International Telecommunication Union
World Summit on the Information Society
WSIS Stocktaking Process

working together towards 2015

World Summit Geneva 2003 Tunis 2005
on the Information Society
Turning targets into action

# REPORT ON THE WORLD SUMMIT ON THE INFORMATION SOCIETY STOCKTAKING

2016
2015
2014
2013
2012
2008
2005

## REPORTING ON THE IMPLEMENTATION OF WSIS OUTCOMES

www.wsis.org/stocktaking

world summit
on the information society
Geneva 2003 - Tunis 2005

ITU

# WSIS Stocktaking Report 2015

## Acknowledgements

The WSIS team would like to acknowledge the tremendous contributions of governments, international organizations, private sector, civil society and other stakeholders in providing information on ongoing projects and initiatives to the WSIS Stocktaking Platform. WSIS Stocktaking Report is based on the contributions provided by stakeholders in response to the ITU official call for update and new entries. The full descriptions of the activities are available at accessible online database www.wsis.org/stocktaking.

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# Foreword

On the occasion of the World Summit on the Information Society (WSIS) Forum 2015, it is my pleasure to launch the seventh edition of the WSIS Stocktaking Report.

Initiated by ITU Member States at the 1998 Plenipotentiary Conference in Minneapolis, United States, WSIS is a global coordination mechanism for advancing the worldwide development of the Information Society. An Outcome Document produced following the two phases of WSIS, held in Geneva in 2003 and Tunis in 2005, presented a vision of an inclusive Information Society and proposed a mechanism for coordinating and facilitating implementation of 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 with the soon-to-be adopted Sustainable Development Goals (SDGs).

To date, WSIS Stocktaking Reports have reviewed more than 7000 activities from around the world carried out by international organizations, governments, the private sector, civil society and other stakeholders. I am also pleased to note that today, the WSIS Stocktaking community comprises of more than 135000 stakeholders who are eager to contribute to the WSIS Process year after year.

By identifying trends in implementing WSIS Outcomes, the WSIS Stocktaking Process makes a significant contribution 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.

In 2014, United Nations Economic and Social Council (ECOSOC) Resolution 2014/27 reiterated the importance of sharing the best practices at the global level. It encouraged all stakeholders to continue contributing to the WSIS Stocktaking database and to nominate their projects for the annual WSIS

Prizes. Each year, 18 WSIS stakeholders are awarded a WSIS Prize, a unique global recognition for excellence in the implementation of WSIS outcomes. The contest is open to all WSIS stakeholders.

I would like to take the opportunity to extend my sincere gratitude to all of the stakeholders who have been engaged in the WSIS Process, sharing their national advances on implementation of the WSIS outcomes since 2004. There are still many challenges and opportunities towards achieving a fully inclusive Information Society to be addressed by the global ICT family. Consequently, I support the efforts being made by our membership to achieve the goals set out by WSIS Beyond 2015 and the Post-2015 Development Agenda.

**Houlin Zhao**

**ITU Secretary-General**

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# Introduction to the WSIS Stocktaking Report 2015

The 2015 edition of the WSIS Stocktaking Report is the continuation of the WSIS Stocktaking Report series.[1] The seventh edition of the WSIS Stocktaking Report was officially released during the World Summit on the Information Society Forum 2015. The 2015 report reflects more than 500 global activities relating to ICTs for development, submitted to the WSIS stocktaking process for the period April 2014 - March 2015, each one highlighting the efforts deployed by stakeholders involved in implementing the WSIS goals. The seventh edition gave examples of emerging trends in actions geared to bridging the digital divide and building an inclusive information society. The report is based on the multistakeholder approach, including input from stakeholders from all over the world, as well as the input from WSIS Action Line facilitators and co-facilitators. The reporting is based on the contributions of the stakeholders responding to the ITU official 2014 call for stocktaking update and new entries.

The WSIS Stocktaking process was initiated in October 2004 during the Tunis phase of WSIS and has over time become an effective tool for the exchange of information on projects and initiatives related to the implementation of the 11 Action Lines. The WSIS Stocktaking process provides a register of activities 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 the Summit, 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). The WSIS Stocktaking process provides a portal of best practices for stakeholders seeking updated information on progress made in implementing WSIS outcomes (§28.e, Geneva Plan of Action).

The 18 categories are the following:

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

1 See 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 and 2014.

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

16) Media

17) Ethical dimension of the information society

18) International and regional cooperation

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.

As of May 2015, over 7 000 updated entries and more than 135 000 stakeholders have been registered in the WSIS Stocktaking Database, reflecting innovative activities including projects, programmes, WSIS thematic meetings, conferences, publications, training initiatives, guidelines and tool-kits. Following § 120 of the Tunis Agenda and ECOSOC Resolution 2014/27, adopted on 27 August 2014, on *Assessment of the progress made in the implementation of and follow-up to the outcomes of the World Summit on the Information Society*, ITU Members are encouraged to continue to contribute information on their activities to this public database as well.

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 accounts of projects and activities and can track all recorded data and update/edit their existing WSIS-related activities at any time.

Regular reporting on WSIS Stocktaking is the outcome of the Tunis phase of the Summit, which was 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 been playing a crucial role over many years and this role takes on even greater significance in the light of the WSIS+10 review process on the implementation of WSIS outcomes.

## The Role of ITU in WSIS Implementation

It is important to stress here that the International Telecommunication Union has been contributing greatly 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 assigned mandates with reference 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 the 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).

During the last year, ITU, in close partnership with other United Nations agencies and its stakeholders, has been leading numerous activities worldwide in the field of information and communication

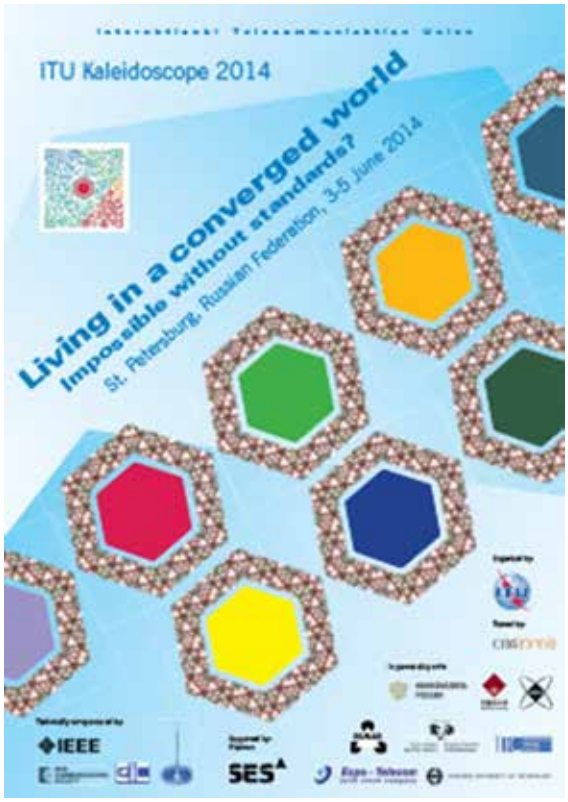
technologies for development. Among the most significant initiatives fostered by ITU in the period April 2014-March 2015 are the following:

The Global Symposium for Regulators (GSR) is the largest annual gathering of the global regulatory community concerned with information and communication technologies (ICTs). During 14th Global Symposium for Regulators (GSR-14) in Bahrain (Manama, 3 to 5 June 2014), participants debated a wide range of topics of crucial interest to regulators today. GSR-14 was organized by ITU's Telecommunication Development Bureau (BDT) and hosted by the Government of Bahrain under the patronage of the Prime Minister, His Royal Highness Prince Khalifa bin Salman Al Khalifa. The first two days were dedicated to the Global Regulators-Industry Dialogue (GRID) with the private sector, while the third day was for regulators alone. More than 700 specialists from 113 countries worldwide registered to attend the event, which also attracted around 80 high-level participants, including government ministers, heads of regulatory agencies, and industry chief executives.

ITU hosted the World Radiocommunication Seminar 2014 (WRS-14) in Geneva from 8 to 12 December 2014, offering training focusing on the application of the ITU Radio Regulations and regulatory aspects of the use of the radio-frequency spectrum and satellite orbits. More than 400 participants attended from over 90 countries. ITU organizes world seminars on spectrum management every two years, as well as regional seminars aimed in particular at addressing the needs of developing countries. In his opening remarks, François Rancy, Director of the Radiocommunication Bureau (BR), noted that "Radiocommunications today are undergoing constant changes. These changes occur as a result of technological improvements and changes in practice and they need to be reflected in the international regulations on spectrum. […] They need to be reflected in the World Radiocommunication Conferences, ITU Radiocommunication Sector (ITU–R) Recommendations, best practices on spectrum use, and the software tools used by ITU to process the thousands of notices we receive every week reliably and efficiently".


The ITU Kaleidoscope Academic Conference 2014, held in Saint Petersburg, Russian Federation, from 3 to 5 June 2014, accordingly approached the topic "Living in a converged world — impossible without standards?" from a variety of perspectives. The conference was held at the invitation of the Ministry of Communications and Mass Media, and hosted by the Bonch-Bruevich Saint-Petersburg

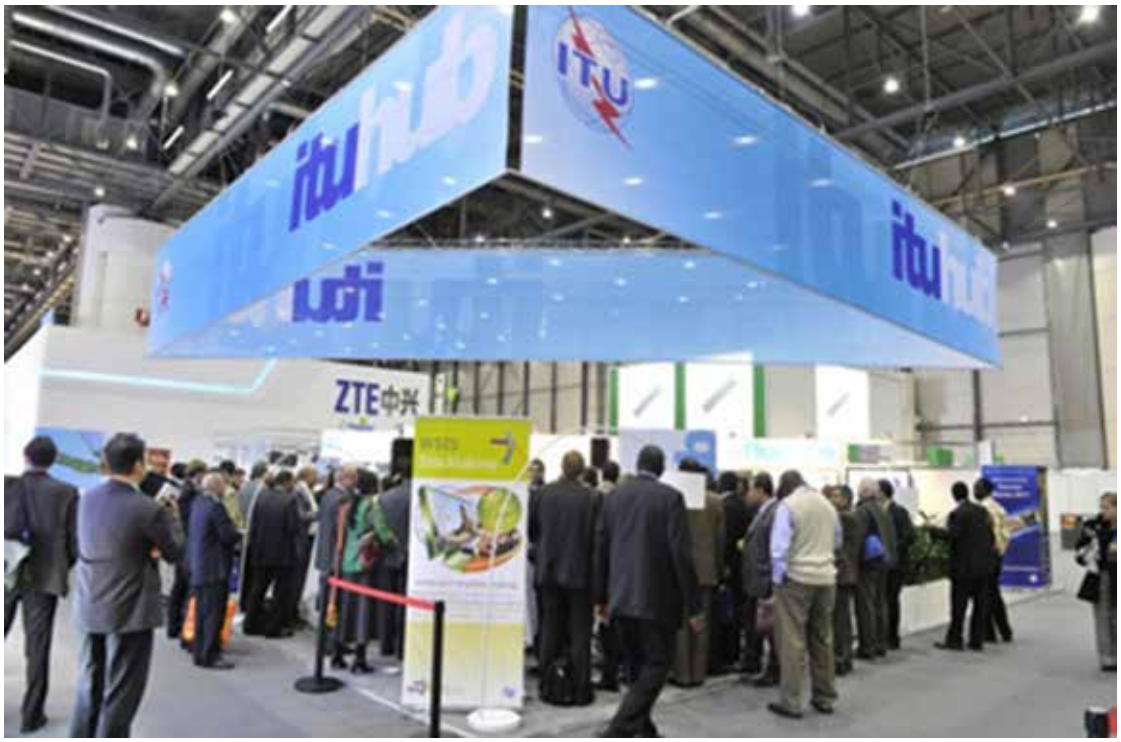
State University of Telecommunications. Information and communication technologies (ICTs) are increasingly converging with different industries and social sectors. This is evidenced daily by innovations such as e-health, intelligent transport systems, smart grids, mobile money and smart water management. The need for standards to allow interoperability and compatibility has never been more apparent. In future it will be difficult to find an industry or socio-economic activity that does not rely on the common backbone provided by ICTs. This places huge demands in terms of ICT standardization.




Mobile phones, tablets and e-readers with broadband connectivity could prove to be the long-sought solution in the global effort to bring high-quality, multidisciplinary educational opportunities to people everywhere, especially those in the world's poorest and most isolated communities, according to the UN Broadband Commission for Digital Development, which held its 11th meeting at UNESCO headquarters in Paris on 27 February 2015. A report by the Commission's Working Group on Education, led by UNESCO, indicated that worldwide, over 60 million primary-school age children do not currently attend school; almost half that number never will. The situation worsens as children get older, with over 70 million not enrolled in secondary school. And while classroom computers can help, lack of resources remains critical. If an average of eight children share each classroom computer in OECD nations, teachers in Africa may struggle to share each computer among 150 or more pupils. But with increasingly sophisticated mobile devices now packing more computing power than the famed 'supercomputers' of the late 1990s, the Commission believes that broadband-connected personal wireless devices could be the solution. ITU figures show that mobile broadband is the fastest growing technology in human history. The number of mobile phone subscriptions now exceeds the world's total population of around seven billion, and active mobile broadband subscriptions exceed 2.1 billion – three times more than the 700 million wireline broadband connections worldwide. Even more encouragingly, most of this progress has taken place in the developing world, which has accounted for 90 per cent of global net additions for mobile cellular and 82 per cent of global net additions of new Internet users since early 2010.

ITU Telecom World 2014, a platform for high-level debate, knowledge-sharing and networking for the global information and communication technology (ICT) community, took place from 7 to

10 December 2014 in Doha, Qatar. The event was hosted by the Government of Qatar with the support of a leading international communications company, Ooredoo. It was attended by a range of well-known figures from the ICT world: ministers, consultants, policy-shapers, leading industry CEOs, renowned academics, and futurists. The show floor highlighted technologies and investment opportunities through the presence of national and thematic pavilions and industry showcases. Top global players included Cisco, Huawei, Intel, LS Telcom, Nokia, Ooredoo, Rohde & Schwarz, Vodafone and ZTE, alongside countries like Argentina, Azerbaijan, Cameroon, Chad, China, Hungary, Nigeria, Malaysia, Qatar, Tanzania, Thailand and Zimbabwe, while Kenya, Uganda, South Sudan and Rwanda came together within the Smart Africa zone. Forum discussions at the event covered key trends and developments in technology, regulatory and policy issues, business models, services and applications, focusing on three major scenarios: disruption, cross-sector partnerships, and the intelligent future. Moderators, speakers and panellists spanned a mix of high-level players from government, as well as all facets of the industry. Sessions took a variety of different formats, from top media-moderated "Big Conversations" to ministerial round tables and panels.




ITU's Telecommunication Development Bureau (BDT) organized, with the Infocomm Development Authority of Singapore (IDA), the Inaugural ICT Regulators' Leadership Retreat, reserved for Heads of ICT regulatory authorities, which 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 by the advent of OTTs, big data for bigger decisions, smart cities and open data, and the role of the regulator today and in preparing for tomorrow.

The ITU Academy aims to become the leading supplier and the repository of reference for all training and professional development programmes relating to the ICT sector. Operating at two levels, it will manage the development of a coherent ITU training and development strategy reflecting the

demands of its members and stakeholders, and at an operational level, manage the design of training resources and coordinate training delivery. As such, it will offer a single point of entry to all ITU human capacity-building resources, with an online catalogue as a navigation tool for users and interested parties. The ITU Academy has been established as the lead agent for all ITU human capacity-building activities, including policy-making and implementation. It will work with ITU Members, stakeholders and partners to create a major force for knowledge transfer within the ICT sector. The ITU Academy responds to demands for knowledge and skills in ICT training, teaching and research. It offers a wide and growing range of general and specialized courses on all aspects of telecommunications in the areas of radiocommunication, standardization and development. Programmes are delivered face-to-face, as well as through online learning. These are designed to equip an expanding number of target groups with the specialist knowledge and tools they require in order to find their way around the rapidly evolving domain of ICTs, and to use their skills and relevant technology in creating a knowledge society. Principally, the programmes serve a varied audience – policy-makers, telecommunications/ICT business managers and practitioners, government officials from ICT Ministries and regulatory authorities, diplomats and representatives, students and teachers of telecommunications/ICT, as well as civil society. The primary objective of the ITU Academy is to harmonize, integrate and gather under one umbrella all existing ITU training services corresponding to the organization's main areas of activity – radiocommunications, standardization and development -and to extend the current portfolio of training programmes.

Academia members can strengthen ITU in leveraging the power of telecommunications and information and communication technologies to continue the quest for knowledge, innovation and prosperity. The ITU platform allows academic and research institutions to participate in the development of global standards, and to build relationships with regulators and industry from around the world. A recent example is the ITU Academy event on "Fostering Innovation and Partnerships in Human Capacity Building: Enhanced Engagement of Academia in the International Telecommunication Union", held in Prague in April 2014. At this meeting, Academia members and the ITU Academy agreed on a plan to forge stronger collaborative relationships in capacity building. The plan envisages the joint development and delivery of training programmes, as well as awarding internationally recognized accreditation for some of the programmes on offer. By strengthening the participation of Academia in our work today, we are expanding the horizons and potential of our Union for decades to come.

The first meeting of the ITU ASP-CoE (centre of excellence) Steering Committee took key strategic decisions aimed at implementing the approved operational processes and procedures. Some of the key issues included evaluation of performance in 2014, the strategic direction of the ITU Asia-Pacific CoE from 2015 onwards, induction of partners, constitution of the Steering Committee, the timetable of annual activities for 2015, development of content, quality assurance processes, promotion plan, pricing strategies, fees 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, as well as providing specialist training services for external clients. Under the umbrella of the ITU Academy, these regional networks are now being joined together into a single global network sharing training curricula, resources and expertise.

The ITU Arab Regional Development Forum was held in Amman, Jordan, from 23 to 24 March 2015 under the theme "Broadband for Sustainable Development." The Forum discussed the five Arab Regional Initiatives approved by the World Telecommunication Development Conference in 2014

(WTDC-14), providing ITU Member States and Sector Members with an opportunity to exchange experiences and best practices in the implementation of the initiatives. The Initiatives focus on the following areas: broadband, cybersecurity, ICTs for the environment, smart learning, and ICTs for persons with disabilities. Under each Regional Initiative, and through partnerships and resource mobilization, projects will be developed and implemented to meet the real needs of the region.

On 25 June 2014 ITU established a new Focus Group on Digital Financial Services to promote financial inclusion using information and communication technologies (ICTs) in response to a proposal from the Bill & Melinda Gates Foundation, which is a member of ITU's Standardization Sector (ITU-T). Over 2.5 billion adults do not have access to a formal bank account, most of them in developing economies. Internationally standardized 'mobile money' platforms will increase financial inclusion to the benefit of socio-economic development worldwide. Digital financial services are capable of improving the delivery of basic financial services. Standards will drastically reduce the costs of these services to service providers and their customers, thereby opening the door to remote and underserved communities.

On 5 and 6 March 2014, ITU convened the Future Networked Car symposium within the Geneva Motor Show, with the support of Anheuser-Busch InBev. This international symposium brought together leaders from the auto industry, motor sport, international automobile associations and ICT experts. A high-level dialogue on innovation for the future car on the second press day of the Motor Show was moderated by a key media personality and engaged well-known industry heads in a discussion on developments in the intelligent transport field and on ways of fostering innovation in this dynamic sector. Particular emphasis was given to motor sport as an incubator for such technical advances. Subsequent sessions examined the potentially game-changing development of automated driving; connecting road users and roadside infrastructure to improve safety, reduce emissions and boost convenience; and lastly, ways of integrating connected technologies into vehicles without causing deadly driver distraction. A session on human factors and regulatory requirements for the introduction of automated driving was organized jointly by ITU and the Inland Transport Committee of the UN Economic Commission for Europe (UNECE).

The Cyberspace, Energy & Development international conference 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 regarding security issues. There is a need for greater international cooperation among nations regarding cyberspace, especially concerning the risks related to critical infrastructure such as conventional energy systems. Early initiatives in this area have focused mainly on the safety of telecommunication and information networks, as these are the very infrastructure of cyberspace. However, if a cyberattack were to cause a deterioration in the electricity supply, it could also impair 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 as a result of threats 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, the theft of general as well as customer data, and other dormant risks. This interaction of risk issues between cyberspace and the energy sector 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 between the telecommunications industry and electricity infrastructures will only increase over time. Furthermore, taking into consideration the interaction between cyberspace and energy is a prerequisite for effective and safe economic development.

On 28 October 2014, ITU celebrated the Gender Equality and Mainstreaming Technology (GEM-TECH) Awards 2014 in Busan, Republic of Korea, during a plenary session of the ITU Plenipotentiary Conference. The United Nations Educational, Scientific and Cultural Organization (UNESCO) won the first category of the seven GEM-TECH Awards, "ICT Applications, Content, Production Capacities and Skills for Women's Social, Political Empowerment and Women's Empowerment Linkages with Sustainable Development" with its online portal, Women in African History: An E-Learning Tool (Africa). This platform consists of multimedia educational resources highlighting the role of women in African history (including comic strips, audio modules, and quizzes). By ensuring meaningful engagement of young girls with information and communication technologies (ICTs) through relevant local content, the e-learning tool enables capacity building of young girls as both decision-makers and producers in the information and communication technology sector. The platform is currently available in English and French (http://fr.unesco.org/womeninafrica/), with several African languages to be rolled out by 2015 in order to promote multilingualism in cyberspace and encourage online access by rural populations.


With the number of school girls opting to study technology-related disciplines on the decline in most countries worldwide, ITU is committed to championing the catalytic role a "tech" career can play in creating exciting, far-reaching opportunities for women and girls. To help inspire girls to consider a future in technology, ITU established 'Girls in ICT Day' back in 2010 and supports the global organization of activities every year on the fourth Thursday in April. Global momentum around Girls in ICT Day continues to grow, with over 100 countries expected to hold events hosted by governments, private sector and NGOs in 2015. At ITU headquarters in Geneva, in the ICT Discovery Museum, ITU organizes workshops for local school girls on satellites, coding, mobile apps, digital music and photo blogging, as well as an opportunity to meet expert role models. In 2015, ITU hosted Girls in ICT Day on 23 April.

The Dubai Declaration is one of the major outcomes of the sixth and most recent ITU World Telecommunication Development Conference (WTDC-14), which took place from 30 March to 10 April 2014 in Dubai, United Arab Emirates. Overall, the Declaration reinforces political support for ITU's development mission and strategic objectives. It recognizes, among other things, the essential role of telecommunications and information and communication technologies in the world's economic, social and cultural development. It also notes that widespread conformance and interoperability of equipment and systems can increase market opportunities and reliability, and encourage global integration and trade. Participants at WTDC-14 considered that governments, in collaboration with other stakeholders, should provide applications such as e-government, e-health, e-education and e-waste management. Applications like these improve transparency and accountability, and optimize access to and use of public services. At WTDC-14, ITU Members reaffirmed, by adopting Resolution 58, the need for accessible ICTs for persons with disabilities through the development of national

legal frameworks, laws, regulations and policies. Likewise, the ITU Plenipotentiary Conference held in Busan, Republic of Korea, in October and November 2014 established the Connect 2020 Agenda, which includes four high-level goals: growth, inclusiveness, sustainability and innovation, and partnership. The goals are accompanied by a set of targets, including one according to which "Enabling environments ensuring accessible telecommunications/ICTs for persons with disabilities should be established in all countries by 2020". Digital inclusion is an aspect of the ITU Telecommunication Development Sector's activities designed to promote ICT accessibility and use for the social and economic development of people with specific needs, including indigenous peoples and people living in rural areas, persons with disabilities, women and girls, and young people and children.

On 5 December 2014, ITU Members achieved final approval of G.fast, the new ITU broadband standard designed to deliver access speeds of up to 1 Gbit/s over existing telephone wires. The standard answers to service providers' need for a complement to "fibre to the home" (FTTH) technologies in scenarios where G.fast proves the more cost-efficient option. G.fast, within established fibre to the distribution point (FTTdp) architecture, combines the best aspects of fibre and DSL. Within 400 metres of a distribution point, G.fast provides fibre-like speeds combined with the customer self-installation of DSL, resulting in cost-savings for service providers and improved customer experience. The standard will comfortably serve the broadband access needs of small-to-medium enterprises (SMEs), with other applications envisaged including backhaul for small wireless cell sites and WiFi hotspots. ITU-T Study Group 15 has initiated work on an extended set of features for G.fast, targeting performance enhancements which will include additions to its range of low-power states. These features are likely to be available for incorporation into service providers' G.fast deployments as early as 3 July 2015.

The m-Powering Development initiative by ITU's Telecommunication Development Bureau (BDT) aims to extend the benefits of mobile technology to all strata of society in order to build a truly inclusive information society, with special focus on remote rural and underserved areas. It is expected that this initiative will add to GDP growth and create employment opportunities through reliable mobile teleconnectivity, provision of affordable services and use of the latest technology. Under m-Powering development, the provision of reliable mobile teleconnectivity will help open up new models of development. Improved access to and use of mobile technologies may also boost positive social and economic impacts in the areas of m-education, m-health, m-government, m-banking and m-sport. This initiative envisages pooling the strengths of governments, international organizations, private sector and civil society, to create a dynamic partnership for the purpose of increasing reliable mobile connectivity.

ITU's Smart Sustainable Development Model (SSDM) is an initiative intended to promote deployment of the crucial telecommunications infrastructure needed to provide 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 to emergency telecommunications opens up opportunities for countries to attain sustainable development, and access to and use of telecommunications services brings innumerable social opportunities and helps to stimulate economic growth of all nations, thereby all citizens in their daily lives.

The objectives of the initiative are to:

1. Harness the potential of ICTs in changing lives through development and saving lives at times of emergencies.
2. Link rural telecommunications/ICT development to both disaster risk reduction and management efforts.
3. Make optimal use of scarce and high-cost resources such as satellite systems by making use of unused satellite capacity.
4. Create ecosystems where investments in telecom infrastructures for economic development are also used for disaster response in the interests of public safety.

5. Ensure deployment of robust and resilient communication networks that continue to provide services in the immediate aftermath of disasters.
6. Avoid duplication of efforts by development partners (governments, private sector, intergovernmental organizations, etc.) by focusing exclusively on development or exclusively on disaster management, without taking into account the other area.

# 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 of them. This action line is intended to promote 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.

As in the past, in addition to organizing the Ninth Facilitation Meeting of Lines C1, C7 and C11 of the Geneva Plan of Action and the Tunis Agenda (June 2013), UNDESA contributed substantively to the preparation of WSIS+10 Outcome Documents that were adopted at the WSIS High Level Event in June 2014, in Geneva. The facilitation meeting served as an enabling platform for WSIS outcomes, in which an international and multidisciplinary group of experts and national practitioners (consisting of public officials as well as stakeholders from civil society, academia and the private sector) shared their experiences and exchanged practices, including in the area of e-government.

As already mentioned in the Introduction in relation to ITU initiatives, the Dubai Declaration is one of the major outcomes of the sixth ITU World Telecommunication Development Conference (WTDC-14), which took place from 30 March to 10 April 2014 in Dubai, United Arab Emirates. Overall, the Declaration reinforces political support for ITU's development mission and strategic objectives. It recognizes, among other things, the essential role of telecommunications and information and communication technologies in the world's economic, social and cultural development. It also notes that widespread conformance and interoperability of equipment and systems can increase market opportunities and reliability, and encourage global integration and trade. Participants at WTDC-14 considered that governments, in collaboration with other stakeholders, should provide applications such as e-government, e-health,

e-education and e-waste management. These applications improve transparency and accountability, and optimize access to and use of public services. At the last World Telecommunication Development Conference (WTDC-2014) held in April 2014, ITU Members reaffirmed, by adopting Resolution 58, the need for accessible ICTs for persons with disabilities through the development of national legal frameworks, laws, regulations and policies. Likewise, the ITU Plenipotentiary Conference held in Busan, Republic of Korea, in October and November 2014, established the Connect 2020 Agenda which includes four high-level goals: growth, inclusiveness, sustainability and innovation, and partnership. The goals are accompanied by a set of targets, including one according to which "Enabling environments ensuring accessible telecommunications/ICTs for persons with disabilities should be established in all countries by 2020". Digital Inclusion is an aspect of the ITU Telecommunication Development Sector's activities designed to promote ICT accessibility and use for the social and economic development of people with specific needs, including indigenous peoples and people living in rural areas, persons with disabilities, women and girls, and youth and children.

## C1.1 National e-strategies

In **Austria**, the Federal Chancellery's *National e-strategy 2008-2020* comprises a whole series of strategic elements for creating an information society for everyone, whereby digital technologies and their application are regarded as instruments that are capable of contributing to increased equality of opportunity, greater personal freedom and more solidarity between all members of society.

In **Burkina Faso**, the overall goal of the governmental *Open Data Initiative* is to make relevant data available to all, and especially to encourage the reuse of data in order to create value-added services. Its specific objectives are to:

- Allow the government to be accountable to citizens on the management of public goods
- Enable citizens to participate in the management of public goods through feedback
- Enable civil society, journalists, investors and academics to access big data on Burkina Faso
- Help the private sector to create jobs and contribute to the reduction of unemployment in Burkina Faso
- Accelerate the economic and social development of Burkina Faso.[2]

In 2010 in **Colombia**, the Ministry of Information and Communication Technologies launched the *Vive Digital* plan, a country-wide public policy plan aimed at reducing poverty and creating jobs through increased Internet use across all segments of the Colombian population, with a special focus on lower-income segments. The Plan advanced Colombia's digital ecosystem in its four core components: Infrastructure and Services (supply side) and Applications and Users (demand side). For the period 2014- 2018, *Vive Digital* is focusing on:

- Becoming a world leader in the development of applications with social impact for lower-income segments
- Increasing efficiency and transparency in government through the use of ICTs
- Multiplying by three the number of broadband connections, from 8.8 million in 2014 to 26 million by 2018
- Increasing household Internet penetration, from 50 per cent in 2014 to 63 per cent by 2018
- Increasing the Internet penetration of small to medium-sized businesses (SMBs), from 60 per cent to 70 per cent by 2018
- Reaching every municipality in Colombia with 4G technology and free public WiFi.

In the **Islamic Republic of Iran**, policy-makers have recognized the importance of *measuring and monitoring ICTs*. There is now a law on the design and implementation of an ICT measurement system for the Islamic Republic of Iran as well as a formal provision in the Fifth Development Plan. The system has been designed by the Information and Technology Organization (ITO) as a national coordinator

[2] *Project nominated for a WSIS Project Prize 2015*

in the Islamic Republic of Iran based on previous experience in this domain in recent years. It is a valuable tool at the disposal of the country's policy-makers for monitoring progress towards national and international ICT goals and objectives.

In **Morocco**, the *Generalization of Information and Communication Technologies in the National Education (GENIE)* programme and the progressive integration of ICTs to support the national curriculum are two important steps in the implementation of the education reform. The GENIE programme is a governmental project that aims to contribute to building a knowledge society and sustainable development in Morocco. Furthermore, in March 2005, the Moroccan government adopted a strategy aimed at the widespread use of ICTs in public schools. It has set up a programme to equip schools (at all levels) with multimedia rooms and/or media suitcases connected to the Internet, as well as other mobile devices.[3]

In **Mexico**, the Office of the President of Mexico has launched five projects.

The *Agentes de Innovación* project responds to the desire of the Coordination for the National Digital Strategy (CEDN) to contribute to the goals of the National Development Plan and demonstrate a different way of developing open government projects, with rapid functional prototypes, multidisciplinary teams and agile collaboration between government and citizens to create a sense of co-responsibility. The project seeks to build teams among the major innovators and entrepreneurs both inside and outside government, and help them create tangible technology-based, high-impact projects. In its first generation, the programme has facilitated the development of five projects that address a range of issues including maternal health, civic collaboration to improve public safety, effective opportunities for entrepreneurs, social programme design improvement through beneficiary feedback loops and improving school dropout rates.

The *gob.mx* portal is a unique website where citizens will find all the relevant procedures, information and communications from the Government of the Republic. The website informs citizens about government services and provides all the information needed to access and use them, with the possibility to download forms and make online payments. By serving as a single communication structure for the entire Federal Public Administration, *gob.mx* will enable citizens to access all information about public policies and the programmes on which the ministries and the various agencies are working.

On 8 May 2014, the *ICT Policy* was published in the Official Gazette of the Federation. The objective of this Agreement is to lay down the policies and orders for the National Digital Strategy relating to ICTs and security of information, as well as to establish the Administrative Manual of General Application in these domains. It establishes the regulations that the agencies of the Federal Public Administration and the Office of the Mexican Attorney-General (PGR) shall comply with in determining their operating processes related to ICTs and security, and the standardization of processes to align them with the National Digital Strategy, thus optimizing management within the agencies and PGR.

As part of the *Vertical Integration* pilot programme, which provides for the integration of procedures and services at the state and municipal level in Mexico, on 19 March and 26 April 2014 the Digital Government Unit signed coordination and collaboration agreements with the states of Colima and Jalisco to establish the "Pilot Programme of the National One-Stop Shop for government procedures and services". The pilot project aims to increase the competitiveness and efficiency of states through the digitization of procedures and services, based on three indicators that the World Bank establishes in the subnational "Doing Business" ranking, which advocates digitizing and optimizing the processes involved in the following areas: i) starting a business; ii) obtaining building permits; iii) registration of property; and iv) enforcing contracts. In Colima, a Digitization Pilot Project is being developed encompassing 30 procedures and services from the state and five services for each of its ten municipalities. As a result of the Pilot Programme in the State of Jalisco, four Guidelines to

[3] *Project nominated for a WSIS Project Prize 2015*

Standardize, Optimize and Digitize Procedures for Doing Business were elaborated in order to facilitate the procedures for starting a business, obtaining construction permits, registering property and enforcing contracts, with the participation of 19 municipalities.

The *Digital Inclusion and Literacy* pilot programme began by bringing together various stakeholders in the IT industry and education sector to present solutions that would take into account the digital ecosystem (connectivity, training, content, assessment, support and infrastructure) necessary for the effective implementation of tablets in selected public schools of three Mexican states. The tablets and supporting infrastructure were donated by various industry participants without cost to the government and were given to students and teachers in fifth and sixth grades. The pilot had two main objectives:

1. Develop digital capabilities to promote:

- collaboration
- critical thinking
- communication skills
- self-management, etc.

2. Development of generate indicators and models that contribute to digital inclusion and public literacy policy.

*Open Data* is one of the five main enablers of the National Digital Strategy of Mexico. Its primary objective is releasing open data to create an ecosystem of co-creation of public services, triggering innovation, entrepreneurship and economic growth, driving transparency and reducing corruption in the country. To leverage this enabler, the Government of Mexico is implementing an Open Data Policy, which mandates all federal agencies to follow an 'open by default' standard for all their public data. Furthermore, CEDN is working on projects to drive the use of open data across all sectors of society, such as:

- *Data for Development*, to gather data from different sources to drive data-based policy-making and decision-taking in government;
- *OD100MX* (opendata500.com/mx), which is the first study to map Mexican companies that use open government data to generate new business, develop new products and services and generate economic and social value.

In **Poland**, the *Innovations* series has been published by the regional administration – the Marshall's Office of the Lodzkie Region – since 2009. The first publication was an outcome of the international conference "Innovations 2009: Man and technologies", organized by the Lodzkie Region. The second was one of the main outputs of the European co-funded project "Innovations 2010: Promotion and communication", carried out by the Lodzkie Region in 2010. The project is thus sustained each year by an annual publication (in paper and/or e-book form). The sixth edition was published in 2014.<?>

**Saudi Arabia** boasts five deserving governmental initiatives.[4]

*Leqa'a* is a videoconference service implemented by the Ministry of Education to serve all ministry users, including decision-makers, directorates, branches, and schools abroad, including both genders and taking into consideration religious rules and the culture of not mixing the genders. Leqa'a is used mainly for meetings, training sessions, video streaming, recording and the yearly ministerial meeting. Among the benefits are use of the existing connectivity infrastructure, cost and time savings, and

[4] *Projects nominated for a WSIS Project Prize 2015*

overcoming the difficulty of arranging meetings. Users can attend from the current meeting rooms or join the meeting using their PC, laptop or smartphone (BYOD) from inside or outside the network.

The *Correspondence Tracking and Electronic Archive Solution* project was developed by the Municipality of Jeddah for its HQ and 14 branches. The following solutions were implemented: archiving solution, correspondence tracking system and archive record management for physical location, document request and document retention policy, with the following modules: circulate, external user request, VIP, IPAD, task manager, follow-up notification tool, Outlook integration.

The *Digital portal for tourist accommodation licensing services* is an online website designed to provide users with a virtual link to the Saudi Commission of Tourism and Antiquities (SCTA) for licensing services. The portal enables all stakeholders to access information with a view to promoting investment in the tourist accommodation sector. The portal was created through several partnerships in the governmental sector, including the Ministry of the Interior and the 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 potential changes in the future.

The *Universal Service Fund (USF)* programme, launched in 2010 and scheduled for completion by 2017, will connect more than 20 000 rural communities in **Saudi Arabia** to the Internet with a minimum speed of 512 kbit/s. It provides universal service to every user in communities with a population of between 100 and 5 000. For communities with a population of less than 100, universal access is provided through local Internet centres located within a range of 10 km from each community. The programme is technology-neutral. Universal service providers are selected through a competitive mechanism developed by USF. The programme comprises 14 projects, of which six have already been completed, five are in progress and three are to be released for competition later this year.

Recognizing the importance of capacity building and development initiatives for government sector personnel in respect of electronic government applications, and to support adaptation to and the acceptance of new changes, responsibility and continued improvement of performance, the *Qudoratak* programme is a capacity-building and development initiative which aims to disseminate information technology culture and bridge the digital divide in the basic use of computers in order to handle electronic services and manage their implementation with a high degree of skill and professionalism.

In **Thailand**, *Fable* is a software application that manages the national broadband development project to support Thailand's Digital Economy Initiative, comprising five areas of focus: hard infrastructure, soft infrastructure, service infrastructure, digital economy promotion and digital society. The Thai Government can exploit information provided by Fable to plan investments for developing and promoting the digital economy, especially in the area of hard infrastructure. Usage and available capacity can be analysed in order to identify return on investment and ensure quality of service and maintenance for sustainable growth. Fable enhances the transparency, accountability and efficiency of the Thai government by broadening network access, reducing costs and avoiding duplication of investment.[5]

[5] *Project nominated for a WSIS Project Prize 2015*

# The Effective Use of Fable

## An ICT Application for Developing National Broadband Infrastructure

toward Thailand's Digital Economy Initiative

TOT
TELECOM OF THAILAND

Fable is a web-based application to manage national broadband project for supporting Thai government digital economy initiative for a better living of Thai people.

## Objectives of Fable

| | |
|---|---|
| STEP 1 | Integrate existing infrastructure information |
| STEP 2 | Manage & monitor the status of ICT assets |
| STEP 3 | Provide information support to ICT infrastructure investment projects |

## The Use of Fable

The Thai government can use information provided by Fable to plan ICT investment projects for developing national infrastructure to transform society and economy to promote a better living of people by using ICTs.

## Current Status

**Users:**
Support over 20,000 users (technicians, operators and executives)

**Assets:**
Manage 200,000 ICT Infrastructure assets

**Fibre Optics**
Contain 18,000 Fibre Optic Routes

**Subscribers**
Support 2,000,000 subscribers

Fable enhances transparency, accountability and efficiency at Thai's government by broadening network access, reducing costs and preventing overlapping investment.

In **Trinidad and Tobago**, the Ministry of Science and Technology's *SmarTT* project, under the National ICT Plan for 2014-2018, approved in 2013, encompasses five thematic areas:

1. Innovation and human capital development
2. Access and digital inclusion
3. E-business and ICT sector development
4. Infrastructure development
5. E-government.

Under these thematic areas, some 56 programmes and 156 development projects have been identified, of which 116 projects are being tracked across government.

The National Broadband Plan, established as a component of SmarTT (Theme 4), recognizes the importance of broadband as a critical success factor in promoting economic development and establishing a knowledge economy The World Bank Group has been engaged to elaborate a Broadband Strategy and Action Plan to accelerate access to broadband services within the country. This engagement is currently in its second phase, pursuing the following actions:

Demand side:

- IT/ITES strategy and location readiness index
- National open data

Strategy: sensitization workshops to be conducted with stakeholders in February/March 2015

Supply side:

- Establishing an alternative submarine cable landing station using a PPP model.

## C1.2 ICT for Sustainable Development

In **Algeria**, the *Iroley Smart Zone (ISZ)* project is part of the Djibouti Digital road map initiated by the Ministry of Communications in accordance with the country's "Vision 2035". The aim is for ISZ to become a showcase for the Ministry's vision of transforming Djibouti into a knowledge-based smart economy. The smart sustainable zone will be dedicated to fostering a prosperous ecosystem, building ICT industry expertise and skills in a national Centre of Excellence, attracting international IT companies and also developing a start-ups ecosystem providing entrepreneurs with infrastructure, access and a dynamic working environment.

The *CNAC information system* is based mainly on employment- and management-related computer applications such as:

- RAC: computer system for management of the Unemployment Insurance Scheme
- SIPROC: computer system for device management support for the creation and expansion of activities
- SIGAPE: computer system for management of the incentive system and support for the promotion of employment
- SCRABBLE: integrated management of fixed assets, inventory and accounting
- "PAY" system
- "Administrative management" system

In **Canada**, an initiative seeks to increase trade and private investment in the countries of the Association of Southeast Asian Nations (ASEAN) in order to create more jobs and reduce poverty. The initiative supports greater regional connectivity, including physical connectivity through infrastructure development and institutional connectivity through effective institutions, mechanisms and processes. The project aims to support public-private partnership projects to finance Southeast Asia's pressing infrastructure needs. As national economies become more interconnected, regional cooperation

and integration help to accelerate economic growth, reduce poverty and economic disparity, raise productivity and employment, and strengthen institutions. *The ASEAN Infrastructure Centre of Excellence* aims to provide expert support and technical assistance to help member countries identify and prepare viable, bankable, and high-impact regional public-private partnership projects to develop infrastructure.

In **Djibouti** *Pusat Layanan Internet Kecamatan Sentra Produktif* or *Internet Services Cluster for Productive Centers* is a government initiative to provide Internet services to facilitate the activities of small, micro and medium-sized industries in order to improve their productivity and economic growth in subdistrict areas.

In Indonesia, three promising projects have emerged in 2015.

The Government of **Indonesia**, particularly the Ministry of Communication and Information Technology (MCIT), is carrying out *the Empowering Society towards ICT Uptake* project in the interests not only of expanding the means for obtaining access to information through ICT infrastructure development but also, and more importantly, of empowering end users through the acquisition of ICT and Internet literacy. ICT end-user empowerment, mainly in remote and rural areas, aims to provide such users with the soft skills they need in order to gain the information that will empower their lives, whether in their educational, agricultural or business activities. MCIT is thus engaged in the ICT empowerment of society through the following programmes:

1. CAP and M-CAP
2. Capacity building through training/workshop events
3. Indonesia ICT Volunteers
4. ICT Village Festival
5. ICT Festival for the People
6. Kartini Next Generation Award.


RelawanTIK
INDONESIAN ICT VOLUNTEERS
www.relawan-tik.or.id
FESTIVAL TIK
ICT Festivals 2014
Indonesian ICT Volunteers
Internet Governance Forum (IGF)
GALOW IT
Free Internet Service
Indonesian ICT Volunteers Annual National Meeting
together building
Indonesian
information society
Relawan TIK
@RelawanTIK

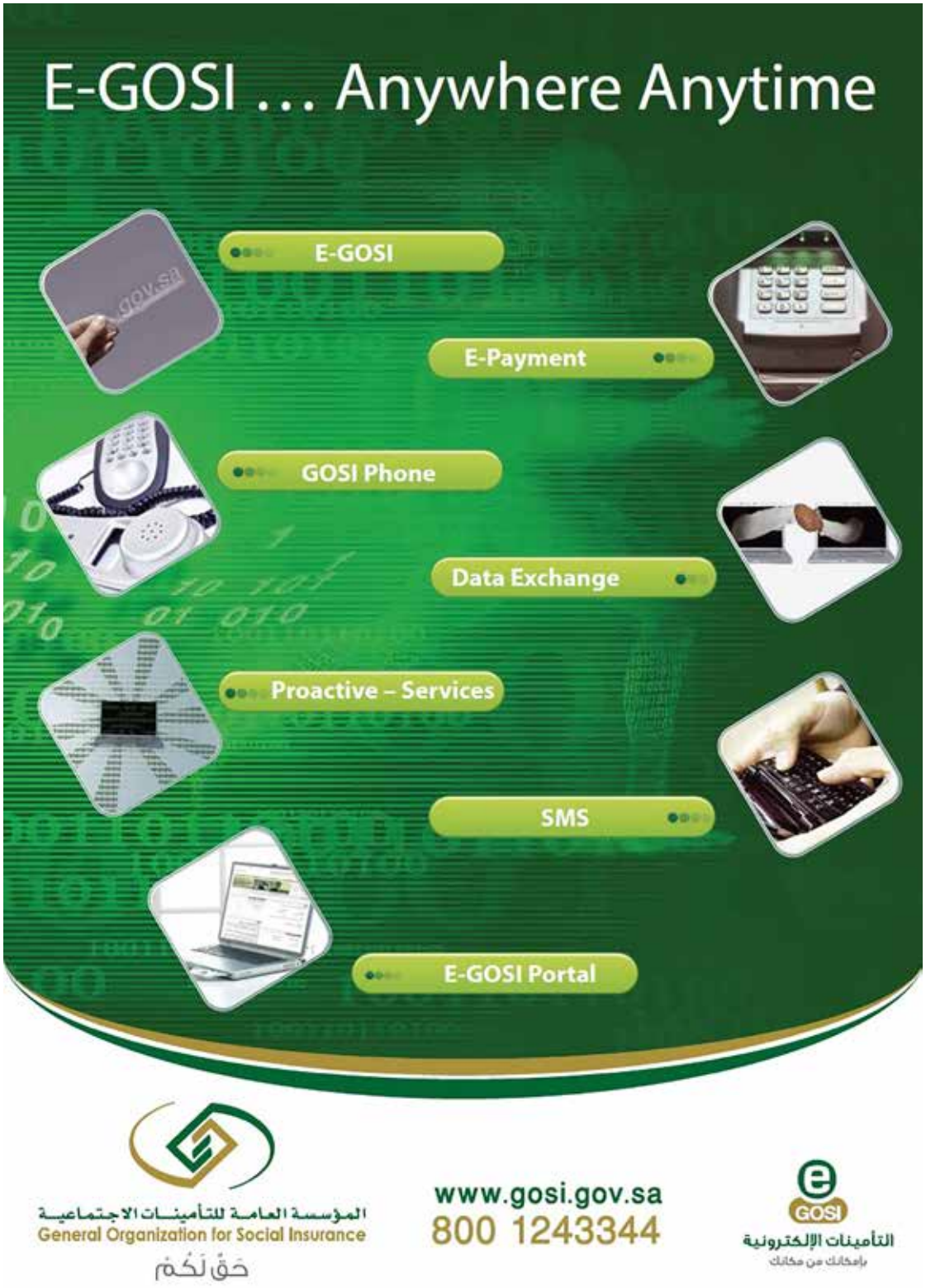
The *Nusantara Internet Exchange (NIX*) programme is intended to provide affordable, safe, high-speed and excellent Internet access at the national and regional levels in Indonesia. The programme addresses various concerns regarding Internet access, performs many functions and has a vast scope in addition to being a data centre.

MCIT is engaged in various ICT development efforts aimed at establishing a progressive, modern and prosperous information society. One of the focuses of those efforts is on infrastructure construction throughout Indonesia, followed by human empowerment through the use of ICTs and public provision of positive information of benefit to people's livelihoods. Moreover, widespread democratization entails the government's fulfilment of society's right to know, thereby increasing its moral obligation to provide various types of information. To meet this obligation, MCIT has since 2009 has been regularly holding *Pekan Informasi Nasional (PIN)* or *National Information Week*, which also serves to educate and enable the public in the use of ICT in public areas.

The Rural Support Service (RSS) developed an Electronic Application System (EAS) designed to ease the communications and processes involved in the obtaining of European Union support for farmers, fishermen and rural entrepreneurs, accelerate the decision-making process, reduce process application errors and improve access for people living in rural areas far from the main cities and RSS client centres. EAS started out as a system for applying for direct payments to help farmers maintain agricultural land in good condition in **Latvia** and develop business in rural areas. The system has since been gradually expanded with more modules, for example an EU programme to provide healthy food (fruits, vegetables and milk for schools and seasonal workers), diesel fuel for farmers, and so on. The strategy has been to make it web-based and user friendly, with no need for any resources other than a computer with a web browser and Internet connection. Programming started in 2007, and the first modules were applications for area payments and field border clarification in maps. This was followed by the addition in 2010 of "Diesel fuel for farmers"; in 2012 of "School fruits and vegetables" and "School milk"; in 2013 of the "Agricultural Data Centre e-application" and "State Technical Supervision Agency e application"; and in 2014 of, among other things, the "Seasonal farmer module" and "Reports on fishing licenses". EAS users can access the system by means of a unique username and password or with an e-signature and bank authorization. Video guides and manuals show how to use the system. RSS plans to enhance the system with more modules and mobile applications in the future. The EAS initiative originated with RSS, with the aim of facilitating communication with clients and coordinating the various kinds of payment used in agriculture, fisheries and forestry. After the first version came out and the number of users began to increase, RSS held meetings with clients – public organizations of farmers in Latvia – to discuss future development, ideas for new modules and system improvements. Non-governmental organizations such as the Farmers Federation, Agricultural Organizations Cooperation Council, etc., put forward ideas on how to improve usability, were involved in usability testing and submitted ideas for new modules. All ideas, opinions and suggestions on how to improve the system can be submitted via a special feedback form available on the website: https://eps.lad.gov.lv/login.

In **Saudi Arabia**, three projects are worthy of attention.

The General Organization for Social Insurance (GOSI) is a semi-governmental agency responsible under a national decree for providing social insurance coverage for private-sector workers, the self-employed, domestic workers and some categories of public-sector employees. GOSI's *e-Services* aim to efficiently and effectively serve its customers – 9.6 million contributors, 590 000 establishments and 307 000 beneficiaries – in a timely manner and with minimal demands on the customer, using technology to serve those needs. GOSI enjoys administrative and financial independence. Its activities are overseen by an 11-member Board of Directors comprising the Minister of Labour (Chairman); the GOSI Governor (Vice-Chairman); three members representing the Ministries of Labour, Finance and Health; three members from highly-qualified contributors; and three members from employers. GOSI exercises its activities through its head office and 21 field offices located in a number of the Kingdom's regions and governorates.




The *Social Insurance Scheme* is an aspect of social cooperation and solidarity for citizens. The scheme covers private-sector workers and certain categories of public-sector workers. It enables contributors and their families to enjoy a decent life following the cessation of work due to retirement, disability or death; ensures the provision of medical care for contributors afflicted with work injuries or occupational diseases; and provides compensation in the event of occupational disability or death.

*Higher Education Degrees' Verification eService*, *Educational Credential Evaluation* and *SAFEER Graduates* are three programmes from the Ministry of Higher Education designed to facilitate the academic careers of students.

In **Singapore**, the SGD 10 million (USD 8 million) *Digital Inclusion (DI) Fund* was set up to provide financial assistance to low-income individuals/households to help bridge the digital divide. The DI Fund supports two main programmes, namely Home Access and Social Innovation. The objective of the Home Access programme is to provide low-income households with access to the Internet. This includes the provision of basic computing devices and Internet connectivity in the home. The objective of Social Innovation is to encourage voluntary welfare organizations in the social service sector to adopt IT solutions which will help them to extend assistance and services to their beneficiaries and serve them better.

In **Switzerland**, the *Geneva Internet Platform (GIP)*[6] is a digital policy platform, observatory and capacity-building centre whose purpose is to assist governments, civil society, academia, technical communities, and other information-society stakeholders- with a special focus on small and developing countries- in finding resources related to digital policy and governance, formulating digital strategies and engaging with other stakeholders' policy debates. The GIP is an initiative of the Swiss authorities and is operated by DiploFoundation.[7]

Where international projects for the promotion of ICTs for development are concerned, ICANN established the *DNS Entrepreneurship Centre (DNS-EC)*, identified as a milestone on the road towards achieving one of ICANN's strategic goals in Africa and the Middle East. It is a partnership between ICANN and Egypt's National Telecommunication Regulatory Authority (NTRA). It aims to contribute to the evolution of the domain name sector in Africa and the Middle East. Building upon the experience and lessons of the growing number of registrars in the region, and of new gTLD registries, the DNS-EC will become the hub and incubator for the next generation of DNS entrepreneurs. The project is being implemented over three years (2014-2017).[8]

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6 It is possible to find more information about the project at www.giplatform.org

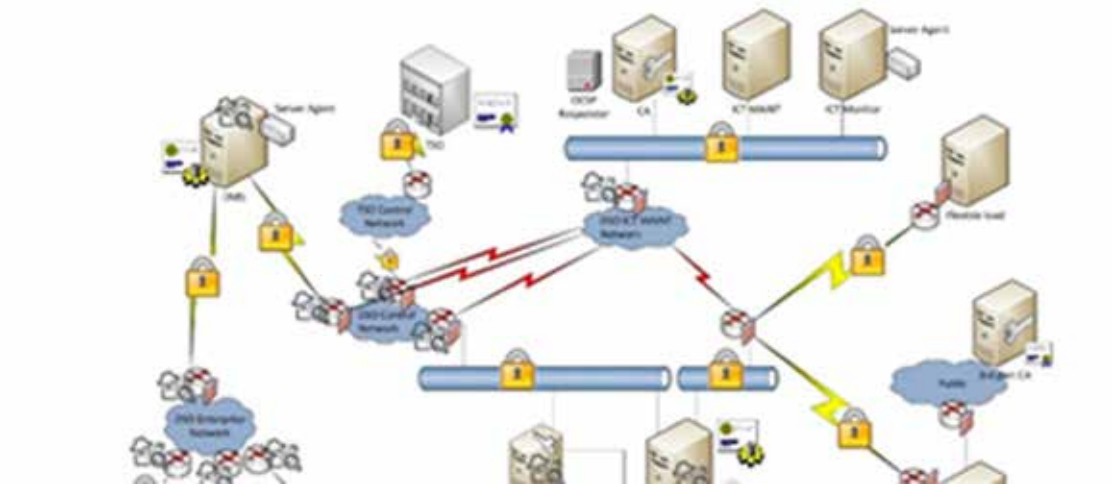
7 *Project nominated for a WSIS Project Prize 2015*

8 *Project nominated for a WSIS Project Prize 2015*

## C1.3 ICT in parliaments

For the ICT in parliaments subcategory, three projects from the Ministry of Information Technology of **Pakistan** were conceived specifically for this aim.

The *E-Office application* suite has been successfully implemented across federal ministries/divisions to automate core business processes through the Internal Communication, HR, Budgeting/Finance, Project Management, Document/File Management and Collaboration modules. The Ministry of IT's National Information Technology Board (NITB) has rolled out the software at 11 offices including the Prime Minister's Office, National Assembly Secretariat, Finance Division, Cabinet Division and Ministry of Science & Technology. E-Office is strictly in accordance with Federal Government rules of business, under which government operations are being brought into line with international e-government standards designed to improve efficiency and transparency and promote an increasingly paperless environment.



Through the *Automation of Prime Minister Secretariat Phase-II* project, the Ministry of IT has provided the Prime Minister's Secretariat with ICT infrastructure to improve internal communications and file tracking. The project aims to automate all business processes executed by the various sections/ wings of the secretariat. All the systems were made functional in early 2006. The Prime Minister's Office website (www.pmo.gov.pk) is available. Fully functional software modules include a Grievance Management System, Fund Management System, Case Management System and Visitor Management System. Remaining project items have been procured and delivered. The project has been extended up to June 2015 for further enhancements.

The NITB has developed the Government of Pakistan Web Portal (www.pakistan.gov.pk), which acts as a gateway for Pakistan. It provides information about the government, links to federal ministries/ divisions/departments, relevant forms, links to other websites and contact details for offices and officials. A revamped portal has been launched with additional features including Feedback Process, Report Bad Link, Rating of the quality/accuracy/validity of content, and Request for new content. It has resulted in a number of benefits such as the dissemination of information to citizens.

## C1.4 Other examples

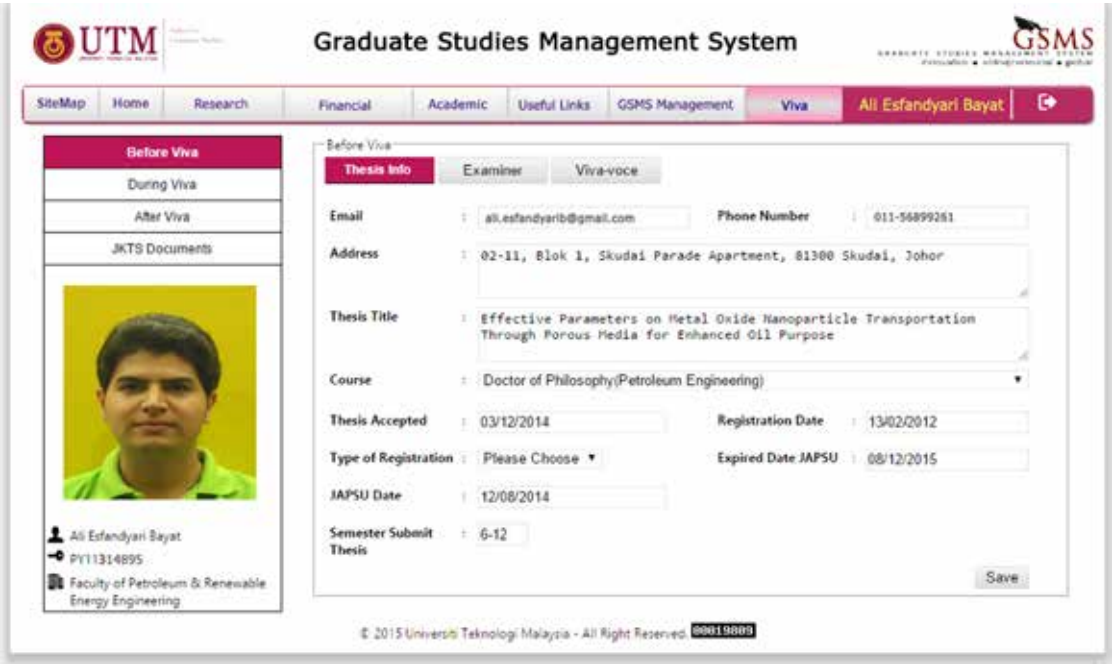
In **Algeria**, *Overview image on the monthly progress of projects (programs and projects housing) - Full web application* is the title of a web application project hosted on servers in the headquarters of the Department, the decentralized services of different provinces, and through the intranet (VPN/SSL), with access to the web portal of the Ministry (containing multiple applications). After authentication, users can consult the list of programmes notified by the application administrator (central office) and determine the consistency (number of houses) of each programme. They can then send monthly progress reports

on those programmes (number of houses outstanding, completed and launched), as well as divide the programmes into several projects and submit monthly progress reports on those projects.

**Malaysia** is involved in Action Line 1 with two interesting governmental projects.

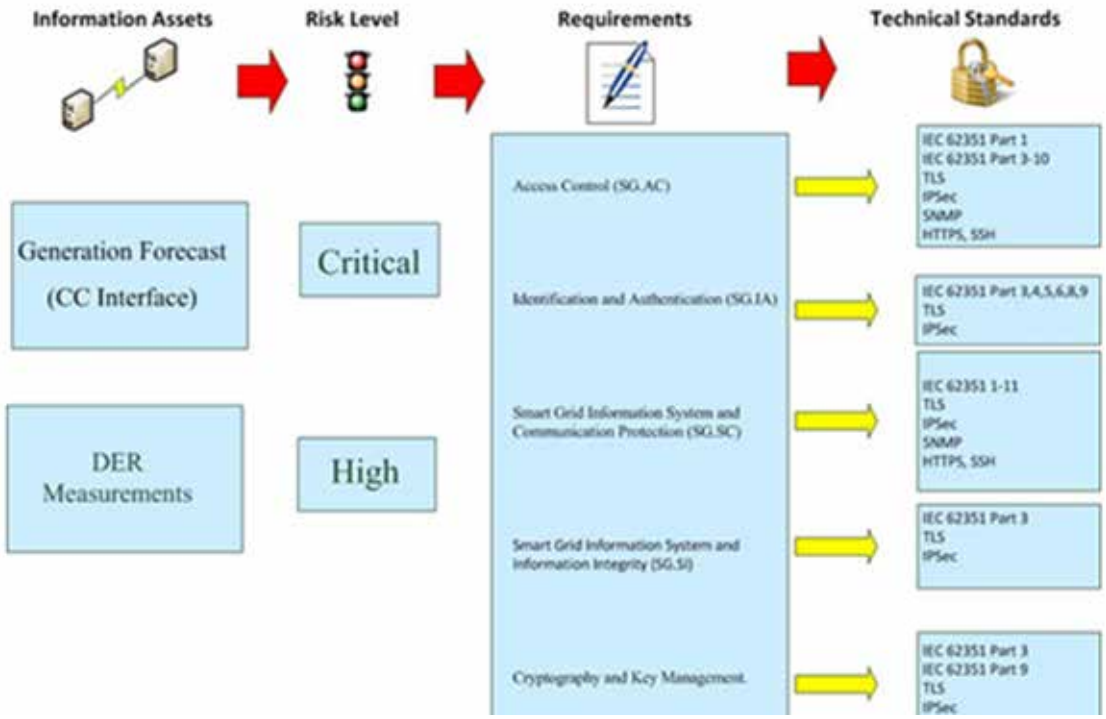
The *Dividend and honorarium online application* by the Co-operative Commission of Malaysia (SKM) has introduced this project in order to fulfil the promise made in the Government Transformation Plan, especially the One Malaysia, People First and Performance Now Concept. The Audit Division of SKM has taken the initiative to develop a system that can satisfy the need of Co-operators in Malaysia to obtain faster approval of dividend and honoraria payments in accordance with the requirements of Section 57 of the Co-operative Societies Act 1993 and SKM Directive 1/2011. The system design has involved collaboration with the SKM Information Management Division. The system will enable Co-operators to secure more rapid approval for dividend and honorarium payouts, reduce costs and facilitate paperless working, and can be used anywhere subject to availability of an Internet connection. The Online Application System, known as SKM OnLine, enables customers (Co-operators) to make an online application to SKM.[9]

The *Graduate Studies Management System (GSMS)*, designed by the School of Graduate Studies (SPS) uses technology to manage postgraduate students at the Institute of Malaysian Higher Education, Universiti Teknologi Malaysia (UTM). The purpose of GSMS is to manage the wide range of processes – recruitment, academic research, scholarships, examinations and administration modules – which seek to turn out prominent postgraduates. With the number of postgraduate students having exceeded 13 000 in 2013, it is crucial for SPS to monitor their performance through a systematic and efficient administration process. The primary objective of GSMS is to effectively overcome the inconvenience of the previous manual system with its excessive use of human resources, overtime claims and printing costs. In helping to meet Malaysia's higher education requirements, GSMS is playing a vital role in strengthening the provision of higher education[10].




[9] *Project nominated for a WSIS Project Prize 2015*
[10] *Project nominated for a WSIS Project Prize 2015*

In **Nepal**, an interesting private-sector initiative is *Fight Violence against Women (FightVAW).* This ICT-based initiative provides the victims of violence against women (VAW) with an alternative means of reporting their case by telephone, SMS or online. It uses an integrated case management system to assist victims of VAW and organizations engaged in reducing its impact in Nepalese society. FightVAW brings together government stakeholders, donor agencies, development partners and social organizations, using ICT to address the VAW that continues to threaten the attainment of MDG-3. All of the aforementioned are engaged in a collaborative effort to mainstream the project to government in the interests of ensuring a sustainable approach to addressing VAW.<?>




In **Peru**, the project *Mujer Peru* is based on the assumption that Peru is a country which enjoys a diversity of culture, cuisine, geography and raw material resources, and whose Inca looms are highly prized abroad. On the other hand, it is also a country that is becoming aware of what it means to live in an inclusive society in which there is a need to inform people and raise their awareness about issues relating to social inclusion. Children and young people, and adults with physical or intellectual disabilities, may experience discrimination, a lack of respect for their rights and limited social prospects. Mujer Peru provides employment opportunities to women with varying skills who wish to start their own business, involving them in making jewellery with silver and Inca designs, and designing different types of low-cost women's accessories that are simple to prepare.

In **South Africa**, SIYAFUNDA CTC is a civil society project that makes available *Information and Community Knowledge Centres* where people can access computers, the Internet and other digital technologies that 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, thereby reducing isolation, bridging the digital divide, promoting health issues, creating economic opportunities and reaching out to young people.<?>

# 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 this was reaffirmed by the two outcome documents agreed at the WSIS+10 High-level Event held last year. This chapter illustrates some of the initiatives relevant to this field.

The Eighth Facilitation Meeting of the Action Line C2 was held in Geneva on 12 June 2014 as an integral part of the WSIS+10 High-level Event. Based on proposals received during the associated multistakeholder open consultation process, the theme adopted for the Action Line Facilitation meeting was "Broadband: ICT infrastructure for the next 10 years".

At the ITU 2014 Plenipotentiary Conference (PP-14) in Busan, Republic of Korea, the Connect 2020 Agenda for Global Telecommunication/ICT Development was unanimously adopted. This new Agenda will constitute the new global shared vision, goals and targets to achieve 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).

ITU, with support from the Republic of Korea, has assisted countries in developing broadband policies and plans. Support has been extended to develop *Wireless Broadband Master Plans and National Broadband Plans/Policies* in Brunei, Lao People's Democratic Republic, Vanuatu, Marshall Islands, Philippines, Saint Lucia, Malawi, and the Republic of the Congo (Brazzaville). *In addition, a new project, funded by the Republic of Korea, for developing modern spectrum management master plans for countries is on-going in Brunei, Bangladesh, Fiji, Pakistan, Viet Nam and Thailand, and three more countries in the Caribbean are being prepared.*

As a follow-up to the Connect Africa Summit, ITU, supported by the Craig and Susan McCaw Foundation and Nexpedience, is implementing broadband wireless networks and developing ICT applications to provide free or low-cost digital access for schools and hospitals, and for underserved populations in rural and remote areas in selected countries. Installation activities are in progress in Lesotho and final installations are under way in Burkina Faso. The project is expected to be fully implemented in summer 2015 for both countries. In Burundi, the project is already fully implemented. In Djibouti, Broadband Wireless 4G is completely implemented and its extension to another ten rural sites is in progress. For Mali, negotiations with Sotelma to host and maintain the broadband network are ongoing with the ICT Ministry, and in Rwanda negotiations to start implementation are also under way. In Swaziland, the Government has signed the cooperation agreement and frequency allocation plan and the technical requirements for its successful implementation are being put in place.

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, which currently covers Africa, the Asia-Pacific region, the Arab States, CIS, Europe and Latin America, with data from more than 300 operators.

ITU has maintained its efforts to assist countries/areas affected by natural disasters. Funded by Japan and the Nippon Telegraph and Telephone Corporation (NTT), ITU has initiated a feasibility study on

restoring telecommunication and ICT infrastructure through the use of the Movable and Deployable ICT Resource Unit (MDRU), which provides telephony and Wi-Fi connection. Under this project, the MDRU has been deployed to the disaster-affected area in the island of Cebu in the Philippines.

Digital broadcasting has been identified as a regional initiatives in all regions, and ITU Members have recognized the importance of ensuring a smooth transition. ITU, in cooperation with the Republic of Korea, Japan, and Australia, has provided assistance on digital broadcasting transition, updating Guidelines for roadmap development world-wide, and developed roadmaps for Afghanistan, Solomon Islands, Viet Nam, Vanuatu, Guyana, Gabon, Bangladesh, Pakistan, Micronesia, Samoa, Kiribati, and Nauru. In cooperation with the *Development Bank of Latin America* (CAF), ITU is providing support to Bolivia, Dominican Republic, Venezuela, Costa Rica, Panama, Colombia, Paraguay and Jamaica, and has *translated the guidelines into Spanish. Case studies have been prepared on experiences in digital terrestrial television broadcasting transition for Thailand, Japan and Australia.*

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 and were attended by 106 experts from 44 countries in the Americas, Africa, and the Arab and CIS regions. Assessment studies to determine C&I areas of commonalities and differences for the Southern African Development Community (SADC) and the Caribbean and Maghreb Regions were finalized and endorsed. The results and the recommendations coming from these studies were presented in workshops held in Zambia and Trinidad and Tobago.

As already mentioned in the introduction, ITU also hosted the World Radiocommunication Seminar 2014 (WRS-14) from 8 to 12 December 2014, offering training focusing on the application of the ITU Radio Regulations and regulatory aspects of the use of the radio-frequency spectrum and satellite orbits. More than 400 participants attended from over 90 countries. ITU organizes world seminars on spectrum management every two years, as well as regional seminars aimed in particular at addressing the needs of developing countries.

Also mentioned in the Introduction, the 11th meeting of the UN Broadband Commission for Digital Development at UNESCO headquarters, held in Paris on 27 February 2015, focused on how mobile phones, tablets and e-readers with broadband connectivity could prove to be the long-sought solution in global efforts to bring high-quality, multidisciplinary educational opportunities to people everywhere, especially those in the world's poorest or most isolated communities, according to the UN Broadband Commission for Digital Development. A report by the Commission's Working Group on Education, led by UNESCO, indicated that, worldwide, over 60 million children of primary school age do not currently attend school; almost half that number never will. The situation worsens for higher age groups, with over 70 million not enrolled in secondary school. And while classroom computers can help, lack of resources remains critical. If an average of eight children share each classroom computer in OECD nations, teachers in Africa can struggle to share one computer among 150 or more pupils. But with increasingly sophisticated mobile devices now packing more computing power than the famed 'supercomputers' of the late 1990s, the Commission believes broadband-connected personal wireless devices could be the solution.

ITU also convened the Future Networked Car symposium within the Geneva Motor Show, from 5 to 6 March 2014, with the support of Anheuser-Busch InBev. As already stated in the introduction, the international symposium brought together leaders from the auto industry, motor sport, international automobile associations and ICT experts. A High-level dialogue on Innovation for the Future Car on the second press day of the Motor Show was moderated by a key media personality and engaged well-known industry leaders in a discussion on developments in the intelligent transport field, as well as ways of fostering innovation in this dynamic sector. Particular emphasis was given to motor sport as an incubator for such technical advances. Subsequent sessions examined the potentially game-changing field of automated driving, connecting road users to roadside infrastructure with a view to improving safety, reducing emissions and boosting convenience, and lastly, ways of integrating connected technologies into vehicles without causing deadly driver distraction.

On 5 December 2014, ITU Members achieved final approval of *G.fast*, the new ITU broadband standard designed to deliver access speeds of up to 1 Gbit/s over existing telephone wires. The standard is an answer to service providers' requirement for a complement to "fibre to the home" (FTTH) technologies in scenarios where G.fast proves the more cost-efficient option. G.fast, within established fibre to the distribution point (FTTdp) architecture, combines the best aspects of fibre and DSL. Within 400 metres of a distribution point, G.fast provides fibre-like speeds matched with the customer self-installation of DSL, resulting in cost-savings for service providers and improved customer experience. The standard will comfortably serve the broadband access needs of small and medium enterprises, with other applications envisaged including backhaul for small wireless cell sites and WiFi hotspots. ITU-T Study Group 15 has initiated work on an extended set of features for G.fast, targeting performance enhancements which will include additions to its range of low-power states. These features are likely to be available for incorporation into service providers' G.fast deployments as early as 3 July 2015.

ITU's Smart Sustainable Development Model (SSDM) is an initiative intended, as already mentioned in the Introduction, 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 economic growth of all nations, thereby benefiting all citizens in their daily lives.

The objectives of the initiative are to:

1. Harness the potential of ICTs in changing lives through development and saving lives at times of emergency.
2. Link rural telecommunications/ICT development to both disaster risk reduction and management efforts.
3. Make optimal use of scarce and high cost resources such as satellite systems by making use of unused satellite capacity.
4. Create ecosystems where investments made for deploying telecom infrastructures for economic development are also used for disaster response for public safety.
5. Ensure deployment of robust and resilient communication networks which continue to provide services in the immediate aftermath of disasters.
6. Avoid duplication of effort by development partners (governments, private sector, inter-governmental organizations, and so on) by focusing exclusively on development or exclusively on disaster management, without taking into account the other area.

## C2.1 Infrastructure and broadband

In **Algeria**, a project entitled *Automatic Radio Web Portal* has been established. Automatically fed by regional radio station websites through RSS feeds via the Internet or via the Menos system, the portal can collect and automatically publish information from all sub-websites. In the case of the Menos system, no Internet connection is needed to view the portal as it accessible through data received by satellite.[11]

*Wireless Sensor Systems (WSS)* are being intensively studied by both industrial and academic researchers on account of their ability to perform fine-grained measurements and monitoring on a large geographic scale. Moreover, WSSs enable the interconnection of a large number of wireless

[11] *Project nominated for a WSIS Project Prize 2015*

sensor nodes and transmission of the collected data (i.e. sensed data) to other networks, using standardized protocols such as ZigBee, TCP/IP, 6LowPAN, etc. WSSs can be used in most application domains by acquiring/issuing the necessary inputs/outputs. Examples of their possible uses are in telecommunications (monitoring datacentres temperature for load balancing...); health (monitoring patient health status signals...); security (perimeter protection, intrusion detection...); environment (measuring pollution, forest fires...); and so on. The 2014 winter school organized by the Centre for Development of Advanced Technologies (CDTA) aims to bring together experts from around the world who are working on WSS-related topics. The key interest of this event lies in the variety of the disciplines covered: material engineering (sensors), analog and digital circuits (hardware circuits), testing (RF and functional), signal processing, networking, security, applications and services, etc. Another major point of interest is the inclusion of three workshops, the first focusing on description of the different technologies used in wireless sensors with an insight into the important parameters that determine which one to choose; the second looking at the programming of Arduino wireless sensor nodes and Xbee modules; and the third considering the design of the Quadricopter Micro-Drone.

Also established by CDTA is the *Study for the Setup of a National IS for the Algerian Ministry of Solidarity*:

- ICT infrastructure and WAN network
- IS requirements and functional architecture
- Financial estimates.

The National Fund Unemployment Insurance (CNAC) has set up *Interconnection of all sites in the CNAC through HDSL links (specialized lines) and ADSL: Setting up a secure extended national computer network (Wide Area Network through VPN*), connecting the headquarters of the Directorate General for Regional Agencies (of which there are 13) and Wilaya agencies (of which there are 48), facilitating exchanges between the different organizational levels and enabling all CNAC managers to use the intranet/Internet services setup. At the end of 2014, more than 940 computers were using intranet services via the wide area computer network.

The project *Intranet Health* enables the interconnection of all health facilities at the national level via an intranet known as Health-Algeria (684 health facilities are interconnected with optical fibre). A project to build a network for 270 local health facilities was launched in 2014 with the aim of improving access to care for patients at the national level and supporting health professionals in the provision of quality services.

Algeria Telecom Mobile (Mobilis) also launched a project that is part of the national e-strategy and fully in accordance with WSIS Action Line C2 "Information and communication infrastructure: an essential foundation for the information society". It consists in the *deployment of a broadband network infrastructure 3G* ++ with the aim of enabling digital inclusion, enabling access to information and knowledge, and bringing ICT within the reach of everyone, nationwide. The deployed network also provides connectivity to remote and poor areas. Spread over three years (2013-2015), the 3G++ mobilis network aims to cover all of Algeria's territory and effectively participate in the building of a society based on knowledge.

In **Azerbaijan**, the *Trans-Eurasian Information Superhighway (TASIM)* project is a major regional initiative (put forward by the Government of Azerbaijan in 2008) aimed at the creation of a transnational fibre-optic backbone targeting primarily the countries of Eurasia, from Western Europe to East Asia. The project is recognized by the international community as an important ICT project, as reflected in United Nations General Assembly resolutions adopted in 2009 and 2012. TASIM will build its own active, centrally managed network on top of existing fibre-optic networks provided by participating operators (TASIM Consortium), and will leverage the transit infrastructure to provide affordable connectivity to landlocked countries of Eurasia and beyond.[12]

[12] *Project nominated for a WSIS Project Prize 2015*

In **Bangladesh,** the Ministry of Posts, Telecommunications and Information Technology is promoting the *expansion and use of ICT in society through creating and developing ICT infrastructure for connecting the citizen for getting better access to information and services*. The division in question is working relentlessly to develop the ICT sector by setting up infrastructure and providing training for capacity building and human resource development.

**Botswana** has numerous projects falling under the Action Line on information and communication infrastructure.

The Botswana Innovation Hub is constructing the *Carrier Neutral Data Centre at BIH Science Park* with the aim of providing multiple international connectivity under one roof for public telecom operators and businesses.

The Department of Road Transport and Safety has started work on constructing a *Computerized Driver Testing Centre* in Gaborone. The automation of practical road testing will facilitate an efficient and transparent driver testing process to produce competent drivers. This will serve to reduce corruption, shorten the waiting period for obtaining a driving licence and handling customer complaints, and significantly improve road safety management. The project is initially being piloted in Gaborone and will then be rolled out to other parts of the country. It will be completed within a period of seven months.

The government established Botswana Fibre Networks Ltd. (BoFiNet) as a separate organization responsible for the provision of national and international telecommunication. It will also address challenges with respect to Internet connectivity, particularly bandwidth. The project entails deploying fibre to the business such that when business enterprises require services, the service providers do not need to wait too long to get service from BoFiNet. With FTTx, customers will enjoy very fast and reliable broadband services. The network will be used for integrating data, voice and video services and will be the primary transport mechanism for services to corporates, institutions, government institutions, retail users and home users. BoFiNet has started the process of rolling out *Fibre to the X* in the capital city, Gaborone. In 2015, FTTX will also be deployed in Francistown, Maun and Kasane. Initially, fibre will be deployed to commercial and civic areas, before being rolled out to residential areas. Fibre is expected to bring superfast broadband connectivity to businesses, leading to the expansion of e-business, e-agriculture, e-health and e-education, and to the further enhancement of broadband penetration in Botswana. This is an ongoing process covering various locations every year.

In August 2014, the Botswana Communications Regulatory Authority (BOCRA), in collaboration with the Ministry of Transport and Communications, reviewed and finalized the draft *National Broadband Strategy (NBS)*, developed in 2012 through stakeholder consultations (ministries, NGOs, operators and the public). Providing a holistic and coordinated approach to the country's ICT ecosystem with a view to achieving long-term strategic outcomes, its overall vision is to connect every citizen and business to high-speed broadband Internet with an appropriate quality of service and affordable prices. The NBS advocates the development of national infrastructure to enable and facilitate applications and content, which are the drivers of a digital economy. The Strategy has 40 recommendations on the demand side (national backbone, fibre networks, access networks) and supply side (capacity building, content development, access to public Internet access centres (Kitsong centres, libraries, post offices, Internet cafes)). The NBS report is awaiting approval by the Cabinet of Ministers. Operators have aligned their projects with the requirements of the NBS.

The *Establishment of the Universal Access and Service Fund (UASF)* project was established by BOCRA in 2014 to fund the development of communications infrastructure and ensure universal access to communication services in Botswana. Contributions to the fund include a levy of 1 per cent on the gross revenue of selected operators (telecom, postal, broadcasting) and surplus revenue from BOCRA. The fund is premised around the following objectives: availability, accessibility and affordability. The first project of the UASF is the provision of wholesale broadband WiFi hotspots in strategic public areas. The same entity is working on the allocation of LTE spectrum to operators for mobile broadband use of TV whitespaces for broadband connectivity in hospitals.

In November 2013, BOCRA carried out a survey to assess the status of Internet connectivity in hospitality facilities (hotels, lodges, guest houses, motels, campsites) throughout Botswana. The study revealed a lack of or poor Internet connectivity, limited Internet coverage, a lack of secured networks and a lack of skilled ICT personnel in most hospitality facilities. The most evident finding of the study was that hospitality facilities subscribed to insufficient bandwidth, hence the poor quality of service. In response to these findings, BOCRA developed guidelines on minimum broadband Internet connectivity requirements for hospitality facilities. The purpose of the guidelines, which were approved and issued in August 2014, is to provide a framework governing the provision of quality broadband Internet in hospitality facilities. The guidelines prescribe the following:

- Minimum bandwidth to be acquired by various facilities (bandwidth calculated on the basis of facility ranking and number of rooms)
- Network security and monitoring measures
- Network maintenance and upgrading
- Availability of trained ICT personnel
- Universal Internet coverage in facilities.

The Guidelines should be adhered to by both hospitality facilities and Internet service providers.

In **Canada**, the ultimate aim of the *NEPAD-Infrastructure Preparation Facility* is to enhance regional economic development and integration through the increased implementation of regional infrastructure projects. The purpose of the New Partnership for Africa's Development-Infrastructure Project Preparation Facility- Phase II (NEPAD IPPF II) is to provide support to Regional Economic Communities (RECs) and their specialized regional institutions (such as the West African Power Pool) for the preparation of 'bankable' infrastructure projects in the energy, transport and telecommunication sectors in Africa. 'Bankable' projects are those that have gone through high-quality project preparation processes which include support for feasibility and engineering studies, environmental impact assessments, structured financing plans, legal analysis and financial transaction plans. NEPAD-IPPF is also working with the RECs to increase their capacities to cooperate in complex public-private partnerships. These efforts help sustain progress towards meeting Africa's infrastructure financing needs.

In **Ethiopia**, the *African Internet Exchange System (AXIS)* project aims to promote keeping intra-African Internet traffic local by providing capacity-building and technical assistance to facilitate the establishment of Internet exchange points at the country level, regional Internet exchange points and regional Internet carriers in Africa. The project, which forms part of the Programme on Infrastructure Development in Africa, is relevant to the WSIS action line on information and communication infrastructure as an essential foundation for the information society, which calls for the optimization of connectivity among major information networks by encouraging the creation and development of regional ICT backbones and Internet exchange points to reduce interconnection costs and broaden network access.[13]

In **Indonesia**, the Ministry of Communication and Information Technology is continuously developing ICT infrastructure through the following programmes:

- Indonesia Broadband Plan
- Regulations supporting ICT infrastructure development
- Universal Service Obligation Programmes
- Public Protection and Disaster Relief Programme.

In **Montenegro**, the *Wireless Montenegro* project is the result of the government's issuance of a public call for a strategic partner for joint investment in the project in December 2010, which was when the implementation phase of the project officially began.

[13] *Project nominated for a WSIS Project Prize 2015*

The Wireless Montenegro project comprises two parts, the first relating to implementation of the Tetra system for public security services, and the second to implementation of a WiFi network to provide citizens with free Internet access. The first phase of the TETRA system has now been completed and the implementation of Phase II is currently ongoing. As for the WiFi part of the project, free WiFi access at over 45 locations throughout Montenegro has thus far been provided.

Also in Montenegro, the Ministry for Information Society and Telecommunications, in cooperation with the Agency for Electronic Communications and Postal Services and the Information Technology Center, University of Montenegro, and in partnership with the International Telecommunication Union (ITU) and Internet Society (ISOC), began work on establishing a national Internet traffic exchange point. *Establishing IXP in Montenegro* will advance the development of Internet services, bring about a reduction of Internet pricing, take the pressure off global Internet access links, improve the quality of Internet access services and security communications and enrich the communication experience, while at the same time increasing the efficiency of business and the economy in general and boosting the future development of society as a whole, because such networks enable and contribute to economic development and the modernization of key sectors such as education and health.[14]

In **Poland**, the *System of Information on Broadband Infrastructure (SIIS)* is a system for gathering, processing, presenting and sharing information about telecommunication infrastructure, public telecommunication networks and buildings, to enable co-location. The main purpose of the project is to identify areas of low broadband service penetration in order to focus telecommunication sector investment and identify areas for public intervention in national broadband development plans. The project has resulted in:

- increased investment in the telecommunication sector
- accelerated investment in the construction of new generation networks co-financed by EU funds
- lower investment barriers in the area of telecommunication infrastructure.

SIIS data may be used by:

- regulators/governments to provide information that is needed about the telecom infrastructure developed within the national territory in order to:
- facilitate decision-making in regard to State aid
- facilitate decision-making in regard to geographical segmentation within the market analysis process (i.e. markets 4 and 5)
- provide operators with relevant information about possible access points.

SIIS presents the following information:

- Detailed information about the networks developed
- Information about planned roll-outs.
- It is important to note that confidentiality will always be a key consideration throughout the project.

Approaches for cooperation with operators, e.g. agreements, obligations, laws:

- Operators to be provided with information about existing civil engineering infrastructure which may potentially be used for network roll-out.[15]

In its move towards a knowledge-based economy, Rwanda has made substantive investment in the fibre infrastructure that now spans the country. With access to broadband Internet from all corners of the country not at the requisite level, 4G LTE technology was identified as key to leveraging the existing infrastructure and increasing mobile broadband access. Furthermore, in its efforts to encourage competition, the country adopted a new broadband policy which gave rise to an unprecedented

[14] *Project nominated for a WSIS Project Prize 2015*
[15] *Project nominated for a WSIS Project Prize 2015*

PPP model in which there is a single wholesaler and multiple retailers of 4G LTE services seeking to achieve the target of 95 per cent coverage of the national territory by 2017.[16]

In **Singapore**, *Wireless@SG* is a wireless broadband programme that aims to extend broadband access beyond homes, schools and offices to public places. Users can enjoy free – both indoor and outdoor – seamless wireless broadband access with speeds of up to 2 Mbps in public areas. This allows users to access media-rich and interactive websites as well as use bandwidth-intensive applications such as video streaming. This wireless broadband network targets users who are on the move- people who require wireless broadband access while away from their homes, schools and offices. Once connected, users will be able to access all Internet-based services, such as online gaming, web surfing, instant messaging, VoIP and e-mail.

The *Next Generation Nationwide Broadband Network (Next Gen NBN*) is the wired network of the Next Generation National Infocomm Infrastructure (Next Gen NII), which seeks to transform Singapore into an intelligent nation and global city, powered by infocomm. Singapore has been working over the last ten years to bring broadband to all homes, schools and institutions. The NGNBN, capable of supporting speeds of up to 1 Gbps and beyond, has been deployed. Today, more than 95 per cent of households in Singapore can access fibre-to-the-home, which currently provides ultra-high speed broadband access of up to 1 Gbps.

In **Switzerland**, *Implementation strategy Internet domain names: .ch* is in an initial phase, and alternative models for future operation of the .ch ccTLD are being developed. The selected model will be codified in law by means of a revision of the ordinances relating to the Telecommunications Act (TCA). The transition from the existing to the future system is being prepared and implemented at the organizational level.

Project goals:

- A review of the legal framework for the administration of .ch domain names with regard to a stricter separation between technical/governmental responsibilities on the one hand and commercial retail business on the other
- Ensuring healthy competition between the various registry service providers (registrars)
- Securing the requirements for critical infrastructures in Switzerland.

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

In **Colombia**, *Kioscos Vive Digital* are community Internet centres located in rural and remote areas. Through them, children, teenagers and adults from 6 548 remote towns with more than 100 inhabitants have access to telecommunication services such as 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. Kioscos Vive Digital have driven economic and social development in rural areas, improving the living standards of many Colombians in need.[17]

The *REDONATE* project seeks to make private institutions and government entities aware that the computers and other items of technology they replace every few years can be re-used in low-income schools that do not have any other effective means of accessing ICTs. This idea includes creating lounges and supplying them with the equipment donated by such institutions. The project seeks the support not only of educational institutions such as universities, but also of companies wishing to be part of the campaign. Its aim is to create a balance in education, where, despite the very important role now played by technology, not everyone has the wherewithal to acquire a computer.[18]

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16 *Project nominated for a WSIS Project Prize 2015*
17 *Project nominated for a WSIS Project Prize 2015*
18 *Project nominated for a WSIS Project Prize 2015*

In **Georgia**, the project *Introduction of e-Governance in Local Governments* seeks, through the introduction of e-governance and development of necessary infrastructure, to support local governments in strengthening their capacity and improving the service they provide to the local population. The project encompasses two major components, namely development of community centres, serving as a new type of infrastructure enabling improved service delivery at the village level, coupled with measures designed to foster local citizen engagement; and introduction of e-governance in local governments, which envisages development of the municipal management system in local governments with a view to improving the quality of management and streamlining service delivery on the ground.<?>

In **Greece**, the main aim of *REDComm* is to build a communication infrastructure to support and handle communications in emergency and crisis situations, when standard communication networks are not available. It is often the case in emergency situations (floods, earthquakes, terrorist attacks, etc.) that standard communication networks (fixed landlines, mobile phones, Internet, etc.) are either overloaded or not operating owing to physical damage.

In **Mexico**, *México Conectado* is a federal programme of the Ministry of Communications and Transportation that coordinates the federal, state and municipal governments to define the broadband requirements of schools, hospitals, government offices and other public places in each state. Its objectives are:

- To improve the quality of public services through the use of ICTs otherwise unavailable without Internet access
- To contribute to closing the digital divide in Mexico by providing free Internet access to the general population
- To achieve better economies of scale by aggregating, in public tenders, the demand for Internet services of the three levels of government.<?>

The project *Indigenous cellular network infrastructure* focuses on the development of local cellular networks owned, operated and managed by indigenous communities which have thus far had no cellular infrastructure and rely on a point-to-point ISP to deliver Internet service to the village. The project has to date installed infrastructure in 17 localities in the states of Oaxaca and Puebla and plans to begin nationwide coverage during the second half of 2015 through an indigenous telecom cooperative.[19]

In **Saudi Arabia**, the project *IT Portfolio Management Solution* will assist efforts to run the ARABSAT organization more efficiently, on the basis of dynamic business conditions. This is an enterprise IT management solution which provides robust portfolio management capabilities complemented with rich resource demand management functionality. There is a major business need to identify a prospective technology-based solution that will further improve the management of ARABSAT projects through the entire life cycle, from investment to delivery, and provide constant visibility into each individual project: project status, project performance, and alignment with strategy. For that, ARABSAT, through this project, is looking for the best-of-breed solution to integrate with its IT environment in order to align IT efforts and resources with the priorities of the business.

The Solution will enable the organization to achieve the following:

1. Alignment of IT with business goals
2. Significant enhancement of operational effectiveness
3. Optimization of the OPEX/CAPEX ratio
4. Fewer project failures.[20]

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19 *Project nominated for a WSIS Project Prize 2015*
20 *Project nominated for a WSIS Project Prize 2015*

The *Schools Connectivity Project* is part of a broader programme to establish a complete virtual network covering all Ministry of Education (MoE) departments, offices and schools, further to a decision by the ministry to adopt a step-by-step approach to building such a network in the interests of achieving its goals. Four years ago, it launched a unique initiative to establish some 50 smart schools scattered all over the Kingdom. On the basis of the outcome of that initiative and the lessons learned, the decision was taken to adopt a simpler approach to introduction of the Internet as an educational tool, thus resulting in the launch of this project. The short-term objective of the project is to provide all schools with fast and reasonable connections, with priority being accorded to high schools. The long-term goal is to have a reliable and expandable infrastructure that meets the connectivity needs of each individual school. Large and/or advanced schools may be equipped with higher bandwidth in order to meet their needs, while smaller schools will likewise receive the bandwidth they require. The main goal in the future is therefore to transfer the existing access technologies to form part of the MoE's private cloud.

The *Muqeem e-portal*, an Elm service, provides establishments with a link to the General Department of Passports and to its various services that enable the issuance, extension and cancellation of exit/re-entry visas and issuance of final exit visas, as well as the consultation of up-to-date information concerning persons under the establishment's sponsorship and checking of their status.

In **Sudan**, the *National Information Network* is a government intranet that connects government agencies at both the central and state levels. It is an L3VPN that uses the backbone of the two main telecom operators, Sudatel and Canar (two links from each operator for redundancy purposes). The core of the network is a government datacentre that has been designed to host government applications, databases and websites. The main services running on the network are e-mail, VoIP, videoconferencing and Internet browsing. The network connects government agencies, hospitals, police headquarters and judiciary offices throughout the country. The National Information Centre pays the initial cost for connectivity plus the running cost for one calendar year, with the unit paying the monthly recurring charge thereafter.<?>

A few years ago, **Togo** launched a dynamic drive for development in various fields, encompassing infrastructure, agriculture, arts and culture, science and technology, the environment, education, human rights, justice and communications. However, this new dynamic cannot be optimal and sustainable if it does not involve all segments of the population. Furthermore, where education and information are concerned, the opening up to global development dynamics depends not only on development *per se*, at the local and national levels, but also on the participation of all individuals in the development process. With the aim of fostering an approach that supports the participation of women in that process and offers them equal opportunities in terms of access to modern ICT tools, a project – *Togolese women, remain connected* – was initiated for the establishment of ICT centres which will serve as a forum in which women can gather virtually to discuss issues relating to their situation and their participation in the country's development, while at the same time enjoying access to and becoming skilled in the new technologies.[21]

In **Trinidad and Tobago**, the *National Internet Exchange Point (IXP), TTIX* was established in October 2014 in order to benefit from the significant cost and performance gains to be realized from routing data traffic between domestic ISPs. The IXP is viewed as a critical component of the broadband infrastructure that is necessary for establishing a knowledge-based society in keeping with national development objectives. It is expected to improve robustness and end- user privacy, encourage ICT adoption and locally-hosted applications and provide improved quality of Internet access to local consumers.

[21] *Project nominated for a WSIS Project Prize 2015*

The *Trinidad and Tobago National Research and Education Network (TTRENT)*, established in 2012, is a high-performance communications network that interconnects local campus networks, as well as with other research and education networks at the global level. It connects three national tertiary level institutions (University of the West Indies, University of Trinidad and Tobago and the College of Science, Technology and Applied Arts of Trinidad and Tobago), and also the University of the Southern Caribbean, which has its campus in Trinidad. TTRENT is part of the C@ribnet regional network. At the level of the Caribbean Community (CARICOM), it was agreed that the region should have a regional research and education network (REN) in order to enjoy the benefits achieved through global REN collaborations. The implementing agency for the Caribbean REN, C@ribNET, is the Caribbean Knowledge and Learning Network (CKLN), which is headquartered in Grenada. Any CARICOM country wishing to connect to C@ribNET is required to have a national REN or suitable point for connection.

The value proposition for Trinidad and Tobago included:

- expanding support for network-based research and education
- increased access to tertiary education through distance-learning technologies
- promotion of collaboration and sharing among local and international institutions, enabling students, educators and researchers to work with and on cutting-edge developments
- promotion of training for the next generation of digitally competent, naturally collaborative students who will take up careers in knowledge generation and business
- provision to the ministry of important data that can support informed policy.

In April 2014, TTRENT successfully applied to the Latin American and Caribbean Internet Addresses Registry (LACNIC) for an Autonomous System Number and IPv4 & IPv6 blocks of addresses, and assigned them. In July 2014, technical support was contracted for eduroam (education roaming) roll-out to TTRENT institutions. Eduroam is the secure, worldwide roaming access service developed for the international research and education community; it has gained momentum throughout that community and is now available in 70 territories.

Important next steps include addressing the issues of leadership and governance of TTRENT (including membership models) and sustainability.

## C2.3 Adequate and affordable ICT equipment and services

In **Japan**, Shiojiri City constructed its own communication infrastructure using optical fibre and ad-hoc wireless networks in addition to the fixed and mobile networks provided by incumbent operators such as NTT, NTT DoCoMo, KDDI and Softbank. The platform on these networks can provide ICT services within the city, such as healthcare, social welfare, disaster mitigation, tracking of children and elderly people using wireless tags, weather observation, etc. The data collected through the municipal infocommunication networks are saved at the centre for analysis and displayed by location, time and event. *Shiojiri Incubation Plaza (SIP)*, accommodated in an independent building, is the centre for IT ventures and entrepreneurs in the city. Shiojiri continues to make strides towards the smart city by promoting capacity building for data analysts and data scientists to ensure that the big data collected through the networks are fully utilized.[22]

In **Kazakhstan**, the *Monitoring of Public Services Quality* survey automation tool is an essential resource that enables citizens to express their opinion on the service delivery of regional and local executive bodies. The system is designed to provide active assistance to government agencies in their efforts to improve general living standards and ensure user satisfaction with service delivery. Furthermore, the system provides prompt and round-the-clock transmission of statistical data from terminals to the portal. All of this enables regular monitoring of public service quality and prompt and objective assessment of the situation at any given time, based on the information received by regional executives.

[22] *Project nominated for a WSIS Project Prize 2015*

In the **Republic of Korea,** the *TEIN4 programme* contributes to the Millennium Development Goals by establishing dedicated high-capacity Internet links between research and education organizations in the Asia-Pacific region and Europe, enabling and promoting collaborative research on applications of broad societal benefit.[23]

In **Kuwait**, the Central Agency for Information Technology (CAIT) has been running two projects in the domain of access to knowledge and information.[24] *Environmental Monitoring Information System of Kuwait (eMISK)*, an ambitious system initiated by the Environment Public Authority (EPA) of Kuwait, aims to establish, build and maintain a comprehensive geo-environmental database for Kuwait, together with an enterprise-level GIS system for accessing, updating and analysing the environmental data. This database is made available through eMISK to the decision-makers and stakeholders within EPA, outside agencies and the public at large. The main goals of eMISK include making all levels of Kuwaiti society more aware of environmental issues, and placing authoritative scientific information at the centre of decision-making.


[23] *Project nominated for a WSIS Project Prize 2015*
[24] *Project nominated for a WSIS Project Prize 2015*

CAIT was established in 2006 as a government initiative. Its main responsibility is to develop and implement the e-Government programme of **Kuwait**. It partnered with an international consultant to establish its e-government strategy for the next five years. *Kuwait Information Network (KIN)* was one of the early projects designed to provide the communications infrastructure that paved the way for efficient and integrated nationwide e-services implementation by integrating the networks of all government entities to enable future integration of isolated information systems and the development of electronic services<?>.

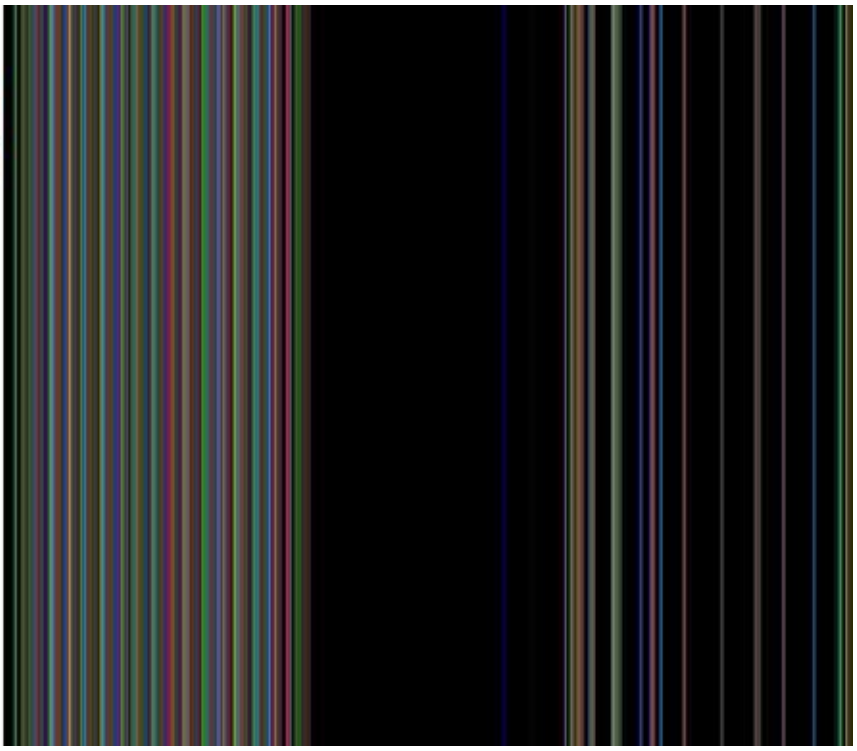
In **Latvia**, the *United National Latvian Academic Network* project aims to improve scientific and research equipment and provide the relevant infrastructure to ensure a modern material and technical base for research activities at the leading national and regional research centres; develop Latvia's information system, databases and academic data transmission network; and promote the development of the intellectual potential of Latvian scientific research and involvement in the European science community. Its target group encompasses research institutions (research institutes, higher educational establishments and other institutions engaged in research activities), and its final beneficiaries are research institutions (research institutes, higher educational establishments and the research institutes of higher educational establishments) and other higher educational establishments.

The *NGN project* foresees support for the development and establishment of fibre backhaul infrastructure for wholesale broadband services (30 Mbps or above) in rural areas which are currently not served and where there are no plans for development of a next-generation network (NGN) in the near future. The project is divided into two phases. By 2015, the first phase will ensure connection for approximately 177 points (1900- 2000 km of fibre lines); and by 2020, the second phase (2014-2018) will provide infrastructure, ultimately with 200 connection points to NGN and approximately 3000 km of fibre. A broadband access infrastructure (broadband access points) will be created and offered on an open wholesale access basis to third-party operators, who will be able to add their own access infrastructures (i.e. the last mile network segment) and deliver broadband services to end users (consumers, businesses and public institutions) with data transmission speeds of at least 30 Mbit/s. To date, 93 access points (1378 km of fibre lines) have been created.

In the **Sultanate of Oman**, Muscat Municipality launched *Muscat Contact Center (MCC)* to be a customer-centric organization providing essential services to some 780 000 citizens and residents living in Muscat, the capital of the Sultanate of Oman. MCC is focused on the gathering of feedback and complaints from customers through various channels (call centre, mobile app, e-mail and social media channels) in the interests of achieving a higher quality of service. Different target customers such as tourists, citizens and expatriates will be able to obtain information and services through various channels. In 2014, some 94 000 items of feedback/complaints were received, with some 91 000 having been resolved. The centre is integrated with other several government entities.

In the **United States**, the *Microsoft 4Afrika Initiative* is working with global partners in the private and public sectors to deliver affordable connectivity to the 89 per cent of African households currently not accessing the Internet by deploying wireless broadband networks leveraging so-called TV white space (TVWS) technologies. TV white spaces are the unused or otherwise unassigned portions of UHF and VHF spectrum. In Botswana, Ghana, Kenya, Namibia, South Africa and Tanzania, the 4Afrika ISP partner broadband network deployments combine 2.4 and 5 GHz wireless connections with wireless broadband access technologies leveraging TVWS spectrum. TVWS signals travel over longer distances and penetrate obstacles better than higher frequency transmissions, while minimizing

power consumption. This makes TVWS technology uniquely suitable for delivering broadband Internet access to hard-to-reach populations, including those living without electricity.[25]



[25] *Project nominated for a WSIS Project Prize 2015*

# Action Line C3. Access to information and knowledge

UNESCO is the lead facilitator for the C3 action line, while ITU is co-facilitator.

ITU-D held numerous workshops, conferences and symposia, making materials widely available for free 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.

The joint ITU-G3ict Model ICT Accessibility policy report was launched during the Accessible Americas event in November 2014.

A "Smart Accessibility on Connected TV" workshop was held in Barcelona on 18 March, 2015, organized by the Autonomous University of Barcelona in partnership with ITU and the European Commission.

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.

## C3.1 Access to information

In **Algeria**, the Ministry of Education and Vocational Education's *Information for pensioners by SMS* project informs retired persons of any developments regarding their situation, especially further to the annual revaluation of pensions, and enables them to order administrative documents; while the Ministry of Fisheries and Fishery Resources' *e-Service: Consultation of retired person's account* enables retired persons to consult their payment situation online (periodic statements of account).

The Algerian National Agency for Supporting Youth Employment (ANSEJ) has been running two projects, namely the e-service *Tracking the liquidation of a pension file*, whereby pension applicants are able to enquire about the processing status of their pension files; and *Pre-registration and tracking platform online*, intended for project developers in the support system for the creation and expansion of activities by unemployed entrepreneurs between 30 and 50 years of age. It will enable them to make an appointment to file a folder at the CNAC, monitor their application and also track the status of their case after filing until the startup of their micro-business.

For its part, the National Employment Agency (ANEM), conceived the *International Conference on the Use of Information and Communication Technology for Management of Disasters (ICT-DM'2014)*, held from 24 to 25 March 2014 at the Research Centre on Scientific and Technical Information (CERIST). The event was organized by CERIST's Theory and Information System Engineering Division for the purpose of demonstrating the potential of ICT in disaster management by bringing together academics and practitioners involved in emergency services, emergency planning, disaster management and public security/safety.

The Algerian National Pension Fund (CNR) has five projects. The first, *RH-Health (human resources information system)*, is a web solution for managing the careers of all health employees at the national level. This solution will be upgraded to a system whereby employees will be able to consult their files via the Internet. The second, *Websites-DZ*, was launched by the Ministry of Health, Population and Hospital Reform as an operation involving the creation of a website for every health institution with the aim of facilitating communication between health professionals and citizens.

The *Social insurance for self-employed website* operated by the National Social Security Fund for Non-Salaried Workers (CASNOS) constantly monitors developments and provides up-to-date information on various types of support (PCs, tablets, smartphones, etc.). This information is in the form of:

- Simulations – calculation of contributions, pension allowance, death capital, etc.
- Data consultation – affiliate statements, payment dates, repayment records, etc.
- Documents to order – updated certificates, statement of receipt of a pension benefit, etc.
- E-declaration – activities and revenues.

The *Proximity e-center mobile* is an educational space for training and mobile information in the form of a bus equipped with ICT tools, whose functions include:

- Facilitating access to information and training for citizens in difficult circumstances, particularly in rural areas
- Reducing the isolation of citizens through the provision of local support services for those seeking employment and economic integration
- Promoting the use of ICT.

*Management of Economic and Social Data (GDES) - Management of the Educational System (GSP)* is a project developed on SharePoint to bring about, on the one hand, an improvement in the management and processing of data, and, on the other hand, automation of the transmission of socio-economic statistical data between the centre and the provinces, and between the centre and the different training institutions for educational information. The main objective is to improve the sectoral statistical information system.

The CASNOS website serves the following purposes:

- Presentation and popularization of the ANSEJ tools
- Use of web technologies to enable young people to gain remote access to agency services
- Communication and exchange of information with young people.

It will also house the following web applications:

- A pre-registration application for young project leaders
- A project status tracking application
- A public procurement application, accessible to public bodies wishing to make a bid. It enables them to see the list of micro-enterprises created under ANSEJ and to benefit from 20 per cent of the market share, according to the code governing the Algerian public market.

In **Bangladesh**, the *National Portal* is a government-wide initiative comprising over 25 000 websites designed to reach the entire citizenry, especially the information have-nots. The portal has grown to generate an average of one million hits per day. Its single architecture, coupled with its look and feel and use of the vernacular make information provision by government officials extraordinarily simple and seamless, lowering the technology bar. A crowdsourcing approach was employed to equip 70 000 government officials to populate and update the content. The massive portal deployment was supplemented by establishing over 5 000 ICT access centres across the country and formulating/reforming the necessary policies.<?>

Agriculture extension services in Bangladesh are highly dependent on extension agents and entail many challenges, such as access to poor farmers. Cellular telephony is a rapidly expanding means of communication in **Bangladesh** that already accounts for over 120 million subscribers. *Krishi Call Centre (Agriculture Call Centre*) is a public-private initiative, based on the toll-free short number 16123, for the provision of easy, rapid, real-time and low-cost extension services to all farmers, particularly smallholders and the marginalized. By December 2014, it had received 64 000 calls at the rate of 3000 calls per month, it being clear from the rapidly increasing uptake that farmers are satisfied with the services provided.<?>

The Bangladesh NGOs Network for Radio and Communication (BNNRC) is engaged in a project entitled *Pioneering, Connecting & Empowering Voices for Change*, which aims to strengthen the capacity of community radio in Bangladesh. Community radio is a new concept which needs support to unlock its full potential. The key areas of focus of the project activities are: quality of content (programme) production; facilitation of dialogue between communities and local and national government; and awareness-raising regarding the right to information. The time-frame is February 2013 to May 2015. The project is being implemented by BNNRC in collaboration with Free Press Unlimited (a Netherlands-based international organization). The European Union is providing financial assistance to the project.[26]

In Botswana, the *eGovernment programme* is an initiative designed to modernize the delivery of government services to the populace by leveraging ICT solutions such as to enable the eGov office to provide optimal coverage to vast areas of the country and beyond. Botswana's national e-Government Strategy 2011-2016 outlines seven major programmes and some 20 interrelated projects to move appropriate government services online. The programmes within the strategy include:

1. E-services Programme (ESP)
2. Multiple Access Programme (MAP)
3. Rationalization and Integration Programme (RAIN)
4. Botswana's eGovernment, Service Transformation, Organizational & Network Governance Programme (Be STRONG)
5. Skills Transformation in Support of e-Government Programme (STEP).

The services are available in the government portal.

[26] *Project nominated for a WSIS Project Prize 2015*

In **Cuba**, *Infomed* is the name of the first electronic health information network, which emerged as part of a project of the Cuban National Center of Information on Health Sciences to facilitate the electronic exchange of information between a set of libraries, information centres and other entities that make up the National Information System of Medical Sciences in the Ministry of Health. An important aim of the project is to design a national strategy to improve Cuba's health information services and consolidate an information and knowledge system supported by a network of institutions and individuals involved in its construction. Part of that aim involves enhancing the quality of the sources, information products and services, ensuring universal access, developing lifelong learning and health research, as well as continuously improving the technical, logistical and organizational infrastructure and ensuring its efficient and safe use, while at the same time strengthening interaction between the system and other national and international networks.[27]

In **Egypt**, the *Egyptian ICT Indicators Portal* provides necessary and accurate data about the country's ICT sector. It measures ICT usage in different fields, including households, businesses and government. It also pools sets of hard indicators that are updated monthly, quarterly and annually. It is a source of information for a range of beneficiaries, including international organizations, policy-makers, researchers, academia, media and investors. The project has proven its success as a decision support mechanism for ICT policy-makers by helping them in establishing policies and strategies and defining digital gaps. This success has been extended both regionally and internationally by being a best practice model in public policy decision-making through innovative mechanisms.[28]


[27] *Project nominated for a WSIS Project Prize 2015*
[28] *Project nominated for a WSIS Project Prize 2015*

In **Georgia**, the government is engaged in two interesting projects.[29] As part of its development goals, it has committed to ensuring that the entire population has access to information and public services. A major part of the rural population, however, has little or no access to such benefits. To bridge this gap, the Public Service Development Agency and the IREX-sponsored Beyond Access Programme are jointly implementing a project entitled *Public Libraries for Local Development*, which aims to reinvent the library as a shared facility both for traditional library functions and for free community access to ICTs and skills development. The GPSLib project thus aims to pilot a model in which libraries deliver services and provide access to information and knowledge.

The second project derives from the efforts of the Professional Orientation Support Programme, which assists young people during the process of choosing a profession and career planning. The programme helps young people to make their choice by guiding them towards wise decisions based on their skills and personal characteristics, as well as external circumstances. To this end, the Ministry of Sports and Youth Affairs of Georgia has provided young people with an interactive website, www.myprofession.ge, together with a manual entitled *Choose Your Profession.* The website features various kinds of guidance material, including psychological advisory tests tailored to young people, recommendations, case analyses, and videos about different professions. The ministry plans to expand the website with the addition of informative materials for pupils, university entrants, students and parents, and for people planning to change profession. The "Choose Your Profession" manual will help young people to learn about the career planning process and orientate themselves properly when choosing their profession. The ministry is also preparing a PR strategy to ensure effective dissemination of the product.

In **Germany**, *FuturePolicy.org* is an online database created for forward-thinking policy-makers to simplify the sharing of existing and proven policy solutions for addressing the world's most fundamental and urgent problems as outlined by the MDG/SDG processes. The website design deliberately emphasizes thematic interconnections under the World Future Council's holistic Global Policy Action Plan initiative and realizes a kind of "beyond-silo" working that has, for many, been difficult to imagine. FuturePolicy.org bridges the gap between complex academic research and the implementation process and goes beyond simply "identifying" solutions by taking the next steps to engage policy-makers and thus enable a proactive implementation process.[30]


In **Kenya**, the United Nations Environment Programme (UNEP) launched *UNEP Live* to support assessment and decision-making processes. UNEP is committed to providing access to richer, more

29 *Projects nominated for a WSIS Project Prize 2015*
30 *Project nominated for a WSIS Project Prize 2015*

extensive sets of data and knowledge flows and sustaining broader networks of expertise to provide substantiated, contextualized knowledge about how the environment is changing at the global, regional, national and local levels, and linking this to relevant policy analyses and actions. It does this through its web-based knowledge platform, UNEP Live. It also provides tools to strengthen the capacity of countries to undertake state of the environment reporting.[31]

In the **Republic of Korea**, *Information Access Centers*, overseen by the Ministry of Science, ICT & Future Planning (MSIP) and implemented by the National Information Society Agency (NIA), offer an infrastructure with better access and opportunities for IT use by the general public in the partner countries, thereby contributing to enhancement of the information-based environment.[32]

In **Kuwait**, a project was launched for the electronic maintenance and handling of *parliamentary documents*. This has resulted in highly complex tasks that used to take days or even months of work now being achievable in a single day and with a high level of quality.[33]

In **Latvia**, *Latvia's e-index*, the first national e-government benchmarking initiative, is helping municipalities and state institutions to assess their level of digital development, evaluate approaches and solutions for more efficient development, and identify the best examples implemented by other institutions, thereby enabling exchanges of experience and motivating the development of e-environment. The initiative enables state institutions and municipalities to determine the relevance of their contemporary ICT solutions to improving the quality of and access to the information and knowledge services they provide to residents and enterprises. Since May 2014, the *Register of Enterprises* of the Republic of Latvia has implemented the transfer of accumulated basic information to the public in the form of open data, which means that the information is available in machine-readable form, contributing to a more modern public administration and facilitating the work of post-processing and re-use of information.[34]

The *Baltic Way Stories (BWS)* by the Latvian National Commission for UNESCO, in partnership with UNESCO, is a very remarkable project. The year 2014 marked the 25th anniversary of the Baltic Way Campaign, a unique and peaceful mass demonstration during which more than a million people joined hands to form a human chain stretching 600 km through the three Baltic countries, thereby uniting Estonia, Latvia and Lithuania in their efforts towards freedom. The most significant Baltic Way documents are inscribed in the UNESCO Memory of the World International Register. The Latvian National Commission for UNESCO, together with partners from Latvia, Lithuania and Estonia, implemented the BWS project in order to raise awareness of the 1989 campaign, collect people's memories and preserve them for future generations. The project invited everyone to document their Baltic Way experience and share it on the webpage www.thebalticway.eu, or help to identify stories of friends, relatives, colleagues, visitors and other interested persons, in order to make their stories available to society at large. Museums, libraries and schools were invited to organize various events to initiate stories and intergenerational dialogue. This resulted in the gathering of over 900 memory stories from the Baltic States and the organization of over 100 events at the national level providing access to this important historical event.

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31 *Project nominated for a WSIS Project Prize 2015*
32 *Project nominated for a WSIS Project Prize 2015*
33 *Project nominated for a WSIS Project Prize 2015*
34 *Project nominated for a WSIS Project Prize 2015*

In the **Sultanate of Oman**, the National Center for Statistics & Information (NCSI) developed *The National Portal of Information* with the aim of enhancing knowledge and information sources to provide government entities, commercial establishments and the public, through a website and mobile app, with maps of Oman integrated with official statistics and information to help them in their decision-making. The portal provides publicly-available, location-based information in the easiest, fastest and most accessible way. It gives a full picture and comprehensive information about all utilities across the country, together with demographic information for each region.<?>

In **Pakistan,** the National Information Technology Board's project named *Online Tracking System for Cargo Handling, Freight Wagons and Locomotives* enables the Pakistan Railways to efficiently manage its cargo handling operation, amounting to some 26 000 freight wagons and 100 locomotives. The online tracking application and web portal are in use at the Divisional Superintendent Pakistan Railway Office in Lahore. The system includes a main control room and seven subcontrol rooms. The network and power infrastructure installation has been completed at all nine locations of the Pakistan Railways. The SMS gateway application has also been successfully demonstrated for real-time tracking of locomotives. The project has been extended up to June 2015.

In **Panama**, the *Terralnova* project by TerraInnova Org. has been developing a digital platform to promote and support entrepreneurship in smallholder farming across the region, with the focus on market access, associative arrangements, the value chain and financial instrument innovation. The initiative, started in 2014 and set to run until 2019, also falls under the e-business and e-employment categories, and under the action lines on building confidence and security in the use of ICTs and enabling environment.

In **Poland**, the main goal of UKE's *Consumer Information Centre (CIK)* project is 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 encounter when using telecommunication services. To provide comprehensive assistance, CIK has created and operates:

1. A dedicated website – http://www.cik.uke.gov.pl
2. A special helpline: 801-900-853 or (48 22) 534-91-74 (CIK may be contacted free of charge using VoiceLink via the UKE website – www.uke.gov.pl)
3. 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.[35]

In **Rwanda**, the National Institute of Statistics of Rwanda (NISR), the country's primary data producer, generates mandatory statistics such as the gross domestic product, consumer price index, producers price index, external trade figures, population statistics and other special-purpose statistics from surveys including the demographic and health survey, household living conditions survey and census. It also conducts specific joint surveys, namely the agriculture survey and service provision assessment survey, in partnership with the relevant institutions. The information published in the *National Statistics Portal* is available to the public.

In **Saudi Arabia**, there are ten projects involving access to information and knowledge.

[35] *Project nominated for a WSIS Project Prize 2015*

The *Business Intelligence Project* within Arabsat will enable the management to have an end-to-end view of the organization's technical and business data. The project's data mining/mart module will provide the executive with excellent reporting capabilities, with a 360° overview of the organization's data in real time contributing to timely and appropriate decision-making.[36]

The *Safeer Application* is an integrated online system that enables students wishing to pursue their studies abroad to apply to the King Abdullah Scholarships Programme, for which applications are open once a year for a limited period. The number of applicants, both male and female, for the programme now stands at 47 000, whence the need for online applications and their electronic processing in the interests of streamlining the entire scholarship process. The Safeer Application contributes, together with other systems inside and outside the ministry, to the automation of procedures which reduce the time and effort to be expended by applicants to the scholarships programme.[37]

The *Rasd Project* is a result of the development drive witnessed in several sectors of Saudi Arabian society, and the higher education sector in particular, where it became imperative to consolidate the efforts of partners and concerned organizations with regard to the documentation of academic material and recommendations for academic events held within the Kingdom. The need arose for an institutional effort aimed at organizing the process of assessing the sustainable development achieved within the sector. Also necessary was the creation of a reference information source to support the decision-making of leaders in the higher education sector.[38]

The purpose of the *Single sign-on application* for the web is to enable users to access multiple applications while providing their credentials (such as username and password) only once. It also enables web applications to authenticate users without having access to their security credentials, such as passwords.[39]

The *Saudi Electronic University Portal* project, based on SharePoint, is a web application framework and platform developed by Microsoft. First launched in 2001, it integrates intranet, content management and document management, and is for the most part used by medium-size businesses and large departments. SharePoint 2013 offers a simplified user experience and added enterprise social capabilities, which expand on the capabilities previously offered. It enables administrators and power users to move, copy and restructure SharePoint content with a few simple clicks. Any type of object – from entire sites and site collections, lists or libraries, down to individual documents and items – can be moved within or across SharePoint farms with full fidelity. Full fidelity means that the moved content retains its essential metadata values, such as created/modified by, when created, explicit permissions, settings and configurations.[40]

The Ministry of Foreign Affairs has launched a new version of its portal, *MoFA Portal*, to cope with increased public demand for information and services by harnessing the benefits of technological progress. The development and enhancement of the new version applies all of the standards expressed under the e-Government Programme (Yesser): http://www.yesser.gov.sa/en/ProgramDefinition/Pages/Overview.aspx. In this document, we capture its key objectives, main features and achievements, as well as the challenges faced and lessons learned by the ministry team.<?>

36 *Project nominated for a WSIS Project Prize 2015*
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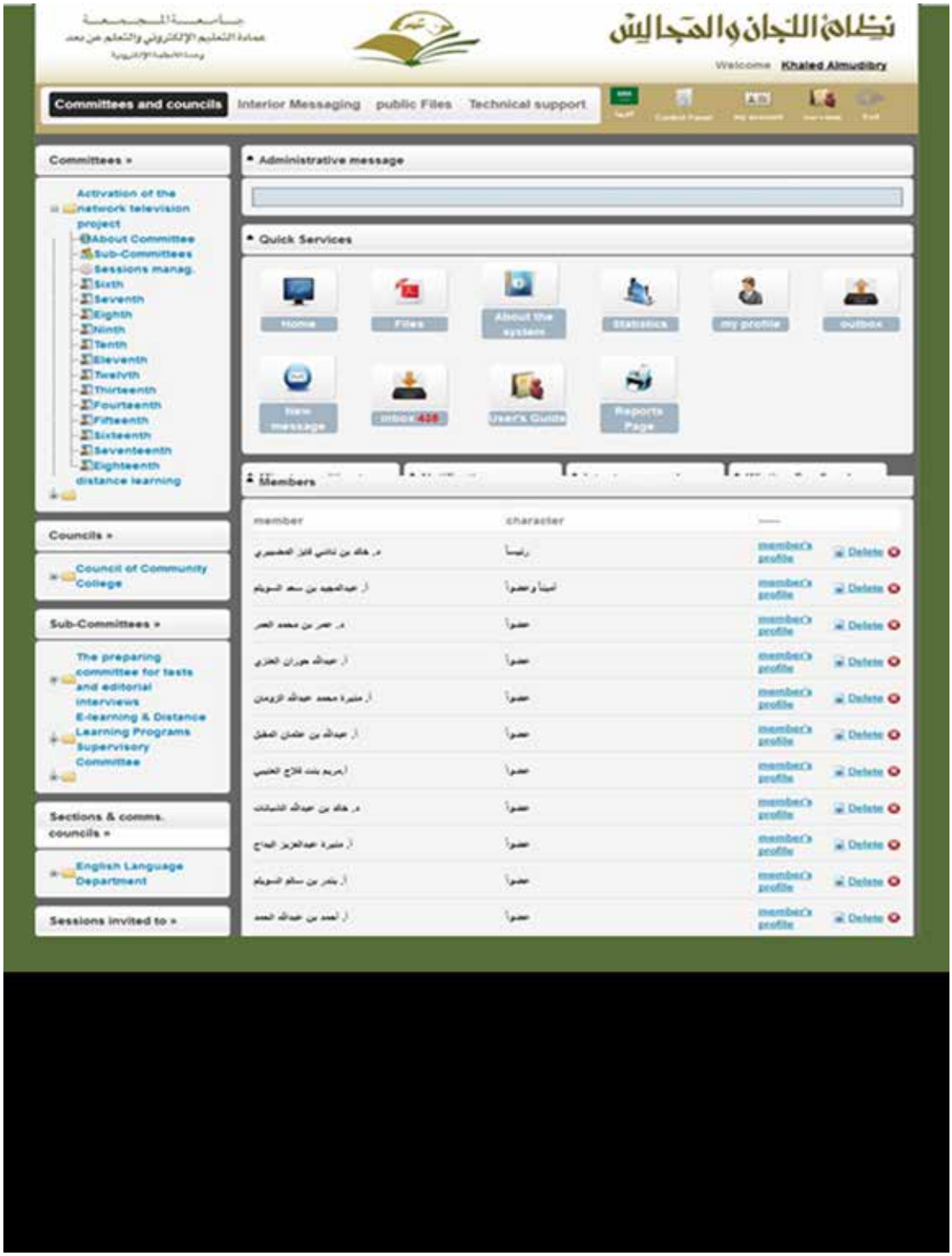


The *Eskan* project is an innovative approach that addresses the high level of demand for housing by targeting Saudi families, including vulnerable groups, without access to adequate housing, in an effort to ensure that no housing subsidies are leaked to non-eligible families. The project includes the development of a transparent eligibility and priority policy, and its application via an integrated electronic platform based on an extensive applicant database established in cooperation with relevant stakeholders. This platform provides several interactive services to applicants such as the housing subsidy application form, application and claim submission, application and claim processing, billing and collection, as well as several communication channels. As part of its quest to leverage the Kingdom

of Saudi Arabia's ability to be among the top ten most competitive nations, SAGIA has harnessed every possible resource that might help in promoting, attracting and overseeing foreign investment.[41]

*Investment Atlas* is a mobile application designed by SAGIA to help promote available opportunities in the Kingdom. It displays figures and numbers that reflect the strength and stability of the Kingdom's economy, categorizes the available opportunities in a range of sectors, provides insightful information and facts on every sector, explains how investments impact the economy and showcases current and potential opportunities in each sector.[42]

The Majmaah University is running a project involving an *electronic control system* that is linked via the Internet with PDA devices carried by field teams whose task it is to evaluate the quality and progress of construction projects and operational/maintenance works, and to monitor compliance by the university restaurants with food safety requirements.<?>

The primary task of the Saudi Commission of Tourism & Antiques' *MAS Centre* is to collect and disseminate tourism-related information and data to internal and external users. The Centre's website is the main tool for disseminating the information, which is available to everyone at any time and in any place, in both Arabic and English. The MAS Centre wishes to develop and improve its website and e-portal to provide the best service to visitors, through enhanced performance, the application of better search techniques and harnessing of the properties and features of the SharePoint technology.[43]

In the **United Arab Emirates**, the *Abu Dhabi Blue Carbon Portal* contains all outcome materials from the Abu Dhabi Blue Carbon Demonstration Project, which delivered local data-sharing, supported regional adaptation and contributed to international knowledge on Blue Carbon. Featured in the portal are publications, images, videos and other multimedia elements including the Blue Carbon Mapping Tool, which allows users to learn about the important role of coastal marine ecosystems and their ability to absorb and store atmospheric carbon dioxide. Simple to use, it provides an approximate overview of the carbon stock value for a selected area, and users can also explore the contribution of each ecosystem to the total carbon stock within that area.

Also interesting is the *Dubai Real Estate Market (eMart)*, an online portal especially designed for real-estate professionals to list their properties for sale and rent in Dubai.<?>

In **Tanzania**, *the National Help Children Helpline* is involved in helping children in need of care and protection via the telephone number 116. The helpline is operated by C-Sema, a national organization dedicated to ensuring that children's services properly serve the needs and interests of children. The helpline has handled over 45 000 calls since its inception in 2013, with over 3 300 cases referred to services throughout Tanzania. C-Sema works in partnership with Investing In Children and their Societies (ICS), UNICEF Tanzania, UNDP and Reach for Change.[44]

The World Blind Union (WBU), firm in its belief that access to information must not be impeded by any barriers, is implementing the international *WBU Right to Read Campaign,* following on from the

41 *Project nominated for a WSIS Project Prize 2015*
42 *Project nominated for a WSIS Project Prize 2015*
43 *Project nominated for a WSIS Project Prize 2015*
44 *Project nominated for a WSIS Project Prize 2015*

WIPO Marrakesh Treaty, that will give 285 million blind and partially sighted persons, and millions of print-disabled people, the right to read. They need books and printed materials in accessible formats like braille, large print and audio to expand their knowledge and gain information to the same degree as fellow citizens. This is a vital way in which to enable all blind people to participate in society on an equal footing and use accessible information to further their education or function in work and cultural activities. It will also lead to a dramatic increase in literacy among blind people.[45]

## C3.2 Software and open access

In **Canada**, Foreign Affairs, Trade and Development Canada has been running four projects. The *Strengthening Distance Education in the Caribbean* project includes: (i) designing, developing and delivering demand-driven, gender and environmentally sensitive post-secondary distance education programmes to students across the Caribbean; (ii) training faculty, instructors and tutors in gender and environmentally sensitive course design, development and delivery; (iii) conducting a comprehensive analysis of programme requirements to better respond to labour market needs; and (iv) setting up new virtual library services (online) that can be accessed by all Open Campus learning sites throughout the Caribbean.

The *Techno-links for Improved Access and Income* project aims to help local businesses develop financial and technology-related products and services so that they can better respond to the needs of smallholder farmers and enterprises in Zambia, Nicaragua and Peru. The programme has two components: 1) Technology Links for Financial Services: Mennonite Economic Development Associates of Canada (MEDA) works with MiCredito, a microfinance institution in Nicaragua, and with Mobile Transaction Zambia Limited (MTZL), a mobile transaction company in Zambia, to develop mobile transaction and mobile banking services to support increased savings among smallholder farmers; 2) Technology Links for Agriculture: MEDA supports an Agriculture Technology Matching Grant Fund in Peru and Nicaragua with the Inter-American Development Bank. The Fund provides grant funding to local private-sector firms to develop agricultural technologies that address the needs of small farmers. CIDA's contribution supports technical assistance related to the management and administration of the Fund.

The expected intermediate outcomes for this project include: rural households, enterprises and farmers, including women, demonstrating increased usage of new technologies and financial services to increase their productivity, build assets and/or mitigate risk; enhanced capacity of local partners (private-sector providers of financial or agriculture support services) to provide appropriate and more diversified products and services to rural households, enterprises and farmers, including women; and technology-based products and services being integrated into competitive agricultural value chains, with results, methodologies and lessons learned being shared with a range of audiences.

The *Engaging the Private Sector for Small and Medium-Sized Farm Business Development* project is testing new farming methods and providing training, coaching and innovative tools in three areas: (1) sustainable farm management and crop-growing practices using modern information and communication technologies; (2) marketing by enabling farmers to meet the requirements of the retail and export markets; and (3) access to financing. The project is being implemented in partnership with commercial agricultural input suppliers, banks, grocery chains and agriculture extension service providers.

*Last Mile Mobile Solutions (LMMS)* is looking to increase the effectiveness and efficiency of humanitarian assistance and enable greater accountability for the assistance delivered. LMMS is mobile technology, developed by World Vision Canada designed to make the delivery of humanitarian aid quicker and easier. It uses a hand-held device that works even in remote areas to register people affected by crises. By means of the device, aid workers can gather basic information about each person and issue registration cards, which are then used to improve the speed and efficiency of aid

[45] *Project nominated for a WSIS Project Prize 2015*

distribution. The data gathered can also be analysed quickly and used to plan additional assistance, as well as monitor and report on the assistance provided.

In **China**, the Institute of Geographical Sciences and Natural Resources Research, Chinese Academy of Sciences, is managing the *Global Change Research Data Publishing and Repository* based on the Digital Object Identifier System (DOI) standard. The methodology of metadata-raw data- linked together made the datasets informative, reliable, replicable and re-useable. A total of 36 peer-reviewed global change datasets have been put online with DOI: 10.3974/. All of the datasets are full and open to all, subject to citation. Quarterly data publishing will keep the published data up to date. The data have been highly acknowledged by both scientists and decision-makers. United Nations Secretary-General Ban Ki-moon highly praised the GlobeLand30 dataset, a published dataset donated to the United Nations.[46]

In **Colombia**, *Convertic* is a project designed to enable visually impaired people to have autonomous access to information and knowledge, education, job opportunities and entertainment through the use of ICTs. By means of this project, blind and visually impaired people are provided, free of charge, with the best screen reader and magnification software, enabling them to have independent access to computers, commonly used Office applications, music and video players and the Internet. Since a single licence for the software is not affordable for an ordinary Colombian under normal circumstances, Convertic provides an economy-of-scale model that enables the State to offer this vital tool to every single one of the country's 1.2 million visually impaired citizens, for free.[47]

The *Sugarcane Breeding Institute (SBI)* in **India** is running the *CaneInfo...all about Sugarcane* website (available at www.caneinfo.nic.in). This is an interactive, free-to-access, database-driven and user-centred website developed using a systematic approach by SBI, under the Indian Council of Agricultural Research, with a mission to provide a platform on which sugarcane growers, cane development personnel, scientists and students can share sugarcane-related information and knowledge. It is a pioneering initiative for any public-funded sugarcane research institution in India. CaneInfo's vision is to enhance and sustain the 100-year old SBI's position as a premier knowledge provider furnishing research-based, reliable and real-time information to stakeholders in sugarcane agriculture.[48]

[46] *Project nominated for a WSIS Project Prize 2015*
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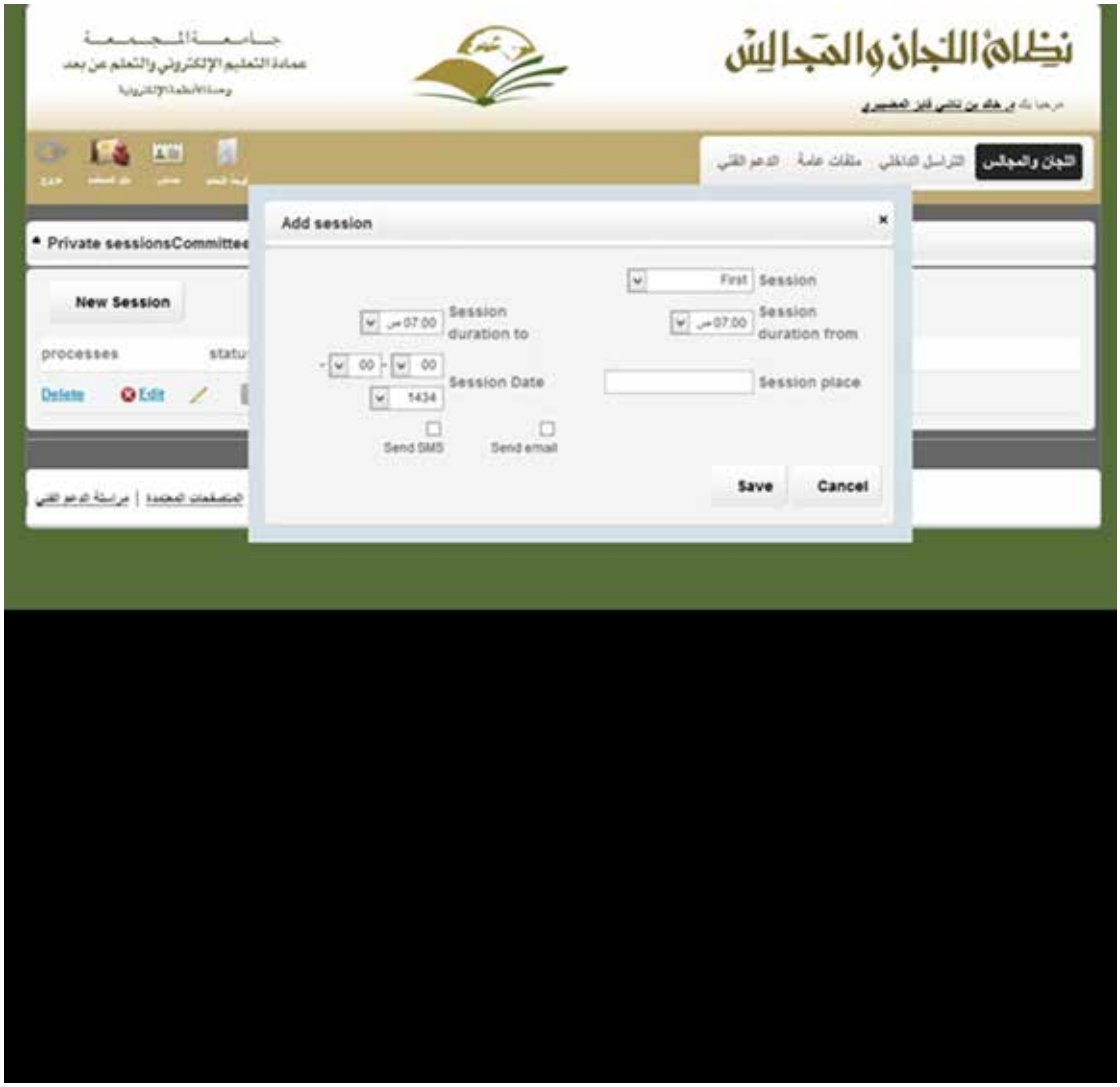
[48] *Project nominated for a WSIS Project Prize 2015*




One of today's main issues is energy sustainability, and all countries are familiar with the problem of inadequate energy data at the government and public levels. In **Indonesia**, the *Dala2 Project* aims to resolve this issue by collecting, managing and disseminating energy sustainability data across the nation, as a public information service to citizens. The goals are to enhance awareness of energy sustainability, own the data and thereby manage the nation better.[49]

In **Italy**, the *Paperboy* project is a free web application, also available as an Android or iOS app, that enables visually impaired people to browse in an easy way, and listen to by means of a free embedded TTS system, the daily news from their favourite newspapers. Paperboy can, moreover, be used for browsing and for listening to books or other textual content, and can be converted in a reverse tree. Paperboy will work with any type of content.[50]

In the **Republic of Kazakhstan**, the *ADILET* normative-act referencing system provides full, free and round-the-clock Internet access to the country's legislative texts. Its main functions are:

- Searching the content of a normative act on the basis of specified search parameters
- Viewing the history of changes made to a normative act and its previous versions
- Navigating through related normative acts

[49] *Project nominated for a WSIS Project Prize 2015*
[50] *Project nominated for a WSIS Project Prize 2015*

- Providing electronic copies of normative acts to keep on a local drive
- Simultaneous viewing of a normative act in two languages
- Exporting a normative act to the .pdf or .docx formats
- Providing RSS feeds
- Displaying a list of recent and most popular acts.[51]

In **Kuwait**, the Public Authority for Civil Information has developed and launched the *Kuwait Finder* project as part of its GIS programme. Kuwait Finder was released to provide the country's population with a localized GIS-based search engine that supports searching for an address up to the flat level, and searching by establishment name and type of business. The application provides the following functions:

- Search using building computer number
- Search using area name, block number, street name or house number
- Search for points of interest such as hospital, shop or mall
- Quick search through shortcuts representing different categories of entity such as shopping centres, schools, or other activities and crafts
- Routing function between two points, with display of the directions
- Saving of favourite places
- Sharing of locations via Facebook, Twitter or e-mail.[52]

In **Malaysia**, the Malaysian Communications and Multimedia Commission is managing the *My u-Pustaka* mobile application project, which is catching the attention of the Malaysian information industry by demonstrating how the provision of ubiquitous services through the use of mobile technology could meaningfully contribute to an inclusive information society. Instantaneous access to information and knowledge through smartphones and tablets helps people to take rapid decisions, and can support Malaysia in the creation of an inclusive knowledge society by 2020. It is also another step in the enhancement of the quality of work and life in this broadband era through the leveraging of innovative services.[53]

The mountainous terrain of **Nepal** constitutes a challenge to those seeking to ensure increasing access to health information for pregnant women and the mothers of infants and babies. The *Amakomaya* initiative has developed and implemented unique android apps for pregnant women and health workers to access need-based health information and issue auto-reminders for visits to the antenatal clinic. The local community has embraced the programme and is helping to extend the application's outreach, from which over 1 000 pregnant women have thus far benefited. Although the country now has up to 70 per cent mobile coverage, Internet connectivity and the price of bandwidth constitute a major challenge for this application.[54]

51 *Project nominated for a WSIS Project Prize 2015*
52 *Project nominated for a WSIS Project Prize 2015*
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54 *Project nominated for a WSIS Project Prize 2015*

*Social Transformation – Achieving Results Through Technology (Star.tt) – Closing the Digital Gap* is a project of the Government of the **Republic of Trinidad and Tobago**, executed by the Ministry of Science and Technology. It was launched in 2013, targeting a broad cross-section of citizens and groups, including young people, people with disabilities, the elderly and persons living in remote/rural and vulnerable communities. The programme takes a collaborative approach in which government, academia, business, the community and individuals get involved and use technology to help make a difference. A volunteerism drive and a mentorship programme will be implemented along with initiatives designed to encourage the corporate sector to take on socially responsible projects, partnering with academia and government to use ICT as a catalyst for social transformation.[55]


In **Uganda**, 75 per cent of the population survives on smallholder farming, yet many poor farmers have limited or no access to the information and capital that could improve their livelihoods. Grameen

[55] *Project nominated for a WSIS Project Prize 2015*

Foundation works with government, the private sector and civil society to empower farmers through relevant, timely and actionable information and financial services. These resources are delivered through tailored mobile solutions and networks of trusted intermediaries, in the form of the *Community Knowledge Worker* project. By combining mobile technology solutions with a methodology for leveraging local change agents, we are able to catalyse behaviour change that leads to sustainable improvements in the economic lives of the poor.[56]


In the **United States**, *WorldWideScience.org* provides a simultaneous search of 100 national scientific databases from more than 70 countries around the world, enabling users to find the precise information they need, via a single search, without having to know the scope of any particular national scientific database. Offering multilingual translations of both queries and search results in ten different languages, WorldWideScience.org's coverage includes textual and multimedia materials, along with scientific and numeric databases. The WorldWideScience Alliance provides the multilateral governance structure, and the Alliance membership comprises WorldWideScience.org source owners and sponsors.

Where international projects for software and open access are concerned, the World Bank conceived *The Smart City Gran Concepción*, a pilot activity in Chile carried out in partnership with the Chilean Ministry of Transport and Telecommunications. The project introduces bottom-up smart-city methodologies that help local and municipal governments to (i) learn how to use smart-city tools with better real-time interaction with beneficiaries and greater citizen response, and (ii) create partnerships and synergies between local and municipal government and other key actors (e.g. universities, private sector, civil society) to foster their active and ongoing participation in solving local challenges through ICT solutions. The project is based on methodologies that have been successfully implemented throughout the European Union and United States. It focuses on the transport sector and comprises four operational phases: (i) co-designing mobile applications with local and municipal government participants to provide solutions to daily technical challenges in the transport sector; (ii) working jointly with local and municipal governments, citizens, the private sector and civil society to prepare a

[56] *Project nominated for a WSIS Project Prize 2015*

vision of the future and a roadmap for mobility in Gran Concepción; (iii) developing solutions for urban transport challenges through co-creation competitions and citizen engagement; (iv) co-designing an urban ICT innovation centre to help solve local challenges and inspire citizen participation. Once the impact of this pilot project is validated, the approach will be scaled up to the national level.[57]

The Food and Agriculture Organization (FAO) is running four international projects of great interest for the WSIS C3 Action Line. The *Global Animal Disease Information System (EMPRES-i)* speeds up national, regional and global disease information sharing, supports the risk assessment process for existing and emergent animal diseases and facilitates the epidemiological analysis of specific disease events at the regional and global levels and planning surveillance.

The *Alert and Monitoring System to prevent and control citrus disease (Diaphorina Citri) (SIMDIA)* uses new information technologies to facilitate decision-making based on reliable information, updated to ensure the best use of both human and economic resources. In countries where the HLB bacteria is present, SIMDIA identifies areas in georeferenced maps where the bacteria has been confirmed. In countries with no presence of the bacteria, SIMDIA focuses on monitoring insect populations that possibly carry the HLB bacteria, through reports that likewise use georeferenced maps.

*The Climate-Smart Agriculture Community of Practice* project involves eleven online communities of practice created and facilitated by FAO's Mitigation of Climate Change in Agriculture (MICCA) Programme. Eleven online learning events (with webinars) and facilitated discussions on two platforms develop the knowledge and ability of the over 6000 members from more than 110 countries to engage in climate-smart agriculture in their countries and share their experience in this critical and rapidly-developing field.

The *World Overview of Conservation Approaches and Technologies* (WOCAT) is an established global network of soil and water conservation specialists dedicated to sustainable land management (SLM). In response to the need to formalize the previously informal global network, a framework agreement defining the WOCAT Network as WOCAT International and WOCAT Regional and National has been elaborated and legally safeguarded. The overall goal of the WOCAT Network is to unite the knowledge management and decision support efforts needed to upscale SLM among all stakeholders, including national governmental and non-governmental institutions and international and regional organizations and programmes. The network provides tools that enable SLM specialists to identify areas in which action is required, and to share their valuable knowledge of land management.

## C3.3 Community centres

In **Bulgaria**, an interesting project is *Interregional Cooperation at Scientific Computing in Interdisciplinary Science.* Today, every field of study relies on the use of computers and vast datasets. Unfortunately, several less developed regions such as southern Bulgaria were left out of the efforts to build a grid-computing cluster and receive training in its use. To correct this omission, we will build a network of four partners that are leading universities in the south-western part of Europe. Our primary goal will be to introduce a core group of Bulgarian scientists to advanced computational methods. Experience and know-how on scientific computing and parallel algorithms will be passed on through a series of educational and scientific exchanges and activities.[58]

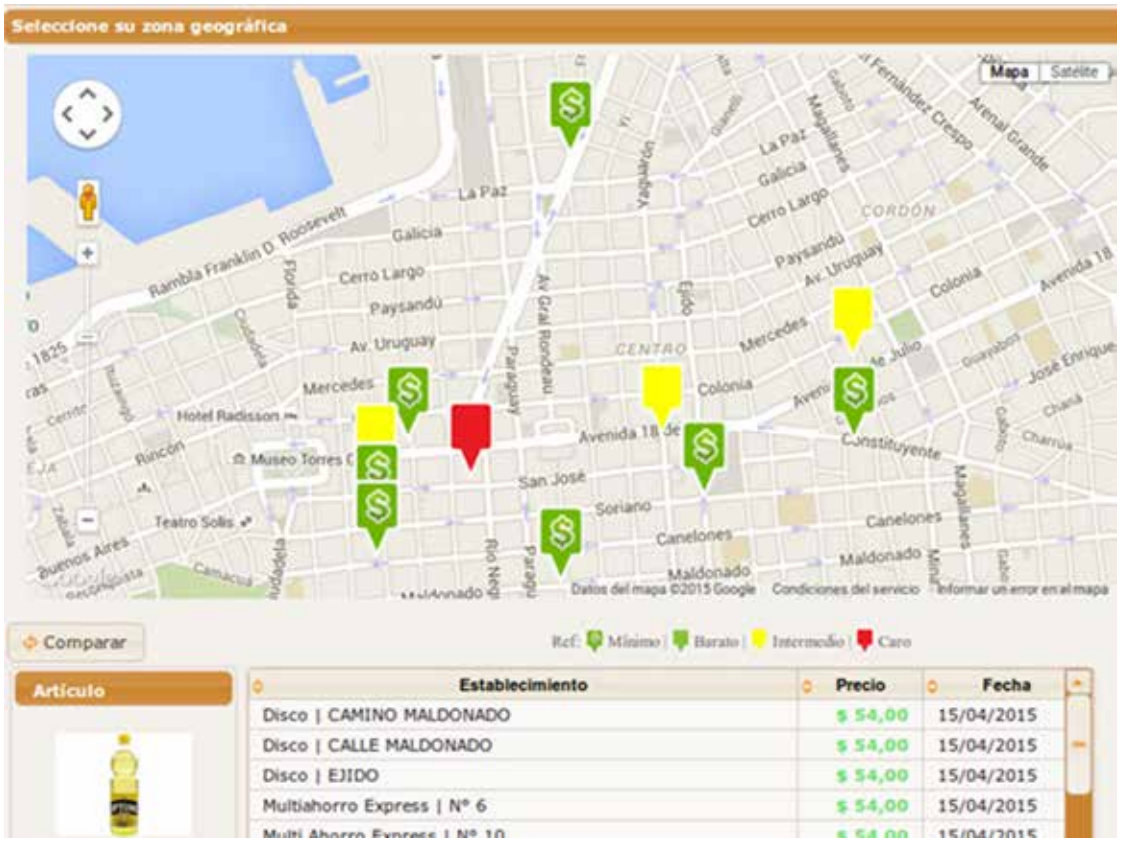
In **Burundi**, the *Community Awareness for Diabetes Screening in Patients with TB* project, run by the Burundian Alliance against Tuberculosis and Leprosy (ABTL), serves as a pilot for raising awareness about

[57] *Project nominated for a WSIS Project Prize 2015*
[58] *Project nominated for a WSIS Project Prize 2015*

diabetes among tuberculosis (TB) patients and strengthens the community's capacity in terms of health and of better access to treatment for the double burden of TB and diabetes in Burundi. The project:

1. Aims to study the association between TB and diabetes in Burundi in the interests of improving the treatment of patients with both diseases at the community level and
2. increasing the diabetes detection rate among TB patients in the country's TB centres.
3. Is the first of its kind and will be a catalyst that promotes local ownership of projects targeting the double burden of TB and diabetes.
4. Will be conducted in partnership with formal healthcare initiatives involving partners such as Burundi's TB Centre and anti-diabetes associations.
5. Aims to establish care centres to address the double burden of TB and diabetes in six districts of the provinces of Bujumbura and rural Muramvya, Kayanza, Ngozi, Bururi and Bujumbura City Council.
6. Aims to provide training for healthcare providers.
7. Seeks to increase the general population's awareness of the issues in question.

Child and Youth Finance International (CYFI) is running the international project *Ye!,* an online community with the ultimate goal of fighting youth unemployment by stimulating and supporting youth entrepreneurship. The platform is created by and for young people. It offers country pages with practical information for (aspiring) entrepreneurs, an e-community for young entrepreneurs, a coaching programme, and funding opportunities through pitching events. The community also feeds into the wider CYFI effort to promote policy change to facilitate youth entrepreneurship. Ye! targets young entrepreneurs from ages 16 to 30 and aims to reach ten million young entrepreneurs by 2020.




## C3.4 Digital libraries and archives

*Adapting Teaching and Learning Materials for the Blind* is a project from **Ethiopia**, where the population of blind or visually impaired children requiring education amounts to some one million, but where

only 5000 to 7000 of those children are attending school. The main reason for this is the unavailability of books in accessible format. The Adaptive Technology Centre for the Blind (ATCB), with technical guidance from the Daisy Consortium, will create a project aimed at:

1. Producing school textbooks and reference materials in accessible formats such as Braille, E-text, Daisy format and tactile graphics
2. Setting up a library with a proper production and distribution system for print-disabled students
3. Distributing accessible book-reading equipment to end users.[59]

In **Kenya**, the Kenya National Library Service (Kisumu) launched *Slop*, an outreach service aimed at providing informative material, establishing satellite libraries and dispensing training in the use of technology. The target groups are children in both rural and urban contexts. The core objective is to promote a positive and lifelong reading culture among children and community members in western Kenya. Although the programme has been experiencing a number of challenges, the library has taken measures to mitigate those challenges and help the programme to continue. The programme will encourage the spread of libraries at the local level and will be replicated in other branches and communities in Kenya. It will eventually be adopted by the government.[60]

In March 1998 in **Kuwait**, the Awaqf Public Foundation started a *special information centre (Waqfic)* aimed at serving and supporting decision-making and the special interests and concerns specific to Al Waqf (endowment) and its crucial developmental role in Islam. Waqfic includes a special library serving all the foundation employees and researchers who have a special interest in Al Waqf issues in all the Islamic world according to what the legislative code relating to the rules and disciplinary procedures of those services allows. The library includes a collection of titles related mainly to Al Waqf, in addition to the non-profit sector, charity and developmental subjects. It also library hosts some titles related to the various activities at the Al Waqf Foundation. The library houses more than 5 000 titles, including reference materials, books and documents. It also includes an audiovisual collection and copies of Waqf documents.[61]

In **Serbia**, the main idea behind *Biblioteka++* is to build a community of young programmers under the guidance of the library. Target groups: children and young people aged 10 to 24, with or without prior programming experience. Activities and technology: teaching of basic programming concepts through play with the Lego Mindstorms EV3 robotics kit and drag&drop icon-based programming language; gradual introduction of advanced topics and transfer of knowledge from one phase to another; focus on practical examples and programming real world applications; use of web technologies to teach advanced programming; organization of mentorship for advanced students. Results: students develop a new attitude towards learning; increased popularity of technical schools and faculties; economic benefits through professional careers.[62]

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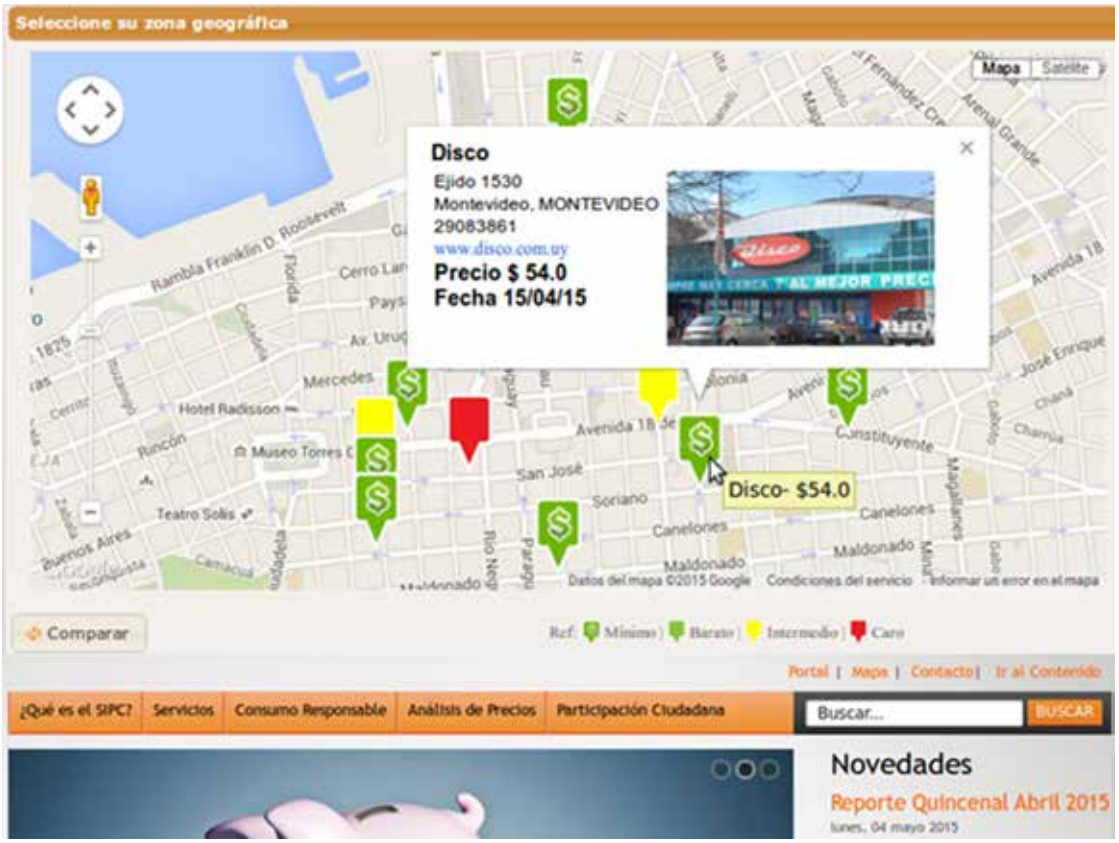
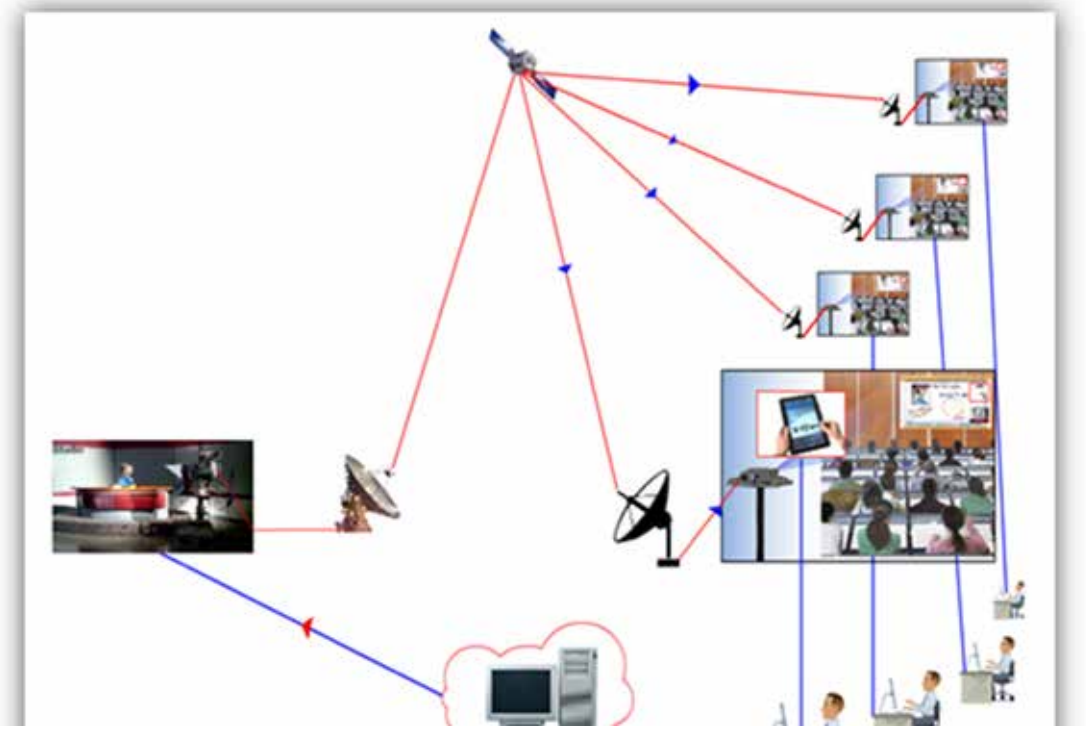



In the **United States**, *COMPRENDE "A digital Accessible Media Library"* (www.eCOMPRENDE.com) is emerging as a solution to the limited availability of accessible educational media for children with visual and/or hearing disabilities. COMPRENDE has been designed taking into account the concept of universal design and the existing evidence on the benefits of subtitles and audio description as supporting tools in the literacy of deaf, blind and deaf-blind students in the United States (Brann, 2011), (Packer, 1996).



The Globethics.net *Digital Library on Ethics* is an online library that offers free-of-charge access to hundreds of thousands of full-text documents on ethics and related disciplines. By contributing to the improvement of access to knowledge resources on ethics in the southern hemisphere, this international initiative aims to share knowledge on ethics, especially North to South and South to South, and to contribute to development, in particular by promoting responsible leadership, good governance, and values-based decision-making and processes.[63]

[63] *Project nominated for a WSIS Project Prize 2015*

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# 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.

Everyone should have the necessary skills to benefit fully from the information society, and 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 the delivery of education and training of teachers, by offering improved conditions for lifelong learning encompassing people outside the formal education process, and improving professional skills. 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.

Under the ITU Academy, as already mentioned in the Introduction, work has continued in the development of standardized training materials in areas of priority for the membership. To that end, development of training materials for the Spectrum Management Training Program (SMTP) was completed and successfully pilot tested. Discussions are under way with selected universities interested in offering this programme as part of their degree courses. The material will also be available to centres of excellence (CoEs) for delivery either as a package or as stand-alone modules. Work continues on the development of a Quality of Service Training Programme (QoSTP). Several existing training materials are also being reviewed and aligned with ITU Academy standards to ensure the highest level of quality. Some of the programmes under consideration are in the areas of conformance and interoperability, cybersecurity, and smart sustainable cities.

The selection of new CoEs under the new strategy was successfully conducted, through an open, transparent and competitive process. Some 32 such centres were selected from a list of 99 applications from across all regions. The process was endorsed by the Global Capacity Building Initiative (GCBI), established by WTDC-10 and retained at WTDC-14 to advise the BDT Director on human capacity-building issues. Governance structures in the form of regional steering committees have been established and have met, and the centres are now operational.

A two-day global event (mentioned in the Introduction) was organized for academia in April 2014 under the banner of the ITU Academy. The event was dedicated to the theme “Fostering Innovation and Partnerships in Human Capacity Building: Enhanced Engagement of Academia in the Work of the International Telecommunication Union”. The event was hosted by the Czech Technical University (CTU) in Prague. It attracted 40 participants from academia, the private sector, training institutions, telecom and ICT organizations, and national telecom administrations. The event identified areas in which academia, the private sector and ITU could work together in capacity building, and developed strategies for cooperation, through areas such as development of materials, delivery of programmes, exchange and sharing of experts and experiences, and accreditation of training programmes. Such

joint collaboration facilitates a blending of the pedagogical and the practical to produce the graduates industry actually needs.

The m-Powering Development initiative by ITU's Telecommunication Development Bureau (BDT), as already mentioned in the Introduction, aims to extend the benefits of mobile technology to all strata of society in order to build a truly inclusive information society, with a special focus on remote rural and underserved areas. It is expected that this initiative will add to GDP growth and create employment opportunities through reliable mobile teleconnectivity, provision of affordable services and use of the latest technology. Under m-Powering Development, the provision of reliable mobile teleconnectivity will help to open up new models of development. Improved access to and use of mobile technologies may also boost positive social and economic impact in the areas of m-education, m-health, m-government, m-banking and m-sport. This initiative envisages pooling the strengths of governments, international organizations, the private sector and civil society to create a dynamic partnership for the purpose of increasing reliable mobile connectivity.

## C4.1 ICT literacy

In **Bolivia**, the digital divide and social inequality have decreased with application of the Chaski programme. Students in the country's suburban and rural areas without access to education and technology were trained on ICT by the Ayni team. The goal of *ICT for digital inclusion* is to improve ICT learning in the community while ensuring the financial, technical and pedagogical sustainability of each telecentre implemented, making the Chaski a programme of structural intervention. Ayni has reduced the digital divide and dropout rates in rural areas, improving the self-esteem of students, increasing their employment opportunities and facilitating their options for the pursuit of higher studies.[64]

In **Cameroon**, the Health and Environment Programme (HEP) project *Educational and communication materials for pupils in Douala, Cameroon* is providing educational materials to pupils aged between six and twelve years at a school in Douala in order to educate them in the use of ICTs. Through its founder, Mrs Ebaï, and director, Mrs Ntung, the school convinced Madeleine Scherb, founder and president of HEP, to support the noble ideals of morality, neutrality and bilingualism for this school (bilingual school emergence). In November 2013 (date of implementation of the project), Ms Scherb distributed many gifts such as educational materials, books on ICT and intellectual property, comic strips, etc. We are undertaking this project over a period of five years, from 2013 to 2017.[65]

In **Indonesia**, *Indonesian ICTs Volunteers* was established to empower the community through the knowledge and skills needed to utilize ICTs to improve people's livelihoods and enhance national competitiveness, through socialization, education and ICT training by excellent and skilful volunteers. The programme highlighted several ways in which to move towards the information society, including through the enhancement of community participation and ownership towards sustainability of the organization and its efforts to strengthen the community's ICT capabilities. Its relevance under Action Line C4 makes it worthwhile to pursue. It is a proven programme that provides solutions for bridging the digital divide in Indonesia.

*Relawan TIK Kota Bogor (RTIK Bogor)*, also known as Bogor ICT Volunteer, is a non-governmental organization which came into being on 30 May 2014. A number of people in this not-for-profit organization had already been running the programme since May 2012, in collaboration with the local government in Bogor, Indonesia. The main purposes of RTIK Bogor are to disseminate information on safe use of the Internet; educate teachers and students on the use of ICTs in the learning process at school; and extend the local government network infrastructure (wireless LAN) to schools, as well as to public areas in the form of public Internet access.[66]

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64 *Project nominated for a WSIS Project Prize 2015*
65 *Project nominated for a WSIS Project Prize 2015*
66 *Project nominated for a WSIS Project Prize 2015*

In **Italy**, *Digital Literacy for Social Inclusion (DLSI)*, by Informatici Senza Frontiere (ISF) Onlus, aims to reduce the digital divide and IT illiteracy among the more vulnerable members of society, including the elderly, drug addicts under the care of health communities, people with severe diseases, quadriplegics, ALS sufferers, children at risk of criminality, blind people, persons with disabilities, such as those affected by Down's Syndrome, and young people in other countries such as Albania, the Congo, Nigeria, Sierra Leone, Mozambique and so on. It features the free-of-charge setting up of computer laboratories by ISF and local or remote training by ISF operators, leading ultimately, where possible, to the European e-Citizen exam.

In **Singapore**, the government is working with leading providers of *Massive Open Online Courses (MOOCs)* to offer easily-accessible, high-quality training in data sciences and analytics, drawing on the Coursera MOOC platform's data sciences specialization provided by Johns Hopkins University. The pilot aims to train 200 Singaporeans in data sciences and analytics and demonstrate that MOOCs is a viable means of skills upgrading for both businesses and individual citizens. The government will work with key local entities from the IT, government, university and research sectors to drive support and provide participants for the online course, which comprises ten modules.

In **South Africa**, the *OSCARnet project* is an ICT project to empower disadvantaged and underprivileged citizens in the country's KwaZulu Natal communities, who already struggle to gain access to basic necessities such as healthcare, education and employment. The idea was born out of the realization that ICT plays an important role in the lives of young people, especially girls and young women, in terms of facilitating community engagement with civil society. Technology inspires people to maximize their full potential and establish positive connections with the communities, and enables achievement of the WSIS targets through the connection of villages and rural areas with ICTs and establishment of community access points.

In **Turkey**, *TTNET ProG* is an online learning platform that includes career and personal development courses for university students, new graduates and professionals. Users can take advantage of a variety of e-learning options. First, Istanbul University offers Workplace Proficiency Certificate courses in sales and marketing. After completing the course, students receive an Istanbul University Certificate. Second, TTNET ProG includes more than 100 online courses with wide-ranging, high-quality content in areas such as marketing, sales, communication, finance, leadership and organizational development. Third, with *LIVE* English courses, students log in to virtual classes and join conversational English lessons with no time and place boundaries. TTNET aims to spread e-learning in Turkey and to make it affordable so that people can learn more from experts in areas that they want to focus on. Some ProG classes are free, while University Certificate courses, *LIVE* English classes and other courses cost far less than average market prices in order to match students' ability to pay.

## C4.2 National policies

**Egypt**'s national human capacity-building initiative for ICTs, *Education Development for Universities in Egypt* (EDUEgypt), is a training initiative implemented in 16 Egyptian universities spanning 57 faculties. EDUEgypt is the result of a cooperation protocol signed between the Ministry of Communications and Information Technology and the Ministry of Higher Education in December 2007. EDUEgypt aims to bridge the gap between university students' skills and the competencies required by the ICT job market by using interactive learner-based training techniques during students' senior academic year. EDUEgypt has been implemented for 7 years, benefitting 43 500 students in 16 governorates.[67]

[67] *Project nominated for a WSIS Project Prize 2015*

Following a needs assessment conducted by Ministry of Communications and Information Technology, a second Egyptian project, entitled *Training and Qualifying for Employment (TQE)* and focusing on the needs of persons with disabilities, was launched by the Ministry. The programme's main objective is to help persons with disabilities to find better job opportunities by building their ICT capacities. TQE, which is a public–private partnership programme, offers two grants with the aim of eradicating IT illiteracy, opening new communications and knowledge acquisition channels, and providing job-specific training as well as job opportunities in the ICT private sector, thereby supporting independence and empowerment.[68]


In **Fiji**, the Government launched its ambitious *Government Community Telecentres (GTCs)* programme at the end of 2011 to ensure no Fijian is left behind in the digital age. The GCT programme has been one of the proudest accomplishments of the Bainimarama Government. This was an initiative to connect the unconnected and to bring ICTs into the lives of communities that had been deprived of access to ICT services either through being socioeconomically disadvantaged or through living in

[68] *Project nominated for a WSIS Project Prize 2015*

areas to which services do not reach. Over 100 000 Fijians in 25 locations across Fiji have received services since the programme was launched in 2011.[69]

As a means of improving career advice assistance for pupils and students, the Ministry of Sport and Youth Affairs of **Georgia** has designed a special webpage, *myprofession.ge*, which is a roadmap for youngsters in Georgia enabling them to receive information on insights and best practices for various professions in the country. The webpage was designed as part of the Ministry's continuous support for the development of state youth policy. As part of these efforts, a special webpage was designed to support the professional orientation of young people and to serve as a guidebook for those wishing to take up various professions.

Bridging the digital divide requires connectivity, equipment, and the skills necessary to use ICT tools. This knowledge sometimes has to be transferred outside classrooms, in real-life settings. *Youth for a Digital Mexico* was born within this context, with the goals of creating awareness about the use of ICTs, closing the digital divide, and capturing public opinion via surveys, with a view to improving the website *gob.mx* and the provision of services in **Mexico**.

The initiative took advantage of the enthusiasm of young people by inviting them to be part of this transformation. Young adults aged between 18 and 29 from colleges and universities nationwide were invited to participate, and were then hand-picked from a large pool of 2 743. They were trained to be knowledgeable in the online services offered by an early version of the *gob.mx* website, so that they could assist citizens who visited the government offices to which they were assigned. Within a period of three months, participants helped to complete 5 244 online services and apply 636 surveys related to digital services. Most importantly, they were able to convey to the public the message that the Government is interested in reaching out to its citizens, and that it will be there for them during its transformation.[<?>]

The Ministry of Communications and Transportation's project *Puntos México Conectado: Digital innovation and education community centres* is based on locally based educational centres focusing on digital literacy and innovation. The centres' objectives are: to help to reduce the digital divide among the population through training in digital skills; to provide additional educational opportunities for children based on technology (robotics and programming courses); and to promote entrepreneurship and provide tools for young people to enable them to develop technology-based projects. The network includes 32 *Puntos México Conectado*, one per state, located in cities with more than 40 000 inhabitants and in areas with low-income populations identified with high delinquency rates.[<?>]

Commitment and family involvement are also very important in the education of children. It is thought that this responsibility falls only to teachers or schools; however, principles and values are inculcated at home, within the family. Today's children need parents. It would be ideal if there were a school where people were taught to be parents, but the reality is that one learns "on the fly". In this context, a project has been implemented in the Victoria Dorantes Library, in the community of Atotonilco,

[69] *Project nominated for a WSIS Project Prize 2015*

Tlaxco, Tlaxcala in Mexico. *Back to school because you learn better family: Back to school because family learns best* is a project run in collaboration with the Ministry of Education of Tlaxcala and Tec de Monterrey.[70]

In **Poland**, *GO_PRO!* started as a project lead by Meritum. It created a network of 20 libraries where regional programming centres have been opened. Librarians were trained to lead workshops and informal groups ("Coders Clubs") dedicated to developing programming skills among young people. Libraries have been equipped with interactive projectors, computers, tablets, logarithm applications and Lego Mindstorms to attract young people in their free time. Training materials and Coder Club Animators toolkits were also developed during the project. Now, in cooperation with IT companies and public bodies, it is trying to develop GO_PRO! as a permanent programme to stimulate IT development by attracting young people, especially in underdeveloped regions.[71]

In **Portugal**, the *Programa Escolhas* was launched in 2001, with the aim of promoting equal opportunities among youngsters in lower socioeconomic segments, where local consortiums are invited to submit project proposals based on local needs assessments. Since 2003 this intervention has been strengthened with a specific action line aimed at promoting free access to the Internet and ICT skills development and certification. Some 107 digital inclusion centres were set up across the country and in autonomous regions between January 2013 and December 2015, engaging a total of 30 553 unique individuals in 163 147 registered working sessions dedicated to digital inclusion activities and issuing nearly 10 000 ICT certificates.[72]

A second interesting project in Portugal is *Digital Literacy for Everyone*, promoted by the Municipal Library of Penalva do Castelo. This free training initiative, promoting inclusion and digital literacy, is aimed at the adult population of the municipality who wish to acquire knowledge and develop digital

[70] *Project nominated for a WSIS Project Prize 2015*
[71] *Project nominated for a WSIS Project Prize 2015*
[72] *Project nominated for a WSIS Project Prize 2015*

and computer skills and learn how to participate independently in the digital society. Demographic variables in this rural county and the incipient levels of inclusion and digital (and informational) literacy evidenced by its population, enhancing various phenomena of the digital divide, make this formative project a local reference point in promoting citizenship and digital societal inclusion.[73]

Another interesting Portuguese project designed by the Foundation for Science and Technology, Portugal's public policy coordinator for information and knowledge society , is *ICT and Society Network*, which promotes digital inclusion and literacy among the Portuguese population, positioning itself as an individual capacity-building tool for citizens to encourage a more comprehensive and equitable society. Designed for those groups most vulnerable to the digital divide, it should, therefore, help to overcome the reality that one third of the Portuguese population has never used the Internet, which puts Portugal behind most of Europe in this area. Launched in late 2013, *ICT and Society Network* develops digital inclusion and literacy projects through a multistakeholder platform acting at national, regional and local levels, supports innovative ideas from any entity (public or private, collective or singular) but especially civil society (bottom-up logic), and undertakes recognition and certification of digital skills.


The Ministry of Information and Communications Technology of **Qatar** (ictQATAR) is running three projects.

The first, *Digital Inclusion Strategy for Qatar*, is based on the premise that technology is the way forward for the people of Qatar. As the nation moves towards becoming a knowledge-based economy, it has become increasingly important to ensure that all members of society have the ability to access technologies and gain an understanding of how to use them. The Ministry of Information and Communications Technology works to bridge the digital divide in Qatar so that everybody can be a part of Qatar's information society through its digital inclusion programme, which aims to reach out to those sectors of the Qatar population that are currently lacking in technological and IT skills. The aim is to provide access to basic technologies, and the skills to use technology, and in so doing to empower the nation.

[73] *Project nominated for a WSIS Project Prize 2015*

*Haseen* is an online digital content portal for first- to twelfth-grade students hosted on the Safe Space website.[74] It provides 148 learning resources which are linked to 348 educationally sound learning activities for teachers to use in Arabic, English and ethics lessons. *Haseen*'s uniqueness stems from the fact that it embeds cyber safety information through subject-area learning in an interactive and engaging way. This means that, rather than educators lecturing students about cyber safety, students learn the information and acquire competencies through learning activities that are culturally relevant, have local appeal, and reflect Qatar's local cyber safety priorities.[75]

The *Mada (Qatar Assistive Technology Center)* project was established by the Supreme Council for Information and Communication Technology in June 2010 as a public–private partnership with Qtel, Vodafone Qatar, the Qatar National Bank and Microsoft. *Mada* is a one-stop shop for all aspects of accessible technology for persons with disabilities. As well as delivering direct services, the centre has sought to introduce a range of technologies to support Arabic speakers, introducing website accessibility certification, establishing the first major repository of accessible books online for Arabic users, and supporting Arabic innovation and research in access technologies.[76]

The *Life Stories* project in **Romania** started in autumn 2014 with the aim of supporting the local community in their endeavours to develop IT competencies among adults, using digital stories as a training instrument. This project is a follow-up to a programme on digital inclusion of seniors within the community begun in 2013, whereby the library will contribute to digital alphabetization and the diversification of public services. The digital stories will be presented in a "memories festival" to be organized in the summer of 2015.[77]

*Mae Hong Son IT Valley* project was started under Princess Maha Chakri Sirindhorn's initiative to promote education in rural area of **Thailand**. Mae Hong Son is situated along the Thailand–Myanmar border in the northern part of Thailand. The population consists of more than ten different tribes of diverse cultures. However, through IT, the people in Mae Hong Son can put their creative gifts to better use. Through the effective participation of local governments and all stakeholders in the area, the project aims to achieve three goals: promoting education, promoting employment, and promoting networking for local people, through the use of IT.

74 *Project nominated for a WSIS Project Prize 2015*
75 *Project nominated for a WSIS Project Prize 2015*
76 *Project nominated for a WSIS Project Prize 2015*
77 *Project nominated for a WSIS Project Prize 2015*

In **Trinidad and Tobago**, the *Caribbean ICT Roadshow* initiative is designed to raise awareness, educate, and demonstrate how ICTs can transform every sphere of endeavour in government, the private sector and civil society. The initiative addresses all citizens in Caribbean countries, explaining the technologies in audience-appropriate language and demonstrating their effective use in every sector. It emphasizes the need for innovation, fosters entrepreneurship and encourages the beneficial use of the Internet and its resources by young people. The Roadshow is customized for each country it visits and seeds activities in each country that will yield tangible benefits to its citizens.

In Trinidad and Tobago we also find other two remarkable projects from the Ministry of Science and Technology.

The first, *ICT for Seniors*, focuses on the contemporary challenges Trinidad and Tobago is to face in the elderly population. The ICT for Seniors programme was launched in 2014 through a collaborative effort between the Ministry of Science and Technology and the Ministry of the People and Social Development. It is aimed at ensuring the digital inclusion of senior citizens, as they comprise a group that is usually excluded from information society activities. The programme, which is in its consultative phase, comprises national consultations and outreach to senior citizens to raise awareness of the initiative and to solicit their views so that their needs can be better addressed. Seniors are exposed to basic information on ICTs, including being safe online, and are assisted with setting up email accounts and establishing a social media presence, if required. Three consultations were held in major geographical areas (the East, West and Central Regions of Trinidad) in 2014. Consultations are to be held in the sister isle of Tobago and in the Southern Region of Trinidad. Star.tt Community ICT Access Centers are also being used to advance the initiative, as seniors can secure access and training through these centres in their communities.

The second project is *Women and Girls in ICT Forum: In recognition of a continuing "gender digital divide"*, initiated by the Ministry of Science and Technology 2013. The annual Women and Girls in ICT Forum marks the ITU's International Girls in ICT Day, as already mentioned in the introduction of this Report. The Forum seeks to influence girls and young women to consider careers in ICTs, a field in which women are under-represented globally. Despite the excellent academic performance of girls generally in Trinidad and Tobago, the global phenomenon of under-representation in the ICT sector is replicated nationally. The Forum therefore seeks to raise awareness among women and girls of the potential of ICTs as a catalyst for development and to encourage them to consider ICTs as an

avenue for employment/entrepreneurship that can contribute to building a vibrant digital economy. The Forum was held in May 2014 and the third iteration is scheduled for May 2015.

While **Turkey** has impressive Internet penetration and growth figures, a gap still exists, as a significant percentage of the population have not yet encountered online life due to economic, social and physical barriers. *Life's Simpler with Internet* offers a solution through trainings for disconnected citizens, especially women, who are in need of basic information, helping them to overcome their reluctance in taking the first step towards the digital world. The project spearheads efforts in Internet literacy and aims to increase Internet usage in Turkey.[78]

The *Centre of Digital Innovation* is one of the United Arab Emirates' "Mobile Government" (mGovernment) projects. On 22 May 2013, H.H. Sheikh Mohammed bin Rashid Al Maktoum, Vice-President and Prime Minister of the **United Arab Emirates** and Ruler of Dubai, launched the mGovernment Initiative to make government services accessible round-the-clock through mobile phones, smart devices and electronic kiosks, with the aim of completion in two years. The Centre aims to drive innovation and confidence in smart government service delivery by providing capacity-building, quality assurance and consulting services as part of the mGovernment Initiative. The Centre provides services for testing the security and functionality of mobile applications for government entities and supports educational and academic organizations within the country by providing a portfolio of training in topics such as mobile application development, information security, mGovernment management and other business skills to drive evolution towards a knowledge-based society making use of smart government.<?>

## C4.3 ICTs for professionals and experts

**Algeria** is a country characterized by its large area, more than 70 per cent of which is desert. The introduction of a public healthcare policy offering high quality throughout the country requires significant use of technology. Hospital information management, connecting disadvantaged areas through reliable and high-quality means of telecommunication and upgrading local expertise all require the use of telemedicine.

With the aim of transferring technology to the socioeconomic sector, researchers of the Centre for the Development of Advanced Technologies (CDTA) have led the *Telemedicine service to remote regions in Algeria* project, resulting in a mini-telemedicine pilot network linking Birtararia hospital in Algiers, Ouargla hospital (800 km south of Algiers) and Hadjira health centre (900 km south-east of Algiers).

To initiate an exchange of experiences and research results in the field of telemedicine, the CDTA organized a meeting between researchers and professionals in this field entitled International Workshop on Telemedicine: Uses and Challenges. It was held on 29 and 30 November 2008 at the CDTA, Baba Hassan.

[78] *Project nominated for a WSIS Project Prize 2015*

The *Interactive Teachers' Portal* is a smart supplement to **Bangladesh**'s ailing teacher training system, which serves 900,000 teachers with modern learning facilities for 1 500. Additionally, costly face-to-face training is often too much for these teachers to bear. The teachers' portal, a collaborative, co-creative and problem-solving platform for continuing professional development, has fast became a popular way for teachers to create and share digital content in all subject areas. As membership exceeds 50 000 and is growing, the portal is already the largest local repository of educational content. An off-line annual conference started recently has also sowed the seed of a vibrant community of learners.<?>

The *CaféMóvel* project from India uses mobile technology (SMS and interactive voice response) to create a platform through which not only are researchers able to keep in touch with coffee growers and provide them with real-time assistance in solving various problems they face during the coffee growing season, but also the growers themselves are able to share knowledge with each other and maintain links with other growers, input providers and buyers, so that the entire coffee value chain benefits from the enhanced exchange of information and communication.

In **Kenya**, the *African Leadership Development in ICT and the Knowledge Society (ALICT)* programme is an eight-month professional blended learning course (online and face-to-face) designed to equip mid-to-senior level officials in government ministries with a commanding understanding of the key elements in policy-making for knowledge society development in Africa. Strong demand for the course, now provided to 16 African countries, reflects the relevance and need felt by African governments and institutions for new tools, leadership skills and knowledge for effective policy development and implementation strategies for science and technology-driven social and economic development. In Kenya we also find the *Know Eat Hub*, a capacity-building tool designed to capture and share local indigenous knowledge, new practices and the latest technology and infrastructure with respect to the value chain at the pre-production, production, logistics, processing and trade and consumer levels.[79]

In **Latvia**, the *Improvement of the system of public services* project of the Ministry of Environmental Protection and Regional Development aims to raise the quality of services provided by the public administration and to promote public services, as well as to increase the efficiency of the service process and reduce the administrative burden. As improving the quality of public services is directly related to administrative procedures and the simplification thereof, implementation of the project will diminish the administrative burden by providing public services more efficiently, faster, and more conveniently, making them more accessible in general, thereby improving the business environment as well. Within the framework of the project it is planned to develop recommended models for registration services, service delivery by the Latvian authorities (after implementing pilot projects) and services within the information technology system architecture. The project's main target groups are users of public services (citizens, merchants, non-governmental organizations and interest groups), public administrations, institutions to which certain tasks of public administration have been delegated, planning regions and municipalities and their institutions.

Unspecified image.

Internet governance (IG) is becoming one of the most important policy issues of our time. How we manage the Internet will define much of our society, yet the growing relevance of the Internet is not yet supported by effective and inclusive IG. Recognizing this gap, DiploFoundation launched the *Internet Governance Capacity Building Programme (IGCBP)* in Malta, comprising online training, policy research, participation in global policy meetings, and community engagement. Over 1 500

[79] *Project nominated for a WSIS Project Prize 2015*

professionals from 160 countries worldwide have been trained since its inception in 2003. Many of these professionals are now among the world's emerging leaders and pioneers in the digital world.[80]


In **Rwanda**, the Plan International – Rwanda *Teacher Self-Learning Academy* –aims to improve the quality of teaching and learning in science and English in primary grades P5 and P6 by using innovative methods and appropriate technology to deliver a teacher self-study programme that aims to improve teaching language, content and methodology. As a result of the project, P5 and P6 science and English language teachers have increased their knowledge and capacity to teach using user-friendly, high-quality audio-visual materials for self-study. They benefit from an enabling environment for continued professional development through peer-to-peer learning and self-reflection where the effectiveness of audio-visual self-study and peer learning as an innovation process is measured and disseminated.[<?>]

[80] *Project nominated for a WSIS Project Prize 2015*


In **Saudi Arabia**, Arabsat, together with the IT department, has embarked on a plan to implement an IT service management solution with a view to achieving ISO/IEC Certification 20000 for its IT Service Management division. The processes defined are in line with the ITIL best practice framework, and the automated IT set-up should enable Arabsat to accomplish its end goal of ISO 20000 Certification. Arabsat has engaged Wipro Consulting Services to assist in the development and implementation of the above IT setup. The main and most important ITIL processes to be implemented are incident management, problem management, release management, configuration management and change management.[81]

The Federal Social Insurance Office of **Switzerland** is promoting safe, age-appropriate and responsible use of digital media by children and young people through its *Programme on youth media protection*, Comprising targeted information for parents and teachers and specialist personnel for appropriate mentoring of children and young people in media education. The goals of the project are: publishing, advertising and updating the *www.jugendundmedien.ch* website, including an online database of current trainings offered; promoting these trainings through various social media channels; publishing a brochure and flyer on media skills; producing additional brochures; and arranging regular exchange meetings and forums for experts.

## C4.4 International and regional cooperation

In the **United States**, the *Empowering with Digital Literacy – Intel® Learn Easy Steps Program* addresses the needs of adults and young people around the world who seek to learn basic digital literacy skills. Its simple, instructional approach teaches basic computer literacy, which is a key twenty-first century skill, enabling enhanced social and economic self-sufficiency. Programme content is simple, practical and relevant, and is based on adult learning research. It can be delivered in formal or informal education settings. Participants acquire basic computer skills that are locally appropriate and support multiple hardware–software solutions. Intel provides the content free of charge to governments and non-governmental organizations, which manage local implementation.[82]

81 *Project nominated for a WSIS Project Prize 2015*
82 *Project nominated for a WSIS Project Prize 2015*

As regards international projects, the *African School on Internet Governance* organized by the Association for Progressive Communications and the NEPAD Planning and Coordinating Agency is an initiative that aims to strengthen understanding of Internet governance processes and provide a multistakeholder space for interaction and critical debate on Internet governance issues from an African perspective. Since the launch of the project in 2013, 80 trainees have returned to their countries committed to translating the ever-changing and evolving world of Internet governance into a language meaningful to their constituencies.[83]

[83] *Project nominated for a WSIS Project Prize 2015*

# 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.[84]

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.

Last year, the WSIS+10 High-level Event was held as an extended version of the WSIS Forum. It was designed to review the progress made in the implementation of the WSIS outcomes under the mandates of participating agencies, and to take stock of achievements in the last ten years based on reports of WSIS stakeholders, including those submitted by countries, Action Line Facilitators and other stakeholders. The WSIS+10 High-level Event outcome documents recognized the importance of COP and youth empowerment, which had not emerged as issues when the original documents were produced in 2003-2005.

As already mentioned in the Introduction, the International Conference on Cyberspace, Energy & 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 & 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

[84] Geneva Plan of Action, § 12 b)

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.

## C5.1 Legal measures

In **Bulgaria**, the *Improving services to citizens and businesses by providing electronic administrative services from the Ministry of Economy in accordance with the principles of the e-Governance Act* is a project that includes re-engineering processes for administrative service provision by the Ministry of Economy, software development for creating a web portal for electronic administrative services by the Ministry of Economy, implementing a specialized administrative information system, and training expert staff engaged in the process of providing e-services.

In **Japan**, the Ministry of Internal Affairs and Communications has been running two remarkable projects.

*Promotion of use and flow of personal data considering privacy protection etc*. was born from the realization that it is necessary to make rules for personal data utilization clear, striking a balance between the free flow of information and privacy protection., The Ministry organized a study group on the use and flow of personal data and, in June 2013, this group released a report which sets out a framework for the utilization of personal data and how to implement it. In the same month, a basic strategy on governmental IT policy, entitled "Declaration to be the World's Most Advanced IT Nation" (June 2013 Cabinet Decision and IT Strategic Headquarters Decision), was agreed by the Cabinet. To investigate and consider the clarification of utilization rules on personal data and other matters, the Study Group on Personal Data was set up under the IT Strategic Headquarters. It is now considering these issues.

The *Development of security policy* initiative was conceived against the backdrop of people's everyday lives and socioeconomic activities being increasingly dependent on ICTs and the development of affordable, high-speed broadband networks. Enhancement of information security is essential in order to realize a secure and safe environment for the use of ICTs. Based on such policy packages as the Cybersecurity Strategy, the Ministry of Internal Affairs and Communications, as the ministry in charge of information communication – a critical element of infrastructures – is actively promoting measures for information security in order to create an environment in which people can use information communication networks with ease. Such measures include implementing the Proactive Response Against Cyber-attacks Through International Collaborative Exchange (PRACTICE), CYber Defense Exercise with Recurrence (CYDER) and Advanced Cyber Threats response InitiatiVE (ACTIVE) projects, promoting information sharing among telecommunications operators, and enhancing educational and awareness-rising activities for the public.

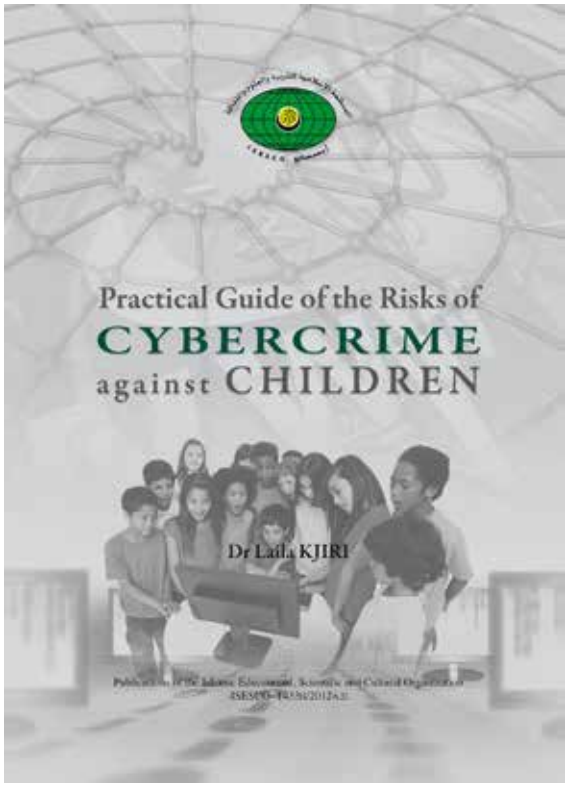
The Digital Government Unit of the Ministry of Public Administration of **Mexico** works together with the Taxpayer Administration Service of the Ministry of Finance and Public Credit, the Ministry of Economy and the National Digital Strategy Coordinator in the Office of the President on diverse activities concerning the *use of electronic signatures as a means of electronic identification for the present administration*. It has collaborated in issuing regulations on electronic signatures and acted as liaison between the states and municipalities of Mexico for the recognition of electronic signature certificates. It has also worked on revising and approving the agreement by which the Ministry of Economy of Mexico is to stop issuing digital certificates and instead recognize the ones issued by the Taxation Administration Service (SAT).<?>

Another remarkable Project is *Equipo de Respuesta a Incidentes de Seguridad en Chihuahua*. CSIRT Estatal Chihuahua provides services in the event of computer security incidents for the Chihuahua community, including educational institutions, businesses, governments and society. It serves as a single point of contact for reporting incidents across the state and provides a means of communicating and sharing important relevant information and tools to facilitate the management of security within any organization. This collaboration is the first of its kind in Mexico, involving a public education institution and a judicial body.<?>

Mexico also has the *Electronic Field Logbook and Conservation Earth* project. The Electronic Field Logbook (BEM) software is designed for recording geo-referenced agronomic and socioeconomic data in plots, replacing note-taking. The system generates customized field logbooks depending on the specific conditions of each farmer and allows data collection from research modules and extension/impact areas, thereby offering free comparable nationwide databases and automatic reports (e.g. production costs per plot, net earnings, agronomic yield, best practices and technology usage comparison). The information BEM captures is then integrated into Conservation Earth, a geographic information system that allows geo-referenced information to be overlaid and viewed in one map. It offers a public service through which users can access general data and the approximate location of research modules or extension/impact areas, as well as a private service with comparative statistics and detailed information.

The Islamic Educational, Scientific and Cultural Organization (ISESCO) in **Morocco** has participated actively in the WSIS process (2003–2005). Within the framework of its Action Plan 2010-2012, it gave priority interest to programmes and activities aiming at highlighting the ethical and cultural dimensions of ICTs in the Islamic world. In view of the responsibility which it assumes in coordinating common Islamic action in several fields, including that of ICTs, and convinced of the need to prepare a reference document likely to help in sensitizing children to the ethical, cultural and criminal issues inherent in the use of the Internet, ISESCO has developed a *Practical Guide of the Risks of Cybercrime against Children* as a contribution to the child online protection initiative.[85]

[85] *Project nominated for a WSIS Project Prize 2015*




In **Nigeria**, Luqcom Informatics' *Lifelong Learning EdTech Series: Cyber Safety and Cybersecurity Training* is a training tailored to build a young generation of digital citizens who will surf the Internet for purposeful and educational reasons, living online and interacting safely, aware of ethical behaviours that will safeguard their online presence. As part of the training, speakers gave detailed presentations on the following topics: Intruders Invasion: When cyber friends become a menace; Cyber Storm in Cyber Space; My Digital Identity; Staying Safe Online; and Social Media: A virtual home for all. These were accompanied by many contributions from industry professionals.[86]

In the **Philippines,** in line with the vision of making the world safe in exchanging digital information, the *Internet Safety for Kids and Families* initiative is a global programme that aims to empower children, their families and guardians, and the communities they belong to, in creating a safer digital environment for children to learn and thrive without fear of online abuse or harm or other malicious digital content. The programme is a result of collaborative efforts by Trend Micro, Inc. employees and volunteers who seek to educate and inspire young digital citizens through meaningful interactions, projects, and partnerships with like-minded organizations.[87]

In Poland, the Office of Electronic Communications (UKE) has introduced a comprehensive *certification programme*, issuing President's Certificates, to draw the attention of entrepreneurs and users to the most important challenges in the telecommunications sector, such as cybersecurity, digital literacy and transparency of information for consumers. This initiative is unique because it is addressed not only to various groups of end-users, such as children, young people and those over 50, but also to telecommunications enterprises. The programme contributes to the development of the information society by: supporting safe use of the Internet and protection for users against fraud; improving digital literacy; promoting fair and effective competition in the provision of telecommunications services; and increasing access to transparent information about available offers.[88]

There are two highly interesting projects in **Switzerland**.

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86 *Project nominated for a WSIS Project Prize 2015*
87 *Project nominated for a WSIS Project Prize 2015*
88 *Project nominated for a WSIS Project Prize 2015*

The *National strategy for the protection of Switzerland against cyber-risks (NCS)* is being implemented locally in relevant departments and offices. To ensure that this decentralized implementation of the 16 measures set out in the strategy is coordinated, the Federal Council tasked the Federal Department of Finance on 27 June 2012 with setting up a coordination office. The NCS Coordination Office established within the Reporting and Analysis Centre for Information Assurance in the Federal IT Steering Unit coordinates implementation of the strategy at the operational and technical levels and serves as the business office for the Steering Committee. The project's goal is to coordinate implementation of the strategy with the authorities, industry and critical infrastructure operators to minimize the cyber-related risks to which they are exposed on a daily basis.

The second project, led by the Federal Office for Civil Protection for the national strategy for the protection of critical infrastructure, identifies 15 measures to be taken in this area. Among other things, *Implementation of the Federal Council's Basic Strategy for Critical Infrastructure Protection* is important as it is producing a directory of critical infrastructure ("the PCI inventory"), improving subsidiary support in emergencies, and increasing the resilience of critical infrastructure, including the information and communication sector. The goal of the project is to implement the national strategy for the protection of critical infrastructure, with the aim of strengthening Switzerland's resilience in terms of critical infrastructure.

In **Trinidad and Tobago**, a *National Cybersecurity Strategy* was approved in 2012. The country is currently pursuing legislation to address cybercrime and to establish a Cybersecurity Agency to monitor, mitigate and prevent the occurrence and impact of deleterious cyber activities. A computer security emergency response team is also being established though an arrangement with ITU/IMPACT.

The *e-Legislative Agenda* is also viewed as a critical component of an enabling environment for ICTs. Specific activities in this area include elaborating the requisite policy and regulations to give effect to the Electronic Transactions Act, 2011. A National Technical Advisory Committee has been established to produce and review, on an ongoing basis, the regulations required to ensure conformity and compliance with rapid technological changes in the ICT sector within the national and international environment. The Committee will undertake consultations in March 2015 with a view to finalizing the policy by the end of that month. Requisite regulations are to be drafted in relation to the use of digital signatures (security levels, etc.) and electronic authentication. Furthermore, the designated authority is to be appointed on the basis of the regulations drafted.

In the **United Arab Emirates**, the Ministry of Interior has developed a *project to enhance information security culture at the Ministry of Interior*. Employee interaction with information resources is often the weakest link in protecting information security, and researchers have called for the information security culture to be embedded within an organization's strategy. While considerable progress has been made in this area, it is essential to adopt the highest levels of security. This project is aimed at evaluating security levels in the Ministry of Interior. The results of the study show some areas of weakness which need proper attention. The study also shows the work done to raise awareness of information security among Ministry employees<?>.

## C5.2 Technical and procedural measures

In **Algeria**, the Centre for the Development of Advanced Technologies has developed the *Topographic Geographic Information System for ICT Networks*, a web-based topologic geographic information system for monitoring ICT networks (access, transport and distribution) for national ICT operator Algérie Télécom. The *Digital mapping platform on the Internet* is a platform that will enable the citizens of various countries to find points of interest (schools, universities, municipalities, hospitals,

museums, hotels, etc.). It will explore different cities, regions and sites, and allows each country to create road network and communication channels.

In **Argentina**, *Amigos Conectados* is a digital literacy programme developed by The Walt Disney Company Latin America and the non-governmental organization Chicos.net to raise awareness of digital citizenship, online safety and responsible Internet use, offering: training sessions for teachers, at which experts present information on trends in children's digital citizenship and discuss challenges, tips and tools; training kits with exercises and worksheets to use in classrooms; websites featuring fun educational content for children, parents and teachers; contests encouraging children to explore websites; funded research into children's use of technology; and pilot projects for students on how to apply creativity skills through coding.[89]

The Ministry of Information and Communication Technologies of **Colombia** is managing *En TIC Confío,* a Colombian Government programme created to generate trust and security in the use of the Internet and other ICTs. The goal is to define, analyse, research and prevent risky behaviours that, as in everyday life, also exist in the virtual world. Attention is especially focused on child pornography, sexting, grooming, cyberbullying, cyberdependence and electronic fraud. The programme works in three main areas: the use of ICTs; ways to use ICTs in a safe, responsible, respectful and healthy manner; and zero tolerance of child exploitation through electronic networks.[90]


The Ministry of Communication and Information Technology of Indonesia has established in **Indonesia** the *Computer Security Incident Response Team – Internet Infrastructure/Coordination Center (ID-SIRTII/ GovCSIRT)* under Regulation No. 26/PER.M.KOMINFO/05/2007 of the Minister of Communication and Information Technology concerning the security of telecommunication network utilization. The government incident response team aims to monitor and handle computer security incidents and emergency response in the area of information security.

Also in Indonesia, the *KAMI index* is an application that is used as a tool to analyse and evaluate the level of readiness and maturity of information security implementation in an organization, based on

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the criteria specified in SNI ISO/IEC 27001:2009. The index, which is based on Ministerial Circular Letter 05/SE/M.KOMINFO/07/2011 regarding the implementation of information security governance for public service operators, functions as an indicator of the implementation of information security at national level.

In **Italy**, *Security of Energy Systems* is a two-year research project developed with the financial support of the European Commission's Prevention, Preparedness and Consequence Management of Terrorism and other Security-related Risks programme. Designed to respond to the pressing demand for knowledge and best practices on the cybersecurity of smart energy grids, the project has been conceived to increase the know-how of government bodies and operators by providing a comprehensive analysis of ICT architectures, vulnerabilities, interdependencies, standards and best practices related to smart grids. The consortium partners brought to the project their interdisciplinary expertise in the energy, security, control and ICTs required to develop secure smart energy systems.<?>


In 2014, **Pakistan** undertook the successful *3G/4G Spectrum Auction and Provision of High Speed and Affordable Internet Connectivity* project through the Ministry of Information Technology, Ministry of Finance and Pakistan Telecommunication Authority. This has helped provide cheap and steady Internet connections to citizens and opened up opportunities for the next generation of mobile services in Pakistan. It will also help to generate millions of direct and indirect jobs, provide global Internet access to users through smartphones, which will boost growth in sectors like banking, the media and retail business, and lead to phenomenal improvements in services such as health and education.


Environmental Explorer
Knowledge Base
Beatona
Our Environment
About Beatona
Photos

Telefónica S.A. in **Spain** has introduced the *Digital Family Repository of Resources for Parents*. Digital Family is an interactive resource centre where parents, carers and teachers can find answers to their doubts and concerns about the digital education of children and teenagers, along with a platform that contributes to fostering better use of the Internet, helping them to take maximum advantage of ICTs and to leverage their digital skills.[91]

A remarkable project in the **United Arab Emirates** is the *Smart Investigation System*, a smart electronic system that will move the country's investigation sector from the conventional manual method to smart investigation. The system relies on a set of intelligent procedures during its operational stages and adopts a matrix of risks based on world-class standards specifically developed to combine 39 factors affecting the stability of the jobs market. These factors consist of internal influences and factors obtained through the Ministry's systems and external influences and factors obtained from external authorities related to the Ministry. The system will then analyse all the data and sort them into categories according to the intensity and probability of risks. These categories range from level 1, the least dangerous, to level 5, the highest level of danger.<?>

## C5.3 Organizational structure

The *DSS ITSEC international cybersecurity conferences* are organized by Data Security Solutions in **Latvia**. Five annual international cybersecurity technology shows and conferences have been held, attracting more than 500 visitors from Latvia, Lithuania, Estonia and other countries. DSS ITSEC is the biggest cybersecurity industry event in the Baltics with six parallel sessions and more than 50 international speakers from over 25 different countries. The aim is to strengthen the Baltic States and Baltic Sea region countries in the most important current IT fields and topics in the area of cybersecurity. The event features awareness, innovations, world class speakers and many global trending topics and presentations.

Latvia also has an *e-Environment and e-Services: Training Workshop for Librarians of Public Libraries* project run by the Culture Information Systems Centre in cooperation with the Ministry of Environmental Protection and Regional Development, involving the State Radio and Television Centre, the State Revenue Service, the Rural Support Service and the Register of Enterprises of Latvia. In 2014, training workshops were organized for librarians in public libraries in Latvia on the electronic environment and e-services.

The learning objective of these workshops was to introduce the public librarians to the latest information on e-services and various e-opportunities, demonstrating the different useful solutions and options for librarians and library users. The training workshop content consisted of five modules:

1. Electronic environment- the most topical and up-to-date information
2. E-signature: possibilities and benefits
3. The electronic declaration system of the State Revenue Service
4. Application system of the Rural Support Service
5. The Register of Enterprises: e-services and news.

Training workshops were organized in regional libraries and regional training centres for public libraries. A total of 31 training sessions were held, training 1 075 librarians from more than 650 public libraries.[92]

91 *Project nominated for a WSIS Project Prize 2015*
92 *Project nominated for a WSIS Project Prize 2015*

Another remarkable initiative in Latvia is the *Transfer of basic information of the Register of Enterprises to the public in the form of open data*. Since May 2014, the Register of Enterprises of the Republic of Latvia has been transferring accumulated basic information to the public in the form of open data, which means that the information is available in machine-readable form, contributing to a more modern public administration and facilitating the work of post-processing and re-use of information. This information may be useful to:

- The public: the data, which becomes freely shareable and re-usable, promote public awareness and understanding of the processes in the country and in public administration
- Entrepreneurs, who can create new products and improve existing business on the basis of current and qualitative data, which can now be obtained free of charge
- Public authorities, which do not have to spend resources to create various statistics, because the entire data set is provided in an open file. As a result, everybody can create and disaggregate statistics using the available data.

The project ensures that the Register of Enterprises will henceforth provide data to the public in machine-readable format (CSV and Excel files) regarding all entities registered in the Register of Enterprises. The following data supplied by the Register of Enterprises are included in the open data file: type of legal entity; registered office; actual and historical name; registration number; Single Euro Payments Area payee identifier (if assigned); date of registration; date when legal entity excluded from the registry (or date of reorganization, if exclusion of legal entity is due to reorganization); and deadline for registration of religious organizations which carry out re-registration. This makes processes in the country more open and easier to analyse.

In order to provide educational opportunities to every citizen of learning age and to facilitate these opportunities by providing the appropriate infrastructure and services, to design and execute projects that cater to the requirements of the Ministry, and to improve the curriculum and constantly upgrade the general education system, the Ministry of Education of Saudi Arabia has launched an initiative known as *FARIS* that aims to implement government resource planning within the Ministry.

The *Cybersecurity Awareness Alliance* is an initiative that aims to raise awareness and encourage the adoption of cybersecurity practices in **Singapore**. Through the Alliance, programmes have been implemented in partnership across the public, private and people sectors. The Alliance organizes a yearly Cybersecurity Awareness Day to reinforce security awareness messages. The Alliance has set up online outreach platforms, including a web portal that contains cybersecurity resources and articles for various target groups and a Facebook page to engage online users on cybersecurity related topics.

At the beginning of 2006, the Information and Communication Technologies Authority of **Turkey** established the *Central Equipment Identity Register* in line with the provisions of Law 5809. According to those provisions, smuggled devices and those which have had their IMEI changed are blocked, as are lost or stolen devices. The Register stores the IMEI numbers of all mobile equipment used in mobile networks in Turkey. Registered legal devices are stored in a list known as the white list, while other devices are stored in the black list. These lists are generated and updated by the Authority and are shared with operators several times a day. All devices whose IMEI numbers appear in the black list are blocked. As a result, the main aim of this project is to prevent the use of smuggled, cloned or stolen mobile devices and tax loss and to protect the mobile business environment against illegal and unfair competition.

## C5.4 International cooperation

In the international cooperation category, we find an international project by the Internet Corporation for Assigned Names and Numbers (ICANN), which has developed a workshop on the *Investigating DNS Abuse/Misuse for Public Safety Community*. This takes place in a variety of locations, depending on demand, and exposes attendees to strategies, techniques and tools that ICT professionals use to identify abuses of the Domain Name System and malicious registration of domain names, addresses

or hosting. Through a combination of lectures, demonstrations and hands-on exercises, attendees learn how to collect the information needed to further investigate criminal activity.

The *Combating Spam Project* by the Internet Society brings together policy-makers, industry, technical experts, international organizations and other partners, facilitated by the Internet Society, to address the growing problem of spam. Spam is especially damaging, as e-mail, social media, texting and the web are vital platforms for innovation, economic development and social progress around the world. The project uses a ground-up approach with expertise shared from and between a worldwide group of organizations and recognized experts. The goal is to minimize the impact of spam while maintaining the open nature of the Internet.[93]

## C5.5 Regional actions

In **Zambia**, the Zambia Information and Communications Technology Authority (ZICTA) has developed the *First African Cyberdrill, for Africa!* Cyberspace, with all its inherent delicacies, introduces with it a further, more complicated dimension to security. Cyberattacks are increasing in number, complexity and effectiveness and pose a threat to people's livelihoods. Having identified the dire need for collaboration among African countries, ZICTA, in collaboration with ITU-IMPACT, hosted the first ever cyberdrill for Africa. The main goal of the cyberdrill was to build and develop the capacity of other partner countries in order to facilitate further development within the area of national critical information infrastructures protection.[94]

93 *Project nominated for a WSIS Project Prize 2015*
94 *Project nominated for a WSIS Project Prize 2015*

# Action Line C6. Enabling environment

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

Confidence and security are among the main pillars of the information society.

Governments should foster a supportive, transparent, pro-competitive and predictable policy, legal and regulatory framework, which provides the appropriate incentives to investment and community development in the Information Society. We ask the Secretary General of the United Nations to set up a working group on Internet governance, in an open and inclusive process that ensures a mechanism for the full and active participation of governments, the private sector and civil society from both developing and developed countries, involving relevant intergovernmental and international organizations and forums, to investigate and make proposals for action, as appropriate, on the governance of Internet. The group should, inter alia:

i. develop a working definition of Internet governance;

ii. identify the public policy issues that are relevant to Internet governance;

iii. develop a common understanding of the respective roles and responsibilities of governments, existing intergovernmental and international organisations and other forums as well as the private sector and civil society from both developing and developed countries;

iv. prepare a report on the results of this activity to be presented for consideration and appropriate action.

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); promote awareness of the Internet.

As already mentioned in the Introduction, ITU has been organizing the Global Symposium for Regulators (GSR), the largest annual gathering of the global regulatory community concerned with information and communication technologies (ICTs). During the 14th Global Symposium for Regulators (GSR-14) in Bahrain (Manama, 3–5 June 2014), participants debated a wide range of topics of crucial interest to regulators today. GSR-14 was hosted by the Government of Bahrain under the patronage of the Prime Minister, His Royal Highness Prince Khalifa bin Salman Al Khalifa. The first two days were dedicated to the Global Regulators-Industry Dialogue (GRID) with the private sector, while the third day was for regulators alone. More than 700 specialists from 113 countries worldwide registered to attend the event, which also attracted around 80 high-level participants, including government ministers, heads of regulatory agencies and industry chief executives.

Also mentioned in the Introduction is an initiative 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, which 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 OTTs, big data for bigger decisions, smart cities and open data, and the role of the regulator today and in preparing for tomorrow.

In **Algeria**, the National Unemployment Insurance Fund has devised the *Design and implementation of a decisional support system (data warehouse)* project. Its main features are the design of a data warehouse that draws employment-related information from national computer systems and uses certain information provided by regional structures. The aim is to standardize the source of statistical data, facilitate the production of statistical reports and feed the decision support system. The system is also intended to encourage the design and implementation of tools for multidimensional dynamic analysis and the development of predefined reports.

Also in Algeria, the National Fund for Paid Leave and Bad Weather Unemployment for the Building, Public Works and Hydraulic Sectors (CACOBATPH) manages the *TASRIHATCOM e-declaration portal*. The launch of the portal is part of the modernization strategy framework established by CACOBATPH to develop and strengthen relations with its digital consumers. Through the portal, users have the opportunity to file their DAC and DAS declarations and consult their account statements online. Available 24 hours a day, seven days a week, the portal allows users to make their CACOBATPH declarations safely without needing to visit their branch. TASRIHATCOM offers a positive alternative to the traditional paper-based system, providing a clear added value to the relationship between the Fund, its member companies and their employees.

The African ICT Consumers Network (RéCATIC) is an initiative run in **Benin** by the Benin Consumer Defence League. In 2008, the George Soros Foundation and the Government of Benin funded the creation of *RéCATIC for consumer rights in telecommunications in Africa*. This network aims to create an interface between governments, regulators, operators and ICT service providers, as well as consumers, on concerns regarding the quality and safety of services, transparency in pricing, the handling of complaints, and the information and education of African consumers about ICT services.<?>

The *Internet Civil Rights Framework* (Federal Law 12.965/2014) was approved in **Brazil** in April 2014. The document sets out the foundations, principles, guarantees, rights and obligations for the use of the Internet in Brazil. The Framework is notable for its multistakeholder and participatory elaboration process, which involved open public sessions and the use of an Internet website, to which all interested parties could send their contributions. The online consultation platform enabled interested parties to comment freely and to suggest changes to the articles of the draft law. The Law establishes multistakeholder, transparent, collaborative and democratic governance mechanisms, with the participation of government, the business sector, civil society and the academic community; recognizes the global scale of the network; and provides that, in the interpretation of its provisions, consideration should be given not only to the principles and objectives set out therein, the nature of the Internet, and its uses and particular customs, but also to their importance for the promotion of human, economic, social and cultural development.

**Bulgaria** is introducing rules to improve the organization and effectiveness of procedures for the establishment, registration, structuring, monitoring and dissolution of non-profit legal entities for public benefit and to promote effective coordination between the judicial and executive authorities in carrying out these activities to avoid duplication of verification work already undertaken by the courts. The *Improvement of the Organization of the Work of the Central Registry for Non-Profit Legal Entities in Effective Coordination with the Regional Courts* will feature:

- Providing the Central Registry of Non-Profit Legal Entities with the organizational and technological means to carry out the activities assigned to it effectively (including compliance monitoring) and enabling official information exchange with the regional courts and BULSTAT Register
- Creating better conditions for transparency, accountability and prevention of corruption in procedures for registering, monitoring the activities of and dissolving non-profit legal entities for public benefit.

*Apps.co* is a digital entrepreneurship initiative by the Ministry of Information and Communication Technologies of **Colombia**. It is based on the Vive Digital plan, which aims to generate economic and social advancement with the use and appropriation of ICTs. Apps.co is an initiative by the Ministry aimed at promoting the creation of new ICT businesses, focusing on mobile/web applications, software and digital content. The aim of the initiative is to transform entrepreneurs and ideas into sustainable and profitable businesses. It is the largest entrepreneurship community in Colombia with over 70 000 members. More than 40 000 people have accessed our online training programmes, with completion rates above 50 per cent. Of these, more than 6 000 had no previous programming experience. Since 2012, our mentoring and advisory programmes have contributed to the creation and consolidation of more than 1 000 startups across the country.[95]

The *Electronic property sale auction* devised by the Committee of State Property and Privatization of the Ministry of Finance of the Republic of Kazakhstan is designed to organize and conduct electronic auctions for the sale of state property (national, municipal, regional and district), quasi-public sector non-state property, and the property of debtors (bankruptcy), and to enable individuals and legal persons to take part in such trading if they register in the system and submit electronic applications to participate in the auction within the prescribed time. In addition, the information system can be used to view information about sales of objects and materials, including evaluation reports on the market value of the property, and to read information messages about forthcoming electronic trading, published in print media and on the web portal of the State Property Registry (www.gosreestr.kz).<?>

In **Kuwait**, *Tasdeed* has been designed jointly by the Ministry of Finance, the Central Agency for Information Technology and the private sector. It allows individual customers (Kuwaiti citizens and residents), corporations and government entities the option of making payments to government agencies (service providers/invoicers) by various electronic means (payment channels/points of sale): integrated point of sale, payment through Internet (payment gateway), self-service machines and electronic stamps. The service is supplied and managed by a payment service provider. Tasdeed makes it possible for government customers to pay easily from anywhere at any time by electronic means. It is hoped that Tasdeed will improve the management and increase the value of non-oil revenues.[96]

In **Latvia**, the *Emy information system* is an easy-to-use platform that offers support for healthcare professionals and paramedical units in their everyday work. The system provides operative process management and information on each call execution in real time. It was developed for the National Emergency Medical service of Latvia but it could easily be customized for other services, such as national police and fire departments. Emy run 24 hours a day, handling more than 1 000 users in total and more than 200 simultaneous users at any given time, but the top user count, due to the architecture of the system, is potentially unlimited. EmyTab, created for paramedics to use on the go on their tablets and Windows Phones, is a customized, touch-friendly version of Emy. It has all the key functions that Emy does and thus provides all functions required by paramedics, from receiving, filling and sending call reports, changing crew up-date statuses and accessing patients' data, to work history. It also has functions that stationary Emy does not, such as creating audio, photo and video files for call reports. Emy, combined with EmyTab, allows professionals to rescue and treat people even more effectively and efficiently, whether it be a dispatcher in the main office or a crew member on their way to the scene.

95 *Project nominated for a WSIS Project Prize 2015*
96 *Project nominated for a WSIS Project Prize 2015*

In **Mexico**, the National Digital Strategy (NDS) promotes actions to transform government into an open entity. It is citizen oriented and focuses on simplifying and facilitating processes, procedures and services. A major outcome of NDS is the *ICT Policy for the Federal Public Administration*, published on May 2014, which will enable federal agencies to consolidate and streamline ICT infrastructure, resources, goods and services. It strategically manages the ICT budget (1 per cent of GDP) to meet NDS objectives. Since its release, the Federal Government has for the first time digitized ICT procurement processes using digital signatures, creating efficiencies amounting to more than the 13 per cent of the ICT budget<?>.

The Office of the President of Mexico manages *TICGOB shop*, a website on which all the content offered in their financial proposals by each one of the suppliers that are part of the framework contract can be displayed quickly and easily. The website allows agile searches by functionality or supplier. Similarly, the Digital Government Unit has served as liaison between the states and municipalities of Mexico for the recognition of *advanced electronic signatures*. It has also worked on the revision and approval of the agreement by which the Ministry of Economy of Mexico is to stop issuing digital certificates and instead recognize the ones issued by the Taxation Administration Service.[97]

In **Pakistan**, the Universal Service Fund under the Ministry of Information Technology of the Government of Pakistan has plans to initiate a *Telecentre Project* in 2015, involving the setup of 500 universal telecentres across the provinces of Pakistan, including the Federally Administered Tribal Areas and Islamabad Capital Territory. They will provide public access to ICT services primarily for people in unserved or underserved rural and semiurban areas of Pakistan. The telecentres will follow international standards and be easily accessible. Space will be given to the National Database Registration Authority, mobile phone operators for SIM verification, and other agencies for providing e-services such as e-learning, e-commerce, e-agriculture, etc.

In **Poland**, at the initiative of the President of the Office of Electronic Communications, a *Memorandum on cooperation for improving the quality of services in the telecommunications market provided to users* was proposed and signed with telecom entities on 26 October 2012, in accordance with the provisions of the Universal Service Directive. Principally, the Memorandum stipulates that: contracts for services should be structured in a clear, understandable, easily accessible form; published information on the quality of services provided by telecommunications undertakings should be comparable, relevant and up to date; and measurable indicators of quality of service shall be identified, as well as the content, form and method of providing information to be published.

In the **Russian Federation**, the Ministry of Telecom and Mass Communications manages the *Development of broadband access in the Russian Federation: Building fibre-optic networks for localities with a population of at least 250 people* project. The purpose of the project is to eliminate the "digital divide", i.e. a difference in the level of communication network development as well as in the availability of broadband services between large cities and rural settlements of the Russian Federation. This goal is to be achieved by making communication services available with government guarantees: 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 in the Russian Federation with a total population of some 5 million people. As part of the project, nearly 200 000 km of fibre-optic links, including 1 300 km of submarine cables, will be installed in the period from 2015 to 2018. The project is the world's largest of its kind, featuring a high variety of implementation aspects such as

[97] *Project nominated for a WSIS Project Prize 2015*

geography, geomorphology, climate, economic and social conditions, and a wide range of tasks to be solved in the short term.[98]

Following the approval of a national broadband policy by **Rwanda**, citizens have the right to access high-quality services at an affordable cost. The Ministry of Youth and ICT, in collaboration with the Rwanda Development Board, the Ministry of Local Government, telecom companies, financial institutions and ICT service providers, started rolling out an *ICT and Literacy Awareness Campaign* that will cover 3 million beneficiaries, especially citizens in remote areas. The programme aims to increase ICT skills and usage for better productivity and efficient service delivery. This five-year programme is increasing the population's awareness of the benefits of digital society and reducing barriers linked to skills development.

In **Saudi Arabia**, the Ministry of Justice's *Remote Litigation Service* is a trial in accordance with the requirements of legality and statute for a convict already in prison. The judiciary sits in the courthouse and the trial is held through an electronic link via closed-circuit television. A trial held on this basis is as if it were in the courthouse in front of the judiciary. This electronic court also ensures that the convict in this trial enjoy all legal and statutory rights. It results in the possibility of litigation from a distance and provides an easy line of communication between the convict and the judiciary without the need for transportation and what that entails in terms of secure escort and risk.<?>

According to estimates by the Infocomm Development Authority of **Singapore**, between 1 and 2 GHz of spectrum will be required to deliver mobile broadband services in Singapore by 2025. As radio-frequency spectrum is a limited resource, to ensure the optimal use of scarce spectrum resources and to keep up with spectrum demand, Singapore has introduced a set of regulations for the use of television white space technology in the television broadcast band. The *Regulatory Framework for TV White Space* will make approximately 180 MHz of spectrum available on a license-exempt basis from November 2014. Singapore is one of the first few countries in the world to implement such a framework.[99]

98 *Project nominated for a WSIS Project Prize 2015*
99 *Project nominated for a WSIS Project Prize 2015*

In **Trinidad and Tobago**, the Exchequer and Audit Act was amended in 2014 to provide for *e-payments* within government. Work is under way with the banking sector and other stakeholders with a view to extending e-payments to non-government transactions. This initiative by the Ministry of Science and Technology will run until the end of 2018. More information can be found at the following website: http://www.scitech.gov.tt/index.php/projects/local-projects?start=4.

As regards international projects, the Commonwealth Telecommunications Organisation has developed an overall remarkable programme entitled *Commonwealth Approach for Developing National Cybersecurity Strategies.* National cybersecurity strategies facilitate a cohesive approach which maximizes resources and impact. The Commonwealth Telecommunications Organisation has developed the Commonwealth Cybergovernance Model to provide the underpinning for individual Commonwealth countries to develop policy and regulatory frameworks to govern cyberspace. In order to provide a practical implementation framework, the Organisation has drafted the Commonwealth Approach for Developing National Cybersecurity Strategies, drawing on existing national cybersecurity strategies across the world and using the expertise of a number of partner organizations. This provides a customizable model for individual countries to adapt according to their unique contexts when developing their national cybersecurity strategies<?>.

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

## C7.1 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.

Activities relating to the e-agriculture component of Action Line C7 are underpinned by the global e-agriculture Community of Practice. Conceived in 2006 and established in 2007 by a multistakeholder group of organizations that believe in the critical role of ICTs in agricultural development, the e-agriculture Community, facilitated by the United Nations Food and Agriculture Organization (FAO), acts as a catalyst for networking and sharing knowledge about the role of ICTs in sustainable agriculture and rural development. At the end of 2014, it had over 12 000 registered members from 170 countries, who had shared over 830 information resources and 2 900 news items and events, as well as expressing points of view or personal experiences in blogs. Some 24 online forums on topics identified as important by the community, were organized, generating about 4 000 discussion posts and producing trilingual policy briefs for each forum.

Online activities, which reach tens of thousands of individuals every year, are supplemented with face-to-face events. Partnerships and collaborative efforts have emerged from both the private sector and development organizations.

### E-agriculture events in 2014

The Global Forum for Innovations in Agriculture (GFIA) 2014 was held in Abu Dhabi from 3 to 5 February 2014 under the theme *Driving innovation for an agricultural revolution*. The main theatre hosted a series of keynote addresses and panel debates on topics including *the big investment debate*, *the e-Agriculture revolution* and *the NGO revolution*. The session on e-agriculture highlighted the changes that have occurred since the early 2000s in the use of ICTs for development, and presented the work of several organizations from different continents. Panellists included representatives from the Centre for Agricultural Bioscience International (CABI) (United Kingdom), M-Farm (Kenya), Farm Apps (Australia), Dairymaster (Ireland) and Reuters Market Light Information Services (India).

*ICTs in agriculture* was a thematic track at the Service Research and Innovation Institute (SRII) Global Conference in Silicon Valley, United States, in April 2014. The main objective of this track was to initiate the development of an innovation agenda for ICTs in agriculture and an action plan for the future.

At the 14th Infopoverty World Conference in New York in April 2014, representatives from Rwanda and Tanzania described how ICTs are being used for a range of development activities in their respective countries, including for agricultural development. Both countries are working closely with the private sector in this context.

In preparation for the 2014 WSIS+10 High-level Event, FAO, as facilitator of the Action Line on e-agriculture, contributed to two outcome documents, the "WSIS+10 Statement on Implementation of WSIS Outcomes" and the "WSIS+10 Vision for WSIS Beyond 2015".[100]

100 See WSIS outcome documents at www.itu.int/wsis/implementation/2014/forum/inc/doc/outcome/362828V2E.pdf

For the 2014 WSIS+10 High-Level Event, the e-agriculture Action Line facilitation meeting was entitled *Moving forward, building on ten years of lessons learned in e-Agriculture* organized by the Technical Centre for Agricultural and Rural Cooperation (CTA), International Institute for Communication and Development (IICD), Food and Agriculture Organization of the United Nations (FAO) and the World Bank. Each partner contributed to the debate by highlighting lessons learned and future areas of action. Partners and participants expressed their agreement with the vision for implementing the e-agriculture Action Line beyond 2015 and supported three key recommendations for the future of the Action Line: (1) bridging e-agriculture with the policy audience; (2) developing appropriate governance for e-agriculture; and (3) collaborating and cross-fertilizing across Action Lines.[101]

In June 2014, the Club of Ossiach, a group of agriculturists, agribusiness managers, agriculture and forestry technologists, environmentalists and agricultural ICT specialists from around the world organized the AgriFuture Days 2014 conference in Villach, Austria, sponsored by the Global Forum on Agricultural Research (GFAR), among others.[102] Participants discussed the future of agriculture in the context of how ICTs can contribute to improving family farming and make it more sustainable, resilient and profitable. It focused on key issues in three areas in which the application and use of ICTs and related technologies make a difference: (1) informing family farming communities; (2) improving family farm production, productivity and marketing efficiencies; and (3) contributing to the future of agriculture.

In July 2014, the Technical Centre for Agricultural and Rural Cooperation (CTA) and the African Rural and Agricultural Credit Association (AFRACA) co-hosted the Fin4Ag International Finance Conference in Nairobi, Kenya, which aimed to have "a catalytic effect on the use of innovative value chain financing tools in ACP countries". The Conference advocated a paradigm shift in agricultural finance, so that policies, rules and regulations can be aligned to the real economy and innovated to realize the full potential of agricultural finance.[103]

In September 2014, the online forum *Towards concerted action on communication, community media and ICTs for family farming* focused on the role and support that ICTs and community media can effectively provide for innovations in family farming.

In December 2014, The Bangladesh Institute of ICT in Development (BIID) and mPower Bangladesh hosted the e-Ag Conference 2014, which took place in Dhaka. The event was organized with support from USAID, MEAS, CRS and leading partners from the Government and public and private sectors. The conference brought together leading international agencies involved in scaling up field-tested e-agriculture products, along with cutting-edge innovators engaged in adapting mobile technology for agricultural purposes.[104]

Within the framework of WSIS, FAO was assigned responsibility for organizing activities related to e-agriculture and continues to play the role of lead facilitator for the Action Line C7 e- agriculture category. The paragraphs below describe projects implemented by FAO and other stakeholders in order to enhance access to ICTs in the agricultural sector.

## FAO Initiatives

The FAO has been developing and running many remarkable international projects in the e-agriculture domain. The 2014 stocktaking exercise listed the following initiatives.

*Agriculture Management Information System Sri Lanka* is a project in which designated officers gather information related to crops, harvest dates, quantity, quality, and so on, from producers and share it through the www.agmis.li platform. Buyers can look this information up and start negotiations with

[101] Session report available at www.itu.int/wsis/implementation/2014/forum/agenda/#?se=214
[102] See conference website at www.progis.com/events/agrifuturedays2014/index.html
[103] See conference website at http://fin4ag.org
[104] See conference website: http://e-agconference.net

producers. Other actors, such as storage/warehouse operators and transporters, can also advertise their services on this platform, which also links in to an agricultural Wikipedia.

The *Consolidated List of Authorized Vessels* aims to provide a consolidated list of authorized fishing vessels from the five tuna regional fisheries management organizations: the Commission for the Conservation of Southern Bluefin Tuna, the Inter-American Tropical Tuna Commission, the International Commission for the Conservation of Atlantic Tunas, the Indian Ocean Tuna Commission and the Western and Central Pacific Fisheries Commission. The types of fishing vessels requiring authorization to operate for tuna species and in the area under the competence of these organizations at present include: large-scale fishing vessels – authorization required for vessels having length overall 24 metres or greater; small-scale fishing vessels – authorization required for vessels having length overall under 24 metres; exclusive economic zone (EEZ) only – authorization required for vessels that operate only inside the EEZ of their flag States; and other areas – authorization required for vessels that operate, in part or in full, outside the EEZ of their flag States.

While the need for e-agriculture strategies is acknowledged by many stakeholders, most countries have not adopted holistic or subsectoral e-strategies on agriculture. e-Agriculture strategies will help to rationalize resources (financial and human) and address ICT opportunities and challenges for the agricultural sector holistically. The existence of e-agriculture strategies can prevent e-agriculture projects from being implemented in isolation, without connection and integration. *National e-Agriculture Strategy Guide* will consist of a framework, a methodology and a set of resources to guide country decision-makers through a process by which a national e-agriculture roadmap can be elaborated.

The new smartphone app *SatCafe* warns coffee farmers about an impending outbreak of the fungus roya and other pests. Developed by FAO, SatCafe crowdsources information from farmers across Central America to help avoid another region-wide coffee plague. Participating farmers will be assigned a QR code that identifies them and their farm. Any information they generate based on sample sizes of 30 plants will be privately and anonymously added to the region's data. The crowdsourcing effort has begun well with a pilot project in the Dominican Republic. Farmers and government agencies will be able to view the public information and maps online at the website siatma.org.

The *E-learning Course on Improved Feeding Management* comprises 16 modules that provide concise but thorough information on feeding management of dairy farms in the tropics.

*Dimitra* is a participatory communication and information project highlighting the key role of women in agriculture. The project strengthens women's leadership and contributes to raising the voice of the most marginalized so as to improve their livelihoods and their food and nutrition security. This is realized through gender-sensitive participatory communication, more specifically through FAO-Dimitra community listeners clubs.

*Feedipedia* is an open-access information system on animal feed resources that provides information on the nature, occurrence, chemical composition, nutritional value and safe use of nearly 1 400 worldwide livestock feeds. It is managed jointly by France's National Institute for Agricultural Research and Agricultural Research Centre for International Development, the French Association for Animal Production, and FAO. Feedipedia was launched in October 2012 and will eventually provide information for 1 400 feed resources. Feedipedia is in English with automated translation provided for all major languages. By the end of 2015, Feedipedia had received over half a million visits.

The *FAO Fishing Vessels Finder* is an open-access online tool to locate information on individual fishing vessels (including supporting vessels, carriers, fishery research vessels and inspection boats) that are disseminated – or were disseminated in the past – by a range of national, multinational, regional and international organizations. All the information accessible via the online tool is shown exactly as originally disseminated by its source, with proper identification of owners and date of retrieval for each detail.

The *High Seas Vessels Authorization Record* was established to address the requirements defined in Article VI of the Agreement to Promote Compliance with International Conservation and Management

Measures by Fishing Vessels on the High Seas, approved in 1993. The database contains distinctive and descriptive elements of high seas fishing vessels, as well as information on registration and authorization status, infringements, etc. Access to the database is granted to Parties to the Agreement by way of personalized credentials.

The *Integrated Food Security Phase Classification* (IPC) information support system is a web-based application that national stakeholders can use to build an IPC versus an acute analysis of the food security situation. It allows multi-user entry of IPC protocols and functions and automatically produces a communication template in hard and soft copy. The benefits of the system are as follows: 1) it enhances the quality of the analysis by following a more structured system; 2) it improves understanding of the IPC because all functions are well presented and laid out; 3) it reduces time and costs by automating certain IPC functions such as creating the communication template; 4) it increases transparency by allowing technical partners and other stakeholders access to the analysis; 5) it enables quality control review and harmonization across countries/regions by allowing regional and global stakeholders to review the country analysis online (to provide advice or feedback); 6) it creates a historical database of previous analysis by country; 7) it allows for regional and global comparison of national analysis on one screen.

The Food Security and Nutrition Analysis Unit's project *Market Information and Price Monitoring in Somalia* is intended to provide a broad range of users with timely and relevant information and analysis for better decision-making relating to short-term food insecurity and malnutrition, and to inform development planning so as to address underlying causes of food and livelihood insecurity and malnutrition. The project addresses the above by continuously monitoring market prices that help in analysing food access and availability in Somalia. It also carries out two seasonal food security and nutrition assessments that lead to the production of technical publications providing an in-depth situational analysis, identify needs and make recommendations for future programming. The Unit also uses prices to undertake policy and livelihood research for developmental planning.

The Food and Nutrition Improvement Plan, devised by the government of Antioquia, Colombia, and FAO, through the *Gardens of Opportunity* programme, have used TaroWorks technology tools to digitize a formerly paper-based operation and added valuable digital training content for field technicians. These technicians can now collect, process and analyse data in real time, which streamlines decision-making and reduces travel costs and data collection time.

The *Open Foris Calc* is a robust tool for data analysis and results calculation. The input data and metadata come from *Open Foris Collect*, and Calc provides a flexible way to produce aggregated results which can be analysed and visualized through the open-source software Saiku. Calc allows expert users to write custom R modules to perform calculations working with a variety of sampling designs. It is used for natural resource monitoring. Open Foris Collect provides a fast, easy, flexible way to set up a survey with a user-friendly interface. Collect handles multiple data types and complex validation rules, all in a multilanguage environment. Open Foris Collect is used for natural resource management.

The *Collect Mobile* is a fast, intuitive and flexible data collection tool for field-based surveys. It is an Android app accommodating externally defined complex data structures, such as biophysical, socioeconomic or biodiversity surveys. Its many features include on-the-fly validation to improve data quality, handling of large lists of species or other attributes, geolocation through embedded GPS, and integration with Open Foris Collect for data management, analysis and export to commonly used formats. It also processes inputs and calculates attributes for quality control in the field. *Collect Earth* is a tool that enables data collection through Google Earth. In conjunction with Google Earth, Bing Maps and Google Earth Engine, users can analyse high and very high resolution satellite imagery for a wide variety of purposes, including; supporting multiphase national forest inventories and land use and land use change and forestry (LULUCF) assessments; monitoring agricultural land and urban areas; validating existing maps; collecting spatially explicit socioeconomic data; and quantifying deforestation, reforestation and desertification. Its user-friendliness and smooth learning curve make it a perfect tool for performing fast, accurate and cost-effective assessments. It is highly customizable for specific

data collection needs and methodologies. The data gathered through Collect Earth is exportable to commonly used formats and can also be exported to Saiku, a tool that facilitates data analysis.

To strengthen rural market information systems and information management capacity in rural communities, the Government of the People's Republic of China has formulated a series of policies in agricultural information services and tried several approaches to developing much-needed information services in rural areas. To analyse the experiences and identify the more effective and easy-to-replicate models for use in other regions, FAO collaborated with the Chinese Information Centre of the Ministry of Agriculture to set up a study group to carry out field surveys of the various information services in rural China. *Rural Livelihood Case Studies: Information in rural China – Field surveys and findings* reports on the findings of the surveys and analyses the differences and similarities between the three main models identified. The impact of rural information services on agricultural production, constraints encountered in promoting and providing information services, and key issues and conclusions are also reported.

The *Somalia Water and Land Information Management* project is a long-term programme aimed at enabling Somali institutions to provide crucial information in support of decision-making in natural resources management, early warning, preparedness and resilience-building by relevant institutions and other users in Somalia. The project has built a comprehensive set of Somali water and land resources information knowledge bases through field surveys and assessments, desk studies and the recovery of information lost in 1991. The key datasets have been organized into a number of structured information systems. Further, the project has established a capacity-development programme for Somali government institutions that includes six ministry data centres, a ministry staff support scheme, a programme to train trainers and a support facility for ministry field monitoring.

FAO has also developed *eLocust3*, a rugged tablet used by national survey and control teams in 30 countries to record and transmit field data in real time from some of the remotest areas on Earth to decision-makers and forecasters so that action can be taken and alerts and warnings can be issued. It also guides teams to green vegetation without needing an Internet connection, contains a digital library and camera, and works in three languages.[105]

The *Space Data Management System* initiative aims to give FAO member countries access to immense data power through a suite of cloud-based remote-sensing analytical tools. It is a collaboration between FAO, Amazon and other partners.

*TECA* is an interactive web-based platform that aims to improve access to validated practical information on agricultural practices specifically for smallholders, extension and advisory services, development practitioners, producer organizations and producers themselves in English, French and Spanish. TECA has two functions. First, it serves as FAO's web-based interactive knowledge repository of applied technologies and practices on different agricultural themes from around the world to support small producers in the field (http://teca.fao.org/technologies/browse). Users can comment on the practices and engage with those sharing the practices in a dialogue. Second, it also has two online forums (the Farmer Innovation Exchange Group and the Beekeeping Exchange Group), where registered users can exchange challenges and experiences in agriculture and discuss possible solutions (http://teca.fao.org/groups). In addition, moderated e-discussions are organized regularly to discuss specific issues proposed by group members in more depth. TECA's partners and technical divisions within FAO provide needs-based information on agricultural technologies and practices. Some of TECA's most recent partners who either share their practices on TECA or use TECA content for their outreach activities to farmers are the Grameen Foundation in Latin America, the Centre for People and Forests in Thailand, the Education and Technology Centre in Chile, and the Products, Trade and Marketing Branch of the FAO Fisheries and Aquaculture Department.

[105] *Project nominated for a WSIS Project Prize 2015*

*Use of mobile phones for mapping vaccination initiatives in Kenya* is used to mitigate against double vaccination and inform the Government's national vaccination strategy. The platform provides vaccination data in real time with pictures and GPS locations. It enables on-the-go analysis of data with export functionalities. The open source platform (Epicollect) is cost-effective as a one-stop shop reference to vaccination information. Epicollect can be used to collect data on any desired subject, e.g. wildlife or plant surveys, questionnaires, or locations of favourite places. It is an open-source project.

The *Cash for Work Monitoring System* project uses ICTs for improved monitoring of its infrastructure rehabilitation activities. The system allows near real-time monitoring of activities, beneficiary registration and payments (using biometrics in the form of fingerprints), as well as rehabilitation monitoring.

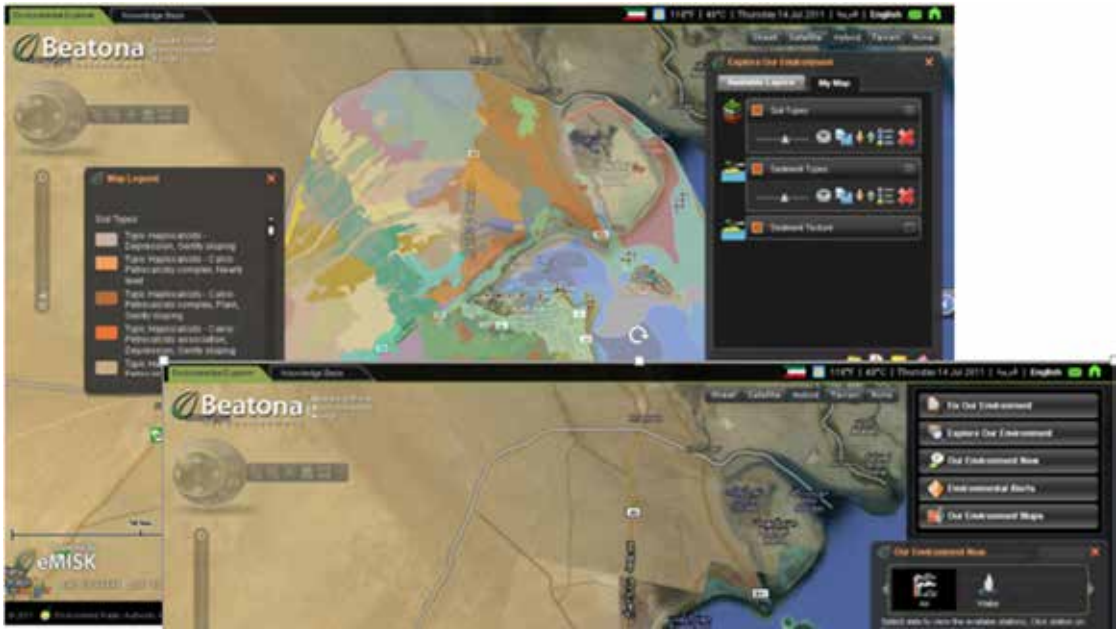
In **Argentina**, the project *tambero.com* is a free tool that helps farmers to improve their livestock, dairy and crops with information on any digital device, including mobile phones and old computers. Farmers distributed in 150 countries receive customized alerts and recommendations of work, helping them to increase their production based on the application of data analytics, modern best practices and science.[106]

The *Farmer Query System* is a platform for designing and implementing an agricultural advisory service for farmers in **Bangladesh** remotely through an Android-based mobile application where there is scarcity of agriculture extension services. The project assessment identified that ICT infomediaries backed by expert agricultural advisory services can be a gateway to effective and authentic solutions for farmers. It demonstrated how smartphone application can solve farmers' cultivation challenges and also bring them closer to an agriculture expert for necessary real-time information in an inadequate agriculture extension service system. This system aims to reduce the gap between expert agriculturists and farmers through ICT channels.<?>

As Bangladeshi farmers are always in search of validated and timely agricultural information, the need for a dynamic ICT-based system was unavoidable. Such a system would provide suggestions and answers to any queries related to agriculture, vegetable and fruit farming, poultry, livestock, fisheries etc. In **Bangladesh**, being an agriculture-intensive country, this service would make a difference to many who earn their livelihoods in these sectors. The purpose of the *Krishi Tathyo Service 27676 (Agri Helpline)* was to act as a farmers' helpline, giving prompt and easy access to valuable advice and solutions to problems. It was also planned to launch a service to improve farmers' performance and create a range of options to enhance their earnings from farming.<?>

Small producers are vulnerable to price volatility and its negative consequences, hence the need for timely and accurate information services to increase income. The *N'Kalô market intelligence service* by Rongead in **France** provides information to producers for fair trade throughout the value chain. It offers training, information and advice adapted to the needs of all actors along the chain (from farm to fork). In partnership with, mobile network operator Orange and knowledge broker CTA, a short code registration (7818), USSD #222#, and call centre (37333) have been used to reach more than 100 000 clients in Côte d'Ivoire and Mali. N'Kalô has been a finalist in the Ashoka Changemakers awards.[107]

[106] *Project nominated for a WSIS Project Prize 2015*
[107] *Project nominated for a WSIS Project Prize 2015*




In **India**, *GreenSky India* brings together various solutions for the Indian agricultural community. The project is aimed at the country's entire agricultural framework and develops systems to provide assistance to multiple stakeholders. This includes highly educated researchers as well as farm workers with poor literacy skills. The primary objective of the system is therefore to personalize solutions for users and understand the kind of interface required for certain kinds of tasks.

India also has a *Competency development and e-governance solution for farm health management to reduce farm losses of the farming community*. Farm health and farmers' health are important issues in rural India, requiring integrated approaches at all stages of agricultural planning and development. Farm health means plant health, soil health, animal health and water health. Different government agencies are involved in human health, animal health, agriculture and food safety at grassroots level, but they require shared access to location-specific and credible information to help reduce farm production losses. Research studies show that agricultural production and public health are correlated and reinforce each other. It is hoped that this research project will develop an e-governance solution for farm health management.[108]

In **Kenya**, the *Agriculture through Technology* project aims to ensure that each household within Nyando Sub-County has at least one greenhouse farm where they can practice horticulture. The project is to run for a period of three years. Innovative interventions aim to facilitate improved access to farm inputs, reducing transaction costs to allow smallholder farmers better access to markets and using information technologies to disseminate agricultural information more efficiently.

Early warning and preventive control are key strategies to reduce the frequency and duration of devastating plagues of desert locusts that threaten food security and livelihoods in Africa and Asia.

As the agriculture sector is vast and extensive, a single person cannot be an expert in every subject. It would be difficult for an agricultural officer alone to provide the required technical service in each and every subject area, so if farmers can be in direct contact with agricultural experts and agriculture extensions with the aid of mobile apps, and if books, outlets and materials published for farmers can also be directly provided to them with the aid of mobile technology, the agriculture extension associated with communication would be a respected field. Using the ubiquitous mobile Internet access all over the country, Nepal has started to send information regarding agricultural technology, information and other useful agricultural materials directly to farmers through the *Krishi Ghar* Android

[108] *Project nominated for a WSIS Project Prize 2015*

app. Krishi Ghar provides a platform for different agriculture extensions so that information can be sent to groups of famers categorized according to crops, districts or geographical regions, and farmers can also give feedback.[109]

The *Agriculture, Rural Development and Youth in the Information Society (ARDYIS) programme* run by the Technical Centre for Agricultural and Rural Cooperation (CTA) in the **Netherlands** aims to strengthen youth engagement and opportunities in agriculture using ICTs. Launched in 2010, it targets young people under 35 from African, Caribbean and Pacific countries. The programme has been supporting young people through training, agricultural blog competitions (the YoBloCo Awards), ICT for agriculture application development and incubation (AgriHack), networking, etc. Results achieved include: enhanced youth engagement in various agricultural activities; increased online content on local agricultural issues and innovations via more than 200 blogs created; increased capacity for 300 young developers in ICT4Ag entrepreneurship; and the creation of some businesses. The network comprises about 4 000 people<?>.

In **Niger**, *Smart Irrigation* by Tech-Innov is capable of fostering a process to control and manage farmer irrigation systems using mobile phones and solar energy, with the possibility of collecting weather indicators (temperature, rain fall, wind and humidity). The initiative was launched in 2013 and will run until 2018 in partnership with the Niger Government, Orange Niger and MTP-Editions France. More information can be found on the Tech-Innov web page at: http://www.tele-irrigation.net.

In **Rwanda**, in the *Smart Accountability in the Rwandan Coffee Sector* project, Smartphone and open source technologies are used by trained young people to collect the voices of smallholder coffee producers (including women producers), transform their voices into text, and categorize the issues raised by uploading them onto a virtual server. Clustered and visualized issues in the form of tag clouds have been made available to district coffee task forces to inform the agenda of these multistakeholder platforms, provide feedback on planned activities and improve the effectiveness and relevance of task force decision-making in order to increase the productivity and incomes of smallholder coffee producers.[110]

More than 90 per cent of those in **Sudan**'s agricultural sector, especially farmers, are digitally illiterate. The Government has spent a lot of money in developing software, but such projects soon collapsed as a result of mismanagement, resistance to change, and lack of ICT skills and trained staff. There is wide variation in crop prices, and most of the time farmers sell their crops at low prices owing to lack of information. There is severe conflict between farmers, shepherds (nomads) and the forest department. The *GDCO Sudan Telecentres Empowering e-Agriculture* project is a public–private partnership project for community development. It provides good opportunities to invest in telecentres for better sustainable development.<?>

In **Thailand**, we find three remarkable projects for e-agriculture.[111] *Database System Development for Comprehensive Management of Dairy Cows* works via the Internet to access a range of data for the comprehensive management of dairy cows. Together with the establishment of the Bureau of Biotechnology in Livestock Production, this will provide access to global livestock production systems

[109] *Project nominated for a WSIS Project Prize 2015*
[110] *Project nominated for a WSIS Project Prize 2015*
[111] *Project nominated for a WSIS Project Prize 2015*

from devices such as smartphones, tablets, laptop PCs and desktop PCs that use a supported Internet browser (at least HTML 5.0) to record the artificial insemination of dairy cows, milk production, feed intake, treatment and prevention of diseases, including farm management, for both public officials and private farm owners.

*APP FONUANG* is an application designed for government authorities, farmers and the general public, whether their duties and interests relate to cloud seeding (atmospheric modification) or receiving general updates on weather conditions and rainfall throughout the country. In essence, the application helps farmers in planning their cultivation and harvest by providing access to information such as rainfall, royal rainmaking areas, and periods of rainmaking operations. Farmers are also able to request operations in their own area. For government authorities, it offers a crucial tool for monitoring the situation nationwide, and data collected will be strategically analysed with the aim of solving water shortages in consumption and agriculture.

The third project is by the Utokapat Foundation. This community-based water development foundation has developed *Agro Informatics*, an ICT application for climate change adaptation, as a significant tool for community water resource management. Comprehensive and detailed knowledge and information, including from public–private partnerships, are used to improve agriculture production. The successful models of land use mapping, agro-forestry, canal and reservoir ponds, and water balance for agriculture planning have been replicated in other community networks, spreading to 238 community networks in 16 river basins across Thailand by 2014. They demonstrate the community outcomes of water and food security, improved livelihood, and climate change adaptation.

In **Trinidad and Tobago**, with respect to developing a competitive, technologically advanced agriculture sector which is also integrated with other economic sectors, the University of the West Indies (St Augustine Campus, Trinidad and Tobago) has embarked on the *AgriNeTT project*. This is a multidisciplinary collaborative effort undertaken by the Faculty of Science and Technology and the Faculty of Food and Agriculture at the University of the West Indies, together with farmers' representatives and the Ministry of Food Production and other stakeholders, with the aim of increasing food production through collaborative ICT research and development. The AgriNeTT team is currently building mobile apps and web-based applications that can assist farmers and policy-makers. With a view to addressing the data gap, an open data repository has been developed to house agriculture data on a national level. The repository will house different data sets from institutions and associations, including farm level production data, commodity prices and volumes, farm land spatial data, and data on soils, weather and pest and disease tracking. The open data platform is available at http://data.tt and http://maps.tt (for spatial data). The primary data sets on the site are daily commodity price data. An app called AgriExpenseTT is available for download on Google Play. The app assists farmers in recording crop expenses on the go and monitoring the cost of production per unit harvested.

> As part of the Abu Dhabi Food Control Authority's technology advancement initiative and automating the core business of the organization, the *Animal Identification and Registration System* was commissioned in the 2010 in the **United Arab Emirates**. The Animal Identification and Registration System is a government initiative in line with international standards and best practices intended to establish a mechanism to improve livestock planning, food safety through traceability and food security, animal disease surveillance and control; to improve animal production and the health and management of government livestock subsidy/assistance; to maintain the safety and sustainability of animal wealth; and to create an integrated database of animal numbers and species.<?>

Climate change poses great risks to the well-being of communities by increasing the frequency and intensity of severe weather events such as droughts, floods and landslides. FHI 360, from the **Unites States**, is working in Uganda's "cattle corridor", a region prone to prolonged and severe droughts

that lead to low water flows and diminishing groundwater levels, to minimize the negative impact of climate change. In the cattle corridor, inadequate water for agriculture, animal husbandry and other domestic uses is the primary cause of reduced productivity, which can breed sociopolitical conflict among communities. The *Climate Change Adaptation and ICT* project is notable for using mobile and wireless technology to strengthen the capacity of individuals, communities and institutions in the cattle corridor to adapt to the water-related impact of climate change.[112]

## C7.2 E-business

The United Nations Conference on Trade and Development (UNCTAD) is the lead facilitator for Action Line C7.2: E-business, which is co-led by the International Trade Centre (ITC), the Universal Post 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:

i. 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.

ii. 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.

iii. 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.

iv. 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.

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

[112] *Project nominated for a WSIS Project Prize 2015*

## Action 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.

UNCTAD has continued to build capacity aimed at supporting the creation of cyber-legislation and a more enabling environment for electronic commerce. It organized four workshops with the participation of fifteen ECOWAS countries. A regional workshop was organized in Ecuador following the online delivery of a training course on the legal aspects of e-commerce, and reached 300 participants from 20 countries in the region in June 2014.

UNCTAD continued to actively support Member States' efforts to improve the availability of ICT statistics, especially with regard to ICT use by the business sector and the ICT sector itself. It undertook a number of training and capacity-building activities and translated its *Manual for the Production of Statistics on the Information Economy* into Russian. A regional training workshop was organized for Russian-speaking countries in Almaty, Kazakhstan. A national workshop in Ethiopia brought together officials from the Ministry of Communication and Information Technology and from the national statistical office to build their capacities to produce relevant information economy statistics.

Together with ITU, UNCTAD led the work of the Partnership on Measuring ICT for Development to enhance the availability of gender-disaggregated ICT indicators and data. In 2014, work continued on developing better measurement of international trade in ICT and ICT-enabled services. The work involves close interaction with the Interagency Task Force on Statistics of International Trade in Services.

An UNCTAD publication entitled *Empowering Women Entrepreneurs through Information and Communications Technologies: A Practical Guide* was published, highlighting ways to enable women's businesses to become more efficient, productive and profitable through ICTs. The publication has been cited as one of the 100 most important reports on gender. Meanwhile, the methodology integrating the ICT dimension when assessing the environment for women's entrepreneurship development has already been applied in the following seven countries in Africa and Asia: Kenya, Uganda, Tanzania, Azerbaijan, Kazakhstan, the Kyrgyz Republic and Uzbekistan.

In **Bulgaria,** a project on the Development of Property Register systems, introduction of new electronic services and integration of systems and registers in the Registry Agency in order to improve services to citizens and business has been introduced by the Bulgarian Registry Agency in order to improve customer services by speeding up the processes, increasing the quality and diversifying the channels of service provision and payment. The project aims to improve the quality and reliability of information stored by the Property Register database and increase the revenues from state fees collected by the Registry Agency by increasing the number of electronic services and reducing provision costs.

In **Canada**, the project *Improving Border Management to Reduce Trade Costs* aims to contribute to sustainable economic growth by reducing trade costs in East Africa. The project seeks to reduce trade costs by speeding up and modernizing border and customs management systems within the East African Community (EAC). The project provides expertise, training and funding to help EAC member states and the EAC Secretariat speed up, integrate, streamline and improve the gender sensitivity of their border management systems. The project also works to streamline customs clearance and revenue-sharing procedures within and between countries.

The goal of the Canadian *Knowledge Gateway on Women's Economic Empowerment* project is to increase women's economic empowerment, and improve their lives and communities by providing them with access to information and networking opportunities through a knowledge gateway. The knowledge gateway is an online "one-stop service" giving women access to the latest and most up-

to-date information, technical resources and best practices on business and economic opportunities, among other things. The gateway provides a mechanism for ongoing learning and exchange among users, including women entrepreneurs, practitioners and policy-makers, on issues that are critical to advancing women's economic empowerment.

*MiPyme Vive Digital* is an initiative that aims to encourage the incorporation of ICTs into micro, small and medium-sized enterprises (MSMEs) in **Colombia**, in order to improve their productivity and competitiveness. This incorporation goes beyond simply connecting MSMEs to the Internet or providing them with ICT tools: the initiative has enabled the incorporation of ICTs within these companies by adding real strategic value and improving their businesses. The initiative consists of two strategies: the first strategic axis aims to provide MSMEs with awareness and training on the basics of Internet use. The second strategic axis aims to generate mechanisms to accompany the implementation of technology, particularly Internet solutions, in MSMEs. To achieve this, the Ministry of Information and Communication Technologies created an alliance with Bancóldex – iNNpulsa MiPyme to set in motion a public call for large private companies to propose projects that optimize their extended productivity chains, focusing on their interaction with those MSMEs that are part of their providers or suppliers, hence quickly reaching a large number of MSMEs and providing them with ICT tools that add real and tangible value to their daily activities. So far, 43 projects have been cofinanced, benefiting in the process more than 33 000 MSMEs directly and a similar number indirectly, totaling more than 66 000 MSMEs across the country.<?>


*Hubco* is an e-business solution that provides e-procurement and all related services based on a software as a service (SaaS) computing model, cloud computing and mobile computing to businesses in the **Islamic Republic of Iran**. Hubco is not just a technical IT solution: as part of its business model, the company provides business empowerment services to enable businesses, especially small and medium-sized enterprises (SMEs), to use the services provided by the system. These empowerment services are IT consultancy, leveraging the ICT infrastructure of the business, and providing the ICT

skills and knowledge development programs needed to improve ICT skills and knowledge levels among employees to help them use the application and its services.[113]

*Taw9eel* is a website developed by the Central Agency for Information Technology of **Kuwait** and was the first to introduce a full e-commerce hypermarket online, with over 15 000 products ranging from groceries to electronics, appliances, fashion, video gaming and wholesale with free delivery within four hours all day long. The Taw9eel website is constantly refreshing its look and performance. It is keen to provide the best shopping experience to its customers online or on their smart devices. It provides its customers with three payments types: cash on delivery, credit card and direct payment from their banks. Taw9eel offers high quality customer service 24 hours a day, which includes the option of placing orders over the phone.<?>

The National Development Plan, the Innovative Development Programme of the Ministry of Economy and the National Digital Strategy of **Mexico** have taken the ICT sector as a priority in national planning. The National Digital Strategy, which is the action plan that the Mexican Government is implementing to encourage the adoption and development of ICTs and to insert Mexico into the information and knowledge society, has among its objectives the digital economy. The Mexican Government is triggering innovation and entrepreneurship ecosystems to foster a digital economy that encourages increased productivity and the development of new digital businesses, products and services. In this context, the Mexican Government is working on the implementation of the *Tal Government Unit of the Ministry of Public Administration* project to foster and strengthen the IT industry in Mexico through the sectoral agenda for the development of IT in Mexico (PROSOFT 3.0) and the ICT Fund.<?>

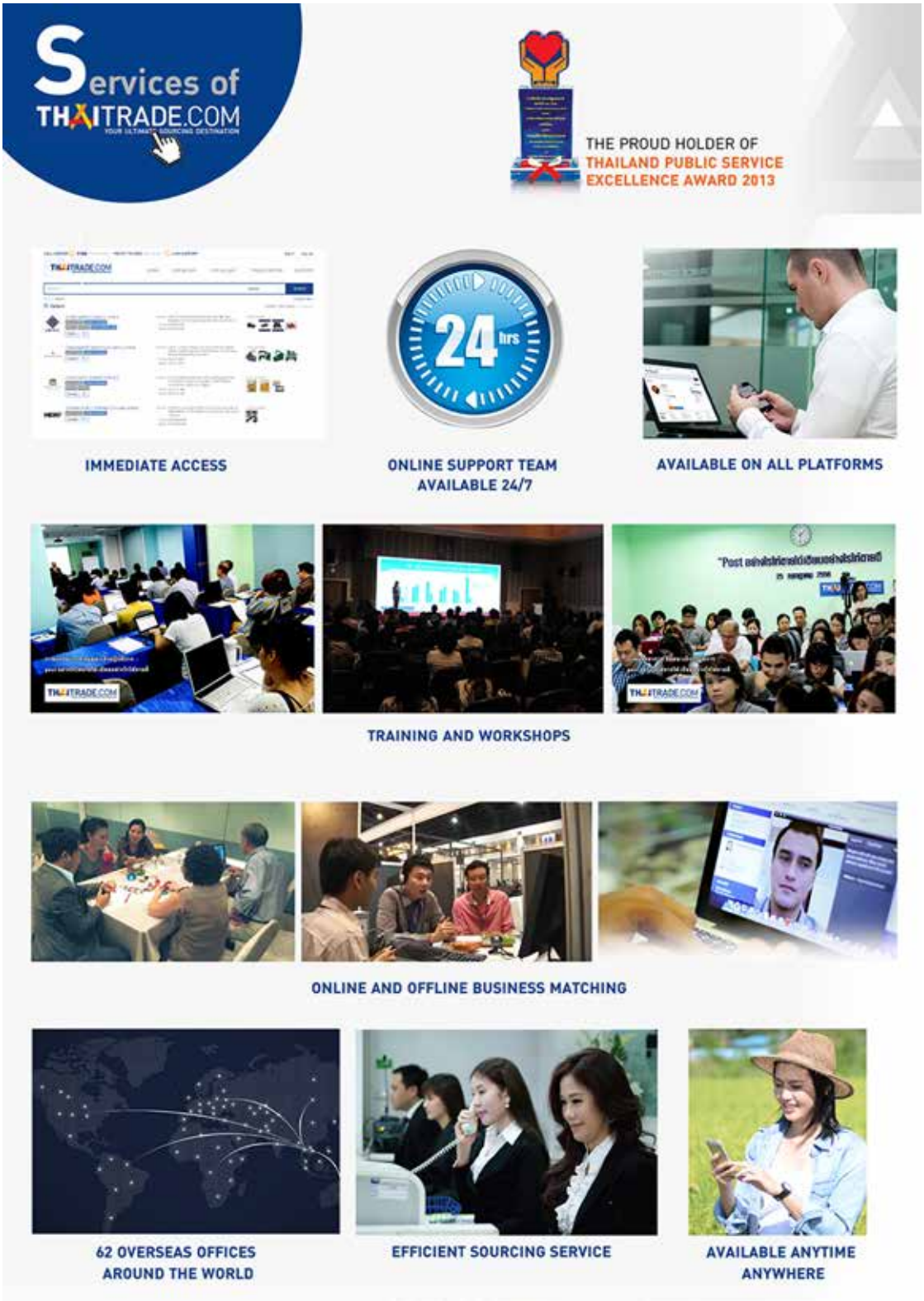
The *Ishyiga software lines* project from Algorithm Inc. in **Rwanda** has a very peculiar story. Quoting the words of its developer: "After finishing my undergraduate studies in Canada, I decided to come back to work in Rwanda because it had more IT needs and shortcomings than Canada. When I arrived in 2007, I found that all aspects of business management were being handled manually. I decided to help by automating business processes. Ishyiga Software was the name of the solution. Ishyiga is a Kinyarwanda word meaning three stones which were used to cook on. We used that concept to emphasize the three elements needed to succeed: developer understanding of business management strategies, the design of software to enable those strategies, and user-friendly end-user solutions.''[114]

Also in Rwanda, the *Electronic Single Window* system is boosting business. Trade-related information and/or documents required are only submitted once at a single entry point. The system allows traders to fulfil all import- and export- related regulatory requirements through a single portal. So far, the system has been used to computerize customs management operations processing, exemption processing by the Rwanda Development Board, quality inspections for imported goods, warehousing and cargo handling and health regulatory procedures for imported medicines and medicine equipment. An interface between Rwanda, Kenya and Uganda allows for faster clearance of goods and ensures seamless and real-time exchange of information at the port of Mombasa.

[113] *Project nominated for a WSIS Project Prize 2015*
[114] *Project nominated for a WSIS Project Prize 2015*

*Thaitrade.com* is **Thailand**'s official B2B e-marketplace, operated by the Department of International Trade Promotion since 2011. Acting as an online channel for international buyers to trade with Thai sellers from all regions of Thailand, its main goal is to create international trade opportunities for Thai SMEs by strengthening their competitiveness through free-of-charge online marketing and trading tools and 24-hour-a-day assistance. Creating over 13 000 Thai SME sellers and 60 000 global buyers to serve over 2.1 million users worldwide, thaitrade.com has helped train over 30 000 participants from all parts of Thailand, encouraged 3 000 new export business start-ups and facilitated over 1 200 business negotiations generating an export value of more than USD 250 million.[115]

[115] *Project nominated for a WSIS Project Prize 2015*




SMEs make up 90 per cent of the private sector in **Uganda**. Business records management software will enable SMEs in Uganda to move from using rudimentary paper methods of record-keeping to a more accurate record-keeping method. This will be achieved by encouraging SMEs to adopt *Business Records Management software*, which has been locally developed and engineered by Victorium Holdings Ltd. Affordable software will improve the record-keeping practices of small businesses within

Uganda and limit their potential exposure to tax and compliance problems. The software enables SMEs to prepare financial statements and print out their income statements.

In **Uruguay**, the *Information System of Consumer Prices (SIPC)* is a georeferenced database of prices for articles used every day by Uruguayan households, which is updated fortnightly and can be accessed from different devices. Retail prices are collected nationwide and from neighbourhood fairs in Montevideo. The system is used by: (a) citizens, to make better purchasing decisions; (b) the Ministry of Finance, to decide price agreements with the private sector; (c) the media and researchers, to inform and study variation in prices; (d) apps developers; and (e) those in the same trades, for comparative analysis. Surveys have revealed satisfaction levels higher than 80 per cent among service users.<?>

The *Mobile Internet Ecosystem Project* is a new approach developed by the World Bank to support skills and entrepreneurship in client countries. **Lebanon** is the first country where this approach will be launched, jointly with Lebanon's Ministry of Telecommunications and in cooperation with other stakeholders, such as universities, industry clusters, startups, microenterprises, business incubators, angel investors, venture capitalists, and government entities. The Project focuses on developing the national innovation ecosystem in Lebanon by offering incentives to Lebanese youth and talent to remain in the country, bringing local entrepreneurial skills to the level of international standards, and boosting the international competitiveness of the country's traditional industries through ICTs and mobile Internet, in particular, as well as through open innovations. The World Bank and the Ministry of Telecommunications will provide USD 12.8 million of investment over four years for the Project's implementation, which is planned to start in 2015. The Project is structured around four key activities: (i) co-creating a coordination mechanism among the main stakeholders – the Mobile Innovation Hub (MiHub); (ii) boosting entrepreneurial skills through a series of innovation competitions; (iii) developing skills for employability through the creation of a university–industry platform offering internships and hands-on experience to students and graduates; and (iv) supporting innovation within existing local industries by integrating these industries into the Mobile Internet Ecosystem.

## C7.3 E-employment

The ILO is the lead facilitator for the e-employment category, 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.

From 2008 to 2012, the Millennia2015 Foresight Research Process *Women actors of development for the global challenges* being carried out by the Destree Institute in Belgium, together with the Millennia2015 international voluntary researchers' network, worked to formulate the Action Plan for Women's empowerment and gender equality, approved with support from UNESCO in December 2012 in Paris (www.millennia2015.org/2012_UNESCO_Proceedings). To activate the Action Plan, the Millennia2025 Women & Innovation Foundation, a public utility foundation, has been created. 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 (www.millennia2015.org/Solidari_Femmes). 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, 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 (www.millennia2015.org/Millennia2025_WePROMIS).

The *Techno-links for Improved Access and Income* project by Foreign Affairs, Trade and Development Canada aims to help local businesses develop financial and technology-related products and services so that they can better respond to the needs of smallholder farmers and enterprises in Zambia, Nicaragua and Peru. The programme has two components: 1) Technology Links for Financial Services: Mennonite Economic Development Associates (MEDA) of Canada works with MiCrédito, a microfinance institution in Nicaragua, and Mobile Transactions Zambia Limited, a mobile transaction company in Zambia, to develop mobile transactions and mobile banking services to support increased savings among smallholder farmers; 2) Technology Links for Agriculture: MEDA supports an agriculture technology matching grant fund in Peru and Nicaragua with the Inter-American Development Bank. The fund provides grants to local private sector firms to develop agricultural technologies that address the needs of small farmers. The contribution made by the Canadian International Development Agency supports technical assistance related to the management and administration of the fund.[116]

The *Teletrabajo* project in **Colombia**, run by the Ministry of Information and Communication Technologies, aims to increase the popularity of teleworking as a tool to generate more sustainable cities through the use of ICTs, increase business productivity, improve the quality of life of workers, promote labour inclusion of vulnerable groups, and generate employment and self-employment.[117]

> It is said that one empowered woman can empower an entire family and eventually community. **India**'s *Swawlamban* project, the name of which means "self-sustainable", aims to empower rural, slum and suburban women as one of the major ICT-based micro banking kiosk operators, inculcating in women the habit of micro savings and bringing financial sustainability to their families and communities. Thanks to ICTs, a technological, social and economic phenomenon that has enabled banking services to reach even grass-roots level, small and micro savings now provide financial sustainability to the poor, allowing them to accumulate small savings pots which they can use in the future to help themselves in times of crisis, health and medical needs, education of children or extreme poverty<?>.

[116] *Project nominated for a WSIS Project Prize 2015*
[117] *Project nominated for a WSIS Project Prize 2015*


The *Central Employment System* project by the Central Agency for Information Technology of **Kuwait** is a government-to-citizen (G2C) project aimed at providing job seekers, mainly fresh graduate citizens, with an electronic way to apply or be nominated for jobs in the governmental sector in a very transparent way and to trace applications electronically. The project was implemented on the Civil Service Commission's servers and is available through its website, the official portal of the state of Kuwait (e.gov.kw), and the mobile application for the official portal of the state of Kuwait on iOS and Android smart devices. The objective of the system is to save time and effort for the Commission, new graduates (customers) and ministries, and to enforce regulation and equal job opportunity among customers.[118]

In **Mexico**, the National Digital Strategy is an action plan that the Mexican Government is implementing to encourage the adoption and development of ICTs and insert Mexico into the information and knowledge society. To this end, the Ministry of Labour and Social Welfare, through the *National Employment Service*, is working with the National Digital Strategy Coordination Unit of the Office of the President and the Digital Government Unit of the Ministry of Public Administration on a range of activities concerning the use of digital technologies to provide the economically active population with more options for employment and professional development opportunities.[<?>]

[118] *Project nominated for a WSIS Project Prize 2015*

In order to promote higher education and improve the future employment prospects of young people, the Parliament of **Montenegro** has adopted an Act on the *Programme of Professional Training for Persons who have Acquired Higher Education* (Official Gazette of Montenegro, No. 38/12). Under this Act, persons with higher education but no work experience at the their educational level who are registered with the Employment Agency of Montenegro are given the opportunity to be trained for independent work through nine months of expert training. Professional training comprises continuous, programme-oriented and systematic activity to acquire knowledge, skills and competences for the independent performance of various work duties and tasks. The programme is implemented electronically in its entirety. Electronic services have been created for employers and users. In addition, a special web application solution has been introduced in the form of a special information system linking the Employment Agency of Montenegro, the Human Resources Management Authority, the University of Montenegro, the Ministry of Education, and other universities and colleges in Montenegro. This system uses resources provided by the e-government portal. Automated exchange of data enables employers and users to register and users' identities to be authenticated, as well as allowing for complete programme management, reporting and payment. Moreover, through a system of automatic pairing of users and employers, a high level of transparency in hiring interns can be achieved.<?>

The National Information Technology Board of the Ministry of Information Technology of **Pakistan** has established an *Online Recruitment System* to enable online management of applications for positions advertised by the Federal Public Service Commission for general recruitment and civil service exams. The system receives online applications, allocates seats according to the quota system, keeps a record of candidates' results, and posts interview schedules online. The modules include examination systems, income tax officer examinations, section officers examinations, surveys of Pakistan, Northern Areas competitive examinations, and computer-based psychological tests.

The Ministry of Manpower of the **Sultanate of Oman** has developed a system called *e-Employment Collaboration*, which has a critical role in human resources development in the country. The system provides information for almost 2 million employees working in some 203 000 companies in the private sector. The system is electronically integrated with other government entities to avoid data duplication and increase coordination and data-sharing across the government. It provides reports and statistics for decision-makers to improve government functions and develop human resources capacities. The system enables job seekers to use services through its website or mobile apps and allows the private sector to access and interact with candidates' applications.<?>

In **Saudi Arabia**, we have four deserving projects in the e-employment category.[119]

The Ministry of Education launched *Safeer Graduates* to strengthen relations between educational sectors, students and graduates on the one hand and society institutions on the other. To build this

[119] *Projects nominated for a WSIS Project Prize 2015*

partnership, the Ministry offers a channel by providing potential employers and training institutions with data on overseas graduates who are interested in uploading their CVs to the Safeer Graduates site. The programme receives two types of stakeholders: graduates and employers. It allows potential employers to search graduates' data in a very safe environment that protects privacy of information to a great extent.The *Electronic Advanced Services for Enterprises* project of the Ministry of Labour is currently serving more than 11 million working citizens and expatriates (18 per cent of whom are female), who are supporting more than 1.8 million private sector enterprises in the Kingdom of Saudi Arabia. Since its inauguration in 2007, the project has increasingly offered a transparent, direct and easy-to-access communication channel for securing labour and employee rights. It has also helped to promote the ongoing developmental renaissance of Saudi Arabia, exemplified by an exponential increase of 723 per cent in female recruitment opportunities secured in the Kingdom by 2013.

The *Telework* initiative aims to create sustainable jobs in the Saudi Arabia market, targeting two main segments: women, and people with disabilities. In order to provide a solution to help them overcome social and physical barriers related to the office environment, the project aspires to create 10 000 teleworking jobs in the market by the end of its first year of operation<?>.

The project *myKKU* run by the King Khalid University (KKU) is a vital portal solution that is fully integrated with key KKU enterprise systems and provides a central gateway for KKU faculty, students and staff to access a wide array of e-services. myKKU utilizes the concept of e-employment by enabling KKU's employees, regardless of nationality and gender, to access all KKU's e-resources from any place and to work at any time. Furthermore, myKKU has initiated a new method of organizing work at KKU, particularly within the IT department. Agile Scrum was new knowledge that came with myKKU and has led to an increase in teams' productivity and easier project management and implementation.

*Tamooha* is a talent-development platform in the United Arab Emirates that aims to empower Emirati women in the employment market. The platform will provide job opportunities that suit women's social norms and family responsibilities by enabling them to choose to work from, or near, their own home or in one of the Abu Dhabi Commercial Bank women-only operations centres in the city of Al Ain. The Tamooha process is quite simple. Upon acceptance into the programme, the successful applicant undergoes training at a Tamooha Centre. The Bank has a centre in Al Ain and has plans to expand in other regions in the near future. The Al Ain centre is conveniently located in the Boutik Mall. Once the initial training is completed, all employees will work at the Centre for some time to acquire relevant experience and skills. Once certified to work independently, the Bank provides employees with the option of working from home, working from the Centre or a combination of both, depending on individual preference.[120]

## C7.4 E-environment

WMO is the lead facilitator for the e-environment category, while WHO, UNEP, UN-Habitat, ITU and 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

[120] *Project nominated for a WSIS Project Prize 2015*

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.

The *iSharkFin software* developed by the Food and Agriculture Organization of the United Nations (FAO) helps protect endangered shark species and combat illegal trade in shark fins. It is a tool for customs officers and inspectors at fish markets, as well as for fishermen keen to avoid capturing protected species. After uploading a photograph of a shark's fin, the user chooses a few key points of the fin shape and identifies various other characteristics. An algorithm then compares the information with its memory bank and identifies the shark species. The process takes about five minutes. FAO is developing an app version of iSharkFin that can be used with tablets or smartphones, broadening its potential reach and use.

In **Algeria**, the *WINGO* project to ensure sustainable ICTs was developed by LVSC Méditerranée. Quoting their words: "Like most great ideas, they appear simple and logical once they're created. We are not different. When the company was founded nearly eight years ago, drivers and departments of transportation relied on expensive sensors installed in a few roads to understand real-time traffic conditions. However, this approach was expensive to install and maintain, and only covered a few roads, and made available only in few European and North American countries. Our solution took a different approach, revolutionizing how traffic information was created by analysing data from the vehicles themselves."[121]

The overall objective of the *Cross Border Implementation of Innovative Cost-Cutting Technologies* project is to strengthen economic development by improving the competitiveness of SMEs located in the cross-border area of northern **Greece** and southern **Bulgaria**. Within the framework of the project, 100 SMEs in the cross-border area were granted access to expert consulting services and know-how intended to boost their competitiveness by applying innovative cost-cutting technologies. The innovative cost-cutting methodology developed under the project is being promoted as best practice of the Greece-Bulgaria European Territorial Cooperation Programme 2007–2013.[122]

The Environment Public Authority of **Kuwait** has taken the initiative of establishing the *beatona.net Official Environmental Portal*, a GIS-based web portal that aims to share authentic environmental information with the public over the Internet. beatona.net ("our environment" in Arabic) is a network that offers information about Kuwait's environment from various national, regional and international organizations on a single platform. It also allows the public to participate and interact in the preservation and protection of the environment by reporting environmental phenomena and problems. This is expected to play a leading role in raising awareness of the value of the environment in Kuwait.[<?>]

[121] *Project nominated for a WSIS Project Prize 2015*
[122] *Project nominated for a WSIS Project Prize 2015*

Last summer, the National Digital Strategy of **Mexico** partnered with the National Weather Agency to redesign public alert processes for extreme hydrological events in Mexico, of which there are more than 20 annually. The project *Leveraging web and mobile platforms to broadcast disaster alerts* has streamlined the meteorologists' workflow in order to generate and publish bulletins "automagically" in open formats following the Common Alerting Protocol, enabling third parties to broadcast alerts to a larger audience. After a couple of months, a live test took place in September for Hurricane Odile, which received great feedback from citizens and quickly became a new paradigm for reaching out to the public in extreme weather events[<?>].


The main objective of the *Disaster emergency system based on a new decision network approach* from **Morocco** is the implementation of a new, efficient system that serves to help citizens threatened by flooding to suffer less damage and to guide their choices according to their profiles, employing a solution based on environmental data and real network simulation methods using multi-agent systems and constraint programming. As an innovative solution, the system detects erroneous or redundant data by a classification method with the aim of ensuring that only reliable and adequate data are stored in the database and processed in the decision support system for real-time flood forecasting.[123]

[123] *Project nominated for a WSIS Project Prize 2015*

The *Indoor Air Quality* project by Majmaah University in **Saudi Arabia** aims to identify the type of air inside a building that will promote the comfort and health of its occupants. Gases, microbial contaminants and particles affect air quality and can cause bad health conditions. The project has just been launched and will run for ten years until 2015. The key factors affecting indoor air quality may be divided into material, chemical and biological factors. Material factors include temperature, humidity, dust, air movement, lights and noise. Chemical factors include contaminants produced by paints, carpets, new furniture, environmental tobacco smoke, curtains, cosmetics, etc. Biological factors include fungus, bacteria and viruses transmitted or resulting from the same location.<?>

Once a dry, desert area, Ban Limthong, Thailand, hopes to overcome its problems by using IT as its main weapon. With the ability to use IT for surveys, data collection and analysis, the community can accurately plan the rehabilitation and protection of local water resources. With ten years of hard work, sustainable water resources management is delivering a better living of standard to the community. Incomes are 2.5 times higher, and debt has been released by abundant agricultural products. Local people have returned home after a long period of migration. People have enough water to use and can earn money all year round. The goal of *Thailand Best Practice: IT for Environmental Sustainable Development*' has been fulfilled.[124]

In the **United Arab Emirates**, the *My Garden* smartphone app can be used by participants in the widely popular annual "My Garden, My City" competition, which aims to increase green spaces in suburban areas across Al Ain, Abu Dhabi and the Western Region while spreading awareness in the community about the importance of sustainability in daily life. The application allows users to track the number of plants, their growth and other factors in their own gardens. It also provides environmental benefit information on their accomplishments and shows other users' progress, while including a platform that allows users to share snapshots of their gardens, share ideas and realize the environmental benefit.<?>

Also in **United Arab Emirates**, the Abu Dhabi Water and Electricity Authority's *Water Network Management System* is another remarkable project conceived in the United Arab Emirates. The first initiative of its kind in the UAE and the broader Gulf region to tackle the issue of water management through active leak detection techniques, the system covers the design, supply and installation of instrumentation, communication, IT infrastructure, hardware and software in order to collect network parameters.<?>

## C7.5 E-learning

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

[124] *Project nominated for a WSIS Project Prize 2015*

web-based learning, computer-based learning, virtual classrooms and digital collaboration. The main facilitator for the e-Learning category is UNESO, while co-facilitators are ITU and UNIDO.

The *CtrlF* project from **Algeria** is a low-cost solution that uses image-processing techniques to convert a Braille pattern into natural language characters. It helps blind people to search for a keyword in a Braille book by spelling out the keyword, pointing and shooting. The project involved a partnership between Algérie Télécom, STIC Laboratory and Bournemouth University, and will run from 2014 to January 2015.[125]

In **Bangladesh**, the *Education at your Home* project has been developed by Educatorbd.com. To quote the words of Educatorbd.com, "Bangladesh is a densely populated country. Population is an asset of our country, but not all the people are educated. If we can make all of them educated, it will turn them into a potential human resource. Moreover, education is one of our fundamental rights. So we should give scope to all the people to educate themselves. The site www.educatorbd.com is a platform where all the Bengali people will learn. Our slogan is "education is at your home". People will learn and enjoy by using this site. This site is totally non-political and non-profit-making.''

In **Bulgaria**, the project *Development of an Efficient Electronically-Based Distance Learning System* for training holders of Master's degrees in public health implements an innovative high-tech form of electronic distance learning (EDL) and increases the degree of socialization and employment opportunities for professional self-improvement and lifelong learning for persons engaged in the field of public health, by providing efficient access to education at the Medical University–Plovdiv (MUP). The project's achievements are in areas such as: (1) facilitating access to quality higher education and providing opportunities for training of specialists through the establishment of a distance learning centre; (2) ensuring conditions for EDL through the development of technological and information infrastructure, software and resources for distance learning; (3) training the experts who will apply the EDL methods.[126]

In **Canada**, the project *Youth-led Enterprise and Development,* developed by the Department of Foreign Affairs, Trade and Development, aims to support 88 000 young African women and men to lead economic change in order to create new enterprises, raise individual and family incomes, and augment access to business development services and capital in Ethiopia, Kenya, Rwanda, Tanzania and Uganda. The project contributes to enhancing the employment skills of young women and men, increasing the number of emerging and developed community-based socio-economic enterprises; and enhancing the delivery of economic development and working-readiness programmes by the Digital Opportunity Trust's (DOT) local partners and the community-based organizations with which they work in this project. DOT works in partnership with DOT Ethiopia, DOT Kenya, DOT Rwanda, DOT Tanzania and DOT Uganda. This project is implemented by DOT and co-financed by the MasterCard Foundation.[127]

*VEduc* is a learning application developed by the International Institute of Tropical Agriculture of the **Democratic Republic of the Congo**, which enables instructors and students to use an application that organizes and keeps track of educational materials such as courses or training programmes, specifically in an online learning environment. There are a number of benefits to using it. It provides:

1. Online registration and payment for courses
2. Outline building tools
3. Content delivery and multimedia capabilities in a variety of formats, including support for audio and video, pdf files and PowerPoint presentations
4. Online tests and exams

[125] *Project nominated for a WSIS Project Prize 2015*
[126] *Project nominated for a WSIS Project Prize 2015*
[127] *Project nominated for a WSIS Project Prize 2015*

5. Customizable, downloadable, automatically e-mailed certificates for course completion.[128]

The *Supporting e-Learning for Hearing and Visually Impaired Students* project in **Egypt**, a programme developed by the Information and Communications Technology Trust Fund (ICT-TF), has as its principal objective to "Improve social inclusion of hearing and visually impaired students (HVIS), by improving their primary education and increasing their independence".*Results*:

- Upgrading ICT Laboratories in four schools
- E-kits in science, mathematics and IT
- Training of teachers and students
- Competition for best practices and online community.

*Impact:*

- Better academic achievements of HVIS
- Community empowerment with positive attitudes towards HVIS.

*Sustainability*:

- The partners continued with the second phase for Arabic and English subjects
- The Ministry of Communications and Information Technologies (MCIT) is scaling up the project to cover all primary-stage HVIS.

*Partners*:

- Egypt ICT Trust Fund
- Islamic Development Bank
- Ministry of Education
- NGOs.[129]

Also in Egypt, *Hope gates in Education* is an Interactive website connecting the peripheral areas of the educational process and community learning, linking school and home, teachers and learners. The project aims for cooperation and involvement among the various parties to achieve educational quality. The initiative was launched in 2010 and will run until the end of 2016. More information can be found at http://www.wadi-elmalekat.com/.

In **India**, a large-scale action research programme was initiated in November 2014. It involves tele-education classes in 1 000 rural Government schools in Karnataka, under the name *Tele-education in 1 000 rural Government Schools*. A hybrid model of satellite and terrestrial communication has been developed to provide interactive classes in all the schools in a cost-effective manner. Interactive classes help students to resolve their questions towards the end of the class with the help of a studio teacher or moderator. Animation used in the classes helps to clarify the concepts and has generated substantial interest among students and school teachers. The Karnataka state government has now decided to double the number of programme-receiving schools in the next academic year.<?>

*ETADREES,* developed by the Central Agency for Information Technology of **Kuwait**, is a supplier of online distance education courses based in Kuwait. It assists students worldwide in gaining professional education in an accessible and flexible way, and offers a wide range of online study courses delivered and supported by highly specialized tutors who are experts in various fields of study. The flexible online study courses have been designed to enable students to learn anywhere, anytime, from the comfort of their homes, offices or colleges, and at any time that suits them. Course materials are available through the Learning Management System, where students can start a live visual session

128 *Project nominated for a WSIS Project Prize 2015.*
129 *Project nominated for a WSIS Project Prize 2015.*

with a tutor using their unique student account, or alternatively view previously recorded live lectures. The programme is dedicated to ensuring that students' online study is convenient and flexible.[130]

*Ikraa* is a computer program developed in **Lebanon** that eradicates Arabic language illiteracy in 35 hours or five working days. Its advantage lies in speeding up the learning process and thus making it possible, if adopted on a large scale, to achieve education for all millennium goals within any specified time limits. Its efficacy was proven in field trials in Lebanon, Egypt and Saudi Arabia, for all age and gender categories, and was recently adopted by organizations in Morocco, Palestine and Kuwait. It is accessible to a vast international community via e-learning portals www.ikraa.me and www.learnaraby.com and dedicated Ikraa online schools.[131]

The *Digital Inclusion and Literacy Pilot Program* in **Mexico** began by bringing together various stakeholders in the IT industry and education sector in order to present solutions that would take into account the digital ecosystem (connectivity, training, content, assessment, support and infrastructure) necessary for the effective introduction of tablets in selected public schools of three Mexican states. The tablets and supporting infrastructure were donated by various industry participants without cost to the government and were then given to students and teachers in the fifth and sixth grades. The pilot programme had two main objectives:

1. The development of digital capabilities to promote competences including:

- Collaboration
- Critical thinking
- Communication skills
- Self-management.

2. The generation of indicators and models that contribute to digital inclusion and public literacy policy.

As stated above, collaboration is the bedrock on which the pilot project has been built. In particular, it has brought together the Ministry of Education and the National Digital Strategy Office on the government side with various representatives of the IT industry (both those providing hardware and those supplying content), as well as non-governmental organizations and various international organizations. Each of these sectors provided important insights and contributions during the pilot project.[132]

> The University program 3.0- the impact of the immersive virtual reality and the information technologies on education and museums in Northern Mexico, also known as *University 3.0* initiative in **Mexico**, has shown convincingly that progress is being made with regard to one of the biggest current educational challenges and the new technology paradigms. The younger generations have considerably changed in recent years in terms of customs, time management, social interaction and communication processes. They are more visual, spend a good deal of time online, lose interest easily, and look principally for ways of having fun. A mixture of technology and education will be the way forward to the new ways of learning, but this process is experienced not only by students: teachers and institutions are also involved, and developing new ways of teaching is the major challenge for them.<?>

*The e-marking project* developed by the Ministry of Education of **Oman** uses modern technology to correct and score a student's answers. This is achieved by using a specific technique that allows the

130 *Project nominated for a WSIS Project Prize 2015*
131 *Project nominated for a WSIS Project Prize 2015*
132 *Project nominated for a WSIS Project Prize 2015*

exam papers to be printed, scanned and marked electronically, leading to the formation of a detailed database of student performance which can be used in the development of the teaching-learning process. The aim of e-marking is to raise the efficiency of the system of evaluating student performance, while reducing the source of potential errors that could be introduced during the process.[133]


In **Portugal**, a remarkable project has been developed by the Instituto Piaget called *E-learning in prison*. It sustains the idea of ICT as a tool for adult education, and promotes social inclusion of risk groups such as prisoners by providing training based on distance learning through the use of a learning management platform. The main objective of this project is to analyse the importance that e-learning can play in the training of women prisoners, in order to allow empowerment and greater social and digital inclusion, and to contribute to the full social reintegration of the inmate population by creating an integrated and structured intervention model that is likely to spread, replicate and lend credibility to an innovative strategy.[134]

**Saudi Arabia** has seen growing unemployment among its young people in recent years. In response, the Human Resource Development Fund has developed a large portfolio of projects to train and support the local workforce and raise employment rates; many of these projects are already under way. After the launch of the highly successful "Hafiz" unemployment support programme, the continuing need to educate and train the large population of unemployed was revealed. In order to meet that need in a technologically advanced way, the National *"e-Training" Programme* was developed to improve job seekers' skills and help them to find suitable jobs in the private sector.<?>

133 *Project nominated for a WSIS Project Prize 2015*
134 *Project nominated for a WSIS Project Prize 2015*

There are also two interesting projects managed by Saudi universities.[135] The Saudi Electronic University has adopted the *Learning Management System*, one of the most powerful e-learning systems in its educational system (Blackboard System). The university has based its approach on blended learning in its education strategies, using traditional (face-to-face) classroom methods (25 per cent) combined with e-learning (75 per cent).[136]

> The Majmaah University in carries a very important message to society, for individuals and institutions. It is responsible for all institutions of colleges and deanships, and believes in community partnership as a key aspect of providing a high-level and high-quality education. Recognizing the importance of the *training and e-learning community* initiative represents a qualitative leap for all Saudi Universities in their efforts to provide a service reaching targeted groups in their places of residence, complementing their other roles serving the community by developing and rehabilitating the country's citizens and institutions. This initiative comes at a time when the community is facing the IT revolution, technological progress in communications media, and the emergence of unconventional learning sources. Its use in achieving education progress is not a luxury but a necessity, a vital requirement for the quantitative leap in redesigning and developing the learning process. This initiative is providing training and promoting community e-learning units which can cater to the needs of individuals and promote advancement through the aspirations of the country's leadership and patrons of education and in its role as custodian of the two holy Mosques.<?>

The idea of the *Technical and Vocational Training Corporation* (TVTC) plan is to develop the process of training by transforming it from a closed system of education and training to more open education and training. This project has come about through integration within three major projects, which has helped to overcome constraints and led to a successful strategy for open education. TVTC has worked in cooperation with the Ministry of Labour and a number of strategic partner companies including local telecommunication companies, international IT companies and open learning provider companies, to develop these three projects.

*DSA Platform* is a software package that changes the idea of the web by facilitating webpage design without any need for a server or domain, and helps teachers to maintain contact with their students, bosses with their employees and parents with their children.

*Developing e-Content for General Courses by e-Learning and Training Resources Centre* is run by the e-Learning Department of the Technical and Vocational Training Corporation in Saudi Arabia, which provides technical training for more than 122 500 young Saudis at three levels (secondary, diploma and bachelor's). The project involves developing full interactive e-content for most of the courses which must be taken by every trainer in his or her preparatory year, and which must comply with global standards.

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135 *Project nominated for a WSIS Project Prize 2015*
136 *Project nominated for a WSIS Project Prize 2015*

In Sudan, more than three million children are not attending school. Gedaref University (IT and Computer Science College), like other Sudanese Universities, suffers from a shortage of computers and other practical equipment, which is why graduates are very weak in the practical application of what they have studied. More than 16 per cent of the population suffers from disability and serious poverty and cannot afford to access ICTs. The *GDCO Sudan Telecentres empowering e-Education* project was developed by a "public-private-people" partnership (PPPP) enabling people to work together by sharing knowledge, experiences and best practices for community development<?>.

There are three projects in the e-learning category in **Thailand**.[137] *Ramkhamhaeng University*, by far the country's largest public university, is an open-admission institution to which entry is virtually unrestricted. The university has to organize instruction and assessment not only for ordinary students but also for a cohort of physically and visually challenged students. The university provides various modes of instruction with both on-site teaching and a "virtual" classroom via satellite and Internet, including e-learning. However, testing or measurement is very important for academic achievement, especially for the physically and visually challenged. The e-testing Bureau was established to provide services for both ordinary students and those who are physically and visually challenged. Organizing examinations for visually challenged students was especially difficult. Not only do they need to have the requisite knowledge, they need to be able to use computers to complete their examinations within the allotted time. The Bureau has provided free training and detailed explanations for physically and visually challenged students in order to ensure that they can use computers for examinations on their own.

The second project is *Development of Computer Games in Order to Support Learning Skills in Basic Scientific Processing,* which uses computer games to practise learning skills in basic scientific processing, focusing on the scientific skills that are important to science learning. Learners can practise learning skills in basic scientific processing by themselves, at any place and time via the Internet. These games are supported on various platforms including computers, mobile phones, smartphones and tablets.

*ICT: E-learning* is a project based on the evidence that vocational education is becoming equally important in the everyday life of our developing world, and vocational skills are now recognized as an advantage in finding a job or in surviving as an independent entrepreneur. The main goal of this project is to help those seeking knowledge, who are provided with easier and cheaper means of learning anywhere, at any time.

*Abnaee & Malafee* is a project run by the Government of the **United Arab Emirates**. Abnaee, which means "my children" in Arabic, is an application and web-based platform that enables parents to register their children in school, monitor their progress and view final reports, retrieve annual certificates of accomplishment, access behavioural reports and communicate with the relevant school administration. Through this integrated approach, parents can manage their children's profiles and use the smart tools provided which recommend the most suitable schools close to their homes, with the necessary educational facilities and accessibility.Malafee, which means "my file" in Arabic, is a platform that acts as a "blackboard" accessible to students. It contains various sections that allow the user to access their schedules, examinations, notifications, learning material and knowledge databases. Through the interactive knowledge database, students have access to the ministry's eMalafee, which means "my file" in Arabic, is a platform that acts as a "blackboard" accessible to students. It contains various sections that allow the user to access their schedules, examinations, notifications, learning material and knowledge databases. Through the interactive knowledge database, students have access

[137] *Projects nominated for a WSIS Project Prize 2015.*

to the ministry's e-library that contains over 10 000 resources including re-usable library sources. Students can also access their subject-specific syllabus among more than 250 syllabuses.[138]

In **Uruguay**, *Ceibal en Inglés* is an educational programme designed for teaching English to Uruguayan primary-school children. A new pedagogical model has been developed which consists of a blend of face-to-face and remote team teaching and adopts an innovative use of high definition videoconference technology that enables remote teaching in real time. The programme has been designed to tackle a problem in Uruguayan education  an acute shortage of English teachers. It is based on the conviction of primary school teachers that learning English will have a positive effect on the future of their students.[139]

In **Yemen**, many surveys and research efforts focusing on the hearing and speech impaired have revealed that this sector is more capable of dealing with computers as an important part of modern life. This group was therefore targeted and admitted into the Faculty of Computer Science at Sana'a University as a first step towards fully integrating them and enabling them to study other subjects in the coming years. The centre aims to implement its first project, *Adaptive curriculum for the computer department - Computer Faculty - Sana'a University,* translated into electronic sign language to serve for hearing-impaired students, in preparation for a suitable curriculum adapted to the needs and abilities of this sector as soon as possible, to enable them to pursue their university studies. With the cooperation of Sana'a University, the centre devised a specialized academic committee consisting of university teachers, assistant teachers, programmers, translators, editors, coordinators, and so on. The committee selects the subject's materials for the computer department and converts them into a written and readable electronic curriculum translated into sign language with audio and video aids so that hearing- and speech-impaired students can benefit over a period of six months.[140]

The *IMARK initiative*, developed by the Inter-American Institute for Cooperation in Agriculture, increases competitiveness in the rural sector by improving the abilities of information managers and promoting knowledge sharing. It offers free e-learning courses in ICT-related topics in order to develop the skills and competences required for the economic and social advancement of developing countries. Knowledge and information-sharing approaches should be adopted as part of institutional strengthening, capacity development and use of ICT programs, with special attention to developing countries, and especially least developed countries, with different levels of sustainable development. IMARK learning resources are provided free of charge, online and offline, in different languages.

## C7.6 E-government

> 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.

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 Action Line C7.6 (e-government) at the global level is the United Nations E-Government Survey. Since 2003, this survey has presented a systematic assessment of the use and

138 *Project nominated for a WSIS Project Prize 2015*
139 *Project nominated for a WSIS Project Prize 2015*
140 *Project nominated for a WSIS Project Prize 2015*

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.

The 2014 Survey, entitled "E-Government for the Future We Want," examines the global trends and emerging issues in e-government development. It also highlights the global progress in online service delivery and focuses on ways of empowering citizens through e-participation. In addition, it makes a case for the importance of collaborative governance at all levels in promoting sustainable development, and underlines the importance of reaching out to citizens through mobile systems, social media and inclusive multichannel service strategies. The Survey also dwells on the challenge of the digital divide, assumes that usage is central to delivering development impacts, and suggests that open government data are a new development resource. The report argues that governments across the globe need to undertake a process of transformative change for the future we want. This in turn requires a transformation of government's role, functions, institutional frameworks and processes supported by the adoption of innovation and ICTs.

With the aim of promoting policy dialogue and the policymaking and technical capacities of government officials and practitioners from developing countries, UNDESA has organized regional workshops providing forums in which countries can exchange ideas, learn from one another and establish e-government networks among themselves. These included workshops on subjects including: building e-leadership capacity; supporting Member States in building capacity in the area of innovation and e-governance through research, knowledge-sharing and projects in cooperation with the United Nations Office on Governance (UNPOG) located in the Republic of Korea; and supporting Member States in their efforts to promote innovation and e-government for sustainable development. The latter effort calls attention to institutional integration and coordinated action to better serve citizens in a demand-driven and client-oriented manner, particularly through government collaboration with the private sector and civil society. Two Expert Group Meetings, on "the Transformative Power of e-Government: Innovative Ideas and Practical Tools to Promote the Post-2015 Development Agenda" (Bahrain) and "e-Government as an Enabler for Collaborative Governance" (United States), focused on issues and trends in e-government and contributed to the development of an e-government self-assessment toolkit.

Kazakhstan hosted the third edition of the Global Forum on E-Government, which was held from 6 to 8 October 2014 in Astana. The Forum focused on "Smart Governance for Sustainable Development: New Possibilities of Partnership in the Networked Society" and brought together researchers, policy makers, government officials, international civil servants, business and civil society leaders from around the world to share insights and innovative approaches in the area of e-government development and to discuss how e-government can support public policy and sustainable development goals, especially the post-2015 development agenda. A total of 1 050 participants from 79 countries took part in the event. The forum comprised plenary sessions and four parallel workshops, as well as a Ministerial Round Table, Study Tours and the UN E-Government Survey Special Awards Ceremony. Seventy speakers from over 25 countries shared their knowledge and insights throughout the various sessions of the Forum.

During the forum, the first of UNDESA's national e-participation workshops took place. Entitled "Developing Capacity for e-Participation: Engaging Citizens in Development Policy and Decision-making Processes through Information Communication Technologies (ICTs)", the workshop targeted approximately 85 Kazakhstan government officials including representatives from national, regional and local offices. The objective of the workshop was to bring together relevant policy-makers and practitioners with the purpose of enhancing their knowledge of e-participation. During the workshop, participants used the "METEP" (Measurement and Evaluation Tool for Engagement and e-Participation) tool, which includes more than 150 features which policy-makers need to be aware of when designing e-participation policies and strategies. As a follow-up to the workshop, the Division for Public Administration and Development

Management (DPADM) will closely work with the Ministry of Investment and Development of the Republic of Kazakhstan in order to ensure that e-participation is adequately addressed and all aspects of e-participation are covered in the upcoming e-government strategy.

A project on *Strengthening Capacities of Developing Countries to Provide Access to Information for Sustainable Development through Open Government Data* is a new open government initiative by UNDESA, approved in May 2014. The project is being funded through the Development Account and will target selected countries in East Asia and Latin America.

The project aims to assist countries in developing a policy framework and understanding of the infrastructural demands of implementing open government data (OGD) initiatives, particularly in thematic areas relevant to the achievement of internationally agreed development goals including the MDGs. It will strive to strengthen the open data community within selected countries. The target beneficiaries include, but are not limited to, national government officials responsible for data coordination, such as chief information officers (or the equivalent), information privacy commissioners, procurement divisions, and relevant government officials from ministries and institutions responsible for selected policies (e.g. ministries of planning). Indirect beneficiaries include citizens and communities at large. The project will also stimulate a south-south knowledge transfer and cross-fertilization of OGD by bringing together OGD "beginners" with more OGD-advanced countries.

Among other activities, the project will undertake national capacity building workshops on: OGD sensitization, gap assessment and strategic planning; national substantive training events on key topics for OGD success; two regional workshops on the OGD Implementation Action Plans; and an international knowledge-sharing event for OGD practitioners.

Two UNDESA initiatives, the Global Centre for ICT in Parliament and the Africa i-Parliament Action Plan (an Africa-wide initiative), have played a unique and critical role in building the ICT capacity of parliaments and contributing towards the implementation of WSIS Action Line C1, particularly as regards the needs of small and developing democracies. These projects played an important role in empowering legislatures to better fulfil their constitutional functions through the use of ICTs.

UNDESA continued strengthening its partnership and cooperation with international institutions and regional commissions, particularly with ECLAC in Latin America. A keynote address on "e-Government to Enhance State Efficiency, Inclusion and Transparency" for a training workshop with 12 Latin American countries, co-organized with the Spanish Agency for Development Cooperation (AECI) and held in Guatemala, as well as a keynote address on the "Regional e-Government Panorama" for senior government officials in Santiago, Chile, were prepared and delivered. Most significantly, UNDESA, together with UNDP, supported the Government of Colombia in establishing the Centre for Innovation on e-Government Development to promote e-government innovations in the Latin American and Caribbean regions.

Overall trends show that in the past ten years, there has been steady global progress on e-Government development towards a people-centred, inclusive and development-oriented information society, although progress has not been evenly distributed. South Asia and most subregions in Africa, for instance, show negative growth. Overall, the global E-Government Development Index (EGDI) shows progress from a world average of 0.3645 in 2013 to 0.4712 in 2014, which suggests that the global provision of e-Government services increased on average by 29.3 per cent in all regions.[141]

A. Resources and tools

- In support of public sector development and reform through the use of ICTs, UNDESA has monitored Member States' progress on e-government since 2003. The latest edition of the biannual E-Government Survey, covering all 193 Member States, was released in March 2014.

[141] Indicators for 2014 were collected in mid-2013 and may reflect data from 2013 or earlier.

- A ready-to-use, interactive and web-based tool developed by UNDESA, the Measurement and Evaluation Tool for E-Government Readiness (METER), aims to assist governments in monitoring and identifying areas for further development within the national e-government environment. A sixth pillar on marketing has been added as a result of inputs from Member States. METER is also available in French and Spanish.
- Guidelines on Open Government Data for Citizen Engagement (OGDCE) were also developed as an online reference and as a capacity-building tool. Practical and easy to understand, they include the core principles of openness, best practices and case studies, checklists and step-by-step guidelines for policymakers and technologists. They can be used to understand, design, implement and sustain open government data initiatives and are tailored to the needs and constraints of developing countries.
- The e-course on Open Government Data (OGD) for Citizen Engagement is a further capacity-building tool. The course focuses on opening up government data and ways in which ICTs can be useful for decision-makers in designing, implementing, evaluating and sustaining OGD initiatives for citizen engagement. The course provides an easy-to-use reference guide that introduces policy guidelines and best practice recommendations developed by international reviewers. It also explains the limitations and potential risks of OGD, such as data privacy, national security constraints, conflicts between rights and access to data, and the problems tied to big data, among other issues.
- UNDESA has continued to strengthen the technical capacity of the United Nations Public Administration Network (UNPAN) Online Training Centre, a governance and public administration learning content management system. Encompassing 18 interactive and 32 pdf-based capacity-building courses, the various topics in public administration and management were presented to online trainees in a multilingual environment. During 2014, the interactive courses were delivered to more than 5 000 participants from around the world, a significant leap from previous years.
- UNDESA also continues to work on the development of the United Nations Public Administration Country Studies (UNPACS) to underpin the importance of public sector reform initiatives, and to spotlight Member States' efforts to improve performance in public administration, development management and e-governance.
- Since 2006, UNDESA has been publishing the *Compendium of Innovative E-government Practices*. This publication is a compilation of case studies of innovative e-government solutions, services and applications with elements of transferability and adaptability. The forthcoming Volume V of this Compendium brings the number of cases and best practices in e-government to more than 600.

## B. Internet Governance Forum

The ninth Internet Governance Forum (IGF) took place from 2 to 5 September 2014 in Istanbul, Turkey. More than 2 000 participants from all continents, representing different stakeholder groups (governments, intergovernmental organizations, private sector, civil society and the technical community), participated on-site in this annual international gathering exclusively devoted to Internet governance. In addition, more than 1 000 stakeholders participated remotely through a global network of remote hubs. As well as on-site and remote participation, social networking platforms such as Flickr, Facebook, Twitter and Tumblr were widely used by participants.

In addition to the global IGF, more than 25 national and regional IGF meetings[142] took place throughout the world in 2014, bringing the IGF's unique policy dialogue platform to more stakeholders in more parts of the world than ever before.

A number of trends and experiences emerged as a result of the four days of Internet public policy debates at the 2014 IGF, and participants discussed and proposed possible ways forward on a number of topics. A multistakeholder group of participants drafted a statement to send to the United Nations to request a renewal of the IGF mandate and a longer cycle for each mandate given to the IGF.

[142] http://www.intgovforum.org/cms/igf-initiatives

Some participants, including a number of representatives of the national and regional IGF initiatives, suggested that there should be increased cross-fertilization between the growing network of national and regional IGFs and the global IGF. Recommendations were made on how the debate on network neutrality can be taken forward. As this year's deliberations were aimed at fostering a common understanding of the issues, it was indicated that next year's IGF is expected to feature a more developed discussion.

Many IGF participants emphasized the need for increased interaction between government entities and all other interested stakeholders in ongoing and future deliberations on ways of enhancing trust in cyberspace. Youth representatives emphasized the need to strengthen existing mechanisms that empower youth to attend and engage in the Internet governance ecosystem.

### C. Enhanced cooperation on public policy issues pertaining to the Internet

Paragraph 35 of the Tunis Agenda for the Information Society calls for enhanced cooperation on Internet-related international public policy issues among governments and other stakeholders from the private sector, civil society, the Internet technical community and intergovernmental organizations, in their respective areas of competence and mandate.

In Resolution A/67/L. 61, the UN General Assembly established a working group on enhanced cooperation to examine the mandate of the WSIS regarding enhanced cooperation contained in the Tunis Agenda, through seeking, compiling, and reviewing inputs from all Member States and all other stakeholders, and to make recommendations on how to fully implement this mandate. It is expected that the working group will have balanced representation from governments, from the five CSTD regional groups, and all other stakeholders including the private sector, civil society, technical and academic communities, and intergovernmental and international organizations. It should report to the Commission on Science and Technology for Development at its 17th session in 2014.

Global consensus on the importance of e-government as a component of public governance continues to grow. Communities and citizens around the globe are realizing the role which information and communication technologies (ICTs) can play in transforming their lives.

Lowering costs is still an important consideration in service delivery, but adding public value is gradually taking over as the primary goal of e-governance. There is no longer a view of "e-government maturity" as e-government goals and targets are constantly evolving to deliver expected public value and more. Emphasis is now placed on deploying a portfolio of e-services that spans functions, business units and geographies, at varying local or municipal levels, thus increasing the value of service offerings to citizens by effectively adopting disruptive technologies in an adaptive and scalable manner.

UNDESA will continue to support governments in their efforts to promote collaborative governance and "whole-of-government" for sustainable development. A toolkit in this specific area, as well as a self-assessment toolkit to help Member States in effectively developing and implementing e-governance strategies to promote sustainable development, will be developed. In addition, methodological and technical guidelines, a new version of METER on E-Government Strategy for Sustainable Development, and Global Guidelines on E-Procurement, will be produced in 2014.

Member States are facing increased complexity in development challenges and are recognizing broad public participation as a fundamental prerequisite for the achievement of sustainable development. The potential transformative power of ICTs to enhance citizen participation has not, however, been fully harnessed for national development efforts. UNDESA responds to the framework of Rio+20, which recognizes the importance of engaging citizens in the planning and implementation of sustainable development policies, while considering the specific situation of each country, as there is no "one size fits all" formula that will guarantee development effectiveness. In 2015 UNDESA will continue implementing the technical cooperation project under the Development Account to support the capacity development of government institutions and key officials for e-participation. The project aims to foster effective, efficient, transparent, accountable and citizen-oriented public administration

and public services. A national capacity-building workshop on METER in Indonesia could take place in 2015 and be funded from the project.

Open government has become a dominant trend in public administration in a number of countries in recent years and is intended to co-create public value together with business, civil society and citizens. Open Government Data (OGD) is one pillar of an open government strategy that allows entirely new levels of civic engagement and government accountability and transparency, which in turn enhance public service delivery and the use of public resources. Capacity building workshops on open government data, subject to approval for funding from the Development Account, are expected to take place in 2015.

The importance of increasing the participation of the developing countries in policy-making forums and discussions on Internet governance issues is one of the priorities of the IGF Secretariat in 2015. Given the complementary role of the Internet in delivering basic education, health and other essential services, considerable efforts will be made to strengthen the IGF community, especially through increased participation of developing countries in the entire IGF process, including the 2015 IGF and national and regional IGF events. 2015, the last year of the IGF's second five-year mandate, is projected to be a busy one. IGF open consultations and Multistakeholder Advisory Group (MAG) meetings will make pivotal, forward-looking decisions in programming the 10th IGF in Brazil. At the suggestion of the Chairman of the ninth IGF, inter-sessional work leading up to IGF 2015 could focus on development-related themes. Use of best practice forums or other modalities such inter-sessional work could be brought forward through the national and regional IGF initiatives, dynamic coalitions and other ad-hoc working groups within the IGF structure.

**Algeria** has three interesting projects in the field of e-government. Two of these are managed by the National Fund for Unemployment Insurance (CNAC) and one by the Ministry of Housing, Planning and the City.

The project *Implementation of electronic services for the citizen* provides services such as:

- Presentation and extension devices
- Provision of documents and forms to download on all devices managed by CNAC
- Provision of services for unemployed developers and other recipients including:
    - Online simulations for calculation of bank and CNAC financing structures and repayment schedules
    - Form for gathering citizen requests, as part of a "social listening" initiative
    - Online tracking of recipients' records
    - Research activities funded by CNAC
    - Pre-registration and monitoring of the progress of online files
    - The Winsendjel service, which facilitates provision of information on the site where the file is deposited
    - Paths for establishing a micro-business
    - Discussion forum and FAQs.

The services proveded by the second project, *Provision of electronic services through the website for authorized users*, include:

- Services for downloading statistics
- Contracting services (implementation of the provision for reserving 20 per cent of public procurement) to download the file for national micro-enterprises created under the aegis of the CNAC
- National Agency for Supporting Youth Employment: provision of ANSEJ, a service consisting of an online research module for developers enrolled in the CNAC national register, to enable them to identify potential applicants in time and combined with aid granted by the State. This service is aimed at strengthening and improving control tools.

A web-based *National housing* application is hosted on servers in the central administration. The decentralized housing services of different provinces, through the Intranet, access the ministry's web portal. After authentication, the list of housing applicants is submitted to the central administration for

filtering. This list remains pending until confirmation is sent, at which time the administrator can see the list, perform additional filtering (national scale) and submit the results. After allocation of housing, the decentralized services send the list of persons who have obtained housing to the administrator to update the national housing database.

In **Botswana**, the *Botswana Government Bookshop* project developed by the Government Printing and Publishing Services, is one of the programmes emanating from the e-Government Strategy. The project is intended to facilitate online sales of government publications. The online bookshop is operational and has a complete shopping cart.

The *Local Optical Fiber Reticulation* project, developed by Botswana Fiber Networks (BoFiNet), envisages measures intended to make the country globally competitive and provide connectivity to the national broadband infrastructure. BoFiNet will be deploying optical fibre in strategic areas within villages and towns in Botswana.

**Bulgaria** has eight interesting projects that come under the heading of e-government.

The National Revenue Agency (NRA) is a specialized state authority under the Minister of Finance for establishing, securing and collecting public claims as well as statutory private state claims. NRA's operation is essential for providing revenue to the national budget. The agency's main goal is to increase efficiency and effectiveness in performing its main activity while also facilitating business transactions as far as possible. NRA's clients rely both on the high quality of the services on offer, which adapt to the constantly developing and changing environment, and on measures to reduce the costs and time needed for compliance. In unison with the technologically developing environment, the agency aspires to expand the electronic exchange of data and information and to cooperate actively in the development and functioning of e-government. During the 2004-2014 period, the NRA provided its clients (individuals, companies and state institutions) with an ever-increasing number of e-services. As of 31 December 2014, these services included:

- 68 e-services accessible by means of an electronic signature (submission of various types of tax and social security declarations and documents by individuals and legal entities, submission of various documents and inquiries concerning tax and social security liabilities and payments, information on employment contracts, tax and social security, and so forth)
- 11 free-access e-services (provision of information on VAT registered persons, checks on the health insurance status of individuals, with options for calculating health insurance contributions and interest, making tax and social security payments, downloading tax and social security declaration forms)
- 11 e-services accessible with a personal identification code (PIC). By introducing the PIC, the NRA allowed access to part of the e-services for persons who do not have an e-signature, allowing them to make enquiries, submit requests for documents, and submit annual tax returns for individuals (this service is available from the beginning of 2015)
- Five web services used for data exchange between the NRA and other state institutions in the Republic of Bulgaria.

The NRA also provides six free computer programs which can be used by its clients for preparation and submission of structured data for tax and social security declarations to the agency's information systems.[143]

The *Information systems in service of citizens and the business* project developed by the NRA deals mainly with:

- E-archive management software, for maintaining e-files of contributing individuals, developed under a project funded as part of the PHARE 2005 programme

143 All services provided by the NRA are accessible on the agency's official Internet site: http://www.nap.bg/.

- Software for automated investigation of tax fraud, developed under a project funded as part of the PHARE 2006 programme
- E-audit software, developed under a project funded as part of the PHARE 2006 programme.

After Bulgaria's accession to the European Union in 2007, the following IT systems, among others, were developed and implemented in NRA in order to secure data submission and exchange between NRA and other EU Member States: VIES (VAT Information Exchange System); VoeS (VAT on e-Services); VAT Refund; Intrastat; Mini One Stop Shop; Mutual Assistance in Recovery.

With the development, implementation and use of information systems and state-of-the-art ICT for automation of the agency's main business processes, NRA's efficiency and effectiveness increased and the interaction of citizens and businesses with the administration was facilitated. The quality of the administrative services provided was improved, while the costs and time needed for compliance fell. In unison with the technologically developing environment, the agency aims to expand the electronic exchange of data and information and to cooperate actively in the development and functioning of e-government.

The Registry Agency's project *Upgrade of the National Register Bulstat and implementation of technology solutions for its connection with the e-government central systems* has the following features:

1. Electronic access to data
2. Provision of interfaces for interconnection with other registers and state administrations
3. E-government popularization
4. Reducing administrative costs when information is exchanged between systems
5. Improving interoperability and ensuring possibilities for integration at the European level
6. Integrated administrative services processes.

The project *Improvement of existing and introduction of new electronic administrative services provided by the National Bulstat Register* by the Registry Agency has the following main features:

- Development of services provided by the Registry Agency for other administrations
- Improving processes for providing administrative services
- Promotion of e-governance and trust enhancement among citizens and businesses
- Reducing administration costs when exchanging information and interconnection of their systems
- Improving interoperability and ensuring possibilities for integration at the European level.

The project *Improving administrative services for citizens and interaction between providers of administrative services by upgrading the Register of Matrimonial Property* by the Registry Agency has the following main features:

1. Facilitating access for citizens and business to the register's electronic services
2. Improving the processes of interaction between providers of administrative services by achieving technological compatibility
3. Increasing the level of interoperability of the information environment of the Register of Matrimonial Property by upgrading and ensuring prerequisites for automatic exchange of data between administrations and registers.

There are two projects developed by Bulgaria's State Commission on Gambling (SCG).

The project "*Modern and effective implementation of state supervision of gambling by creating a single information system, electronic records and introduction of e-governance*" was implemented with the

financial support of the Operational Programme "Administrative Capacity" (OPAC), co-financed by the European Union through the European Social Fund. The main results of the project are:

1. A developed unified information system for the SCG, including standards and modules for integration with external systems for electronic submission of documents, provision of electronic services and maintenance of public records in accordance with regulations
2. A modernized and unified website made possible by improved e-services for citizens and businesses
3. Creation of preconditions for improved collection of fees, taxes and customs duties through improved information exchange and coordination with the tax and customs administrations.

The project "*Upgrade of the information and communication environment of the State Commission on gambling through further improvement of the integrated Information System of the department, developed under the Operational Programme "Administrative Capacity" (OPAC), with new modules to control activities and income*" is being implemented with the financial support of the OPAC and co-financed by the European Union through the European Social Fund. The main goals are:

1. Upgrading the information system currently in operation with new functionalities, modules and services designed and implemented as a result of previous successful OPAC projects, in order to improve services for citizens and businesses
2. Upgrading the information and communication environment of the SCG, partially based on an earlier OPAC project, in order to increase the reliability, speed and quality of administrative e-services
3. Creating conditions for more efficient collection of taxes and other public receivables from the SCG and their reporting; reducing the administrative resources needed to carry out the supervisory powers of the SCG by improving their organization and creating new functionalities and modules of the Integrated Information Environment of SCG
4. Saving time and funds, increasing business satisfaction and ensuring greater transparency
5. Enhancing the image of the SCG as a modern online administration that is open to citizens and businesses.

Lastly, the initiative *Establishing an integrated information system*, developed by the Ministry of Labour and Social Policy (MLSP), is intended to benefit projects improving services in the MLSP which provide citizens with the greatest possible cost optimization. In connection with the Law on e-government administrative bodies, persons performing public functions and organizations providing public services may not require individuals and organizations to produce or prove already collected or generated data, and are obliged to collect them automatically from a primary data administrator. This requires the integration of systems used in the National Employment Agency, Social Assistance Agency, Agency for persons with disabilities, General Labour Inspectorate Executive Agency and State Agency for Child Protection, within a single MLSP system in which it is possible to create a complete profile (file) of natural and legal persons using the services of the secondary administrators of budget appropriations. The profile is required as well as additional information from various external institutions including the Registry Agency, General Directorate of Civil Registration and Administrative Services, Ministry of Education, Youth and Science, and Ministry of the Interior, as the primary data administrators automatically send the data to the MLSP at its request. Based on the law, the MLSP and secondary administrators of budget appropriations make use of these data. For its part, the integrated information system of the MLSP must maintain functionality and interfaces for automated submission and ensure maintenance of standardized queries for administrative services by electronic means.

In **Burkina Faso**, the *Projet e-Conseil des Ministres* (PeCM) developed by the Ministry of Digital Economy was designed to optimize, through ICT, the process of preparing meetings of the Council of Ministers. The PeCM must:

1. Allow better preparation of Council of Ministers meetings.

2. Allow Ministers and others actors to work electronically, thus gaining time, efficiency and confidentiality.
3. Improve communication and collaboration between members of the Government and the Council of Ministers.
4. Reduce significantly the use of office supplies and computer consumables including paper, and thus save money and contribute to environmental protection.
5. Improve and facilitate document searches through electronic archiving.[144]

Burkina Faso also has the *Circuit informatisé de la dépense* developed by the Ministry of Economy and Finance. Since 1996, the Ministry has been engaged in a major project to modernize the management of public finances. In this ambitious project, information technology was a strategic and crucial element in achieving that goal. Thus in 1996 the first major applications of the Ministry of Economy and Finance were emerging. Among these applications, the computerized expenditure circuit (CID) had a central place. Other equally important applications include integrated government accounting (ICE) and the Integrated External Funding Circuit (CIFE). The latter project was designed by the Ministry of Economy and Finance. The main goal of this project is to develop an effective system of monitoring external financing. The system must:

1. Establish an information exchange circuit for monitoring the management of external funding.
2. Implement a computerized external funding management system based on the new organizational scheme
3. Integrate existing systems with the new external funding management system.[145]

In **Colombia**, there are two remarkable e-government projects.[146] Through a multi-channel platform comprising online media (such as website and social media profiles) and traditional media (such as radio and television), "*Urna de Cristal*", developed by the Ministry of Information and Communication Technologies, seeks to enable the largest number of citizens to interact with the national government, and actively monitor the progress of projects and policies. Since its launch in October 2010, this initiative has consolidated a strong network within the national entities (information and interaction channels) which has made it possible to reach nearly 20 million people. In addition, more than 2.5 million Colombians have visited the Urna de Cristal website since October 2011 and the site received over 2 million interactions through all its channels in 2014 alone. Finally, national government entities have given more than 40 000 answers and launched more than 300 initiatives involving citizens with results such as the *Decreto Antitrámite* (Anti-Procedures Decree), *Política Pública de Innovación Social* (Public Social Innovation Policy), and the *Plan Anticorrupción* (Anticorruption Plan), among others.

The second project, by PEP (Promoter of Personal Excellence), is entitled *Ciudadano Confiable: A Web Platform for Democratic Development*. When Colombian people vote, they do not always know clearly who the candidates are, especially when voting for the first time, live in small towns, have never before been involved with political activities, and have not received adequate political education. That situation is strongly related to corruption: where they do not even know the candidates, it is easier to manipulate them. The idea is to create a web platform where people can easily obtain information about political parties, candidates and their campaigns, in a friendly and simple way.

In **Kazakhstan**, four interesting initiatives are currently under way.[147] The *integrated information system for Citizen Service Centres* (IIS CSC), developed by the Ministry of Investments and Development, aims to provide a single data access and management point on public service delivery. Implementation of the IIS CSC system has facilitated citizens' interaction with government agencies, which has in turn created an opportunity to reduce time-consuming bureaucracy that affects delivery of public services.

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144 *Project nominated for a WSIS Project Prize 2015*
145 *Project nominated for a WSIS Project Prize 2015*
146 *Projects nominated for a WSIS Project Prize 2015*
147 *Projects nominated for a WSIS Project Prize 2015*

The number of government agencies that need to be visited has also been cut. Public services have become more transparent and accessible, and it has become possible to examine demand and quality of public services delivery by society, population, and the social groups that use public services.

The second project is the *Civil Registry Office IS*, developed by the Ministry of Justice of the Republic of Kazakhstan. It is intended to automate citizens' civil registration and organize the national register of individual identification numbers. The Civil Registry Office IS system is an innovative solution that has helped to enhance the efficiency of civil registry offices and service quality. It facilitates implementation of electronic public administration strategies, improving the transparency of government agencies and the efficiency of democratic processes.

The third project is the *Single Notary Information System* designed by JSC National Information Technologies. The objective of the Single Notary Information System "e-Notary" is to facilitate information exchanges between public notaries and notary chambers, and also with the supervisory authority (Ministry of Justice). It ensures legal security in citizens' transactions and increases the transparency of public notaries' activities. E-Notary improves and facilitates cooperation processes between public notaries, government bodies and republican and local notary chambers, reducing the time spent on accounting processes and cutting the list of documents required from citizens.

The fourth initiative is the *Electronic government procurement* project developed by the E-Commerce Centre. The platform for state procurement in electronic format is the state procurement web portal of the Republic of Kazakhstan www.goszakup.gov.kz, developed by the LLP "Electronic Commerce Centre". The automated integrated information system "Electronic Government Procurement" is intended to facilitate government procurement in real time. For this purpose the system publishes information on customers' requirements for the supply of goods, works and services, consolidates that information, implements procurement procedures, identifies suppliers, publishes information on any contracts that are concluded and the results of their performance on the government procurement web portal.

In **Kuwait**, the Central Agency for Information Technology has been running two deserving e-government projects.[148] *Kuwait Government Online* (KGO) is a government portal which provides a web-based, easy to use, mobile-enabled, one-stop, multi-language, single-entry point to the user-centric Kuwaiti Government information and e-services. This portal is available 24/7. KGO is the gateway and first port of call when citizens ("G2C" services), businesses ("G2B" services) and visitors wish to find government information and e-services. Multiple-access channels through the web, mobile devices and other communication tools are established to ensure that KGO portal users can benefit from information and services. To maintain the highest usability, performance and security, developers designed KGO according to international technical standards.

The second project, the *Public Institution for Social Security (PIFSS)* web portal is an official online gateway providing an array of services regarding retirement information and social security information for Kuwaiti and Gulf Cooperation Council citizens (GCC). The rules and policies for retirement and contributions, as well as electronic documents and forms, are available on the website. The PIFSS web portal also provides a wide range of resources including links to electronic services for individuals and employers, an unemployment registration page, and retirement and commutation calculators. News, instructions and advertisements are also part of the PIFSS portal.

In **Latvia**, two interesting governmental initiatives in the e-government domain are being implemented.[149] The *Single state and local government portal* by the State Regional Development Agency collects and presents information on all the services provided by Latvian state institutions and municipalities in the united state and municipal services portal, and provides quick and convenient access to the e-services provided by Latvian state institutions and municipalities.

[148] *Projects nominated for a WSIS Project Prize 2015*
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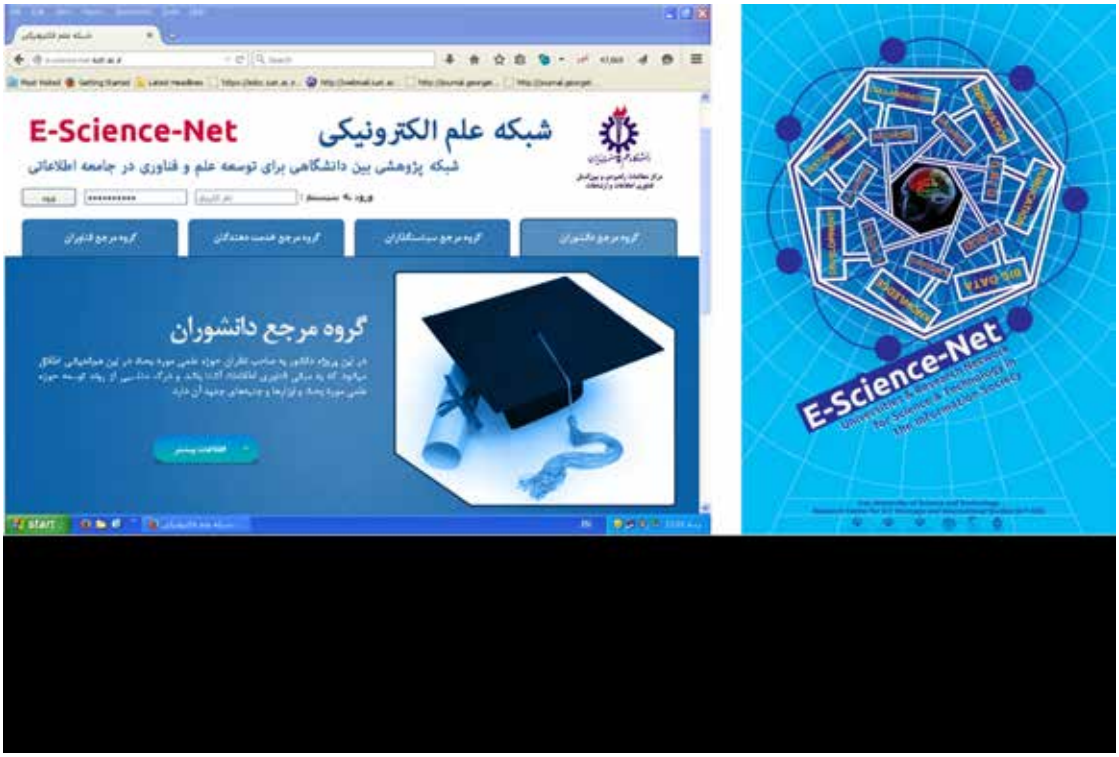
The second project, developed by the Ministry of Agriculture, is *Development of a unified information space for the Ministry of Agriculture and its subordinate affiliates*. This project develops solutions in a secure unified information space for the Ministry of Agriculture and all its subordinate affiliates. It is a digital workspace which ensures automated and electronic information, document and e-service circulation within the ministry and its six subordinate institutions and affiliates. The project includes a document management system for seven governmental institutions, a client resource management system, e-services, and a unified user directory. All the systems are integrated and exchange data automatically. As a result, the Ministry of Agriculture has migrated to a paperless office and citizens' submissions are processed considerably faster.

In **Malaysia**, in line with the aspirations of the National Key Result Area (NKRA), the *Government Transformation Program* (GTP) aims to broaden access to high-quality education in the interests of improving student performance. *The National Pre-School Information System* (SMPK) is intended to be a prime resource reference centre providing information for institutions, teachers and students on all public and private pre-schools in Malaysia, of which at present there are more than 24 000. This initiative is the first of its kind to integrate information on pre-school learners' institutions throughout Malaysia. Accessible information includes profiles of teachers and teachers' assistants, students, and institutions.[150]

In **Mexico**, government transformation is one of the objectives of the National Digital Strategy (the action plan now being implemented by the Mexican Government to encourage the adoption and development of ICTs and integrate Mexico into the information and knowledge society). In this regard, the Mexican Government is building the government of the future: innovative, transparent, efficient, open, focused on the needs of society, and using technology to get closer to people. The National Digital Strategy Coordination of the Office of the President and a unit of the Ministry of Public Administration are therefore working together on the development and implementation of the *Digitization Strategy for Government Services* in order to effect a transition to the new generation of public services: digital services.[<?>]

In **Mongolia**, the Information Technology, Post and Telecommunications Authority has designed an interesting project entitled *Public Service Delivery Electronic Machine*. The aim of this governmental initiative is the transformation of public service into an electronic service in the public sector and to deliver more convenient, customer-oriented and cost-effective public services to citizens in a timely manner without bureaucracy.[151]

[150] *Project nominated for a WSIS Project Prize 2015*
[151] *Project nominated for a WSIS Project Prize 2015*




*MASSAR*, an ICT system developed by the Ministry of Education and Professional Training of **Morocco**, provides utilities enabling school managers to perform their operational activities more easily and effectively. These include managing students' subscriptions and mobility, monitoring students' grades, and managing school sessions. It also provides e-services for students and parents to help them track academic performance and communicate with school administrations. Finally it helps managers at all levels (central, regional and local) to monitor the education system and provides reliable information for better planning and decision making.[152]

In the **Sultanate of Oman**, there are two deserving governmental initiatives in the area of e-government.[153]

Since the introduction of the *e-Complaint Window* in October 2012 by the Public Authority for Consumer Protection (PACP), more than USD 1.9 million worth of goods have been seized and about 32 000 complaints received (compared to 1 725 in 2009). PACP leverages ICTs and pervasive mobile technology through the e-Complaint initiative, which encompasses the entire business process and system architecture to empower consumers by enabling them to lodge complaints and provide feedback and suggestions concerning violations of consumers' rights from anywhere at any time. PACP has been named one of the six best practices around the world and adopted as a road map by Arab countries.

The second project, *MOE Portal,* established in 2007 by the Ministry of Education, is a portal providing services, educational and administrative products, as well as programmes and activities for different sectors, for large segments of society such as students, guardians, teachers and educational directorates. MOE Portal is a pilot project that is unique in terms of the e-services provided. It includes more than 3 000 web pages, more than 600 e-services, and comprises more than 100 subsystems. Nearly 250 000 electronic transactions were completed by the end of 2013, including 60 000 leave requests and 18 000 internal and external transfer requests.

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In **Pakistan**, the *e-Office (Basic Common Applications) Replication at all Divisions of the Federal Government* suite has been successfully implemented across federal ministries and divisions to automate core business processes through the internal communication, human resources, budgeting/finance, project management, document/file management and collaboration modules. The National Information Technology Board (NITB), under Pakistan's Ministry of IT, has rolled out e-Office in 11 offices including the Prime Minister's Office, National Assembly Secretariat, Finance Division and Ministry of Science and Technology. Through this, government operations are being brought into line with international e-government standards improving efficiency, effectiveness and transparency. This is a positive step towards delivery of e-citizens' services and promoting the concept of a paperless environment.[154]

In **Poland**, the *Integrated Education Management and Recruitment System* has been developed by the OTAGO IT services company. According to the company: "In the days of the "global village", where Internet access has become available to almost every human being, man faces new challenges. Having in mind the rapid progress of data carriers, we decided to step forward and meet the expectations of this new opportunity. Within the vast network of the World Wide Web, we have created a special place for people interested in acquiring a specific and thorough source of education data. An online solution has been implemented in the Cracow commune administrative system, effectively fulfilling its purpose and creating new possibilities of sharing information."[155]

In the **Russian Federation**, the Ministry of Telecom and Mass Communications has developed a system entitled *Development of Federal Government Information System for Pre-trial Appeal*. This is an information system developed and implemented within the framework of the Government's "Information Society" Programme. Through this system, users of government and municipal services can file complaints against the activities of state authorities before coming to court. The system is represented by a single Internet portal available at the website do.gosuslugi.ru. It is integrated into the e-government infrastructure, particularly 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 appeals started its operations on 1 January 2015 in accordance with Russian Government Decision 1198 (item 4).[156]

In **Saudi Arabia**, there are 11 remarkable governmental initiatives in the area of e-government and one project developed by academia.

The *Financial and Administrative Resources Information System (FARIS*) developed by the Ministry of Education (MoE) uses cutting-edge information and communication technology to achieve optimum use of the ministry's administrative and financial resources by transforming it into a digital society that allows it to carry out administrative and financial processes in accordance with best standards and practices applied in governmental bodies. Implementation of this system will lead to the following results:

- Elimination of costly and inflexible legacy systems, which will be replaced with one integrated ERP system for all functions and entities One single, integrated and centralized data source for all MoE employees (numbering 650 000)
- Standardized processes and reduced duplication across departments, with integration of financial HRMS and SCM modules and, in some areas of SCM, systems to replace manual operations
- Greater visibility and control of MoE resources
- FARIS to process payrolls for more than 650 000 employees under 46 different payroll headings.[157]

*Absher*, developed by the National Information Centre of the Ministry of the Interior (MoI)), and one of the first projects to have implemented e-government strategy in Saudi Arabia, allows for a variety of services to the Ministry's various sectors (traffic, civil status, passports and so on) in electronic

[154] *Projects nominated for a WSIS Project Prize 2015*
[155] *Project nominated for a WSIS Project Prize 2015*
[156] *Project nominated for a WSIS Project Prize 2015*
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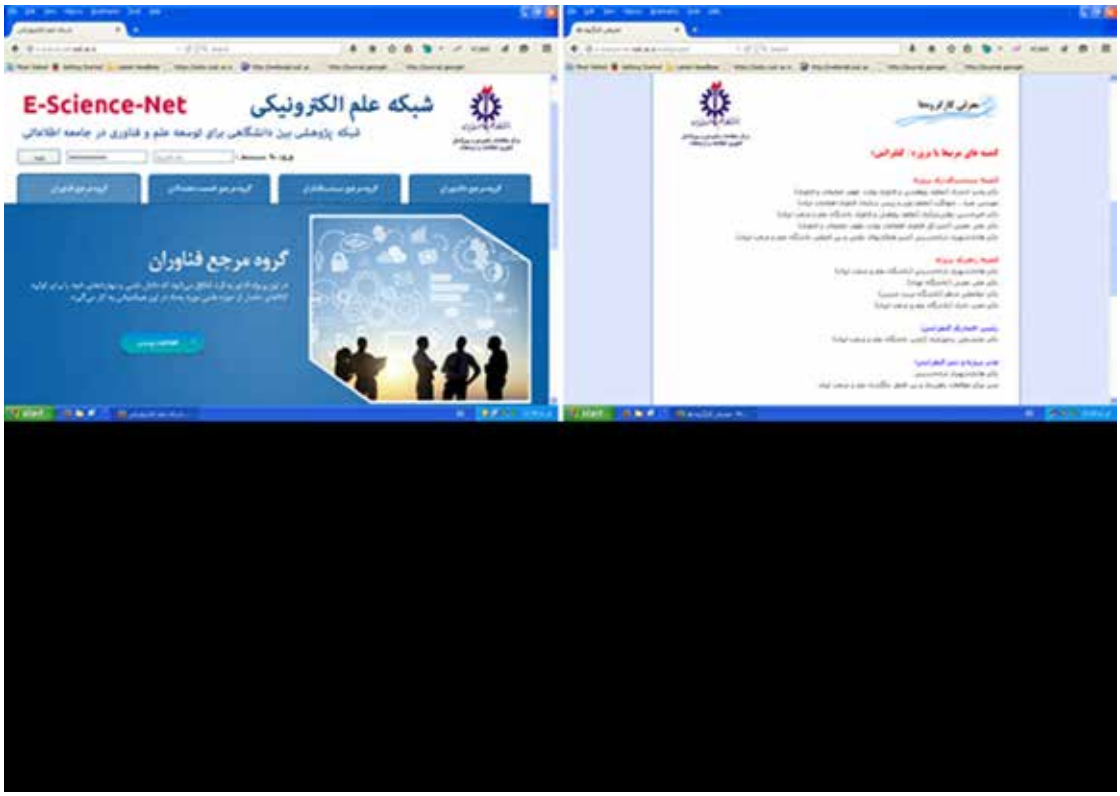
form, facilitating access to services at any time and from anywhere, through the MoI e-portal www.moi.gov.sa.[158]




The *Safeer Al-Jawwal* project developed by the Ministry of Education was launched by Safeer Workflow to facilitate procedures applicable to students studying abroad. The system serves as an additional support for students by providing all online services on smartphones or other devices. The application has been designed in accordance with the highest standards adopted in smart device applications for service sectors, utilizing mobile properties, GPS, and smart device accessories for high-quality delivery. Using the application, students studying abroad can submit applications, upload attachments, follow the progress of applications, and receive instant notifications.[159]

The *eVisa service* of the Ministry of Foreign Affairs was launched in 2008 to address the increasing challenges of visa applications, particularly those relating to the *Hajj*, which exceed ten million annually, submitted through 116 visa application centres and over 3 000 Hajj and Umra agency centres across the world. The traditional approach to processing passports and visas has proven inefficient, particularly in recent years, owing to the number of stakeholders, the complexity and multi-departmental nature of visa processing, and differences in terms of legal considerations for different visitors. Facing this challenge required an integrated and innovative solution to address issues of communication, coordination and ease of processing and access for ministry employees and visa applicants.[160]

The Ministry of Finance E-government Services' project is due to develop e-services with digital signature mechanisms for the most widely used core services provided by the Ministry of Finance, and will make those e-services available on the Government Service Bus (GSB) for all government agencies to use. The following services are included in the project:

- Government budget services

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- Government accounting services
- Government payment order services.[161]

*The Saudi Tourism Portal* of the Saudi Commission of Tourism and Antiquities was developed to market Saudi tourism in Arabic and English. It provides a number of tourism services and other valuable interactive integrated contents, such as tourist information, photos, short films and interactive maps to help tourists to pre-plan tours and interact with the site to learn more about tourist destinations, events, programmes, tourist tracks, seasonal offers and discounts. In addition, the tourist can benefit from reservation services for hotels, flights and car rentals through the site. It also offers a prompt and secure client service by receiving tourist complaints. The Saudi Tourism Portal is integrated with subsidiary sites, CRM, mobile applications and electronic information centres.[162]


The *Arab Voice Library*, a project of the Library and Information Association of Saudi Arabia, aims to enrich the Arabic audio content available on the Internet. The Library Association is seeking to produce more than 300 audio-hours as a first step in this area. The main aims of the projects are:

- Spreading the culture of listening to audiobooks in Saudi society
- Supporting Arabic-language audio content on the Internet and providing richer information content for blind people in the Arab world
- Increasing the number of individuals with access to audiobooks
- Providing users of smart devices, especially young people, with high-quality-content to discover and read
- Helping people to gain access to digital content on the Internet.

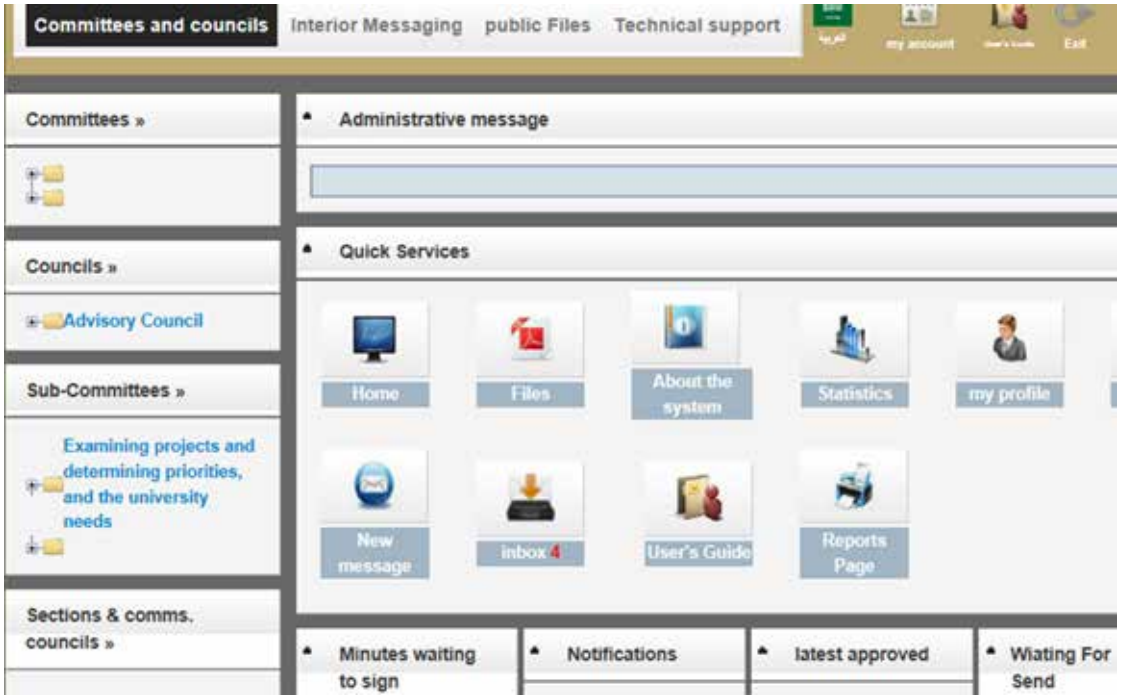
The *Noor System* is a comprehensive and integrated educational process. It promotes learning based on the most advanced technology in the field of educational administration, and covers all schools affiliated to the Ministry and its educational directorates and departments. The system will provide many online services for students, teachers, parents and school directors. It will also contribute to the preparation of reports and provide timely and accurate information on the educational process through a central database linked with other systems present and future. These reports will provide information for each beneficiary at the level of the school and the Education Department and the Ministry's different bodies.

[161] *Project nominated for a WSIS Project Prize 2015*
[162] *Project nominated for a WSIS Project Prize 2015*

In launching the *King Abdullah Scholarship Programme* (KASP), the Ministry predicted the potential need for electronic systems that serve KASP's students, facilitate their employment, and encourage an attitude of commitment to their education. The Ministry of Higher Education has therefore built a comprehensive electronic platform called "*SAFEER*" to offer several services to different beneficiaries. SAFEER offers its services through different products with the aim of facilitating work procedures and serving students studying abroad. With SAFEER today, students can carry out all the relevant procedures electronically, from applying to study abroad to using post-graduation services. This all happens within a technical environment that is fully controlled, transparent and accessible.

The *Commercial Registration document electronic service* of the Ministry of Commerce and Industry enables users, through an online government service, to start a business within three minutes, faster than anywhere else in the world. The user is issued with an official electronically certified commercial document. The service includes an electronic link with several systems, including electronic payment, the National Information Center and the Chambers of Commerce in the Kingdom. The service includes a mechanism for choosing a brand name, whereby the user can reserve a new name or select one from a proposed list of ready-to-use names (white list). The commercial register marks the beginning of any commercial activity, and the Kingdom took the lead in automating this service. Statistics show that around 4 000 requests are made daily through the online service.

In **Saudi Arabia**, Majmaah University seeks to maintain quantitative and qualitative expansion in its processes and systems by finding solutions and applications that facilitate business monitoring and help to expedite transactions. From this came the Rector's recommendation to develop a system of "committees and councils" as one of the electronic transaction systems at the university which aims to standardize work procedures and accelerate decision-making mechanisms and facilitate work monitoring and archiving in an integrated electronic way, pursuing the goal of fully paperless operation in all its procedures. The *system of "Committees and Councils*" project allocates roles for committee staff according to their authority in a work tracking system, starting from the establishment of a new session and ending with the approval of the session by the authorized member, in addition to its procedures including adding agenda items, inviting members, adding files and direct comments, and preparing minutes for signature before being approved by the President of the Committee/Council and sent to the member in authority. It also includes statistical reports on committees.<?>




**Sudan** has two remarkable governmental projects in the area of e-government.[163]

The *full e-Government Project for Rural Locality from scratch Project,* developed by the rural East Nile Locality in Khartoum state, aims for full automation of processes and services as an e-government model in East Nile locality. The project includes:

1. A revenue management system (RMS)
2. PDA applications for surveyors and collectors (Android, Windows, mobile)
3. Full ERP and back-office automation
4. Auto collection and payment channels (machine, mobile, Internet, branches, POS)
5. Website (rich in Arabic/English, and starting in French)
6. GIS with more than 50 layers
7. Trouble ticket system (toll-free call center)
8. Monitoring system and dashboards for collection and other activities
9. SMS and e-mail systems
10. Other tools and applications (engineering, office automation, etc.)<?>

The second initiative, the *States Information System* (SIS) by the National Information Centre, aims to establish a centralized database to serve decision-makers at all levels of government in Sudan.

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SIS is divided into nine sectors: health, education, finance, social affairs, urban planning, agriculture and animal resources, sport and youth, culture and media, and local governance. SIS allows data to be fed in from its sources, the administrative units and localities that constitute the lowest level of governance in Sudan, and allows decision-makers to generate KPIs, reports, statistics, comparisons and mapping data. SIS also reflects Sudan's commitment to the MDGs and ensures equitable distribution of resources, as well as saving time and resources.

In **Switzerland**, the "*e-Government Switzerland*" strategy by the Federal IT Steering Unit (FITSU), is a remarkable joint programme developed by the federal government, cantons and municipalities, with the goal of making administrative activity as accessible and as cost-effective as possible using ICTs.

The goal of the project is to ensure that both businesses and the public can transact important business with the authorities electronically. For this purpose, administrative activity need to employ ICTs to make it as accessible to citizens and as efficient as possible.

In **Turkey**, the *e-Correspondence Project* being implemented by the Ministry of Development aims to develop a common set of rules for securing electronic correspondence among public institutions. The solution employs a number of different technologies such as e-signature, registered e-mail and encryption to facilitate legally valid communication. This project is regarded as a good practice of ICT use in public administration. The technical mechanism provides interoperability across different technological platforms and is vendor/product neutral. It ensures the fast and secure exchange of official correspondence at low cost. The project not only helps government bodies to improve their business processes and their efficiency, it also reduces paper consumption and is thus environmentally friendly.

The **United Arab Emirates** has nine initiatives in the field of e-government. Of these, six are government related.[164]

> Emirates Auction, in the **United Arab Emirates**, developed an *E-auction* project to provide an online auction platform for charity and to connect government and public for auctions of forfeited assets. It enables the government to sell assets via auction and to invite the public to participate for the benefit of a benevolent cause<?>.

The *Smart Statistics suite* is an integrated statistical solution that includes a set of subsystems as follows:

- "Indicators": designed to enable senior officials and decision-makers to follow up the most up to date indicators and variables in the Emirate of Dubai
- "E-Sources": this links various main and subsidiary statistical sources
- "Interactive Statistics": designed for planners and specialists, providing them with a smart interactive mechanism to deal directly with a huge Centralized Statistical Repository and enabling them to compile complex statistical reports
- "Polls": covers opinion polls and questionnaires, and guarantees high levels of accuracy and quality of opinion poll findings
- "GeoStat": encompasses geographical activities for statistical purposes, based on the concept of merging geographical and statistical information systems.

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The *E-Transformation Project* by the Ministry of the Interior of the **United Arab Emirates** focuses on the quality of organizational performance and is the outcome of ongoing development of services. Technology has always been a very influential tool in improving organizational performance and satisfying the needs of internal and external stakeholders. The Ministry of the Interior was aware that high-quality governmental services cannot be achieved without savings in time and effort on the part of clients, so it launched an e-transformation project through which it transformed traditional services that used to require time and effort on the part of customers. This has resulted in better services, greater customer satisfaction and better use of human and financial resources<?>.

In April 2014, the *General Authority of Youth and Sports* announced the commencement of work on leading smart services of the authority. These included its smart website, development of smartphone applications, and advanced text messaging services, in addition to the preparation of e-mobile stalls and development of youth and sports sectors in accordance with HTML5 techniques compatible with smartphones and enhanced services in the youth and sports sectors. ehTsmart applications launched by the authority serve all tablet devices that run on Android and different iOS systems supported in both Arabic and English.

The National Bureau of Statistics (NBS) of the UAE was established to satisfy the country's national development needs and to organize the work of the national statistical system. The NBS endeavours to use enterprise GIS to enhance and simplify the daily work of surveyors. As part of the solution, the NBS envisages the need of introducing a field solution that would consolidate statistical data within a single central database. With its strong understanding of business needs for statistical data, the NBS informed the surveyor teams in the field that enterprise field solutions would be built in a shorter period and would be tailored their specific needs.  The NBS-statistical database collects data from all the emirates within the UAE.

In Dubai, **United Arab Emirates**, in order to comply with Dubai smart city strategies and increase customer satisfaction, the Roads and Transport Authority launched a project on *Implementing new payment means in Dubai taxis along with existing cash payment*. POS machines that support NFC, contactless and Swipe payments are installed and connected to existing taximeters to create an automated payment scheme. Customers can choose to pay taxi or other transport fares in the scheme (bus, metro, tram, water bus, parking) using "Nol" cards or with debit/credit cards, reducing cash payments and cash management processes.<?>

The *Maqta Gateway* is a state-of-the-art "ports community system" (PCS) designed in line with international standards that 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 offices and regulatory government agencies. Taking the "one-stop-shop" philosophy to a new level, the 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 devices, significantly enhancing processing times and communication procedures.

The *e-Fair platform* is an online recruitment exhibition that offers a gender-equal alternative to physical career fairs in which top Abu Dhabi employers frequently participate.The e-Fair project is an innovative technology solution proposed by Jobs Abu Dhabi (JAD), and the largest online recruitment portal or

e-government initiative by the Government of Abu Dhabi. It focuses on the following objectives:The e-Fair project is an innovative technology solution proposed by Jobs Abu Dhabi (JAD), and the largest online recruitment portal or e-government initiative by the Government of Abu Dhabi. It focuses on the following objectives:

1. Unhindered, 24-hour, equal access for all job seekers - especially women and people with disabilities- to job opportunities in Abu Dhabi.
2. A safe, sustainable and globally applicable environment replacing costly, geographically-limiting physical fairs.

> By moving from the conventional methodology to a smarter initiative, the Dubai Court in the **United Arab Emirates**, has allowed for ease of implementation in seizing assets. The *Smart Seize* project links the judge at his desk in the courthouse to the court agent performing the assets seizure on site. This has increased government efficiency and raised public awareness, encouraging interaction between various government departments. It was one of the many successful e-initiatives launched by the Dubai Court to expedite the settlement and adjudication of cases in the interests of justice<?>.

In **Uruguay**, there are interesting governmental e-government projects.[165] The *International Trade One-Stop-Shop* (VUCE – *Ventanilla Única de Comercio Exterior*) is a mechanism developed to facilitate international trade, and to optimize and unify, through electronic means, information and documents at a single entry point for the purpose of fulfilling all import, export and transit processes.

*Designing models for the prioritization and simplification of procedures, change management, communication and monitoring from Uruguay* by the Agency for e-Government and Information Society (AGESIC) tries to address e-government strategies and answer questions like the following: What to do to improve the interaction between citizens and the State? How to simplify procedures? Where to start and based on which criteria? How to be prepared to face barriers to change? How to communicate these changes when they take place? With the aim of addressing these questions, the project involved the preparation of a set of models to make online procedures widely available.

## C7.7 E-health

The lead facilitator for the e-health category is WHO, while ITU acts as co-facilitator.

The aim of the e-health category is to promote collaborative efforts of governments, planners, health professionals and other agencies, as well as participation of international organizations, in creating reliable, timely, high-quality and affordable health care 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 for diseases that attract global attention, including HIV/AIDS, malaria and tuberculosis.

### Background

Recognizing that non-communicable diseases (NCDs) are a major challenge for development in the 21st century, the Political Declaration of the High-level Meeting on the prevention and control of

[165] *Projects nominated for a WSIS Project Prize 2015*

non-communicable diseases, adopted by the United Nations General Assembly in September 2011, called on the World Health Organization (WHO) to lead and coordinate global action against non-communicable diseases.

WHO and the International Telecommunication Union (ITU), the UN health and ICT agencies, respectively, have come together in a unique inter-UN agency collaboration focusing on the use of mobile technology to improve NCD prevention and treatment. The partnership aims to contribute to global and national efforts to save lives, minimize illness and disability, and reduce the social and economic burden due to NCDs.

The WHO-ITU mHealth for NCDs secretariat plays a convening role for governments seeking to bring mobile health service delivery to scale at the national level through partnership with health and ICT ministries, through a multi-sectoral approach with support from the private sector. The programme also provides technical expertise to countries implementing mobile health interventions and features a strong monitoring and evaluation component with a focus on cost-effectiveness in order to share mobile health experience with all Member States.

## Interventions

The *mHealth for NCDs* initiative focuses on tailoring interventions for major non-communicable diseases and their associated risk factors. Mobile-based toolkits exist or are being drafted as packages to address the prevention and management of NCDs in populations by focusing on interventions which scale up the most effective mobile-based technology from clinical trials. Interventions currently include smoking cessation support, diabetes risk factor awareness and screening, cervical cancer screening, interventions for general well-being such as exercise, hypertension management, and specific tools to support health care in ageing populations. These will be implemented in various countries (listed below) in a phased-in manner.

By the end of the programme, toolkits will address prevention of all major NCD risk factors, disease management for all the major NCD disease areas, as well as for surveillance, health workforce training, and enforcement of legislation related to NCDs such as smoking bans, tracking of illicit or counterfeit drugs and pharmaceuticals, and screening for NCDs.

The initiative involves working with each country to provide a tailored framework for designing, implementing and monitoring a specific mHealth intervention within the national health system. By creating a pool of country experience, the initiative is able to offer countries an mHealth toolkit with tested mobile-based approaches which have proven successful in addressing and reducing NCD burdens elsewhere. This covers operational guidelines, technical content, monitoring and evaluation frameworks, and consultations with global experts and WHO/ITU staff. The content covers both the health and IT aspects of establishing and running a national mHealth programme at scale. The results of each programme are then fed back into the initiative and used to continuously refine processes and strengthen the evidence base for mHealth interventions in other countries.

## Country operations

During the first four years, eight countries will launch national interventions and become champion countries for mobile health for NCDs, with technical support from WHO and ITU. The toolkits and implementation guides created in this process will be shared and made available for implementation by all Member States. Countries are selected to represent different regions and income levels, the selection criteria including high disease burdens and political commitment.

To date, over 40 countries have expressed interest in joining the initiative. The programme has already selected the eight countries which it will be supporting during the first four-year phase of operations, helping to deliver mHealth solutions for at least one NCD identified as a major national public health challenge.

Costa Rica was the first country to join the initiative, under which it launched a smoking cessation intervention in 2013. The first round of this has been completed and the second round will follow later this year.

In 2014, Senegal (mDiabetes) was the next to officially join the inter-agency collaboration, this time with a focus on using a mobile platform to reduce the national diabetes burden. The country has already carried out an SMS-based management campaign during Ramadan, and is currently running a second round of SMS focusing on raising awareness of diabetes prevention and management for people with diabetes, healthy populations, and health workers.

The United Kingdom has officially entered into agreement with the initiative for assistance in raising awareness on general well-being, which focuses on preventative action against various NCDs. This includes improving population diet and daily exercise, as well as engaging individuals to take greater interest in and responsibility for their own well-being. The official launch of the partnership was made in July 2014 at the opening ceremony of the Commonwealth Games.

In 2015, Zambia will be launching a mobile-based programme to raise awareness about cervical cancer (mCervical cancer) and increase surveillance for the disease. This will be in line with other national efforts to increase cervical cancer prevention such as immunization.

Norway is a country which already has a highly developed telemedicine market for national health care. However, it will be working with the initiative in 2015 to focus its scope on how to assist the population in using mobile devices to cope with NCD-related problems caused by ageing. Norway's shifting population pyramid means that there is and will continue to be increasing demand for health services for the elderly, who often suffer from mobility or access issues which mobile technology can help to overcome.

Like Costa Rica, the Philippines has requested the initiative's support to focus on tobacco cessation. A training workshop has already been convened in November to allow the lessons from Costa Rica's experience to be shared with the Philippines in order to identify best practices and use these to create an SMS-based cessation programme which will have maximum impact when made available to the public in 2015.

Finally discussions are ongoing with India to finalize collaboration to introduce a mobile-based system to address selected NCDs and their risk factors across three states.

## Partnerships

The *Be He@lthy Be Mobile* initiative has a clear partnership strategy and is eager to work with private sector, philanthropies, national governments and civil society who share the *Be He@lthy, Be Mobile* vision.

Participating organizations contribute to the programme through funding. In addition, in-kind contributions such as intellectual property, knowledge, and other support for country projects and global work are encouraged.

The private sector has demonstrated high interest in joining the joint UN initiative, including companies from the pharmaceutical, insurance, and technology industries. The companies concerned have partnered with the programme to share their expertise, provide funds and improve knowledge on how to best tackle NCDs using mobile phones.

As of December 2014, nine partners from the pharmaceutical, telecommunications and development sectors have formally signed agreements to join the global initiative.

At country level, mHealth initiatives attract the involvement of multiple partner organizations which play an important role in the success and sustainability of national mHealth programmes. The initiative has a clear policy on conflict of interest, and all partners who join must undergo a due diligence

process to screen for commercial activities in the fields of tobacco, arms, child pornography and child labour.

The Steering Committee commissioned an external review of the Be He@lthy, Be Mobile partnership strategy, which concluded that the initiative was meeting objectives and in line with standards.

**Algeria** is a country with a number of remote and desert areas that are cut off from adequate health services. The project *Telemedicine in Remote Areas of Algeria* will allow the Centre for the Development of Advanced Technologies (CDTA) to demonstrate the feasibility and benefits of telemedicine in the country. The project consists of a pilot network connecting one reference hospital in Algiers with two hospitals in the Saharan south. The network provides consultation, medical education and diagnostic support in the area of paediatrics.[166]

*The National Electronic Cancer Registry* was established in 2014 by the Ministry of Health, Population and Hospital Reform (MSPRH) in order to determine the number of cancer patients. It allows the creation of a national databank for different cancers and their evolution, allowing identification of all types of cancer according to the age and sex of the patients. It also serves to provide exact figures concerning cancer prevalence at the national level. It is an important tool for assisting decision-makers in health planning, assessment of human resources requirements, pharmaceutical procurement and infrastructure construction, with a view to improving care for cancer patients. As regards the methodology, the implementation of this computerized information tool complies with international standards for cancer registries. The system can be used throughout the country's provinces (it is a centralized web solution which can be accessed by the registrar through the Health Intranet network).

Information in the medical domain is crucial for all medical application users seeking greater efficiency. The Health 2.0 package based on Web 2.0 involves enriching the traditional medical application and resources with new sophisticated solutions for mass and interactive uses in the age of collaboration and cooperation. The Web 2.0, including blogs and RSS Social networks, attracts many Internet users with its simplicity, user-friendliness and usefulness. *The Reuse and Mining Health 2.0 Resources* project aims to integrate the technologies of data mining and analysis of Web 2.0 with a view to the efficient use of medical applications.[167]

In **Argentina**, the Facultad de Ciencias Médicas UNR- Área de Informática Médica y Telemedicina has been running the *Development and installation of a Telemedicine Mobile Station*. This initiative arose in response to the fragility of the healthcare system in situations of emergency and natural disasters, and to the need for improved primary healthcare in remote locations and better access to medical consultations. Access to healthcare, one of the fundamental human rights and essential to ensuring decent living conditions for the population, is the responsibility of States and societies towards their citizens. There is a need to develop tools that allow implementation of health policies that promote efficient and high-quality medical care for geographically remote or socio-economically isolated populations, at affordable prices.[168]

166 *See promotional video on y2u.be/yyVcmvgikCk*

167 *Project nominated for a WSIS Project Prize 2015*

168 *Project nominated for a WSIS Project Prize 2015*

In **Bangladesh**, *Amader Dakter*, by mPower Social Enterprises Ltd., is a market-driven healthcare model for rural patients seeking direct access to doctors. It allows a rural patient to be registered, screened and guided to a video/audio consultation with a remote doctor, and to receive a printed prescription through a trained intermediary. The intermediary collects the patient's medical data and communicates them to the doctor, carries out any further examinations requested by the remote doctor, and conveys the doctor's instructions back to the patient. The intermediary providing this service purchases technology and training as a one-time investment and collects a fee from patients for the consultation. This fee is then shared between the intermediary and Amader Daktar.<?>

The "*mHealth*" project, by Synesis IT Ltd., is a 24/7 mobile-based medical counselling and health information service that targets every resident in **Bangladesh**, but primarily those residing in rural areas. The project aims to alleviate the issues of people who have relatively poor access to health services and live in areas that are prone to health issues involving common diseases, maternal health, childcare, and so on. Through the use of cellphones, mHealth provides a 24/7 health-related information and medical counselling service, with the help of specially trained registered physicians. Since the project was launched, a total of 8 million calls have been handled, and currently around 9 000 calls are handled every day.<?>

In **Canada**, three projects are run by the Department of Foreign Affairs, Trade and Development.

One of these, the *Nigeria Evidence-Based Health Systems Initiative* has achieved a number of results since July 2014. These include:

1) Assisting two state governments to make the transition from paper health data collection forms to using mobile technology, thereby improving the turnaround time for analysis, referral and reporting
2) Informing more than 10 000 people on maternal health through an evidence-based docudrama, including discussions on what pregnant women and their families can do to ensure a healthy pregnancy
3) Holding advocacy and sensitization meetings with nearly 1 400 community leaders to integrate the data collected into existing health and information systems for actionable change to policy and practice
4) Supporting a youth version of the docudrama developed in collaboration with young people, and holding discussions on maternal health issues in which 602 young people participated
5) Informing more than 28 000 women and men through docudramas focused on child health measures, including prevention of childhood illnesses and key corrective actions
6) Improving women's use of maternal health services (by identifying 24 253 women of childbearing age and registering 5 501 pregnant women for monitoring)
7) Identifying 39 426 households where mothers are at risk of ill health, 22 745 pregnant women and 3 264 newborns, with a view to scheduling prenatal and post-natal visits
8) Increasing the use of evidence in planning and budgeting for health services by providing training on the subject to 764 female state and local government employees in Cross River and Bauchi, and by collecting accurate health data.

A second project is *Implementing the Recommendations of the UN Accountability Commission*. At the global level, implementation efforts include: establishment of the independent Expert Review Group, including its secretariat; creation of a global digital health strategy to accelerate the integration and use of information and telecommunication technologies and other innovative approaches into countries' monitoring and evaluation systems; ongoing outreach and engagement to promote the implementation of the Commission's recommendations in other forums; analysis and reporting of country-specific information on results and resources; and dissemination, interpretation and use of data.

Lastly, a very remarkable initiative is the project *Improving the well-being of Tanzanians - A birth certificate for every child in Tanzania*. In July 2013, the Tanzania Registration, Insolvency and Trusteeship Agency (RITA), with the support of a Cuso International volunteer, launched the first mass birth registration programme in Tanzania in order to address the country's extremely low registration and certification rates. In less than one year, more than 130 000 children in one region have been registered and given birth certificates through an innovative initiative using mobile phone technology. Funded by the Canadian Department of Foreign Affairs, Trade and Development and supported by UNICEF, TIGO, VSO Tanzania and Cuso International, this success story is just the beginning.

*Open Hospital* is an open-source, free software program developed by Informatici Senza Frontiere Onlus (ISF), in **Italy**, for the daily management of hospitals in developing countries. It is currently installed and used in several hospitals in Africa and the Middle East. ISF members are constantly working to add features to make the program more useful. A collaboration agreement between ISF and some major NGOs will promote the dissemination of the software in many more African hospitals. In Italy, it is used, for example, for the management of a health centre for immigrants in Verona, which provides medical services for immigrants without residence permits or health cards.<?>

Also in **Italy**, the Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise 'G. Caporale' has been developing a remarkable Project entitled *Open Hospital - Free rural hospital management console*. IT personnel at the same institute have developed *SILAB for Africa* (SILABFA), consisting of a web application employed as a supporting information system for laboratory diagnostic activity in veterinary laboratories in the African Countries. The system is hosted on a local server accessible via any computer connected to a LAN. The SILABFA system ensures the traceability of the diagnostic phase, from the arrival of samples to final tests. SILABFA can be connected to the Livestock Traceability systems. SILABFA is installed and used in Namibia's CVL, Botswana's BNVL, Zambia's CVRI, Zimbabwe's CVL and Tanzania's TVLA.[169]

In the **Sultanate of Oman**, the *Al-Shifa Comprehensive Healthcare System* is a comprehensive healthcare information management system developed as a complete solution for healthcare facility management using electronic medical records installed and integrated in more than 220 healthcare institutions in Oman of varying size and capabilities, including several non-MoH caregiver facilities. Data is stored on a single database, providing real-time data across applications throughout the hospital. With a single integrated database design, data can be viewed simultaneously from multiple terminals, giving access to timely, up-to-date information. The system provides extensive search facilities and reports based on user-defined search criteria for retrieving and displaying the desired information.[170]

In **Peru**, infectious diseases can be contracted in places where invasive procedures are often performed without adequate precautions. The purpose of the *e-Prevention in LAC* initiative is to describe the achievements and impact of research training of the Alexander von Humboldt Institute of Tropical Medicine (UPCH), which has served as an incentive, motivation and guide for professionals requiring knowledge and dialogue skills to reflect on problems of e-health. Furthermore, the project also describes how this knowledge generates a multiplying effect in scientific committees, online organization of courses and the creation and development of research lines, which generate publications by leaders. It also narrates didactic contents and strategies and concludes with practical applications of this training for teaching, research and institutional development. The experience of incorporating knowledge and skills can be used later in teaching and institutional work, as well as research in this discipline. The training received was reflected in various ways, but above all in a new form of doctor-patient relationship using technology.[171]

169 *Project nominated for a WSIS Project Prize 2015*
170 *Projects nominated for a WSIS Project Prize 2015*
171 *Project nominated for a WSIS Project Prize 2015*

In the **Philippines**, *RxBox 2 - Advancing Community Healthcare* is a multi-component programme comprising a telemedicine device capable of capturing medical signals through built-in medical sensors, storing data in an electronic medical record (Community Health Information Tracking System - CHITS), and transmitting health information via the Internet to a clinical specialist in the Philippine General Hospital for expert advice. It is designed to provide better access to life-saving healthcare services in isolated and disadvantaged communities nationwide through smarter diagnosis and fewer unnecessary hospitalizations.[172]

The *National Telehealth Service Program* (NTSP) is a developmental project that seeks to achieve "Kalusugan Pangkalahatan" or Universal Healthcare through the use of ICTs. The project has two components, namely Telemedicine and R4Health (Real-Time Regular Routine Reporting for Health). Telemedicine supports physicians from geographically isolated and disadvantaged areas by enabling them to access specialist clinical advice remotely through the use of tele-health tools (mobile phones and Internet). R4Health allows real-time regular routine reporting of health data using mobile technologies.[173]

In **Rwanda**, in response to regular threats of disease outbreaks, the Ministry of Health developed and deployed *electronic Integrated Disease Surveillance and Response* (eIDSR) in all public and private health facilities in order to enhance surveillance of epidemic-prone diseases and respond promptly to outbreaks. The system is built on the District Health Information System (DHIS-2), which comprises a weekly aggregate data reporting component and an immediate case-based reporting component. The case-based immediate reports are complemented by laboratory requests and confirmations. The system detects suspected outbreaks, sends a variety of e-mail or SMS reporting reminders and issues alerts of possible outbreaks.[174]

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172 *Project nominated for a WSIS Project Prize 2015*
173 *Project nominated for a WSIS Project Prize 2015*
174 *Project nominated for a WSIS Project Prize 2015*

**Saudi Arabia** has two remarkable Ministry of Health projects.[175] The first is intended 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 implementing and integrating with call centre and IVR systems as well as providing medical libraries related to toxicology for the use of PCC staff. The project can be regarded as both an e-Health project and an e-Government project since multiple government and semi-government agencies send requests and check results through this integrated system: these include the Ministry of the Interior (traffic control, police, narcotics control, prisons), Ministry of Finance, Ministry of the Civil Service, Ministry of Justice, General Prosecution and Investigation Department, Industrial Safety Sector, Saudi Airlines, and others.

The *Patients Referral Programme* system allows for e-submission of patient transfer requests and approval within Ministry of Health hospitals and private hospitals around the Kingdom in 13 main regions and all their cities and villages. It covers all referral cases (life-threatening, emergency, in-patient or out-patient) and provides means to facilitate communication among all related parties. The system provides Ministry of Health management with dashboards, key performance indicators and statistical reports to help in decision making, capacity planning and process improvements.

In **Sudan**, the *Gezira Family Medicine* Project was initiated in 2010 as an in-service training model for Sudanese doctors enrolled in the project and training programme. The main objective of this programme is to improve the quality of health services at the primary care level. To achieve this goal around 300 Sudanese doctors are recruited, trained in family medicine in a two-year in-service Master's degree programme, and relocated to different urban and rural areas. To facilitate training and communication with the centre, telecommunication and information technologies are used in three important areas, namely 1) telemedicine, 2) distance learning, and 3) electronic filing systems.<?>

[175] *Projects nominated for a WSIS Project Prize 2015*

**Thailand** has four remarkable projects.[176] "*SenzE*" is an eye-communication aid designed for paralysed patients, and is also the world's first eye-controlled system embedded with Thai software. OpenCV and image processing techniques are employed, and an HD camera detects and interprets a patient's eye movements. The patient can communicate by using a menu with sections for "my feelings", "my needs", "activities", "entertainment" and "food and drinks". A "chat" keyboard can be operated by the patient for correct, timely and efficient communication with doctors, relatives and attendants. SenzE is now supported in seven languages and has a real-time automatic system for translation into local languages. It also has a monitoring system allowing caregivers to monitor patients in real time. Patients who could use SenzE include those suffering from a stroke, ALS, spinal cord injury or other disabilities, and those in intensive care who cannot communicate by speaking or writing.

*SenzE for charity* is a CRS project to donate devices to ten public hospitals in **Thailand** (three devices per hospital) to improve the quality of life of more than 10 000 Thai patients so far.SenzE is technology of the future for a better life and better tomorrow for humanity.SenzE is technology of the future for a better life and better tomorrow for humanity.

The Health Information System of the Ministry of Public Health (MOPH) of Thailand is a system for healthcare monitoring, governance and management. It comprises a health information "cockpit", healthcare monitoring system, and a healthcare dataset fed from all healthcare government service units throughout the country. The system is intended for governors, senior administrators and provincial healthcare authorities to allow monitoring and assessment of the healthcare situation. It uses the latest Java and PHP web technology, which are open source, for development on the MOPH private Cloud service platform.

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The third project, the *Licensing of Animals and Animal Products for movement within the Kingdom of Thailand (e-movement)* helps to better organize data and keep the public informed by streamlining the licensing of animal and animal product transport. It has helped to eradicate the avian influenza virus and reduce the chances of further disease outbreaks. The e-movement portal is accessible to 877 district livestock offices, 77 provincial livestock offices, and 54 animal quarantine station checkpoints

[176] *Projects nominated for a WSIS Project Prize 2015*

in Thailand. The e-movement system was launched to address the following concerns: prevention, monitoring and controlling the spread of avian influenza; improving staff efficiency and service levels; and reducing costs.

The Graduate School of Management and Innovation (GMI), King Mongkut's University of Technology Thonburi (KMUTT) and TOT Public Company Limited, have developed the *Success Factors in the Adoption of Emergency Health Call Centre*. This project is a study of factors affecting the success of emergency health call center adoption. Authors explore the project based on cooperation between Sriracha Municipality (a local administration in the eastern part of Thailand) and TOT (a state-owned enterprise offering total solutions for telecommunication services). TOT is considered to be an incumbent in the area of fixed telephony and would like to add more value to the decreasing number of fixed telephones. This would "lock in" customers and dissuade them from turning to mobile. In the same way, the Municipality of Sriracha would like to improve quality of life and decrease the risk of acute illness or accident, especially for the many elderly people alone at home. The published findings show that the key factor in success is the leadership of the municipality, include recommendations for improving the service, and indicate general public satisfaction with this project. This pilot project drives WSIS work directly.

In the **United States**, the project *Neurological disorders*, developed by Cognizant Technology Solutions, focuses on some of the leading causes of disability, few of which are curable and some of which lead to progressive deterioration. Neurological disorders are an important cause of mortality and constitute 12 per cent of all deaths globally. According to current figures the cost of diagnosis of neurological disorders has been growing at an unsustainable rate. Prompt diagnosis at the onset of neurological disorders can expedite treatment, thereby aiding the neurologist. In view of the current rise in the numbers of individuals suffering from neurological disorders, a mobile-based Cloud application entitled "Fahaanda" has been created. Patients, doctors and hospitals can use Fahaanda to record videos of an individual's disability (depressive expressions, gait abnormalities, tremors, and so on) and then seamlessly upload the recording to the Cloud, while the analysis of the video uploaded to the Cloud can be conveyed by SMS. This reduces the cost and time required for initial diagnosis. Fahaanda also alerts its end users, using improvements to ICTs, and exploits ICTs to improve and extend healthcare and health information systems to remote and under served areas and vulnerable populations.[177]

A second project from the **United States** is the *Mobile Health Information System* (MHIS), which delivers standard treatment guidelines and operating procedures, new protocols mandated by the South African Eastern Cape Department of Health, updates to existing clinical guidelines and other materials needed by health workers, via smartphones and tablets. Easy access to current, locally relevant, evidence-based information has helped clinicians to improve diagnosis, treatment and care. The project is implemented by FHI 360 in collaboration with public, private, academic and civil institutions. The FHI 360 mission is to improve lives in lasting ways by advancing integrated, locally-driven solutions for human development.<?>

[177] *Project nominated for a WSIS Project Prize 2015*

Since 2011, some 99 per cent of children born in **Uruguay** have an electronic "born alive certificate" with a unique identification number right after they are born. An online access application designed to create electronic medical live-birth and death certificates generates a vital statistics database and is named "*Interconnection and Modernization Programme for the Registration and Civil Identification of Physical People and Generation of Information for Vital Statistics in Uruguay*". When the professional who attends a delivery signs the certificate electronically, the system connects to the National Directorate of Civil Identification (DNIC) and sends the mother's and child's information, receiving from the DNIC a unique child identification number which is shared with the Civil Registry to create the birth certificate. The child's medical history is opened with that identification number.[178]

The IMARK *Maximizing information and knowledge* by the Inter-American Institute for Cooperation in Agriculture for Development is an international initiative that increases competitiveness in the rural sector by improving the abilities of information managers and promoting knowledge sharing. It offers free e-learning courses in ICT-related areas in order to increase the levels of skills and competences required for economic and social advancement of developing countries. Knowledge and information sharing approaches should be adopted as part of institutional strengthening, capacity development and use of ICT programs, with special attention to developing countries and especially LDCs with different levels of sustainable development. IMARK learning resources are provided free online and offline in different languages.[179]

## 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 universities and research institutions 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.

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178 *Project nominated for a WSIS Project Prize 2015*
179 *Project nominated for a WSIS Project Prize 2015*

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.

In the **Islamic Republic of Iran**, the Research Center for ICT Strategic and International Studies, Iran University of Science and Technology, Islamic Republic of Iran developed a project named: **Iran University of Science and Technology, E-Science-Net: Universities and Research Network for Science.** Its aim is to establish an active national reference research point in the field of e-Science. It also looks for possible opportunities for future international scientific cooperation in related areas. The participating researchers, university professors and students in the network can exchange ideas and scientific information through a web-based platform. The project involves expert surveys on e-science and the role of science and technology in the building and sustainable development of the information and knowledge societies in different areas of science.<?>

The *HistoNano Website* in **Kuwait** is a prime initiative aimed at creating an interrelated multidisciplinary web portal encompassing a wide range of subjects within a single framework. The histology disciplinary streams primarily concern histopathology, cell biology, nanoscopy and nanotechnology. The website's mission is to enable scientists, researchers and educators to access high-quality images and texts on histology, histopathology, cell biology and nanoscopy, in order to meet diverse teaching and research requirements. In addition, links are also provided to related websites concerning these fields, as a crucial service helping visitors, web users and a wider readership interested in the broad field of histology to access vital information for their diverse needs. The website is exclusive and personal, developed and founded by its owner, Professor Abdel-Majeed Safer, who also heads the Nanoscopy Science Centre of Kuwait University's Faculty of Science. To keep the site widely representative and user friendly, visitors' and readers' views and suggestions are welcomed.<?>

In **Rwanda**, as a way of extending broadband networks, one of the main activities of the project *Connecting all Higher Learning Institutions and Secondary Schools to Broadband via WiFi to promote Science and Technology* (RCIPRW) is to extend broadband connectivity to institutions in rural areas. In this regard, the Rwanda Development Board intends to use part of the funding to install WiFi equipment for higher learning institutions as well as providing WiFi equipment and computer labs in secondary schools in Rulindo and Gisagara districts as a pilot for a project to provide Internet broadband access for secondary schools.<?>

**Saudi Arabia** has introduced the *Research Project Management System*. Scientific research plays a key role in the achievement of sustainable development, and carrying out scientific and applied research is also considered to be one of the most significant activities widely used in determining to what extent educational institutions can play their pioneering role in various fields of knowledge. It thus becomes necessary to consolidate the process of scientific research by facilitating communications between those in charge of scientific research and the researchers interested in this field. Majmaah University, represented by the Deanship of Scientific Research, has developed a system for research project management. This system would create a business environment characterized by flexibility and ease of information and data sharing between all parties participating in research financed under the Deanship of Scientific Research, by facilitating electronic submission of scientific research proposals, which will then be evaluated and archived for publication.<?>

# 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.

In **Bulgaria**, the South-West University "Neofit Rilski" has been managing the *Youth Mobilization – Cultural Heritage and Athletics* project. The overall objective of this was to provide partners engaged in policy-making on the promotion of sport as part of the cultural heritage with infrastructure and guidance on how to sustainably promote and protect sports, to develop cooperative projects and multimedia applications contributing to the promotion of sports, engage with a wider stakeholder network including sports associations, and promote activities including festivals and regional and international events. It is also intended to produce practical guidance for local and regional authorities and agencies in the EU and ensure continued support for sports and culture policy development.<?>

The "*Centro de Relevo*" (Relay Centre) in **Colombia** is an initiative designed to integrate hearing-impaired individuals within society, enabling them easily and independently to communicate and exchange information with others on a daily basis. The Centro de Relevo is based on an interactive online platform that works as a bridge to enable hearing-impaired citizens to contact hearing people or institutions.<?>

Literature for children and young people is a priority task in **Cuba**, and one which over the years, through various cultural facilities, has helped to develop an enjoyment of reading among children and young people, as well as developing individual creativity. Cuban children enjoy reading as a recreational and informative task, and authors and books create bonds between them, with their needs and interests, and their library. The *José Martí National Library* works to help not only the country but the world in providing better care for this group, to complement their education, and greatly benefits education.[180]

In **Italy**, *I Speak Again (ISA)* is a multilingual "communicator", a free web application operated by a patient's eye movements and available over the Internet at www.ispeakagain.org, or downloadable for fully local setup. It provides a simple tool to give back speech capacity to those who, as a result of disease (ALS, sclerosis, quadriplegia), temporarily or permanently lose their ability to speak and move. It features four different types of eye-movement operated keyboards and includes simple support for domotic systems. It works with every kind of TTS system, including open-source, such as Festival, or more advanced ones like Tingwo.

[180] *Project nominated for a WSIS Project Prize 2015*


From *Graves to Cradles*, also in Italy, is a virtual and real restoration project of a highly visible historical anti-slavery monument intended to showcase the work and quadrilingual education of the formerly enslaved and illiterate Romanian Roma families who now lie in Florence's Swiss-owned 'English' Cemetery. It also provides young Roma mothers with library schools in their homes and a stipend so that they do not have to leave their babies with grandmothers in Romania in order to beg from tourists in Florence for their families' survival. Our sites are visited by both tourists and Florentines, and can be visited virtually on the web at www.florin.ms/WhiteSilence.html and www.ringofgold.eu.[181]

181 *Project nominated for a WSIS Project Prize 2015*

With less than two million native speakers, Latvian is one of the world's smaller languages. This has severely restricted global access to Latvia's knowledge and information, creating a language barrier between Latvia and the rest of the World. In order to bridge this language barrier and open up multilingual access to knowledge, **Latvia** has created its own publicly available machine translation service, *Hugo.lv*. By providing high-quality instant translation of Latvian content into multiple languages, Hugo.lv enriches the global information society with a wealth of Latvian educational and cultural information through various media, empowering the Latvian language in the digital age.[182]

Another deserving project in Latvia is the *State Portal* www.latvija.lv. This project has involved a series of activities to improve www.latvija.lv both technically and substantively. The main activities have been focused on expanding the functionality of the portal and structuring available online information to improve access and usability.[183]

In **Mexico**, some 53.3 million people were living in poverty in 2012. That figure included 11.5 million in extreme poverty. Persistent inequality is reflected in various gaps between segments of the population. To meet these challenges, the government is implementing a new social policy that seeks to give effect to the social rights of all Mexicans. In this regard, and in the framework of building an open government, the government, with the aim of democratizing information access, presented the *Social Programmes' Guide for Inclusive Information Access to Social Programmes*, which presents detailed information on each social programme, in the following forms: 1) in 22 native languages; 2) in audios and videos for the 22 native languages; 3) in sign language; 4) in Braille. In Mexico, there are more than 2.7 million hearing- or visually-impaired people. In this regard, the project enabled the exercise of conscience, conviction and equity, to prevent discrimination and exclusion, reaffirming one of the decisions of President Enrique Peña Nieto to pursue the goal of achieving an Inclusive Mexico.<?>

Internet multilingualism is a major initiative to ensure cultural diversity and involvement for all global linguistic groups. **Saudi Arabia** has realized the significance of linguistic diversity and recognized the importance of supporting the *Arabic language in domain names* and the vast impact this can have in empowering local Arabic users. In 2001, SaudiNIC (CITC) initiated a national programme to support the use of Arabic in Internet domain names. It was aimed at achieving standard and internationally acceptable solutions that also properly address the real needs of Arabic users. The programme followed an open and broad participation methodology that ensured engagement with all stakeholders locally and regionally. The work went through many phases, beginning with identification of linguistic issues. It included publishing scientific papers and technical reports and expanding R&D beyond the Arabic language to include issues for the whole Arabic script. Prototypes were implemented and several technical tests performed, and a registry-level solution that supports the registration of Arabic domain names was also developed to resolve the issue of character variants.<?>

182 *Project nominated for a WSIS Project Prize 2015*
183 *Project nominated for a WSIS Project Prize 2015*

In the **United Arab Emirates**, *Bel Arabi* was launched by the Higher Colleges of Technology with the support of His Excellency Jamal bin Huwaireb, Managing Director of the Mohammed bin Rashid Al Maktoum Foundation. The Bel Arabi initiative is based on ideas generated and shared by the young Arab community in institutions of higher learning. The initiative involves maintaining the Arabic language through the media. Conversations with this generation have led to the creation of an initiative that empowers Arab youth to contribute to the establishment of a knowledge-based economy. At a time when the Arab world is looking to emerge as a global powerhouse, the use of the Arabic language will serve as a cohesive force in projecting a strong regional voice. Among half a billion people who speak Arabic as a native language, only 140 million people use the Internet. During the launch, the entire population base has expressed its love for the mother language. This has added up to an incredible number of almost 1 400 000 tweets within 24 hours of the launch, or about 16 tweets per second.<?>

*Kalima* is a non-profit initiative dedicated to funding the translation and publication of high-quality works of classic and contemporary writing from other languages into Arabic, in addition to organizing events and activities related to translation. In essence, Kalima's mission is to revive translation in the Arab world by increasing the number and choice of books available to the world's 350 million Arabic readers. Kalima's mission reflects the fact that Arabic is a beautiful, expressive language, which should be celebrated and enriched by giving readers access to more high-quality translated titles.

# Action Line C9. Media

UNESCO is the lead facilitator for this category, while ITU acts as partner.

The media - in their various forms and with a diversity of ownership - 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. It also focuses on the development of domestic legislation that guarantees the independence and plurality of the media.

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 ones, especially in the field of training.

This Action Line also 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.

In Algeria, the administration's digitization application (developed by Radio Tindouf) supports e-government work in electronic management, comprehensive local processing and electronic transactions. Through the ICT network, procedures can be handled the same day or even within hours or minutes, thereby overcoming some of the drawbacks of traditional administration, by offering e-commerce, e-government and e-education over the web.

The project *MENOS* by Regional Radio of Mila is also from Algeria. This is mainly a networking concept used to exchange multimedia content over satellite and is intended primarily for professional broadcasters, allowing them to share video and audio material among several sites scattered across a large geographical area.

The project *Radio to Improve Production and Marketing for Farmers in Need,* developed by Radio Farm International and the Department of Foreign Affairs, Trade and Development of **Canada**, helps one million small-scale farmers in a number of African countries to raise their incomes and feed their families. Small-scale African farmers are among the most vulnerable to hunger. Many factors contribute to this problem, but an important part of the solution is to share knowledge of how to increase profits from agriculture. This is achieved through radio programmes produced by community radio stations, with the participation of farmers and expert partners. By choosing the right planting materials, harvesting at the right time, processing and storing produce carefully, and negotiating with different buyers, farmers are able to earn more. The capacities of ten radio stations are enhanced to create programmes appealing to the farmers while sharing information that produces the greatest impact. Organizations involved in linking producers, buyers and national sector specialists, help to create relevant programmes. The local partner for the project is Farm Radio Malawi.<?>

Also from Canada, the project *Improving the Lives of Women and Children through Radio Dramas* contributes to improving maternal, newborn and child health, protecting children and preventing sexual and gender-based violence by supporting the production and nationwide broadcasting of radio serial dramas. These dramas provide information, tools and resources to stimulate social

change, raise awareness and improve the overall health and well-being of the audience. The dramas use characters and settings that reflect people's daily lives and current impressions of health and social issues. Produced in the most commonly spoken languages in the Democratic Republic of the Congo, these dramas use the country's most cost-effective and far-reaching mass media mechanism. The project promotes positive behavioral changes related to themes such as: immunization for all children and pregnant women; improving child nutrition; the proper use of treated bed nets to prevent malaria; child spacing and delaying marriage and childbearing to promote the health of mothers; birth registration; and positive behaviors for both women and men with regard to gender equality and HIV/AIDS prevention.

In **Indonesia**, *Information Village* is a programme of the Ministry of Communication and Information Technology for bridging the digital divide and formulating a knowledge-based society through the development of ICT infrastructure. Development of radio broadcasting, telecommunications and Internet infrastructure has brought information services to border areas and outlying islands. The Information Village includes the following programmes: Ringing Village; Internet Village; Community Radio; Information Group of Border Communities; Media Centre; Subscribed Pay TV; Folk Performance Media; Community Access Point (CAP) and Mobile Community Access Point (M-CAP).

In **Italy**, the *Sensoltre* is a very special paintings exhibition devised by Informatici Senza Frontiere for visually-impaired and normally-sighted people. It is a multimedia, multi-sensory path among painted sculptures, bas-reliefs or famous works printed with 3D printers. The visitors - blind, blindfolded, visually-impaired or sighted - use NFC smartphones with an ISF Sensoltre application and wear Hi-Fi headphones. They follow the path by touching a small rope. On reaching a painting, the smartphone automatically starts playing the audio guide, which informs the listener about the artist, the work's meaning, and how to touch the painting. Background music creates an exciting and unique atmosphere.<?>

The *Nabd - Personalized Arabic Newsreader* project, from the Central Agency for Information Technology in **Kuwait**, is a personalized Arabic newsreader application used by over four million users globally. Nabd keeps Arabic-speaking people across the globe up to date with local and international news. The application has become a critical need for many people, as it is their main means of keeping up with local and international news and events, as well as developments in specialist areas such as technology and health. Instead of browsing many websites or using many applications, Nabd aggregates important news from the user's preferred sources in a beautifully designed and easy to use application, saving significant time and effort.<?>

In **Poland**, *The Internetowy Teatr TVP dla szkól/TVP's (Internet Theatre for Schools*) initiative aims at providing access to culture for pupils in small remote localities via the broadband network. Every few weeks a different theatre stages a play which is transmitted via coded Internet link to participating schools. The aim is to educate through entertainment. The first transmission took place on 29 October, 2012 – the "Wizard of Oz" staged by Cracow's renowned Slowacki Theatre. Since then, some 34 shows staged in 30 theatres have been broadcast and watched by more than one million spectators from more than 15 000 schools, and more are scheduled.<?>

In **Sri Lanka**, the *Paint a Rainbow project* by Shilpa Sayura Foundation worked towards enabling civil society to lead democratic dialogue for social change by creating an alternative media platform to empower civil society for participation in digital democracy using ICT, digital media and social networks. The project has trained over 1 200 young people in democracy awareness and digital media skills, and has equipped and engaged them to express themselves and become the "voice of the voiceless" through social media. Their content initiated a democratic dialogue to influence civil society in Sri Lanka in the 2015 presidential election.<?>

In **Uganda**, Farm Radio International (FRI) led a serialized radio mini-drama project in 2013 to improve knowledge and increase consumption of OSP, a type of sweet potato, in Uganda. In collaboration with Harvest Plus staff, extension workers, farmers' groups, writers, radio drama experts and radio station staff, and TRAC FM, FRI developed, wrote, produced and broadcast an entertaining and educative radio mini-drama series called "My Children". The 30-episode drama was aired on ten stations in six languages. It used an entertaining plot of love, domestic strife, money and power to draw in listeners and educate them on the many benefits of OSP. Each five-minute episode was followed by a short discussion and an interactive element of SMS polling, led by TRAC FM through the partner radio stations. The series created more demand for OSP by engaging listeners and raising awareness on how to grow and prepare this nourishing crop. This ambitious project succeeded in raising awareness of OSP among 350 000 households across 13 districts of Uganda. Demand for OSP vines has increased and vines are now moving around the country and being shared by farmers.

# Action Line C10. Ethics

UNESCO is the lead facilitator for this category, while ITU acts as partner.

> The Information Society should be subject to universally held values and 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 paedophilia 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 ethical dimensions of ICTs.

As already mentioned in the Introduction, on 25 June 2014 ITU established a new Focus Group on Digital Financial Services to promote financial inclusion using information and communication technologies (ICT) in response to a proposal from the Bill & Melinda Gates Foundation, which is a Member of ITU's Standardization Sector (ITU-T). Over 2.5 billion adults do not have access to a formal bank account, most of them in developing economies. Internationally standardized 'mobile money' platforms will increase financial inclusion to the benefit of socio-economic development worldwide. Digital financial services are capable of improving the delivery of basic financial services. Standards will drastically reduce the costs of these services to service providers and their customers, thereby opening the door to remote and underserved communities.

On 28 October 2014, ITU also celebrated the Gender Equality and Mainstreaming Technology (GEM-TECH) Awards 2014 in Busan, Republic of Korea, at a plenary session of the ITU Plenipotentiary Conference, as already mentioned in the Introduction. UNESCO won the first category of the seven GEM-TECH Awards, "ICT Applications, Content, Production Capacities and Skills for Women's Social, Political Empowerment and Women's Empowerment Linkages with Sustainable Development" with its online portal, Women in African History: An E-Learning Tool (Africa). This platform consists of multimedia educational resources highlighting the role of women in African history (including comic strips, audio modules, and quizzes). Ensuring meaningful engagement of young girls with information and communication technologies (ICTs) through the production of relevant local content, the e-learning tool enables capacity building of young girls as both decision-makers and producers in the information and communication technology sector. The platform is currently available in English and French (http://fr.unesco.org/womeninafrica/), with several African languages to be rolled out by 2015 to promote multilingualism in cyberspace and encourage online access by rural populations.

Following the successful public consultation process that led to the approval of the Brazilian Internet Civil Rights Framework, the Government of **Brazil**, on 28 January 2015, launched an online open platform to discuss issues arising from that framework requiring further regulation, including net neutrality, custody of access logs, access data for purposes of criminal investigations and privacy issues. The open platform will also enable interested sectors to comment on the draft law on the protection of personal data, which is currently under consideration by the Brazilian Government. The process relating to *Public Debates on the regulation of the Brazilian Internet Civil Rights Framework and on the Draft Bill on Personal Data Protection* uses two distinct web portals through which all interested parties can submit their comments and suggestions. Social networks such as Twitter and Facebook are used to promote wide participation. The main objective of such public debates is to

use a democratic and innovative process of compiling inputs from different sources to draw up legal documents that take into account the legitimate concerns of different segments of society.

In **Croatia**, the *Fran Galovic Public Library Programme* is supporting Roma people by contributing to their social inclusion, building tolerance and tearing down prejudice towards them, as well as supporting a better quality of life and opportunities for Roma children through formal and informal education, and helping them to become integrated in the life of the local community and society in general.<?>

In **Italy**, the remarkable *VOILA'* project is inspired by the notion that online visual communication is the new frontier for sharing information. A key element is its educational potential, namely the capacity to disseminate knowledge by sharing video tutorials intended for hearing-impaired people who otherwise tend to be marginalized. The project aims to produce web tutorials that are equally accessible to hearing-impaired and hearing people, based on a methodology which engages hearing-impaired people in the project's implementation, without subtitles or sign language interpreters. Thanks to social innovation mechanisms, online users will finally experience web tools without linguistic barriers. *VOILA'* demonstrates that ICTs are key to moving towards more inclusive web communication.[184]

In **Japan**, the *Act on punishment of activities relating to child prostitution and child pornography* was partially amended in June 2014 by the Ministry of Justice. Possession or storage of child pornography (including electromagnetic records) for the purpose of satisfying sexual curiosity has become a punishable offence.

[184] *Project nominated for a WSIS Project Prize 2015*

In **Kuwait**, the Kuwait *Red Crescent Society Website* (KRCS) project was initiated primarily in order to make the KRCS mission more accessible to donors and people seeking assistance in disaster-affected places. The project has enabled KRCS to accept online donations. The main objective of the project is to provide clear and easily accessible information on KRCS services and their institutional aspects for donors, volunteers and people seeking relief. To achieve all the intended goals, KRCS and its project partners had to adhere to a demanding schedule, and the entire project was initiated and completed in less than ten months. During the early phase of developing the project execution plan, the entire project was divided up into smaller and more manageable goals. This approach enabled the team to implement the project in a very short time. <?>

In **Rwanda**, some 100 news websites represent more than the total number of newspapers, radio and TV stations combined. The Rwanda Media Commission (RMC), which is responsible for media self-regulation, has developed strategies for dealing with professional and ethical issues related to online media with the project *Tackling Ethical Dimensions of Online Media Content through Self-Regulation*. Five key activities are identified: regular monitoring to identify ethical and professional gaps; conversations with editors where ethical gaps are identified; regular group meetings with web owners and editors; handling complaints from the public; and disseminating the principles of the Code of Ethics. Common issues identified include violations of privacy, nudity and graphic depiction of violence. RMC has already handled around ten cases so far.<?>

The Internet Watch Foundation in the United Kingdom produced the *Emerging trends and patterns Report #1 - Youth-produced sexual content,* which focuses on youth-produced sexual content featuring young people online. In the course of the study, some 3 803 images and videos were assessed and a quantitative analysis was performed on the dataset, focusing on age, gender, category of severity, device used and site type/hosting information in order to identify trends and patterns emerging from the data. The study makes recommendations for further research to inform effective targeting of future educational initiatives relating to youth-produced sexual content and to raise awareness among young people and all stakeholders involved in online child protection.[185]

As regards international projects, the *GSMA Mobile Alliance Against Child Sexual Abuse Content* is made up of an international group of mobile operators working collectively on ways of obstructing the use of the mobile environment by individuals or organizations wishing to consume or profit from content featuring child sexual abuse. The GSMA Mobile Alliance's aim is to help stem and ultimately reverse the growth of online child sexual abuse content. Through a combination of technical measures, cooperation and information sharing, the Mobile Alliance seeks to create significant barriers to the misuse of mobile networks and services for hosting, accessing or profiting from child sexual abuse content.<?>

A second deserving international project is *Report it, don't ignore it!* by INHOPE, the International Association of Internet Hotlines. Online child sexual abuse is likely to rise in the coming years, with ever-increasing Internet adoption rates globally. To reduce the availability of this type of content, to prevent what is universally acknowledged as the most serious form of online crime, and to provide protection from it, maximum cooperation and a multistakeholder approach are needed. Child victims need protection, perpetrators need to be brought to justice, and digital citizens need to feel empowered and know where to report illegal content. This is the concept of the awareness-raising video campaign 'Report it, don't ignore it!' launched on Safer Internet Day by INHOPE (51 hotlines in 45 countries).<?>

185 *Project nominated for a WSIS Project Prize 2015*

# Action Line C11. Regional and International Cooperation

International cooperation among all stakeholders is vital to the implementation of this plan of action and needs to be strengthened with a view to promoting universal access and bridging the digital divide, inter alia, by provision of 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 to 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 this 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 World Summit on the Information Society (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.

As already mentioned in the Introduction, ITU organized the Kaleidoscope Academic Conference 2014, held in Saint Petersburg, Russian Federation, from 3 to 5 June 2014, which approached the topic “Living in a converged world — impossible without standards?” from a variety of perspectives. The conference was held at the invitation of the Ministry of Communications and Mass Media and hosted by the Bonch Bruevich Saint-Petersburg State University of Telecommunications. Information and communication technologies (ICTs) are increasingly converging with different industries and social sectors. This is evidenced daily by innovations such as e health, intelligent transport systems, smart grid, mobile money and smart water management. The need for standards to enable interoperability and compatibility has never been more apparent. In future it will be difficult to find an industry or socio-economic activity that does not rely on the common backbone provided by ICT. This places huge demands on ICT standardization.

Also mentioned in the introduction, the ITU Telecom World 2014, a platform for high-level debate, knowledge-sharing and networking for the global information and communication technology (ICT) community, took place on from 7 to 10 December 2014 in Doha, Qatar. The event was hosted by the Government of Qatar, with the support of leading international communications company, Ooredoo. The show floor highlighted technologies and investment opportunities through the presence of national and thematic pavilions and industry showcases. Top global players included Cisco, Huawei, Intel, LS Telcom, Nokia, Ooredoo, Rohde & Schwarz, Vodafone and ZTE, along with countries Argentina, Azerbaijan, Cameroon, Chad, China, Hungary, Nigeria, Malaysia, Qatar, Tanzania, Thailand and Zimbabwe, while Kenya, Uganda, South Sudan and Rwanda came together within the Smart Africa zone. Forum discussions at the event covered the key trends and developments in technology, regulatory and policy issues, business models, services and applications, focusing on three major scenarios: disruption, cross-sector partnerships and the intelligent future. Moderators, speakers and panellists spanned a mix of high-level players from government, as well as all facets of the industry.

A third deserving ITU initiative was the first ITU ASP CoE (Centre of Excellence) Steering Committee Meeting which, as mentioned in the introduction, took key strategic decisions aimed at implementation of the approved operational processes and procedures. Some of the key issues included evaluation of performance in 2014, the strategic direction of the ITU Asia Pacific CoE from 2015 onwards, induction of partners, constitution of the Steering Committee, the timetable of annual activities for 2015, development of content, quality assurance processes, promotion plan, pricing strategies, fees structure and financial procedures, and new partnership opportunities, among others. 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, as well as providing specialist training services to external clients. Under the umbrella of the ITU Academy, these regional networks are now being joined together into a single global network sharing training curricula, resources and expertise.

The ITU Arab Regional Development Forum, which was held in Amman, Jordan, from 23 to 24 March 2015 under the theme “Broadband for Sustainable Development’, discussed the five Arab Regional Initiatives approved by the World Telecommunication Development Conference (WTDC 14) held in 2014, providing ITU Member States and Sector Members with an opportunity to exchange experiences and best practices in the implementation of the Initiatives. The Initiatives focus on the following areas: broadband, cybersecurity, ICTs for the environment, smart learning, and ICTs for persons with disabilities. Under each Regional Initiative, and through partnerships and resource mobilization, projects will be developed and implemented to meet the real needs of the region.

In **Algeria**, the objective of the *fourth International Symposium ISKO-Maghreb 2014 on “Concepts and Tools for Knowledge Management”* was to contribute to the understanding of the factors crucial to organizing knowledge and the phenomena that affect the information society. Actions to be taken by ISKO should take account of socio-cultural, cognitive and economic aspects in the strategic management of knowledge.

In **Bulgaria and Greece**, the project *Hydrogen Economy Cooperation Network for Research -Public Awareness - Business Opportunities across the Greek-Bulgarian Border* aims to implement a range of measures in the border region with a view to promoting research efforts, public awareness and economic activities relating to the “hydrogen economy” of the future. The project’s subsidiary

components include: stimulating common activities relating to hydrogen technology by establishing a research network of academic partners in Thessaloniki and Blagoevgrad; raising public awareness of the use of hydrogen as a new, environmentally friendly fuel; promoting youth initiatives and creativity in the field of hydrogen technology; and exploring the feasibility of starting hydrogen technology-based businesses in the region.


The eLAC2015 initiative from **Chile** is a long-term vision plan based on the Millennium Development Goals (MDGs) and WSIS objectives, according to which ICTs are instruments for economic development and social inclusion. The project was approved in November 2010 at the third Ministerial Conference on the Information Society in Latin America and the Caribbean, in Lima, Peru. During the fourth Ministerial Conference on the Information Society, held in April 2013 in Montevideo, Uruguay, governments of the region adopted the Montevideo Declaration and the 2013-2015 Work Plan for the eLAC2015 implementation of a *Plan of Action for the Information Society in Latin America and the Caribbean.*[<?>]

EDUganda is a south-south cooperation project in the form of a joint venture developed by **Egypt** and **Uganda** and implemented by the Information Technology Institute (ITI). It targets sectorial capacity development for IT-enabled services, and specifically the business process outsourcing (BPO) industry. The aim is to train 3 000 Ugandans in the BPO skills required by the industry in a bid to accelerate its growth. The project also aims to build Ugandan middle management capacity to operate, plan

and manage training programmes. It is an ongoing project that started with a TNA phase and a pilot training programme that yielded 100 per cent employability rates.[186]

The **Commission of the African Union (AU)** has recognized the potential of ICTs for improving citizens' living conditions. With the assistance of the Government of **India**, it has implemented a satellite and a fibre-optic network to provide tele-education, tele-medicine and diplomatic communication services to African Member States (the Pan African e-Network for Telemedicine and Tele-education or "PAeN"). The project objectives are to (1) use the potential of ICTs to develop the health and education sectors; (2) exploit the opportunities of ICTs to support economic and social development; and (3) facilitate the growth of e-applications. By the end of 2014, a total of 48 African Member States were benefiting from PAeN services and more than 16 000 students were enrolled.<?>

In the **Islamic Republic of Iran**, following the successful implementation of three main research projects relating to the Information Society between 2011 and 2013, which resulted in a new movement towards creating the information society in the country and achieving valuable outcomes as regards WSIS Targets and Action Lines, the Iran University of Science and Technology in 2013 established the *Research Centre for ICT Strategic and International Studies*. The main goal of the centre is to provide research services and act as a centre of excellence in international ICT activities and strategic planning in the Islamic Republic of Iran in support of its main international commitments such as WSIS. It is intended that the centre will cooperate with the ITU Academy.

In **Montenegro**, the Ministry for Information Society and Telecommunications, in cooperation with Albania, thorough the Instrument for Pre-accession Assistance (cross-border component), is implementing the ICT project *Promoting Connectivity of Internet Broadband in the Prokletije Mountains Border Area*. The main objective is to promote socio-economic growth and competitiveness in the mountain border area through Internet broadband services. Specific objectives are to increase Internet broadband (IBB) accessibility and connectivity in border areas of the Prokletije Mountains by defining the best technological mix, IBB operators and potential sources of finance. The project will, in addition, promote the tourism sector in the mountain areas through IBB and seek to close the digital gap by supporting inclusiveness and networking of the main business sectors and selected public services.<?>

*Free Our Voices* is a campaign by Child Helpline International (CHI) in the **Netherlands** to raise awareness of child helplines worldwide and enable the voice of every child to be heard. Currently, over 50 per cent of all calls from children to child helplines remain unanswered as the helplines are unable to keep pace with the ever-increasing demand for their services. The aim of the campaign is to obtain much-needed support from telecom operators, governments and other key stakeholders, so that the helplines can respond more effectively to every call from a child seeking help.<?>

186 *Project nominated for a WSIS Project Prize 2015*

**Kenya, Rwanda, Uganda** and **South Sudan** jointly adopted a regional telecommunications framework for a *One-Network-Area*. This was the result of resolutions adopted by the Fifth Heads of State Summit for Northern Corridor Integration Projects held in May 2014 in Nairobi, Kenya. It applies to telephone calls from and terminating within the region, and provides for:

- exemption of regional calls from surcharges applied by Member States on international incoming calls
- no additional charges to subscribers for roaming within the region
- no roaming charges for receiving calls within the region, and subscribers travelling within the region charged as local subscribers in the visited country's network.

In **Singapore**, two deserving projects are run by the Infocomm Development Authority (IDA).

IDA organizes the annual *Telecom Regulatory Course* (TRC), an executive programme that focuses on sharing Singapore's experiences in developing and regulating the telecommunication sector. The TRC, tailored for senior government policy-makers and telecom regulators, covers topics such as Singapore's overall policy, regulatory and competition management framework, spectrum and resource management, telecom licensing framework, interconnection, and infrastructure sharing, as well as the Next Generation Nationwide Broadband Network. Since its inception, the course has trained more than 185 participants from over 40 countries.

Singapore's IDA, together with the Authority of Info-communications Technology Industry of Brunei, the Directorate General Sumber Daya dan Perangkat Pos dan Informatika of Indonesia and the Communications and Multimedia Commission of Malaysia, have jointly undertaken to align with the Asia-Pacific Telecommunity's 700 MHz (APT 700 MHz) band plan. The APT 700 MHz band plan aims to optimize the use of the broadcast spectrum freed up as a result of the analogue switch off, allowing greater flexibility for the deployment of mobile broadband services.

Since 2008, the Government of **Trinidad and Tobago** and the eBusiness Roundtable, a private-sector-led public-private partnership (PPP), have been hosting the biennial ICT Business and Innovation Symposium, most recently in November 2014. It brings together international and regional ICT experts to discuss trends in ICT development.

The Minister of Economics of the **United Arab Emirates** aims to make the country into an internationally competitive and diversified economy under the leadership of effective efficient and knowledgeable UAE nationals. The ministry's mandate is to develop the national economy and create a pro-business environment that contributes to the country's balanced and sustainable development, by enacting and modernizing economic legislation, adopting appropriate foreign trade policies, developing national industries and exports, promoting investment, regulating competition and the small and medium-sized enterprise sector, protecting consumer and intellectual property rights, and diversifying economic activities, all under the leadership of effective nationals, in line with international standards of creativity, excellence and the knowledge economy. The *Patent Protection Initiative* is just one of many projects designed and developed by UAE in accordance with those aims.<?>

# 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 2015. 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 2015 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 passed the landmark of 7 000 entries this year. This encouraging outcome reinforces stakeholders' belief in, and commitment to, the WSIS stocktaking process.

We are also pleased to announce the launch of a new and innovative interface in the near future, which will facilitate searches of all WSIS related activities. All stakeholders benefit from sharing interesting case studies, which should undoubtedly facilitate the transfer of knowledge, experiences and models for projects 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 urges these stakeholders, along with all Member States, international organizations, the private sector and civil society, to continue submitting such contributions in the future. We trust that readers will find this report insightful, and sincerely hope that it will inspire them to help participate in the construction of a broader and more inclusive information society for all.

## WSIS Stocktaking

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. As of April 2015, over 7 000 updated entries have been registered in the WSIS Stocktaking Database reflecting innovative activities including projects, programmes, WSIS thematic meetings, conferences, publications, training initiatives, guidelines and tool-kits.

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 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. 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. The users are able to access their account of projects/activities and 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, the product of a joint effort between ITU and the WHO.

The WSIS Stocktaking Portal provides a repository of best practices for stakeholders seeking updated information on the 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. In the framework of the WSIS Stocktaking Platform, all types of stakeholders can benefit from "the global events calendar", "the 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. As of April 2015, the WSIS Stocktaking Platform attracted more than 100 000 stakeholders including governments, the private sector, international organizations, and civil society.

Regular reporting on WSIS Stocktaking is the outcome of the Tunis phase of the Summit, which was 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 been playing a crucial role during many years and this role takes on even greater significance in the light of the WSIS+10 review process on the implementation of WSIS outcomes.

The 2015 edition of the WSIS Stocktaking Report is the seventh of the WSIS Stocktaking Report series (previous editions of the report were published in 2005, 2008, 2010, 2012, 2013 and 2014). Due to be officially released during the 2015 World Summit on the Information Society Forum, it reflects more than 500 of the latest WSIS-related activities submitted to the WSIS stocktaking process for the period May 2014 to March 2015, each one highlighting the efforts deployed by stakeholders involved in implementing the WSIS goals.

The report is based on the multistakeholder approach and includes input from stakeholders from all over the world as well as input from facilitators and co-facilitators. The reporting is based on the contributions of the stakeholders responding to the ITU Official Call for update and new entries. The ITU Official Call for update and new entries is issued regularly in order to invite stakeholders to contribute to the WSIS Stocktaking Process and its reporting. The latest call was issued in September 2014, inviting stakeholders to provide their input to the WSIS Stocktaking reporting 2015 that will be released at the WSIS Forum 2015.

## WSIS Prizes

WSIS Project Prizes provides a worldwide unique recognition for excellence in the implementation of WSIS outcomes. Introduced in 2012, following numerous requests from stakeholders for a tool capable of identifying and rewarding best initiatives and efforts at the global level in the field of ICTs for development, it has identified and nominated more than 800 promising initiatives and projects around the world.

The contest of WSIS Project Prizes is open to all stakeholders: governments, private sector, civil society, international organizations, academia and others. The contest comprises 18 categories which are directly linked to the 11 WSIS Action Lines outlined in the Geneva Plan of Action.

The contest was held for the first time in 2012. It rapidly became popular with the ICT4D community, being highly appreciated and reflected in 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 resolution reiterates the importance of sharing the best practices at the global level, and while recognizing excellence in the implementation of the projects and initiatives which further the WSIS goals, encourages all stakeholders to nominate their projects for the annual WSIS Project Prizes as an integral part of the WSIS Stocktaking process, while noting the report on the WSIS Success Stories.

The WSIS Project Prizes 2015 contest will provide an ideal platform for identifying and showcasing success stories and models that can be easily replicated, empower communities at the local level, enable stakeholders working on WSIS to participate in the contest, and particularly recognize the efforts of stakeholders for their added value to society and commitment to achieving WSIS goals.

More than 300 projects (presented in the chart below) were nominated in the WSIS Project Prizes 2015 contest. They have been made available online for public appreciation. We note that the number

of nominated projects increased by 73.6 per cent between 2012 and 2015, with a 114.1 per cent increase from 2014 to 2015.

Project descriptions of the winning projects are included in the *WSIS Success Stories 2015* report, which will be released during WSIS Forum 2015.

In consideration of the great achievements so far recognized in more than ten years of stocktaking (from 2004 to 2015) and four years of WSIS Project Prizes (from 2012 to 2015), and with the increasing involvement of the ICT community (more than 100 000 stakeholders as of May 2015), the International Telecommunication Union continues to be strongly committed to promoting the WSIS process in the future, including its two-fold tracks **Stocktaking** and **WSIS Project Prizes** which provide, respectively, a major inventory of successful projects in the field of international ICTs for development and a unique showcase of the most useful initiatives and best practices available worldwide in the domain of ICTs for sustainable development.

In the light of the increasingly important role played by information and communication technologies in promoting sustainable development, the 11 WSIS Action Lines are undoubtedly a significant contribution to the fulfillment of the newly proposed Sustainable Development Goals currently under discussion at the level of the UN.[187]

Pursuing the outcomes of § 120 of the Tunis Agenda, ITU works on the WSIS Stocktaking process, providing the means for sharing information related to the implementation of the WSIS outcomes. A publicly-accessible database of WSIS-related implementation activities, initiated during the Tunis phase of WSIS, has been maintained and improved.

The Stocktaking Database has become an effective tool for the exchange of information on the projects in relation to the implementation of the 11 Action Lines. By May 2008, more than 3 800 projects were registered in the database and the number of entries continues to grow. In order to expand the functionality and interactivity of this publicly available tool, several improvements were made during 2007. The database architecture was adjusted in order to enhance the responsiveness of the search interface. The level of interactivity has been improved by allowing stakeholders to update their entries directly. Finally, all WSIS stakeholders now have the possibility of installing the stocktaking database web interface directly onto their own website.

By the end of 2009, more than 4 000 entries were registered in the database and the number of entries continued to grow. More than a quarter of the entries have been updated on a continuous basis. It is worth mentioning that many entries reflect more than one flagship initiative and project implemented by WSIS stakeholders. By July 2010, the number of entries in the database had grown to 4 770 entries.

The new WSIS Stocktaking Platform was officially launched by ITU on the occasion of the 16th meeting of the Council Working Group on WSIS, which was held from 2 to 4 February 2010 at ITU headquarters in Geneva. It includes improved features, including the application of web 2.0 tools, and adds additional

[187] The complete list of the proposed Sustainable Development Goals (SDGs) is available at https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals

functionalities to the existing web site such as the searchable database, thus providing a platform for networking and community building for stakeholders. The introduction of new components like the global events calendar, global repository of WSIS-related publications, regular interviews with stakeholders, and the capability to create communities of practice and discussion forums, could serve as an effective instrument for information and communication among stakeholders. Future plans include developing inbuilt evaluation and monitoring tools for WSIS Stocktaking.

The outcomes of the WSIS Stocktaking Session held on 11 May 2010 were aimed at leveraging the efforts of countries and increasing their visibility in the WSIS implementation process through the development of analytical input within the framework of WSIS Stocktaking. To respond to these requirements, country and implementation case studies were proposed as an alternative to leverage Member States' activities relating to the ICT framework at the national level and WSIS implementation. The case studies will be elaborated in partnerships with the WSIS stakeholders.

## ITU's contributions to the implementation of the WSIS Outcomes: 2011

As of September 2011, over 5 187 entries had been registered in the WSIS Stocktaking Database. The majority of the entries (58 per cent) were 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.[188]

The Success Stories publications (a fourth edition is due to be launched during the WSIS Forum 2015) 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 2010–2015, 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 of 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 were 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 update and new entries.

[188] Available at www.wsis.org/stocktaking

## ITU's contributions to the implementation of the WSIS Outcomes: 2013

As of 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 to bridging the digital divide and building an inclusive information society.

As of July 2013, the WSIS Stocktaking Platform 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 an international level.

## ITU contribution to the implementation of the WSIS Outcomes: 2014

As of 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 represent 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 an 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

WSIS Stocktaking was initiated by ITU in 2004 in order to exchange and share information on ICT projects for development at the global level. It has become an indispensable tool, not only for

recording all the initiatives related to the implementation of the 11 WSIS Action Lines, but also as a platform for transferring experiences and knowledge, sustainable models and best practices. In order to do so, an online platform was also conceived by the WSIS team to track progress in the implementation of the projects around the world. The online platform is available at http://groups.itu.int/stocktaking/Database/SearchDatabase.aspx.

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 of 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 more than 1 000 WSIS-related activities which 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 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 entities, mainly academia. As regards geographical distribution, 31 per cent of the projects in 2015 were submitted by Arab States, 18 per cent are 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 will be identified and winning projects will be announced officially to the public during the prize ceremony, which will be held during the WSIS Forum 2015. The success stories will showcase examples of projects on the implementation of WSIS outcomes, emphasizing achievements of stakeholders working towards achieving WSIS goals, transferring experience and knowledge at the global level, and spreading and fostering WSIS values.

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