



WSIS STOCKTAKING SUCCESS STORIES 2019



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



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



WSIS STOCKTAKING: SUCCESS STORIES 2019

ISBN

978-92-61-28711-5 (paper version)

978-92-61-28721-4 (electronic version)

978-92-61-28731-3 (EPUB version)

978-92-61-28741-2 (Mobi version)



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C1: The Role of Governments and All Stakeholders in Promotion of ICTs

Project name: The e-Payment of Social Security Contributions

Organization: National Social Insurance Fund (CNAS)

Country: Algeria

Basic Information about the Winner

The only social security organization in Algeria providing six risks coverage and ensuring social security contributions recovery. CNAS is the major player in the field of promoting employment and in the support for employers and social organizations.

Project's description (activity's description)

The e-declaration portal allows employers, via a private account, to calculate and pay social security contributions in real time, avoiding the need to move to CNAS structures. The portal allows employers to establish monetary transactions with banks and synchronize employer accounts at the CNAS level.

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

- Access to health
- Gender equality
- Building a resilient infrastructure, promoting sustainable industrialization that benefits all and encouraging innovation
- Reducing territorial inequalities by means of connected services.
- Partnerships to achieve goals

Highlights of the project's partnership activities

The e-payment service is realized in collaboration with banks and the Automation of Interbank Transactions and Electronic Banking Company.

Challenges and project's future perspectives

The project aims at enrichment of e-services offered to social insured, employers and partners by integrating e-management with all internal and external activities.

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

WSIS aims to improve access to information through new ICTs, which contributes significantly to facilitation and modernization in carrying out the various activities at the institutional level. There are about 297 329 employers using this app with an annual progression of 25 percent since its inception.

C2: Information and Communication Infrastructure

Project name: The Village Broadband Internet Project

Organization: Ministry of Digital Economy and Society (MDES)

Country: Thailand

Basic Information about the Winner

Ministry of Digital Economy and Society, Thailand

Ministry of Digital Economy and Society (MDES), a cabinet ministry of Thailand, is responsible for developing national policy and plan on digital development for economy and society; developing and managing the country's telecommunication network; promoting the use of digital technologies and innovation to support the growth of business sectors, social development, and government administration; and elevating the people's knowledge of digital technologies.

Project's description (activity's description)

1. Background

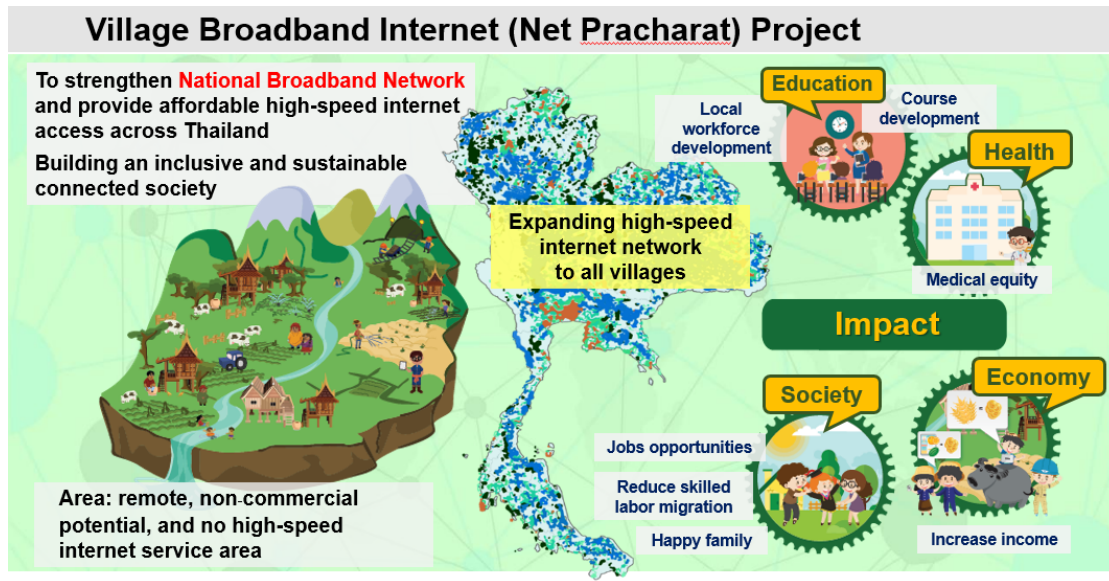
The Village Broadband Internet Project or Net Pracharat is the Thai flagship digital infrastructure development to promote availability, accessibility, and affordability for people in rural areas across the country. Given that the Thai government has emphasized the importance of digital economy and launched the Thailand 4.0 policy, the Village Broadband Internet or so called Net Pracharat project becomes a flagship project that comes to government's attention. A goal of Thailand 4.0 policy is to drive the country by innovation, knowledge, technology, and creativity. Toward this aim, the government gives high priority on digital foundation layout related to enhancing the quality of the digital infrastructure, which is a crucial factor to develop innovation and improve the quality of lives of people in remote areas. This is to enable Thai people across the country to access digital technology equally.

For target area selection, Ministry of Digital Economy and Society (MDES) has collaborated with the National Broadcasting and Telecommunications Commissions (NBTC), Thailand telecommunication regulator, to expand high-speed network to all villages in Thailand. The target areas of the Net Pracharat project is the rural areas that the high speed internet service is not yet available. MDES is responsible for 24,700 villages in the rural areas. The National Broadcasting and Telecommunications Commissions (NBTC) is responsible for 3,920 villages in the border areas, and the remaining 15,732 target villages in the rural areas.

2. Objective and Implementation

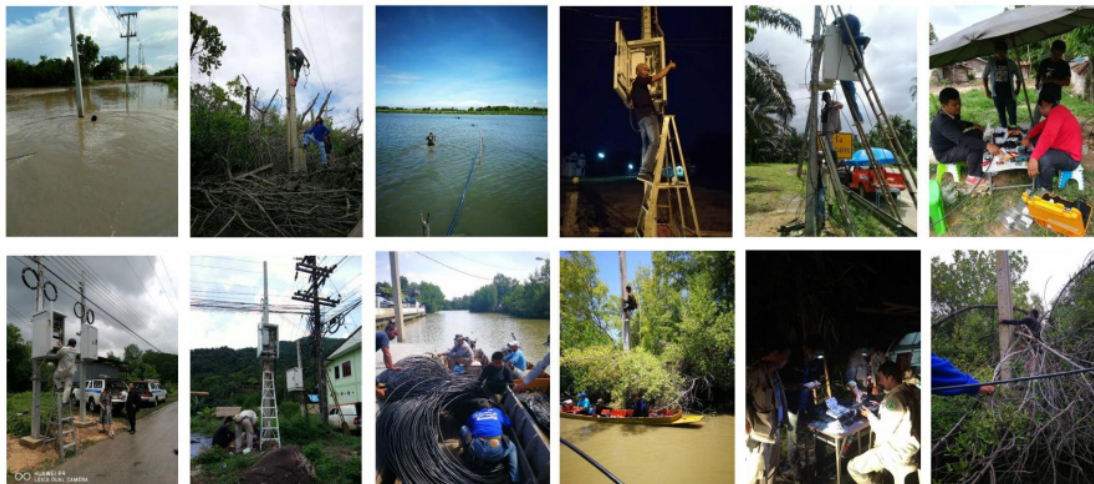
The main objective of the Net Pracharat project is to strengthen National Broadband Network by expanding high-speed Internet networks to reach every village in the country, so that local Thai people who live in the remote areas will be able to access broadband or high-speed Internet as those who live in the cities, resulting in bridging the digital divide and building an inclusive and sustainable connected society. With Net Pracharat, local people are able to access useful online content and services such as e-Commerce, e-Education, and e-Health. This brings the beneficial impacts on both society and economy (e.g., creating job opportunities, increasing income for local communities, and reducing skilled labor migration). Figure 1 shows the overview of the Net Pracharat project.

Figure 1. The overview of Net Pracharat



In December 2017, MDES and Telephone of Thailand Public Company Limited (TOT) completed the installation of fiber cable network to 24,700 target rural villages throughout the country. In addition to provide network, the government equipped Thai people with Wi-Fi for community to provide free public Wi-Fi hotspots at the speed of 30/10 Mbps (Download/Upload). As of March 2019, there are about 5.4 million users registered to access Wi-Fi Net Pracharat. Newly registered increases around 200,000-300,000 users in every month. Figure 2 shows sample pictures of Net Pracharat Network installation (24,700 villages).

Figure 2. Installation of Net Pracharat Network (24,700 villages)



3. Increase people awareness

To increase awareness and promote the use of the Net Pracharat, MDES has developed curricula on Internet fundamentals (Basic Use of Internet), and Internet applications for career building and income supplement. As of now, MDES has provided trainings to 1,033 officers from the Office of the Non-Formal and Informal Education (NFE). This was to create a leading group of Net Pracharat trainers. Then, these leading trainers went back to their communities to provide trainings to around 100,000 community leaders in the Net Pracharat village areas. In addition, in collaboration with the Ministry of Interior (MOI), the trainings was extended to reach 1,000,000 local people in September 2018. Figure 3 shows sample pictures of Net Prachrat trainings.

Figure 3. Net Pracharat Trainings



To make the trainings more engaging, MDES employed the Augmented Reality (AR) technology by embedding the AR code in the training documents. With the AR code, a trainee can use his/her mobile device with a camera point at the document. Then, the AR application will display living animation and infographic that describes the content on the device's screen. Not only the AR code did make the trainings more enjoyable, but also help the content more flexible. MDES can update the animation on the system without need to reprint the training documents. Figure 4 shows the use of AR technology in the Net Pracharat trainings.

Figure 4. The use of AR technology in Net Pracharat trainings



4. Net Pracharat Volunteer Network

MDES recruited volunteers from 24,700 target villages (one volunteer per village) and formed Net Pracharat volunteer network. These volunteers are local people who are interested in making use of the Net Pracharat internet service to improve well-being of their communities. The main purpose of Net Pracharat volunteer network is to create a channel for communications among the government and people. With the volunteer network, both the government and people can share information, knowledge, idea that make the optimal use of the Net Pracharat, leading to sustainability of the project. Trainings for Net Pracharat volunteers were provided during November 2018 – February 2019.

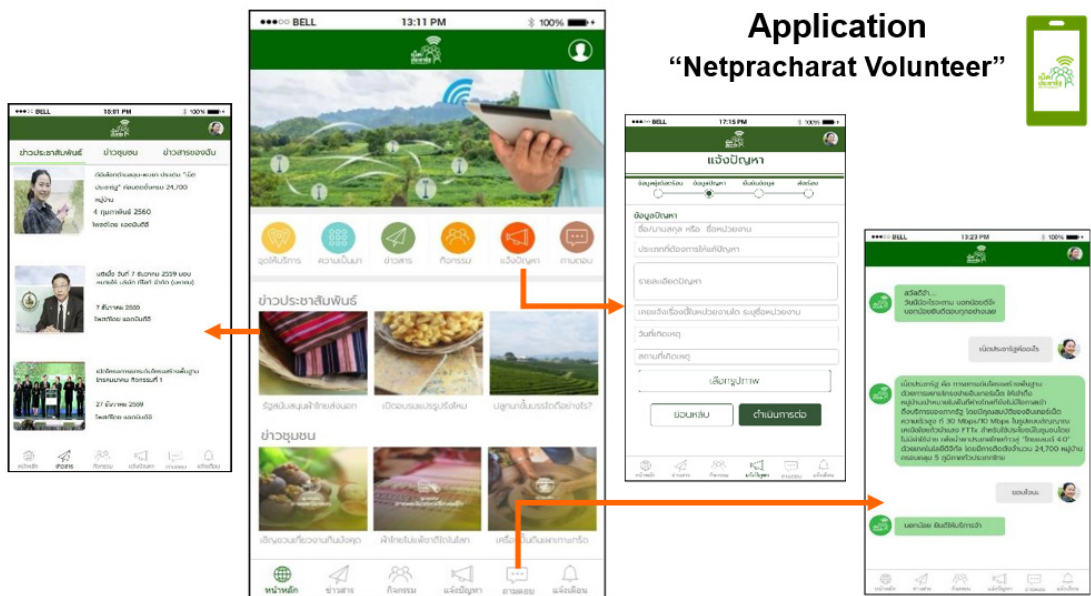
Furthermore, MDES is now implementing a mobile Application called “Net Pracharat Volunteer” The main purpose of the application is to provide an effective tool for Net Pracharat volunteers in 24,700 target villages to communicate (e.g., reporting problems, asking questions, and sharing knowledge) with MDES. Figures 5 and 6 show the Net Pracharat volunteer trainings and the

Net Pracharat volunteer application respectively.

Figure 5. Net Pracharat Volunteer Trainings



Figure 6. Net Pracharat Volunteer Application



Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

5. Sustainable Development

Net Pracharat ensures reliable digital infrastructure and equitable access to information and communication technology throughout the country. As such, it promotes the effective use of ICT, facilitate lifelong learning and skills development, creating enabling environment for digital innovations as

well as boosting the investment in rural communities, which will propel the nation toward the stability, prosperity, and sustainability. With Net Pracharat, local people can access useful information and services on many areas, such as education, public health, and government services – leading to improvement in quality of life. It will also offer local people opportunities to e-commerce, the use of online shops, in order to generate employment and income in local communities. With these results achieved, Net Pracharat is a driving force that propel country toward a path of long-term stability, prosperity, and sustainability.

With Net Pracharat, local people (such as local businesses, SMEs, farmers, and students) who live in the target villages will be the primary beneficiaries of this project. Also, the country as a whole will gain benefits from Net Pracharat. The following are some examples of Net Pracharat benefits.

- **Education** – students can search for information that can help their studies, for example, animation that explains chemistry, rules of physics, mathematic calculation and others. Also, they can learn additional topics of their interests through online courses from both domestic and abroad. Teachers can find new information that help improve their teaching knowledge. They can make use of teaching materials available on the Internet to help students better understand content in class. In addition, students and teachers can learn and practice English with a number of free online Web sites. For local people, they can access lifelong learning education that can help them improve their knowledge and skills on several aspects, such as household accounting, organic farming, and automobile maintenance. This will give them opportunities for employment and more income generation.
- **Public Health services** – local people can access health information online. They will be able to access tele-medicine service, such as teleconsultation – consulting between hospitals or patients consulting physicians through video conference. In addition, hospitals will be able to exchange patient’s electronic health records, without needs for patients to carry their own records to the hospitals to get service.
- **E-Government service** – local people can access online government services. For example, they can use their identification number to check their health care coverage, pay water and electric bills online, and do tax e-filing.
- **E-Commerce** – With access to Internet, local people will have more opportunities to use e-commerce to market and sell their local products, resulting in more income generation. With e-commerce, local people can overcome geographical reach constraints. They will be no longer limited to selling to immediate local market, but expand their markets to both domestic and global stages. Currently, MDES is working with Thailand Post to implement an e-Commerce system for local communities. The aim is to facilitate villagers to start e-commerce businesses. The project will develop a Point of Sale (POS) system, an e-Commerce platform that offers a full range of e-Commerce tools and activities, such as e-marketplace, e-payment, and logistic services. This is to support local people to sell their local products online.

Highlights of the project’s partnership activities

6.MDES is collaborating with several agencies to implement the Net Pracharat project as follows.

- (1) Telephone of Thailand Public Company Limited (TOT), a state enterprise under MDES, is responsible for the Netpracharat project implementation. TOT completed the installation of fiber cable network to 24,700 target villages with free Wi-Fi service on 19 December 2017.
- (2) Office of The National Broadcasting and Telecommunications Commissions (NBTC) is collaborating with MDES in target area selection and helping expand high-speed network to remaining rural villages without overlapping, resulting in efficient government budget spending.
- 3) Metropolitan Electricity Agency (MEA) and 4) Provincial Electricity Agency (PEA) have provided MDES with great collaboration in many aspects such as shortening permission processes in fiber

optic installation, giving permission to use electricity for the constructed network, and waiving several related fees.

- (4) Office of The Non – Formal and Informal Education (NFE) and Ministry of Interior (MOI) helps providing training to local people in the target villages.
- (5) National Statistical Office (NSO) conducts survey to collect opinions and measure satisfactions of local people toward the Net Pracharat project.

Challenges and project’s future perspectives

7. Open Access Network

To make use of the fiber optic cable network constructed in the project (Net Pracharat Network) at its full potential, MDES follows the Open Access Network (OAN) model by allowing any tele-communications (or Internet) service providers who obtain licenses from NBTC to connect and use the Net Pracharat network without fees to provide last mile Internet service to customers with fair and affordable price for local people. This is to promote infrastructure sharing that helps reducing infrastructure investment cost in rural areas. Furthermore, the government will use Universal Service Obligation (USO) funds to support maintenance of Net Pracharat network for 5 years to sustain the Net Pracharat project. This will foster the growth of broadband Internet access market in the areas until they turn to be commercial zone that can be self-sustaining without government support in the future.

8. Expanding Net Pracharat to Local Schools and Hospitals

MDES is now implementing the Broadband Internet for Local Schools and Hospitals project. The main objective is to expanding the Net Pracharat Network to rural schools and hospitals countries. MDES has assigned TOT, a state enterprise that implemented Net Pracharat, to install fiber optic cable networks to local schools and hospitals that have no fiber optic networks. This will promote the use of Internet and digital technologies in education and public health services.

Winner’s views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

9. Conclusion

Net Pracharat project places an emphasis on providing equitable and affordable access to information and communication technology (or digital technology). This is to enable Thai people across the country to access digital technology equally. With Broadband Internet access, people can make greater use of broadband to access useful information and services on many areas, such as education, public health, and government services, leading to improvement in well-being of individuals, communities and people. It will also offer local people opportunities to e-commerce, the use of online shops, in order to generate employment and income in local communities, accelerating the social and economic progress of the country. With these results achieved, Net Pracharat is a driving force that drive Thailand to stability, prosperity, and sustainability.

C3: Access to Information and Knowledge

Project name: United Libraries Portal- Free Knowledge for All

Organization: St. Petersburg State Unitary Enterprise “St. Petersburg Information and Analytical Centre”

Country: Russia

Basic Information about the Winner

St. Petersburg State Unitary Enterprise “St. Petersburg Information and Analytical Centre” (IAC) works in the field of IT and offers information support to public authorities of St. Petersburg as well as other organizations and provides services to develop and implement modern information and telecommunications systems. St. Petersburg Information and Analytical Centre is a state owned enterprise which reports to Committee on IT and Communications of St. Petersburg. The competence of St. Petersburg IAC is the development of informational and informational-analytical projects and systems in various subject areas. The expertise of St. Petersburg IAC is based on many years of successful work in the field of informatization and product development for the government, state and commercial organizations.

The main objectives of St. Petersburg IAC are the creation, maintenance and system integration of information and information-analytical systems of St. Petersburg based on the modern achievements of information and telecommunication technologies.

Project’s description (activity’s description)

Books are a source of knowledge and wisdom. However, in the today’s world, the cost of books is quite high and it is difficult to access them for low-income people. Libraries provide free access to books, knowledge and experience of generations. However, commercial market and its advertising industry moved library work to the back. People start to find alternative sources of information, digital inequality and social exclusion of certain groups of the population aggravate. A rapid decline in library attendance, low demand for library services among the population, and their inconsistency with the modern needs of society is a problem everywhere. Libraries suffer from informational fragmentation, poor resource sharing. Aging of middle-aged staff and readers becomes a trend. The capacity of libraries to participate in the information support of science, education and production is reduced.

St. Petersburg responded to this by launching a project aimed to provide a qualitatively new level of civil service, increasing the demand, availability and comfort of the libraries services. 198 city public libraries united into a single digital space with a single library card and new forms of services through the internet portal with the following objectives:

- 1) Promotion of librarianship and strengthening its role and importance in a single socio-cultural and information space of St. Petersburg.
- 2) Improving the quantity, quality and effectiveness in the library and information public services field.

The project was aimed to provide a qualitatively new level of civil service, increasing the demand, availability and comfort of the libraries services. Implementation required a set of measures to develop and optimize the user service system based on modern information technologies, to evolve coordination activities in the main areas of library and information services, to unify public libraries into a single city information space.

The United libraries portal solves the following tasks:

- Literature searching on a single consolidated publications catalog of St. Petersburg public libraries;
- Providing information on the availability of publications copies and their storage locations;
- Ordering the publication reservation service;
- Ordering publications delivery services;
- Ordering an electronic copy production service;
- Automating the execution of reservation services, delivery, electronic copies production processes;
- “Virtual Help” service advising readers on literature selection, refining bibliographic data on thematic and factual queries;
- Personal readers account to work with orders and electronic form;
- Extension of the publications issuance through the electronic form;
- Payments reception for library paid services;
- Free access to full text editions of the electronic library;
- Free access to online services of reading electronic books by subscription;
- Providing a consolidated information of all city public libraries;
- Providing consolidated information about all ongoing cultural and educational activities.

Social effect of the project:

- Younger generation of readers and employees involvement in the libraries (the proportion of the age group 18-34 years- 47%).
- The multiple increase in the services orders (up to 10 times in 2018) and the reduction of failures.
- Promotion of education by integrating the Portal with cultural and education information systems. Literature recommendation to students based on the curriculum and academic performance (confirmed by the repeated increase in visitors to the Portal at the beginning of the academic year).
- Increasing citizen’s awareness (on library services, the possibilities for convenient and fast searching for the required publication, ordering delivery, copy and other services) has a positive effect on the libraries image, attracts new readers and increases book distribution.
- Application of project results in city and district educational institutions, universities, public and non-profit organizations.
- Improving the city’s image as the most reading region, developing convenient tools for interacting with citizens.

Economic effect of the project:

- Economic effect for citizens is expressed in saving time and financial resources to visit libraries for publications search and travel to remote libraries to obtain publications. Especially important for residents of the city and region remote areas.
- Popularization of library funds with convenient searching and ordering publications mechanisms contributes to save citizens' expenses on the expensive literature purchase.
- Economic effect at the regional level is expressed in the optimization of library services to the public.
- All city libraries integration into a single information space provides the opportunity to spend budget funds for the purchase of literature effectively by minimizing duplicate purchases, and equal funds distribution among city libraries.

- Implemented mechanism for processing reader's interlibrary orders contributes to minimize the transporting publications costs between libraries.
- National level economic effect is expressed in the prospective increase in the efficiency of the population's work activity due to the project promotion of literacy, education, erudition.

Project outputs:

- Significant increase in demand for library services among the population. It became possible not only to stop the decline in attendance, but also to increase the number of annual visits by more than 3 times from 6.9 million visits in 2008 to 21.1 million visits in 2018.
- The continuous increase in the number of remote calls to the Portal (up to 9 thousand per day).
- The multiple increase in the services orders (up to 10 times in 2018) and the reduction of failures.
- Constantly growing number of online consultations (2 million per year);

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

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

- Encouraging society to read and learn. Promoting the comprehensive populations development, improving literacy, education, erudition. Confirmed by the recognition of St. Petersburg as the most reading region of the Russian Federation.
- Promotion of education by integrating the Portal with cultural and education information systems. Literature recommendation to students based on the curriculum and academic performance (confirmed by the repeated increase in visitors to the Portal at the beginning of the academic year).
- Increase in the efficiency of the population's work activity due to the project promotion of literacy, education, erudition.

Highlights of the project's partnership activities

Central City Public Library of V.V. Mayakovsky under the authority of Committee on Culture of St. Petersburg is the initiator, customer and manager of the project. St. Petersburg State Unitary Enterprise "St. Petersburg Information and Analytical Center" under the authority of Committee on IT and Communications of St. Petersburg is the developer of software and hardware solutions. The 198 public libraries of St. Petersburg are the project participants.

Challenges and project's future perspectives

The main project's future perspective is the creation of a recommendation system based on the reader's behavior model and preferences via using machine learning technologies and an expert system.

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

The WSIS Prizes contest is a very important event in the ICT arena, as it serves to define best global practices and recognize projects internationally. The WSIS Prizes contest offers a wide opportunity to share experience, specific practical solutions in the development of information and communications technologies aimed at bridging the digital divide and achieving the Sustainable Development Goals.

C4: Capacity Building

Project name: Capacity Building through end-to-end ICT enabled “Utkarsh Bangla” programme

Organization: Paschim Banga Society for Skill Development, Dept of Technical Education, Training & Skills Development, Govt. of West Bengal

Country: India

Basic Information about the Winner

Utkarsh Bangla (“Utkarsh Bangla” means “Excellence through Skilling in Bengal”) is the flagship program of integrated skill development steered by the Government of West Bengal. Catering to youths, who are mostly from underprivileged backgrounds, the programme aims at creating a pool of skilled candidates who are industry ready. While expanding the outreach of skilling, the e-Governance portal of Utkarsh Bangla allows a cogent monitoring and capacity building of all stakeholders involved.

Project’s description (activity’s description)

West Bengal as a state is in a cusp of demographic change, whereby an addition of around 9 million into the working age group in next five years. This presents both an opportunity as well as a challenge for the state. The challenge for the state is to train and skill such a huge work force, to make them industry ready. The opportunity lies in the financial growth of the individual as well as sustainable economic growth for the state in the long term. Utkarsh Bangla, has a vision of training and skilling the youths and increase their employability in the job market. It brings all stakeholders, students, unskilled persons, trainers, administrators and employers under one platform to achieve an inclusive growth. It promotes reduction in poverty and inequality, providing quality education, gender equality, through building strong institutions and partnerships.

Under this backdrop, in order to bridge the gap of the demand & supply of skilled workforce, the Govt. of West Bengal came up with the unique Scheme “Utkarsh Bangla” to provide skill training using Govt. run / aided Industrial Training Institutes, Polytechnics, Vocational Training Centres as well as through private Training Partners under Public-Private-Partnership. The constant demand of skilled manpower by the industry and the keenness of the Govt. to boost supply of skilled manpower in the labor market make the “Utkarsh Bangla” sustainable. The Utkarsh Bangla programme uses existing Govt. machinery at State as well as district level, with a well defined structure and decentralized role distribution among all stakeholders, to run the programme. In order to make the scheme more accessible, efficient and transparent, the use of end to end ICT enabled solution through portal is envisaged. It also uses the national digital infrastructure to build its e-Governance platform to ensure less programme overhead and sustainability in the long term.

Utkarsh Bangla uses innovation to lead a paradigm shift in providing skill development services to the youth & disadvantaged section of the society. The innovative approach ushered in Government Process Reengineering in designing a transformational e-Governance platform which caters to the entire digital eco-system of skill development initiatives of the Government. The digital eco-system includes citizen, trainees, training providers, inspectors, assessors, industry & administrators at State & District level.

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

Quality education for all: (SDG 4) Utkarsh Bangla, is committed towards a more inclusive society, by ensuring equal access for all women & men to affordable quality technical, vocational & tertiary education and eliminate gender disparities in education and ensure equal access to all levels of education & vocational training for the vulnerable, including persons of disabilities. With dedicated Institutes established for women and specially-able persons in the State, helps in focused approach.

The training modules are scientifically designed with industry inputs and the quality is monitored through training of trainers, assessment and certificates by professional assessment bodies. The Utkarsh Bangla scheme also provides great importance to inclusivity for sustainable development of all segments of the society. The portal facilitated the training of skilling of inmates of correctional homes, wherein the trainers have used ICT based solutions to create an interactive space for trainees and simultaneously help in upgrading their skills for a transformational life after correctional home.

Gender Equality: (SDG 5) One of the objectives of the programme is also to bridge the digital gender divide through a unified strategy of “include, up skill & innovate”. The Government of West Bengal put special emphasis on designing of an inclusive skill development strategy. The “Utkarsh Bangla” programme has a special component for young girls (who are the beneficiaries of Kanyashree programme, another flagship programme of the Govt. of West Bengal, which is also the first place winner of United Nation’s Public Services Award 2017) to provide them skill training. Almost 50% of the trained candidates under “Utkarsh Bangla” are female. The Industrial Training Institutes are also having a 10% quota for female candidates.

Financial Inclusion and reduce poverty by Promoting inclusive and sustainable economic growth, employment and decent work for all: (SDG 1 and SDG 8) the “Utkarsh Bangla” programme also encourages financial inclusion amongst the young trainees in Skill Development who mostly represents socio-economically poorer strata of the society. They are encouraged to open their own bank accounts and Govt. deposits various allowances in their bank account directly for attending the courses. This provides a greater incentive for the students from the socio-economically downtrodden segments to continue the training and get better opportunity in the job market. The programme is also aligned with the aim to reduce poverty by enabling the poorest of the poor in improving their skills. It increases the economic potential of the poorest of the poor by providing them training and skilling to increase their potential in getting jobs. As more and more people get decent jobs through skilling and gainful employment, they are uplifted from poverty. A more inclusive society ensures less hunger and better health and well being among its citizens. A more focused approach for skill development among girls ensures a better life for women and their children, as they are among the vulnerable sections of the society. With empowerment through skilling, these women have the ability to fight hunger and have a healthier life for them and their children. (SDG 2 & 3)

Reduce inequality: (SDG 10) Utkarsh Bangla through its transformational interventions in providing quality education, gender equality, financial inclusion and reducing poverty achieves the goal of reducing inequality. The accessibility and mass outreach to all corners of the state with a transparent system of operation helps in bridging the gap between different strata of societies. In this era of such fast technological advancement, coping with digital illiteracy and digital divide among the masses is a big challenge. This digital inequality among the population is solved through the portal. Utkarsh Bangla, through its ground level administrators and multi-pronged communication strategies, tries to bridge this divide and reduce inequality in the society.

Partnerships (SDG 17): in ensuring that the sustainability of the environment is not juxtaposed to economic development, Utkarsh Bangla scheme is enabling a convergence between the different wings of the government as well as private entities. Some of the partnerships that need special mention include skill development training of beneficiaries under the Kanyashree scheme and the ‘Muktidhara’ programme. Utkarsh Bangla is collaborating with the Animal Resource Department in

skilling the poultry farm workers, the Municipal Corporation of Kolkata for training the plumbers in sustainable utilization of water and sewage system management.

Utkarsh Bangla is partnering with the Industries, Commerce & Enterprises to skill Tea Garden workers who have been quite marginalized from the mainstream. The Forest Department is also collaborating under Utkarsh Bangla for skilling the Joint Forest Management Committee members. The Correctional Services Department of the state has also catapulted its efforts in bringing the reformed inmates to the mainstream.

Apart from these we are partnering with companies such as Raymonds, Samsung, Maruti Suzuki, Royal Enfield, Garden Reach Ship Builders & Engineer's Ltd, Siemens, Berger, Tata Metaliks, Mahindra Pride, British Council and many more. Through these endeavors, we strive to move towards a just, peaceful and inclusive society that has reduced inequalities amidst strong social institutions. (SDG 16)

Highlights of the project's partnership activities

Through Utkarsh Bangla, we have initiated multiple convergence projects for inclusive development of various segments of the society. Some of the major convergence initiatives include that of with Dept. of Self Help Groups & Self Employment that is designed to target the capacity building of candidates willing to adopt self-employment, and Self Help Groups (SHG) in the state, Convergence programme for skill development of Kanyashree Girls, with the name "Swapno Bhor", the convergence programme for skill development of Kanyashree Girls, that will provide girls to gain skills & knowledge to become economically independent through Utkarsh Bangla programme.

We have also gone for convergence with Directorate of Correctional Services towards organizing a Short Term Training Programme at the Alipore Women's Correctional Home. Under the intervention, training is provided in the job role of Housekeeper cum Cook, for a better life after completion of prison sentence. We also took an initiative with Kolkata Municipal Corporation, for skill development of plumbers. Conducted over two phases, plumbers from across Kolkata were trained with a special emphasis on sustainable usage of water. Along with these we are also partnering with Joint Forest Management Committees under Dept. of Forests, Govt. of West Bengal, and Dept. of Industry, Commerce, and Enterprises, Govt. of West Bengal, to provide trainings for forest dwellers and tea-garden employees respectively.

In addition to various Government agencies we are also partnering with various private and commercial companies such as Skill Training Institute by Raymonds (STIR), a unique employment linked CSR initiative for skilling unemployed youth in tailoring. STIR has created a Center of Excellence in tailoring at Jnan Ghosh Polytechnic, where it invested in state of the art machinery and equipment. Maruti Suzuki, Maruti Suzuki has been continuously investing in the skill development, acknowledging the importance of skilled manpower in the automobile sector. They also sponsor the trainings of orphans from various Government Homes and place them in their vast dealer networks. Maruti Suzuki has also assisted in upgrading the Mechanic Motor Vehicle trade at ITI Durgapur by providing state of the art machinery and equipment along with sponsoring a full time faculty. Samsung Electronics, Samsung Electronics has helped the students of Women ITI Kolkata, Women ITI Burdwan, Howrah Homes & Kalyani Government ITI by providing advance labs, skilled trainers and providing up skilling courses in latest technologies for the electronic trade. Apart from these companies we have partnered with Royal Enfield, Garden Reach Ship Builders & Engineer's Ltd, Siemens, Berger, Tata Metaliks Mahindra Pride, British Council and many more.

Challenges and project's future perspectives

In a state where majority of the population are novice ICT users, implementation and the data validation of forms/ fields is difficult to be made uniform. Moreover, the industries are still warming up to the idea of a central skill registry and need continuous sensitization for the same. Moreover, while affordable internet is becoming a reality in the India, the treacherous landscape often makes

connectivity an issue. With an increased capacity of the connection lines, a further broadening of the system will be possible. Going ahead, Utkarsh Bangla programme plans to develop an online e-learning platform where skilled candidates across the varied locales of the state can interact not only with the industries but also among themselves. These communication forums allow sustainability of the scheme and the system.

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

The WSIS Stocktaking and Prizes is a great initiative, highlighting the importance of the SDGs and ICTs on a global platform. As the world becomes more and more data-driven and information based, it becomes imperative for each one of us to assimilate the knowledge and experience based on peer learning through such platforms. WSIS helps in promoting two important values, one of use of ICT and the other of raising awareness about sustainable development goals. The assimilation of so many great works in the field of ICT and SDGs would definitely motivate everyone to learn and adopt the best practices from around the world and to come up with solutions to make the world more sustainable and inclusive.

C5: Building Confidence and Use of ICTs

Project name: Data Encryption Leak-proof and Tamper-resistant Network System Based on Quantum Communication Trunk Line

Organization: China United Network Communications Group Co., Ltd. (China Unicom)

Country: China

Basic Information about the Winner

China United Network Communications Group Co., Ltd. (China Unicom) was established in 1994 and has branches in China and many countries around the world. China's only telecom operator listed simultaneously in New York, Hong Kong and Shanghai has been selected as the "Fortune 500" for ten consecutive years, ranking 273 among the world's top 500 companies in 2018, and China Unicom's main marketing revenue of 241.1 billion RMB from January to November 2018. Hengtong Optic-Electric Co., Ltd. (Hengtong) was established in 1991. It is the largest system integrator and network service provider in the field of optical fiber network and power grid in China. Hengtong optoelectronic industry is all over the world. It has established industrial bases in 13 provinces, cities and 9 countries, and has registered international trademarks in 119 countries. In 2018, China ranked 216th among the top 500 enterprises, with main revenue of 101.9 billion RMB.

Project's description (activity's description)

Compared with traditional secure communication system, quantum secure communication has been proved to have the ability to provide unconditional security, which can effectively reduce the risk of confidential information leak, re-establish people's confidence in the application of ICT. The project selected two representative areas - Beijing-Xiong'an Line & Nanjing-Shanghai Line to construct an information encryption anti-leakage anti-tampering eavesdropping system based on the F-M phase encoding Quantum Key Distribution (QKD) device with independent intellectual property. The total length of Beijing-Xiong'an & Nanjing-Shanghai Quantum Secure Communication Trunk Line is about 700km. It is the first commercial phase-encoding long-distance wide-area quantum secure trunk line in the world. The classic channel and QKD channel have been put into service from separated vendors. Ultra-low loss G.652D fiber and large effective area G.654E fiber are used in the transmission line, and quantum master control center is established. After a long period of stability testing, the project passed the high specification acceptance by the expert group led by academicians and the relevant indicators reached the international advanced level. In January 2018, the information encryption anti-leakage and anti-tamper network system based on Nanjing-Shanghai Quantum Secure Communication Trunk Line was awarded the pilot project of network security for the telecommunications and Internet industry of the Ministry of Industry and Information Technology. Currently, it has a number of application cases, including Beijing-Xiong'an quantum encryption video conference system, Wujiang quantum encryption government affairs network, Suzhou financial quantum private Line, etc. The implementation of the project will build a credible regional information exchange environment for the economic and social development of the Beijing-Tianjin-Hebei Region and the Yangtze River Delta, provide information security services for organizations and citizens, and make the community more inclusive and safe.

Team members: Guangquan Wang, Mengchi Xue, Chunxu Zhao, Jianlin Qian, Zheng Li, Shanshan Chen, Hongkang Qiu, Liangyuan Zhao, Guang Yang.

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

The project focuses on building a regional information exchange credible environment, providing quantum information security services for vulnerable groups of information security, such as organizations or individuals, and promoting sustainable economic and social development. Some of the Sustainable Development Goals in the WSIS Action Line have been realized in the project, examples are described as follows.

- a) SDG 8 (Decent Work and Economic Growth): Digital economy is one of the main engines of development. The endless information security incidents not only threaten the sustained economic growth, but also reduce people's confidence in using ICT. The project can effectively lower the risks of confidential information leakage, protect the information security of institutions and individuals, and build up people's confidence in using ICT. The digital economy will continue to grow in a secure environment, enabling more people to have high-quality jobs and decent jobs. For example, in Nanjing-Shanghai Quantum Communication Trunk Line, Hengtong Optoelectronic Finance Company linked to the bank by the project, which effectively guaranteed the security of financial data and protected the steady growth of business security.
- b) SDG 9 (Industry, Innovation and Infrastructure): The quantum secure communication equipment used for network system support has zero emission and uses optical fiber as communication channel, which does not cause pollution. In the project, the energy consumption of the system equipment is less than 1 kW in many convergent node rooms, but it will meet the demands on information security for hundreds of thousands of users. In addition, the network can be managed, monitored and maintained remotely in the quantum network control center to reduce maintenance cost.
- c) SDG 11 (Sustainable Cities and Communities): Information security is an indispensable basic requirement for every household. The project will greatly enhance the ability of cities and communities to face challenges and enhance the security, inclusiveness and sustainability of cities and communities.

Highlights of the project's partnership activities

The cooperative activities of the project have the following highlights:

- a) The project is the first quantum encryption communication trunk line constructed by a quantum secure communication scheme provider and a telecommunication operator in China, which has a demonstration effect on the popularization of quantum secure communication in public life.
- b) The two sides of the project cooperate to overcome the predicament of large quantum link loss between Beijing-Xiong'an relay nodes. It took only one month to complete installation and commissioning of quantum equipment based on existing fiber, machine room and power supply, and to provide the quantum encryption service between Beijing and Xiong'an.
- c) In 2017, the academician of the Chinese Academy of Sciences gave a live on-line lecture on quantum information technology to thousands of employees in China Unicom Hall, which promoted the partnership between China Unicom and Hengtong. In the same year, China Unicom signed an agreement with Hengtong to cooperate with the application research based on the project to carry out a number of innovative quantum security service experiments, such as remote video conference demonstration affected by optical fiber signal leak extraction w/o quantum encryption, quantum encryption mobile phone, quantum encryption database, quantum security fixed-line telephone, quantum encryption video telephone, end-to-end quantum encryption protection and etc. All above activities and products will greatly try to improve the level of information security protection in citizens' daily life and work.

Challenges and project's future perspectives

Most of the secure quantum trunk networks at present are in the trial stage. There are still many challenges in large-scale commercialization.

- a) Quantum key coding rate is relatively low, which cannot meet the one-time pad (OTP) communication data encryption requirement of large volume data.
- b) QKD still requires a trusted relay scheme to extend the key distribution distance. The reliability of relay site has restricted the security of overall quantum key distribution, and the breakthrough in the practicality of quantum relay will be expected.
- c) The current cost of quantum secure communication equipment is relatively high. Thus, providing lower cost QKD system will be another great challenge.

Information security is a necessary prerequisite and important guarantee for economic security. As next generation information security technology, quantum secure communication provides strong support for information security with its unconditional security, which is a major change and inevitable trend of information development. The construction of the project is of extremely important strategic significance for ensuring the secure transmission of information in the Beijing-Tianjin-Hebei region and Yangtze River Delta region, accelerating the industrialization of quantum communications, providing reference for the whole world, and promoting the realization of WSIS's goals of sustainable economic development, urban security and so on.

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

WSIS Stocktaking serves as a global information base for ICT-related projects to collect and report on the implementation of WSIS. It provides a platform for stakeholders of WSIS to exchange information, innovate knowledge and show the best implementation plan. It effectively promotes the implementation of WSIS Action Programme and promotes the realization of sustainable development goals. By inviting WSIS stakeholders to vote online, the WSIS contest is transparent and fair. On the one hand, it helps participants understand the latest development trends of information technology, promotes the establishment of new partnerships, and on the other hand, it improves participants' confidence in using ICT. Finally, we are very honored to be able to contribute to the common goal and look forward to the participation of more and more stakeholders in the future to jointly promote the achievement of the international development goals set out in the 2030 agenda for sustainable development.

C6: Enabling Environment

Project name: Establishment of Bangladesh National Digital Architecture (BNDA) and e-Government Interoperability Framework (e-GIF)

Organization: Bangladesh Computer Council (BCC)

Country: Bangladesh

Basic Information about the Winner

Bangladesh Computer Council (BCC) is a statutory body under the Ministry of Posts, Telecommunications and Information Technology, Government of Bangladesh (GOB). It was established by Act No IX of 1990 passed by the Parliament. The main objectives of BCC are including but not limited to: encouraging and providing support for ICT related activities in Government domain, formulating national ICT strategy, policy and ensure adoption, creating standards for ICT and specifications of ICT tools for government organizations, developing human resource in ICT sector. Over the recent years, BCC has established National Data Center (NDC) for hosting all the government websites, e-mail services and web applications. In the near future, NDC is envisioned to be the only Gateway to access internet services for all of the government organizations. BCC in its endeavor to further progress on its ambitious objective had established Bangladesh National Digital Architecture (BNDA). The aim for this initiative was to create a digital ecosystem within the Government of Bangladesh that provide digital services:

- Seamlessly
- Integrated
- Digitally inclusive
- Strategically Aligned

BNDA had taken giant strides to meet its objective. From developing Bangladesh National Digital Architecture to developing systems that meet the stringent architecture principles, the road was not easy by any means. Today, BNDA has successfully implemented the National Enterprise architecture Framework and e-Government Interoperability Framework, enabling Government agencies to digitally connect with citizens and ensuring seamless service delivery.

Project's description (activity's description)

The Bangladesh National Digital Architecture (BNDA) and e-Government Interoperability Framework (e-GIF) project has been envisioned to deliver a conceptual blueprint that defines the structure and operation of the Government of Bangladesh and a common integrated interoperability platform for information exchange and host the national portal that will act as a One Stop shop for all government e-Services enabling seamless delivery of e-services to citizens (G2C), businesses (G2B) and within government agencies (G2G).

The objective is to assist GoB through BCC to design, develop, deploy and use the National Digital Architecture (NDA) and e-Government Interoperability Framework (e-GIF) to develop strategies, processes, plans, structures, technologies and systems across the Government, thereby developing an environment that enables the Government agencies to achieve its key objectives and outcomes through increased interoperability, better asset management, reduced risk and lower procurement costs. Based on the envisaged NDA and e-GIF structures, Government agencies would then be required to detail out their strategic transformation roadmap to migrate from its current state in terms of business processes, technology and information systems to its desired target state. The NDA and

e-GIF will ensure that all investments in process improvement, information systems and technology support are made in a disciplined and planned manner.

Results achieved: Establishment of NDA and e-GIF has been a great success story so far, enabling government agencies to inter-connect and deliver seamless e-services. The project was accomplished within budget and schedule. BCC has won accolades, awards and global recognition through PRESIDENT AWARD 2018 from The Open Group in “Government Enterprise Architecture” category. The EGDI ranking of Bangladesh has significantly improved 33 steps in last 2 years (115 at 2018). However, the future becomes even more challenging considering high expectation from the ministry’s and several stakeholders, BCC firmly believes establishment of NDA is a continuous and iterative process, National Enterprise Architecture Framework needs wider adoption and refinement to match the ever so changing technology landscape and help realize the Digital Bangladesh Vision.

Impact: The adoption of the BNDA and e-GIF framework among the Government agencies has transformed delivery of digital services to citizens, employees and businesses as a whole. The National E-Service Bus established as an implementation of e-GIF, has integrated systems across ministries reducing the total cost of ownership significantly. The transformation has fueled the need for further integration among ministries, several key ministries has expressed keen interest to assist them in realizing such benefits. Private sector associations have formulated focused group to build capability to execute such transformations, enabling human resource development in the area of ICT.

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

SDG 1 (No Poverty): The BNDA established framework is enabling Government agencies to deliver integrated citizen services to all classes of citizens : Rural, Semi-Urban and Urban. SDG 3 (Good Health and Well-Being): BNDA enabled Food Procurement Management to be made digital, delivering fresh crops from farmers ensuring citizens well being. SDG 4 (Quality Education): e-GIF integrated Pension Management System for education, enabling hassle free pension, so employees are encouraged and motivated to provide quality education. SDG 8 (Decent Work and Economic Growth): BNDA and e-GIF compliance e-Recruitment system, is enabling transparent recruitment in Government of Bangladesh. SDG 15 (Life on Land): GeoDash System, integrated and based on BNDA framework is enabling agencies protect environment, foster sustainable growth and ensure progress.

Highlights of the project’s partnership activities

Sr. No.	Department/Ministries	Roles
1	Cabinet Division	<ul style="list-style-type: none"> • Providing technical and managerial guidance • Assistance to get coordination/response from line ministries
2	ICT Division, Bangladesh Computer Council	<ul style="list-style-type: none"> • Envisioning need for BNDA framework and e-GIF • Guide and Monitor Project progress • Facilitating review of all the technical documents such as <ul style="list-style-type: none"> o Functional Requirement Specification o System Requirement Specification o Roadmaps for various Departments/Directorate

Sr. No.	Department/Ministries	Roles
3	Directorate of Primary Education	EA roadmap was drafted wherein detailed consultations was carried out with various departments/sub-departments/ stakeholders. Roadmaps were prepared as demonstrable proof-of-concept and model EA which covered following:
4	Directorate of Food	
		<ul style="list-style-type: none"> • Introduction to NDA • Department Overview / Vision / Objectives • Approach and methodology • Current State Assessment • Architecture maturity assessment • Consolidated list of initiatives • Master plan / Way Forward • Design considerations • Non-Functional requirement • Capacity Building • IT Roadmap covering • Different Architectures (Business, Application, Technology, Data) • Active involvement of stakeholders in sharing As-Is process • Reviewing and finalizing To-Be process • Regular testing of e-Pension system, Food Procurement System and provide feedback
5	Bangladesh Telecommunication Regulatory Commission	<ul style="list-style-type: none"> • Active involvement of stakeholders in sharing As-Is process • Reviewing and finalizing To-Be process • Regular testing of SIM registration system and provide feedback
6	Bangladesh Election Commission	<ul style="list-style-type: none"> • Active involvement of stakeholders in implementation of NDA bus for establishing inter-government interoperability
7	Finance Division	<ul style="list-style-type: none"> • Active participation and guidance from the department in integration of Pay Fixation APIs with NDA Bus.
8	All ministries and agencies	<ul style="list-style-type: none"> • Follow/adhere to NDA guideline, principles, standards, specifications etc during procurement of ICT based goods/services • Participate in several Workshops/Seminars

Challenges and project's future perspectives

Consistent with most such wide scope National Enterprise Architecture program, BNDA has overcome several roadblocks and such roadblocks would re-appear in near future. The focus is to follow industry standard and yet an innovative approach to smoothen the journey. Few of the challenges are mentioned below:

- Adoption of BNDA among all ministries, divisions and directorates
- Ministry's senior leadership buy-in of BNDA and e-GIF
- Enforcement of ICT Standards and ensure adoption
- Cultural transition from silos to collaborated ICT ecosystem
- Capacity Development

- Availability of skilled EA resources

Future Perspectives:

- Establishment of WOG (Whole-Of-Government) approach
- Formulate Strategy for establishing WOG (Whole-Of-Government) platform i.e. large scale implementation of NDA framework
- Developing cross-cutting e-services, Integrating more e-services with e-service bus
- EA and ICT roadmap for all ministry/divisions
- Development of digital services
- Unique citizen authentication service for all Govt. Organizations
- Integration of existing digital service
- Online/web-based tool for digital maturity assessment
- Conduct National workshops and awareness seminar

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

BCC assumes WSIS Stocktaking and WSIS Prizes contest as an effective one to promote any gov/non-govt organization's development aspects. It's also enables creating healthy competition among gov/non-govt organizations of same country in terms of innovation, excellence and citizen service delivery. We wish every success of WSIS Stocktaking and WSIS Prizes contest.

C7: ICT Applications: e-Government

Project name: Licenses Portal

Organization: Ministry of Environment Water & Agriculture

Country: Saudi Arabia

Basic Information about the Winner

The vision is to achieve sustainability of environment and natural resources, in such a manner that would ensure water security, contribute to achieving food security, and improve quality of life in KSA. Our mission is to maintain distinguished performance in developing and applying comprehensive policies and effective strategies, as well as promoting services by engaging the private sector and the competent authorities, with a view to achieving prosperity and sustainability of the environment, water and agriculture..

Project's description (activity's description)

This project is coming under the digital transformation initiative that focusing on providing electronic services to help the beneficiaries to get their services in less time and good quality. In addition to, enable the ministry to track, manage and improve the beneficiaries experience and enhance the social life for the communities. The project scope is developing electronic portal that will contains 80 types of agriculture licenses that can any investor apply for them to get the license electrically without visiting the ministry or any of its branches.

These are the main objectives for develop this system:

- Manage and tracking the licenses in centralized portal that will be accessible for all investors (individuals and organizations)
- Getting the needed licenses without visiting the ministry or any of its offices
- Paperless environment by reduce the paper work inside the ministry and its offices
- Digitalized government to be aligned with digital transformation strategy for the ministry as one the main initiative for the kingdom vision 2030
- Transparently and ability to monitor the requests statuses from the beneficiaries by tracing the request ID through the centralized portal
- Reduce the violations and make more control on the non-licensed investors
- Ability to add the violations in easy and accurate way by License number

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

SDG 2 (Zero Hunger): to end hunger, achieve food security and improved nutrition and promote sustainable agriculture.

SDG 3 (Good Health and Well-being): to ensure healthy lives and promote well-being for all at all ages.

SDG 8 (Decent work and economic growth): to promote inclusive and sustainable economic growth, employment and decent work for all.

SDG 10 (Reducing inequality): requires transformative change. Greater efforts are needed to eradicate extreme poverty and hunger, and invest more in health, education, social protection and decent jobs especially for young people, migrants and other vulnerable communities.

SDG 12 (Ensure sustainable consumption and production patterns).

SDG 15 (To sustainably and manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss).

Highlights of the project's partnership activities

Current Integrate with:

- Ministry of Municipal and Rural Affairs (MOMRA) to verify the projects scope and availability
- Ministry of commercial and investment (MCI) to validate the applicant commercial registration number.

Targeted to integrate with:

- Ministry of Justice (MIJ) to verify the lands contracts and ownerships
- Presidency of Meteorology and Environment (PME)

Challenges and project's future perspectives

These are the most challenges that we met through building this system and the expected challenges that can be occurs through the operation of these e-services:

- Categorization the licenses and unify the business process workflow
- Integration with other government entities
- Some of the small cities not have internet access to can access the portal
- Some of the investors not have the skills or resources to access and use the electronic services

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

It is to help the entities to be aligned with very important targets that included in the SDG's through building the digital solutions.

C8: ICT Applications: e-Business

Project name: BnC Bot

Organization: BnC Bot (Bon Ban Hang)

Country: Vietnam

Basic Information about the Winner

Chatbot Vietnam, JSC is positioned as the leading chatbot platform in Vietnam.

The aim of Chatbot Vietnam is to deliver greatest values of the fourth industrial revolution to the society, in particular bringing the prosperity to online businesses and promoting e-commerce on mobile.

Our platform is to promote e-commerce via messaging platforms and omni-channels, bringing a convenient way for customers to shop online as well as a tool for sales automation.

Project's description (activity's description)

In spite of the boom of e-commerce, particularly m-commerce and the emergence of Industry 4.0 technology, there are a lack of tools making use of these technologies for direct order via messaging applications, customer relationship management and data synchronization for omni-channel businesses. This is why in November 2017, we built **Bot Ban Hang** (branded as **Bot Bán Hàng** in Vietnam), an AI-powered platform for sales and marketing on messaging platforms such as Messenger, Whatsapp or Telegram that saves time, money and labor for both online shoppers and businesses of all sizes and fields.

Regarding product innovation and quality as our most competitive advantage, we prioritize product research and development. **Bot Ban Hang's** fundamental features are to turn each fanpage into a truly online shop where customers can conveniently choose products, place orders, make payments and track their order status right on Messenger through call-to-action buttons put on messages. It is also a platform providing a tool for customer relationship management and free remarketing, which helps reach thousands of customers by enabling broadcast via Messenger, providing more personalized advertisement and create different customer service plans for specific customer groups.

Due to a pool of data collected from omni-channel customers and stocks, we build a research team including most excellent AI-specialists in Vietnam for data analysis for business optimization in terms of social listening, better customer understanding, customer classification, optimal price suggestions and product trend prediction.

Another key factor to our business is developing human resources and growing our market. Currently, our startup has 15 employees. Internal processes are so tight but also to motivate employees at their best self-development. By doing so, we now support 500 customers' requests per day. We serve different types of customers, both profit and not-for-profit organizations, such as local governments, hospitals, airlines and travel agencies. After 9-month operation, we gained sales revenue in August 2018. Since then, the number of users and fanpages has rapidly increased, now reaching the growth rate of 100% and 125% per month on average, respectively. Bot Bang How is used by 1,3 million active users and over 63,000 facebook fanpages.

Since our platform aims at high capacity of integration with other platforms, partnership is valuable to our business. We provide an App marketplace, where shops can buy applications from developers to connect with their bots and help bring better customer experience. Our partners are digital services

providers, ranging from e-commerce companies supplying market-places, online payment services providers to logistics (Details of partnership are mentioned below).

Our vision is developing a “blue ocean” to leverage messaging platforms as a new channel for online sales and creating an App marketplace which adds more value to online businesses and brings profits to third-parties. Different companies providing digital services can build apps based on our platform, then commercialize them on our marketplace, where customers (shop owners) can purchase these apps and integrate these services into their bots. These digital tools empower their businesses. Customers pay third-parties for the services provided and we get commission value on each download.

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

Our competitive advantages are outstanding features for sales and marketing and omnichannel commerce, facilitating the shift into digital commerce since it brings a convenient way for digital purchase that takes advantage of mobile and messaging platforms. It is to accelerate e-commerce in general and e-tourism in particular, supporting SDG 8.9.

With the capacity to connect with payment services providers, our bot strengthens the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all, as indicated in SDG 8.10, 9.3 regarding developing ICTs for e-business growth.

With its power in sales and marketing, it supports businesses of all sizes and fields, providing a good tool for Vietnamese exporters to penetrate into international market. Also, it can connect with different platforms and B2B to empower B2C businesses. This supports SDG 17.11.

This platform can also be applied in non-profit organizations or governments as an innovative and effective means of communication. Governments can use our bot to interact with their citizens for replying to enquiries, notification of policies or broadcast of local and national tourism information. Hence, it supports job creation and encourage formalization and growth of micro-, small and medium-sized enterprises, which are illustrated in SDG 8.3.

Highlights of the project’s partnership activities

As mentioned above, we have been in partnership agreement with businesses ranging in different fields, including:

Facebook and Amazon: On November 15, 2017, we was awarded USD 30.000 from Facebook and Amazon for product development due to “FacebookStart” Program.

POS software companies which provide offline customers management. Through integrating our Bot with their software, online and offline customer data are synchronized. One of the most outstanding business is Foody.vn, a food social network startup, which was acquired for \$64 million by Singapore-based SEA Group, one of the most valuable startups in Southeast Asia.

Distribution partners: They are marketing agencies or marketing training academies who take advantage of their own networks of customers and students for selling our products.

Third parties developing their own applications on partners’ systems and on Facebook. Connecting to our bot, they have chance of reaching existing customers in our platform and selling their App on App Market for more profits. We have signed partnership with both international and domestic big brands, among which the most outstanding partners include GrabTaxi Holdings Pte. Ltd. (branded as simply Grab, a Singapore-based ride-hailing startup- one of the most valuable startup in Southeast Asia), Lazada Group (a Southeast Asian e-commerce company owned by Alibaba Group), Viettel Post (a subsidiary of Viettel Group, Vietnam's largest mobile network operator) and Tiki.vn, the fastest-growing retail company in Vietnam.

Challenges and project's future perspectives

The biggest challenge we have to face is inadequate source of data, regarding customer information and trending analysis due to our short time of operation (over 1 year). This is the obstacle that prevents us from approaching target customers as fast as our competitors who joined the market before us. This can be addressed by application of our chatbots in customer support and remarketing purposes as well as fund-raising plans.

Regardless of challenges, Bot Ban Hang's mission is to create a revolution in e-commerce, a breakthrough in business growth, and above all, to build a more convenient life for everyone. – more related to Information Society Development.

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

WSIS Stocktaking gives us a chance of connecting to other sectors to expand our visions and learn from other practices, which motivates us to contribute more to Information Society Development.

Additionally, WSIS Prize is a prestigious global prize that enhances our credibility and marks our globalization, which facilitates our plan to develop the first global product version and penetrate into the international market.

Last but not least, attending this event helps us develop a network of partnership which brings more benefits to the platform with the capacity of connectivity.

C9: ICT Applications: e-Learning

Project name: Generative Schools

Organization: University of La Punta

Country: Argentina

Basic Information about the Winner

Since 2004, the government of San Luis is committed to higher education through La Punta University, with the purpose of training professionals in strategic areas associated with the growth and progress of the province. It currently has an academic offer of more than 50 careers, which are provided online.

Project's description (activity's description)

The Government of San Luis responds to innovation challenges in the education field: educational innovation is understood as "doing and thinking differently" practices, promoting changes in the different dimensions of the educational system from educational macro-policy, up to the daily dynamics of educational institutions, recognizing the characteristics of specific contexts. In this innovation framework, generative schools emerge as an alternative that combines educational practices with "new ways of doing and thinking". They are conceived as "total innovation" as they set a real change from the reflection on the school role, articulating the learning, creativity, autonomy, technology and quality.

The concept of generative school is inspired by the generative art movement, understood as a practice in which the artist starts working in freedom, using a natural or artificial procedure to achieve a complete work of art. Speaking of "generative" school implies thinking of the students as a starting point of a journey in total freedom, discovering different ways of learning, together with trained teachers that accompany them.

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

Generative Schools are in the E-learning Action Line and pursue the Quality Education and Gender Equality goals. Regarding Quality Education, we can mention that generative schools obtained positive results in decreasing school dropout rates, as they are alternatives that seek to accompany students in the construction of their life projects, so that their passage through school would not be just a formality derived from an obligation.

Regarding gender equality, San Luis government promotes the "Periphery to the Center" premise, in order to provide the same opportunities to all the inhabitants of the province. Generative schools are public, free and inclusive, and they rethink the authentic meaning of education and learning, recognizing that students come to schools with a "built-in cultural capital" and very different life histories, which somehow compels the thinking of strategies that contemplate this diversity as an inherent condition of today's society. In this way, heterogeneity is respected and promoted, because they consider students as a core, recognizing who they are, how they learn, what their interests are, their weaknesses and strengths, their cultural and social environments.

Highlights of the project's partnership activities

This initiative is a San Luis government policy, carried together by the Ministry of Education and La Punta University.

Challenges and project's future perspectives

Based on the success of this initiative, the provincial government offered expanding the number of generative schools. In 2019, 149 generative schools will be launched in rural areas, so that students can finish secondary school in their own residence place.

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

The quantity of projects this year is clearly superior to the 2018 edition, in which we also participated, and where we have seen very innovative and interesting projects to replicate. We hope that our proposals are of equal interest to other entities or governments. This distinction is very important, since it is an acknowledgment of the work done and that is framed within the Sustainable Development objectives proposed by the WSIS.

C10: ICT Applications: e-Health

Project name: E-Health Mato Grosso (Telessaúde Mato Grosso)

Organization: Ministry of Health

Country: Brazil

Basic Information about the Winner

The Núcleo Técnico Científico Telessaúde Mato Grosso (Mato Grosso Telehealth Techno-Scientific Nucleus) is the result of a partnership between several entities. It is a National Program, funded by the Ministry of Health. In Mato Grosso, it functions at the Julio Müller University Hospital, receiving technical cooperation from the state's Health Secretary. Each entity has its share of responsibility, thus resulting in a successful partnership. Ministry of Health – office linked to the Presidency of the Republic. State Health Secretary – office linked to the government of the state of Mato Grosso.

Julio Müller University Hospital – entity linked to the Universidade Federal de Mato Grosso (Federal University of Mato Grosso) and to the Empresa Brasileira de Serviços Hospitalares (Brazilian Hospital Services Company), both funded by the Federal Government.

Project's description (activity's description)

The Telessaúde Mato Grosso (Telessaúde – MT) program started its activities in July 2013, and its implementation was significantly accelerated as from January 2015 when it was incorporated to the Júlio Müller University Hospital (HUJM). In the course of time, Telessaúde – MT was consolidated as a structure to support Primary Healthcare, providing professionals in the most distant locations with scientific information.

Telessaúde – MT offers the following services: Teleconsultancy, Tele-education, Formative Second Opinion and Tele diagnosis for electrocardiography, stomatology and dermatology. Generally speaking, these services allow those professionals who work in the Primary Health Care of the state's districts, to have assistance and educational support through Information and Communication Technologies (ICTs). The program also leads to a reduction in the need to displace patients and health professionals from remote areas of the state, saving time and financial resources. The importance and effectiveness of the service is undeniable, placing technology and its development as something essential for the work.

The distance between one professional and another, or between the patient and the health service is eliminated through the use of ICT, impacting the reduction in the need of having patients traveling for hundreds of kilometres or displacing professionals to be trained. The program increases service provision in isolated locations and above all improves the quality of the service offered. The use of ICTs by the Telessaúde MT Nucleus adds value to the health professional's satisfaction, increases efficiency, streamlines results, broadens health care, qualifies processes, reduces waste and guarantees the right to health.

By providing the Primary Health Care Network of the Unified Health System (SUS) with a set of services through ICTs, there is a guarantee that a significant portion of the population will have qualified access to the digital communication media, thus having the local reality modified. This same strategy optimizes the technological and human resources within the network of the Unified Health System, making the project economically and socially sustainable. This premise is aligned with WSIS in that it uses ICTs as a sustainable way of changing the reality of isolated communities with little or no access to health services.

Highlights of the project's partnership activities

Telessaúde- MT, through an agreement between the Ministry of Health and the Health Secretary of Mato Grosso (SES-MT), is part of the Telessaúde Brazil Networks Program in Primary Health Care. It is a component of the Program for the Rehabilitation of Basic Health Units (UBS) that aims to expand the problem-solving capacity of Primary Health Care and promote its integration with the Health Care Network as a whole. The Julio Muller University Hospital, the Federal University of Mato Grosso and the Brazilian Hospital Services Company, as executors, imprint the service with a scientific technical character. It is also important to highlight the partnership with 141 districts that use the service and also provide the necessary resources for local operation.

Challenges and project's future perspectives

Future challenges and projects include the expansion of the current tele diagnosis offer for a greater number of districts, as well as the inclusion of new telediagnostic modalities such as tele-radiology, tele spirometry, tele retinography, among others. In order to support this expansion, there is a need to expand the physical, technological and professional structure of the Telessaúde- MT Nucleus and also the inclusion of new districts, with regional and national agreements for service maintenance. Tele-education should also be expanded with the implementation of e-learning activities, facilitating access to knowledge, especially for health professionals in the most remote districts.

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

The WSIS Award can promote the project's visibility and extend the possibility of partnerships to leverage the service. It can also boost credibility and local support regarding the relevance and importance of the work. It allows an alignment of the efforts in the search for consistent sustainability, allowing contact with a list of candidates who may contribute with strategies that will impact their districts.

C11: ICT Applications: e-Employment

Project name: Digital Jobs Africa

Organization: The Rockefeller Foundation

Country: United States of America

Basic Information about the Winner

Project's description (activity's description)

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

Highlights of the project's partnership activities

Challenges and project's future perspectives

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

C12: ICT Applications: e-Environment

Project name: A less intrusive rhinos conservation, a hope for endangered species

Organization: Sigfox Foundation

Country: France

Basic Information about the Winner

Sigfox Foundation is an endowment fund, raising money to act on urgent causes, leveraging Sigfox technology for the general interest, with a focus on biodiversity. Sigfox Foundation was created by Sigfox co-founders Ludovic Le Moan and Christophe Fourtet. Sigfox is a French company created in 2010, operating its own network, rolling out a low-cost, low-power and long-range global IoT network. It is a LPWAN (Low Power Wide Area Network) technology and the first global cellular network fully dedicated to connected objects. LPWA technology unleashes the full potential of the Internet of Everything with disruptive long-range (up to 200 kms in rural zones), low-bandwidth (small messages are transmitted), low-power network (very little energy is used to connect the objects to the internet).

The vision is to connect billions of objects, and make things come alive around the globe, giving companies, institutions, governments a new span of information coming from the physical world. The "Internet of Things" needs an appropriate connectivity to connect everything and achieve the potential of data collection within small messages transmitted such as: meter readings, GPS positions, temperature, movement, door opening, battery life... As a result of this vision and its commitment with the society, Sigfox has not only created a revolutionary technology that enhances sustainability and foster innovation all around the world but has also set up its own institution, the Sigfox Foundation, to promote the use of IoT in different projects creating a positive impact on the planet, including this rhino monitoring project.

The Sigfox Foundation's mission is to design, develop and test very low-cost and low energy solutions able to produce life-saving data. Prior to any mission we launch, we conduct a feasibility study, we conceive the prototype, we trial it on the field to demonstrate impact results, we get support and confirmation from experts that the proposed solution is addressing the need and viable. The prototyping phase makes it possible to obtain the first results. To move to the scale of global impact, we enter a pre-industrial phase of the tested solution to determine the minimum order quantity that set the cost as low as possible to ensure scalability. Once we have a prototype, we get a clear idea of the cost and after the solution is approved by the partners on the field, our goal is to publish this impactful solution in open source so that other communities like NGO's, governments, developers, can leverage the effort done by Sigfox Foundation and facilitate their industrialization phase. Based in Paris, Sigfox Foundation has a team of three, benefiting from the know-how of engineers and radio specialists.

Project's description (activity's description)

A lot of solutions have been deployed to help endangered species. But looking closely to these devices (collars, tags) and technologies used (GSM, VHF), all are very intrusive, very expensive and consume a lot of energy. It's not adapted to wildlife which needs as little human or technical intervention as possible. Sigfox Foundation rallied the cause of rhinoceros protection and fight against extinction using its technological know-how. The Sigfox Foundation, using the Sigfox network, has imagined a new tracking solution, to help rangers to better monitor a population of wild rhinos in Africa in a very simple way.

We have invented the first GPS tracker for rhinos' horns with a three-year lifespan at a cost of \$50-60. For the last three years, the tracker has been tested in an African wildlife reserve on a small population of rhinos. The tracker is part of a tracking/monitoring solution that relies on three pillars:

- The “OG” Sigfox network. It is a global network dedicated to small messages to transmit life-saving information within a few bytes (GPS coordinates in that case). It is a low energy, low cost, long-range radio signal network. The reserve where we conduct the trial is equipped with three antennas working in total autonomy thanks to solar supply, covering more than 3000 square kilometers in the wild. The Sigfox “OG” network is used to receive the data from the rhino’s horn and to transmit it to the web platform.
- The GPS tracker. With small dimensions (a few centimeters) to be able to fit big and smaller rhinos like females, it can be inserted into the rhino’s horn and send 1 to 3 GPS signals a day. With a three years lifespan, the human intervention required is extremely limited on these wild animals.
- The platform. The GPS data is displayed on a map, allowing a secure and remote though direct monitoring of the rhinos, by giving location and movements information. An alert can be triggered when the rhino gets too close to the reserve’s boundaries, and the carers alerted by email or SMS.

This prototyped device is much less intrusive, barely more than an inch but having a battery autonomy of several years and estimated at around 50-60 dollars per unit. The next step is to produce more sensors at lowest price to equip a maximum of rhinos and contribute to their survival. For this, Sigfox Foundation is currently working with an industrial manufacturer to develop an industrial version of the prototype. We are completing the test and development phases with our industrial partner on this project. We now need to produce more GPS trackers to distribute them to NGO’s for free. We want to connect 10% of the world’s remaining rhino population and help conservationists protect endangered species, particularly females to ensure reproduction can continue.

Once the industrialized version is finalized, we aim at making it open source so that it can be used by any people who need it for environment protection purposes. This allows quicker replication of the model as well as amplification of the impact globally. It also fosters innovation and the use of emergent, simple and affordable technologies to tackle global causes. In addition to the tracking, our Foundation is aiming to do park monitoring (fences, gates), using other types of sensors to warn local rangers of possible intrusions. We are also exploring solutions that can help reduce the wild-life-communities conflict by providing tools to communities living nearby the conservancy areas to better manage their resources.

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

This rhino monitoring project is directly linked to the Sustainable Development Goal 15 helping on halting biodiversity loss by enabling the protection of the Rhinos species complete extinction and protecting their wider environmental ecosystem. In addition, this Project is participating in Sustainable Development Goal 7 to ensure access to affordable, reliable, sustainable and modern energy for all, especially in other kinds of energy, i.e. low-powered energy through the energy efficient network developed by Sigfox for the Internet of Things. Access to that kind of emergent technology by all scientific organizations could help resolving many issues regarding environment protection notably through IoT based tracking/monitoring systems such as the one developed by Sigfox Foundation to track the threatened Rhinos in this Project.

Using this new IoT technology and global network in the Now Rhinos Speak Project, the Foundation is trying to help Sustainable Development Goal 9 as well by fostering innovation, evangelizing a new greener energy shown by the Internet of Things. In the Now Rhinos Speak Project, the IoT based tracking system was quickly implemented and is efficiently working with only three base stations antennas and the new types of sensors placed in the horn of the rhinos. The IoT data learning that

will result of this Project would certainly participate in this same goal. Lastly, the important work done by the Foundation and its engagement to collaborate with the local ecosystem in Africa for this environmental Project is helping the Sustainable Development Goal 17 as revitalizing the global partnership for sustainable development. Not only local partners such as rhinos experts have been working on this environmental protection Project but also national entities from all over the world (British and American organizations and French companies).

In addition, this project specifically illustrates the shared responsibility we take as we believe the species threatened by extinction are part of a common heritage that we need to protect altogether. Enabling conservationists to monitor rhinos in real time every day is a game changer for the conservation community and gives them the information they need to undertake the actions to protect the animals and fight against extinction. Sigfox Foundation is supported by the Sigfox wider ecosystem of devices and solution makers. We have made a call for contribution to the Internet of things ecosystem to collect devices that can help providing valuable insight when it comes to localizing assets (the people looking after the endangered animals, the vehicles to go on the site, the radios...) to ensure the quickest response to a threat and contributing to poaching dissuasion. One of the World Summit Information Society values we are also in line with is the Respect for nature. The rhinos and endangered species more generally are part of a global ecosystem and habitat that need to be protected to be sustainable for the species reproduction on the long term. We are striving to achieve our mission using Information Communication Technologies as we are convinced that connecting the physical world to the internet is the leading way to provide valuable and vital data. Finally, through our action, we are contributing fighting against animal body parts trafficking thereby fighting against parallel and unlawful economy.

Highlights of the project's partnership activities

This project has been made possible by the collaborative effort from three main partners.

Technology partners: Sigfox is providing the "OG" network (the feasibility study, the radio survey and radio spectrum analyses, the antennas, solar supply and satellite backhaul design) for free. Eutelsat is proving the satellite transmission for free (between the antennas and the Sigfox cloud).

Conservation partner: The Lowveld Rhino Trust (LRT) is a conservation organization operating in the south East Africa. LRT works to increase both black and white rhinos' numbers and range in the Lowveld region. LRT also works to raise community awareness and support for rhino conservation through rural schools. Over 140 rural primary schools are part of this program. We are working closely with them so that the device meets the requirements of the field expertise. Lowveld Rhino Trust is also funding the redesign of our prototype to come to an industrialized version. LRT is Save the Rhino conservation partner.

Challenges and project's future perspectives

With regards to the perspectives of this project, our action during the last three years resulted in our Foundation being clearly identified by the conservation community. Numerous NGOs and reserves are contacting us to find out more about the monitoring solution and how it can be implemented in their areas.

C13: ICT Applications: e-Agriculture

Project name: SwiftVee (Livestock)

Organization: SwiftVee

Country: South Africa

Basic Information about the Winner

SwiftVEE connects livestock agents and farmers to a centralized platform that empowers livestock agents as a focal point. It facilitates trade efficiency and economic inclusion of all sectors of the agricultural economy ranging from commercial, small-scale and subsistence farming. In so doing, SwiftVEE tackles some of the world's biggest problems such as resource scarcity, global hunger and economic inefficiency.

Project's description (activity's description)

SwiftVEE provides a centralized trading platform which empowers livestock agents to expand their network and use intelligent data and analytics to make informed business decisions. It allows agents and farmers to connect and trade efficiently with minimal logistics costs. Not only does this empower better business, it provides economic inclusion to small scale farmers who are empowered to trade in commercial livestock markets through the reach of livestock agents.

In the current agricultural paradigm, livestock trading is fragmented and disconnected. In drought periods cattle dies on the land before it can even be given away for free. This occurs in global markets ranging from Africa to the USA and Europe. When cattle dies on the land it aggravates multiplexed problems:

- Wasted resources such as water and animal feed used to produce livestock;
- Hunger and poverty due to an inability to sell a precious farming commodity;
- Excessive environmental harm by an increased carbon foot-print of beef production that is unnecessary if livestock was traded in a connected market;
- Economic inefficiency due to disconnected markets where buyers and sellers cannot meet
- swiftVEE solves this problem by creating a centralized platform where livestock agents and farmers can connect and trade using real-time data and analytics to make informed business decisions. The swiftVEE platform allows livestock agents to connect to emerging farmers allowing emerging farmers to participate in the commercial livestock trading economy.

In so doing, swiftVEE solves some of the world's biggest problems such as:

- resource scarcity;
- Food insecurity;
- Global hunger;
- Economic inefficiency;
- Financial inclusion of emerging economic sectors

Challenges and project's future perspectives

SwiftVEE has experienced rapid expansion and farmer profile onboarding. Business scaling and investment to meet its growth and expansion plans is a continuous challenge.

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

We are honored and humbled to be recognized by the WSIS for our work and contribution to the Agricultural-Technology Sector.

C14: ICT Applications: e-Science

Project name: Iran National Research and Education Network

Organization: SHOA (Iran National Research and Education Network)

Country: Iran

Basic Information about the Winner

SHOA (Iran National Research and Education Network (NREN)) is a Public-Private Partnership (PPP) entity formed by

- Governmental Sector: Information Technology Organization of Iran (ITO) on behalf of the Ministry of Communication and Information Technology
- Academia Sector: Iranian Research Organization for Science and Technology (IROST) on behalf of the Ministry of Science, Research & Technology (MSRT)
- Private Sector: Seemorgh System Company (SeemSys) as an investor for designing, development, maintenance and sale of SHOA services.

Project's description (activity's description)

SHOA is an independent network which connects all Scientific, Educational, Health and Research centers through Dark Optical Fiber. This network is capable of connecting to others authorized NRENs around the world. SHOA presents its job on full electronic platform. Subscribers of SHOA comprise of Public or Private scientific centers including Universities, Educational entities, Health centers, Hospitals, Research institutes, Libraries, Theological seminary and NGO's.

SHOA has overcome two generations to become what it is right now:

- IRAN NREN 1st generation:
 - 1992-1997: Formulating, Designing and Implementation period
 - 1997-2006: Official Operation Period
 - Target: Connection Oriented
 - Subscribers: Universities
 - Brief History: First thought on establishing NREN, emerged in early 1990's. A process with conceptual approach ended up to an operational stage in 1997 when close to all of Iran Universities were connected to the network.
 - Executive Model: Based on TDM network of Iranian Telecommunication Company (TCI)
 - Connecting Speed at Network core: indeterminate
 - Connection Speed at the customers Point: Appx. 2 Mbps
 - Network Coverage: Almost all the provinces centers.
 - Administrator: Iranian Research Organization for Science and Technology (IROST)
- IRAN NREN 2nd generation:
 - 1997-2001: Planning, designing and early operation period

- Target: Network Oriented
- Subscribers: Universities
- Brief History: At a time that technological changes, and universities requirement were at the highest of all, the Iran Scientific Network was redesigned by the Ministry of Communication and Information Technology through a MOU that the Ministry had with the Ministry of Science, Research & Technology (MSRT). Due to the privatization of Telecommunication Company of Iran (TCI) at that time, this process took some time to be operational and finally in 2012, it was finalized. But again due to some irregularities between the main partners, the official operation was delayed.
- Executive Model: Dedicated Network
- Connecting Speed at Network core: 10 Gbps
- Connection Speed at the customer's Point: 1 Gbps.
- Network Coverage: City of Tehran.
- Administrator: Iranian Research Organization for Science and Technology (IROST)
- IRAN NREN 3rd generation:
 - 2015-2018: Planning, designing and early operation period
 - Target: Service Oriented
 - Subscribers: Universities, Research Institutes, Health and Medical Centers, Hospitals, Libraries, Theological seminary
 - Brief History: In 2016, the Information Technology Organization of Iran (ITO) along with the Iranian Research Organization for Science and Technology (IROST) started a new Co-Operation to revise the NREN. Due to some pessimistic views among, the original subscribers (Universities) in consequent of not being able to officially use the 2nd generation of NREN, it became a necessity to build a new sense of trust with the customers. With the new approach being employed (Service Oriented), and having the target of attraction of new subscribers around the country, decision had to be made about many aspects of the infrastructure. Therefore, for the first time, a new model of infrastructure development based on Public-Private Patroonship (PPP), was employed to finish and operate unfinished projects. So the 3rd generation of IRAN NREN was established with 3 partners, 2 Public Organization (Information Technology Organization of Iran (ITO) as a Governmental sector - Iranian Research Organization for Science and Technology (IROST) as an Academia Sector) and a private entity Seemorgh System (SeemSys) as a Service-Oriented, Business Guarantor, Investor and Private Operator.
 - Executive Model: Closed Network
 - Connecting Speed at Network core: 100/400 Gbps
 - Connection Speed at the customer's Point: 1/10/100 Gbps.
 - Network Coverage: All of the country up to 330 cities.
 - Administrator: SHOA (Iran National Research and Education Network (INREN))

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

Action lines related to this project

- AL C2. Information and communication infrastructure
- AL C3. Access to information and knowledge

- AL C4. Capacity building
- AL C7. E-science

Sustainable development goals related to this project

- Goal 4: Quality education
- Goal 5: Gender equality
- Goal 8: Decent work and economic growth
- Goal 10: Reduced inequalities

WSIS 2005-2015 Goals:

- G2. to connect universities, colleges, secondary schools and primary schools with ICTs;
- G3. to connect scientific and research centers with ICTs;
- G4. to connect public libraries, cultural centers, museums, post offices and archives with ICTs;
- G5. to connect health centers and hospitals with ICTs;

Highlights of the project's partnership activities

SHOA has a new approach in developing services. Although, this is a universal outlook in the world NRENs at the present time, SHOA has put aside the Provider/Customer model. The connection points (Customers) are not just a service receiving point anymore and all connections to the network, could be service receiving and service presenter at times. In the operational model of SHOA, these are points in the network that while receiving service, they could present services to other customers. In General, this model has two totally independent services:

- Services provided by the Operator as an Infrastructure Services
- Vast Services provided by Others

In the first method, the operator is bound to design and classify tariffs the infrastructure services and basic facilities for the customer. These services are just establishing connection and simultaneous service of customer with the network. At this point, no Value-Added Service exist, even services such as Internet not available in this model.

In the second method, not only the operator, but all of the SHOA customers could create and distribute services in the network and make other customers of their own. This kind of service orientation, undoubtedly generates 3 effective hallmarks for sustainability and development of the network.

- First, in this model, all of the network customers become beneficiary is its continuity and try to upgrade the network.
- Secondly, this model will put an end to any kind of monopolization in the network and create a dynamic space for developing ideas where universities and research institutes are the best place to do. Fresh idea will be powered into the service space of the network.
- Finally, any point in the network could have earning along using the services provided to them. Nowadays, no one could imagine to have a network with no earning space, especially in the vast information mines that exist. So making a decent earning while using services is an opportunity that is provided by SHOA.

SHOA

- Developing the needed infrastructure for I.R. IRAN Scientific Master Plan
- Developing the Science Economics Ecosystem

- Sustainable revenue through scientific content production
- Changing Universities and Research Institutes Cost-Benefit Ratio
- Converting on-way model of Customer-Network to two-way Customer-Customer / Customer-Network

In addition to communication services, SHOA will provide what follows:

- VASS: Value-Added Services and Software
- GSS: General Services and Software
- ISS: Infrastructure Services and Software
- CDC: Cloud Data Center

Since the beginning of the WSIS negotiations, Iranian representatives have played a key role in the whole process and in past 10 years after forming WSIS Forum as a platform for following-up different aspects in WSIS Action Lines and presenting the best practices and success stories, Iran has continuously participated and contributed in these Forums. Among all Iranian activities in the WSIS Forums, e-Science is an important issue. Actually Iran as one of the youngest populations in the world, with highly educated people and top universities in the region, implemented shining projects in Action Line C7 e-Science in past years, result in winning e-Science WSIS-Project Prize in 2015, and receiving two e-Science WSIS Championships in 2016. After winning the WSIS Prize in 2015, four thematic workshops have been held annually in WSIS Forums by Iran University of Science and Technology (IUST) in the field of e-Science. IUST invite university professors and some related experts from international bodies to exchange their ideas about the mutual effects of ICT and science on each other and the role of e-Science in developing the Information and Knowledge Societies. The partners of SHOA project have contributed in the above mentioned thematic workshops.

SHOA is an infrastructure to develop the scientific economic ecosystem in Iran, and an assured path toward E-Science.

Challenges and project's future perspectives

- Connecting the network to educational and scientific centers around the world
- To become the SILK ROAD of Scientific Data

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

- WSIS Prize contest is a great opportunity to share the experiences and new ideas and make a network of friendship around the world.

C15: Cultural Diversity and Identity, Linguistic Diversity, and Local Content

Project name: Uganda Computer Aid

Organization: Musabe Foundation

Country: Uganda

Basic Information about the Winner

Musabe Foundation is a Non Profit Organisation founded by Benson Musabe. It was launched by Musabe in 2016 when he was a teenager at the age of 18 with a humanitarian inspiration from Malala Yousafzai the Founder of Malala Fund. It was established with core primary goals of expanding access to information technology for all, reducing extreme poverty and expanding better quality educational opportunities in the remote deep rural disadvantageous communities of Uganda. Musabe Foundation was formed with a belief that (I.C.T) modern technology skills can positively affect the development of communities, learning experience and business expansion. Technology can be a tool to empower vulnerable communities in unreachable deep rural remote regions of Uganda.

Since its formation in 2016, Musabe Foundation has played a great role in expanding access to information technology for all including girls, boys and the disabled children in the deep remote rural disadvantageous communities in the Rwenzori mountains bordering Democratic Republic of Congo.

Project's description (activity's description)

Uganda Computer Aid is an amazing initiative implemented by Musabe Foundation. Uganda Computer Aid is active in the field of Information & Communication Technology in the rural, remote, disadvantageous region of the Rwenzori Mountains bordering the Rain forests of Democratic Republic of Congo. Uganda being one of the world's developing countries, it has limited technology, a high rate of digital illiteracy, Gender Technology Inequality, Technology discrimination of disabled children (Blind and Deaf). Uganda Computer Aid saw the need to impart (I.C.T) modern technology skills into all the Ugandans, the major target groups of this project were girls and boys, women , disabled people and children with disabilities(the blind and the deaf) in the remote, disadvantageous region of the Rwenzori Mountains bordering the Rain forests of Democratic Republic of Congo.

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

The project promotes skills development among the youth. The project imparts modern technology skills in the youth, i.e. Microsoft applications, coding, graphics design, computer repair, internet skills and many others. This created job opportunities to youth. This is related SDG 1 (No Poverty).

The project activities includes carry out I.C.T Outreaches in the deep remote mountainous need schools in the Mountains of Rwenzori. During the I.C.T Outreaches the pupils and secondary students are taught skills like typing and internet skills. This helps them to use internet as a learning resource in both arts and science subjects. We give 40 minutes per student to use a laptop and after give a chance to another student. This related to SDG 4 (Quality Education). The project promotes Digital Gender Equality and Digital equality to the Disabled persons. The project imparts modern technology skills in the girls, encouraging and motivating girls to take on technology opportunities. This is related to SDG 16 (Peace, justice and strong institutions).

Highlights of the project's partnership activities

We first received funding from supporters and Well wishers from U.S.A and Europe in 2016. Some had come to the Rwenzori mountains as tourists. This is because they were so interested in making a difference in the rural remote Mountains of Rwenzori. We bought laptops to use in these rural remote disadvantageous region because there was no electricity to provide energy. We then initiated Mobile I.C.T Outreaches in a variety of localities in the mountains of Rwenzori bordering the Equatorial Rain forests of Democratic Republic of Congo. At the end of 2016 Had made over 70 Outreaches in Over 12 deep remote villages in the central. In 2017 We then expanded our programme to east and western regions of Rwenzori mountains in order to increase our coverage and reach out in more deep remote villages in the mountains of Rwenzori. Our project is assisted and supported individuals from both USA and Europe until now.

Challenges and project's future perspectives

Most of the vital difficulties is Inadequate laptops to cover the big number of beneficiaries during the ICT trainings in the deep remote rural areas of the mountainous Rwenzori region bordering the rain forests of Democratic Republic of Congo since there is no electricity.

Moving long distances in the mountainous of Rwenzori region since schools and other institution partners are far apart from each other. Difficulties in training beneficiaries with disabilities. For example having no arms. Uganda Computer Aid's Future Perspectives are below.

Uganda Computer Aid hopes to reach out to over 2,000,000 youth (girls and boys) , 100,000 disabled people including deaf and blind children in the Mountains of Rwenzori Region.

With statistics in 2018, Uganda holds over 1,500,000 refugees from the neighboring countries of DR Congo, South Sudan and Rwanda. Uganda Computer Aid hopes to move an extra mile to also impart I.C.T Skills into over 50,000 refugee youth including girls and boys in refugee camp schools. This is because we as Uganda Computer Aid Team believe that also Technology can be a tool to empower Refugees.

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

WSIS is an excellent platform for global learning and sharing of ideas worldwide. The project not only showcases success stories of projects implemented by countries, but also serves as an "idea-creating laboratory" for all countries who want to create and adopt ICT-based activities for society. WSIS encourages every country to find new solutions. The WSIS Prizes Contest gives every participant the opportunity to show their best accomplishments.

C16: Media

Project name: Working in ICS is cool

Organization: The Costa Rican Chamber of Information and Communication Technologies (CAMTIC)

Country: Costa Rica

Basic Information about the Winner

The Costa Rican Chamber of Information and Communication Technologies (CAMTIC) groups and represents the productive digital sector in Costa Rica. It was founded in 1998 as the chamber of software developing companies but it has evolved into including all subsectors in the digital spectrum to this day. Its representation status to the sector includes promoting the development and utilization of digital technologies in all other productive and social sectors and the collaboration of the the industry with Government and academia. All of this under the umbrella strategy "Costa Rica: Green and Intelligent", which encompasses a vision of integral development and inclusion through technology.

Project's description (activity's description)

In 2015 the Chamber published the first integral study in the digital sector in Costa Rica that observed in depth the industry's needs, capabilities, readiness and competitiveness. One of the most impactful findings was that the sector was suffering a lack of talent that prevented the industry to positively react to the increasing demand of its services.

The discussion with businesses, recruiters and academia led to pin point the reasons why the industry wasn't capable to attracting enough people to study and develop careers in technology. Mainly, students weren't presented with enough information for them to include the digital sector careers in their options when applying to colleges or looking for technical studies. As a communications experts at the chamber we proposed developing a campaign aimed directly at students and teachers showcasing real jobs that existed in Costa Rica in digital technologies, how these professionals developed their careers and what their jobs looked like.

Therefore, "Working in ICT is cool" was born. We established a web-series format of short videos, which allowed us to explore different subtopics in short, easy-to-watch capsules. The visual identity was designed to match the current content tendencies but with enough attracting elements to capture the attention of viewers, especially younger ones. The length of the video episodes was established at 80 seconds and we chose both Facebook and YouTube as our channels since they were both the most used ones for video when we first launched.

Six videos were produced as a first season. They covered topics such as loosen dress codes in the industry, geographical diversity (how this sector offers options outside of the greater metropolitan area), work-from-home options, the inclusion of art in technology, alternative working routines and innovative stress-reduction and relaxation techniques at the office. With an online community of over 6300 followers, mainly business-related, we managed to reach over 35 thousand views only on our channels and an exposure to over 150 thousand prints (which to this date is the biggest campaign the Chamber has seen). Independent professors, entrepreneurs and journalists contacted us to reproduce the videos with their audiences, in their events, classrooms and others which helped spread our reach in an uncountable manner.

Parallel to the videos we also developed a series of articles aimed at Human Resources managers and entrepreneurs, where we would develop an explanation of the topics presented in each video, why such tendencies were being implemented and how to use them to attract and retain talent. At the end of the series we registered a readership of over 36 thousand visits to the articles, also a milestone in our traffic. This multi-dimensional effort helped show potential technological professionals the possibilities of careers in Costa Rica, where these jobs are, what careers to look for and potentially how their day-to-day might look like if they choose the digital path; while also sharing best recruiting, retention, inclusion and gender equality practices among businesses in the industry.

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

This project was planned for the digital technologies sector, executed exclusively on digital platforms and distributed exclusively through digital media channels to an online community. The entire experience and process was technological looking for real-life impact with long lasting effects.

As of the marked SDGs that the project primarily impacted:

(3) Good health and wellbeing: for years, the conversation over recruiting and retaining millennial workers have revolved around their special needs, ways of communicating, expectations, sense of worth among others. And outside the working environment, the conversation about millennial mental health has pointed scarily high rates of stress levels, depression, a sense of dissatisfaction and more.

Our project shows in live action how these two areas are linked to one another. The career possibilities presented in our episodes along with the working environment shown in them, the perks, retention methods and cultural behaviors, give way to normalize the care of mental health at work while establishing opportunities for stable, happy and lasting careers.

These presented trends of attracting and retaining talent aren't just Human Resources tactics but ways of how younger generations have determined the importance of shaping our working environments in healthy ways, both physically and mentally.

(8) Decent work and economic growth: The project manages to put on screen – and in writing – a broad new world of opportunities to those who have never had the chance to explore the digital sector as a potential career arena.

These 80-second videos are shiny, colorful and attention-capturing windows that present specifics of what this sector offers in terms of careers, methods, and life style. In opposition to traditional vocational flyers and posters these videos were designed to be absorbed by younger generations based on how they consume content online, what keeps them focused and what are their existing needs.

The established audience for the web series was senior high school students and College juniors to have them consider technological careers for their professional future, with a strong presence of women to also establish the industry as an inclusive one that needs everyone and is for everyone. This was made in an attempt to make meet the realities on youth unemployment in the country, and the rate of unemployed women, with the lack of trained talent in the industry. With the collaboration of the Women in Technology committee and our explicit inclusion of female engineers and experts in both the videos and articles, we also hope to have joined the efforts of the 5th goal on gender equality.

Highlights of the project's partnership activities

To develop this project we partnered with affiliated members of the Chamber who provided locations, practices and talent for each topic. For our selection method we looked at how inclusive and gender balanced their staffs were, how they have implemented the topic of the week historically, and even

how the work environments in their offices were in terms of inclusiveness and the implementation of “cool” practices such as gaming or relaxation areas, dress codes, their location(s) and others.

For the interviews included in the written articles we approached reputed businesses in the sector, entrepreneurs, recruiters, professionals in different areas (not only technology but also psychology and communications, for example) and academia experts.

And to promote the expansion of the impact and to guarantee a broader reach of exposure of the final products we declared all materials free of use for all interested actors. Therefore, we facilitated the videos to all journalists and professors who requested them for them to reproduce to their audiences and in their events.

In terms of branding and keeping the conversation going, we have used the word “chiva” as a reference to the project. The name of the project in Spanish reads “Trabajar en TIC es chiva”. “Chiva” is a Costa Rican word that means “cool, new, and impactful”. Since the release of the first articles and videos, we have linked content that we create or share in social media (on the benefits of working the ICT sector, talent attraction and retention and work environment wellbeing) to the original series by using the word, and this has allowed us to keep the project alive and the conversation going.

Challenges and project’s future perspectives

The project was first thought of when interpreting the results of the 2015 study on the state of the sector in Costa Rica, and the format was established based on how our audiences behaved on social media at the time. The chamber is publishing a new study at the end of 2019, so the communications team will then use this new panorama to determine the main challenges in the industry to focus the communications strategy on them and then determine audience and format of the new media specials to be produced based on it as well.

As and NGO, the Chamber works on limited resources and a small team while covering a wide reach of areas of interest. This has caused challenges for the immediate continuation of the project as it was first established, but the topic of attracting, retaining and promoting inclusive working environments is still ongoing not only in the content we keep creating but also in the activities we organize as a Chamber and in our specific committees such as Women in Technology.

Winner’s views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

Promoting technological careers as actual professional paths to younger generations, professors, parents and journalists, and for all of them to properly understand what they are, what they offer and how it can be achieved is a complex challenge; especially because of the language that is used in technology and the set of clichés and stereotypes surrounding the digital sector.

From it being only for gifted minds or too difficult from everyone, or only because of the fact that sometimes it is difficult to simplify concepts, advancements, theories, practices and breakthroughs for those who are not currently familiar with digital technologies in general. So it has always been a challenge at the communications office to put through topics in media and out in non-technological audiences in general.

That is why this project was very successful in reaching a never-explored audience for us and why it easily got the attention of mass media in Costa Rica, because it was easy to understand and it gave a taste of how it works without it excluding people who aren’t related to technology in any way. So this awards validate the efforts of translating technology to different audiences, it boosts the efforts of reducing digital gaps by conveying the message in innovative ways.

For us and for the cause of reducing digital gaps, this recognition powers the effort and establishes that inclusion of younger generations, of women, of people from all geographical backgrounds and professional areas is important, relevant and necessary for the proper development of the industry.

C17: Ethical Dimensions of the Information Society

Project name: Artificial Intelligence (AI) Governance and Ethics Initiatives in Singapore

Organization: Personal Data Protection Commission, Infocomm Media Development Authority

Country: Singapore

Basic Information about the Winner

The Info-communications Media Development Authority (IMDA) leads Singapore's digital transformation through infocomm media by developing a dynamic digital economy and a cohesive digital society. With more pervasive use of data, IMDA will also continue to promote and regulate data protection in Singapore through the Personal Data Protection Commission (PDPC), a part of the IMDA. This will ensure that public confidence in the private sector's use of personal data is safeguarded even as companies increasingly leverage the data they collect.

Project's description (activity's description)

Singapore aims to be an Artificial Intelligence (AI)-enabled economy as AI can transform industries, boost productivity, improve competitiveness and enhance quality of life. To achieve this ambition, pervasive adoption of AI by organisations and individuals is key, and public trust in the use of AI is critical. As with any new technologies, AI introduces new ethical, legal and governance challenges such as unintended discrimination, accountability and liability in autonomous decision-making, unequal access to AI, wrongful use of AI, etc. These challenges, if ignored, can undermine public trust in AI.

To address these ethical and governance challenges arising from the use of AI, PDPC, IMDA introduced three interlocking initiatives:

1) Model AI Governance Framework

The target audience of the Model Framework are organisations deploying AI at scale to offer products and services, and/or in their operations to improve efficiencies. The Model Framework is sector-agnostic in that it serves as a baseline set of considerations and measures for organisations operating in any sector to use as is or adapt to meet their specific requirements. It does not focus on specific systems, software or technology, nor on specific AI methodology, hence, the Model Framework is also technology- and algorithm-agnostic.

Adoption of the Model Framework effectively implements 2 basic guiding principles for ethical AI:

- Decisions made by or with the help of AI should be explainable, transparent and fair; and
- AI systems should be human-centric in that safety and well-being of humans should be at the centre of the design and use of AI.

The Model Framework assists organisations to identify additional ethical principles that may be relevant to them, and translates these ethical and guiding principles into implementable practices, focusing on four key areas of a technology deployment process: (1) Internal Governance Structures and Measures; (2) Risk-management in Decision Making; (3) Operations Management and (4) Customer Relationship Management.

2) Advisory Council on the Ethical Use of AI and Data

The Advisory Council is formed for the purpose of:

- Advising the Government on legal/ethical, policy and governance issues arising from the use of data-driven technologies in the private sector; and

Supporting the Government by providing general guidance to businesses to minimise legal/ethical and sustainability risks, and to mitigate adverse impact on consumers from the use of data-driven technologies.

The Advisory Council may make written recommendations to the Government on areas within its roles and responsibilities, including working with the Government on the publication of discussion papers, advisory guidelines, practical guidance and codes of practice for the voluntary adoption by businesses.

The roles and responsibilities of the Advisory Council include, among other things, assisting IMDA in engaging stakeholders on relevant issues that support the development of AI governance capabilities and frameworks. These include engaging ethics boards of commercial enterprises on ethical and related issues arising from private sector use of AI and data; consumer representatives on consumer expectations and acceptance of AI use; as well as members of the private capital community on the need to incorporate ethical considerations in their investment decisions into businesses which develop or adopt AI.

The Advisory Council will also assist the Government in developing ethics standards and reference governance frameworks, and publish advisory guidelines, practical guides, and/or codes of practice for the voluntary adoption by the industry. The Advisory Council will also tap on technical, legal, ethics and international experts from different fields and representatives for consumers and civil society to guide its work.

3) Research Programme on Governance of AI and Data Use.

The Research Programme was setup at Singapore Management University (SMU) School of Law in 2018 through a competitive grant process. The funding for the Research Programme is \$4.5m over 5 years. It complements other technical R&D initiatives in Singapore and aims to achieve the following strategic objectives:

- Promote cutting edge thinking and practices in policies and regulations for both AI and data;
- Inform AI and data policy and regulation formulation in Singapore through research publications and stakeholder engagement activities; and
- Establish Singapore as the global thought leader in policies and regulations for both AI and data.

These initiatives work together to understand various aspects and types of challenges arising from the use of AI and explore options to address them, where possible.

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

The AI Governance and Ethics initiatives in Singapore help to build the Ethical dimension of the Information Society (Action Line C10.). The specific Sustainable Development Goal (SDG) related to the project is Goal 9: Build resilient infrastructure, promote sustainable industrialisation and foster innovation.

Solutions built using AI technologies hold great potential for sustainable development because these solutions can be a catalyst for improvements in productivity leading to economic growth. However, there are concerns surrounding the use of AI. Hence, to benefit from a digital economy driven by AI technology, there is the need to drive awareness of the benefits of using AI and understand the ethical challenges relating to the use of AI.

Collectively, Singapore's AI Governance and Ethics Initiatives support the creation of a trusted ecosystem that engages key stakeholders including government, industry, consumers and academia, to ensure resiliency by helping Singapore to effectively respond to global developments and evolving

technology. This ecosystem also fosters innovations by businesses to improve the quality of living while assuring consumer confidence and understanding, hence, driving sustainable economic development.

Highlights of the project's partnership activities

IMDA engages relevant stakeholders in each of the three initiatives:

1) Model AI Governance Framework

The Model Framework is a result of PDPC's Regulators Roundtable, a community of practice comprising 18 sector regulators and public agencies overseeing sectors such as finance, legal healthcare and transport, which convened in late 2017 to discuss and align views and approaches to governing AI in their respective sectors. The result of this Roundtable is the *Discussion Paper on AI and Personal Data – Fostering Responsible Development and Adoption of AI* published by PDPC in June 2018. The Discussion Paper was further developed into the Model Framework after a closed consultation involving companies and trade associations both local and international, such as Business Software Alliance, OCBC Bank, Grab and Salesforce.

Subsequently, the Model Framework was released as a living document, open for public consultation, as announced by Minister Iswaran in Davos on 23 January 2019. Businesses are encouraged to pilot the Model Framework and provide feedback from their implementation experience. Based on the comments from the public consultation, there will be proposed improvements in the next edition.

2) Advisory Council on the Ethical Use of AI and Data

The Advisory Council brings together transnational thought leaders and industry captains from diverse backgrounds spanning the spectrum of large tech providers, users, the academia and government. Members comprise international leaders in AI such as Google, Microsoft and Alibaba; advocates of social and consumer interests; and leaders of local companies who are keen users of AI.

The Advisory Council had its inaugural meeting in November 2018, where Council members had a robust discussion on the ethical use of AI and data. There were many suggestions given on how to improve the then draft Model Framework and the Advisory Council also called for broader engagement and consultation of the draft Model Framework.

The meeting was a timely reminder of how a private-public relationship is necessary to enable the Digital Economy. A trusted AI ecosystem is critical for industries to effectively adopt innovative emerging technologies and business models, while ensuring strong consumer confidence, protection and participation. In the area of data and data-driven technologies like AI, the development of responsible practices must be informed by diverse views and a global perspective.

3) Research Programme on Governance of AI and Data Use

To host the Research Programme, SMU launched the Centre for AI and Data Governance (CAIDG) in September 2018 to conduct industry-relevant research on selected topics in AI and data use; organise engagement forums e.g. conferences, symposiums, roundtables and seminars to engage stakeholders to generate, share knowledge and bring clarity to policy and regulatory issues and their impact; and publish and present research papers to showcase Singapore's thought leadership in the international AI and data research communities.

IMDA supports the Research Programme by engaging local and international stakeholders to partner CAIDG to conduct industry-relevant research on real world issues on AI ethics and governance.

Challenges and project's future perspectives

Artificial Intelligence is a nascent technology that has the potential to affect many sectors in very profound ways. What differentiates Singapore's AI Governance and Ethics initiatives from related areas like data protection is being at the forefront in terms of technology innovation, as well as the governance of the technology.

The way the Model Framework will operate is designed to cater for that. The Model Framework was released as a living document – intended to be agile in evolving with the fast-paced changes in a Digital Economy and expected to continue to develop alongside adoptees use. The key factor to facilitate this objective is the collaboration with industry through an open approach. To develop the Model Framework, the industry and government worked together as partners to create measures, which will then be applied by the industry. This will be an iterative process that takes into account the nature as well as the constraints of technology.

This approach is supported by the other two initiatives. As AI technology evolves, the Advisory Council will continue to assist the Government to engage relevant stakeholders on ethical and related issues arising from private sector use of AI and data, and consumer expectations and acceptance of such use. To prepare for eventualities, including complex ethical and legal issues that may arise from the development of AI solutions, the Research Programme on the Governance of AI and Data use will likewise support the Advisory Council's work through research publications, and stakeholder engagement events and activities.

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

We are delighted the Artificial Intelligence (AI) Governance and Ethics Initiative in Singapore has been selected as the Winner in the Ethical Dimensions of the Information Society category of the WSIS 2019 Prizes. This is an acknowledgement at an international forum of the work that we are doing. We are pressing ahead with our efforts in AI governance, where industry and government work together as partners to develop frameworks that build a trusted environment for business innovations.

WSIS Prizes is a key platform providing global benchmarks and success stories for all of us to learn from. We are glad to be able to contribute to the international discourse at WSIS, a valuable platform especially in an increasingly digital world!

C18: International and Regional Cooperation

Project name: UAE Space Agency Global Efforts in Partnership Sustainable Development

Organization: UAE

Country: United Arab Emirates

Basic Information about the Winner

Project's description (activity's description)

Examples of linkages between the WSIS Action Line the project was awarded for with each of the Sustainable Development Goals (SDGs) it helps advance

Highlights of the project's partnership activities

Challenges and project's future perspectives

Winner's views on WSIS Stocktaking and Prizes contest, including its relevance to SDGs

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Place des Nations
CH-1211 Geneva 20
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www.wsis.org
www.wsis.org/forum
www.wsis.org/prizes

ISBN: 978-92-61-28721-4



Published in Switzerland
Geneva, 2019