental institutions and non-governmental organizations.

In **Spain**, the Cibervoluntarios Foundation is a non-profit organization made up of social entrepreneurs whose vision is to use new technologies as a means for social innovation and citizen empowerment, thereby alleviating social divides. The organization's aim is to increase the rights, opportunities and capabilities of each individual within his/her environment through the social use of technological tools and applications within his/her reach. *EmpoderaLive* is a multiplatform project through which Cibervoluntarios empowers citizens by promoting human rights and the social use of technologies in order to generate social innovation.

In this way, the programme meets **SDGs 4, 5, 8, 10** and **16** by ensuring quality education and achieving gender equality, thereby reducing inequality within the country and promoting economic growth, employment and an inclusive society.

The awareness training initiative by the Khalifa Empowerment Program for Students in the **United Arab Emirates** is designed to create a programme at the national level that provides awareness in the fields of Internet ethics, Internet safety, cybercrime and best practices in the use of social media. The *360 Degrees of Student Awareness* programme synergizes the efforts of over 50 governmental organizations in the interests of creating a developed and ethical generation of UAE citizens.

The project contributes to several SDGs by ensuring equitable quality education, resilient infrastructure, the provision of lifelong learning opportunities for UAE citizens and revitalization of the global partnership for sustainable development (**SDGs 4, 9, 16** and **17**).

Dubai Police has employed cutting-edge video-game technologies to develop *Electronic Awareness Games* for communicating awareness messages and strengthening the national identity and sense of belonging in the **United Arab Emirates**. The project uses innovative and engaging methods for delivering notions of awareness to the community in the form of games which serve to communicate messages, concepts and lessons in awareness and to strengthen national identity among different sectors of the community, especially students, through video games running on smart devices. The games contain awareness and learning messages in an interesting, enjoyable and fun form for both children and adults.

The project is fully in line with **SDG 16** on ensuring quality educational content for everyone and the promotion of a peaceful and inclusive society.

In order to strengthen the State's endeavours to serve as a model and an example in the provision of care and attention to children in the areas of education, health, culture and security, and to encourage institutional creativity and innovative ideas, the Ministry of the Interior of the **United Arab Emirates** launched the smart wearable technology service known as the *Hemayati Child Protection* project. It is a creatively and innovatively styled smart band that enhances smart security concepts for the protection and care of children.

The project ties in with several SDGs on healthy lives, quality equitable education, peaceful societies, building resilient infrastructure and safe and sustainable cities (**SDGs 3, 4, 9, 11** and **16**).

Action Line C11. Regional and International Cooperation

International cooperation among all stakeholders is vital to the implementation of the Geneva Plan of Action and needs to be strengthened with a view to promoting universal access and bridging the digital divide, *inter alia* by providing suitable means of implementation. Governments of developing countries should raise the relative priority of ICT projects in requests for international cooperation and assistance with infrastructure development projects from developed countries and international financial organizations. Within the context of the UN Global Compact, and building upon the United Nations Millennium Declaration, it is important to build on and accelerate public/private partnerships, focusing on the use of ICTs in development. This action line also invites international and regional organizations to mainstream ICTs in their work programmes and assist all levels of developing countries in becoming involved in the preparation and implementation of national action plans to support the fulfilment of the goals indicated in the Declaration of Principles and in the Geneva Plan of Action, taking into account the importance of regional initiatives.

UNDESA, as the leading facilitator for Action Line C11, the Vice-Chair of the United Nations Group on the Information Society (UNGIS) and administrator of the IGF secretariat, has continued its efforts to promote policy dialogue and advocacy for the implementation of the WSIS outcomes by United Nations bodies, governmental and non-governmental stakeholders and partners through a number of initiatives. It has ensured, in addition, the comprehensive exchange of views, information and experiences among WSIS stakeholders, and provided advisory services and technical assistance to developing countries. Co-facilitators for this category are **ECOSOC, UN regional commissions** and **ITU**.

The ITU Kaleidoscope conference took place in Barcelona, Spain, from 9 to 11 December 2015. Entitled Kaleidoscope 2015: Trust in the Information Society, it was the seventh series of peer-reviewed academic conferences organized by ITU, and brought together a wide range of views from universities, industry and research institutions in different fields.

The aim of the Kaleidoscope conferences was to identify emerging developments in ICTs and, in particular, areas in need of international standards to support the development of successful products and services.

Kaleidoscope 2015 analysed means of building information infrastructures deserving our trust. The event highlighted ideas and research that help ensure the information society's growth in inclusivity and sustainability thanks to its trusted foundations. The conference provided an opportunity to share views on the future of the ICT sector and, in particular, to analyse the notion of "trust" in the ICT context as well as innovations embedding trust into ICT ecosystems and infrastructures to bring greater certainty, confidence and predictability to our interactions within the information society.

The 2015 edition of Kaleidoscope contributed to the celebration of ITU's 150th anniversary, paying tribute to the extraordinary innovation of the global ICT community. The story of ITU is one of international cooperation among governments, industry players, civil society and academic and research institutes. ITU has a proud history as a key platform for the international community to bring cohesion to innovation in the ICT sector, and Kaleidoscope 2015 celebrated academia's immense contribution in service of ITU's mission to 'Connect the World'.

ITU Telecom World 2015, a platform for high-level debate, knowledge-sharing and networking for the global ICT community, took place from 12 to 15 October 2015 in Budapest, Hungary. ITU Telecom World is the only event of its kind that brings together the major public and private sector stakeholders from the world to debate industry opportunities and challenges, share knowledge, and build the framework for SME success.

As the global platform actively facilitating new ideas, businesses and partnerships in ICT development, ITU Telecom World 2015 offered:

- Unique international exposure for small and medium-sized enterprises, start-ups and entrepreneurs in the ICT sector

- Visibility and voice for countries, organizations, products and solutions from around the world

- Unprecedented access to emerging markets

- Targeted partnership and investment opportunities

- Awareness and expert opinion on the major trends redefining the industry

- Networking and connections at the highest level

A third deserving ITU initiative came in the form of the first ITU ASP CoE Steering Committee Meeting, which took key strategic decisions aimed at implementation of the approved operational processes and procedures. The key issues included evaluation of performance in 2014, the strategic direction of the ITU Asia Pacific CoE from 2015 onwards, induction of partners, composition of the Steering Committee, the timetable of annual activities for 2015, development of content, quality assurance processes, promotion plan, pricing strategies, fee structure and financial procedures, and new partnership opportunities. Designed to offer continuous education to ICT managers in the public and private spheres through face-to-face or distance-learning programmes, the centres serve as regional focal points for professional development, research and knowledge sharing, and provide specialist training services to external clients. Under the umbrella of the ITU Academy, these regional networks are now being consolidated into a single global network sharing training curricula, resources and expertise.

The ITU Regional Development Forum for the Arab States (RDF-ARB), which was held in Rabat, Morocco, from 28 to 29 March 2016, met to present the ITU Arab Regional Office's operational plan proposals for the next two years (2016 and 2017) and to review and discuss what has been achieved in the five Arab regional initiatives in 2015 and the activities of the ITU-D study groups and the ITU Centres of Excellence Network. The forum also focused on finding mechanisms to finance and implement the regional initiatives and projects that fall under these initiatives and also to strengthen the partnership between the stakeholders.

This action line contributes to **SDG 17** as it directly strengthens the means of implementation and revitalizes the global partnership for sustainable development. It is crucial in the mobilization and sharing of knowledge, expertise, technology and financial resources; indeed, ICTs can enable online discussion platforms where stakeholders from different regions can engage. They can also allow developing countries to capitalize on innovation in ICTs and the sharing of knowledge from developed nations, promoting effective public-private partnerships.

The Electronic Government Network of Latin America and the Caribbean (Red Gealc) brings together the national electronic government agencies of 32 countries of the region through a horizontal cooperation mechanism that has had a direct impact on the design and implementation of public information technology policies aimed at open citizen-oriented governmental management.

Cooperating with different countries, the Network provides its citizens with equitable education and lifelong learning opportunities, contributes to economic growth and reduces inequality within and among the countries (**SDGs 4, 8, 10** and **17**).

The *World Summit Award (WSA)* was launched as an **Austrian** initiative in 2003, within the framework of WSIS, to select and recognize digital content and innovative solutions produced by local entrepreneurs in all UN Member States with a view to prompting action on the most pressing issues. It is an ongoing activity and platform that connects start-ups, social entrepreneurs and digital content developers who believe that ICTs are one of the most powerful enablers

for social change and development. WSA demonstrates the richness and diversity of local content and innovation, and enables knowledge transfer between stakeholders, countries and networks.

WSA uses the mechanism of a global award to identify digital solutions that have an impact on society, prompting action on the most pressing issues worldwide, be they in relation to hunger, climate change, gender equality, access to education, health, sanitation and nutrition, inclusion or freedom of speech (**SDGs 1 to 11, 13** and **15 to 17**).

 Launched by the Youth for Sustainable Development Foundation in **Canada**, the *Inspired Generations (IG)* programme aims to draw up a list of approved and certified projects being carried out by local stakeholders, including young people, in the interests of sustainable development. The IG programme initially mobilises all the local key stakeholders to make a diagnosis at the subnational level, then to establish a multistakeholder local committee for sustainable development (LCSD). This LCSD proposes a common long-term sustainable development strategy allowing for the certification of a list of projects that respond to the identified priorities, are accepted by civil society and will be supported during their implementation. This process also lays emphasis on project durability while facilitating the development of public-private partnerships for sustainable infrastructure projects.

Already established in Madagascar (three LCSDs), Comoros (two LCSDs), Seychelles (one LCSD) and Zanzibar (one LCSD), the project meets **all SDGs** related to the WSIS action lines, achieving them at the local level.


In **Malaysia**, *Computer Emergency Response Teams (CERTs)* are entities which work to ensure the safety of cyberspace by resolving computer security incidents or cyberincidents in their respective constituencies. In addition to mitigating cyberincidents, they also provide training in cybersecurity and awareness. Since the Internet does not respect a country's physical boundaries, cybercrimes can easily be committed across borders and beyond the jurisdiction of any given law enforcement agency. As the point of contact for cyberincidents, CERTs therefore find it beneficial to form international collaborative partnerships beyond their respective constituencies in the interests of resolving incidents, this being in line with **SDG 17** on the global partnership for sustainable development.

In **Mexico**, the National Digital Strategy led a global consultation with experts from governments, civil society, multilateral organizations and the private sector to develop the *International Open Data*

Charter, a set of fundamental principles for greater coherence and collaboration between open data initiatives around the globe. To date, 18 governments and 15 organizations have, respectively, adopted and endorsed it. Members of the Charter are working on an Anticorruption Open Data Package and a Climate Change Open Data Package that were released for public comment in the G20 and COP21, respectively, to identify key datasets and potential use cases to promote the creation of impact in these sectors, thereby establishing a linkage with **all SDGs** of the WSIS action lines.
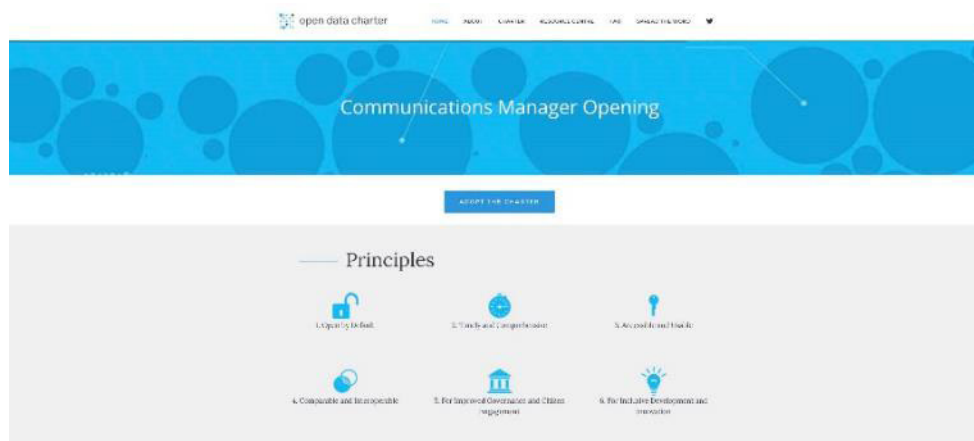
Building and development of the open information society is possible only on the basis of youth activity, which is the key resource of ICT. The *Regional project of the youth innovative capacity building in ICT*, launched by the Moscow Technical University of Communications and Informatics (MTUCI), **Russia Federation**, seeks to identify leaders among young people. The agglomeration approach makes for the achievement of synergies which contribute to resolving the key challenges faced by the modern information society. By bringing together governmental, educational and business structures, the project is able to enhance the effectiveness of international cooperation and increase the role of young people in ICT development, making full use of their capacities in developing countries (**SDG 17**).

After being a member of the focus group in the Regional Arab ICT for Persons with Disabilities, the Association of Digital Development of **Tunisia** created the *Zero Group Accessibility for Access to Information and Knowledge* project, which works to encourage regional, national and international cooperation among various stakeholders and provide them with specific actions aimed at improving the status of persons with disabilities in the context of ICTs for increasing access to education, knowledge and information, e-learning, access to public information, social services and, ultimately, job opportunities. The Zero group's objective is to highlight and reduce digital ignorance among all persons, with or without disabilities, by providing learning platforms, mobile learning and Cloud computing, as well as training for IT professionals such as educational programmers, software and content developers and web designers.

The project thus relates to a considerable number of SDGs, touching upon such issues as poverty, education, gender equality, access to modern energy, safety of cities, promotion of peaceful societies and revitalization of the global partnership (**SDGs 1, 4, 5, 7, 11, 16** and **17**).

Zero Group Accessibility for Access to Information and Knowledge - PWD Tunisia

During the past decade and since the establishment of the Telecommunications Regulatory Authority (TRA), which is the Administration of the **United Arab Emirates** at ITU, the country has been at the forefront of regional and international cooperation, contributing to *ICT Development in the Arab Region*. Whether in terms of assistance in the implementation of specific regional and international ICT4D projects, the chairing of regional groups in the preparatory processes for major ITU conferences, the hosting of all major ITU events over the past five years or support for the implementation mechanism of the WSIS outcomes (i.e. the annual WSIS Forum including the WSIS+10 High Level-Event), the UAE's TRA has been at the forefront, having thus earned its reputation as a key facilitator and credible partner among the ITU Member States. In the interests of further enhancing its role, TRA looks forward to taking this international cooperation to higher levels in the future (**SDG 17**).

As the **United Arab Emirates** moves towards its aim of being an information economy, and towards the Ministry of Interior's vision of smart government, the importance of cybersecurity awareness cannot be underestimated. Over the past decade, the *Biennial International Cyber Crimes Conference (IC3)* has been the premier cybersecurity conference in the Gulf region, attracting an audience of leaders, decision-makers and professionals in the field of cybercrime and information security. Past conferences have seen high-calibre speakers who have delved into, analysed and elucidated issues relating to information security and cybercrime at the operational, tactical and strategic levels. The topics covered have included online financial crime and money laundering, cyberfraud, compliance, privacy and identity management.

The conference relates to the global partnership and collaboration in order to combat cybercrime (**SDG 17**).

United Arab Emirates
Ministry of Interior

Conclusion

The International Telecommunication Union (ITU) remains committed to the World Summit on the Information Society (WSIS) process, and to implementation of the WSIS goals beyond 2016. ITU recognizes and highly appreciates the extremely valuable contributions made by stakeholders to enable the continuation of WSIS monitoring and reporting. There can be no doubt whatsoever that, in today's fast-moving world, innovation and efficiency are vital to success. Accordingly, the WSIS Stocktaking 2016 Report shares with you the most recent updates and success stories in the WSIS stocktaking process.

The Web 2.0 WSIS Stocktaking Platform continues to foster implementation of the WSIS outcomes and to facilitate exchange of information among 135 000 members representing governments, the private sector, international organizations, civil society and other stakeholders. As the Web 2.0 platform continues to flourish, so does the promotion of social development and economic growth through ICTs. We continue to maintain and improve the WSIS Stocktaking Database, which contains around 8 000 entries this year. This encouraging outcome reinforces stakeholders' belief in and commitment to the WSIS Stocktaking process and their desire to share best practices.

In addition, the WSIS Overall Review called for close alignment between the WSIS process and the 2030 Agenda for Sustainable Development, highlighting the crosscutting contribution of ICTs to the SDGs. In this context too, WSIS Stocktaking is evolving to become the unique global process for the collection of information on actions carried out within the framework of WSIS, while underlining their contribution to implementation of the 2030 Agenda for Sustainable Development.

We are also pleased to announce the imminent launch of a new and innovative interface, which will make it easier to search all WSIS-related activities. All stakeholders benefit from the sharing of interesting case studies, as this undoubtedly facilitates the transfer of knowledge, experiences and models for project implementation. The WSIS platform helps to create partnerships, provide greater visibility and add value to ICT projects all around the world. The many and varied stakeholders who have implemented innovative projects and contributed to the success of the WSIS Stocktaking process deserve our sincere gratitude. ITU announces an official call for updates and new entries and urges these stakeholders, along with all Member States, international organizations, the private sector and civil society, to continue submitting such contributions in the future as WSIS pursues the ongoing stocktaking process. We trust that readers will find this report insightful, and sincerely hope that it will inspire them to participate in the construction of a broader and more inclusive information society for all.