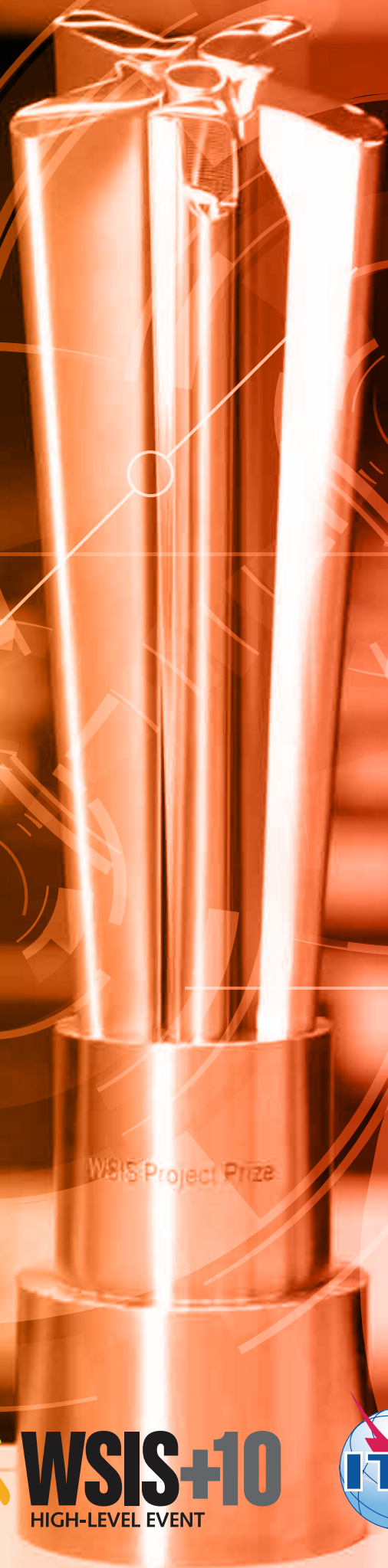


WSIS STOCKTAKING SUCCESS STORIES

2014

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



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WSIS STOCKTAKING SUCCESS STORIES 2014

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Overview of projects

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

Ministry of Information Technology and Communications, Republic of Colombia

Redvolución

Redvolución seeks to create partnerships between the social actors and public and private stakeholders in order to eradicate digital illiteracy and to reduce the digital divide by inspiring people to use ICTs and particularly the Internet. In practice, the strategy is developed under the scheme of a compulsory social service (CSO) to all students aged 10 and 11 of the country. Redvolución is not a training programme but rather a scheme in which students spread and inspire the use of Internet in their own communities. At present, Redvolución has officially engaged 1 200 schools nationwide, and it is expected to work with 6 000 schools by the end of 2014. Redvolución tries to attract people in the world of the Internet by showing them how it could become a factor for positive change and better quality of life. Favouring the integration of the previously isolated populations into the Information Society, this project is a good illustration of how governments can work towards the promotion of ICTs.

C2 Information and communication infrastructure

Ghana Investment Fund for Electronic Communications, Ghana

Rural Telephony Project

The Ghana Investment Fund for Electronic Communications (GIFEC) was established and mandated by the Government of Ghana through an act of parliament, the Electronic Communications Act 785, to facilitate the provision of universal access to telephony in the unserved and underserved communities in Ghana. GIFEC launched the rural telephony project to provide access to ICTs in remote communities and thus open them up for economic development and access to information. The project targets underprivileged and deprived Ghanaian communities with populations of less than two thousand (2 000) people. The project provides 2G/3G base stations with small cellular antennas providing free Internet Wi-Fi services in addition to traditional voice services. The project started with a common telecommunication facility that was implemented in close collaboration with telecom companies, and was transformed into active small cell sites with free Internet Wi-Fi. The project utilizes green energy solutions based on solar energy that ensures a pollution-free environment and energy-conserving system. Currently, 30 rural telephony sites have been deployed across Ghana.

C3 Access to information and knowledge

GEOSYS, People's Democratic Republic of Algeria

Aina. Digital mapping platform on the Internet

The company GEOSYS worked on its Aina application for over six years. The application, developed for the use of all Algerians, is based on a satellite-mapping system and provides various categories of interest called points of interest (POI), such as public facilities, administrations, transport infrastructures, leisure activities and so on. Aina has been designed to locate almost anything on an interactive map and provide citizens with a wide range of practical information. Planning to cover the entire Algerian territory within two years, Aina also allows citizens to contribute information which will be verified and posted.

C4 Capacity building

Mohammed Bin Rashid Smart Learning Programme, United Arab Emirates

Mohammed Bin Rashid Smart Learning Programme

The Mohammed Bin Rashid Smart Learning Programme (MBRSLP) is the fruit of collaboration between the Ministry of Education and the Telecommunications Regulatory Authority. The project aims to transform the educational system in the UAE and keep pace with the latest global developments in education by creating a new, advanced, unified electronic learning environment in all public schools by means of 'smart classes' where every student has an electronic device and access to learning resources through high-speed networks. In addition, this will enable integration and collaboration between teachers, students, parents and administrators to create a student-oriented educational system that identifies students' particular learning styles, intelligences, strength and weakness and enhances their skills according to their abilities based on interactive teaching and learning.

C5 Building confidence and security in the use of ICTs

Information Technology Authority (ITA), Sultanate of Oman

Sultanate of Oman CERT Centre (OCERT)

OCERT was established in May 2009 to serve a wide group of ICT users, particularly the national infrastructure institutions and major industries, in addition to nationals and residents. It provides a diverse set of information security-related services. In the past few years, it has dealt with cybercrime in Oman and developed effective tools to detect the different forms of abuse. The Centre also aims to build confidence in the use of e-government services on the Internet, as well as to develop competent Omani experts qualified to respond to security incidents and detect them. Training and awareness is an important mandate of OCERT in reaching out to the public.

C6 Enabling environment

Polish Agency for Enterprise Development, Republic of Poland

Platform: "We support e-business - web.gov.pl"

The Polish Agency for Enterprise Development has created the "We support e-business –web.gov.pl" Platform as a response to the needs of small and medium-sized enterprises in Poland searching for information about running a business on the Internet. One of the key tasks of the Platform is to encourage all entrepreneurs, including those who have just started to run their own businesses, to begin or expand their activity on the web. The Platform collects and provides information free of cost, for instance innovative ideas for e-services and B2B technologies, information about European funds for businesses, success or failure business stories, Polish laws and constraints on business. With over 13 000 registered users, the e-platform has become a community and a network for businesses nationwide. It is a good example of the potential of ICTs in implementing a productive and open environment in business.

C7 E-government

Prime Minister's Office (PMO), People's Republic of Bangladesh

Services @ Citizens' Doorsteps

The Access to Information (A2I) Programme is being implemented by the Prime Minister's office (PMO) of Bangladesh with technical assistance from UNDP and USAID. A2I is working as an innovation vehicle in order to revamp the traditional public service delivery processes, focusing on meeting the needs of underserved communities, with the motto "Services @ Citizens' Doorsteps." The programme is primarily focused on: a) making government services responsive to the citizenry's needs; and b) taking public and private services to citizens' doorsteps. A2I is leveraging the flexibility and ubiquity of indigenous ICTs in quickly upscaling various small prototypes, which are instilling an innovation culture in the Bangladeshi civil service.

C7 E-business

Ministry of Education, Kingdom of Saudi Arabia

Financial and Administrative Resources Information System (FARIS)

The Ministry of Education implemented the FARIS project in order to create a system that handles all its financial, supply chain management and HR functions. FARIS is built in accordance with the best standards and practices applied in governmental bodies. FARIS has made it possible to organize work, apply rules and regulations, limit expenses and integrate different functions between subsystems. Reporting information has become faster and more reliable, and greatly assists the ministry in decision making. The project has contributed to making Saudi Arabia a powerfully digitized society, and is effectively facilitating the generation of payroll for more than 700 000 employees under 46 different payrolls.

C7 E-learning

Abu Dhabi Systems & Information Centre (ADSIC), United Arab Emirates

Abu Dhabi Government e-Citizen Programme

The e-Citizen Programme is a strategic initiative adopted by the Government of Abu Dhabi that aims to bridge the digital divide in society and enable the targeted segment that lacks basic skills to use the Internet on a daily basis in order to access e-services to obtain information, products and services and support e-learning. A large proportion of the population still does not have the appropriate skills to access the Internet. The Government proposed this programme in order to achieve the common goals of enhancing skills in the use of computers and the Internet in the Emirate of Abu Dhabi. The purpose of the programme is to improve operational efficiency, embrace technology and give government, businesses and citizens access to services. The programme aims to train 10 000 citizens across the Abu Dhabi Emirate over an 8-year period, covering 70 per cent of the outlying areas of the Emirate, including 5 000 inhabitants living 160 km off the main island.

C7 E-health

Centre for Development of Advanced Computing (C-DAC), Hyderabad, Republic of India

Mobile Based Maternal Health Awareness

“MOTHER”, mobile based maternal health awareness, is a mobile-based application that directly targets pregnant women. Emphasizing the case of women who are illiterate or living in rural communities, “MOTHER” simply provides voice calls in regional languages to mothers in rural communities to raise awareness about pregnancy-related health issues, or to give personalized advice based on their critical health parameters. Timely availability of critical information to a pregnant woman contributes significantly to reducing maternal mortality rates and infant mortality rates. In the pilot project, as of today, 35 121 voice calls have been made to 3 505 beneficiaries.

C7 E-employment

Egypt Information and Communications Technology Trust Fund (MCIT – UNDP), Arab Republic of Egypt

Youth Employment Generation Programme

The Youth Employment Generation Programme in Egypt (YEGP) responds to the urgent need to address the prevailing youth unemployment rate in Egypt. Business leaders say that youth often lack the skills required by different industries operating in Egypt. The programme works to empower three main pillars: 1) the micro, small and medium enterprise (MSME) component that aims to improve the competitiveness and profitability of local MSMEs; 2) the social entrepreneurship component which works towards inspiring youth to be champions leading their businesses; and 3) the vocational training-and-internship component that focuses on setting up a mechanism to connect private companies with youth joining the job market. Awareness sessions, training sessions and remote e-training sessions were organized, and the programme emphasized the importance of using ICT services such as web creation, networking and e-marketing solutions. In addition to implementing a web presence, the project enabled knowledge-sharing mobile services. Awards were distributed for the best-developed webpages. In targeting youth and SMEs and encouraging self-employment, this project was efficient in fostering a developmental approach in a growing economy.

C7 E-environment

İSKİ, Turkey

Use of Information Technology for Water and Wastewater Analysis

In facilitating exchanges between field work and laboratory work, this project aims to monitor and improve the quality of water in Istanbul. Many different IT tools were used, from mobile phones to specific applications, in order to collect reliable data on the quality of water and manage time efficiently. By combining the use of ICTs and environmental research, the project has been able to collect an important range of data over different time periods and in different locations, analysing samples from 350 to 400 different locations every day and producing about 50 different reports on water quality, which is essential both for health and protection of the environment.

C7 E-agriculture

Ministry of Agriculture, Livestock and Fisheries (MGAP), Eastern Republic of Uruguay

Sistema Nacional de Información Ganadera (SNIG)

In response to the challenge of tracing bovine cattle within the territory, the Ministry of Agriculture, Livestock and Fisheries (MGAP) created a database to make the activities of livestock producers easier. A geographic information system (GIS) was introduced to facilitate the collection of data on the territories and species. It has helped to increase confidence in regard to consumption for feeding purposes and provide expertise on agricultural matters. This programme was constructed for information purposes and adds no cost to production. It has contributed to integrating the rural areas in the ICT network and has enhanced agricultural production, thus benefiting the national economy and the sector.

C7 E-science

Kuwait University, Faculty of Science, Electron Microscopy Unit, State of Kuwait

Remotely Operable Scanning Electron Microscope

Concerned with the decreasing interest in scientific studies, the Faculty of Science of Kuwait University launched between 2008 and 2009 the Remotely Operable Scanning Electron Microscope. This project aims to give students easy and inexpensive access to the tool and provide affordable technology. The university has worked with its partner on making the microscope controllable via the Internet, developing a user-friendly and interesting IT tool. Students are thus able to take advantage of this tool and remotely observe materials through a microscope, on their screens, at no cost. ICTs are hereby used to encourage interest in science and for the pursuit of research at all levels.

C8 Cultural diversity and identity, linguistic diversity and local content

Cubarte, National Centre of Informatics in Culture, Cuba

Cubarte, the Portal of Cuban Culture

Cubarte is the national portal of Cuban culture, aimed at preserving the identity of Cuban culture through the promotion of the most relevant and popular aspects, as well as the most authentic, unknown and identity-related aspects. The portal is developed in 3 languages (Spanish, English and French) on the national scale and provides information on various topics such as fine arts, heritage, community projects and artistic teaching. Cubarte gives access to more than 600 Cuban cultural websites providing information both on the cultural context in Cuba and on cultural events to come.

C9 Media

Philmon Press P.L.C., Federal Democratic Republic of Ethiopia

Infotech TV Show: Disseminating ICT knowledge through media

InfoTech is a 40-minute magazine-style technology TV programme created by the company PHILMON PRESS P.L.C. and aired in collaboration with the Ethiopian Radio and Television Agency on the ETV3 channel nationally and globally via Nilesat satellite. The show is dedicated to helping Ethiopian audiences use and understand technology to simplify their lives, whether at home or at work. It comprises news, conversations with the most informative experts around, shows about computers, technology, the Internet, product reviews, tips and tricks, technical support and how-to demonstrations. Most importantly, the show is jargon-free and presented in the Ethiopian national language, Amharic. The project therefore works towards capacity building around ICTs and makes ICTs well-known and useful tools in the life of Ethiopians. Infotech establishes education as a prime tool to change state of mind and priorities, working towards future economic growth based on knowledge.

C11 International and regional cooperation

Ministry of Higher Education, Scientific Research and Information and Communication Technologies, Tunisia

International Event, ICT4ALL

As part of the follow-up of the WSIS outcomes and Tunis Agenda recommendations, Tunisia has established, since 2006, a follow-up mechanism to support international efforts to increase cooperation in an inclusive approach to reduce the digital divide by hosting the annual international event ICT4ALL. This event aims to contribute to realization of the Tunis Commitment and Agenda adopted at WSIS-05 in coordination with all stakeholders (governments, public and private sectors, international and regional organizations, academia and civil society). ICT4ALL targets African and Arab countries and presents a platform to address fundamental issues, within the context of achievement of the MDGs and WSIS action lines.

C1. The role of governments and all stakeholders in the promotion of ICTs for development: Redvolución (Republic of Colombia)

Ministry of Information Technology and Communications

I Background information

According to the Law on ICTs (Law 1341), the Ministry of Information Technology and Communications is the institution in charge of designing, adopting and promoting the policies, plans, programmes and projects in the field of ICTs. One of its duties is to facilitate and spread access to ICTs to all Colombians. Its mission is to promote access to and effective use of ICTs, developing policies and programmes that improve the quality of life of each Colombian and enhance national sustainable development.

The Ministry's goals, according to Article 17 of Law 1341 of 2009, are:

- To design, formulate, adopt and promote the policies, plans, programmes and projects of the ICT sector, in accordance with the Colombian political constitution and law, with the purpose of contributing to the economic, social and political development of the nation and to the improvement of the welfare of the Colombian people.
- To promote the use of ICTs between Colombian citizens, companies and government as support to the social, economic and political development of the nation.
- To stimulate the development and strengthening of the ICT sector, and promote research and innovation to achieve competitiveness and technological advances.
- To define the policy for and exercise the management, planning and administration of the radio-frequency spectrum, postal services and other related areas, except as determined by law.

The "Plan Vive Digital", in accordance with the commitments made in 2003 in Geneva, recognizes the existence of a digital divide. It works on reducing the divide by providing access to the Internet throughout Colombia and by creating a digital environment.

The "Plan Vive Digital" also recognizes the importance of creating alliances between the public and private sectors in order to reduce the digital divide in Colombia.

The "Plan Vive Digital" focuses on the importance of fostering people's capacities by creating virtual and face to face courses in order to include ICTs in education, organizational and governmental processes.

“Vive Digital” is a Colombian technology plan that aims to foster a major technological leap by making the Internet widely available and developing the digital environment. It has demonstrated that there is a direct relationship between Internet penetration, the adoption of ICTs, the generation of jobs and the reduction of poverty. In regard to these goals, “Vive Digital” entails huge social and economic benefits.

“Vive Digital” stimulates the four components of the digital environment through the expansion of infrastructure, the creation of new services at lower prices, the promotion of apps and digital contents and the boost from technological take-up by users.

It is thus creating a virtuous cycle in which there is greater demand from users, more apps and content for them, and more and better services at lower prices in a modern and evolving infrastructure. Accordingly, offer and demand are promoted at the same time, and the hope is to reduce the digital divide.

When Redvolución started in 2012 as a pilot to inspire people to use the Internet, it required more than a pedagogical structure design process: it required the creation of alliances with national stakeholders in order to guarantee national coverage in regions and schools, all around Colombia.

It is important to take into account that inspiring people is not easy, so it required creation of the pedagogical background.

The key component in the creation of Redvolución was that of devising a new way of serving communities by promoting access to and use of the Internet. The response came in the form of the national mandatory social service. This may sound like an imposition on the students, but it was actually a new solution for them, providing people with a different view of the Internet.

In Colombia it is mandatory to provide a social service to the community at the age of 10 and 11; the duration of the mandatory social service is 120 hours and normally students provide it by attending nursing homes or helping the church. Redvolución is a solution that became a new way to foster Internet access.



II Goals and time-frame

Redvolución is a strategy oriented towards reducing the existing digital divide in the country by extending knowledge of new technologies – and specifically the Internet - to those layers of the population that are still not integrated in the digital path.

However, Redvolución is not a training programme. It is rather a scheme in which selected actors - namely 10 and 11 year-old students - inspire the use of the Internet in their own communities, using these communities' interests and questions as a starting point.

The process takes place in the context of the mandatory social service that all students must serve as required by law, thus providing a new and very socially-oriented alternative for them, giving them the chance to share all the knowledge they have and showing how the Internet can become a powerful tool to improve people's everyday lives.

At the present time, Redvolución has officially engaged 1 200 schools nationwide, and it is expected to work with 6 000 by the end of 2014.

At present, Colombia's government is committed to achieving a set of social goals including: reduced poverty, increased employment and strengthened competitiveness. The Ministry, through its "Plan Vive Digital", intends to contribute to such accomplishments by implementing a number of different actions.

The Ministry is not only focused on expanding the coverage of the goods and services it provides, it is also committed to fostering people's adoption of such goods and services. In other words, it is equally important to both provide equipment and infrastructure and provide engagement and training strategies, so that people can actually make the most of ICTs and effectively incorporate them as part of their everyday lives.

Redvolución is one of several strategies developed by the Ministry in order to foster the adoption of ICTs, especially amongst the layers of the population in which the Internet is widely unknown. In short, Redvolución is a strategy that aims to reduce the existing digital divide in the country by expanding the knowledge of new technologies – and specifically the Internet – in those layers of the population still not integrated in the digital path. It is fair to say that Redvolución is the inspirational component of the "Plan Vive Digital".



III Project's added value and importance

Redvolución is an institutional answer for all those who, for various reasons (mainly economic and knowledge-related) have not made the Internet a part of their lives yet. The “creed” of Redvolución is very simple but quite powerful: interest plus Internet equals adoption. Redvolución endeavours to engage people in the world of the Internet, not by training or teaching processes, but by showing them how it can become a factor for positive change and better quality of life.

The students send out in the community four main messages which compose the conceptual basis of Redvolución, each one having its own visual identity:

- Click “power”: the Internet helps you to achieve your goals, as an individual and as part of a community.
- Enter “pa mi gente” (Enter “for my people”): the Internet is for everyone, not just for the young or the rich.
- Delete “pesimistas” (delete “pessimists”): the Internet empowers people, tears down the “cannot” wall.
- Dale “play” al conocimiento (press “play” for knowledge): the Internet is a huge repository of knowledge, a way to democratize access to it.

Redvolución is also equipped with a complete *in situ* follow-up scheme, which is implemented in Colombia by the Alberto Merani Conceptual Pedagogy Foundation, which has been the programme’s strategic partner ever since it started.

Redvolución has a website on which more than 200 inspirational tutorials can be found, ready to be used not only by students or teachers; they are available to everyone interested in inspiring the use of the Internet. No one owns Redvolución, everyone is welcome to use the materials.



IV Challenges

Redvolución's biggest challenge lies in the creation of capacities among the students and demonstration of the fact that everything can be done through the Internet. Inspiring people is the biggest challenge, so the project is looking forward not just to building capacity within society, but also to empowering people to realize their own dreams by using the Internet in a safe, responsible and effective way.

V Conclusion

Redvolución is built on the premise that everyone should have the necessary skills to fully benefit from the Information Society. As the action line determines, Redvolución tries to work hand in hand with all the educational institutions around Colombia, in a quest to eradicate digital illiteracy by empowering local communities through their local students to promote their digital development and eliminate the digital divide that is present today in Colombian society.

Redvolución is also a project that demonstrates that through the use of ICTs a new educational model can be developed to create basic digital skills among communities and promote use of the Internet for society. More than just a project, Redvolución's ambition is to foster inspiration through the multiple uses of the Internet, building capacities in communities to implement human development.

C2. Information and communication infrastructure: Rural Telephony Project (Ghana)

Ghana Investment Fund for Electronic Communications

I Background information

With the telecom revolution today, channels of communication are taking different forms. Access to telecommunications has a strong and direct positive impact on overall economic growth, development of the private sector, delivery of public services and connection of rural and isolated areas with the rest of the country. The poor, especially in rural areas, have less access to telecom services than justified by their poverty levels, and the emerging “digital divide” is widening.

Generally, commercial mobile network operators do not deem it economically feasible to provide telecommunication signals to underprivileged and deprived Ghanaian communities with populations of less than 2 000 people. Some of these communities are so remote and inaccessible by road that they lack basic utilities like electricity, water and good schools. However, it is these same communities that support the agricultural base of the nation, since most of the inhabitants are predominately farmers.

The Ghana Investment Fund for Electronic Communications was thus mandated by the Government of Ghana to extend communication to these remote communities and thus open them up for economic development and access to information.

The Rural Telephony Project (RTP) was launched in 2010 to extend mobile communication signals to unserved rural communities as well as to enhance customer experience of quality of service in underserved communities. The project provides funding to operators to cover the full capital expenditure costs of extending mobile telephony services to these communities.

The project provides 2G/3G base stations with small cellular antennas providing free Internet Wi-Fi services in addition to traditional voice services. The project, which started as the Common Telecommunication Facility, is being implemented in close collaboration with telecom companies, and has been transformed into active small cell sites with free Internet Wi-Fi. The project utilizes green energy solutions using solar energy. This ensures a pollution-free environment and energy-conserving system.

Currently 30 rural telephony sites have been deployed across Ghana.

II Goals and time-frame

The objective of the Rural Telephony Project is to motivate telecommunication operators to extend their services into locations of less commercial viability by the Project bearing the cost of setting up the tower. Such provisions go a long way in absolving about 70 per cent of the telecommunication operator's costs in providing access to those communities. The project is thus implemented in collaboration with the telecommunication operators with the ultimate aim of providing universal access to telecommunications.

The goals of this project are to:

- Establish a total of 150 rural telephony sites by the end of 2015.
- Provide access to telecommunication services in every Ghanaian community with a population of at least 2 000 persons.
- Utilize green technology for the provision of communication services, thus ensuring sustainable energy consumption as well as reduction in environmental pollution.
- Encourage development of telecom services in rural areas and make it more affordable through a suitable tariff structure.



III Project's added value and importance

- The telecommunication gap that exists in rural and remote areas has been addressed by this project.
- In some of the beneficiary communities which do not have access to electricity, the site's security lighting system was provided. In some communities a mobile phone charging outlet has also been provided at the site.
- The revenues generated by the telecom operators in these rural communities have seen a significant increase, thus contributing directly to the GDP growth of the country.
- Economic activities in the rural areas have seen a massive improvement with farmers and traders being able to transact business across geographical divides at little cost.

- The rural citizens have now been exposed to a wealth of information and are demanding transparency and accountability from their area-governing local assemblies and elected members of parliament.
- The time-to-market for farm produce has greatly reduced, with communication enabling real-time decisions for best selling prices.
- The money saved on operating costs from the use of green energy can now be used to address other specific needs of the communities, such as provision of accessible and affordable ICT devices.



IV Challenges

Due to the remoteness of the communities, the use of terrestrial backhauling services is impossible or its cost is prohibitive. Thus VSAT technology is used and it impacts negatively on the quality of service (QoS) of communication signals, for example regarding jitter and latency. The National Communications Authority of Ghana has been encouraged to exempt the operators in these communities from QoS performance monitoring.

The affordability and ubiquity of feature phones as compared to smart phones means that many of the rural population have yet to appreciate the value of Internet data services. GIFEC intends to sensitize them regarding the available services and benefits of data connectivity and also provide access to affordable data-enabled mobile handsets.

V Relevance of the project to the respective action line

The Rural Telephony Project of Ghana enables the provision of telecommunication infrastructure to serve the communication needs of citizens in rural and remote communities of Ghana. This group of people is not considered to be a viable market for the private mobile network operators.

VI Conclusion

The Rural Telephony Project is the Government of Ghana's vision to ensure that each citizen has access to communication services regardless of their geographical location in the country. This provides an opportunity for growth of customized applications such as mobile money transfer services, for employment generation and for revenue mobilization for economic development. The provision of data services would also help to increase the m-learning concept being utilized by teachers and students in remote parts of the country. The RTP would enable the rapid transformation of Ghana into an informed society with sound economic growth indicators.



C3. Access to information and knowledge: Aina. Digital mapping platform on the Internet

(People's Democratic Republic of Algeria)

GEOSYS

I Background information

Aina is a digital mapping platform that has been developed to allow Algerian citizens and foreign visitors (in a first phase) to access information throughout the national territory using maps and digital content. As the fruit of collaboration with the Algerian Ministry of Post and Information Technology and Communication, this digital content platform will be a free service for Algerian citizens (and citizens of other countries in the region).

The maps used on the Aina platform are produced from satellite images. Their resolution is of about 50 cm.

Visitors to the website www.aina.dz are able to choose a point of interest (POI) in the areas they have chosen. A point of interest is a place, a building or a space that can be of tourist interest. For instance, POIs could be the following:

- Public facilities
- Administration and institutions
- Banks, insurance, postal services
- Hotels , restaurants, cinemas
- Transport, railway stations, airports
- Service stations , car parks
- Amusement parks
- Routes
- Libraries, museums

II Goals and time-frame

In the first phase of the aina.dz website, Algerian and tourist visitors (local or foreign) can browse and geolocate their points of interest in Algerian cities. In a second phase, www.aina.dz online will add cities in neighbouring countries (Morocco, Tunisia, Mauritania , Libya and Egypt).

A search engine has been developed that allows users to find the information they are looking for. The services offered by the www.aina.dz website are:

- Obtain points of interest (cinema, restaurant, bank, hotel, post office, etc.);
- Explore a given place;
- Explore a garden before visiting;
- Guide visitors to a park;
- Access practical location-based services;
- aina.dz can choose a route and share it with someone else by sending them an email;
- Geolocate cultural events in the city;
- Geolocate commercial events;
- aina.dz will make it possible to discover of one's own city and neighbourhood.



The portal also provides services to professionals in the following areas:

1 . Education

The Aina spatial platform can locate all primary and secondary schools and give a detailed description of existing infrastructures and services in schools (class number, number of laboratories, toilets, heating, nursing, ambulance, library, Internet connection, etc.). It may also provide for each school:

- The number of students
- The number of teachers and their specialties
- Statistics of student success
- Other information

2 . Vocational training

The Aina spatial platform can locate all vocational training centres for young people who want to enroll in the various specialties offered by the centres. It allows managers to monitor enrolment and statistics and geolocate the most requested specialties. Aina can locate companies that help by hiring student interns.

3 . Health and population

The Aina spatial platform can locate all health facilities with the specialties they offer to citizens. The Aina platform can locate pharmacies and care centres. It will also geolocate and track epidemics or other phenomena linked to prevention.

4 . Youth and sport

The Aina spatial platform can locate all facilities and youth sports centres. It can provide information about enrolment. It provides the opening hours of facilities like swimming pools. It can geolocate events and provides information on the organizers of the event and schedules.

5 . Public works

The Aina spatial platform can geolocate the entire road network infrastructure and provide a detailed specification sheet on all elements of the road network (e.g. bridges, crossings, black spots, gas stations, rest areas on highways). The Aina platform can also provide road users with traffic information, e.g. accidents, diversions, road narrowings, floods.

6 . Industrial zone and area of activity

The Aina spatial platform can locate all industrial areas and business parks in cities. It can identify all industrial enterprises and link subcontracting between poles. This helps for statistics on job creation, on unemployment, on people who work in the industry. This mapping will help to know the energy and water consumption of different plants and allow estimation of consumption in coming years.

It can also be used to establish a record of industrial waste in order to map pollution prevention. This mapping will geolocate the major polluters and establish a charter of prevention. It will allow managers of industrial zones to manage the telecommunication infrastructure, transport, recovery and response to industrial accidents.

7 . Environment

The Aina spatial platform can geolocate all green spaces in the city, as it can also geolocate :

- Legal landfills
- Illegal landfills
- Sanitary landfills
- Companies that pollute the environment

8 . Tourism and crafts

The Aina spatial platform allows tourists to prepare their trips (locating all elements to ensure a good stay):

- Hotels
- Restaurants
- Museums
- Archaeological sites
- Travel agencies
- Beaches
- Marinas
- Youth hostels
- Campsites
- Cottages
- Seaside resorts
- Parks with noteworthy fauna and flora
- Zoos

9 . Transport module

This module allows anyone to:

- Know their route from point A to point B
- Geolocate all bus-stops in a city
- Know the POIs near bus stops
- Know the names of service companies
- Know the taxi companies
- Know the train stations with their different destinations and connections

For administration officials, a database of all operators in the transport of goods and people is being developed. A further database of vehicles is being developed. Our mapping platform is compatible with the GPS module and a geolocation and fleet management option has been developed.

10. Aina Reporter Module

The Aina spatial platform contains a module that allows the citizens of different countries (Algeria, Morocco , Tunisia, Mauritania , Libya and Egypt) that have a connection with the project to help correct information and add information about their cities, their neighbourhoods or any other information to better inform citizens. Relevant information can include the name of a street, a place, a plot or a house with a link with historic events, an intersection or a neighbourhood. Information added by citizens is not automatically displayed; it is first verified on the ground by GEOSYS teams, and then published. The module is called Aina Reporter. The company's strategy is that citizens contribute the information they want.

Algeria will be covered within two years. Major cities in other countries will be developed at the same time. For this purpose, recruitment will be conducted in different specialties, such as:

- Processing of satellite images and aerial photography
- Geographic information systems

- Urban data collection tools
- Road data collection tools
- Software development tools
- IT security tools
- Software storage tools
- Development tools for data warehouse

III Project's added value and importance

It took six years to develop the application. The Oracle software was used as system management database. The company is specializing in managing knowledge in the field of spatial databases in the MENA region. The company is preparing to acquire new knowledge and technology to provide a single reference for public and civil institutions.

The added value is to provide a platform with application programming interface (API) for young companies to develop their own applications.

IV Challenges

Training based on advanced information systems and new technologies such as:

- Augmented reality
- 3D mapping
- Development of a semantic search engine in collaboration with university teachers
- Development of API to allow start-ups to develop applications around the platform
- Development of ontologies for different professional fields focusing on Aina

V Conclusion

Aina is a spatial geolocation information platform. The project forms part of supplying digital content for Algerian citizens and citizens of different countries and regions in which the company is consulted. For professionals, administrators and government officials, the objective of Aina is to manage the territory for which they are responsible. The existence of different layers of information makes it possible to produce analyses that are an aid to decision making. Aina offers all the tools necessary to sort, collect, edit, view, analyse and disseminate information via Intranet, Internet or Extranet.

C4. Capacity building: Mohammed Bin Rashid Smart Learning Programme (United Arab Emirates)

Mohammed Bin Rashid Smart Learning Program

I Background information

The United Arab Emirates is one amongst many nations seeking to reform and improve their education systems. The last decade has witnessed an extraordinary level of international education reform and a myriad of different approaches to the provision of education. Whilst many of these reforms have proven to be transient in nature, there has been a developing consensus that a paradigm shift is required in the provision of education to successfully meet the present and future social, political and economic needs of nations and the aspirations of learners.

In the drive to improve the quality of education provision and outcomes it has been reasonable to assume that the transformation in working practices, efficiency savings and creative developments that were and are taking place in the private sector through the application of emerging technologies could be transferable into education systems.

The Mohammed Bin Rashid Smart Learning Programme (MBRSLP) is a joint venture between the Ministry of Education (MOE) and the UAE Telecommunications Regulatory Authority (TRA) in cooperation with the UAE Prime Minister's office.

The MBRSLP, which is part of the UAE Vision 2021, was launched in 2012 by His Highness Sheikh Mohammad bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai.



II Goals and time-frame

The programme's main objectives are "to encourage the integration of teachers, students, parents and administrators within a unified electronic platform, to change the 20th century traditional methods of teaching to an interactive one, and to create a student-oriented educational system that identifies students' particular learning styles, intelligences, strength and weakness and enhances their skills according to their abilities."

The initiative aims to create new advanced learning environments throughout the public schools by means of 'smart classes' that will provide every student with an electronic device and access to high-speed 4G networks by 2017 with "the aim to improve the educational system in the UAE and keep pace with the latest global developments in education."

The MBRSPL programme began in 2012 with Phase One roll-out in eight schools for Y7 students. This was followed by the roll-out in April 2013 of Phase Two, which included an additional six schools, and in September 2013 a further 107 schools in Phase Three. Further phase developments will ultimately lead to ubiquitous use of technology for all students in all the six Emirates which are participating in the programme.



III Project's added value and importance

Whilst the programme is similar to many international ICT developments in that it represents a major technology roll-out of one-to-one devices with some additional classroom technologies, the intention is that the MBRSPL will differ in four significant aspects from many of those previous international roll-outs. The programme will be:

Educationally Led - The strategy will be focused on the delivery of a set of educational objectives rather than a prime emphasis on technology implementation.

Informed by Evidence - The strategy will be informed by lessons learnt from other international contexts.

System Wide - The strategy will impact the entire education community from students to teachers, from parents to principals.

Supportive of National Aspirations – The strategy will be developed in line with the broader social, cultural and economic aspirations of the UAE.

Essentially the programme is viewed as a catalyst for change within the education system to support the broader national vision for 2021.



IV Challenges

- Very high aspirations and expectations
- Large scope as it involves nationwide deployment
- Very short time-frame to deliver, especially for September roll-out
- Lack of past global experience in nationwide deployment
- Challenges in training and developing teachers and school leadership on new technologies and to embrace this transformation and change management process.
- Managing different set of stakeholders and partners to achieve the programme's objectives.
- Dealing with technological challenges and adaptation to educational context and learning requirements.



V Conclusion

The Sheikh Mohammed Bin Rashid Smart Learning initiative was developed as a pilot project to demonstrate the impact of ICT-based alternative educational delivery systems on the overall level of the UAE education system. The programme is founded on inducing ICT-based skill sets and ensures that ICTs are fully integrated in education and training at all levels, including in curriculum development, teacher training, institutional administration and management, and in support of the concept of lifelong learning.

The Mohammed Bin Rashid Smart Learning Programme provides an overall educational experience through the most advanced technologies. This will allow students to access information at higher speeds and is expected to raise the overall standards of education at a national level.

C5. Building confidence and security in the use of ICTs: Oman National Computer Emergency Readiness Team (OCERT)

(Sultanate of Oman)

Information Technology Authority (ITA)

I Background information

The Digital Oman Strategy (e.Oman) Initiative outlines the blueprint for several key IT initiatives in the Sultanate of Oman, which aim to empower citizens by providing meaningful interaction through e-services. The e.Oman strategy addresses e-government as well as digital society issues. It aims to create an effective government-community-citizen infrastructure that provides better public services to its people. Through e-services, the government seeks new and innovative ways to better engage and interact with citizens in the delivery of public service. Using the latest information technology solutions, citizens would be able to view information, pay bills, apply for services and monitor application status in the comfort of their own homes and offices and from their mobile devices. Businesses could also reach out to the global marketplace and compete effectively and efficiently. The e-services would truly transform the way citizens interact and transact with the government.

However, the Information Technology Authority (ITA) has recognized the issue of cybersecurity and the challenges citizens may face when using the e-services, and the fact that they could become victims of cyber-incidents and cybercrime. With the rapid uptake of information and communication technology in a knowledge-based economy in every aspect of life, cybercrime was also increasing in Oman. Without a proper structure or a central coordinating body for cybersecurity, there was no facility for the public to report cybersecurity incidents. Furthermore, due to the lack of cybersecurity awareness and knowledge, users are ill-informed of any form of security measures to deter cybercrime. Previously, malicious attacks included phishing, online fraud, web defacement, denial of service attack, malware, etc. Such attacks disrupted services and created confusion. The number of recorded web defacement attacks to the gov.om link domain had been 42 prior to 2011. The most severe attack had used the Distributed Denial of Service (DDOS) method; such attacks were targeted at financial institutions and disrupted banking services and operations. As there wasn't any national agency addressing cyberincidents, such incidents remained in-house and were not reported. Companies and even ministries had to address their cybersecurity on their own, without official assistance from the ICT authority.

II Goals and time-frame

The Oman National Computer Emergency Readiness Team (OCERT) is one of the key initiatives developed and implemented by the Information Technology Authority (ITA initiative). OCERT aims to build local and national cybersecurity capabilities in the Sultanate of Oman and to analyse and handle cyber and information security incidents on the Internet and Oman's cyberspace, as well as to enhance information security awareness and culture among different social strata, whether individuals or institutions. OCERT was established in May 2009 to serve a wide group of ICT users, particularly the national infrastructure institutions and major industries, in addition to nationals and residents. It provides a diverse set of information security-related services. The Centre also aims to build confidence in the use of e-government services on the Internet, as well as to build competent Omani cadres qualified to detect security incidents and respond to them. In addition to the above, it aims to build and enhance information and computer security-oriented awareness and culture among different strata of society. Moreover, it aims to provide accurate, timely data on threats and risks and means of protection against them. It also aims to create precautionary measures and steps to avoid or minimize exposure to security threats; to effectively and swiftly respond to security incidents; to limit the extent of their impact through coordination and collaboration with similar centres regionally and internationally; and to strengthen research and development in the information security field. Since its inception, OCERT has carried out the following activities:

1. Handling of cybercrimes and incidents

In 2010, there were a total of 155 incidents reported to OCERT's incident response centre; 151 incidents were handled and resolved with 4 incidents being escalated to other authorities as they were not cybersecurity-related. In 2011, the total number of reported incidents reached 259 with 100 per cent of all incidents resolved. The success rate of 100 per cent for resolving all reported incidents improved the confidence of business owners and other public agencies and encouraged them to make their services available online, thus giving positive impact to the Omani e-services cyberlandscape. The increase in incidents reported is an encouraging statistic for OCERT as it shows that OCERT's outreach and awareness programmes are yielding positive results. As of 2011, OCERT uses digital forensics to gather internal information regarding intellectual property theft, fraud, network and computer intrusions, and unauthorized use of computers and other digital media in order to determine "cause and effect" and provide evidence for a variety of crimes including network intrusion, fraud, extortion, cyberstalking and identity theft, for criminal litigation by the local law enforcement agencies, e.g. PP and ROP.

2. Information security risk detection in cyberspace

The cyberthreat landscape in Oman and globally is growing at an exponential rate, hence OCERT is building capabilities and aligning with international communities to detect and proactively handle such threats. In 2010, OCERT was able to detect 23 000 cyberattacks and about 2 000 malware incidents on Omani cyberspace; in 2011 the number of attacks detected dropped to 18 000 and the number of malware detections went up to about 3 000. This was achievable due to the upgrade in technical capabilities and collaboration with international communities such as the Malware Alliance. This improvement in malware detection has resulted in a number of fruitful early warnings to the constituents and led to preventing a number of damaging cyberincidents from occurring (preventing DDOS attacks on financial institutions by alerting the telecom company of blacklisted IP addresses to

be blocked, disseminating advisories to constituents regarding phishing e-mails that are redirected to malware-infected sites, etc.). Such actions have prevented the constituents from enduring financial, reputational and even identity loss.

3. OCERT – Training and awareness

One of OCERT's awareness and outreach strategies consisted in delegating the role of cybersecurity advocacy to the training officer in the public and private organizations and developing the "Train-the-Trainers" programme. Since its inception, OCERT has conducted the "Train-the-Trainers" programme for a total of 51 trainers and 120 participants from various organizations and organized "Cybercrime" workshops that attracted more than 150 participants that consisted of heads of IT departments from both the private and public sectors. The OCERT infrastructure and facility were finally completed and launched in 2010.



III Project's added value and importance

The following impacts provide evidence of the success of OCERT.

a) Enhanced cybersecurity

In 2011, OCERT handled and resolved 259 cybersecurity incidents, monitored a total of 123 government and critical national infrastructure (CNI) websites, released 324 advisories via the OCERT Threat Notification and Alert Service (TNAS), proactively handled about 17 000 cyberattacks via the OCERT cybersecurity intelligence gathering service and managed to detect and handle about 3 000 malware incidents in the Omani cyberspace.

b) Savings

The establishment of OCERT has helped in preventing cyberincidents that would have resulted in financial, reputational and operational losses to its constituents. OCERT early warnings have educated clients of financial institutions regarding viral phishing e-mails they might receive; advisories regarding blacklisted IP address sources that have attempted to penetrate servers were sent to telecom companies for blocking; vulnerability assessments were conducted on key government agencies to detect and mitigate vulnerabilities; cybersecurity awareness was enhanced

across OCERT's constituents: these provide some evidence that OCERT services have benefited the Omani cyberspace and prevented unfavourable impacts.

c) Feedback on OCERT

OCERT has been implemented successfully, as is borne out by comments by key stakeholders such as the Inspector General of Police and Customs who stated that "OCERT is a focal point for reporting information and cybersecurity incidents within the Sultanate. The centre is part of plans and strategies aimed at guaranteeing the secrecy of information, particularly e-transactions, against cybercrimes." In addition, the Regional Director of the ITU Arab Regional Office commended OCERT's Child Online Protection Initiative as "a step forward in protecting children in cyberspace". The CEO of Kaspersky Lab also added that OCERT is "a very good indicator that governments are paying more attention to cybersecurity as combative measures against the increasingly serious and sophisticated ways of cybercriminals".

IV Challenges

The main obstacle faced by OCERT was the lack of awareness about cybersecurity and OCERT services. An intensive marketing campaign was therefore conducted to increase public awareness on cybersecurity and to enhance ministries' understanding of OCERT's services and how to fully utilize OCERT services. The marketing campaign was aimed at building and strengthening information security awareness within the public sector, building local capabilities in cybersecurity, improving security practices in public sector organizations, building awareness in regard to identifying, handling, reporting and response to security incidents, and establishing the principle of the OCERT mission as a trusted focal point of contact for any ICT security incidents. The campaign targets all ministries, authorities and government organizations in Oman. The key themes/messages of the campaign are: "Towards a safe cyberenvironment" and "Report security incident immediately". As a result of the concept and the training provided in the "Train-the-Trainer" programme since 2010, a total of about 180 trainers have been trained in cybersecurity awareness and outreach and 3 000 e-certificates have been issued to the participants in the awareness sessions organized by the trainers. This showed that the "Train-the-Trainer" programme has been effective and achieved its objectives. Based on this positive result, OCERT launched phase 2 of the programme focusing exclusively on Omani government entities, to be evaluated in 2012. A survey conducted on the "Train-the-Trainer" programme in 2011 showed that more than 90 per cent of the participants gave a "Good" to "Excellent" rating to the programme overall. All the participants also found the topics to be effective and useful.

V Conclusion

Building confidence and security in the use of ICTs is one of e.Oman's strategic pillars. OCERT is regarded as one of the key projects initiated by the Information Technology Authority (ITA) to build the security infrastructure in the country. The functions of OCERT are based on collaboration with government entities, private sector and NGOs. The functions of OCERT and institutional cooperation were boosted earlier this year with the launch of the Regional Cyber Security Centre (RCSC) for the Arab region, which is the first ITU regional centre and aims to provide Arab countries with the required support to establish their national cybersecurity centres and assist them with cyberservices at regional and international levels. Promoting ICT security is one of the mandates of the centre, whereby it is reaching out to children at schools, government employees and private sector stakeholders in addition to the public.

OCERT is a national centre for cybersecurity services and cybersecurity incident response, it serves a wide cluster of the general public and private sector. Its services are crucial to the various critical national infrastructures (CNIs) it serves, including the power grid, water treatment plant and source, oil and gas refineries and wells, financial institutions, telecom companies and any key industries vis-à-vis which any attack or disruption of services would result in an adverse effect on national wellbeing.

The most important lesson to keep in mind is the need for continuous public awareness programmes on cybersecurity. Only through a pervasive educational programme on OCERT will it be possible to enhance confidence in electronic transactions and interactions. With an effective cyberpolice, e-service customers can communicate, interact and transact safely and efficiently in any of the electronic services provided by the government and organizations in Oman.

In a joint venture with ITU, OCERT is now hosting the launch of the Regional Cyber Security Centre (RCSC) for the Arab region, which is the first ITU regional centre and will strengthen OCERT's roles and make Oman an international security hub.



C6. Enabling environment: Platform: “We support e-business - web.gov.pl” (Republic of Poland)

Polish Agency for Enterprise Development

I Background information

Since 2007 the European Union has provided more than one and a half billion euros to popularize the use of e-services and the Internet in running a business in Poland. The Polish Agency for Enterprise Development (PARP) is responsible for the implementation of measure 8.1 of the Operational Programme Innovative Economy (OPIE). With this measure, PARP implements a systemic project that consists in launching a new Internet site Platform: We support e-business – web.gov.pl.

This Platform has been created in response to the needs of small and medium-sized enterprises in Poland searching for information on running a business on the Internet.

The project stemmed from the need to promote the booming information society and the emerging e-business sector in Poland. Entrepreneurs concerned were implementing B2B technologies in their businesses and were the first on the Polish market to provide e-services to the public. From its very start, the "We support e-business" Platform has been a place where entrepreneurs gain valuable knowledge, promote their projects and are supported in the subsequent stages of their business development. Over the past five years, the situation on the Polish market has changed significantly due to the emergence of a great number of new web portals, e-services and mobile applications. The consequential potential of this sector of the economy remains, however, focused mainly on the domestic market and deprived of any form of systemic support for its global expansion. That is why the project team intends to use the potential of Polish e-business to develop outwards and open up to the world while taking on the role of an initiator and binder of the Polish ecosystem.



II Goals and time-frame

"We support e-business" is a systemic project of the Polish Agency for Enterprise Development, introduced in September 2008. At the beginning, the aim of the project team was to assist entrepreneurs in the establishment of the first technological start-ups within the Operational Programme Innovative Economy (OPIE). The "We support e-business – web.gov.pl" Platform is developing continuously in four directions:

- Creating the community of e-entrepreneurs (the mission of integrating this society)
- Promoting entrepreneurs (all the registered users may present their businesses)
- Creating an attractive image of the entrepreneurs on the Internet (registered users have their own accounts where they can describe their activities in e-business and show their projects or offers in the form of Internet advertisements. So far 17 000 users.)
- Assisting entrepreneurs applying for EU subsidies at every stage of the application process

Under new conditions, the projects aims at maximizing the number of Polish companies becoming actors in the global market and ensuring that foreign investors see the potential that lies within this sector - both in Poland and throughout central and eastern Europe. Continued support at a higher level ensures an effective use of the potential of entrepreneurs, including beneficiaries of OPIE measures 8.1 and 8.2 developed through previously undertaken activities. The project's goal is also to popularize knowledge of global technological and market trends in the ICT industry among "pre-start-ups" that are about to embark on an e-business venture. This is to ensure that, from the very beginning, they see their business in an international context, allowing them to create products for the global market. When conducting the activities, the project team focuses on a long-term goal –to create an ecosystem that is favourable to the development of e-businesses and will operate automatically even after the financing from EU funds has stopped. The project will be implemented until the end of December 2015.



III Project's added value and importance

The most important added value of the project is that every implemented activity has a double role – education and the promotion of supported e-businesses.

The focal point of implemented activities is www.web.gov.pl - a web portal that brings together educational and promotional initiatives undertaken within the subsequent stages of the project. Currently, the service brings together a community of over 16 000 registered businesses implementing B2B technologies and offering e-services, including those that benefit from EU subsidies for e-business (OPIE measures 8.1 and 8.2). With 4 million hits per year, the web portal is one of the most popular government websites; this evidences the growing interest for e-business and is a testimony to the rich and relevant content of the website, organised according to themes and featuring a substantial library of e-books. The portal is a source of valuable knowledge – articles relating to e-business, including interviews, reports and best practices, e-business analyses and expert reports. Over 70 free e-books were also published on running a business and Internet marketing, development prospects for e-services and B2B technologies, as well as other topics; they have been downloaded by tens of thousands of users. On the other hand, www.web.gov.pl is also a place where entrepreneurs can promote their e-services and B2B technologies (they have already posted over 4 800 entries regarding their projects in the available directories).

Implemented activities also include the organisation of educational and networking events. One of them is the e-Business Academy brand which applies to a series of regional conferences in the 16 largest Polish cities. The last edition, attended by over 700 people and watched online by over 10 000 Internet users, also made it possible to create a comprehensive knowledge base consisting of conference videos and materials available online. The programme of meetings was designed in such a manner as to showcase the entire process of e-service implementation - from the initial idea through to the international expansion of a project. The goals of the e-Business Academy shall be pursued in its subsequent editions.

Project flagship events also include e-Business Forums, which bring together hundreds of entrepreneurs wishing to meet international experts and investors. In November 2012 the 2nd e-Business Forum took place, which brought together over 500 participants at the National Stadium; twice that number watched the live broadcast of the event online. The event was organized around five themes linked with international expansion and panels devoted to the investment process. An investment fair was also held in the framework of the forum; it featured nearly 30 funds supporting start-ups and e-business companies. The plenary part of the Forum included the award ceremony for the second edition of the Innovative E-service and B2B Technology Competition. Among the beneficiaries of OPIE measures 8.1 and 8.2 who took part in the competition, 20 finalists were selected to travel to the CeBIT fair in Hanover in March 2013.

At the CeBIT 2013 fair, the “We support e-business” Platform held a professional stand where entrepreneurs had the opportunity to present their technologies. Competition winners received Match & Meet Onsite packages, which facilitated the organization of meetings with potential business partners. Each company that went to CeBIT held an average of 25 business meetings. Live television coverage of CeBIT was also organized. Over four days, from 5 to 8 March 2013, the broadcast was watched by 134 000 people. Daily seven-hour live broadcasts showcased the latest technological and business proposals from B2B and B2C sectors. The success continued in 2014 –the project team prepared 150 interviews and reports from CeBIT, watched by 125 000 unique users.

IV Challenges

The main challenge that the project team had to face in 2008 was planning the project's long-term realization, depending on two main variables. On one hand, the project team aimed to guarantee the highest possible quality of products designed for a new branch of the economy forming the start-up environment, all focused on the introduction of innovative products. On the other hand, the team wanted to guarantee flexibility in the realization of tasks based on needs identified among an as yet unclassified target group of beneficiaries, in both a dynamic and variable environment, it being the outcome of implementation of OPIE measure 8.1 (EUR 460 million).

Given the circumstances, the team decided to divide the realization of the project into two stages. Such a decision made it possible to pilot the project during its realization and, at the same time, to adjust it according to the changing e-business environment.

The team managed to reach the highest level of quality by introducing an innovative method of product professionalisation. The immediate absorption of global innovations in the field of education and piloting and the wide promulgation of innovations resulted in their adoption as new standards for the project. The standards are much higher than those currently applied in the administration of conventional projects. Examples of such solutions (verified by the project team and, at present, broadly put into practice by the Polish administration) include:

- Administration of projects based on recognized, world-renowned methodologies [Prince2, MSP].
- Planning and administration of the complementarity and synergy of a project with others conducted by administration.
- Broad digitization of knowledge and common use of digital educational materials guaranteeing maximum accessibility (for example: more than 400 educational webinars [MOOC] and, so far unique for the Polish administration, Internet television service).
- Planning the range of intervention based on the ecosystems theory.
- Involving partners from the private sector in the realization of projects.
- The discovery, introduction and promulgation of innovative solutions is the highest added value in the field of administration achieved by the project team, demonstrating also how risks and threats may become signature strengths.

V Conclusion

The "We support e-business" Platform assisted entrepreneurs in implementing B2B technologies in their businesses and providing e-services to the public. From its very start, a web portal www.web.gov.pl brought together educational and promotional initiatives dedicated to e-business companies. It has been a source of valuable knowledge not only for the beneficiaries of measures 8.1 and 8.2 of the Operational Programme Innovative Economy, but for all entrepreneurs interested in starting their own businesses on the Internet.

The events organised within the framework of the project not only made it possible to popularize knowledge on running e-business companies, but also integrated Polish companies and helped to build relationships between the various players in the Polish e-economy.



C7. ICT applications: Benefits in all aspects of life

C7.1 E-government: “Services @ Citizens’ Doorsteps”

(People’s Republic of Bangladesh)

Prime Minister's Office (PMO)

I Background information

Citizens, most of whom reside and work in rural areas, typically have to travel long distances to government offices in urban or semi-urban areas to avail themselves of public services. The face-to-face service delivery model is less accessible to a large part of the population, who face substantial difficulties in getting to government offices. In particular, it is especially challenging for women. They fall prey to abuses including sexual harassment by the predominantly male intermediaries who often act as gatekeepers of public provisions.

It was against this backdrop that UNDP, USAID and the Government of Bangladesh envisioned the A2I programme as an innovation vehicle in order to revamp the traditional service delivery process, focusing on meeting the needs of underserved communities, with the motto “Services @ Citizens’ Doorsteps.”



II Goals and time-frame

A2I is premised on using information and communication technologies (ICTs) as an enabler in improving public service delivery to the traditionally underserved. The underlying objective here is to ignite a citizen-centric change in the existing civil service culture. Following the establishment of “ICT/e-Government Focal Points” at Ministry level in 2006, A2I shifted its focus to identifying popular services in 2007, and then to simplifying service delivery processes, starting in 2008 with the identification of 53 “Quick-Wins.” This inward-looking approach paved the way to enabling small service delivery improvement prototypes to be led by a government officer with support from A2I. This exercise also allowed realization of goals within stipulated time-frames and in many cases led to national upscaling.

The nexus of Quick-Wins and rapid upscaling was a distinguishing point in triggering an innovation culture in the Bangladesh Civil Service (BCS). The implementation of Quick-Wins required partnerships with both state and non-state actors, whereby A2I played a catalytic role in bridging this divide and nurturing ownership among the agents of change.

Some early successes include: Union Information and Service Centres (UISCs), which started in two Union *Parishads*, the lowest tier of government, and now deliver services to 4.5 million citizens on average each month from all over the country; the e-Purjee system, prototyped in one sugar mill, which delivers purchase orders to over 200 000 sugar cane farmers from all 15 government sugar mills; and all 64 Deputy Commissioner (DC) offices which now boast the District e-Service Centre (DESC), which has transformed many traditional public services into e-services. Access centres similar to the UISCs have grown up in all the country’s 319 municipalities (Pourashava Information and Service Centres – PISCs) and 407 wards of 11 city corporations (City Information and Service Centres – CISCs).

Another notable achievement is the national portal, which started in 2007 as one site, expanded to 64 district headquarters in 2010, and to nearly 25 000 government and local government offices in 2013. This is probably one of the largest “right to information” (RTI) compliant government portals in the world, bringing virtually the entire government machinery under one umbrella. It is the precursor for the implementation of the National e-Service System (NESS), which has started operation in 240 government offices in one district. By 2015, NESS is expected to cover 16 000 government offices, automating all back-end operations.

In collaboration with the Ministry of Land, an initiative was formulated to digitize all record rooms of DC offices and preserve approximately 45.84 million land records. This transformation process from paper to electronic mode was carried out through a Service Process Simplification (SPS) aimed at simplifying back-end service delivery processes with the satisfaction of the users (i.e. citizens) in mind. The system was initially prototyped in Sirajganj district in September 2013. Its greater functionality and widespread acceptance among customers paved the way for its expansion in the remaining 63 districts of the country by June 2014.

As is evident, in executing each of these e-government initiatives, A2I formed partnerships with several state and non-state actors. For instance, because the Ministry of Public Administration (MoPA) is responsible for public sector human resource development and management, a separate memorandum of understanding (MoU) was signed with the ministry for collaboration in the area of capacity development of the civil service. A2I’s journey, in terms of service access, service simplification and capacity development goals against the timeline, is presented in Table 1.

Table 1: The upscaling journey of A2I (2006-2016)

Year	Service Access	Service Simplification	Capacity Development
2006: A2I begins			
2006			✓ 56 e-Gov Focal Points
2007	✓ 2 UISCs ✓ 1 central government portal		✓ 64 district admin heads ✓ 30 personnel in 2 UISCs
2008	✓ 30 UISCs	✓ 53 Quick-Wins	✓ 53 Permanent Secretaries ✓ 300 personnel in 30 UISCs
2009	✓ 100 UISCs	✓ e-Purjee in 2 sugar mills	✓ 487 sub-district admin heads ✓ 487 sub-district elected Chairmen ✓ 500 personnel in 100 UISCs
2010	✓ 4,500+ UISCs ✓ 64 district portals	✓ 1 DESC ✓ e-Purjee in all sugar mills	✓ 9000 UISC entrepreneurs
2011		✓ 700 Quick-Wins ✓ 64 DESCs	✓ 128 personnel from DC offices, ✓ 600 senior officers from 400+ directorates ✓ 300 journalists
2012: A2I-II begins			
2012			✓ 22,000 district and sub-district level officers on portal
2013	✓ 318 PISCs ✓ 11 CISCs ✓ 25,000 government offices' portals	✓ 400 offices under NESS ✓ 6,000 Innovation Team members ✓ Service Innovation Fund (SIF)	✓ MoU with 8 government training academies and National University of Singapore ✓ 24,000 district and sub-district officers on portal ✓ 5000 Innovation Officers ✓ 600 journalists
2014		✓ 5,000 offices under NESS	✓ 25,000 officers on NESS
2015		✓ 16,000 offices under NESS	✓ 80,000 officers on NESS ✓ 25,000 officers on portal ✓ 3,000 Innovation Officers
2016: Service Innovation Centre (SIC) takes over			

Notes: The first column indicates creation of new service access points (rural, semi-urban and urban areas). Column 2 shows the simplification of the service delivery process at government level. The final column indicates the Government's and private sector's augmentation of ICT skills as a result of A2I's capacity-building initiatives.

Within a period of eight years (2006-2014), with facilitation from A2I, hundreds of e-services have mushroomed throughout the country as a result of successful Quick-Wins, with the goal of simplifying many public service delivery processes. Innovations have focused on reducing manual processes and face-to-face delivery on the part of the government, thereby minimizing time, cost and visits (TCV) on the part of citizens. Upscaling and sustaining many of the benefits has required the formulation of new policies and reform of some prevailing ones.

Quick-Wins, led by e-Governance/ICT Focal Points, provided a safe space and "stealthstorming" opportunities within the bureaucracy to experiment with new and innovative ideas - something which had hitherto been unheard of and in many cases actually discouraged. The rapid growth of e-

services has been made possible through an SPS exercise built on the TCV parameters and carried out under the Quick-Wins auspices. Box 1 provides a brief description of this triangular relationship.

Box 1: Nexus of TCV-SPS and Quick-Wins

A2I departed from the conventional understanding of business process re-engineering (BPR) as an innovation process hinging on major investment for back-end automation of the entire government machinery, and adopted the SPS framework. Another major reason is that BPR, as a concept, is often difficult for civil servants to grasp because no government officer is involved in business activities and not all are engineers. SPS helped to ingrain the notion of innovation at government level.

SPS is built around a simple method for estimating *ex-ante* and possible *ex-post* benefits from the citizen's service-receiving perspective, in term of reduction in time, cost and visits (TCV). SPS helped to diffuse the concept of service delivery innovation in simple TCV terms. TCV-led SPS aims to simplify back-end service delivery processes, bearing in mind the needs of the users, i.e., citizens. Innovation measured around the TCV method is defined as follows: (a) reducing time to receive a service; (b) reducing cost, fees, travel cost, lost wages and other opportunity costs, to citizens; and (c) reducing the number of visits to government offices to complete transactions and receive a service. This is a simple method for measuring impacts arising from the reduction in time, costs and number of visits by citizens wishing to avail themselves of public services. All projects considered for the Service Innovation Fund (SIF) have to comply with at least one of these parameters.

For instance, in accessing land records, before the onset of District e-Service Centres (DESCs) and Union Information and Service Centres (UISCs), citizens had to spend several weeks, pay around USD 10-12, and make at least six or seven visits. This unpredictable process used to be a serious burden for small landowners. Today, citizens wait a maximum of a week, spend just over a dollar and have to make two visits (one for the submission and one for receiving the service) for the same service. Such a transformation has been possible due to TCV-led SPS under the Quick-Wins auspices.

For instance, the new Innovation Team gazette instructing all ministries and their subordinate agencies, all districts and their subordinate sub-districts, to form Innovation Teams led by Chief Innovation Officers (CIOs), upgraded the profiles and roles of ICT/e-Government Focal Points. In addition, a multi-donor Service Innovation Fund (SIF) is in place to spread the seeds for a culture of innovation within the government and foster public private-partnerships (PPPs), a key resource in upscaling prototypes.

One of the discernible values added by A2I has been the establishment of over 4 500 ICT-empowered, government-owned service delivery outlets. Today, a citizen residing and working in a remote rural area has to walk only three km to the nearby UISC, saving time and money and avoiding the inconvenience of going to the district HQ 35 km away. She or he can also track the decision-making stages, which has significantly helped to reduce the traditional high opportunity and transaction costs, together with contingent liabilities, associated with accessing public services.

Services are being offered at the lowest government tier by government agencies (land records, birth registration, telemedicine, life insurance, overseas job applications) as well as private sector organizations (mobile banking, English language learning, telephone operators, etc.). Farmers in

remote locations can easily learn about appropriate fertilisers and pesticides; victims of domestic abuse have access to information on legal recourse; villagers can apply for land records without going through intermediaries; and a migrant worker can now equitably participate in government-to-government migration opportunities.

Overall, the combination of one-stop service centres – UISCs, PICs, CISCs, DESCs – alongside the national portal and CIOs, reflects a “whole government approach” (WGA). In other words, public service agencies in Bangladesh are working across portfolio boundaries in an integrated government towards achieving a shared goal by adopting “Services @ Citizens’ Doorsteps.” They are using both formal and informal approaches which focus on policy development, programme management and service delivery. Some of the key achievements are presented in Box 2.

Box 2: Key outcomes

- 4.5 million underserved beneficiaries (including 1.2 million women) receiving livelihood services from over 4 500 UISCs every month.
- Online registration for more than 1.4 million potential migrant workers seeking foreign employment through UISCs.
- More than 78 000 “unbanked” citizens (70 per cent of them women) gained financial access as a result of mobile banking services and transacted BDT 113 million (USD 1.39 million).
- Over 35 000 citizens (70 per cent of them women) used telemedicine services.
- Over 45 000 students and young people (70 per cent of them women) received computer literacy training.
- 23 million utility bill payments were made over mobile phones, saving citizens’ time, money and visits.
- Average time for decision making at the district office reduced from up to seven days to a few hours or two days at most.

III Project’s added value and importance

The establishment of new service delivery access points calls for applications aimed at promoting transparency in public administration and democratic processes, thereby improving predictability, efficiency and relations with citizens. These are WGA initiatives adopted at all levels and tailored to ensure upscaling of successful Quick-Win initiatives. Applications for land records through the Internet, university admissions through SMS, online tax submissions, and e-notification services for farmers and patients, are some examples of the efficiency gain that has been achieved in government service delivery, making it responsive to citizens’ needs for information and services.

This success has been possible because instead of undertaking large amounts of investment for back-end office automation, a common attribute of the e-governance agenda, A2I has focused on overcoming legal and institutional challenges in democratizing access to public information and services. A2I’s approach has adopted a slogan which is driving service delivery transformation in Bangladesh: “Citizens need NOT go to services because services will come to them.” A2I’s initiatives are altogether having a multiplier effect throughout society, from creating employment opportunities to promoting broader agendas of social inclusion. From the supply-side perspective,

A2I's interventions are helping to ignite a hitherto inconceivable culture of innovation in the civil service.

At the heart of the reform strategy lies the creation of thousands of service access points across rural and urban areas of the country, scores of SPS in many ministries and departments, a unique capacity development process equipping civil servants from financial, technical and policy perspectives, and creative partnerships with both for-profit and non-profit private sector actors. This transformation stands against the well-known backdrop of age-old over-centralization of service delivery, opaqueness in processing citizens' requests, and resistance to change by the civil service – all of which have long frustrated citizens in their attempts to obtain government information and services in a responsive and predictable manner.

Finally, in search of international collaboration, A2I has signed an MoU with Singapore's e-Government Leadership Centre (eGL), seeking international cooperation initiatives in the field of e-government in order to enhance transparency, accountability and efficiency at all levels of government.



IV Challenges

In creating an enabling environment for accelerated and responsive service delivery, A2I has had to overcome three challenges:

Bureaucratic resistance. The prevailing archaic public service delivery model poses fundamental challenges to promoting access for socially disadvantaged groups. Resistance to change, from the bureaucracy itself and from vested interest groups, is not uncommon. Generally, innovation by a civil servant in a developing country like Bangladesh may entail a penalty, rather than some commensurate reward. A2I was able to overcome this resistance where it used the Quick-Wins approach to trigger a change in values, attitudes and skills of civil service officials. The DESCs, UISCs and e-Purjee are some examples of A2I's success where the programme managed to identify "champions of change" and early innovation adopters, and subsequently to keep them motivated through national Innovation Awards and SIF.

- *Capacity of service providers.* One of the key capacity gaps identified during A2I's formulation process was the capacity of public officials to understand the use of ICTs for

improving service delivery. Quick-Wins helped to provide a thinking and risk-taking space for public service innovators and thereby allowed them to experiment with service delivery innovations. It is important to conduct regular capacity building exercises, incorporating relevant agendas for discussion, in order to boost the confidence and capacity of service providers and, more pertinently, to sustain the momentum for change.

- *Weak broadband infrastructure.* Like many developing countries, the Internet in Bangladesh has witnessed phenomenal growth. Despite the many constraints in expanding Internet access and use, development of the Internet and information technology is a high government priority because of their demonstrated potential for connecting citizens with government.



V Conclusion

Governments around the world are increasingly chanting the ICT mantra in making their decision-making and service delivery processes transparent and accountable to their principals, i.e. citizens. International efforts today need to be geared towards firmly embedding the use of ICTs across government. Quick-Wins has prompted an innovation process in the civil service which is being translated through the service delivery system in terms of taking services to citizens' doorsteps. However, it is important to avoid a "one-size-fits-all" approach and to focus instead on indigenous factors influencing local development discourse. ICTs, in view of their potential for reducing corruption and increasing transparency in the decision-making process, could emerge as one of the key developmental agendas, given also their significance as a means for reducing poverty and accelerating economic growth in countries with limited resources and abundant problems.

C7.2 E-business: Financial and Administrative Resources Information System (FARIS)

(Kingdom of Saudi Arabia)

Ministry of Education

I Background information

In 2010, Saudi Arabia's Ministry of Education (MOE) embarked on a campaign to replace its legacy systems by implementing the state-of-the-art Financial and Administrative Resources Information System (FARIS) to use technology as a strategic tool for managing its business processes more efficiently and cost-effectively across the Kingdom. The Ministry's mission was to:

"Use leading-edge information and communication technology to achieve optimum use of administrative and financial resources of the Ministry 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".

Aligning its educational vision with a technological solution would not only help improve the Ministry's efficiency and reduce costs by providing communication channels between the Ministry's various educational directorates at all levels and in all provinces (covering 650 000 employees); it would also support the Kingdom's e-Government initiative with the aim of automating government operations and building the capability to deliver electronic services to its citizens. This would significantly enhance the infrastructure that supports education in the country, thereby positively affecting current and future generations in many ways.

II Goals and time-frame

The Ministry's progress towards achieving its educational goals was plagued by archaic, non-unified, non-integrated and semi-automated ways of managing administrative and financial resources. Moreover, the absence of modern information technology and communication systems resulted in poor management of records, resulting in wastage of funds and other important resources. The problems which the Ministry have had to overcome are summarized as follows:

- Lack of regulations for some important business processes in the departments of administrative and financial affairs.
- Existing systems rely on out-dated ways of doing business.
- Separate education directorates for boys and girls, resulting in wastage and inappropriate use of human and material resources.

- All systems, within government bodies or across all bodies, were inconsistent and not interconnected, which increased the burden of obtaining consolidated statements.
- Existing information systems were not built using robust technical and security architecture.
- Existing systems were based on obsolete database systems. Moreover, such database systems were insecure and non-threaded.
- The lack of consolidated databases and appropriate controls resulted in data inconsistency, redundancy and non-integrity. Moreover, this situation also posed significant threats to database maintenance and change control.
- Isolated information systems resulted in non-synchronization of business operations and added an enormous burden of coordination among such operations.
- Existing systems were developed locally, jeopardizing the availability of technical support and the necessary maintenance.
- Finally, existing business regulations and processes did not support and meet the aspirations and requirements of the Ministry's future endeavours.

To address these and other problems, the Ministry partnered with key international IT providers to create a digital society that would transform its culture into one more in tune with best business practices in governmental bodies. This partnership focused on developing state-of-the-art infrastructure and capabilities to support educational goals and enhance the Kingdom's global competitiveness. This also served as a vital milestone on the road to implementing the Kingdom's e-Government initiative. The solutions implemented include the following:

- Establishment of a single-instance enterprise resource planning (ERP) platform for all the Ministry directorates—including finance and public sector budgeting, supply chain and project management, and human resources and performance management — with Oracle E-Business Suite R12 to standardize services, increase overall efficiency, and benefit from integrated supply chain and performance management.
- Deployment of state-of-the-art technology solutions, comprising 28 functional modules encompassing various areas of business such as supply chain management, finance and asset management, and human resources and project management, enabling more than 2 500 users of these applications to be more productive.
- Establishment of guided workflows for financial transactions and reporting and reduced average times for generating budget reports from months to minutes, while compiling human resources and financial reports in two minutes instead of the two days required previously.
- Substantially increased visibility and measurement of the performance of employees and managers, directly impacting the Ministry's 600 000 employees, who represent approximately 70 per cent of the total civil government workforce of the Kingdom of Saudi Arabia.
- Achieving detailed insight into the availability and location of organizational assets required in the advancement, expansion and support of elementary and secondary school education, kingdom-wide.
- Automated warehouse processes and optimized quantity and type of stock ordered, improving warehouse space utilization.

- Introduction of effective change management in multiple aspects including people, processes and technologies, preparing the Ministry's employees for the fundamental change in doing operations and strengthening their "buy-in" to the best practices embedded in the Oracle E-Business Suite.



III Project's added value and importance

Benefits of the FARIS solution

The rollout of the FARIS solution has resulted in significant benefits across a broad range of functions and stakeholders, including employees, business operations, management and control, analytics, finance, governance and technology.

Employees

The Ministry is now able to analyse and manage all HR processes automatically. It has immediate access to accurate, timely and comprehensive data from HRMS applications that help the Ministry to make better strategic decisions. The benefits include:

- *Gain in terms of daily business intelligence:* leveraging predefined key performance indicators (KPIs) to set management goals; consolidating all key information on automated dashboards with one-click access to automated out-of-tolerance notifications, KPIs, reports, and more.
- *Management of utilization and productivity:* performing comprehensive employee analysis and budget reports; ready availability of employee development and performance reports.
- *Management of workforce development and learning:* analysing competence gaps by person and job; analysing skills gaps for groups and individuals; managing training attendance, resource use, costs, and success rates.
- *Optimizing compensation:* analysing salary trends; comparing average salaries by group; looking at salary distributions and skews by grade, performance and service; evaluating benefits plans for maximum value.

- *Managing recruitment:* analysing time and costs by recruitment method; reviewing recruitment success rates; analysing applicant statistics and reasons for dropout; analysing salary, vacancy and termination trends.

Business operations

Many quantifiable benefits in business operations ensue from the implementation of FARIS systems, including improved cost-effectiveness, faster asset deployment, and improved stock availability. The most significant quantifiable benefits involve reductions in inventory, material costs, labour and overhead costs, as well as improvements in ministerial educational services and support.

Management and control

Under the legacy systems, the Ministry had difficulties in defining any KPIs. By implementing a FARIS solution, the Ministry has derived tangible benefits in the form of improved productivity and order management and reduced procurement costs. Intangible benefits include greater transparency in operations, new and improved processes, greater responsiveness to suppliers, and improved supply chain management.

Analytics

Today, the integrated FARIS applications give the Ministry control over every aspect of its business. Its finance and supply chain management departments were the first to experience efficiency improvements, as the automated system replaced paper-based and semi-automated processes and introduced a single point of data entry. This ensured that information was more accurate and presented in a consistent format. Moreover, electronic accounting procedures have made it easier for staff to authorize and issue payments, follow up outstanding invoices, reconcile budgets with actual spending, and produce daily, monthly and quarterly reports.

The Ministry has also observed improvements in the management of procurement, supplier and warehousing processes in its kingdom-wide network of educational directorates and warehouses since the corresponding FARIS modules were implemented.

Table 1: Examples of improved financial processes

S. No.	Process KPI	Legacy system	FARIS system
1.	Time to obtain the funds	3-4 weeks	2 days max.
2.	Time to pay an invoice	30 minutes	5 minutes
3.	Time to pay a payment	30 minutes	5 minutes
4.	Time to close the session and record entries	5 minutes	1 minute

Table 2: Examples of improved SCM processes

S. No.	Process KPI	Legacy system	FARIS system
1.	Average time to raise a purchase order	Manual	5-10 minutes
2.	Average time to approve a purchase order	Manual	1-5 minutes
3.	Average time to issue Internal Requisition	Manual	5-10 minutes
4.	Average time to identify item availability	Manual	2 minutes
5.	Average time to locate asset	Manual	2 minutes
6.	Average time to register a supplier	Manual	10 minutes
7.	Percentage of suppliers performance improved	Not applicable	90 per cent
8.	Average time to raise a purchase requisition (PR)	Manual	5 to 10 Minute
9.	Average time to approve requisition	Manual	1-5 minutes
10.	Average time to check the status of PR/IR	Manual	1-3 minutes

Finance

The Ministry's educational goals and business operations are highly dependent on the funding it receives from the Ministry of Finance (MOF) through annual budget allocation. Offering objective views of the financial requirements of operations to the MOF, analysts, regulators and auditors, and ensuring that facts, figures, and opinions fairly represent the Ministry's performance, are vital to the success of the Ministry's endeavours. Today, the FARIS system is an integral tool for helping the Ministry to improve efficiency and realize significant bottom-line benefits.

Corporate governance

The FARIS system has also enabled the Ministry to comply with governmental legal requirements. Because the solution supports external as well as internal business operations and audits, it helps the Ministry's control managers to perform tasks more efficiently and enables its risk managers to elucidate the consequences of potential threats to Ministry targets. Furthermore, the Ministry is able to increase financial control and accountability, deliver business insight, and reduce the cost of a given financial operation.

Technology

Within its IT operations, the Ministry has derived tremendous benefits from FARIS solutions. For example, the Ministry has been able to:

- *Eliminate costly and inflexible legacy systems.* Prior to the initiation of the FARIS system, the Ministry possessed multiple ageing legacy databases. Replacing these difficult-to-maintain systems with a single integrated and updated application was not only cost effective but will also allow the Ministry to be more competitive in the future.
- *Payroll benefits.* Through unified, cauterized and streamlined payroll solutions leading to greater integration and visibility in its employee management and accounting systems, the Ministry was able to save millions of Saudi Riyals.
- *Improve work processes.* The FARIS system incorporates new and improved government business processes to ensure that stakeholders get swift and effective service.
- *Upgrade IT infrastructure.* The Ministry was able to eliminate the ageing hardware and software configurations that required support by multiple vendors. Having fewer technologies and vendors significantly reduces costs and streamlines maintenance, support and training.
- *Increase control of work processes by staff.* Because the FARIS solutions are easy to learn and use, employees require less support from IT staff, resulting in higher productivity.
- *Reduce paper work to become environmentally friendly.* By automating data collection, processing, and retrieval, the Ministry was able to cut back on the use of paper, reducing costs and increasing employee productivity. This has also helped to spread the "Go Green" message across the Ministry.

IV Challenges

The factors critical to success in meeting the goals set out in the mission statement are:

- Strong executive sponsorship and management support of the project mission and project team.
- An appropriate approach to change management that involves the adoption of solution owners and stakeholders.
- Sufficiency and readiness of IT infrastructure.
- Adequate project staffing, with clear allocation of roles and responsibilities.
- Clear understanding of Ministry of Education business requirements.
- Committed, well-informed and strong project management.
- A thorough understanding of known project risks and assumptions throughout the executive committee and project team.

V Conclusion

Saudi Arabia's Ministry of Education MOE launched a process involving multiple planned stages to implement the ministry-wide Financial and Administrative Resources Information System (FARIS), an ERP that manages, integrates and uses all the resources and information available in the Ministry and its associated educational directorates. This provides communication channels between MOE's various departments at all levels and in all provinces, covering over 650 000 ministry employees. FARIS is a key e-government project with the goal of automating the Ministry's operations and building the capability to deliver electronic services.

C7.3 E-learning: Abu Dhabi Government e-Citizen Programme (United Arab Emirates)

Abu Dhabi Systems & Information Centre (ADSIC)

I Background information

The Abu Dhabi Government introduced a mainstream e-Government/e-Citizen policy with the goal of achieving world-class online services wherever possible. Its objectives in doing so, similar to those of other governments around the world, were to improve operational efficiency, embrace technology and open up access to those services for government, businesses and private citizens. Furthermore, the Government of Abu Dhabi identified a digital skills gap among various demographic groups across the Emirate, which was a stumbling block on the road to achieving its goal of making e-government available to all stakeholders. The skills gap was particularly marked with regard to individuals who needed access to and knowledge of information technology but did not have the necessary access, i.e. those residing in rural areas or from less affluent backgrounds and thus in greatest need of government services and assistance.

مركز الأنظمة الإلكترونية والمعلومات
SYSTEMS & INFORMATION CENTRE



II Goals and time-frame

In order to address this gap, the Abu Dhabi Systems and Information Centre (ADSIC) launched a national initiative to deliver hands-on training over a 36-month period to 3 000 citizens on awareness, access and use of ICTs. The programme aims to train 10 000 citizens across Abu Dhabi Emirate over an eight-year period, covering 70 per cent of the outlying areas, including 5 000 inhabitants living 160 km off the main island. This has included a range of social groups including women, the elderly, job seekers, parents, and pensioners. The programme is fully funded by the Government.

The main objectives of the initiative were to make IT literacy affordable and available to all, and to:

- Improve social mobility by providing basic computer skills for those living in rural areas and in lower socio-economic groups.
- Encourage participants to interact and communicate more with government, and aid decision making.
- Increase the efficiency of government entities as beneficiaries of the programme; use e-government services, thus saving time and costs.
- Facilitate accessibility to services provided over the Internet, e.g. the Abu Dhabi Government Portal, by making daily tasks and life easier for those living in remote areas (for example).
- Promoting economic equality by ensuring that all citizens have basic digital knowledge and skills which they can use to support their education, employment and social goals.



III Project's added value and importance

Since its creation, the project has trained 2 000 citizens on accessing and using computers and the Internet. This has enabled them to communicate more easily with government bodies and agencies, and to access government services more conveniently and securely. Their lives have been enriched through greater knowledge but also through greater efficiency, as tasks that used to be more cumbersome to complete can now be done much more quickly. For example, people living in rural areas once had to make long journeys in order to access government services and representatives, whereas now they are able to conduct many inquiries over the Internet. In addition, parents who now know the basic use of computers and the Internet can monitor their children's progress at school and communicate with teachers through the automated School Management System. This helps them to support their children, make better decisions and feel more involved, as well as strengthening collaboration between parents and teachers. The Government rolled out a survey on a sample size of 3 251 citizens to measure the programme's impact across three segments (unemployed, housewives and self-employed). The results have shown that 75 per cent have basic computer skills and between 94 and 96 per cent have the potential and willingness to access the Internet from anywhere. The results also showed that 52 per cent of the sample are aware of the Abu Dhabi government services provided online. Moreover, 95 per cent have expressed satisfaction with their experience in using the online services.

The e-Citizen Programme is a free training programme with convenient training sessions aimed at enabling citizens to learn how to use computers and the Internet. It has been developed specifically

for citizens with limited knowledge of computers and the Internet. Training is conducted in Arabic, in an instructor-led classroom environment. Instructors are commissioned by Abu Dhabi University and Higher Colleges of Technology and follow the e-Citizen syllabus guide supported by the e-Citizen text book distributed to each participant. At the end of the programme, participants undergo a certified international 45-minute online test, and successful candidates receive the international "e-Citizen Certification" issued by the ICDL GCC Foundation.

The training sessions are held in partnership with the Abu Dhabi Education Council (ADEC) and the Family Development Foundation (FDF) to target a wider part of society that includes parents (through ADEC) and women (through FDF). Sessions are given in two shifts, morning and evening, and each session lasts for three hours over three weeks rolling throughout the year. Registration for the e-Citizen Programme is available through government schools, Family Development Foundation centres, Abu Dhabi University and UAE University in Abu Dhabi and Al Ain, the UAE Academy, and Higher Colleges of Technology in Abu Dhabi, Al Ain and the Western Region.

It is worth mentioning that the programme was first launched in April 2012 in coordination with ADEC and FDF, targeting parents, women and unemployed citizens. The idea was welcomed and attracted many participants, which reached around 600 from Abu Dhabi City, Al Ain City and the Western Region in 2012. For further inquiries about the programme, the Abu Dhabi Government Contact Centre (tel. 800555) provides more detailed information to help citizens interested in enrolling.

The certified courses are organized and delivered in a variety of ways that best suit participants' needs. Classroom-based learning has been the most common method, delivered at colleges and training establishments. Lab-based training has also been organized; for example, the Higher College of Technology ran three practical labs for 30 women wishing to obtain hands-on training.

The programme was promoted through a range of communication methods leveraging the relationship and presence of partners like the Abu Dhabi Education Council (450 public schools) and Family Development Foundation (17 branches throughout the Emirate). This involved issuing a number of press releases to leading local media, and promotion through the educational institutions and training providers themselves. Flyers, posters, roll-up banners and website banners were designed in support of the project, personalized for specific target groups such as women and parents. Open days across the emirate were held with TV and radio coverage to announce the programme, answer inquiries and encourage citizens to enroll. The Abu Dhabi Government Contact Centre (tel. 800555) is available 24/7 to answer any relevant questions and direct candidates to the nearest e-Citizen centre.

Registration in the e-Citizen Programme is available through:

- public schools, for parents;
- family Development Foundation branches, for women;
- Abu Dhabi University and UAE University in Abu Dhabi and Al Ain, UAE Academy in Abu Dhabi, and Higher Colleges of Technology in Abu Dhabi and Al Ain.

IV Challenges

Currently, a large proportion of the population still lacks the appropriate skills to access the Internet, especially those from socio-economically disadvantaged backgrounds or geographically marginalized areas, and the elderly. The challenge facing the Government was thus how to develop computer and Internet skills among the neediest social groups, as these were the people who had no easy access to, and little or no knowledge of, such technology. The Government developed the strategy in response to the need of certain segments of the community to acquire Internet skills. The main requirement from ADSIC was that ICDL would deliver relevant, practical, easy to understand and internationally certified computer training to the target social groups in a suitable environment. The subject areas were awareness, access, skills and Use of ICTs. ADSIC has implemented the programme under the Abu Dhabi e-Government/e-Citizen Initiative, through ICDL-accredited training centres, and public and private universities such as the Higher College of Technology.



V Conclusion

The e-Citizen Programme is open to everyone regardless of status, education, age, ability or level of understanding, although it is helpful to have a little knowledge of computers before enrolling. Typical candidates for the programme are those who use computers infrequently and feel marginalized or excluded by not having the skills needed to access the Internet, interact with others, or purchase goods and services over the Internet. The programme is contributing to the effective use of Abu Dhabi government services for the benefit of society.



C7.4 E-health: Mobile-Based Maternal Health Awareness (Republic of India)

Centre for Development of Advanced Computing (C-DAC)

I Background information

Every year in India, about 30 million women experience pregnancy and 27 million experience a live birth. According to the report *State of the World's Mothers 2013*, an estimated 56 000 mothers die annually, and 309 000 newborns die within the first 24 hours from birth every year in India. According to available official data, India's maternal mortality rate (MMR) is 212 for every 100 000 live births, while its infant mortality rate (IMR) is 46.07 per 1 000 live births. To achieve the Millennium Development Goal (MDG 5 on maternal health) India needs to reduce its MMR from 212 to 109 per 100 000 live births by 2015. Lack of awareness among women of the importance of pregnancy care and delivery, lack of decision-making power for women within the family, teenage pregnancy and associated risk of dying, marginal involvement of community and stakeholders in the health system, suboptimal use of technology for ensuring healthcare to all, and challenges in monitoring public health service delivery mechanisms, are all major contributing factors in the prevalence of high MMR and IMR in India. With a strong focus on providing effective healthcare to rural populations in states with weak public health indicators or inadequate infrastructure, the National Rural Health Mission (NRHM) was introduced in 2005; one of its major goals is to reduce the IMR and MMR.

Considering the need for an effective ICT model to reach out directly to the intended beneficiaries (pregnant and lactating women), the Centre for Development of Advanced Computing (C-DAC), Hyderabad, in August 2011 developed the "MOTHER" tool, a mobile-based system enabling beneficiaries to receive vital information in the form of voice calls related to their pregnancy, nutrition and child care. To demonstrate the utility of the application, the C-DAC team interacted with the Andhra Pradesh unit of the National Rural Health Mission and as a result, a pilot demonstration was initiated in Srikakulam District of Andhra Pradesh.

The tool has been developed by the C-DAC, Hyderabad, with support from the Department of Electronics and IT of the Indian Ministry of Information and Communication Technologies.

II Goals and time-frame

The MOTHER application has been developed to capitalize on the mobile phone's core utility of voice calls among rural communities, particularly illiterate women. The major objectives are:

- To create health awareness among pregnant and lactating women by providing expert health advice through mobile-based voice call alerts.
- To involve the men of the family in pregnancy and child care, and raise their awareness of special needs and health care requirements during pregnancy.
- To encourage women to use and participate actively in various government health programmes.

Accordingly, a prototype was developed in August 2011. To demonstrate the utility of the tool, a pilot was initiated in Rajam Mandal, Srikakulam District of Andhra Pradesh, in partnership with an NGO, the Akkshaya Foundation, and the state unit of the National Rural Health Mission. Pregnant and lactating women and mothers with children aged up to 18 months were enrolled as target users.

To date in the pilot area, 35 121 voice calls have been sent to 3 505 beneficiaries. Awareness programmes are being organized for women and their husbands. User feedback and outcome studies indicate the following:

- Users have access to critical information on their doorstep, although visits of health workers were sometimes missed for various reasons.
- Increased institutional delivery in the pilot area, indicating that repeated alerts had changed attitudes among women and family members.
- Sensitizing male members of the family on their roles in supporting women during pregnancy and child care has resulted in better support from men.

Impact stories can be read at <http://hellomother.in/>.

Noting the initial success of the MOTHER project, the Health and Family Welfare Department of the government of Andhra Pradesh scaled up the project to cover all districts of the state. The tool was integrated with the Mother and Child Tracking System (MCTS) of the National Rural Health Mission (NRHM) at Andhra Pradesh state level, thereby catering to the requirements of 1.7 million beneficiaries in Andhra Pradesh state.

The tool is also being customized to suit the requirements of the Gujarat government as part of its e-mamta project. Discussions are under way with India's Ministry of Health and Family Welfare with a view to integrating the tool as part of the Indian Government's National Rural Health Mission.



III Project's added value and importance

- Delivery of timely, personalized essential information relating to pregnancy and child care, in regional languages, directly to the beneficiaries and their families.
- Effectiveness in alerting the maximum number of target beneficiaries in a short time, thereby helping the administration and health workers to deliver health services efficiently.
- Creating awareness among pregnant women and raising awareness among family members have resulted in better utility of health and other government programmes aimed at reducing maternal mortality, infant mortality and morbidity.
- The barriers of literacy, language, skills and geographical distance are overcome through the use of technology - voice calls in regional languages through mobile devices which women are familiar with.
- Involvement of local stakeholders in designing alerts, providing advice and follow-up, e.g. District Medical and Health Officer (DMHO), health officials in the respective primary health centres (PHCs), and so on.
- High replicability of the project as it can be easily integrated into the existing government systems or ongoing programmes with minimal customization.



IV Challenges

- Registration and updating of beneficiary records in the MOTHER system directly from remote locations was a major challenge owing to poor Internet connectivity. Field workers started collecting beneficiaries' details manually using the prescribed registration forms, records being updated in the evening online from the Mandal Headquarters.
- Voice alerts are pushed from the system to beneficiaries' mobiles ("push method" unilateral communication). Beneficiaries cannot call back and interact with the system. To overcome this problem, phone numbers of health workers were circulated to the beneficiaries during registration.
- Lack of interest shown by some husbands or other family members who have the mobiles in a household. Raising the awareness of husbands was one of the major

challenges. As part of the MOTHER project, village awareness meetings were organized to make men aware of the importance of heeding voice alerts and passing on information to their wives.

- Voice calls cost more than SMS, and service providers charge on the basis of call duration and number of calls made in a month. The voice alerts were therefore designed so that each call will last less than one minute and each alert will be sent twice a day. Only critical alerts (such as expected date of delivery) will be repeated more than three times in a day.
- Beneficiaries were unable to receive calls when outside network coverage areas. Repeat calls were made in cases where an initial call was dropped.

V Conclusion

MOTHER is highly relevant to the Action Line ICT Applications – E-Health in that:

- It promotes collaborative efforts of governments, health professionals, and other agencies to create a reliable, timely, high-quality and affordable health care and health information system through the use of ICTs, while respecting and protecting citizens' right to privacy.
- It facilitates access to locally-relevant content resources for strengthening public health prevention programmes and promoting women's and children's health, including content on reproductive health, immunization and nutrition.
- It encourages the adoption of ICTs to improve and extend health care and health information systems to remote and underserved areas and vulnerable populations, recognizing the role of women as health providers within their families and communities.
- Women and children are a nation's asset and it is a nation's prime responsibility to nurture and protect them. As the world inches closer to the deadline for achieving the Millennium Development Goals and faces immense challenges, the innovative use of technology is a necessity. The MOTHER application demonstrates how effective use of a simple technology can transform delivery of health services for the benefit of underserved communities.



C7.5 E-employment: Youth Employment Generation Programme in Egypt

(Arab Republic of Egypt)

Egypt Information and Communications Technology Trust Fund (MCIT – UNDP)

I Background information

Young people have been at the forefront of Egypt's 25 January Revolution and will undoubtedly be the agents of change in its wake. According to Egypt's statistical agency CAPMAS, the unemployment rate has reached the level of 13.3 per cent of the country's total labour force, and 90 per cent of the unemployed are young people. One of the features of youth problems in Egypt is that unemployment rates tend to be higher among educated youth. This is largely due to the fact that the majority of educated young Egyptians have in the past relied on government employment. The declining absorption of young people by public sector employment has forced many to shift their job searches towards the private sector. This has, however, proved to be quite challenging owing to the current mismatch between the skills provided by Egypt's education system and business market requirements. To tackle this problem, demand-driven training and capacity building interventions must take place in order to create the kind of skilled workforce that can be absorbed into permanent employment.

Egypt's Information and Communications Technology Trust Fund (ICT-TF) took a step towards achieving that goal through the Youth Employment Generation Programme (YEGP) which aimed to enhance youth internship opportunities in the private sector and boost employability through access to technical and entrepreneurial skills training and ICT solutions. The programme worked on youth empowerment based on three main pillars. First, the micro, small and medium-sized enterprise (MSME) component, which aimed to improve the profitability of 1 500 MSMEs through the integration of ICTs into their business operations. A major achievement of that component is the establishment of "Kayanak", a training portal that activates the MSMEs programme via e-SMEs toolkits. This has now come to support those who have no time to attend training workshops or do not meet the training selection criteria. Secondly, the Youth Social Entrepreneurship Programme (YSEP) component, which worked towards inspiring youth to become champions of small business leadership using ICTs. This was done through professional training, mentorship and finance for the best social entrepreneurship ideas and projects. Thirdly, vocational training and internship initiatives to narrow the mismatch between labour market requirements and the actual skills sets of young people, by capacitating their vocational and "soft" skills and setting up a mechanism to connect private sector companies with young potential job market entrants.



YOUTH EMPLOYMENT

II Goals and time-frame

The programme responds to the urgent need to address prevailing youth unemployment in Egypt, which accounts for approximately 90 per cent of Egyptian unemployed, according to the *Egyptian Human Development Report 2012* (EHDR). The programme accordingly addresses the mismatch between private sector skills requirements and actual skills sets among young people, by providing young people with the necessary vocational and technical skills to increase their employment prospects. This was achieved through the following specific objectives:

- Defining youth skills requirements for the labour market through research studies in the ICT sector, market demand analysis and assessments of youth training needs. The output report from this study is the basis for job profiles with the skills required as well as an e-competence map.
- Increasing self-employment and employability of young women and men through access to technical, vocational and entrepreneurial skills training, with special emphasis on information and communications technologies (ICTs).
- Increasing internship opportunities for young women and men in private companies and other institutions.



The programme started on 1 April, 2012 and ended on 31 March, 2013. The programme was subsequently extended to 30 June, 2013. The project implementation cycle went through the following phases:

1 Needs assessment – first quarter:

Identify the needs of rural communities and the important role of active local NGOs, grassroots leaders in the lives of ordinary people, synthesizing and aggregating positive and negative learning.

2 Initiating and building public-private partnerships – second quarter:

Update action and communication plans, obtain the necessary resources, establish a public-private partnership and organize all partners with a view to designing solutions considering challenges and potentials which can transform the results into a real popular project with applicable implementation plan.

3 *Implementation - second to fourth quarter:*

Develop the implementation plan.

4 *M & E – first to fourth quarter:*

Continue monitoring and evaluation of progress and documentation of the project.

5 *Sustainability and dissemination - last quarter:*

Disseminate the programme findings and recommendations among stakeholders, and sustain the project by scaling it up.

III Project's added value and importance

The programme's importance arises from the fact that it analysed local needs and provided young people with appropriate training. In addition, the project developed quick-impact ICT tools to alleviate youth unemployment. The programme added value, as is clearly demonstrated by the following points:

- The relevance of the interventions to the real needs of Egyptian MSMEs maximized the effect of the training programme and its impact on improving MSME practices; by the end of the programme 60 per cent of the MSME trainees were able to apply the ICT skills acquired (e-marketing, web-site development, e-accounting system) in their projects.
- Successful partnering with 30 civil society organizations (CSOs) in different governorates magnified opportunities to reach out to large numbers of targeted youth.
- The flexibility and creativity in responding to the needs of target youth such as the tailoring of the distance learning package "Kayanak" to reach those who could not physically attend training; thus, 230 MSMEs trained through the e-learning course, and 25 per cent of MSME trainees are able to stimulate their projects through their own web pages, while 5 per cent of MSME trainees were selected for awards for best developed web page.
- Requiring the applicant to be a sub-entity of the MCIT ensured the high quality of the training packages, as MCIT staff have the necessary expertise and technical capacities.
- Increased opportunities for vocational training in private companies for young people. More than 50 per cent of the entrepreneurs are thus linked with funding agencies, social responsibility organizations and technical experts.
- Enhanced self-employment for youth through training delivered to 1 852 MSMEs with 10 per cent of special needs on technical, vocational and entrepreneurial skills.
- Entrepreneurial specialized demand-driven training programmes in consultation with business leaders, and technical assistance and support given to more than 200 trainees.
- Organizing "Tomouh" competitions encouraged entrepreneurs and made it possible to implement their project.
- Increased short-term job opportunities for the most vulnerable youth groups, by providing 57 per cent of trainees with internship opportunities in jobs using ICT skills.

- Using accumulated experience and exploiting available resources to meet crucial needs of young people in terms of self-development and promotion.
- Developing a shared vision between multiple stakeholders to create an enabling environment that can foster the flourishing capabilities of youth, using the power of public-private partnerships and the multi-stakeholder approach to push them forwards.

IV Conclusion

Graduates and other young people represent the needs of MSMEs and entrepreneurs in Egypt. The project also gets along with government policies to improve services and technical assistance to MSMEs and promote entrepreneurship. This was relevant to MCIT strategy in terms of integrating up-to-date ICTs in the various sectors.

The programme was able to achieve its targets within the allocated budget and on time. It also impacted the target audience in terms of improving management of their projects and opening new marketing channels using ICT tools and approaches.

Moreover, the programme builds a mechanism of sustainability through the ICT training tools adopted and the outreach network of NGOs in 16 governorates, which will continue to provide training using the training kits and a trained cadre of instructors.

The programme also adopted the participatory approach through: MoY, SFD, MS Egypt, ITI (Edu Egypt program), ELCC, and NGOs, in order to introduce an integrated development model for youth empowerment. It succeeded in developing a shared vision between multiple stakeholders in order to be able to create an enabling environment that could foster the flourishing capabilities of youth, using the power of public-private partnerships and the multi-stakeholder approach to push them forwards.

The programme was also able to build a sustainably operated e-learning mechanism through Kayanak that maintained communications with the trained MSMEs to provide them with technical assistance as needed. The project training packages and social media tools adopted will remain MSME resources that may be used by other potential beneficiaries.

Finally, it is pioneering in harnessing ICTs for building a professional network of highly trained and qualified young people and job providers in the private sector, in order to ensure sustainable programme impact.

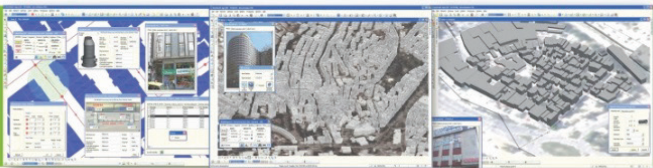
C7.6 E-Environment: Use of Information Technology for Water and Waste Water Analysis (Turkey)

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I Background information

With a population of over 13 million and a daily consumption of 2 million m³ of running tap water, Istanbul needs a supply of high-quality, clean, drinkable water. Drinking water treatment plants have acquired the necessary infrastructure to ensure appropriate quality in compliance with international water quality standards. The analysis was performed in accordance with continuously monitored standards.

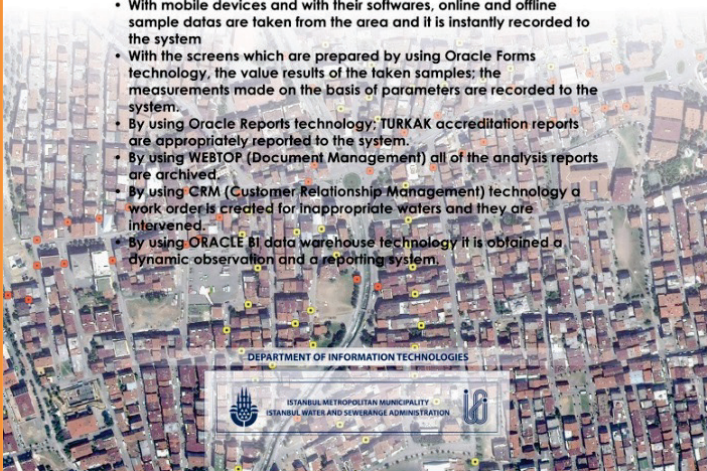
Use of Information Technology for Water and Wastewater Analysis



Clean Water, Clean Environment

With a population of over 13 million, Istanbul where 2 million m³ of water consumption takes place per day, the tap water is always provided in high quality, clean, drinkable and in good health.

- By using GIS (Geographical Information System), sample points are detected and an annual plan created for taking samples.
- With mobile devices and with their softwares, online and offline sample datas are taken from the area and it is instantly recorded to the system
- With the screens which are prepared by using Oracle Forms technology, the value results of the taken samples; the measurements made on the basis of parameters are recorded to the system.
- By using Oracle Reports technology; TURKAK accreditation reports are appropriately reported to the system.
- By using WEBTOP (Document Management) all of the analysis reports are archived.
- By using CRM (Customer Relationship Management) technology a work order is created for inappropriate waters and they are intervened.
- By using ORACLE BI data warehouse technology it is obtained a dynamic observation and a reporting system.



DEPARTMENT OF INFORMATION TECHNOLOGIES

ISTANBUL METROPOLITAN MUNICIPALITY
ISTANBUL WATER AND SEWERAGE ADMINISTRATION

II Goals and time-frame

Besides monitoring the quality of tap water, untreated water sources and waste water from industrial facilities also needs to be evaluated, and microbiological monitoring of water quality in streams is required. For this reason, laboratories established the principle of İSKİ on a 24/7 basis, in the most comprehensive analysis of new technologies. The country employed qualified personnel and used high-quality technologies to make it one of its best laboratories. The İSKİ laboratory analyses the city's water supply by taking samples at 350 to 400 different locations every day.

Waste water samples taken from streams and lakes are analysed to verify compliance with the established health criteria. Laboratories determine the optimal sampling points to ensure maximum accuracy of laboratory data. İSKİ evaluations and reporting were done in accordance with the format defined over the last fifteen years by the Department of Information Technology.

By integrating the Customer Relationship Management (CRM) System into the Geographical Information System (GIS), quality, hygiene and drinkability of water and waste discharges into rivers and lakes are measured. The results are collected in the field for each sample and forwarded to the İSKİ laboratories using mobile phones.

III Project's added value and importance

The most significant added value of the project lies in having established an effective and dynamic structure in which all systems are fully integrated, and the analyses carried out meet international criteria.

IV Challenges

No particular challenges.

V Conclusion

To improve the quality of water used in Istanbul, the İSKİ Water Quality Laboratories through their data processing department are taking advantage of the IT support provided and developing knowledge and techniques more and more every day to meet current requirements, using the following tools:

- Geographic Information System (GIS), through which the sample points are identified and the annual sampling plan can be created.
- MOBILE devices and software, that enable field data to be collected online and offline, so that the system can record in real-time.
- ORACLE FORMS technology screens samples prepared using parameter values based on the measurements made.
- ORACLE REPORTS using technology; TÜRKAK accreditation reports, so standards can be clearly stated.
- Webtop (Document Management) is provided for the archiving of reports.
- CRM (Customer Relationship Management) technology calls for water quality interventions which can be performed by subtracting the work order.
- ORACLE BI data warehouse technology is achieved using a dynamic monitoring and reporting system.

C7.7 E-agriculture: Sistema Nacional de Información Ganadera (SNIG) (Eastern Republic of Uruguay)

Ministry of Agriculture, Livestock and Fisheries (MGAP)

I Background information

A reliable and updated database

This unique and centralized database was created as a way to ensure consistency and ease of upgrade. The integration into a single system of inventory data (from the Annual Affidavit) and movements or changes of ownership (from the Property and Transit Guide) allow among other things the maintenance of an updated account for the current producer, and the adoption of more effective health measures for the benefit of all producers.

Following an outbreak of foot-and-mouth disease (FMD), the Ministry of Agriculture and Fisheries in 2003 implemented the *Sistema Nacional de Información Ganadera* [National Livestock Information System] (SNIG), with the aim of enhancing epidemiological surveillance and control, creating a tool for early response to likely threats of a new outbreak of FMD, and building a system of individual traceability information.

Today SNIG performs the necessary functions to update cattle inventories, exact locations of rural farms, extensions, and land use of each property. The system involves three main processes for single traceability:

- distribution of devices;
- recording of basic data;
- registration of all relevant events affecting an animal up to the time of slaughter.

Individual traceability of each animal includes data on registration, movements, changes of ownership, mediations and other events reported by operators and field controls, inspections, health events, and final destruction of the reported identifier. The information arrives without interruptions in the SNIG through electronic transactions, opening a wide range of possibilities for adapting the operational realities of the different technology users.

It is noteworthy that the SNIG was designed for a health emergency as an early response tool, which makes it powerful to the externalities that affect production systems. The dynamism of the country's livestock and the demands of international markets have contributed to this system. The country

continues to produce meat under the pastoral regime, adding technology to ensure traceability from start to finish, giving the product added value and improving food safety.

Optical processing of forms

Various forms are currently used and have been redesigned, acquiring an aspect known to producers (similar to the present affidavit, the last Agricultural Census and the latest Census of Population and Housing), particularly the Property and Transit Guide. It has thus been possible to automate processing of such forms to improve data quality and process efficiency and facilitate consultation of data anywhere in the country.



II Goals and time-frame

Improvements in the traceability system

The SNIG has as one of its two key strategies the improvement of the current system of group traceability under the *Dirección de Control de Semovientes* [Livestock Control Directorate] (DICOSE), supporting the management of this Division with the incorporation of new technologies. This process is part of current regulations, and without changes in current operations.

The aim is to ensure the provision of high-quality information, the sustainability of the National Livestock Information System as regards the country's livestock and agricultural products, to ensure its use and availability to units of the Ministry of Livestock, Agriculture and Fisheries and operators of the national productive system.

Integration of the Geographic Information System

The territorial distribution of livestock and details of livestock movements are fundamental factors from the point of view of disease control. That is why the Geographic Information System was fully integrated into SNIG. Information is collected in the Annual Affidavits and Property Guides and Transit to be located on the map of the establishments registered with DICOSE, showing the source and destination of each movement by date, species and category. This technology has rapidly shown good results both for operational and strategic decision making.

III Project's added value and importance

It is public policy to demonstrate the reliability of food of animal origin destined for human consumption. In other words, this project promotes confidence. It has national scope and entails no additional cost to the production system. It is inclusive in that it covers owners of one animal and owners of any number of animals. In this way, value is added to the meat products, as the processes are certified.

IV Challenges

Promoting the project to the rest of the agricultural sector, incorporating climate forecasts in order to create a tool for decision making that takes account of climate change variability and determines the vulnerabilities of production systems, designing differentiated public policies, and establishing an insurance production index, among others.

V Conclusion

Uruguay is the only country to have developed an information system that applies individual traceability for all bovine livestock. That is why many countries are looking at Uruguay in order to acquaint themselves with our local conditions.

C7.8 E-science: Remotely Operable Scanning Electron Microscope (State of Kuwait)

Kuwait University, Faculty of Science

I Background information

“A picture is worth a thousand words”. This phrase is often used but mainly in advertising or the presentation of results. Why not apply it in encouraging students to conduct scientific research in the early stages of their study?

Science subjects have started to attract fewer students in the last decade. This phenomenon is now regarded as a threat for future scientific research. One major reason behind this is that in today’s world, students, at a young age, do not get a chance to understand how beautiful their surroundings are and how interesting it is to be a scientist.

Kuwait University (KU) acquired its Scanning Electron Microscopy (SEM) system in 1976. However this facility was used mainly by local professors and researchers and not put to use for other educational or academic purposes. The scanning electron microscope’s high magnification can give a true image of objects in the minutest detail, so that one can really say that a picture is worth thousands or even millions of words, depending on the magnification. The higher the magnification, the more information one can get from the image.

The project’s aim is to make such highly sophisticated facilities available for students at all academic levels, from elementary school pupil to post-graduate student. The system is intended to be operable remotely, through the Internet, in a very “user friendly” way. Using SEM, students can observe materials (a piece of metal, powders, alloys, plastics, etc.) and biological samples (such as human hair, insects, plant leaves) at high magnifications. Through the Internet, students at home or in school can have full control of the KU’s scanning electron microscope in a very simple manner and can observe and study multiple samples at different magnifications. The application also enables users to capture and save photographic images through the Internet.

We believe that electron microscopy can be a very successful tool for promoting an interest in and love of science among students. School students used to visit the microscopy unit, and it was easy to see how excited they were to see a bee’s eye magnified 200 000 times. The magnification power of this instrument makes invisible things visible and is thus fascinating for children and students. The Electron Microscopy Unit of KU therefore decided in 2008 to acquire a new mobile scanning electron microscope that can easily be moved to different locations (e.g. to exhibition halls or classrooms). The aim was also to make it remotely operable via the Internet. This operation requires some special hardware and software. The software should be straightforward, simple and user-friendly, as

II Goals and time-frame

[illegible]

III Project's added value and importance

Experience has shown that the project is very exciting for students and helps them discover science at an early stage. This is mainly due to :

- 73

- The high magnification that is possible with such equipment (up to three orders of magnitude higher than with ordinary optical microscopes).
- The scanning electron microscope shows nearly 3-D images (morphology/topography), which optical microscopes do not.

Many schools (private and governmental) can take advantage of this project. It is hoped that the project can be extended to poor countries which cannot afford such expensive technology in every school. Such a project is expected to help and encourage students, develop their interest in scientific study, and encourage them to specialize in science (physics, chemistry, biology, material science, and so on).

This technology can also be used by university and institute researchers to study their own samples from abroad. They only need to send their samples to the SEM Unit, where a technician will mount it on the stage and allocate the researcher a time slot to study the sample by himself. Scanning electron microscopy can thus be made available to poorer countries which cannot afford to buy it themselves. The project can be used to establish research collaborations and partnerships.

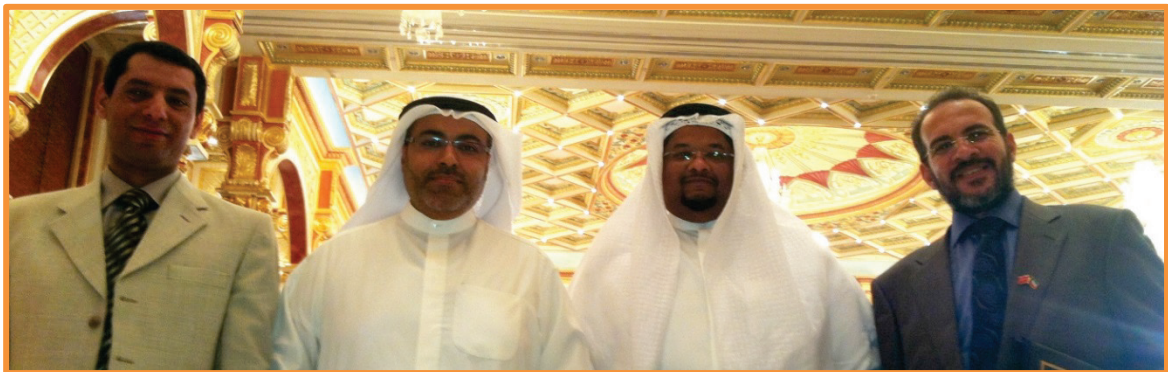


IV Challenges

- Internet speed and the security of the device were a challenge but these have been overcome. There is no longer any threat to university security, and the available speed is sufficient to allow control of the device.
- Another challenge is ensuring automatic focusing, contrast, brightness and alignment. These are essential for the project to succeed, as otherwise young students cannot perform experiments involving the detailed microscopy procedure.
- The degree of control allowed. Since it is a highly delicate instrument, different levels of control should be allowed for students of different ages (e.g. a university student or researcher can have more control of the device than a 10 year old).
- Convincing students, teachers and researchers of how easy, exciting and beneficial it is to use this project. Usually this needs attractive posters, presentations and video clips and some investment in manpower, etc.

V Conclusion

- With the aim of encouraging students to get involved in science, KU has succeeded in acquiring a remote scanning electron microscopy system that can be operated remotely from anywhere in the world through the Internet. The operator needs only access to the Internet; the system does not require any particular hardware, software installation, control panel, etc. The microscope has a motorized stage that can take up to 50 samples, and focusing, contrasting, brightness and alignment can be achieved automatically, with no effort from the operating student. The student or researcher can thus operate the device, observe the samples, capture high resolution images and save them or forward them by e-mail.
- The project is supported by governments to make it available to all students and researchers, especially in rural areas. It is also hoped that the project can be extended to allow remote operation of a transmission electron microscope, which will be more useful for research and university collaboration.



C8. Cultural diversity and identity, linguistic diversity and local content: Cubarte, the Portal of Cuban Culture (Cuba)

National Centre of Informatics in Culture

I Background information

Cubarte, the Portal of Cuban Culture, was born in 1998 as a project of the National Centre of Informatics for Culture, supported by the Ministry of Cuban Culture and with the collaboration of the National Institutions System. Its main objective was and remains the promotion of Cuban culture in the Internet. Other goals and objectives have been added as the project evolves.

This multi-language and multi-thematic portal allows access to the most complete information about Cuban art and Cuban culture on the web through a variety of information services. It has gone through three phases of redesign relating to new graphic design, new technology, new information architecture, and increasing content, for product enhancement in step with the Internet age and to satisfy the information needs of potential users and visitors. The development team is now working towards the release of Cubarte's third version.

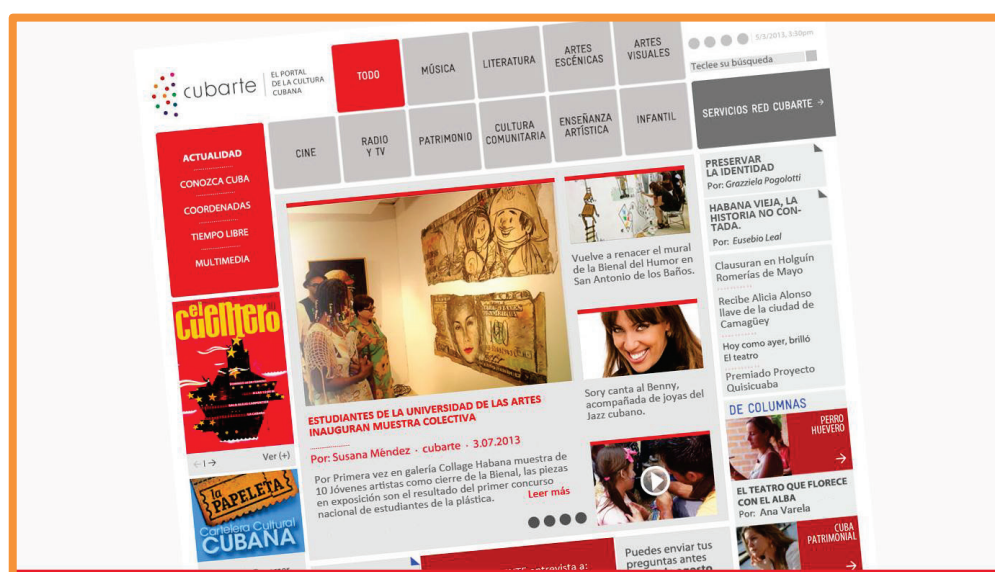


II Goals and time-frame

The main goals are:

- To be the main web source of Cuban cultural information.
- To serve as a point of access to the full network of Cuban cultural portals and websites.
- To offer reference services related to Cuban culture.
- To inform about Cuban cultural daily news.
- To promote artists' and intellectuals' work.
- To facilitate virtual communities and discussion forums.
- To promote cultural events.
- To promote shopping for Cuban cultural products.
- To promote collaboration spaces for intellectuals and artists.
- To be the virtual space for entertainment based on knowledge of Cuban culture.
- To cultivate people from the perspective of entertainment.

There is no finite timeframe for achieving this, owing to the permanent evolution and enhancement of the product and the constant growth in information. However, when the product redesign is finished, most of the goals will be achieved at least in a first cycle of implementation.



III Project's added value and importance

Cubarte is not only the portal of Cuban culture, but also the virtual reference for information and documentation on Cuban culture. It has more than 300 000 entries in its database and receives millions of annual visits, mainly from Cuba, Mexico, Argentina, France, Italy, Spain, Brazil and Canada. The portal has versions in three languages (Spanish, English and French). It is organized according to subjects in the areas of artistic and literary creation (music, visual arts, performing arts, books and literature, cinema, radio and television). It also covers topics related to heritage, community culture, artistic teaching and the relationship between culture and the new technologies. A stage is foreseen that will include children and focus on a theme that can be used by schools all over the country.

This portal is one of the main points of access to all the systems of websites and portals promoting Cuban culture. There are more than 600 sites and portals at present, and about 3 000 pages of cultural, national and provincial pages as well as those dedicated to publications, events, artists and intellectuals. All of them provide a considerable amount of cultural information in the Internet.

The portal also has a current events section which has become a powerful library. Every day it publishes between 35 and 40 news items, as well as interviews and articles on Cuban culture inside and outside the country. There are newsletter services in the three languages and the cultural magazine *Lettres de Cuba*, published in French. This magazine brings Cuban culture closer to the French speaking audience, allowing greater impact in promoting and spreading Cuban culture.

Reference services are available through directories for events, people, awards, institutions and publications that allow the visitor to consult factual information on Cuban culture, and serve to promote the elements represented in these directories. Other services include forums and books, music, and photo/video clip downloads.

Leading products, as independent URLs but integrated into the portal services, include: the Cultural Web Sites Directory, gathering all the cultural websites and portals in national or international services which can be directly registered by website owners; the Art Gallery, with monthly visual arts exhibits administered by a curator from the National Fine Arts Museum; *La Papeleta*, a collaborative billboard on Cuban culture - a multi-thematic national billboard that allows institutions and artists to sign up and publish their activities and events directly; and *D'CubaJazz*, a web site specializing in Cuban jazz and jazz made in Cuba. We will soon have the Cultural Information of Multimedia Resources Centre for all the net of websites and portals related to Cuba. The sites *Radio Qbana* and *Baila Cubano* are still under development.

Cubarte is a thirteen-year-old product whose present version dates from 2006. The new version, which is being worked on and should be out in 2014, proposes the maximum automatic integration among leading products and services in the portal. It will also offer new services regarding leisure and training, will encourage the participation of users with interactive services, and visualize high-demand services that are difficult to access (multimedia services). It will also have a new section entitled "Conozca Cuba" (About Cuba), which will include information for visitors approaching Cuban culture for the first time, to give them a global idea of the island's history, identity and culture, thereby encouraging cultural tourism.

So far the portal has achieved excellent results, including an increase in the community of visitors interested in Cuban culture. It offers a vision of the country from a Cuban perspective and from the cultural viewpoint, in a context where this information in the Internet is scattered, incomplete and mostly dealt with in a superficial way. With this new version, some subject areas like heritage, community culture and artistic teaching will be more prominent, to show the world these aspects of Cuban culture that are less well-known because of the difficult access of media to these topics. As for the published content regarding other subjects, which are mostly associated with artistic and literary expression, the richness and diversity of Cuban culture and cultural heritage will be evident. The new services are expected to achieve a strengthening in the community, so a rise in the number of loyal visitors is expected, with more rapid "viral" dissemination of information.

This prototype is based on the need to create a network beyond the virtual net, whereby cultural actors — both individuals and institutions — are organized and communicate from the national level to municipalities. It is a model that evokes the need for organization in some sort of taxonomy reflected in the different cultural thematic websites and portals. It is perfectly reproducible if you

take into account this basic organizational requirement, and its implementation is recommended if the basic conditions are met.

Cubarte facilitates access to communication and knowledge through its informative services and through the Free Time services focused on forming a cultured people familiar with Cuban culture.

Cubarte's presence in the traditional media is one of the main values of the new version of the portal, which makes it possible to show artists' different ways of expression and serves as a real testimony of the Cuban daily culture.

New services are likely to be added, such as online courses for visitors interested in Cuban culture at different academic levels, always with the support of researchers and professors specialized in every subject.

IV Challenges

Beyond the challenges posed by information management because of dispersion, the empowerment of some of the receivers and the topics relating to copyright and protection of works, this is a sustainable project that tends to growth in content and community.

V Relevance of the project to the respective Action Line

Preserving the Cuban identity, and promoting world recognition of that identity, as well as making visible the island's cultural wealth and diversity, are key values of this project, which aims to keep Cuba on the world cultural map in accordance with the principal of truth and freely accessible information, and is built by those who are part of it. Serving as a knowledge base about Cuban culture and contributing to the enhancement of information and knowledge related to those topics is another key aspect related to the Action Lines for the Information Society.

V Conclusion

Cubarte, the Portal of Cuban Culture, is the most important source of information about Cuban culture. It is a project in permanent evolution, with the objective of adding new and better value relating to the promotion of Cuban culture and the formation of a cultured and educated people. The project has been implemented from the beginning in accordance with the Information Society Action Lines relating to knowledge enhancement and management, as well as the defence of cultural diversity. Cubarte aims to maintain its status as the main virtual reference about its main topic, and to be the ambassador of Cuban culture on the Web.

C9. Media: InfoTech TV Show: Disseminating ICT knowledge through media (Federal Democratic Republic of Ethiopia)

Philmon Press P.L.C

I Background information

The information revolution and the extraordinary increase in the spread of knowledge have given birth to a new era - one of knowledge and information which directly affects the economic, social, cultural and political activities of all regions of the world, including Africa.

Governments worldwide have recognized the role that Information and Communication Technologies (ICTs) could play in socio-economic development. A number of countries, especially those in the developed world as well as some developing countries, are putting in place policies and plans designed to transform their economies into an information and knowledge economy. Some developing countries see information and communication technologies and their deployment for socio-economic development as one area where they can quickly establish global dominance and reap tremendous payoffs in terms of wealth creation and generation of high-quality employment. Other countries regard the development and utilization of ICTs within their economies and societies as a key component of their national vision to improve the quality of life, knowledge and international competitiveness.

The diffusion of ICTs in Africa is proceeding very slowly, and the gap between ICT-literate and ICT-illiterate people is huge, even if there have been some improvements. Consequently, most African countries, including Ethiopia, have not been able to reap the abundant benefits of the global information society and information economy in areas such as education, health, commerce, agriculture, or rural development. The existing situation in Ethiopia calls for a contribution in support of the national endeavour for the development of ICTs which will contribute to the country's development. Although the contribution of ICTs to national development is a proven fact, the number of ICT-literate citizens able to apply ICT tools in their activities is minimal. To boost ICT literacy among target groups and the general population, the media as a knowledge-transforming channel can play a major role in creating, disseminating, sharing and raising awareness of ICTs and their use.

It is on the basis of this conviction that PHILMON PRESS plc, in collaboration with the Ethiopian Radio and Television Agency, launched a weekly TV show called InfoTech. This 40-minute "edutainment", magazine-style TV technology programme, aired nationally on ETV 3, globally via the Nilesat satellite, and interactively through an online Facebook fan page, YouTube channel, and its own website, is dedicated to helping Ethiopian audiences everywhere to use and understand the technology in order to simplify their lives at home and at work. The show features ICT news, conversations with the most

informative experts in the sector, shows about computers, technology, mobile technology, Internet, product reviews, tips and tricks, technical support and “how to do” demonstrations. To make the audience feel at ease with the content, the show is presented in a jargon-free, easy to understand “edutainment” format. Since audience engagement is vital, the show has a question and answer quiz session at the end of each episode, and viewers every week stand to win a mobile or laptop using SMS technology.

II Goals and time-frame

Our goal is to participate in the processes of increasing citizens’ awareness of the uses of ICTs in life and spreading digital culture to build a data-driven and informed society.



III Project’s added value and importance

Education should be treated as a strategic agent for mindset transformation and for building a well-educated nation equipped with the knowledge needed to solve competently and competitively the development challenges which it faces. In this light, ICTs are central to competitive social and economic transformation. It is a fact that these technologies are a major driving force for development. They should be harnessed persistently, in all sectors of the economy, and used to benefit all social groups with a view to meeting the basic needs of the people, increasing productivity and promoting competitiveness. The new opportunities opened up by ICTs can be harnessed; however, appropriate skills and capabilities need to be put in place. This requires adequate investment to improve the quality of science-based education and to create a knowledge society generally. In this regard, society should be encouraged to learn continuously in order to upgrade and improve its capacity to respond to threats and to exploit every opportunity for its own betterment and for the improvement of its quality of life. This TV show is thus adding value in an informal “edutainment” format, by sharing, encouraging and inspiring its viewers to make

significantly greater use of ICTs in their day-to-day activities, thereby creating a genuine bond with the technology, which cannot be taught by formal methods alone, and for which television has clear advantages over other media.

IV Challenges

This kind of TV programme needs financial support from different stakeholders. It is confronted with the lack of interest among major potential sponsors owing to an erroneous belief that shows like InfoTech are not effective in attracting viewers, although in fact the opposite is the case.

- These days most urban dwellers and some citizens in rural areas have a TV set, but the shortage of electricity, especially in the rural areas, is a big barrier.
- Even though viewers are capable of understanding the content, especially the crash courses on computers and Internet, most of them do not have access to computers and Internet where they could apply what they have learned.

V Conclusion

The huge potential of mass media for influencing knowledge acquisition, public attitudes and behaviour has been recognized in several research studies. Different information tools, such as radio, television and newspapers, are spreading awareness of ICTs among the people faster than personal contact or formal education. The production and distribution of printed materials such as books, magazines, newspapers and brochures, may help with the transfer of new information and technologies, whereas radio and television are the key tools for rapid disseminating of information. According to recent research by the Ethiopian Broadcasting Authority, television and radio are the preferred information tools among citizens, with television the favourite. The edge which television has over other communication channels may be due to the ease of learning through this visual mass medium. It has been observed that modern mass media are flourishing in the country but not performing the expected role among the people for a number of reasons including higher illiteracy rates, gender inequality, lack of electricity, and absence of new electronic media devices in rural and remote areas.

This TV show is trying to showcase the significance of the mass media in creating awareness and disseminating ICT knowledge among the people. Emphasis therefore should be placed upon the proper utilization of information channels for disseminating ICT-related knowledge.

C11. International and regional cooperation: International event ICT4ALL (Tunisia)

***Ministry of Higher Education, Scientific Research and Information
and Communication Technologies***

I Background information

The World Summit on the Information Society (Geneva 2003) defined the principles and action guidelines on all major issues raised by the information society, from infrastructures to media pluralism. Key issues were left for debate in Tunis: Internet governance, financial mechanisms to bridge the digital divide, the implementation of WSIS commitments, and the Summit follow-up.

The second phase of the World Summit on the Information Society was held in Tunis, from 16 to 18 November 2005. It provided a platform for exchanges between a wide range of stakeholders on the key challenges of the emerging world information society.

At the Tunis Summit, world leaders approved two documents that set out further steps for the political debate on the world information society:

- The Tunis Commitment: this recalls the Declaration of Principles and Geneva Plan of Action, and confirms the fundamental principles underlying the common vision of the information society. Leaders reaffirmed their "common desire and commitment to build a people-centred, inclusive and development-oriented Information Society".
- The Tunis Agenda for the Information Society: this goes further, by identifying the main challenges and how to tackle them. In particular, it acknowledges the scale of the digital divide and the need to combat it in different and complementary ways. For Internet governance, the Agenda defines how to continue discussions. Finally, the document shows how governments, regional and international organizations, and other stakeholders, can implement the commitments they have made.

WSIS follow-up mechanisms at the level of the United Nations system

The WSIS has made the information society an important chapter in relations between all stakeholders (international organizations, governments, public/private sector, civil society, academia). The presence and active participation of all participants and dialogue and coordination in common were therefore maintained, particularly with the UN Economic and Social Council (ECOSOC), ITU, UNESCO and the United Nations Development Programme (UNDP). This is also the case for Member States' positions in international organizations.

In Resolution 2006/46, adopted on 28 July 2006, on follow-up to the World Summit on the Information Society and review of the Commission on Science and Technology for Development, ECOSOC indicated how it will oversee the Summit follow-up at the level of the UN system, according to what was requested in the Tunis conclusions, as part of its annual review of the application and integrated and coordinated follow-up to the outcomes of major conferences organized under the auspices of the UN.

To that end, ECOSOC decided that the Commission on Science and Technology for Development (CSTD) would assist it as the focal point for monitoring WSIS at the level of the UN system.

It was agreed that the follow-up at the level of the United Nations should be focused on development and that the Commission should be enhanced by additional operational resources and by the effective and constructive participation of Member States in its work.

While preserving its intergovernmental character, ECOSOC decided that the CSTD should adopt the multi-stakeholder approach that has been practised successfully by WSIS.



II Goals and time-frame

After the success in the organization of the second phase of WSIS in 2005, and the adoption of the Tunis Agenda and Declaration, Tunisia decided to establish a mechanism which will serve as a tool to assess achievements under the recommendations of the Tunis Agenda and the Geneva Plan of Action, and as an instrument to measure the reduction of the digital divide at the national and African regional levels. It is through the ICT4ALL event held every year in Tunisia that diverse topics such as the development needs of the African continent have been discussed. This event brings together all the stakeholders.

For this purpose, the Ministry of Information and Communication Technologies (MICT) created WSIS follow up mechanisms.

WSIS Follow-up mechanisms at national level

1 Organization

The MICT, which has been a key actor in the organization of the WSIS second phase, was assigned to set up a dedicated structure for WSIS follow-up. For this purpose, a managing unit comprising a follow-up committee was created, involving:

- A Unit of Management by Objectives to follow-up WSIS outcomes and set out its organization and terms of operation (Decree 2006-2003 of 17 July, 2006).
- Appointment of members of the Follow-up and Evaluation Commission representing public and private sectors, civil society and the academic community. The mission entrusted to the Unit of Management by Objectives is to follow up WSIS results (Order of the First Minister 17/08/2007, amended by Decree of the Head of Government on 2 October 2013) and to elaborate the annual report.

2 Scheduling

- As part of WSIS follow-up, the Tunisian Government has programmed the organization of an annual international event to explore opportunities and guidelines for enriching debates and illustrating best practices in the field of ICT development activities. This event will provide a range of follow-up activities for the reduction of the digital divide.
- The success of WSIS-Tunis 2005 and the wide diversity of topics addressed during the Summit prompted the Tunisian Government to organize, in collaboration with national, regional and international organizations, a major annual international event that brings together governments and public authorities, the private sector, NGOs and organizations for research, funding, partnership and support.

Event date	Theme	Summary
26-27 November, 2006	ICT Investment in Africa	<ul style="list-style-type: none">- Investment in infrastructure and skills- Stimulating the interest of potential investors in the ICT sector in Africa- Building up partnerships in the ICT sector
20-21 November, 2007	Public-private partnerships (PPPs) in the ICT sector	<ul style="list-style-type: none">- PPP as a lever for ICT promotion in developing countries, particularly in Africa- Exchanging best practices and PPP testimonies
27-28 November 2008	Broadband, industry of content for development	<ul style="list-style-type: none">- Debate on key challenges as reflected in various ICT sectors- Identify possible prospects for:<ul style="list-style-type: none">• Technologies• Broadband infrastructure• Access to broadband and solutions for enterprises• Convergences: fixed-mobile, telecom-web, and so on

Event date	Theme	Summary
24-25 November, 2009	ICT innovation: A tool for competitiveness and growth	<ul style="list-style-type: none"> - Fruitful platform for meeting and technological survey for business community - Experiences in ICT innovation - Investment and partnership opportunities - Potential markets and business models
10-12 November, 2010	Youth and ICT: Source of inspiration, innovation and entrepreneurship	<ul style="list-style-type: none"> - Digital trends: Opportunities, practices and challenges - Youth capacity building in ICT for better employability - Ecosystem of innovation and entrepreneurship in ICT: New horizons for youth
17-20 September, 2012	<ul style="list-style-type: none"> - Digital Culture and Information Society - Digital economy and Value Creation 	<ul style="list-style-type: none"> - WSIS, review of the situation in Africa and the Arab world: What has been achieved? - Centering ICT role in development - Transforming technological advantages into beneficial impact at economic, social and cultural levels
11-14 November, 2013	<ul style="list-style-type: none"> - Transition from information society to knowledge society: what has been achieved in the process of building the information and knowledge society? - Future networks and broadband 	<ul style="list-style-type: none"> - Broadband network: Development opportunity for Arab and African countries - Right of access to information and broadband networks - Networks of the future - The state of the digital divide and action taken to reduce it

In parallel to the forum, additional activities are organized, including:

Parallel Events: these provide opportunities for national and international stakeholders to contribute by organizing workshops, conferences, seminars, meetings or discussions.

Exhibition: this attracts a large number of visitors, and animates and invigorates the meeting space between B2B companies. This space in every edition is the scene of diverse contacts between companies from different countries.

Following evaluation of ICT4ALL 2013, it was decided to create a permanent link between the 2013 and 2014 editions by organizing three follow-up days on the role of stakeholders in reducing the digital divide:

- 6 March: the role of the private sector;
- 30 April: the role of civil society, academia and universities;
- 26 June: the role of the public sector and international and regional organizations.

III Project's added value and importance

Many topics have been discussed at these events since 2006. Each issue discussed has had tangible results and generated added-value projects.

For example, investment in ICTs in Africa has been a success, since investments in Tunisia increased from 650 million dinars in 2006 to 880 million in 2013.

Such investment has experienced a breakthrough in most African countries thanks to African Development Bank (ADB) investment, international and national operators, and other financial institutions active in African development.

Public-private partnerships in ICTs

ICT strategy In Tunisia is developed through participatory meetings of all active stakeholders and the establishment of focus groups on various aspects of this strategy.

In Africa, PPPs are increasingly established around a strategic vision that serves to accelerate the development of ICT use.

The introduction of broadband is now a great opportunity for Africa to ensure strong growth and create the added value that benefits all ICT users, investors and poorer populations.

IV Challenges

There are two major challenges facing Africa. The first is: how to turn investment costs of the infrastructure into costs of introducing new products such as broadband, in order to give people affordable and easy access with good quality.

The second major challenge is the transition from the information society, in which the continent is a simple information consumer, to the knowledge society, in which the African citizen acquires knowledge, develops applications, uses knowledge for his or her well-being, and moves away from a permanent dependency status to one of knowledge producer, which is a sine qua none for real development .

V Conclusion

It is in a spirit of re-creation and innovation that Tunisia is trying to contribute effectively to the achievement of WSIS objectives, with their links to the UN Millennium Development Goals.

A reflection on post-2015 is also being conducted and will be presented to the UN summit in 2015.

ICT4ALL 2013 was attended by approximately 1 500 participants at the opening of the forum; 1 100 people participated in 12 parallel events, and the exhibition was visited by 3 500 people.

The seven ICT4ALL editions have been a precious opportunity, for all stakeholders from different participating countries, to engage in a fruitful multilateral exchange and inclusive multilateral cooperation. These editions have offered a space to explore best means to act and deliver ICTs in order to reduce the digital gap between developed and developing countries.

Tunisia has been designated by the President of the UN General Assembly as co-facilitator to lead and organize consultations on WSIS follow-up resolutions



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