

# **WSIS Stocktaking**

## **The Coronavirus (COVID-19) Response**

### **ICT Case Repository**

**Working Document**  
**As of 25th May 2021**

#### **Acknowledgement**

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In addition, the report benefited from the contributions and insights of ITU staff: Jing Yang, Laura Linkeschova, Lin Liu, Linxiao Zhang, XiaoYi Ren, Xinhe Yan, Xhingyu Zhou, and Yuhan Li.

The WSIS team would like to acknowledge the tremendous contributions from governments, international organizations, the private sector, civil society and other stakeholders in providing information on ongoing projects and initiatives to the WSIS Stocktaking Platform.

#### **Disclaimer**

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**ISBN:**

978-92-61-31591-7 (Electronic version)

## Foreword

The year 2020 marked a milestone in the history of the World Summit on the Information Society (WSIS), a 15-year period that has seen the world undergo an unprecedented digital transformation that is accelerating social and economic progress across the globe. Never has this been more evident than during the COVID-19 pandemic where information and communication technologies (ICTs) have been essential to keeping societies and economies running everywhere.

Information and Knowledge Societies have emerged as one of the main lines of defense against a virus that is still inflicting immense loss of lives and livelihoods and hampering progress towards achieving the United Nations Sustainable Development Goals (SDGs). In this report you will see how WSIS stakeholders rose to the challenge, with more than 200 COVID-19 response case studies featuring ICT projects and initiatives from governments, private sector companies, academia, civil society, international organizations, and others. This form of cross-sector collaboration and best-practice sharing is the essence of the WSIS Stocktaking process, and it is exactly what is needed to defeat COVID-19 and advance the WSIS Action Lines in support of the SDGs.

The pandemic has changed our lives forever and brought the importance and potential of ICTs and emerging technologies ranging from AI to 5G to the fore. But it has also shone a light on deep digital inequalities between and within countries at a time when overall growth is slowing and worrying gaps in connectivity and access persist, especially in rural and underserved areas. It is my hope that we can use this moment to recommit ourselves to fulfilling the vision outlined 15 years ago of an Information Society where everyone can benefit from the opportunities that ICTs can offer.

The WSIS Stocktaking process puts participants right at its center, and that is what makes the WSIS movement so powerful. I congratulate all those who made a submission to this report and encourage everyone to follow their example. The WSIS Stocktaking: The Coronavirus (COVID-19) Response – ICT Case Repository is a living document. The call for action is still open, and I invite you to share your projects and show the world how you are using ICTs to respond to the ongoing COVID-19 pandemic.

ICTs have become the unifying thread that runs through all aspects of our societies and economies. With only ten years left to achieve the SDGs, ICTs are a key driver for global development and a central element of our efforts to build back better – for a stronger, safer, and more inclusive Information Society.

趙石麟

ITU Secretary-General

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## Introduction

The COVID-19 pandemic blindsided communities on local, national, and international levels – from various sectors, including international organizations, governments, private sector, civil society, academia, and others – and has affected nearly every person worldwide.

The need to provide a rapid response to the pandemic has brought to light the efficacy, versatility and utility of ICTs to mitigate some of the adverse effects of the coronavirus on society. They enabled the continuation of the education system through remote learning, kept people connected through and businesses operating remotely where applicable while allowing the dissemination of critical health-related information direct to mobiles worldwide. The COVID-19 pandemic has also highlighted the importance of equitable access to ICTs and their use across the globe.

This WSIS Stocktaking COVID-19 ICT Case Repository was initiated with the prime objective to collect and share ICT-based solutions to respond to the widespread challenges brought about by the COVID-19 pandemic while meeting the WSIS Action Lines and Sustainable Development Goals (SDGs).



Ref: Image by Miroslava Chrienova from Pixabay - <https://pixabay.com/illustrations/covid-corona-coronavirus-virus-4948866/>

The World Summit on the Information Society (WSIS) Stocktaking process was launched in October 2004 during the Tunis phase of the WSIS Process. In the years since it has developed into an extensive database that showcases the activities of stakeholders working to implement the 11 WSIS Action Lines in order to achieve the SDGs.

Since the first edition of the WSIS Stocktaking Report was issued in 2005, periodic reporting has been a vital tool for monitoring the progress of ICT initiatives and projects worldwide. The principal role of the WSIS Stocktaking exercise is to leverage the activities of stakeholders working on implementing the WSIS outcomes, share knowledge and experience by replicating successful models designed to achieve the SDGs.

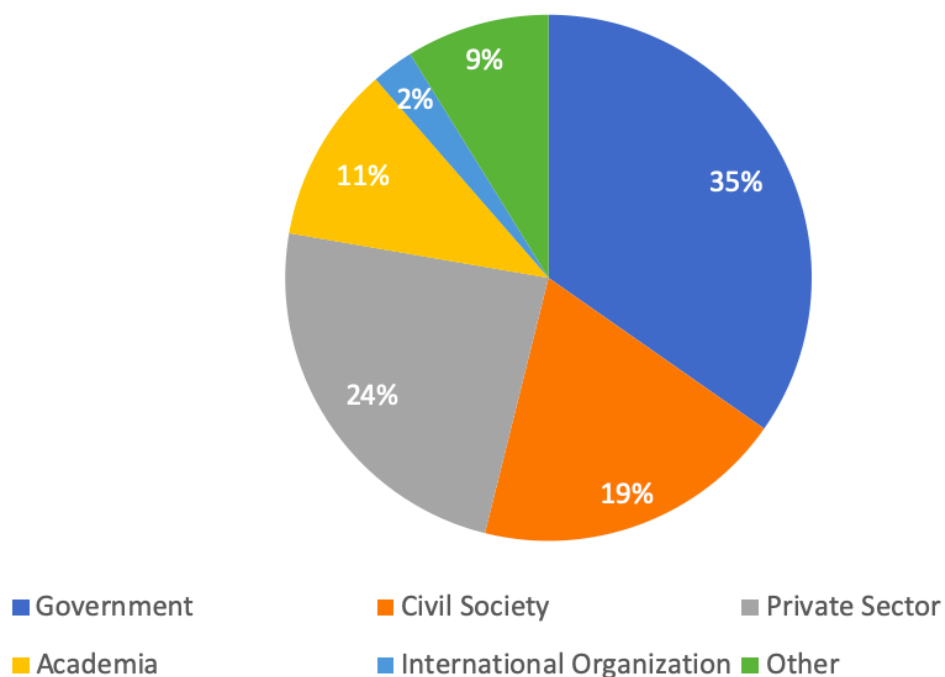
We hope this special WSIS Stocktaking COVID-19 ICT Case Repository will shed light on some of the excellent ICT innovations which have enabled millions around the world to face the challenges brought about by COVID-19 and continue with their personal and professional lives. This COVID-19 ICT Case Repository aims to help stakeholders to continue forging partnerships, to collaborate and implement ICT projects, policies and new measures in these exceptional circumstances.

Since its launch in April 2020, we have collected more than 300 submissions, out of which 220

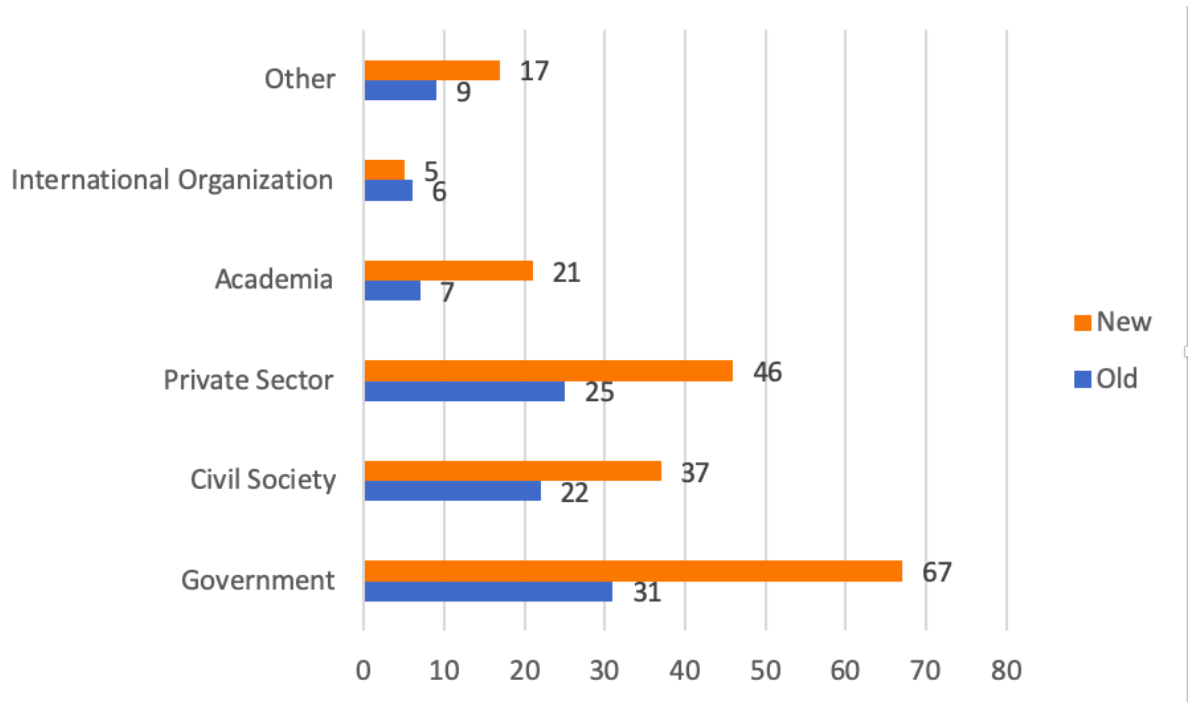
entries have been carefully reviewed and showcased in this publication. The call for submissions asked stakeholders to describe how they are using ICTs to help communities respond to COVID-19 while ensuring an impactful use of the WSIS Action Lines in advancing the SDGs. The WSIS working team composed a list of the submitted projects and activities introduced during COVID-19 to enable the efficient continuation of work while creating social impact.

The recieved submissions can be broken down as follows:

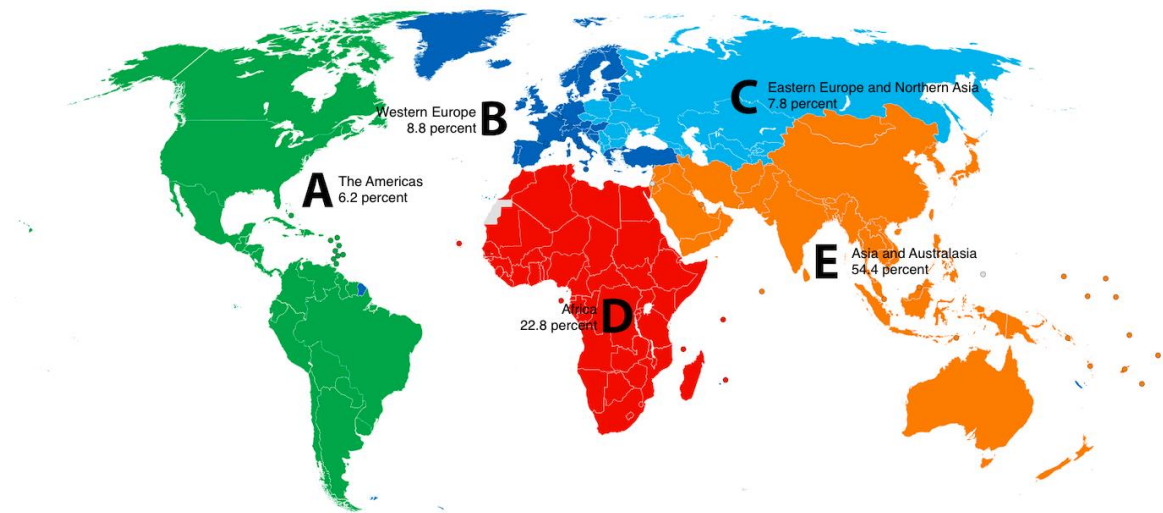
#### Submissions by stakeholder type



#### Submissions by Stakeholder type: Reports 1 and 2 compared:

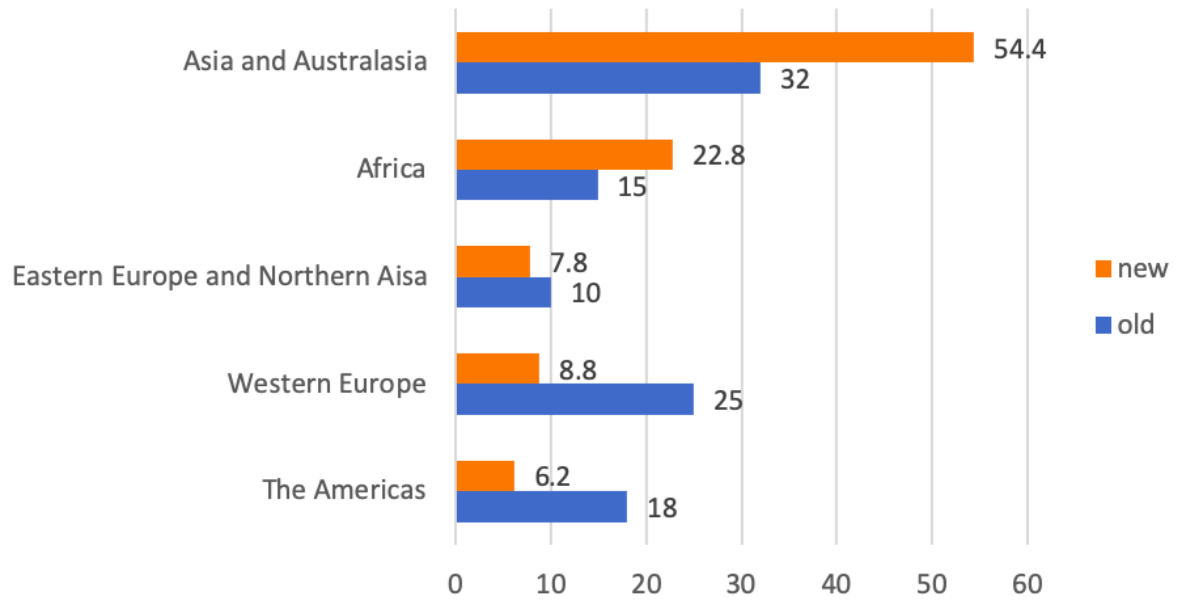


### Global distribution of submissions

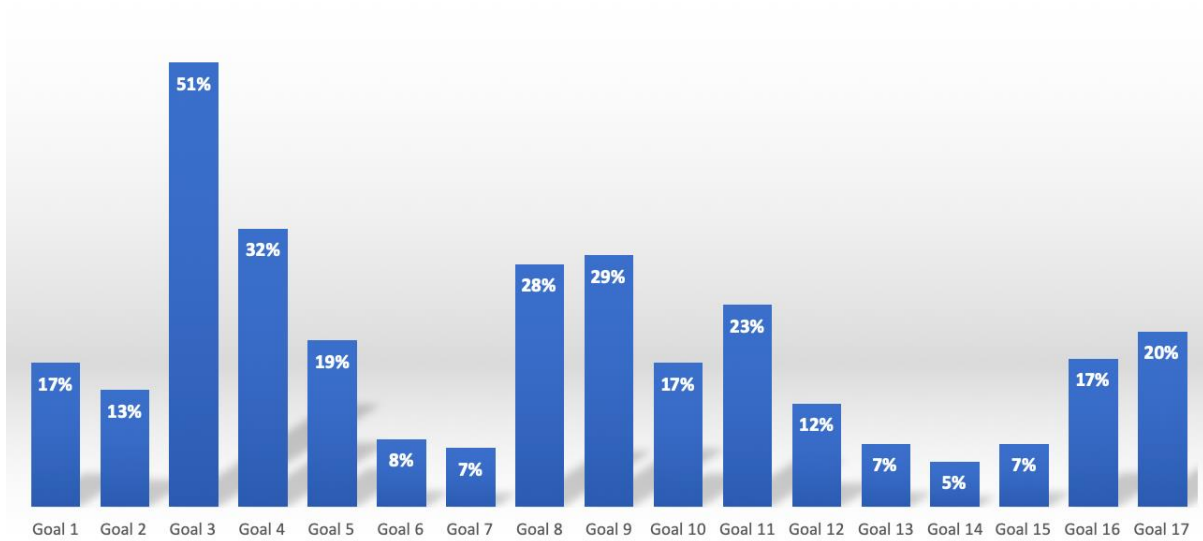


### Global Distribution of submissions: Reports 1 and 2 Compared

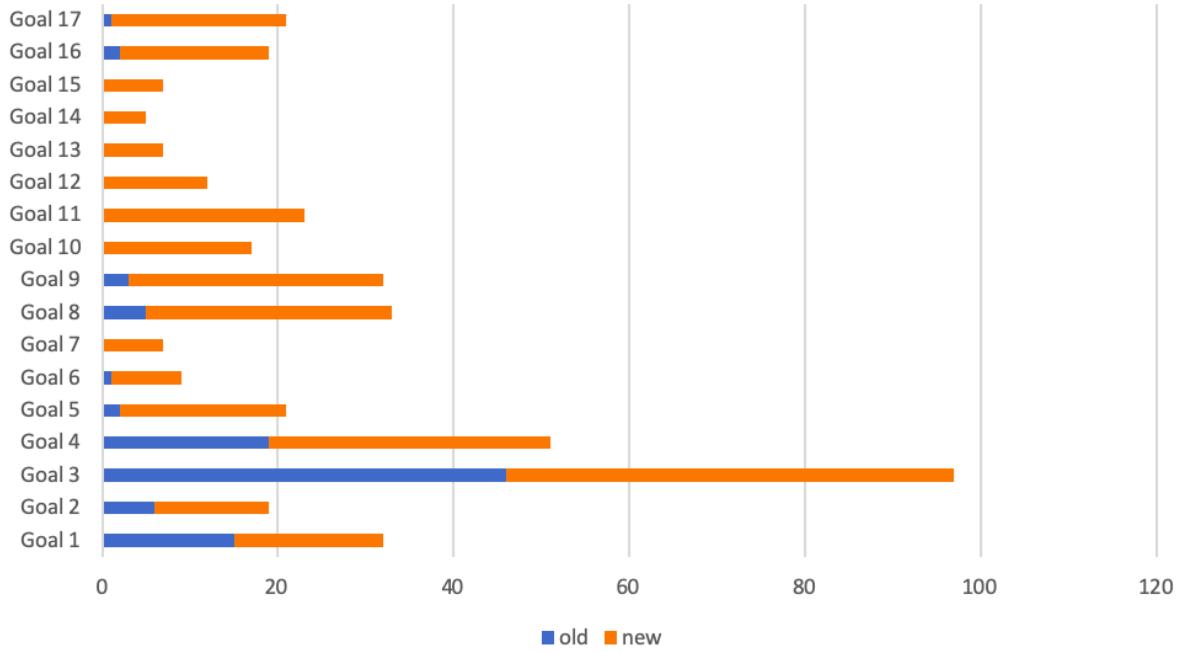




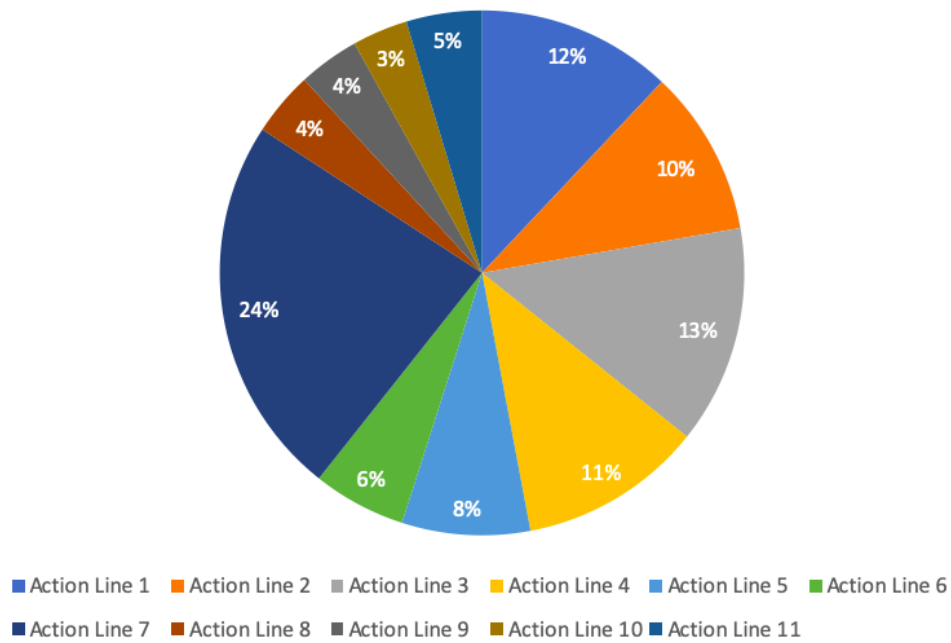
### Promoting the Sustainable Development Goals (SDGs) (by percentage)



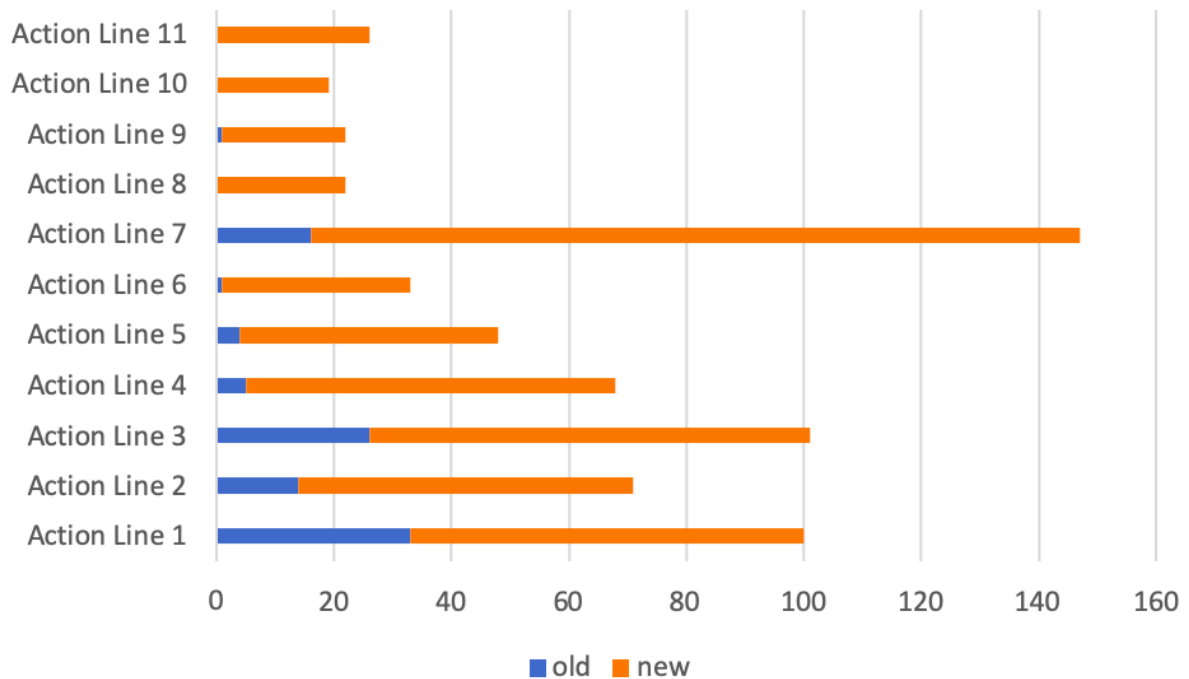
### Report 1 and 2: Comparison in the SDG targeting



Promoting the WSIS Action Lines (by percentage)



Promoting the WSIS Action Lines: First and Second reports compared



The second edition of The Coronavirus (COVID-19) Response ICT Case Repository has noted an increased number of Government-initiated projects (66 submitted cases) compared to the earlier issue of this report (31 cases). Asia and Australia submitted the highest number of projects out of all the regions, both per the first and second edition of this report.

The projects reported in the second (this) edition of this report show promising progress in achieving the SDGs. Compared to the first stack of cases listed in the previous report, engagement with the SDGs rose across every individual SDG target.

The WSIS Team would like to thank all the stakeholders who have submitted their inspiring projects and to invite readers to share and promote the excellent ICT practices available in this report.

The Report was composed to reflect the case numbers based on the order of submission and were grouped by the stakeholder type.

As a part of the continuous WSIS Stocktaking effort to promote the use of ICTs in making a social impact, provide useful, replicable, sustainable and actionable information to the entire WSIS community and beyond, the call for submissions to the COVID-19 ICT Case Repository is open and ongoing.

To submit your ICT projects and for more information about the ICT Case Repository, please go to the [WSIS website](#).



Ref: Massive open online Course (MOOC) BY Ms. Protiva Banerjee. Bangladesh (People's Republic of)

**Part 1: Government (66 Projects)**

	<b>Organisation Title</b>	<b>Country</b>
<b>1</b>	Azexport.az (Internet Portal)	Azerbaijan
<b>2</b>	Digital Trade Hub of Azerbaijan	Azerbaijan
<b>3</b>	Information & eGovernment Authority	Bahrain
<b>4</b>	Blod.id	Indonesia
<b>5</b>	Ministry Of Justice	Qatar
<b>6</b>	Ministry of Culture & Youth	United Arab Emirates
<b>7</b>	Ministry of Culture & Youth	United Arab Emirates
<b>8</b>	MOI	United Arab Emirates
<b>9</b>	Digital Agency for Public Innovation	Mexico
<b>10</b>	Administrative Modernization Agency (AMA)	Portugal
<b>11</b>	Ministry of Technology and Communications	Oman
<b>12</b>	Government Technology Agency(GovTech)	Singapore
<b>13</b>	Saudi Red Crescent Authority	Saudi Arabia
<b>14</b>	Enterprise Europe Network-Switzerland	India
<b>15</b>	National Informatics Centre (NIC)	India
<b>16</b>	Directorate General of Drug Administration	Bangladesh
<b>17</b>	Krishi Vigyan Kendra, Hinoli	India
<b>18</b>	Kenya Marine and Fisheries Research Institute (KMFRI)	Kenya
<b>19</b>	Ministry of Housing and Local Government (MHLG)	Malaysia
<b>20</b>	Data Processing Center (DPC) of the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan	Azerbaijan

<b>21</b>	Ministry of communication and information technology	Saudi Arabia
<b>22</b>	The Authority for Info-communications and Technology Industry of Brunei Darussalam (AITI)	Brunei Darussalam
<b>23</b>	Central Informatics Bureau	Mauritius
<b>24</b>	Ministry of Education	Saudi Arabia
<b>25</b>	Ishan Institution	Bangladesh
<b>26</b>	The State Construction Control Bureau of Latvia (SCCB)	Latvia
<b>27</b>	Ministry of Education	United Arab Emirates
<b>28</b>	Ministry of Human Resources and Emiratisation	Saudi Arabia
<b>29</b>	Ministry of Education	Saudi Arabia
<b>30</b>	TRA of UAE	United Arab Emirates
<b>31</b>	Data Processing Center (DPC) of the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan	Azerbaijan
<b>32</b>	Jakarta Smart City	Indonesia
<b>33</b>	Dubai Health Authority	United Arab Emirates
<b>34</b>	SDAIA	Saudi Arabia
<b>35</b>	Zhongtongfu Design and Research Institute	China
<b>36</b>	Department of Telecommunications Government of India	India
<b>37</b>	Data Processing Center (DPC) of the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan.	Azerbaijan
<b>38</b>	Department of Survey and Mapping Malaysia (JUPEM)	Malaysia
<b>39</b>	Department of Telecommunications, Post and Telecom Division	Bangladesh

<b>40</b>	CPRC Hospital System	Malaysia
<b>41</b>	Relawan TIK Maluku and Pemerinta Kota Ambon	Indonesia
<b>42</b>	Botswana Communications Regulatory Authority (BOCRA)	Botswana
<b>43</b>	Information Technology Organization of Iran	Iran (Islamic Republic of)
<b>44</b>	Entrepreneurship & Skills Development Project	Bangladesh
<b>45</b>	Directorate General of Drug Administration	Bangladesh
<b>46</b>	Government Technology Agency (GovTech)	Singapore
<b>47</b>	Government Technology Agency (GovTech)	Singapore
<b>48</b>	Government Technology Agency (GovTech)	Singapore
<b>49</b>	Government Technology Agency (GovTech)	Singapore
<b>50</b>	Government Technology Agency (GovTech)	Singapore
<b>51</b>	Government Technology Agency (GovTech)	Singapore
<b>52</b>	Rwanda Information Society Authority(RISA)	Rwanda
<b>53</b>	Rwanda Information Society Authority(RISA)	Rwanda
<b>54</b>	Ministry of Information and Communicaitons	Bhutan
<b>55</b>	Dubai Health Authority	United Arab Emirates
<b>56</b>	MOTC	Quatar
<b>57</b>	Abu Dhabi quality and conformity council	United Arab Emirates
<b>58</b>	Gobierno del Estado de Sinaloa	Mexico
<b>59</b>	Aspire to Innovate (a2i) Program	Bangladesh

<b>60</b>	National Information Center	Sudan
<b>61</b>	CITY OF JOHANNESBURG MUNICIPALITY LIBRARIES	South Africa
<b>62</b>	Telecommunication Infrastructure Company (TIC)	Iran (Islamic Republic of)
<b>63</b>	Ethiopian Institute of Agricultural Research	Ethiopia
<b>64</b>	The General Authority of Small and Medium Enterprises	Saudi Arabia
<b>65</b>	Federal Authority for Identity and Citizenship	United Arab Emirates
<b>66</b>	Entreprise d'Appui au Développement du Numérique (EADN EPE SPA)	Algeria

## Part 2: Academia (21 Projects)

<b>Case N°</b>	<b>Organisation Title</b>	<b>Country</b>
<b>1</b>	Khalifa University	United Arab Emirates
<b>2</b>	University of Botswana	Botswana
<b>3</b>	International Academic Network WEIWER® - Wikis, Education & Research	Portugal
<b>4</b>	Sultan Qaboos University	Oman
<b>5</b>	Iran University of Science and Technology	Iran
<b>6</b>	Al-Quds Open University	Palestine
<b>7</b>	Online education	Sudan
<b>8</b>	Moscow Technical University of Communications and Informatics (MTUCI)	Russian Federation
<b>9</b>	Palestine Technical University-Kadoorie (PTUK)	Palestine
<b>10</b>	K-12math.info inc	United States of America
<b>11</b>	ISUTIC	Angola



<b>12</b>	UNIVERSITY OF NIGERIA	Nigeria
<b>13</b>	Addictlab /SDGZINE	Switzerland
<b>14</b>	Ahfad University for women	Sudan
<b>15</b>	University of Foggia	Italy
<b>16</b>	PressXAI-University	Poland
<b>17</b>	Universidad de las Ciencias Informática	Cuba
<b>18</b>	University of Tehran/ and Sustainable agriculture and environment	Iran(Islamic Republic of)
<b>19</b>	Ecole Nationale Polytechnique (ENP)	Algeria
<b>20</b>	Ecole Nationale Polytechnique (ENP)	Algeria
<b>21</b>	CodingPro CJSC	Armenia

**Part 3: Civil Society (37 Projects)**

<b>Case N°</b>	<b>Organisation Title</b>	<b>Country</b>
<b>1</b>	Digitas Institute	Slovenia
<b>2</b>	PythonesiaORG	Indonesia
<b>3</b>	Ada Lovelace Foundation	India
<b>4</b>	Asociación Mundo Posible	Guatemala
<b>5</b>	Association des Techniciens en Technologies de l'Information et de la Communication	Chad
<b>6</b>	Association Eseniors	France
<b>7</b>	Royal Oman Police	Oman
<b>8</b>	Society of Young Nigerian Writers	Nigeria
<b>9</b>	Special Needs Initiative for Growth	Nigeria
<b>10</b>	Association E-SENIORS	France
<b>11</b>	Agromedium Kft.	Hungary
<b>12</b>	CITY OF KISUMU URBAN AREAS ASSOCIATION	Kenya
<b>13</b>	TechnoSpect	Syrian Arab Republic
<b>14</b>	Kelas Bersama (Class for Everyone)	Indonesia
<b>15</b>	NASSCOM Foundation	India
<b>16</b>	CARTHAGE	Chad (Republic of)
<b>17</b>	Childcare Consortium	India
<b>18</b>	Childcare Consortium	India
<b>19</b>	Janastu	India
<b>20</b>	Ayni Bolivia	Bolivia

21	Childcare Consortium	India
22	Digital Advocacy / Literacy Training	Uganda
23	Artificial Intelligence Laboratory - University of Udine	Italy
24	<u>Omar Dengo Foundation (Fundación Omar Dengo)</u>	<u>Costa Rica</u>
25	Saksham and its subsidiary Saktek Foundation	India
26	<u>Special Needs Initiative for Growth</u>	Nigeria
27	<u>Datamation Foundation Charitable Trust</u>	India
28	<u>Datamation Foundation Charitable Trust</u>	India
29	<u>Gatef organization</u>	Egypt
30	<u>Alamsurya Kubara Endriharto</u>	Indonesia
31	Women in Technology in Nigeria	Nigeria
32	Childcare Consortium	India
33	Childcare Consortium	India
34	Childcare Consortium	India
35	Childcare Consortium	India
36	Childcare Consortium	India
37	Association des Techniciens en Technologies de l'Information et de la Communication	Chad (Republic of)

**Part 4: Private Sector (46 Projects)**

<b>Case Nº</b>	<b>Organisation Title</b>	<b>Country</b>
<b>1</b>	RegoPantes	Indonesia
<b>2</b>	Waselat AIMuffaker for educational services Co.	Palestine
<b>3</b>	Ajad	Palestine
<b>4</b>	OREL Vision	Pakistan
<b>5</b>	LibraRisk srl	Italy
<b>6</b>	Mbumba Lapaque	Democratic Republic of the Congo
<b>7</b>	Solercool technologies LLC( Trading as solerchil in Africa)	United States of America
<b>8</b>	Senetec Africa	Zimbabwe
<b>9</b>	Village Link Company Limited	Myanmar
<b>10</b>	WonderTree	Pakistan
<b>11</b>	Ajman free zone	United Arab Emirates
<b>12</b>	Athena psychiatric & de-addiction treatment center	Bangladesh
<b>13</b>	Agromedium Kft.	Hungary
<b>14</b>	Nabeel Yasin Training and Consulting Center	Yemen
<b>15</b>	Entnest	Switzerland
<b>16</b>	China Mobile Group Shanxi Co., Ltd. JinCheng Branch	China
<b>17</b>	Arabic computer systems	Saudi Arabia
<b>18</b>	HOPE HORIZON	Tunisia

<b>19</b>	stc	Saudi Arabia
<b>20</b>	Startup Business Gate	Palestine
<b>21</b>	Center of Information technology	Pakistan
<b>22</b>	Saahas	India
<b>23</b>	Subah Infosolutions Ltd.	Ghana
<b>24</b>	InspireMill	Pakistan
<b>25</b>	SayEnergy	Poland
<b>26</b>	ICT4DEV	Côte d'Ivoire
<b>27</b>	Addictlab	Switzerland
<b>28</b>	COOPERATIVA DE AHORRO Y CRÉDITO COOPAD	Ecuador
<b>29</b>	Ghana Chamber of Telecommunications	Ghana
<b>30</b>	DGT Sp. z o.o.	Poland
<b>31</b>	Bioniks.Org	Pakistan
<b>32</b>	TechNovator	Poland
<b>33</b>	DuoKey SA	Switzerland
<b>34</b>	CCEducare	Myanmar
<b>35</b>	I LOVESWAG MEDIA	Botswana
<b>36</b>	Heallax	Pakistan
<b>37</b>	SOOP Technologies	Pakistan
<b>38</b>	sarl idenet geolocalisation	Algeria

<b>39</b>	sarl idenet geolocalisation	Algeria
<b>40</b>	Orbit-Ed	Pakistan
<b>41</b>	Spectrum Analytics, Botswana	Botswana
<b>42</b>	TAP ERP	Pakistan
<b>43</b>	Ywai Aqua Life Integrated systems	Nigeria
<b>44</b>	Earlyone	Armenia
<b>45</b>	Earlyone	Armenia
<b>46</b>	GEOSYS	Algeria

**Part 5: International Organizations (5 Projects)**

<b>Case N°</b>	<b>Organisation Title</b>	<b>Country</b>
<b>1</b>	China Mobile Group Shanxi Co., Ltd.	China
<b>2</b>	International Telecommunication Union	Switzerland
<b>3</b>	Global Open Data initiative for Agriculture and Nutrition (GODAN)	Canada
<b>4</b>	Norwegian Refugee Council	Uganda
<b>5</b>	United Nations Economic Commission for Africa	Ethiopia

**Part 6: Others (17 Projects)**

<b>Case N°</b>	<b>Organisation Title</b>	<b>Country</b>
<b>1</b>	K-12math.info inc	United States of America
<b>2</b>	UNESCO Youth As Researchers	Lebanon
<b>3</b>	Oman Technology Fund (OTF)	Oman
<b>4</b>	The Research Council	Oman
<b>5</b>	Ministry of Technology and Communications	Oman
<b>6</b>	Ministry of Education	Oman
<b>7</b>	BizB	Pakistan
<b>8</b>	Ministry of Agriculture & Fisheries	Oman
<b>9</b>	GSMA	United Kingdom
<b>10</b>	Sciencecast	Kenya
<b>11</b>	LEVEL 33 AV sp. z o.o.	Poland
<b>12</b>	Society of Young Nigerian Writers	Nigeria
<b>13</b>	BRIDGE Foundation	Bangladesh
<b>14</b>	Hello, Kenya	Kenya
<b>15</b>	IT-Spark LLC	Armenia
<b>16</b>	EADN	Algeria
<b>17</b>	EADN	Algeria

# Part 1: Government

## Case 1 - Azexport.az (Internet Portal), Azerbaijan

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Export Promotion Azexport.az (Internet Portal) Government <b>Azerbaijan</b>
<b>Beneficiaries</b>
All producers of Azerbaijan can use the portal services. Over the entire period of its operation, the portal has received orders worth more than \$ 2 billion from 150 countries of the world.
<b>Website</b>
<a href="https://azexport.az/">https://azexport.az/</a>
<b>Description</b>
The Azexport portal has created an opportunity for exporters to obtain documents for the export of goods without leaving their place of production. Also, during the coronavirus lockdowns, the portal became a free online platform not only for exporters also for local producers.
<b>ICT Tools</b>
Implementing first in the world online Single exporter application cut the expenses and time spent for export procedures up to 10 times. Due to the coronavirus restrictions, most businesses have closed. The portal gave them the opportunity to place their goods on an electronic platform for sale. There is no charge for using the portal services. All services are free
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenges: The main problem is trust. Unfortunately, there are a lot of fraudulent facts in online sales. This negatively affects the spread of electronic commerce. The portal Azexport has provided more than 50 training and seminars with buyers and sellers during



the 2020 year. It was explained how not to fall for the trap of scammers. Also, how to boost sales using modern e-commerce opportunities.

Partnership: Yes, E-commerce, E-custom, E-logistics

Replicability: Yes, We are ready for sharing our experience in this field.

Sustainability: The Azexport portal has been operating for over 4 years. During this time, the portal received more than 2 billion export orders. Export orders received by the portal are growing day by day. Also, the export area grows day by day. This shows that the portal is working successfully.

### Action Lines

**AL C2.** Information and communication infrastructure

### SDGs

**Goal 17:** Revitalize the global partnership for sustainable development

## Case 2 - Digital Trade Hub of Azerbaijan, Azerbaijan

### Title of the project, Contact Organization Name, Stakeholder type, Country

Head  
Digital Trade Hub of Azerbaijan  
Government  
**Azerbaijan**

### Beneficiaries

Our beneficiaries are non-residents . They can obtain an e or m-residency, set up a company, open a bank account and manage a company online without coming to Azerbaijan.

### Website

<https://dth.az/>

### Description

DTH is an online platform that allows non-residents to obtain e or m-residency, set up a company, open a bank account and manage a company online without coming to Azerbaijan. This tool can be considered as a great opportunity, especially in terms of remote operations during the Covid-19.

### ICT Tools

The main ICT tool is the DTH platform which is integrated into government and public service systems.

### Challenges / Partnership / Sustainability / Replicability

Challenges: The main challenges are system differences between different organizations, and we work on matching systems.

Partnership: We would like to integrate into several service systems that could be provided to online managed businesses.

Sustainability: Our Project is very sustainable. There is a very high demand for it. Because digitalization is a global trend and all analog transactions are going to be digital.

### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C11.** International and regional cooperation

### SDGs

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 12:** Ensure sustainable consumption and production patterns|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 3 - Information & eGovernment Authority, Bahrain

**Title of the project, Contact Organization Name, Stakeholder type, Country**

BeAware Bahrain  
Information & eGovernment Authority  
Government  
**Bahrain**

**Beneficiaries**

The Primary beneficiaries can be summaries to the below:

- Citizens / Residence / Visitors:
  - o The BeAware app was developed to eliminate the spread of the covid19 across the Kingdom of Bahrain by identifying the contract tracing which helps in saving their life, furthermore the services available in the app help the users to get the needed information without the need to interact with any government entities, for example if the user is planning to travel outside Bahrain he/she will be able to generate the PCR certificate in the app.
- Home isolations users:
  - o The BeAware is becoming a very important part of the home isolation users because they will be interacting with the medical team through the app, for example they are mandate to send a daily report about there health indicators and this will be do through a service in the app, also they are mandate to send a couple of daily random pictures to check location of isolation and ensure that the user is the right place.
- The Government and Private Entities:
  - o Ministry of Interior: The BeAware platform provides the Ministry of Interior with a comprehensive monitoring system for the users under home isolation to ensure that all users are not leaving the identifies isolation location.
  - o Ministry of Health: The BeAware Platform provide the ministry of health with a comprehensive registration system that is used in the Bahrain International Airport and King Fahad Causeway to facilitate the registration process and streamline the process to complete the registration process in 60 – 120 second.
  - o National Contact Center 444: Different systems are helping on facilitating the activities within the contract center like the Appointment management system that help in organizing the all the appointments for the Covid19 test.

**Website**

<http://www.iga.gov.bh>  
[https://bahrain.bh/wps/portal!/ut/p/a0/hcrBCoJAEADQX\\_HiMWZUWvQoEYYXoYhsLzLosowts6tu0udHX9DxwQMNPWihN51F9kLuZ62GS4cqy8u8LYt7gXWnTtfqjFmDR7gZgfZf6uHJ87LoGvToJZpPhN5Yvwe\\_RnIDrSk6konFJoGs2VJ8C0czJWSJZYvJ6HeeDlkF4dU8vjb1t9s!/  
\[/\]\(https://bahrain.bh/wps/portal!/ut/p/a0/hcrBCoJAEADQX\_HiMWZUWvQoEYYXoYhsLzLosowts6tu0udHX9DxwQMNPWihN51F9kLuZ62GS4cqy8u8LYt7gXWnTtfqjFmDR7gZgfZf6uHJ87LoGvToJZpPhN5Yvwe\_RnIDrSk6konFJoGs2VJ8C0czJWSJZYvJ6HeeDlkF4dU8vjb1t9s!/\)](https://bahrain.bh/wps/portal!/ut/p/a0/hcrBCoJAEADQX_HiMWZUWvQoEYYXoYhsLzLosowts6tu0udHX9DxwQMNPWihN51F9kLuZ62GS4cqy8u8LYt7gXWnTtfqjFmDR7gZgfZf6uHJ87LoGvToJZpPhN5Yvwe_RnIDrSk6konFJoGs2VJ8C0czJWSJZYvJ6HeeDlkF4dU8vjb1t9s!/)

**Description**

The Information & eGovernment Authority (IGA) being the entity responsible about the digital transformation in the kingdom of Bahrain developed and introduced different smart application with a full backend system to support the national initiative of overcoming the Covid19 pandemic and element the spread of across the kingdom. BeAware is a smart mobile application that uses the artificial intelligence (AI) to minimize the spread of the covid19 within the kingdom, the have is directly impacting the society by providing the necessary notifications for the users whenever they come across a positive case in less than 24 hours. The BeAware app contains a group of useful services that are very beneficiary for the different stakeholders below some of the key services: 1. Registration for Coronavirus Vaccine 2. Coronavirus Vaccination Certificate 3. Payment for Arrival Test (Arrivals to Bahrain) 4. Coronavirus Test Result 5. Coronavirus PCR Test Certificate 6. Home isolation services: o Daily Symptoms Report o Daily photo upload 7. Covid19 statistics (Local and internationally) 8. Contact Tracking Service. As part of the BeAware platform IGA also invested on developing different systems that supports the other Government entities in overcoming the covid19 pandemic, the systems were all integrated together to suppose the decision making activities and ensure that the needed information are available in one single platform below are the key systems: 1. Home isolation Monitoring System – Ministry of Interior 2. Appointment Management System – National Contract Center / Ministry of health 3. Dispute Management System - Ministry of health 4. Reports Management System - Ministry of Interior, Ministry of health 5. Registration Management System (Arrivals to Bahrain) - Ministry of health 6. Positive Cases Management System - Ministry of health. Worth to mention that through the BeAware platform contributed in the process of eliminating the spread: • Total number of suspected identified in by the BeAware = 48,307 • Total number of suspects tested positive = 6,057 (12% on the total). IGA also invested a dedicated effort during the covid19 pandemic to ensure a full transformation of all the government services to the electronic format without effecting the quality of services, by applying the health care principle and the elimination of the Covid19 spread. Additionally, IGA invested in ensuring the continue of all government entities work by adopting different tools and mechanisms to allow access of government systems from home with the highest level of security standards. The ultimate objective was ensuring the continuity of the government work without any effect on the quality of service along with the commitment to ensure the elimination of the Covid19 spread in the kingdom of Bahrain.

### ICT Tools

The BeAware platform was developed by adopting the latest technological trends to ensure the effectiveness and efficiency of the platform, the infrastructure was on AWS cloud to ensure the scalability, reliability and Availability of the systems as all time. The BeAware Platform used different technologies below are some examples about the technologies applied: • Artificial intelligent technologies which were used mostly in the contract tracking module to identify the potential contracts instantly and automatically notify them about the need to perform the Covid19 test, this technology was applied based

on different smart comparison algorithms to facilitate the search functions. • Bluetooth Technology to connect the smart bracelet with the BeAware mobile application. • SMS technologies to notify the users about any important notifications about the contact tracing or other notifications. • GPS technologies to identify the location points that are used in the contract tracing algorithms, also the GPS was used in the process of identifying the location home isolation location for isolated cases.

### **Challenges / Partnership / Sustainability / Replicability**

Challenges: • Time constrains: The request was to create the follow up with the supported systems in a very short time frame because of the situation of the covid19, to overcome this constrain the team have to work around the clock in different shifts to meet the targeted deadline. • Cost Constrains: due to the nature of technologies used in the development of the BeAware platform the cost was a raising issues, to overcome such constrain a decision was made that all the development activities (Resources) are going to be IGA internal resources to avoid any kind of cost expansion. • Technology constrains most of the technologies used in the development of the application was really new a different in nature, to overcome such constrain the research team in the IGA was collecting any technical information about the technologies being used to create a knowledge repository for all the team members which can be used at any time, furthermore multiple technical session were taken place where all the team members will share their experience with each other to help on solving any issues, finally a test environment was provided for the team member to preform different experiments on the new technologies to apply the concept of the trial and error to help them in overcoming any technical limitations.

Partnership: Not at the moment but we are always willing to learn from the other experiences and share our experiences in different fields. The potential areas that might be interesting to explore are: • Data Analytics • Artificial Intelligent • Big Data

Replicability: Yes. it could be replicated in similar situation where people are required to self-isolate and perform contact tracing in a pandemic, to help reduce the strain on medical staff.

Sustainability: The project is considered be sustainable because many factors are relaying on the availability of the app and supporting platform, as the covid19 pandemic continued the BeAware Platform is always needed. The reliance on the BeAware platform is very crucial that it has become part of the operational activities of some government entities during the Covid19 pandemic period.

### **Action Lines**

**AL C7.** ICT applications: benefits in all aspects of life — E-health | **AL C11.** International and regional cooperation

## SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all | **Goal 17:** Revitalize the global partnership for sustainable development

## Case 4 - Blod.id, Indonesia

### Title of the project, Contact Organization Name, Stakeholder type, Country

Blod.id  
Blod.id  
Government  
**Indonesia**

### Beneficiaries

Patients/Blood recipients who needed aid in real time, and patients that suffers other acute disease such as acute anemia, dengue fever, COVID-19 and other urgent health case that require blood supply. As for the blood donor, aside from receiving direct health benefits from donating their blood and increasing their sense of belonging towards society through helping others, Blod.id will come up with rewards system strategy through collaboration with merchant, brand, organizations or communities together with government to reward the blood donor in order to increase the user loyalty in our platform. The reward system aimed to increase the desire of the volunteer to donate their blood through our platform. Blod.id understands the market behavior of millennials as attractive market, according Morena et al 2017 "Millenials are attracted to coupons and discounts." Therefore adding reward features in the platform will contributes to the increase of voluntarily activity from our user pool. Health facilities such as hospital, Indonesian red cross society will be able to perform the suitable medical treatment through the real-time fulfilment of blood request. Government could make a better forecast of the blood supply needed based on the number of request and active blood donor volunteers through our platform. Hence the platform could act as a early warning system for health cases that could potentially become a pandemic in a certain region and Government could act accordingly.

### Website

<http://blod.id>

### Description

Blood and blood products play an important role in health care. The availability, safety and easy access to blood and blood products must be guaranteed. According to the World Health Assembly (WHA) on Availability, safety and quality of blood products, the ability to fulfill its own needs for blood and blood products (self-sufficiency in the supply of blood and blood products) and guaranteeing its safety is one of the important goals of national health service (Permenkes, 2015). Blod.id comes as a solution that focuses to improve the health quality of Indonesian through acting as a bridge between blood donor and blood recipient through internet based mobile application ([bit.ly/blod\\_id](http://bit.ly/blod_id)). Our commitment in supporting government to provide real time data regarding blood donor case and monitoring the availability donor in certain region is reflected in our services and is part of our mission., to provide the necessary data and tools that can be easily utilized by not only government, but also health facilities and related community. Apart from providing technological services, our team is also actively educating and recruiting society to increase the awareness of how a modest act as simple as donating blood could improve other's life quality and volunteering to become blood donor through offline and online campaign in areas where we see fit. As of today, more than 2000 volunteers has been participating in our blood donation campaign and currently we have more than 260 active volunteers registered in our platform, willingly to be ready anytime whenever there is a blood donor request popped up in the platform and more than 700 blood pack has been distributed, hence we have aided more than 2100 blood recipient in need.

### **ICT Tools**

Apps: We utilizes android based application for data registration and connecting registered volunteers with society who needs blood donation aid. In the future we will also open the opportunity of web based services to increase our range in terms of reachability towards society. Monitoring Management System: We are using web based services to monitor and manage volunteers and blood donation request data. Social Media: To increase public's awareness regarding information related to blood donation or other related facts, we are actively using social media.

### **Challenges / Partnership / Sustainability / Replicability**

Challenges: The challenge of distributing information and education effectively towards society has been our main focus. Especially in the middle of COVID-19 pandemic blood request is increasing more than ever due to the need of having blood plasm transfusion from previous COVID-19 patients that could significantly boost the health recovery of COVID-19 patient. However, COVID-19 pandemic is slowing down our campaign to educate society and recruiting them to become blood donor and our mission is to reduce the gap of the number of blood donor and blood recipients request to support medical facility services and help our Government to combat COVID-19 patients and increase the mortality rate of Indonesians through educating and inviting not only regional but also nation wide government to utilize our platform in order to integrate all the information services regarding number of available blood stocks, active blood donor, active blood request and

manage the data more efficiently. Thus, enabling us to become the most suitable real time platform that could be utilized nationwide.

Partnership: All blood donors registered in Blod.id platform, blood donor community from Gorontalo (Berbagi Darah), Dosis community, Bapak Haris Tome (Head of Communication, Information and Technology Agency in Gorontalo District ), Elnino Center, Riden Baruadi Gallery, Ngobar Community, Relawan TIK Gorontalo (ICT Volunteer Gorontalo ), Instellar, Nextdev, Gorontalo Red Cross Community.

Sustainability: Providing sustainable services with high efficiency and efficacy rate has been our mission and goals. We are confident that the project does not require high expense due to the nature of the ever increasing number of volunteer in our database that will be followed by adjustable server capacity and system. Together with the government and other related strategic partner we are confident to get enough fund through charging the service utilization (contract based), donation support from public, selling merchandise with our current business community model.

Replicability: The idea of providing mobile and web based service as a mean of providing tools for people who is willing to become a volunteer for blood donor and patients and also through registering their personal information such as blood type, latest time of blood transfusion/donation, other health information including time of disease contracted, status of recovery, time of recovery, place of health facility treatment providing the required information to the system that will analyze to match and connect between the patient and the blood donor and improve the efficiency while providing convenient service through data filtration such as finding the nearest blood donor that could be accessed real time.

#### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-health|**AL C11.** International and regional cooperation

#### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 5 - Ministry of Justice, Qatar

Title of the project, Contact Organization Name, Stakeholder type, Country



Request for Non-Qatari ownership and use of real estate  
Ministry Of Justice  
Government  
**Qatar**

### Beneficiaries

Migrants; Older persons; People with disabilities; Refugees and internally displaced people; Remote and rural communities; Women; Youth; Investors; Citizens; Residents and visitors

### Website

<http://www.moj.gov.qa>  
<https://eservices.moj.gov.qa/MOJWebsite/ExternalInvestors.aspx?lang=en>

### Description

"This project implemented to allow Non-Qatari ownership and use of real estate with benefits such as residency, healthcare, education, and investment. providing integration with relevant government entities with parallel workflow to minimize the response time to the investor within two hours. Integration with SAK system to complete the full cycle of ownership. It is one of the most important initiatives aimed at facilitating the launching of the real estate sector in QATAR and creating an attractive environment in which increase the volume of investments in this sector from inside and outside QATAR. Due to current situation of covid19 in the world the system with fully adopting paperless environment and to without needs to customer visiting to complete the procedure. Can search for any request easily through an intuitive basic search or an advanced search that lets them specify more details to narrow down your searches. This system provides a statistic dashboard and tracking to the request flow"

### ICT Tools

The project promote for WSIS Value in terms of :

- ICT applications: benefits in all aspects of life
- The service is provided through a web portal, the verification through the integration with the Ministry of Justice and all related government entities
- Access to information and knowledge: Beneficiaries can access, manage, and inquire about their request online.
- the service provided as fast and accurate as possible.
- Contribution in building a people-centered information society
- Easy online access to all beneficiaries
- Transparency and fairness
- One of the Ministry's digital transformation initiatives
- Social and gender equality
- Preserving nature by adopting paperless environment
- Cooperation, partnership, and digital solidarity among government entities
- Improve quality of life and well-being of all beneficiaries of the service.
- Human dignity is respected.
- Enhance cyber security and ensure the protection of data and privacy.
- Application is

user-friendly and adapted to local language. •sustainable project that fosters innovation.  
 •leads to economic growth. • The project helps in ensuring proper and equitable Persons with Disabilities PwDs and non-PwDs to use this service and send the request without visiting and paperless •It helps in developing Information and communication infrastructure. •It facilitates Access to information and knowledge.

**Challenges / Partnership / Sustainability / Replicability**

Challenges: • Legalization of some law related to real estate business • Change of the business culture • Applying of the new technologies • Change resistance of the new processes and system

Sustainability: yes

Replicability: yes

**Action Lines**

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C4.** Capacity building|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-business

**SDGs**

**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation |**Goal 10:** Reduce inequality within and among countries|**Goal 11:** Make cities inclusive, safe, resilient and sustainable|**Goal 17:** Revitalize the global partnership for sustainable development

**Case 6 -Ministry of Culture & Youth, United Arab Emirates**

**Title of the project, Contact Organization Name, Stakeholder type, Country**

National Creative Relief Program  
 Ministry of Culture & Youth  
 Government  
**United Arab Emirates**

**Beneficiaries**

Independent/freelance creatives working in the creative and cultural industries sectors who are citizens and non-citizens currently residing in the UAE. Small enterprises operating in the cultural and creative industries sector

#### Website

<https://www.mckd.gov.ae/en/contact/>  
<https://www.mckd.gov.ae/en/covid-19/#about>

#### Description

Digital platform in collaboration between MCY and the Arts Council and the Cultural and Creative Industries. The platform supports efforts from the federal government and cultural institutions to overcome industry challenges in the time of COVID-19.

#### ICT Tools

online registration for individuals and companies / application evaluation module / COVID-19 initiatives / Fund program/ online donation form/ Dashboards

#### Challenges / Partnership / Sustainability / Replicability

Challenges: -Artists and creative individuals are an integral part of the creative and cultural economy of the UAE. -the program aims to ensure the sustainability of cultural production in the country. -Cementing the UAE's position as an incubator for creativity, arts and culture. -an appreciation to creatives to continue to support the creative sector in various circumstances.

#### Action Lines

**AL C8.** Cultural diversity and identity, linguistic diversity and local content

#### SDGs

**Goal 12:** Ensure sustainable consumption and production patterns

## Case 7 -Ministry of Culture & Youth, United Arab Emirates

Title of the project, Contact Organization Name, Stakeholder type, Country

<p>The virtual Summer Camp  Ministry of Culture &amp; Youth  Government  <b>United Arab Emirates</b></p>
<p><b>Beneficiaries</b></p>
<p>Students/Youth/ Worldwide</p>
<p><b>Website</b></p>
<p><a href="https://www.mckd.gov.ae/en/contact/">https://www.mckd.gov.ae/en/contact/</a>  <a href="https://www.mckd.gov.ae/en/summercamp/">https://www.mckd.gov.ae/en/summercamp/</a></p>
<p><b>Description</b></p>
<p>The virtual Summer Camp offers a diverse program with more than 500 activities that include workshops, dialogues and cultural screenings held in partnership with federal, local and private institutions in the UAE. This year, it's exceptionally unusual due to the precautionary measures taken for COVID-19 crisis.</p>
<p><b>ICT Tools</b></p>
<p>online workshops/ movie screening / online registration / e-certificates / e-campaign / online conference / snapshots of summer camp</p>
<p><b>Challenges / Partnership / Sustainability / Replicability</b>  Challenges: The summer camp is exceptionally unusual due to the precautionary measures taken for COVID-19 crisis. Workshops and panel discussions will be offered remotely by a group of experts in their fields of work.   Replicability: yes, summer camp is a project that is implemented annually, during the student summer vacation. to join different activities and be part of cultural events.</p>
<p><b>Action Lines</b></p>
<p><b>AL C8.</b> Cultural diversity and identity, linguistic diversity and local content</p>
<p><b>SDGs</b></p>

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

## Case 8 - MOI, United Arab Emirates

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Electronic System of Covid 19 infected from Security Organization MOI Government <b>United Arab Emirates</b>
<b>Beneficiaries</b>
MOI employees; Society
<b>Website</b>
<a href="https://www.moi.gov.ae/en/default.aspx">https://www.moi.gov.ae/en/default.aspx</a> <a href="https://ssp.moi.gov.ae/SSP/">https://ssp.moi.gov.ae/SSP/</a>
<b>Description</b>
Provide work from distance; Ensure office sterilization; Insure include some employees' categorizes in distance work group such as elder worker, pregnant women, mothers' employees whos children are in distance learning.
<b>ICT Tools</b>
,Net ASP .Net C# Oracle DB
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: report the cases by the infected employees. By increase the employees awareness and keep testing employees before entering the MOI buildings.  Partnership: Yes. All governmental entities.  Replicability: Yes. Other entities can get use of the system.  Sustainability: Yes.

<b>Action Lines</b>
<b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all   <b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable   <b>Goal 13:</b> Take urgent action to combat climate change and its impacts

## Case 9 - COVID-19 Emergency Response, Mexico

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
COVID-19 Emergency Response Digital Agency for Public Innovation Government <b>Mexico</b>
<b>Beneficiaries</b>
The beneficiaries are the residents of Mexico City who are in need of assistance, whether it be because they are in high risk of infection or are actually infected with COVID-19, lost their jobs due to the pandemic, are owners of a microenterprise that has been economically affected, or are just looking for credible, official information regarding the current situation. The screening tool, as well as the information on available hospital beds are both available in English as well, as to make sure the foreigners living in the city and international visitors also make use of these tools.
Website
<a href="https://adip.cdmx.gob.mx/">https://adip.cdmx.gob.mx/</a> <a href="https://covid19.cdmx.gob.mx/">https://covid19.cdmx.gob.mx/</a>
<b>Description</b>
Mexico City has developed a thorough strategy consisting of several coordinated actions that aim to solve some of the issues derived from the pandemic. The automated screening model

was launched on March 17th, 2020, to provide attention to people that suspected could have coronavirus. Users of this service enter their contact information and symptoms, following an automated flow of questions. According to their responses, the system formulates a general diagnosis. This system allows for better patient monitoring and follow-up care in the event symptoms worsen over time and is available via SMS, online, through the city's official app, and by dialing the city's call center, Locatel. In addition to this service, more than 6,000 medical kits have been delivered to people whose cases have been confirmed as coronavirus, to help keep sick patients from leaving their homes. Also, a website shows the availability of hospitals beds capable of treating COVID-19 cases patients in Mexico City and the metropolitan area. The objective of this tool is to limit the time patients needing immediate care spend in transit. The forms for applying to the Unemployment Insurance Program are now available online to people who have lost work as a result of the health crisis. These and other actions taken by the city's government can be consulted in the information site [covid19.cdmx.gob.mx](https://covid19.cdmx.gob.mx).

### ICT Tools

The automated screening model alleviates the pressures on the health system by using an automatic question flow that gathers information on the people that might be infected with coronavirus. Although this tool was specifically developed in the context of the current pandemic, we now consider it one of the assets of the Digital Agency, since it can be adapted to future health crises. The same can be said about the epidemiological model, which shares with the general public the theoretical bases used to make estimations on the scope of the pandemic in Mexico City and the metropolitan area . Also, the hospital availability tracker has proved to be an efficient means to avoid having patients visit more than one hospital looking for an available bed, therefore diminishing the risk of contagion. This tool is now another asset developed by the Digital Agency that will no doubt continue to be of value once the pandemic is over.

### Challenges / Partnership / Sustainability / Replicability

The main challenge has been to keep up with the pandemic and provide an adequate and timely answer to the emergency, given the limited resources available. The needs change as the pandemic evolves, and it is necessary to make the adaptations to the digital tools in a very short time. The developers are working around the clock and it has been a challenge to count on enough personnel to keep up with the needs of the city, providing reliable and updated information that contributes to the wellbeing of the population. Another significant challenge has been to make it possible for the different platforms to interoperate and share reliable, updated information that makes sense when compared to the data generated by other sources. It is also necessary to process the information gathered almost in real time as to make sense out of the numbers and make decisions accordingly.

We are looking for partners that could provide human and digital resources to analyze and make an efficient use of the data gathered through all the platforms that have been put to place. Given that the resources we use to operate are public, it is challenging to engage

private partners in the operation of the programs. However, it would be useful to count on partners to analyze and draw conclusions out of the data available, in order to make better decisions.

It is, since the interphase that has already been developed for the purpose of providing information on the hospital availability could continue to be in place after the pandemic is over, and improved so that it can be updated automatically with the information provided by the medical centers. The automated screening model could be later adapted for other ends, whether health-related or not. New procedures that formerly could only be done in person are now available online, thus broadening the scope of digitization in the city. These new digitized procedures will continue to be so once the pandemic is over.

This project could be replicated in cities that face challenges to: -provide medical attention to all potential patients and therefore are in need of an automated screening tool -provide information to patients as to where they might receive medical attention -allocate resources for people who have lost their jobs due to the pandemic -allocate resources for entrepreneurs whose businesses are struggling to continue operating due to the pandemic -provide face-to-face attention to people who have been victims to certain kinds of crimes but are unable to leave their homes.

#### Action Lines

**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-health

#### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 11:** Make cities inclusive, safe, resilient and sustainable

## Case 10 ePortugal webportal, Portugal

#### Title of the project, Contact Organization Name, Stakeholder type, Country

ePortugal webportal (single digital gateway for public services)  
 Administrative Modernization Agency (AMA)  
 Government  
**Portugal**

#### Beneficiaries



The portal is available to everyone and was developed taking into consideration usability and accessibility requirements. The main benefits of the portal are the ability to access all digital public services in a central platform and to perform a wide array of transactional services in a secure and simple way, on any device and on a 24/7 basis, thus minimizing the risk of infection by covid-19.

### Website

<https://www.ama.gov.pt/> <https://eportugal.gov.pt/>

### Description

Services and information were enriched in ePortugal, the Portuguese single digital gateway for public services, which was quickly adapted to provide new information, tutorials and services for citizens and companies, as onsite public delivery was closed and only available by pre-booking to critical services. As such, ePortugal is the privileged vehicle to provide both citizens and businesses the services they need in this context of social distance. There are a wide range of transactional services that can be performed on the ePortugal portal, including changing the address on the Citizen Card, requesting birth, marriage and/or death certificates or requesting over 500 business licenses and permits, to name just a few. Additionally, the portal offers specific service channels for citizens and businesses, namely the Citizen Call Center and the Business Call Center (available by phone and email) and SIGMA, a chatbot based on artificial intelligence that assists the user and provides him/her with information about the services available on the portal. It's worth mentioning that ePortugal was developed with a focus on accessibility and usability, adapting to any type of device and presenting a simpler and clearer language.

### ICT Tools

ePortugal is the single digital gateway for public service delivery for both citizens and businesses, and is based on Liferay DXP, with a responsive design that allows optimal access from any device. Also, it was developed taking into consideration usability and accessibility requirements. - since July 31, 2019, it has the usability and accessibility silver seal, which identifies and promotes the implementation of the best practices in terms of accessibility and usability in websites and apps that are meant to simplify the use of online public services by the citizens, and more specifically citizens with disabilities. Being run by AMA, the national agency responsible for administrative modernisation and digital transformation, under the tutelage of the Minister of the Presidency and of Administrative Modernisation, and more specifically under the Secretary of State Assistant and of Administrative Modernisation, ePortugal uses several digital infrastructures and platforms, which are at the core of the Portuguese digital transformation efforts:

- national eID and authentication provider (autenticação.gov, both with the Portuguese Citizen Card and the Digital Mobile Key)
- Interoperability platform - iAP (for system integration with social security, tax authority, etc.)
- the national Catalogue of Entities and Services (central repository of information about public

organisations, services, points of care, websites, apps, etc.)

In terms of content management, the portal covers more than 2500 services (1200 for citizens and 1300 for companies), each with its own website. The content management system allows the creation, organization, elimination and publication of content in an agile and real-time way.

### **Challenges / Partnership / Sustainability / Replicability**

One of the most relevant lessons learned is the importance of involving the potential users and other stakeholders since the development phase. It's essential to always keep in mind who's the main user of a portal such as this and who provides the information to be made available; therefore, it is important to engage them and work with and for them since the very beginning. Throughout the development of the project, there were also postponements due to the integration of several applications with the portal - the ePortugal portal has replaced the previous version of the Citizen Portal, the Entrepreneur's Desk and the Citizen Map as the central channel to access and deliver electronic public services in Portugal. Therefore, it had to integrate several applications that were used to update those three portals with the Catalog of Entities and Services, and then connect the Catalog with the ePortugal.gov.

The portal was developed by AMA, which is also the entity responsible for coordinating and managing the ePortugal, having the responsibility to obtain, update and upload content of services and entities of all the Public Administration. As so, all the entities envisaged are part of the process - there are more than 1,000 services available on the portal, and those are provided by about 600 entities, from both the Central Government, Local Government and private entities.

A project like ePortugal implies the observation of certain conditions, including high-level political commitment, strong and permanent collaboration between the different areas of governance and investment in the various facets of interoperability. For instance, the services published on the ePortugal.gov portal are provided through the Catalog of Entities and Services (CES), which was built around the core public service vocabulary. This catalog acts as a central repository of information about public organizations, services, face-to-face points, websites, mobile applications, etc. One of the advantages of this catalog is that, in the future, it can be used to provide information to several other portals regarding the Portuguese public services. The CES, along with the ePortugal portal, is managed by AMA.

As it was developed within the SIMPLEX program (the national programme for administrative simplification and modernization), the ePortugal benefits from strong political commitment, which is essential in a project that integrates so many services and needs the cooperation of so many different entities. Also, the portal draws from the pre-existing human resource structure located at AMA, which is an advantage since AMA had the know-how in several of the needed areas for the development and maintenance of the Portal (technology, communication, legal, usability, etc.). The fact that AMA also provides the Citizen and the Businesses Contact Centres, providing assistance to the users of the portal is also a condition for success and a way of not digitally excluding potential users, helping the ones that are not very comfortable with the digital services.

### **Action Lines**

**AL C3.** Access to information and knowledge | **AL C5.** Building confidence and security in use

of ICTs | **AL C7.** ICT applications: benefits in all aspects of life — E-government

### SDGs

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all | **Goal 16:** Promote just, peaceful and inclusive societies

## Case 11 Work from Home Initiative, Oman

### Title of the project, Contact Organization Name, Stakeholder type, Country

Work from Home Initiative  
Ministry of Technology and Communications  
Government  
**Oman**

### Beneficiaries

The remote work initiative aims to enable government entities to achieve continuity and sustainability in service provision in all sectors, to improve the culture and work environment and enhance proactivity to deal proactively with the repercussions of the exceptional circumstances.

### Website

<https://www.mtc.gov.om>

### Description

The Ministry of Technology and Communications in cooperation with the National Supreme Committee on Covid19 has launched Work from Home Initiative since March 2020. The initiative aim is to provide the government entities and staff all required infrastructure and tools to continue the government tasks like providing e-service, meetings, conferences and daily tasks from home. The Ministry also created Technological Innovation committee to oversee all IT initiatives to ensure diversity, strength the partnership between sectors to implement the new projects accurately and provide innovative IT solutions.

The ministry exerted great efforts to support all government entities, and provide secure connections, environment on government cloud.

<b>Challenges / Partnership / Sustainability / Replicability</b>
<b>Action Lines</b>
<b>AL C5.</b> Building confidence and security in use of ICTs   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government
<b>SDGs</b>
<b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case 12 - Government Technology Agency (GovTech), Singapore

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
TraceTogether National Contact Tracing Programme Government Technology Agency (GovTech) Government <b>Singapore</b>
<b>Beneficiaries</b>
The TraceTogether programme aims to mitigate the spread of the disease in the community by quickly identifying close contacts, providing early treatment and isolating them effectively. This is a long-term goal, complemented by other measures, that can support operations during other epidemics. Digital contact tracing supplements existing efforts by reducing the time to identify close contacts, issue quarantine orders, and prevent the formation of clusters. To-date, the app has more than 3 million registered users (>50% of population) and more than 750,000 tokens have been distributed. TraceTogether has enabled more efficient contact tracing operations, resulting in quicker tracing and isolation of close contacts, while the community receives better protection and timely support.
<b>Website</b>
<a href="https://www.tech.gov.sg/">https://www.tech.gov.sg/</a> <a href="https://www.tracetgether.gov.sg/">https://www.tracetgether.gov.sg/</a>

## Description

The TraceTogether programme is the first national Bluetooth contact tracing system. It enhances Singapore's contact tracing efforts in the fight against COVID-19, and comprises the TraceTogether app and TraceTogether Token. The app was released on 20 March, while the token was rolled out on 28 June. Both the app and token use Bluetooth signals to record other nearby TraceTogether devices in an anonymised fashion, to quickly identify users who have close contact with a COVID-19 case and establish links between clusters. TraceTogether does not rely on the users' memory and works with unacquainted contacts who are also TraceTogether programme participants. It therefore attempts to plug the gap of close contact with unacquainted contacts, by recording who you have been in contact with, but not where. Its design considerations, namely decentralised data collection and storage, and centralised contact tracing operations balances operational efficacy and user privacy. Users do not have to worry about remembering what they did in the last fourteen days while data collected is stored locally on a user's phone unless it is required by contact tracers to assist with investigation.

## ICT Tools

The app is built on the BlueTrace protocol developed by GovTech, which has been made open-source. Several countries have developed similar Bluetooth-enabled contact tracing apps using the BlueTrace protocol. GovTech consulted with Apple and Google prior to the release of the latter companies' Exposure Notification protocol. The TraceTogether Token, a hardware token, was also developed to ensure that all Singaporeans can participate in contact tracing, regardless of one's tech savviness and/or socio-economic background. This addresses a key vulnerable population segment that tends to have more adverse outcomes from a coronavirus infection.

## Challenges / Partnership / Sustainability / Replicability

The TraceTogether programme has been an iterative process, based on user feedback and constant improvements, to tackle earlier limitations and enable better user experience and active usage. The development of the programme brought together experts from across government in the areas of software and mobile app development, radio engineering, security, Internet of Things, privacy and cryptography. Private sector privacy advocates and engineering companies were also involved. Given the importance of adoption and coverage, the team realised that the app was not enough and not for all, and developed a physical token to complement the app ecosystem. The token provides citizens with a choice and enables a more inclusive society for everyone to benefit from community-driven contact tracing, be it less tech-savvy demographics such as seniors, or those with financial constraints or no access to smartphones that support the app.

At the moment, due to technical feasibility and other countries' policy considerations, the TraceTogether programme team is unable to look for partners outside of Singapore. However, a seamless and interoperable TraceTogether programme would be an ideal, especially as international travel opens up. If you are interested to partner or adapt BlueTrace protocol for your countries' needs, then you may check out BlueTrace.io or write in to the Smart Nation and Digital Government Office or GovTech.

Yes, the TraceTogether programme is a sustainable one. The programme allows anyone with a smart phone to participate. Even for those who opt for a physical device (Token), it is durable, secure, and cost effective. The programme as a whole is scalable and delivers value to public health.

TraceTogether's source code has been published. Since TraceTogether's launch, over 50 countries or cities have also indicated interest in adopting a similar solution or learning from the team, with Australia, Canada, and Poland adapting the open-sourced version of TraceTogether. The programme also inspired both Apple and Google to roll out an Exposure Notification service in their respective mobile platforms.

**Action Lines**

**AL C7.** ICT applications: benefits in all aspects of life — E-health

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all | **Goal 11:** Make cities inclusive, safe, resilient and sustainable

## Case 13 - Saudi Red Crescent Authority, Saudi Arabia

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Asifny Mobile Application  
 Saudi Red Crescent Authority  
 Government  
**Saudi Arabia**

**Beneficiaries**

Peoples in Saudi Arabia

**Website**

<https://www.srca.org.sa/en>  
<https://www.srca.org.sa/en/MobileApp>

### Description

The app allow users to submit permits request via the app during Curfew the COVID-19 pandemic for non-emergency cases (not need to be transported by Ambulance) then assessing the request, after that the request processed by the police for approval.

### ICT Tools

Android version:

- Native: using android studio (Java)
- Google maps
- Morse code - Webservices
- DBMS >> SQL Server

iOS version:

- Native coding using objective C.
- Google maps
- Morse code
- Webservices
- DBMS >> SQL Server

### Challenges / Partnership / Sustainability / Replicability

Support hearing impairment: Because they are unable to call Emergency number. Saving time to get information: the app is prepared with fields for the required information from the users, location sharing, and medical history. Support 9 languages: most of call center agents are bilingual speakers (Arabic and English), so the app offers languages especially during Hajj season. Accurate location: the modern devices support geolocation, so this feature was exploited in the app. Additional channel: Reducing calls. First Aid : the app contains first aid awareness.

Partnership: Yes, google & apple services.

Sustainability: Yes, by Increase health coverage sufficient ambulance transport to health centers and support the society to be a first responder for emergency cases by awareness.

Replicability: Yes, it can be customized for other countries by identifying the integration points.

### Action Lines

**AL C2.** Information and communication infrastructure | **AL C7.** ICT applications: benefits in all aspects of life — E-government | **AL C7.** ICT applications: benefits in all aspects of life — E-health

## SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 10:** Reduce inequality within and among countries|**Goal 11:** Make cities inclusive, safe, resilient and sustainable|**Goal 16:** Promote just, peaceful and inclusive societies

## Case 14- ENTERPRISE EUROPE NETWORK-SWITZERLAND,

### India

#### Title of the project, Contact Organization Name, Stakeholder type, Country

FINAL CONNECTION AND FINANCIAL RELEASE AT VILLAGE AND PO TUNNUHATTI  
DISTT CHAMBA PINCODE 176301 HP INDIA  
ENTERPRISE EUROPE NETWORK-SWITZERLAND  
Government  
**India**

#### Beneficiaries

Asia Pacific Region

#### Website

<https://www.swisseen.ch>

#### Description

E-government united nations GLOBAL COMPACT public administration network

#### ICT Tools

E-GOVERNANCE

#### Challenges / Partnership / Sustainability / Replicability

Challenges: Non cooperation by THE GOVT of INDIA RESERVE bank of India AND



INDIAN bank for holding my funds from the year 2006 to 2019-20  
 Partnership: [www.awti.nl](http://www.awti.nl) [www.waitro.org](http://www.waitro.org) [www.giz.de](http://www.giz.de) [www.seco.admin.ch](http://www.seco.admin.ch)  
[www.digitalindia.gov](http://www.digitalindia.gov) [www.mars.nasa.gov](http://www.mars.nasa.gov) [www.mcc.gov](http://www.mcc.gov) [www.royal.uk](http://www.royal.uk)  
[www.diplomatie GOUV.fr](http://www.diplomatie.GOUV.fr) [www.oecd.org](http://www.oecd.org)

**Action Lines**

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development | **AL C2.** Information and communication infrastructure | **AL C5.** Building confidence and security in use of ICTs

**SDGs**

**Goal 1:** End poverty in all its forms everywhere | **Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture | **Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

**Case 15- National Informatics Centre (NIC), India**

**Title of the project, Contact Organization Name, Stakeholder type, Country**

eOffice  
 National Informatics Centre (NIC)  
 Government  
**India**

**Beneficiaries**

eOffice is G2G/G2E solution automating government centric services and is being increasingly adopted by Government departments for achieving objective of Governance with Accountability, Transparency and Innovation (GATI) and eliminating delays in Government offices. All Government decisions are taken in files and eOffice is helping Government departments in informed and quicker decision making, resulting in better public service delivery. Hence, ultimate beneficiary in the process is citizen. Directly it helps Government officials to work with more efficiency and increases overall productivity of organization. An employee can track status of his files in the system. Some states have provided window to citizens also, resulting in higher transparency and accountability. Intended benefits: Quick Decision Making & Faster Delivery of Services (Access of Files Anywhere Anytime, Faster movement of files in real-time irrespective of geographical locations); Elimination of Corruption, Venal practices, Red Tapism (Personal priorities/discretions eliminated,

Deleting/replacing notings, tearing of files cannot be even thought of); Accountability & Transparency (Pendency Monitoring, Citizen's can track papers submitted to office); Environment Friendly & Go Green Initiative (Tonnes of papers, Infrastructure like Printers, Cupboards, are saved, Saving on Account of travel for transporting files); Always available files never be lost & stored for perpetuity (Readiness to Disasters).

#### Website

<https://eoffice.gov.in/>

#### Description

eOffice is one of the key IT projects of NIC, aimed at improving internal efficiencies in organization through electronic administration leading to informed and quicker decision making, which in turn results in better public service delivery. It promotes less paper office with greater collaboration and knowledge sharing. During the period of lockdown necessitated by COVID-19, eOffice emerged as a game-changer, by facilitating unhindered work, unfettered and secured access to Government files to officials, that too in the financial year closing period. There is significant rise in use of eOffice and eFiles during this period, as paper-based files can be hosts for corona infection. Moreover, it was difficult to continue to work with traditional paper-based file systems during a complete lockdown state, without significant delays in functioning of any government office. Apart from the fear of COVID-19 infection, two other major factors contributed significantly, towards smooth transition of the Government, from working from office, to working from home. Firstly, most of the Government of India Ministries/Departments, Attached offices, and States with their districts were already working on eOffice and its adoption was on the ascendant. Even several PSUs had also adopted eOffice. Secondly, the availability of interdepartmental file transfers through eOffice.

#### ICT Tools

The Open Architecture on which eOffice is built, makes it standard reusable product amenable to replication across Governments at central, state, district levels. It is a web-based product that brings together independent functions and systems under single framework. Aspects of extensibility, scalability, security, interoperability and open standards were taken into consideration while defining overall architecture. eOffice is Unicode compliant with localized interface, facilitating to work in local language. Technologies/ICT tools – eOffice is cloud enabled, developed and deployed using Open Source based software namely, PHP & Java, Apache HTTPD, Apache Tomcat, PostgreSQL, MongoDB, Kafka, Redis, ActiveMQ, Elastic etc. on Linux

based servers ( RHEL/CentOS). It is pertinent to mention that eOffice implementation for Government of India is restricted within NICNET environment only. This is where two enabling technologies played their part in smooth transition to work from home during Covid-19 pandemic. These technologies were; WebVPN solution of NIC for secured access to eOffice and eSign technology for digitally signing eFiles. As soon as lockdown was announced, NIC facilitated Government departments in obtaining WebVPN to enable access of eOffice over secure channel, at any time, and from anywhere. Further, eOffice is eSign enabled, therefore, digital signing of noting and drafts continued seamlessly.

### Challenges / Partnership / Sustainability / Replicability

a)Change in Office Procedures and Conflicting Change Requests: eOffice is based on CSMeOP. For all kinds of organization (Central & State Government, PSU, etc.), 90% of working procedures are similar and 10% variation is found. As automation increases, expectation from users to have more features in eOffice also increases. These users vary from lowest level to highest level decision makers. Many times conflicting change requests are also received from implementing organizations. Feedbacks/Change Requests are implemented in generic manner as configurable parameters to extent possible without compromising on usability/performance. b)Browser Compatibility: There are continuous efforts in making the product work on different devices (Desktop, Laptop, iPad, etc) and it's ever changing underlying Environment/Platform (OS: Linux-RHEL, Ubuntu, Windows; Browser – Mozilla, IE/Edge, Chrome, Safari, etc.). c)Changes in policies of Government: Many a times changes in Government policies, for example: storing of AADHAAR in vault, DSC/eSign related specifications, etc., necessitate changes in software. These are accorded highest priority by upgrading and releasing the versions. D)Securing the Application: New vulnerabilities are discovered in development frameworks/OS/SSL etc. time to time. These vulnerabilities are required to be patched on highest priority by upgrading and releasing the versions. e)Technology Up-gradation/Adoption on regular basis.

We are looking for partnership with Central and State Government training institutes (like ISTM, IIPA, ATIs, LBSNAA, SVPNPA, HIPA, YASHADA, etc.) for developing training modules on eOffice within their courses for officers belonging to various services. This will enable these officers in formulation of the steps and actions that are required to be taken by the implementing organizations for continued growth of eOffice and also to bring in the uninitiated organizations to make a progress towards adoption of eOffice.

a)Capacity Building: Systematic Capacity Building Exercise becomes important activity for successful and sustained implementation of eOffice. On an average, 52 Capacity Building Programmes (CBP) on eOffice for various categories (Users, Master Trainers, EMD Managers and System Administrators) of 3-5 days duration having 25-30 participants are organized every year as per the calendar released on eOffice

training site. CBP are also organized for user departments, based on request received from them. b) Commitment from Top - eOffice should be mandated by Department. Regular review by top authority for project deliverables & enforcement is required for smooth implementation. c) Change Management - Moral boosting of employee with appreciation for good performance, guiding them about how application will help them in official work and increase their productivity & efficiency, give them feeling of direct/indirect contribution of growth and development of country and saving environment by adopting paperless working. d) Government Process Re-engineering and Preparation of SOP for dealing with different cases like storage of physical paper after digitization, weeding out of legacy files/receipts, etc. e) Emphasize on concept of "Minimum Government - Maximum Governance". f) Rich set of APIs that helps to integrate legacy applications of departments to provide robust governance ecosystem.

eOffice covers the entire gamut of office administration, which is amenable to replication across the Governments, at Central, State and District levels. Moreover, the Open Architecture on which eOffice has been built, makes it a standard reusable product amenable to replication across the Governments. eOffice is getting adopted across the country as ONE INDIA ONE PRODUCT, fulfilling the needs of various implementing organizations. As on date, eOffice has been implemented in 622 organizations of Government of India, comprising of nearly all the Central Government Ministries/Departments

- 83, Central Government Other Organizations (Apex/ Autonomous/ Statutory Bodies, Attached/ Subordinate Offices, Public Sector Undertakings, etc.)

- 192, State/UT Government Secretariats - 28, District Administrations

- 188, State Government Other Organizations/PSUs

- 131. eOffice Product is also being accepted at international level. It is pertinent to mention that eOffice Product was implemented in MTDI, Government of Sri Lanka in just a week's time during which it was launched by MTDI Minister, who digitally signed the file using the Digital Signature Certificates (DSCs) issued by Sri Lankan based Certifying Authority (CA). In addition to this, NIC is also in talks with Commonwealth Secretariat and Indian Ocean Rim Association (IORA) for implementation of eOffice in the member countries.

### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C3.** Access to information and knowledge|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-government

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 15:** Sustainably manage forests, combat desertification, halt and reverse land degradation, halt

biodiversity loss

## Case 16- DGDA DRUG VERIFICATION, Bangladesh

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
DGDA DRUG VERIFICATION Directorate General of Drug Administration Government <b>Bangladesh</b>
<b>Beneficiaries</b>
Consumers/ citizens
<b>Website</b>
<a href="http://103.48.16.179">http://103.48.16.179</a>
<b>Description</b>
What? The DGDA Drug Verification is a free web/smart phone based app for reporting suspected adverse drug reactions, Complaints , Authenticating Medicines & Prices.
<b>ICT Tools</b>
1. <a href="https://play.google.com/store/apps/details?id=com.dgda.adr">https://play.google.com/store/apps/details?id=com.dgda.adr</a> 2. <a href="http://103.48.16.179/">http://103.48.16.179/</a> 3. <a href="https://www.thedailystar.net/backpage/news/just-tap-away-1712506">https://www.thedailystar.net/backpage/news/just-tap-away-1712506</a> 4. <a href="https://ideabank.gov.bd/projects/45">https://ideabank.gov.bd/projects/45</a>
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenges: As my agency got no personnel on IT/MIS out of its 300+ Human Resources so for outsourcing one of the best tech assistance provider (35,000 USD funding for Maintenance and Nationwide scaleup) Partnership: Funding Sustainability: It wins (One of the Four pilots among 29 Pilot projects) Ministries Approval ( on the Basis of Sustainability and Utility) for National Scale-up by juries

upon Pilot scale evaluation.

Replicability: It's already selected for National Scale up in the Showcasing Event held in last year for Assessment and Evaluation of pilot projects ( innovative ideas awarded)

#### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C3.** Access to information and knowledge|**AL C7.** ICT applications: benefits in all aspects of life — E-health

#### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 11:** Make cities inclusive, safe, resilient and sustainable

## Case 17- KRISHI VIGYAN KENDRA, HINGOLI, India

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Use of ICT for Technology Transfer in Agriculture in Hingoli District of Maharashtra  
KRISHI VIGYAN KENDRA, HINGOLI  
Government  
**India**

#### Beneficiaries

Our primary beneficiaries are small and marginal farmers and their of the Hingoli District.  
There are 711 villages covering about 3.5 Lakhs of farmer across the district. Major crops are Soybean, Cotton, Turmeric, Pigeon Pea, Banana and Sugarcane also to some extent. Rainfall is about 100 cms per annum.

#### Website

<https://kvkhingoli.org/>  
<https://www.facebook.com/krishivigyankendra.hingoli>

#### Description

1) Krishi Vigyan Kendra, Hingoli ( Hereafter called as KVK) is sponsored by Indian Council of Agricultural Research, New Delhi. It is operating as district level organization in Hingoli District of Maharashtra. It started working since 2002. There are 6 Scientists working in the organization with 10 supporting staff. Staff strength is 16 with an area of operation of 711 villages divided in 5 Talukas. 2) Location of organization is remote from the District Headquarter. 3) Mandate of the Krishi Vigyan Kendra (KVK) is as follows, a) Collaborate with the subject matter specialists of the state Agricultural University/ Scientist of the Regional Research Station (NARP) and the state extension Personnel in “On-farming testing”, refining and documenting Technologies for developing region specific sustainable land use systems. b) Organize training to update the extension personnel within the areas of operation with emerging advances in agricultural research on regular basis. c) Organize front-line demonstrations in various crops to generate production data and feedback information. d) Organize long-term vocational training courses in agriculture and allied vocations for the rural youths with emphasis on “learning by doing ” for generating self-employment through institutional financing. 4) Effect of Pandemic on Daily Activities: Since the activities of KVK are of direct contact type of nature, it came to stand still during the Lock Down phases 1 to 3. 5) Way Found Out: Facebook was one of the simplest way of communication with the district farmers and stakeholders. We started showing Government initiatives for combating the pandemic. Use of Arogya Setu App was promoted. Its benefits were shown to district people. All the webcasts of Honable Prime Minister, Chief Minister were shared on Facebook page <https://www.facebook.com/krishivigyankendra.hingoli>. Another option was use of Whatsapp for communicating weather based agro advisories to farmers. We have made many farmers groups and used them to spread the Weather based Agro advisory once or twice a week. This resulted in a good support system for farmers. In addition many farm produce were also sold to consumers by developing consumer groups and producer farmers in the groups. Many urban citizens were supplied fresh fruits and vegetables at their doorsteps during Lock Down. Next to this , Google Meet and Zoom were used for communicating farm advisories to farmers. Audio conferences were also organized by making tie up with Reliance Foundation. Use of FM and AM radio was also done for giving relevant radio talks as per need of the farmers. Finally, we started streaming of weather based agro advisories on You Tube also. Result: - All of the above activities has developed a modern ICT platform across the Hingoli District, now we can communicate and have impact immediately for all kind of needs of the people of the District.

#### ICT Tools

List of ICT Tools used is as follows: 1) Face Book 2) Whatsapp 3) Bulk SMS 4) Audio Conferencing 5) Google Meet platform 6) Zoom Platform 7) You Tube Live 8) Kisan app 9) FM Radio 10) AM Radio

### Challenges / Partnership / Sustainability / Replicability

Main challenge is that the farmers are not tech savvy. They need training and infrastructure support like high speed internet and modern equipment.

Partnership: Yes. High Speed Internet and suitable devices for every family.

Sustainability: Since it is low cost and quick it is going to be sustainable with relevant refinement in the input.

Replicability: This type of activities have been done by every KVK in India. About 721 District KVKs have made efforts on similar lines.

### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture

### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture|**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 6:** Ensure access to water and sanitation for all|**Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 10:** Reduce inequality within and among countries|**Goal 11:** Make cities inclusive, safe, resilient and sustainable|**Goal 12:** Ensure sustainable consumption and production patterns|**Goal 13:** Take urgent action to combat climate change and its impacts|**Goal 14:** Conserve and sustainably use the oceans, seas and marine resources|**Goal 15:** Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss|**Goal 16:** Promote just, peaceful and inclusive societies|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 18- Kenya Marine and Fisheries Research Institute (KMFRI), Kenya

Title of the project, Contact Organization Name, Stakeholder type, Country



Enhanced Fish Market Information Service (EFMIS)  
Kenya Marine and Fisheries Research Institute (KMFRI)  
Government  
**Kenya**

### **Beneficiaries**

Vulnerable fisheries value chain actors who benefit based on reduction in quantity of post-harvest losses by selling fish quickly, time searching for adequate prices, and no price differentials.

### **Website**

<https://www.kmfri.co.ke>  
<https://doi.org/10.4060/cb2030en>

### **Description**

Fisheries value chain actors are using mobile phones to reduce the cost of travel and to know prices and weight during COVID\_19 travel restrictions and bridge the gap that could benefit middlemen

### **ICT Tools**

EFMIS is an ICT project is based on mobile phones to relay information as SMS code indicating the landings in terms of species and prices at markets with an automatic response within 10 seconds

### **Challenges / Partnership / Sustainability / Replicability**

Challenges: Meeting the high expectations of the different stakeholders - a second package was attempted for fishing nets and other gear in different shops but still under consideration.

Partners in the crop and livestock sector to expand the use in the agriculture area.

Sustainability: Has raised revenue by charging users a small premium price above the cost of SMS sent to the data centre. Based on 20,000 SMS queries, a total of about USD 2,500 in revenue has been ploughed back.

Could be replicated in other African and developing countries with active fisheries sector and with poor accessibility. The same can apply for other agricultural products such as crops and livestock.

### **Action Lines**

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C3.** Access to information and knowledge

### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 14:** Conserve and sustainably use the oceans, seas and marine resources

## Case 19- Ministry of Housing and Local Government (MHLG), Malaysia

### Title of the project, Contact Organization Name, Stakeholder type, Country

Moneylender Information System (i-KrediKom)  
Ministry of Housing and Local Government (MHLG)  
Government  
**Malaysia**

### Beneficiaries

The WSIS is an effective mechanism for publicizing effective and impactful projects that could be of use to different stakeholders. It provides a venue for knowledge exchange and partnership opportunities for the benefit of participants. In addition, it raises awareness on the WSIS action line for i-KrediKom which is directly linked to SDG Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable. This project shares the information needed to empower our citizen in making a right decision in their life, thus making the community safe and sustainable. At the same time, i-KrediKom also promotes SDG 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels. By utilizing the information shared via iKrediKom, the public has access to the right information and can participate in issues related to money lending operation by reporting any incompliance to the authorities. In the long term, this inclusive society will help the government to enforce the moneylending regulation more efficiently for a more effective, accountable and inclusive moneylending institution at all levels.

### Website

<https://play.google.com/store/apps/details?id=my.gov.onegovappstore.iKrediKom&hl=en&gl=US>

## Description

Global economic recession and pandemic spread results in many people losing their source of income. In order to continue with their life, they need some help in the form of additional money to either upstart their business, to start another job or just to get by. These needs bring them to the moneylender as they need the money fast but in small amounts without having to go through the rigorous filtering process of getting a loan from the bank. Most of the lower income group may not even qualify for a bank loan. This is where i-KrediKom comes in. When used as a faster means to validate the legitimacy of a moneylender's information, the public can avoid being conned into taking a high-risk loan by illegal moneylenders. By utilizing the mobile application, they are provided with a list of legitimate moneylender to choose from. Having the information of legally licensed moneylenders in hand means that they get to have reliable options for getting a loan to help with their financial predicament promptly, surely and safely. Despite being a simple mobile application, the i-KrediKom has high impact on the user's life in that it helps the user to get reliable, true and useful information on legal moneylenders promptly and safely, thereby preventing the user from falling prey to swindles or being conned by illegal moneylenders. By using the i-KrediKom mobile application, the user can also avoid from wasting time and money just to get the right information on legal moneylenders.

## ICT Tools

Government (MHLG) is serious in raising awareness regarding legal moneylending operations to protect the public from illegal moneylenders. This is in line with the United Nation's Sustainable Goal 11 (Sustainable Cities and Communities) and Goal 16 (Peace, Justice and Strong Institutions). The i-KrediKom mobile application allows users to easily search for information on any legal moneylender such as the moneylender's license expiry date, valid operating premises and contact details. Furthermore, the user can easily utilise the i-KrediKom's built-in map function for directions to their selected moneylender's operating premises. This helps users to easily identify legal moneylenders and avoid falling prey to loan sharks.

i-KrediKom can be easily downloaded from

GooglePlayStore

(<https://play.google.com/store/apps/details?id=my.gov.onegovappstore.iKrediKom&hl=en&gl=US>) and

Apple App Store (<https://apps.apple.com/my/app/i-kredikom/id1457648577>). This mobile application has been downloaded and used by more than 5,000 people and is actively used with more than 500 maps Application Programming Interface (API) usage per day.

In the near future, MHLG intends to coordinate more awareness campaigns for the use of this mobile application in order to reduce loan shark activities in Malaysia, thus providing a harmonized environment and community in our beloved nation.

### **Challenges / Partnership / Sustainability / Replicability**

The main challenge in this project was the task of preparing and making sure that all the information provided in the mobile application are up to date at all times. This issue was resolved by having regular monitoring on the enforcement process to make sure that all legal moneylenders are complying with the regulation and obligated to provide their latest information. From the technical aspect, the biggest concern was on the rising trend of cyber security incidences, which involves data breaches and confidential information leakages. As the mobile application accesses confidential data source, any information leakage would bring a negative impact to the government and to the legal moneylenders. In order to resolve this, security assessment is being done regularly to ensure that the mobile application is not exposed to any major security vulnerabilities, especially preventing unnecessary access to information. In the future, MHLG intends to have more public awareness campaigns for i-KrediKom mobile application to ensure that the public has access to the right information for their needs. Additional features for future enhancement includes a mechanism to validate the validity of the legal moneylender's operating license through i-KrediKom.

The Ministry of Housing and Local Government's Community Credit Control Division (CCCD) is the authority in regulating and controlling the business of moneylending in Malaysia based on the Moneylenders Act 1951, and thus is the owner of moneylenders information in Malaysia. The CCCD cooperates closely with the Royal Malaysia Police's Commercial Crime Investigation Department especially with regards to the enforcement and legal matters in maintaining the regulation and keeping abreast with information on the operations of legal moneylenders. At the same time, the CCCD also works closely with the Central Bank of Malaysia (CBM), which is the regulatory body that regulates the handling of moneylending transactions by moneylenders. This joint committee is very important to ensure that all details regarding moneylending operation are in accordance with the National Monetary Policy.

While the Ministry of Housing and Local Government's Corporate Communications Unit is responsible for planning and executing awareness campaigns for the i-KreditKom mobile application, and developing close relationships between MHLG, the media practitioners and citizens; the ministry's Information Technology Division is the developer responsible for the technical aspects of the mobile application.

Best effort has been made to ensure that i-KrediKom will always stay relevant and viable in order to ensure its sustainability. From the beginning, the system development activities were planned based on the open standard for data and using open source tool for its back-end technologies. Although the system uses enterprise open source solutions supported by international vendors, internal expertise were developed to ensure competent performance of all aspects of technical maintenance. i-KrediKom has ICT security protocols in place to ensure that it is well protected in the world of web technologies and online services. This

mobile application's security risks are reviewed regularly for all types of possible vulnerabilities in order to enable i-KrediKom to function securely and be able to manage security risks. The i-KrediKom data source is updated regularly by the regulator and the legal moneylenders as part of their conformance to the national Moneylenders Act in order to maintain their operating license legally. Furthermore, regular enforcement of the licensing regulation and operating procedure compliance by a special task force consisting of personnel from the Registrar office and the police will ensure that all data required for the functionality of this mobile application is always up-to-date and reliable. The i-KrediKom application blueprint was based on the Malaysia Public Sector Data Dictionary/Data Dictionary Sektor Awam (DDSA), which describes the standard code and data type to be used in an IT application. iKreditKom was also developed using open source technology environment which is supported by a large open source community in the world. The uniqueness of iKreditKom does not solely lie on its underlying technical elements, but also on its ability to provide convenience, improve accessibility and quality of interactions between citizens and businesses, as well as improving the information flow and processes within government departments for a speedier and better quality policy development, coordination and enforcement. By adopting the DDSA standard code and data type, this project can be easily adapted or used by any other entity. It can be widely replicated in any IT project by the public sector, industry, commercial and institution by following the same format and standard.

#### Action Lines

**AL C3.** Access to information and knowledge | **AL C5.** Building confidence and security in use of ICTs | **AL C6.** Enabling environment | **AL C7.** ICT applications: benefits in all aspects of life — E-government | **AL C7.** ICT applications: benefits in all aspects of life — E-business | **AL C7.** ICT applications: benefits in all aspects of life — E-science | **AL C10.** Ethical dimensions of the Information Society

#### SDGs

**Goal 1:** End poverty in all its forms everywhere | **Goal 3:** Ensure healthy lives and promote well-being for all | **Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation | **Goal 11:** Make cities inclusive, safe, resilient and sustainable | **Goal 16:** Promote just, peaceful and inclusive societies | **Goal 17:** Revitalize the global partnership for sustainable development

## Case 20 - Unified Public Transport Payment System, Azerbaijan

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Unified Public Transport Payment System  
Data Processing Center (DPC) of the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan.  
Government  
**Azerbaijan**

**Beneficiaries**

Benefits for Citizens: Single card is used for all types of vehicles, ability to use all NFC cards, for those who do not have a bank card, contactless, obtaining a bank card without going to the bank, discounts for special categories of citizens (disabled, pensioners, special privileged), extensive opportunities to increase the balance, ability to use QR code, payment by cards is more convenient, hygienic (especially during the COVID-19 pandemic), minimize the use of cash, possibility to use in other service areas (museums, bicycle rental, trade networks, etc.); Benefits for Banks: decreased contact during a pandemic, stimulation of electronic payments, increase in turnover on bank cards. Benefits for the Government: reduction of infection during pandemics, attention to people in the social category, transparency of tariff collection, ensuring transparency in tax collection, support for socio-economic security;

**Description**

"Unified Fair Collection System in Passenger Transportation" implemented in Shamakhi city (about 10% of the country's population). The project allows passengers to use bank cards and a "Prepaid" card minimizing contact, to pay for transport services (NFC technology), make all types of payments, and receive information about tourist facilities. The buses are provided with special NFC (Validator Velitek) devices and the system supports any bank card for paying. The system provides discounts through cards for persons belonging to special social groups (disabled people, pensioners, martyrs` families etc.). In addition, within the project taking into account the activities of banks in order to avoid accumulation of people during the pandemy, easily and non-contact obtained "Prepaid bank" cards were introduced to replace the bank cards.This card can be obtained in the branches and departments of two banks (Azer-Turk Bank OSC, Azerpost LLC), as well as, in devices (Vendomart) installed in different parts of the city. Besides the public transport, these cards are used as payment cards in the markets and in other places, where electronic cards are used. The project also for agencies responsible for passenger transport to track transactions in real time and receive reports.

## ICT Tools

"Unified Public Transport Payment System" is a complex system consisting of administrative (back-end) software that allows tracking, NFC devices (Validator Velitek) for reading payments on the buses and terminals (Vendomart) installed to obtain "Prepaid" cards and increase the account. The front interface of the system is developed with HTML, Javascript, Vaadin, back-end with Java11, Spring Integration. The database was developed using Oracle DB, PostgreSQL. The connection between the terminals (validators) and the single payment system is made by the server via the HTTPS protocol. User authentication of the TLS protocol v1.0, v1.1, or v1.2 is used to protect the exchange of information between terminals and the system. The connection is made from the "question-answer" mode. Queries enter the system as HTTP POST and GET queries. Queries are synchronous and asynchronous. The format of the answers returns to the validator in JavaScript Object Notation (JSON) format. The system authorization process allows passengers to touch the plastic cards to the appropriate authenticators to use the service provider's services. In this case, the validators send a message to the system about the transaction. One terminal can send messages about several transactions at the same time. The system can also receive several transaction messages from different terminals during one session. The structure of a permission message is similar to a standard ISO8583 transaction message. The message consists of a number and predefined fields. Each field has its own number and corresponding value.

## Challenges / Partnership / Sustainability / Replicability

The first problem with the application of the payment system was related to NFC devices (Validator Velitek) installed on buses. The fact that these devices are portable makes it possible to install them on other buses. This prevented accuracy in reporting. To solve the problem, a unique code was assigned to each validator and this code was combined with the serial number of the vehicle. The second problem was that many citizens did not use bank cards. To solve this problem, Azerid-Turk Bank OJSC's Prepaid bank cards have been introduced. This card can be obtained from "Azer-Turk Bank" OJSC, branches and departments of "Azerpocht" LLC, as well as from devices installed in different parts of the city (Vendomart). The minimum payment for the card was applied. The passenger can spend 50% of the card payment while using the bus. Citizens can then use Prepaid bank cards as a debit card. To stimulate the use of the cards, Mastercard users were given special discounts on travel, taking into account social categories (disabled, pensioners, people with social benefits). The scope of its use has been expanded so that more citizens can get the card. Using the InMart mobile application, it is possible to get information about tourism facilities, historical places of Shamakhi, to determine the route. To do this, you need to hold the camera, which is opened via the mobile application, on the Prepaid card. Banks, logistics companies, tourism companies and facilities, private and public transport agencies, companies implementing smart solutions in the transport sector and district

executive authorities can act as partners. The system is in the interest of travel agencies, companies that provide transportation services to schools and workplaces, and taxi companies. At the same time, one of the main target segments is the logistics services of government agencies. The model of the system, which can be integrated into any infrastructure, allows integration into various portals. It is possible to integrate this system into the payment system of all public transport.

Cashless payments with plastic cards will continue to be used as a means of payment for a long time. In the future, even if this process is replaced by bitcoins, it will allow to improve the structural program on which the system is built. When developing the system, the possibilities of integration into any electronic infrastructure were taken into account.

“Unified Public Transport Payment System” is a joint project of the Data Processing Center and the Executive Power of Shamakhi city. Shamakhi is the capital of the Shamakhi District of Azerbaijan Republic. Its area is 1670 km<sup>2</sup>, and the population is 107,3 thousand people (about 10% of the country's population). The purpose of the project is to ensure the transition to digitalization in the country and at the same time to minimize physical contact in a pandemic (Cov-19). This project can be replicated for the other regions and cities. Integration into any electronic infrastructure was also taken into account during the development of the system. The system model allows integration into any portal. It is possible to make any changes to the system. Depending on the variety of routes and payments, any tracking of the system is possible. It is also possible to use filtering in any way, depending on the type of data to be registered.

**Action Lines**

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

**SDGs**

**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation

**Case 21- ThinkTech initiative, Saudi Arabia**

**Title of the project, Contact Organization Name, Stakeholder type, Country**

ThinkTech initiative  
 Ministry of communication and information technology  
 Government  
**Saudi Arabia**



**Beneficiaries**

Saudi Arabia – all regions

**Website**

<https://thinktech.sa/about/>

**Description**

ThinkTech is an umbrella for strategic awareness projects in the Kingdom of Saudi Arabia launched by the Ministry of Communication and Information Technology to anticipate the latest technology and cover the technical Knowledge needs for all speakers to achieve Saudi Vision 2030 in digital transformation, Therefore, to empower the local and global talents amid the unexpected Corona pandemic, Think Tech which is an initiative by the Saudi Ministry of Communications and Information Technology that aims to raise awareness when it comes to technologies, decided to launch a series of online meetups, where more than 50 virtual Meetups (webinars) and had an audience of more than 5 million from more than 60 countries around the world. The topics of these technical events varied, including women's empowerment, Entrepreneurship, the nonprofit sector, the gaming industry, and many other topics. The topics covered were addressed to top executives, business owners, parents, and kids.

**Challenges / Partnership / Sustainability / Replicability**

Overall, the pandemic accelerated digital transformation and dependence on remote work. Technology adoption increased exponentially across all sectors. What we did at Think Tech was to enlighten people on the various uses of technologies and their importance in shaping the future whilst staying safe during the quarantine period. The 180+ guests who were hosted in these Virtual Meetups helped the attendees better understand the situation and better adapt to the technologies that best fit them.

yes sure, we have many existing partnerships that support the goals of the initiative and we always aspire to more partnerships that support and achieve the desired goals of the initiative

ThinkTech initiative has many programs throughout the year that serve to spread knowledge in emerging technologies (artificial intelligence, internet of things, blockchain and cloud computing...etc.) Think Tech has created a community that is well aware of the technologies around them and that can always come back to Think Tech for answers and access to specialists in the technological fields they want to empower/develop. Moreover, Think Tech will continue to support those who look for better adoption practices with the best experts in the field of technology. Moreover, the initiative is accessible to all

members of the community who are interested in emerging technologies. This non-profitable initiative provides the community with the information to enhance their knowledge in the latest technologies to cope up with today's rapid technological advancement. The Think Tech initiative depends on partnerships with multinational and local companies as well as the public sector. Those partnerships provide highly qualified experts in emerging technologies who deliver vital knowledge to the community. The ThinkTech platform aims to spread awareness about emerging technologies around the world; the initiative platform can access all over the world, and the physical training courses and workshops can be set up anywhere. Therefore, our case can be applied in other countries with different scenarios.

### Action Lines

**AL C3.** Access to information and knowledge|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C7.** ICT applications: benefits in all aspects of life — E-employment|**AL C7.** ICT applications: benefits in all aspects of life — E-environment|**AL C8.** Cultural diversity and identity, linguistic diversity and local content|**AL C10.** Ethical dimensions of the Information Society|**AL C11.** International and regional cooperation

### SDGs

**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 16:** Promote just, peaceful and inclusive societies|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 22 - AITI Business Continuity Plan for COVID-19

### Title of the project, Contact Organization Name, Stakeholder type, Country

AITI Business Continuity Plan for COVID-19  
The Authority for Info-communications and Technology Industry of Brunei Darussalam (AITI)  
Government  
**Brunei Darussalam**

### Beneficiaries

AITI employees and relevant stakeholders such as customers, vendors, licensees, dealers and ICT businesses. The BCP was prepared and develop to ensure that the critical business functions continue and the needs of the customers and stakeholder are address accordingly.

#### Website

<https://www.aiti.gov.bn>

#### Description

It is a guideline for the preparation and prevention of COVID-19 in AITI that needs to be implemented according to the directions of the Prime Minister's Office. It is also to assist the AITI Management in the business continuity planning in response to the COVID-19 outbreak.

#### ICT Tools

Microsoft Teams, VPN and AITI Online Services. It encourages the employees to utilize the ICT Tools and online platforms more in conducting business operations. This also provides an opportunity to review the current process and test the durability of current online system and services.

#### Challenges / Partnership / Sustainability / Replicability

- Internet connectivity for Customer Services front-liners when scheduled to Work from Home (WFH) to ensure business operations are uninterrupted for for licensees and dealers applications. The unit is provided with Internet Broadband for this purpose.
  - Adequate supply of medical equipment for front-liners (e.g. thermometers, surgical masks and disinfectant). The relevant units had contacted various vendors to procure and secure the order as the stocks are very limited at the time.
- The Prime Minister's Office had prepared a document on the Guideline for Business Continuity Plan on COVID-19 for Civil Service.

#### Action Lines

**AL C2.** Information and communication infrastructure

#### SDGs

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

## Case 23- COVID-19 Laboratory Information Management

# System (LIMS) and setting up of a passenger LIMS at Seewoosagur Ramgoolam International Airport to test incoming passengers for COVID-19

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
COVID-19 Laboratory Information Management System (LIMS) and setting up of a passenger LIMS at Seewoosagur Ramgoolam International Airport to test incoming passengers for COVID-19 Central Informatics Bureau Government <b>Mauritius</b>
<b>Beneficiaries</b>
<p>The primary beneficiaries of the COVID-19 LIMS and Passenger LIMS laboratory for COVID at the Airport are as follows: -</p> <ul style="list-style-type: none"><li>• Citizens</li><li>• Communicable Disease Control Unit (CDCU)</li><li>• Regional Hospitals / Flu Clinics</li><li>• Prime Minister's Office (PMO)</li></ul> <p>The setting up of COVID19 LIMS at the CHL and Airport involves the timely delivery of citizens report for COVID through email and SMS. Incoming passengers to Mauritius and citizens, upon request receive a COVID test certificate from the Ministry of Health and wellness (MoHW). Once a passenger or citizen is tested detected for SARS-CoV-2 (COVID-19) RNA, a copy of the report is delivery electronically to the CDCU. The CDCU takes charge of the patient for transferring the latter to an approved treatment center for the MoHW. This unit is also responsible for contact tracing activities and track other citizens who may have come into contact with this patient and to undergo a COVID-19 test. The contact tracing has been very effective in Mauritius to curb the proliferation of COVID-19 in the community. As from early March 2020, a high-level committee chaired by the head of government was set up to take stock on all issues in relation to the COVID-19 pandemic on a daily basis. The Director of the laboratory produces daily statistics, reports, number of tests completed, detected, not-detected, by age, gender etc. from the LIMS on a daily basis. The LIMS support testing of patients, surveillance and outbreak response. These data are valuable to the CHL for monitoring deaths and outbreaks, distribution of workload across regional hospital laboratories, quality assurance and are of significance to epidemiological prevention and control programs. LIMS has also been used to access patient data at multiple regional hospitals, area health centres &amp; community health centres to support patient care.</p>

## Website

<https://lims.govmu.org>

## Description

To respond to the COVID-19 pandemic efficiently, it was critical to have accurate and timely diagnostic data on the infectious disease. Rapid turn-around of diagnostic results was essential to inform clinical management and public health contact tracing. An electronic Laboratory Information System which would allow storage, retrieval and processing of laboratory tests data was required.

In this context, the UNDP proposed to Government of Mauritius to avail of the OpenELIS Global Software which is an open-source product. OpenELIS software is a version of a Laboratory Information Management System (LIMS) from the Digital Initiatives Group at I-TECH (DIGI) which was originally deployed in Côte d'Ivoire for HIV. OpenELIS has been developed for public health laboratories as both an effective laboratory software solution and business process framework and it supports the effective functioning of public health laboratories.

With the assistance of the UNDP Mauritius, a team from the CIB downloaded the OpenELIS software to the government cloud hosted at the Government Data Centre. OpenELIS has been adapted and customised by a team from the University of Washington to meet user requirements for the COVID-19 LIMS for Mauritius. The software which is a web-based application is accessible through a Wide Area Network at all regional hospitals, flu-clinics, treatment centre and quarantine centres in Mauritius.

The figure 1 below shows the home page for the COVID-19 LIMS. The Government of Mauritius has setup five (5) flu-clinics at each of the 5 regional hospital to segregate citizens suffering from any types of flu, from other out-patients. The flu-clinics takes respiratory swab samples from citizens and register the patient data together with the specimen sample which is labelled with a barcode, on the COVID-19 LIMS. The specimens are then sent to the Central Health Laboratory on the same day for the PCR testing. The equipment has been interfaced with the LIMS system such that once the tests are completed, the results are readily available to the respective flu-clinics/regional hospitals as depicted at figure 2 below.

Figure 2: Network connectivity between flu-clinics, Test & Treatment Centres The barcoding of specimen helped in identification of samples, meeting quality standards, decreasing transcription errors and most importantly reducing turnaround time from specimen reception to reporting of results and improving patient outcomes.

This has led to an improvement in the management of PCR tests, from 500 to 1,000 per day. As at date, the system has registered more than 100,000 citizens who have taken the PCR tests and their results in the Database.

This project has gained two international recognitions inter-alia:- 1. Global Centre for Technology, Innovation and Sustainable Development in Singapore where an article was published as mentioned hereunder:

“How open source made a difference in Mauritius’ pandemic response”

The article could be access on the following link:  
<https://sgtechcentre.undp.org/content/sgtechcentre/en/home/blogs/open-source-digital-toolkit-mauritius-openelis-undp-global-centre-singapore.html> 2. Chasing COVID-19, A Story of Digital Transformation

The article was published in UNDP website.  
([https://www.mu.undp.org/content/mauritius\\_and\\_seychelles/en/home/blog/2020/chasing-covid-19---a-story-of-digital-transformation.html](https://www.mu.undp.org/content/mauritius_and_seychelles/en/home/blog/2020/chasing-covid-19---a-story-of-digital-transformation.html))

## ICT Tools

The OpenELIS coreTechnologies/ ICT tools that have been used are as follows: - •

Operating System: - Linux Ubuntu • Web Server: - Tomcat • Application

Server: - Apache • Programming Language:- Java Spring, React, Hibernate, Docker, JSP,

Liquibase, Maven • Database:- PostGRES • SSL certificate. • Reporting tools :-

Sormas, Japer for problem reporting & resolution • Replication Technologies:- FHIR

The use of COVID-19 LIMS at the CHL has required a complete business process re-engineering to adopting an innovative, digital workflows. The new LIMS workflows focus on the main processes inter-alia:- • Track laboratory information during the testing

process (from specimen registration to reporting) • Collect, store, archive and analyze

laboratory data • Report test results for patient care • Report data to laboratory

administration, Prime Minister’s Office, Ministry of Health & Wellness & other agencies for contact tracing. The implementation of OpenELIS at the CHL has allowed diverse systems

to communicate through the use of common data standard. The commonly used standard for laboratory data at international level include:- • Logical Observation Identifiers

Names and codes (LOINC) • An information Interchange/messaging standard (Health Level 7) • A universal standard for identifying laboratory observations, developed by

Regenstrief Institute. OpenELIS has been written on modern frameworks with a significant IT security upgrade. This software has been certified for use on US Government,

and other high-security networks. OpenELIS Global is now in full compliance with the WHO's Stepwise Laboratory Quality Improvement Process Towards Accreditation (SLIPTA) checklist. OpenELIS added a FHIR R4 based API for electronic test orders and results reporting. We have a FHIR API which allows OpenELIS Global to accept electronic test requests, electronic transmission of test results and allows the use of a centralized consolidated lab data server for reporting. This interoperability uses LOINC to match ordered tests with the internal catalog.

### **Challenges / Partnership / Sustainability / Replicability**

With the outbreak of the Covid-19 pandemic, an Electronic Laboratory Information System was urgently required by the Ministry of Health to cater for the pressing need of Central Health Laboratory to respond to the outbreak and improve clinical decision making and quality of care. Availability of timely and up-to-date statistics was crucial in order for Government to make data-driven, population-level public health decisions. Due to lock-down, an extreme condition was prevailing which, the whole world has never witnessed before. In this context, rapid procurement of such a system from local service providers who have experience and domain knowledge was very difficult. A high-level committee chaired by the head of government on a daily basis had approved the implementation of the project using OpenELIS. A team had set-up involving staff from different ministries and departments. Approvals had to be sought from different heads of ministries which added additional responsibilities on the team. WhatsApp groups had been created to solve administrative/technical issues and allocate pending tasks to staff to expedite pending/blocking activities. A team of Programme Managers from the CIB, downloaded the OpenELIS from I-Tech to customize the LIMS to meet the requirements for the CHL. During that period, the majority of civil servants were on lockdown and this project required ICT staff for the deployment of the system at the Government Data Centre. Video conferencing solutions had been used by the team for the installation, configuration and customization of the OpenELIS. User requirements were gathered through Webex from users to ensure the LIMS met the requirements. After successful installation of the online version of OpenELIS, online training on Webex had to be devised and delivered. These trainings were also recorded for future use/reference.

The CHL charges a fee for the different services they provide to citizens in relation to testing of specimen emanating from private hospitals. Presently, the CHL is generating around Rs10M yearly and with the implementation of the National LIMS, this sum could be drastically increased. The fund could also be used in the running cost and maintenance cost of the project. Currently, given the implementation of the OpenELIS at the Airport, the Government is charging incoming passengers mandatory additional costs for quarantine and PCR tests, thus ensuring that the Laboratory is self-sustaining. The LIMS project is sustainable and scaleable. COVID LIMS being a successful project, the Government has entered into a cost-sharing agreement with UNDP Mauritius to extend the COVID19 LIMS into a National public health laboratories for all regional hospitals. This

project is being implemented by University of Washington team, which includes Digital initiative Group at I-TECH for a 2-year period. Furthermore, additional funds is being earmarked to plan for ICT human resources for LIMS deployment locally, provide in-house capacity building, maintenance and ongoing support to each regional hospital which is critical for the project success. The plan is to build a strong team with local expertise which would reduce costs, response time for troubleshooting and further improves sustainability. The OpenELIS has been developed using open source ICT tools & technologies and hence, no licensing cost involved. This is what has made the solution viable for the government in the long run. Moreover, an online community already exists under the OPEN ELIS Global through which peers share ideas and ways and means to improve the tool and allow others to benefit from it. As per question 25 of this form, we would like that this project be entered in the next edition of WSIS Prizes contest. The WSIS form has already been submitted for this project.

The project has already been replicated successfully with the setting up of a new COVID-19 laboratory at the SSR Airport in Mauritius to test incoming passengers to Mauritius. The laboratory is already operational. Incoming passengers should register on the following address <https://safemauritius.govmu.org/> to pre-register for a covid-19 test at the Airport. A phased approach has been adopted for the deployment of the OpenELIS with careful consideration given to user requirements. The flexibility of OpenELIS to improve the original solution with more features and capabilities than the baseline version originally deployed has created value for the LIMS. The LIMS should be continuously enhanced to accommodate new/missed-out functionalities from previous phases and priorities, solve any issues discovered post-rollout and leverage upgrades as part of further enhancing the final product. Mauritius has customized the OpenELIS into a COVID-19 LIMS and is now replicating the LIMS into other regional hospitals departments (Biochemistry, Hematology, Virology, serology etc..) into a full-fledge public health national laboratories. The LIMS has already been successfully deployed in Côte d'Ivoire for gathering patient data for HIV. During the lock-down, UNDP Mauritius has informed the Central Informatics Bureau that Seychelles also wants to implement such a COVID-19 LIMS for their national laboratory. The OpenELIS LIMS is a Global's initiative that incorporates a community-focused approach to develop open source and customizable LIMS systems specifically designed for low-resource settings. The end result is a powerful, flexible system that provides shared benefit across users and programs.

#### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-health

#### SDGs



**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 24 - Madrasati Portal, Saudi Arabia

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Madrasati Portal  
Ministry of Education  
Government  
**Saudi Arabia**

### Beneficiaries

**Students** Students interact daily with their teachers through synchronized and asynchronous virtual classrooms with an average of 1.2 million virtual lessons on Madrasati. It includes the student's schedule, message box, alerts box, learning resource room, personal data, community connections' channels, events and calendar, courses, self-assessment, enrichment bank, teachers' room, reports, statistics, questionnaires, announcements, and electronic tests.

**Principals** Principals manage the academic schedule, reports, assignments, statistics, and teacher and student data. They oversee assessment, courses, and announcements; they also are responsible for supporting roles, communicating with school employees, and modifying educational enrichments and personal data. In addition, principals add posts, school activities, surveys, and instructions for the first virtual lesson.

**Teachers** Teachers are in charge of the school interactive community, announcements, reports, tests, activities, calendar and events. They manage personal data, assignments, question banks, course grades, instructor courses, questionnaires, roles, statistics, communication tools, as well as fun education tools. Teachers also provide educational enrichment, educational support, paths of fellow teachers, and educational paths and their contents. In addition, they are responsible for authoring and reviewing lessons, hosting interactive meetings, presenting classroom and enrichment lessons, and giving instructions for the first virtual lesson.

**Educational Supervisors** Supervisors have the duties of supporting supervisee teachers using the LMS, performing quality checks, evaluating and monitoring teacher performance. They also oversee teacher enrichment, evaluation of teacher lessons, communication with teachers, reports and statistics, and instructions for the first virtual lesson.

### Website

<https://schools.madrasati.sa/>

### Description

Madrasati is a national educational portal with two main educational components: first, it's an innovative learning management system called Madrasati; and second, it's an E-learning supportive website named Back to School. Both provide a range of diverse educational services and educational digital content, facilitating for 6 million students; 500,000 teachers; 19,000 school principals; 8,000 supervisors; and 2.8 million parents to access and learn through educational resources, tools, and services in an attractive way free of charge with high-quality standards.

Madrasati provides multiple educational tools to support the planning and implementation of the educational processes through synchronized and asynchronized virtual classes and meetings. The platform also offers e-assignments, discussion forums, electronic questionnaires, multiple lessons in 21st century skills such as, programming and STEM education. In addition, there are various educational resources in the content management system CMS, such as visual videos, augmented reality, 3D resources, educational stories, and e-books on educational curricula approved by the Ministry of Education (MOE). The platform provides students with multiple tools to actively participate and interact with their peers and their teachers. Discussions tools are supported with collaboration by channels such as Microsoft Teams and official e-mails and Microsoft Office 360 software.

Our LMS portal work as an important facilitator for all educational staff and students in "Covid - 19" crisis because the system present a quick and effective solution for educating, communicating, evaluating between the main roles in any education operation for K12 domain(Schools Principles, Teachers, Students, and Parents).

### ICT Tools

The MOE integrated innovative ICT tools and services in designing the system infrastructure to ensure the system's continuity and to accommodate the huge number of beneficiaries. The system infrastructure is based on Azure Cloud technology supported through technical containers to allow the system's expansion and enhancement of its efficiency and capacity.

The database was broken down by services to ensure algorithms' distribution of resources using Artificial Intelligence while activating a number of database backups supported with service and network firewalls. The system also included a performance-monitoring

dashboard to generate data and reports with indicators to monitor users' performance. Further, the LMS included multiple educational tools and services supported with other integrated content a) educational content broadcasted through iEN YouTube channel that provides recorded lessons, b) interactive content, resources, and tools from MOE repository integrated within Madrasati in the backend of the LMS, and c) 365 Microsoft applications that include Teams, e-mail, forms, and OneDrive with 1 TB storage for each user. This project is part of the Kingdom's Vision 2030 that aims to create sustainable digital services, accelerate digital transformation across various sectors, increase digital content and its contribution to the digital economy, and promote a culture of innovation.

### Challenges / Partnership / Sustainability / Replicability

Among the main challenges encountered are a shortage of devices among disadvantaged students, weak Internet connection, and low Internet coverage in some rural areas. The MOE made efforts in coordination with other governmental bodies such as the Ministry of Communications, the Ministry of Trade, and the Takaful Charitable Foundation in supporting students by providing devices and Internet connection. Another prevalent challenge is the level of digital skills among teachers and supervisors and the need to upskill and reskill educators to enhance their digital competencies. A professional development plan that covers all required knowledge, skills, and values for teachers to succeed in teaching with technology has been developed and supported with a plan raising-awareness through workshops and webinars. The MOE implemented a management plan and provided a comprehensive portal for that initiative of more than 300 instructional and training materials with various topics on digital teaching skills.

"The MOE through this project has national and international strategic partnerships with multiple entities for the purpose of improving and sharing best practices and evaluating efforts and solutions of E-learning through Madrasati. Private Sector:

- Tatweer Educational Technologies Company (TETCO), which has several partnerships with local and international companies such as PEARSON, EF Education First, United SIGONG Media, MM Publication, Macmillan, McGraw-Hill
- T4EDU Company

- Microsoft
- International Organizations:
  - The Arab Bureau of Education for the Gulf States (ABEGS)
  - The World Bank (WB); the United Nations Educational, Scientific and Cultural Organization (UNESCO); the Organisation for Economic Co-operation and Development (OECD); Online Learning Consortium (OLC); and Quality Matters

The Ministry is also looking for international partnerships with international virtual schools operating through innovative operating models, international organizations, non-governmental organizations (NGOs), and the private sector"

"Madrasati is a nationally developed and owned project and can be used and reused for multiple purposes. It provides a wide range of services for beneficiaries free of charge with high-quality standards that cover the whole spectrum of teachers and students. • It provides unlimited opportunities of both synchronized and asynchronous teaching and

learning supporting both blended and distance education. • It effectively links the three main components of the learning system: teachers, students, and content. • It enables flexibility and cloud-based content. • It provides continuous evaluation and improvement as part of the ecosystem. • The portal is one of the executive policies for the education development plan in the Kingdom, which has been proven to achieve the education and technology blending goals. • It provides digital transformation of learning tools, resources, and services that cover all teachers, students, parents, school leaders, and education researchers around the world. • The portal provides diverse tools and resources to achieve best education outcomes; it is free to access through different devices. • Education is provided for all students inside and outside of the Kingdom. Education is also provided for elders who have enrolled in illiteracy programs and for special need students at any time convenient for them"

The Madrasati project is capable of being replicated in multiple contexts with sufficient ICT infrastructure. The Ministry is planning to replicate the Madrasati Virtual School model with an English version for International schools in Saudi Arabia. Another version will be developed for lifelong learners and illiterate elderly students, and a version will be available for the new high school system of learning paths. Overall, the platform is replicable to fit and serve the needs for different types of beneficiaries.

#### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-learning

#### SDGs

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

## Case 25 - Learn from Sky and at home

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Learn from Sky and at home  
Ishan Institution  
Government  
**Bangladesh**

#### Beneficiaries

Parents and their children can learn by watching this project. Children will be able to stay

healthy from home and develop their talents by playing this game without wasting their time.
<b>Website</b>
<a href="https://ishaninstitution.edu.bd">https://ishaninstitution.edu.bd</a>
<b>Description</b>
Stay at Home. Share with social media. Child stay at home they take care their health and nutrition. So Let the house in Corona be an open stage for the development of the child's talent.
<b>ICT Tools</b>
Laptop, Mobile, Internet
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenge: Mental development can be hindered, it can be dealt with. Children will take care of their health Corona has affected the whole world. So it is for everyone in Bangladesh. Following this project will help the mental development of the children of the country. Otherwise they will feel monotonous.
<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development
<b>SDGs</b>
<b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

## Case 26 -The Building Information System (BIS)

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
The Building Information System (BIS) The State Construction Control Bureau of Latvia (SCCB)

Government <b>Latvia</b>
<b>Beneficiaries</b>
Stakeholders in the Latvian construction sector, public authorities (incl. institutions supervising construction process), local governments and business organisations involved in the drawing up and coordination of documentation of the construction process. Also every owner of real estate located in the territory of Latvia, a resident or non-resident of Latvia, local/foreign company, investor.
<b>Website</b>
<a href="https://bvkb.gov.lv/en">https://bvkb.gov.lv/en</a>
<b>Description</b>
Since 1 January 2020, the processing of construction documentation in Latvia has become completely digital. All the administrative documentation necessary for the construction process – from the coordination of a construction conception to the commissioning of a structure – is only processed electronically in the Building Information System (BIS) established for this purpose. During the period when on-site services provided by public authorities became inaccessible due to the COVID-19 restrictions, the System ensured continuity of the work of the Latvian construction sector and continuous accessibility of remote consultations for users of the System, and also training of the BIS user groups was continued in the acquisition of the new functionality online.
<b>ICT Tools</b>
E-signature and authentication options have been integrated into the BIS enabling it to identify each user individually, as well as to coordinate, sign and issue legally valid documents. The System has also been integrated with 15 other databases of public authorities, thus offering its clients fast, user-friendly, automatic and precise data selection for drawing up any application or document, and re-use of the existing national data. The BIS has also been adapted to the needs of non-residents and foreign companies.
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: The main challenges encountered by the State Construction Control Bureau (SCCB) in the early stage of the COVID-19 pandemic (in March and April) constituted a tenfold increase in the number of users of the System, as well as an increase in the number of construction cases. Over a short period of time the Bureau had to re-plan the initiated training and information activities for clients. The team, however, responded very quickly

and extended the Support Service, as well as ensured achievement of project results providing training and other information activities online, whilst at the same time contributing substantially to the promotion of computer literacy of clients.

Partners: The SCCB would be happy to share its expertise in the operation of the developed BIS functionality, as well as improve its knowledge not only in the performance of monitoring and supervision of the construction process, but also the provision of other functions of the SCCB, such as that in the energy sector.

Replicability: This project is not replicable, as operation of the System has been adjusted to the existing legal framework. Pursuant to the Construction Law of the Republic of Latvia, starting from 1 January 2020, each new construction conception shall only be registered electronically, namely in the BIS.

Sustainability: Sustainability of the project will be ensured, as the use of the BIS is the only lawful way to perform administrative proceedings related to the construction in Latvia.

#### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-government

#### SDGs

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all| **Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation| **Goal 12:** Ensure sustainable consumption and production patterns| **Goal 16:** Promote just, peaceful and inclusive societies

## Case 27 - Qualifications (Moahal), Saudi Arabia

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Qualifications (Moahal)  
Ministry of Education  
Government  
**Saudi Arabia**

## Beneficiaries

"Qualification project provide many benefits to the following beneficiaries: - Graduated students to verify their qualifications. - Universities and higher educational institutions to access and process new and modification requests on students' qualifications. - Government and private sectors to search qualifications and calculate statistics need for decision making. The qualification project provides the following services through an online portal: - Allow the user (student) to create an add qualifications request. - Allow the user (student) to create a modify qualification request. - Allow the qualifications provider representative (university) to approve or reject qualification requests created by users. - Allow authorized third-party members to search for qualified people based on their employments needs. The main benefit is to provide an online access for graduated students, educational institutions representative and authorized members to review, verify and inquiry qualifications. This process provides a trusted source of verified and reviewed qualifications to prevent any fraud attempts, facilitates employments processes and provide a way for qualification providers (universities) to search for academic qualification history to facilitates students' admissions process."

## Website

<https://jameah.moe.gov.sa/>

## Description

Qualifications is a project aims to provide an online verification service for academic certificates in a convenient way. Specifically, it allows graduated students to add or request modifications on their qualifications certificates through one service integrated with Saudi universities and educational institutions. Additionally, it provides a convenient way for these educations and qualifications providers to apply modification and addition on their servers once approved. Currently, the service is connected to 28 government universities, 33 private universities and 4 educational institutes which have a live listening connection to the updates applied on their servers. The service provides a two-way certificate verification, where the students must provide a prove of data integrity and then the certificate provider must approve the request. This approach minimizes the paperwork needed to verify qualifications. Moreover, the service provides a verified data source for third party users such as employers or universities to verify students' qualifications, which facilitates the employment process and student admissions. In additionally, the project provides the authorized people from government and private organizations to easily find qualified people for employment purposes and can help in decision making that relate to



open and close majors based on the number of qualifications.

### ICT Tools

"• IIS – Web Server • ASP.NET - Microsoft web platform • WCF - Windows Communication Foundation • HTTP – Hypertext Transfer Protocol • MVC5 – Model, View and Controller pattern based on Microsoft implementation • MS - SQL – Microsoft database server, relational database management system (RDBMS) • ServiceNow – Support system • IDM- Identity Management that manage SSO • NIC- National Information Center • DMS – Document Management System. • Entity Framework 6.2.0 • Java • Dapper 2.0.35 • Knockout JavaScript library v3.4.2 • jQuery JavaScript Library v1.10.2 • Select2 JavaScript Library • AutoMapper 9.0.0 • Plupload JavaScript Library 2.3.3 • Microsoft Owin • Bootstrap v4.3.1 • eModal.js v1.2.6 • PEGA PRPC 7.3.1"

### Challenges / Partnership / Sustainability / Replicability

"There are many challenges during the implementation of this service including: • Integrating with a variety of data sources and different student Information systems. • Applying data validation on the received data to assure data quality. • Contacting universities and higher education institutes representatives and coordinate with them to nominate authorized people to process the application requests. • Follow up with requests and data changes to assure that the updates reflect the required change. • Ensure that the data processes and migrations does not affect the performance of the client-side portal since we are working with big data and heavy process."

"The qualification project is sustainable by serving all higher educational institutes in Saudi Arabia (28 government institutes, 33 private institutes and 4 institutions of higher education) and graduated students from these institutions. Additionally, it provides benefits for graduated students, educational institutions and authorized members. The following benefits are a proof of the sustainability: • The project is currently serving many universities and institutes and provides an online access to all qualifications through secured web portal. • The project benefits are distributed to different clients where it provides

services to universities and institutes to inquiry qualifications and track students' academic qualification history between universities and provides a way for employers to verify employees' qualifications.

- The project replaces the old way of tracking students' qualifications through universities admission centers with a one centralized data source that even facilitates government educations statistics.
- The project helps to easily find qualified people which increases the likelihood of employment and provide the government with a way of easily target specific projects and fields to invests in based on the local qualifications and manpower.
- The project helps the government in decision making by easily calculate statistics on the centralized data rather than requesting statistics from every data source (universities and institutes)."

**Action Lines**

**AL C3.** Access to information and knowledge

**SDGs**

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all | **Goal 16:** Promote just, peaceful and inclusive societies

## Case 28 - The Virtual Labor Market Platform, United Arab Emirates

**Title of the project, Contact Organization Name, Stakeholder type, Country**

The Virtual Labor Market Platform  
 Ministry of Human Resources and Emiratisation  
 Government  
**United Arab Emirates**

**Beneficiaries**

"According to the Business Continuity Plan of the Ministry of Human Resources and Emiratisation to support the stability of the labor market, the continuity of providing government services in light of supporting the government's policy in achieving social divergence, ensuring the stability of the labor market and ensuring protection of the rights of both parties to production in a way that contributes to enhancing the efficiency of the labor market in the country through the labor market platform, so that:

1. The virtual labor market platform provided the opportunity for expatriate job seekers to register on the

platform and get an opportunity to match their competencies / skills with work permit applications by the establishments in light of the suspension of the recruitment of workers from outside the country, which allowed the establishments to continue their work. In addition to reducing the operational cost, as the number of registered workers in the platform reached 43,639 workers. The total number of migrant workers in the labor market during the first half of 2020 reached 126,142 workers. Which also allowed workers to amend their legal status in the country by registering them as a job-seeker in case they were affected by the precautionary measures of the crisis, which led to the level of satisfaction of employers with the policy of transition in the labor market to 80% for the year 2020. 2. The innovative practices of the platform received great interest from local and international parties, as these practices, experiences and information were published and shared with various parties, internally and externally, as the Ministry worked on developing and implementing a marketing and media plan through all official communication channels and the Ministry's accounts in the social media, as well as the Ministry's departments from joint meetings with government agencies to discuss government cooperation and integration in providing virtual labor market services, which had the effect of requesting some authorities to activate new services, such as a request to create temporary work permits that support the government's policy to reduce loose workers such as the Ministry of Interior - General Administration of Nationality and Residency - The Loose Labor Committee and several other bodies such as the Chamber of Commerce, the General Administration of Identity and the Economic Departments"

#### Website

<https://careers.mohre.gov.ae>

#### Description

Following the fourth industrial revolution, MOHRE strategic plan for smart transformation and as part of the overall initiatives taken by UAE to limit the effects of the emerging coronavirus pandemic on the economy and labor market, MOHRE launched Virtual Labor Market Platform as pilot project in October 2019. It aims representing a channel for providing quality government services, attracting qualified people and protecting their rights and duties through a smart government platform that covers the shortcomings of private virtual sites that exploit the worker's need in the search for decent work, especially in cases of global crises and disasters. An innovative platform to provide employment services to job seekers and companies used artificial intelligence, which facilitate the process of matching between job requirements published by companies and job seekers files to achieve the aims of connecting the two parties in an interactive way. The virtual labor market platform aims to re-employ unemployed workers within the country, in order to support

national efforts in maintaining public security in cases of worker strikes, and to serve the policy of job seekers, and to search for competencies in companies wishing to hire through a reliable federal government umbrella that takes into account.

### ICT Tools

"The platform contributed to enhancing the use of smart electronic services in order to achieve government directions and enhance the country's position in the use of technology and innovation, which will be reflected in the global competitiveness index, which considers innovation and technology one of its pillars, in which the UAE ranked 25th in 2019. The virtual labor market platform system is characterized by the presence of technical and service features according to the latest standards to meet the requirements of the stakeholders (workers, facility owners, the ministry, legal and regulatory requirements) where:

1. The platform is employing artificial intelligence techniques in determining the suitability between the requirements of the job seeker and the needs of employers in terms of experience and job requirements
2. The platform analyzes and reads the detailed data of all workers registered on the platform, as it analyzes the approved requests in terms of the number of requests based on different nationalities, the distribution of requests to regions according to the emirate within the UAE and the classification of professions according to demand and supply in addition to the total number of advertised jobs and the number of employment of the skilled people who applied to fill these jobs, data on recruitment processes, the number of companies registered on the platform and the most active sectors for employment operations
3. Creating an electronic mechanism that supports the government's policy in achieving social distancing by providing the feature to submit employment applications through a 30-second registration link in which the worker is introduced to himself, his qualifications and experiences
4. Providing the feature of direct TV interviews between the employer and the job seeker without the need to move or an oral interview at the workplace.
5. Activating the registration feature on the platform continuously throughout the week and holidays, in addition to providing a technical support team to respond to inquiries so that it does not exceed the strategic indicator in responding to the comments and inquiries of customers, given the suspension of services in federal and private service centers and the prevention of work permit requests from outside the country and for strengthening The government's policy to recycle these competencies within the state
6. Providing the ability to receive collective requests for registration on behalf of companies to submit the registration request for troubled companies"

### Challenges / Partnership / Sustainability / Replicability

"The virtual labor market platform shall aim to achieve the global competitiveness of the United Arab Emirates, as it is concerned with attracting specialized international competencies and employing them in the labor market in line with the rapid growth of the economy in the country in which there are huge global companies estimated at 350

thousand establishments and the number of not less than 5 million workers an expatriate registered in the Ministry's database, which requires the development of electronic government platforms that attract and maintain the competencies in the country and ensure the flexibility of their transfer from one facility to another in all circumstances, so that it contributes to each of the following: 1. Providing a reliable federal government umbrella that takes into account the interests of production parties. 2. Enhancing companies' capabilities in searching for their labor needs in a shorter period. 3.

Reducing the operational cost of the recruitment and recruitment of expatriate workers to companies. 4. Limiting the exploitation of workers by brokers through trading in fake work permits that may affect the country's reputation. 5. Strengthening national security in cases of worker stoppages and strikes, and by making use of the experiences of workers in the country with regard to knowledge of customs and traditions and adherence to laws and regulations. Thus, the challenges that were studied prior to implementing the idea of the project can be summarized as follows:

1. The lack of a government platform specialized in promoting the internal labor market, and the existence of many employment platforms, most of which are not committed to professionalism and lack credibility. 2. Challenges related to internal corporate recruitment policies, and lack of full compliance with Emiratisation policies and their application in the private sector 3.

The presence of those who circumvent the laws in the labor market. 4. The presence of a percentage of complaints submitted by skilled workers to their companies, and the need for mechanisms to ensure flexibility and freedom of labor movement internally between institutions and companies 5. Unemployment and its rates due to the presence of more job seekers than available opportunities 6. Different levels of knowledge and qualifications among workers in the same specialty"

The Ministry developed the platform in coordination with the Prime Minister's Office and has used a service operator to launch the system without bearing any operational cost. The Ministry is always looking for partnerships with all sectors at the local and international level to develop the platform's scope of work and achieve added value for all beneficiaries.

"MOHRE tried to limit the challenges in achieving competitiveness for work opportunities internally between local and expatriate workers. Therefore; the Ministry studied the best recruitment platforms and expert houses, also link the platform with strategic and operational goals (cultural diversity - Abu Dhabi dialogue), and link the efforts of the ministry with the efforts of external bodies such as the Ministry of Interior to reduce stoppages, workers' strikes and stalled origin by registering these groups in the labor market electronically without fees, with the priority of employment for applications submitted in granting work permits to these groups through a smart platform with the expertise and jobs of those workers In order to maintain sustainability; MOHRE designed policy and a certain methodology and apply the following :

1. Providing a reliable government platform to search for a job opportunity for workers inside the country in the event that their contracts expire, so that it is considered a distinct pioneering platform because of the government's decision to stop permits from outside the country and with the aim of using permits inside the country. 2. Supporting the accurate and legal selection of workers, which helps the owners of companies to know the suitability of job seekers to the available

vacancies without human intervention and thus contributes to creating an atmosphere of stability in the labor market through a smart platform whose systems are linked to the Ministry's systems and eliminating violations of unofficial recruitment sites. 3.

Responding to government directives to achieve social distancing without compromising the stability of the labor market by receiving work permit applications, finding job seekers through a reliable platform and promoting employment in troubled enterprises.

4. Enhancing flexibility in job supply and demand and enhancing the labor market in attracting talent, by linking the required work permit application service with vacancies and competencies that are provided through the platform in addition to reducing labor complaints and labor stops 5. Activate the implementation of the ministerial decision

to amend the conditions of affected workers by registering on the labor market platform in the event that establishments wish to dispense with surplus funds in the event of cancellation or search for an important work permit for some time until the crisis is over

6. Providing free registration authority during the crisis for affected workers in the labor market to record their data in coordination with the Labor Crisis Management Team"

Not applicable.

#### Action Lines

AL C7. ICT applications: benefits in all aspects of life — E-government|AL C7. ICT applications: benefits in all aspects of life — E-employment

#### SDGs

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all

## Case 29 - Teacher Development System (TDS), Saudi

### Arabia

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Teacher Development System (TDS)  
Ministry of Education  
Government  
**Saudi Arabia**

## Beneficiaries

Ministry of Education having more than 700000 employees and they are working form 49 different locations. Out of 700000 employees, more than 500000 are teachers who are beneficiaries for this TDS module. Which is accessible over internet through secured communication link

## Website

<http://sshr.moe.gov.sa/>

## Description

Ministry of Education having more than 700000 employees and they are working form 49 different locations. Out of 700000 employees, more than 500000 are teachers. As part of promotion process, requires the calculation of their trainings. Therefore, we have implemented the custom TDS module to register their trainings, attend and complete. The main Objective of TDS module is cover full cycle of training. MOE will publish the training schedule with details of date &Time and number of attendances. After that teacher start registering for the trainings and they will make sure that they will attend and complete the training. Completion of training this will get update in the FARIS system with respective course count/percentage. These points will be considered for the promotion process and calculate their trainings. First custom Oracle Frame work page has been developed and provided access to respective training depart to record the training schedule. With Date & Time and it will consists whether this training is applicable to all teachers/specific category/Generic. Second page to employee will nominate him/herself for training and he/her will addend for the training. This page is contains update/delete/create new request of training and employee can view the information. Once the training is finished training administer will update the attendance and make sure that it will be ready for points calculation. These points referred in promotion process.

## ICT Tools

"Oracle E- Business Suite 12.1.3 which internally uses following technology stack components

- Middleware as Oracle Application Server 10g
- Oracle Forms and Reports 10g
- Oracle Java Framework
- Oracle XML Publisher
- Oracle SOA Suite 11g
- Database as Oracle 12c
- Oracle Workflow Builder

- Oracle Approval Management"

### Challenges / Partnership / Sustainability / Replicability

"Below are the High Level Challenges faced while implementing custom TDS module. These were overcome by Experts after due discussion with Business and well planning the project in advance as per the business requirements. Agile approach helped to overcome this implementation challenges

- Enablement of Service over Internet due to large volume of users
- Developing of Custom Pages as per the complex business Logic
- Integrating the same with standard HR module of Oracle E-Business Suite
- Handling of Large set of transactions which created performance impact on System/Servers"

This project is sustainable since this cycle will be yearly , the promotion for teacher will take the points from the training that entered and approved for each employee in the ministry

### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-business

### SDGs

**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all | **Goal 5:** Achieve gender equality and empower all women and girls

## Case 30 - Enhancing digital awareness -TRA of UAE, United Arab Emirates

### Title of the project, Contact Organization Name, Stakeholder type, Country

Enhancing digital awareness -  
TRA of UAE  
Government  
**United Arab Emirates**



## Beneficiaries

"The UAE is a diverse society with more than 200 nationalities. TRA targets all members of society, with different age groups and backgrounds and most of them are tech-savvy. TRA usually targets a specific group and touches on topics that are relevant to them.

1- The 'Legal whispers' series targets citizens, residents and law students who are interested in knowledge about UAE Cyber Laws. The initiative also serves social media pioneers who combat rumours and false news. 2- TRA's live broadcast sessions

target parents, and households in general. These sessions played a major role in enhancing the community compliance with the precautionary measures against COVID-19 and combatting rumours and misinformation. The sessions promoted safe use of internet, the confidentiality of information while shopping online or doing bank transactions.

3- The 'Log In' programme targets social media users and video games fans. The programme highlights specific security features such as parental control and methods to protect children from the dangers of online platforms. The topics of 'Log In' are chosen based on real-life experiences. The programme was recognized by Sharjah Government Communication Awards (SGCA), as best practice in corporate communication in the Arab region. 4-

TRA's series of advices and videos about working from home targeted TRA employees and other government and private entities."

## Website

[https://www.instagram.com/explore/tags/%D9%87%D9%85%D8%B3%D8%A9\\_%D9%82%D8%A7%D9%86%D9%88%D9%86%D9%8A%D8%A9/](https://www.instagram.com/explore/tags/%D9%87%D9%85%D8%B3%D8%A9_%D9%82%D8%A7%D9%86%D9%88%D9%86%D9%8A%D8%A9/)

## Description

TRA (www.tra.gov.ae), is the federal entity which is in charge of regulating the telecommunications sector in the UAE and enabling the digital transformation at the national level. Such mandate made the TRA assumes its corporate responsibility

towards large segment of the society, and its role to develop awareness, educational and empowerment plans. TRA's Media Unit handles community liaison activities,

including promoting a digital lifestyle, preparing national competencies and motivating the public to be creative and effective partner in establishing a digital knowledge society.

The TRA has in place a 'Digital Media Strategy' which provides for enhancing digital

awareness on TRA's social media platforms. With the outbreak of COVID-19, the TRA's media team, worked diligently to raise public awareness about the pandemic using digital tools. TRA's 'Legal Whispers' initiative worked on disseminating legal knowledge about the UAE's laws to prevent the spread of COVID-19 and laws to combat cybercrimes. TRA's 'Log In' programme helped in raising the public awareness about cyber security features and how a person can protect himself while dealing with digital tools.

### **ICT Tools**

TRA's 'Digital Media Strategy' included several specialized social media campaigns aimed at enhancing digital awareness. These include: The 'Legal Whispers' initiative, which is a series of videos that highlight texts from the UAE's Cyber Crime Law. The initiative pulled in more than 3 million viewers and was supported by key partners such as the Ministry of Interior and local media networks. The 'Log In', which is a programme about information security, has gained more than one million views. In partnership with the UAE's Ministry of Education, TRA hosted live broadcasting sessions about distance learning and partnered with Ministry of Health and Prevention to respond to public queries about COVID-19. TRA's content is created on smart devices and applications and published through most popular media platforms such as: Facebook, Instagram, Twitter, TikTok, LinkedIn. TRA constantly monitors the dissemination of its content, records its volume, reach and public engagement. Through digital tools, which are almost accessible to everyone, TRA's social media content has reached with minimal cost to a large segment of people, internally and abroad. Digital tools spared TRA lots of costs and facilities, the consumption of papers, publications and other traditional means that are not environmentally-friendly.

### **Challenges / Partnership / Sustainability / Replicability**

Content creators face many challenges, in particular, content making in the field of government communication. The most prominent challenge is the rapid pace in which content-making technologies and the techniques of brainstorming and story-telling are growing. Content creation would be even harder when it relates to a fast-growing industry such as information technology. Given the fact that rumours do travel faster in social media channels, especially news about developments in the ICT sector, and

misinformation about 5G and other new technologies, such issues have posed a real challenge. TRA team had to predict and monitor trends and impressions in the ICT sector and be fully prepared to promote authentic information and positive ideas about new technologies. The team worked on collecting FAQs and prepared fact-based answers given by specialized teams that monitor and analyze everything new round the clock. Due to the shortage of media personnel and speakers in the fields of IT and cybersecurity, TRA trained eligible staff to provide the public valuable messages and advice in a concise, understandable manner.

Even amid COVID-19 peak, TRA's social media team was uninterruptedly producing digital materials, infographics, and videos and coordinating with speakers to provide them with the appropriate technologies.

"Partnership is a power to the success of any organization. TRA promotes and support partnerships at all levels, which include: 1- Media and news agencies: Media is an essential partner for the success of any media message and in supporting public digital awareness. News agencies on social media platforms have millions of followers. 2-

Government and private entities: Promoting government partnerships with the private sector enhances public confidence in media messages and raises levels of awareness. 3-

International companies and organizations such as Facebook, TikTok, Twitter, the International Telecommunication Union (ITU): TRA constantly enhances means of communication and cooperation with them, and adopts best practices. 4- Social media influencers: Media influencers support digital awareness by re-publishing TRA awareness videos on various media channels. 5- Universities and educational institutions that offer programs in ICT, as well as communication and new media. TRA has always been keen to benefit from youth's ideas and to partner with universities to reach the largest segment of talented students. A good example is 'UAE Hackathon', in which UAE universities and their students were key partners."

TRA's 'Digital Media Strategy' provides for the sustainability and effectiveness of its awareness campaigns. TRA evaluates its projects and media materials on an ongoing basis. The 'Legal Whispers' is a monthly programme that has been produced since 2018. TRA continuously updates the project according to developments in the sector and media circulated on digital platforms, and monitored by TRA's systems. We can ensure that TRA's video content is available on digital networks that are viewed by millions of people. These digital platforms, spared TRA the old methods of transmitting information such as printed publications and big budgets spent on awareness campaigns. TRA employees are trained to produce and present educational programmes and video content internally without the need to outsource the work. This has significantly reduced the costs of the production and helped in investing in employees' skills and talents. Both 'Legal Whispers' and 'Log in' programmes are produced internally by TRA's social media professionals on a weekly basis.

TRA's Social Media Team develops projects in line with the new trends in the sector. TRA has in place a 'Digital Media Strategy' that supports a work plan for its projects. Any project which the TRA initiates has goals that are measured monthly until the initiative is ended. TRA have started the 'Legal Whispers' initiative since 2018. At the beginning, the whisper was published in a form of an image or text. Later the content was produced in videos and

other tools such as graphics and voiceover. All TRA's social media content can be replicated and updated with new information and facts, including the 'Legal Whisper' programme which raises awareness about UAE's Cyber Crimes Law and the laws designed to limit the spread of COVID-19. The 'Log in 'programme gives tips on cyber security features and updates on related products by global companies. TRA's projects are executed on a seasonal basis. Each season has its episodes arranged and produced based on the latest updates obtained from Project Preparation Team and a thorough study of the viewers' feedback. The above-mentioned projects can be replicated on different channels such as television, radio or even through new media ad films industry. They can also be displayed on Netflix and other popular platforms.

**Action Lines**

**AL C5.** Building confidence and security in use of ICTs | **AL C7.** ICT applications: benefits in all aspects of life — E-government | **AL C8.** Cultural diversity and identity, linguistic diversity and local content | **AL C9.** Media

**SDGs**

**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture | **Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation | **Goal 16:** Promote just, peaceful and inclusive societies | **Goal 17:** Revitalize the global partnership for sustainable development

**Case 31 - "SmartCell" mobile application, Azerbaijan**

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
"SmartCell" mobile application Data Processing Center (DPC) of the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan. Government <b>Azerbaijan</b>
<b>Beneficiaries</b>
Phone numbers sales with the "SmartCell" mobile application have advantages for operators, customers, as well as for government agencies that monitor the overall process: Benefits for for the client: Opportunity to apply for the service from anywhere, maximum speed, security guarantee. Benefits for mobile operator: accurate identification,

automatic contract formation, electronic archiving of contracts, remote control of the service. Benefits for the government: fraud disappears, protection of personal data, monitoring of statistical data.

### Description

The "SmartCell" mobile application is a joint project of the Data Processing Center and "Azercell" mobile operator. As a pilot project, it is being used for the first time by Azercell mobile operator to automate the process of number sales. Mobile application combines facial recognition (Face ID) and electronic signature. It's allows to identify the real-time image of the customer with the image on the ID card, to sign the subscription agreement with an electronic signature. It's possible to track the whole process electronically during the sale of numbers. The process of selling a number with the SmartCell mobile application is as follows: 1. The MRZ code of the customer's ID card is read to get the number; 2. a person's ID is formed by automatically calling personal data; 3. A one-time electronic signature of an individual is drawn up for signing the contract; 4. The client takes a picture with the camera and this picture is identified with the picture on the ID card; 5. a contract is formed after the successful identification; 6. The person signs the purchase agreement. The mobile number is picked up from sales centers or delivered to the customer by courier.

### ICT Tools

"Technical workflow of the Smartcell: • Detection of aliveness is carried out by optical scanning of the image; • The chip of ID-card is read via NFC; • The required identity information is requested from the IAMAS database; •Certificate request is made on the basis of information on the creation and verification of an electronic signature for a one-time signature of an individual; • The request is sent to the Certification Services Center; • The request is accepted by the certification program; documents get ready for signing. Technical specifications : • Services written in .net core technology • Android app written in Java • There are used several databases like MySQL and MSSQL • Integrated services are IAMAS face recognition cognitive services, ca certificate authority issuing services etc."

## Challenges / Partnership / Sustainability / Replicability

There were some cases that in some places numbers were sold without a contract using the information on the ID-card. Even some did not know that there was a phone number in their names. The advantage of the SmartCell mobile application is that by recognizing the customer's face, the system will call the ID card information from the information system of the state agency and automatically form a contract and sign it with the person's electronic signature. The sale will be applied first to the operators' number-selling stores, and then to remote sales. Delivery by sales dealers to any address will be provided to the customer who has a contract with an electronic signature using the mobile application without coming to the store. The first of the difficulties in creating a SmartCell mobile application occurred during the face recognition phase. In order to spend less time at this stage, the process was optimized by reading the MRZ code of the ID card, then compiling the electronic signature and sorting it by face recognition. During the test phase, it was observed that it was possible to read the image and video during the fixation of facial recognition, and the failure to check the vitality was revealed. Technically, once again the algorithms of the application have been changed, the validity of the check has been improved. The next challenge was the sale of the SmartCell mobile application in the marketing phase. Mobile application was presented to the existing mobile operators in the country based on the advantages of traditional sales, and the operator (Azercell) was selected for the implementation of the pilot project. The program has been changed at the request of the operator. The first pilot sale is scheduled for February.

The pandemic has required remote recognition and automation of operations using a range of identification services. The SmartCell mobile application provides opportunities for application in many areas where customer identification is required, data is automatically generated and signed with an electronic signature. Although it is currently planned to be used in the sale phone numbers, in the future it will be applied in education, health, various sectors of the economy, as well as in sectors where public safety issues are important. This platform is targeted at both domestic and foreign markets and will be used in areas where this identification, contract formation and signing are required. Therefore, along with domestic market participants, prospects for cooperation with foreign countries were expected.

The security and stability of the system was tested as it read the information on the identity card (from the IAMAS database) from the identification, signature and government information system.

Smartcell mobile application is created on the SDK. It's can be applied to any service area and integrated into any electronic infrastructure. "SmartCell" mobile application can be integrated into the service portals of government agencies.

## Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C4.** Capacity

building|**AL C5.** Building confidence and security in use of ICTs|**AL C7.** ICT applications: benefits in all aspects of life — E-business

### SDGs

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 32 - Public Health City

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Public Health City Jakarta Smart City Government <b>Indonesia</b>
<b>Beneficiaries</b> Jakarta Smart City innovation and technology to make your activities in Jakarta easier. All of OPD & SKPD in Jakarta.
<b>Website</b>
<a href="https://smartcity.jakarta.go.id/new/">https://smartcity.jakarta.go.id/new/</a>
<b>Description</b>
Installation of 40 Handwashing Stations & Hand Sanitizer Automatic at public places around Jakarta (Bus station, City Park, Hawker, Attraction, School, etc.)
<b>ICT Tools</b>
Creating a developed city of Jakarta with IT-based (smart city) public services that solve various city and citizens problems effectively with JAKI.
<b>Challenges / Partnership / Sustainability / Replicability</b> We must stick together to defeat Covid-19 One platform for your daily needs in Jakarta From reporting the city's problems to checking today's groceries prices, find all you need in Jakarta super-app

### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge|**AL C5.** Building confidence and security in use of ICTs|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-employment|**AL C7.** ICT applications: benefits in all aspects of life — E-environment|**AL C7.** ICT applications: benefits in all aspects of life — E-science|**AL C11.** International and regional cooperation

### SDGs

**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 10:** Reduce inequality within and among countries|**Goal 11:** Make cities inclusive, safe, resilient and sustainable

## Case 33 - Dubai E-Connected Healthcare Model towards COVID 19 Response

### Title of the project, Contact Organization Name, Stakeholder type, Country

Dubai E-Connected Healthcare Model towards COVID 19 Response  
Dubai Health Authority  
Government  
**United Arab Emirates**

### Beneficiaries

All Dubai Population benefited from this integration project. This was mainly on two spectra:  
1. COVID-health services: 1.a. Testing: Thanks to private labs' integration, DHA was able to enhance testing capacity 400 folders the initial daily capacity; which helped maintain PCR reporting timeframe within the 24hours target, with 97% compliance of inter-lab comparison. 1.b. Mass screening: Private Sector integration lead to enhanced capacity



for running comprehensive screening for residents in prioritized geographical areas, running 85 mass screening campaigns. 1.c. Unified bed capacity dashboard: The integrated SHERYAN system was a key contributor towards achieving the 24-hour threshold for response rate, through enabling the swift allocation of cases across isolation, quarantine and hospitalization facilities whether public or private. 1.d. Through integrating COVID patients journeys across public and private via HASANA, DHA ensured its case management team was able to effectively conduct case tracing, reaching 85% adherence to the response to positive cases within 24 hours. 2. Non-COVID health services: By enabling the private sector to cater for the extra demand, DHA's non-COVID serving facilities were able to maintain their business continuity without interruption serving non-COVID patients with maintained capacities and quality of care.

**Website**

<http://www.dha.gov.ae>

**Description**

In its efforts towards effectively addressing the pandemic, Dubai Health Authority (DHA) opted for a connected healthcare model integrating public and private sector health sectors towards enhanced capacity and offering of high quality testing, mass screening, quarantine, hospitalization and isolation. System & Data Reporting integrations were the key success factor enabling this model which was mirrored through:

a. Dubai connected Testing Network: DHA's laboratories collaborated with 18 licensed private laboratories to raise COVID-19 testing capacity by 400 folds daily tests across Dubai. DHA integrated private sectors labs' systems with its Lab information system (LIS) to unify records, streamline testing and ensure immediate reporting and reflecting of test results on real-time macro-reporting Dashboards.

b. Mass Screenings: DHA collaborated with private healthcare providers and integrated their systems with its public health management platform "HASANA" to widen the scope of field mass screening.

c. Hospitalization, Isolation and Quarantine: During lockdown phase, DHA collaborated with the private sector to convert 22 hotels into isolation facilities, 8 hotels and 26 buildings into quarantine facilities all connected via DHA's Salama (E-health records management system) and HASANA (public health management system). DHA also assigned the management of some COVID-19 services' locations to private sector for better utilization of resources.

**ICT Tools**

5.1 SALAMA: DHA's Patient Records Management System SALAMA-Epic (rated stage 6 EMRAM by Healthcare Information Management System Society "HIMSS" analytics 2017).

With the agility to create COVID-19 related pathways and features to generate customized reports and ability for integration, SALAMA provided readily accessible records of patient journeys across isolation, quarantine and hospitalization facilities across, both public and private. 50+ new facilities were integrated. 5.2 SHERYAN, is the online healthcare licensing system encompassing all health facilities operating in Dubai. It was used as a real-time capacity platform covering all Dubai's public and private healthcare as well as the temporary isolation & quarantine buildings and hotels. 5.3 HASANA is DHA's integrated system for infectious and communicable disease management used as a primary decision support tool amidst COVID-19 outbreak. HASANA's technology allowed decision makers to have access to Micro-data pertaining to patient journeys as well as overarching Macro statistics involving public & private sectors. HASANA is integrated with public and private sector labs to immediately reflect all lab results into it. 5.4 Eclaim system: Provides a centralized health data tracking system for financial and clinical transactions between payers, providers, and patients, through which DHA was able to understand spending trends pertaining to COVID19 to support decision-making.

#### **Challenges / Partnership / Sustainability / Replicability**

Challenge: Information Security: With all these wide-scale integrations, information security posed a key factor to be taken into consideration. DHA's information security office conducted a risk assessment for the new working model, implemented "Privileged Access Management "PAM" Model to manage the privileged users & the new external users accessing DHA systems, and developed specific use cases to manage the new operational models, where DHA cooperated with its stakeholders such as Dubai Police to implement these activities. Data Integrity: DHA also put in efforts to validate the quality of COVID-19 data uploaded on its system by the external users. DHA provided training to users on its systems and introduced COVID-19 data quality audit process targeting different stakeholders in the COVID-19 patient journey including laboratories, healthcare facilities and others. This was supported by a stringent regulatory framework that resulted in 91% compliance rate, with +300 virtual data-integrity inspections till Dec 2020. Standardized quality of services: DHA continuously run Inter-laboratory Comparison Evaluations to ensure quality of testing across all facilities, continuously exceeding the 90% target in addition to running 5,399 inspections from Mar – Dec 2020 against COVID guidelines for hospitals, clinics, labs, etc. within both public and private sectors.

In the connected healthcare model implementation, DHA collaborated with Dubai private healthcare providers, including clinics, hospitals, specialized centres, day surgery centres, pharmacies, school clinics and laboratories. Furthermore DHA partnered with numerous hotels and private sector facility management entities towards converting hotels and buildings into COVID facilities. On the public sector level, DHA integrated its systems with various entities including: Dubai Police, Dubai Municipality and Dubai Corporation for Ambulance Services among others. As a result of these joint efforts, the happiness of Dubai society about effective partnership among entities during COVID-19 reached 91% in a survey run by the Dubai Executive council.

The Operational Model of having unified dashboards across capacities and customer records is a very

useful model across various industries. Especially during the pandemic, the integrated, coherent and connected healthcare model has proven to be key towards enhanced capacities, matched demand and supply for services and more importantly business continuity of services across both sectors. Aligned resources and capacities are a key success factor for business continuity across and distressful situations, whether economic, social or health-related. Such dashboards are especially replicable across all the world’s healthcare industries and shall be extra beneficial in healthcare systems where the private sector’s capacity extensively overruns that of the public. With the continuum of the pandemic and the pressuring stress on resources, more and more healthcare industries around the world shall opt towards connected, borderless hence more efficient operational model.

This model has proven to be a sustainable way of doing business. System integrations and digital health are paving the road towards the new reality and the new shape of healthcare services across the world. Initiatives initiated during the pandemic such as the connected Testing Network are now a key model of DHA operations and shall be used towards enhanced efficiency and quality of testing operations across non-COVID testing. The Model has been used further in DHA’s vaccination campaigns rolled-out in public and private facilities using unified integrated systems. Realizing the efficiency of the connected model, DHA has taken the integration even further lately, with the launch of its new system “NABIDH”, which is the unified paper-less medical record across all public and private healthcare providers within Dubai Emirate towards elevated quality and patient safety, reduced cost and evidence-based care not only related to COVID-19 services but across all healthcare services provided with the Emirate.

### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-health

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 34 - Tawkalana

### Title of the project, Contact Organization Name, Stakeholder type, Country

Tawkalana  
SDAIA  
Government  
**Saudi Arabia**

### Beneficiaries

Citizens of KSA
<b>Website</b>
<a href="https://www.nic.gov.sa/">https://www.nic.gov.sa/</a>
<b>Description</b>
Multiple project and initiatives to ensure that Saudi citizens are protected from COVID-19 and to reduce the risk of spreading the disease.
<b>ICT Tools</b>
Variety of tools to ensure reliable, useful and high available solutions provided to the customers
<b>Challenges / Partnership / Sustainability / Replicability</b> The sudden expansion of the coverage of the solution. It was overcome by doing real time testing of all releases.
<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development
<b>SDGs</b>
<b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case 35 - Jiangbei New District Enterprise Service Platform

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Jiangbei New District Enterprise Service Platform CICD Institute Government <b>China</b>

<b>Beneficiaries</b>
Children
<b>Website</b>
<a href="https://m.cicdi.com/login.aspx">https://m.cicdi.com/login.aspx</a>
<b>Description</b>
Use 5G network to upgrade Yunnan's traditional industries and promote e-employment
<b>ICT Tools</b>
5G signal
<b>Challenges / Partnership / Sustainability / Replicability</b>
<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development
<b>SDGs</b>
<b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all

## Case 36 - Department of Telecommunications Government of India, India

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
COVID-19 Quarantine Alert System (CQAS) Department of Telecommunications Government of India Government <b>India</b>

## Beneficiaries

1. Citizens
  2. National and State Disaster management authorities
  3. Ministry of Health, Public Health workers, surveillance teams
  4. Local Administration and Law Enforcement Agencies and Covid Nodal Officers
- CQAS is plotting quarantine geo-fence breach alerts on NDMA GIS Portal with multi-feature layered map showing present location of target, quarantine location, total breach count & repeated offender count for easier visualization by the higher authorities.

CQAS is sending real time geo-fence breach alerts by quarantined persons to State/UT Govts, right from State Nodal Authority down to District & Zonal Teams only on designated email IDs.

CQAS does not require human intervention of keeping GPS Location always ON for mobile device. It provides an edge over GPS edge based solutions which are dependent on human behavior and works only for smart phones. CQAS is sending alerts for switched OFF/unreachable mobile phones as well. CQAS has provided assistance to State Govts in localizing the migrants for providing timely help & relief to them in terms of food; make shift shelter& travelling facilities.

## Website

<https://dot.gov.in/>

## Description

Our team has designed COVID-19 Quarantine Alert System (CQAS), an indigenous, innovative system to contain the spread of Covid-19 pandemic. It is a comprehensive solution for effective monitoring, management and enforcement of the quarantine geo-fence, a virtual boundary. The solution tracks the breach of geo-fence when the confirmed or the suspected or potential Covid-19 positive person(s) move away from his/her quarantined location with a reasonable accuracy and automatically triggers SMS/email alerts to the authorized Government agency. The location information is received from telecom networks, periodically over a secure network with due protection of data, through automated processes without any user dependency. It caters to smart-phone as well as feature phone targets. So far, CQAS has handled approx. 2.7 million targets (identified Covid +ve or quarantined person) of 18 States of India and generated more than 183 million quarantine breach alerts.

## ICT Tools

Location Based Services of Telecom Network is used for fetching the approximate location of the user. Then the location is analyzed in Big Data Analytics Engine of CQAS. The distance between the quarantine location and this real time location is calculated and if the distance is more than the geo fence boundary created, email/SMS alerts are sent to the local administration for taking necessary action. The project has been working on National level since 29th March, 2020 on 24\*7 basis. It has catered to 18 State Govts, thereby serving population of approximately 800 millions.

#### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** Handling the large data sets simultaneously for analyzing the real time distance for quarantine breach was a challenge. Big Data Analytics is working as the core of CQAS for handling large data sets, which went upto .5 million during the month of June when covid-19 was peaking in India. Also, generating real time alerts was equally important and challenging considering the number of Nodal Officers, Local Administration and Law Enforcement Agencies personnel count. Forging during emailing allowed us to send real time alerts as soon as the breach was detected by CQAS. Generating real time breaches and mapping on National GIS Portal was also a critical requirement which was achieved with close coordination with National Disaster Management Authorities.

**Partners:** From our experience during Covid-19, we have learnt that Big Data Analytics, combined with GIS and automated alert generations and information dissemination systems can play a great role in handling the disaster management. The team is looking forward to developing an end to end solution starting from early warning system tracking of affected people in the disaster, sharing the information with first responders and the safe evacuation of our citizens.

**Replicability:** Yes, the project is highly scalable and replicable. At the launch time, 2 Indian states started using the system. And till date CQAS has served 18 States of India, handling approx. 2.7 million targets (identified Covid +ve or quarantined person) and generated more than 183 million quarantine breach alerts. CQAS may be used during any pandemic where quarantine is necessary. Also, The team is looking forward to developing an end to end solution starting from early warning system tracking of affected people in the disaster, sharing the information with first responders and the safe evacuation of our citizens.

**Sustainability:** Yes the project is sustainable. The entire project has been designed indigenously, by an in house team of DoT Officers, without incurring any additional costs. Also, CQAS is free of any kind of end user dependency unlike other Smartphone based APPs used for quarantine management and monitoring. The system requires very less computing power and the system is taken to sleep mode in between to reduce the power consumption, thereby making it energy efficient as well. CQAS has been designed taking into consideration the protection of personally identifiable information. The data and metadata is deleted in an automated manner as soon as the quarantine period of the target is over.

<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development  <b>AL C4.</b> Capacity building  <b>AL C5.</b> Building confidence and security in use of ICTs  <b>AL C6.</b> Enabling environment  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all  <b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation  <b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable

## Case 37 - Data Processing Center (DPC) of the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan, Azerbaijan

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
"Citizens' Electronic Appeals" system Data Processing Center (DPC) of the Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan. Government <b>Azerbaijan</b>
<b>Beneficiaries</b>
Advantages for citizens, apply without leaving the place, loss of time and energy is prevented, online tracking of applications. Advantages for government agencies transparency of citizen-official contact, systematisation of appeals, follow-up and monitoring of appeals, sending real-time notifications and it is easier to determine the effective performance of institutions.
<b>Website</b>
<a href="https://rabita.az/en/index">https://rabita.az/en/index</a> <a href="https://e-qebul.az/">https://e-qebul.az/</a>
<b>Description</b>



The "Citizens' Electronic Appeals" system is a joint project of the Data Processing Center and the Executive Power of Shamakhi region. The population of Shamakhi region is about 10% of the country's population. The e-appeals system provides citizens living in the area with online applications, complaints and suggestions without going to various local government agencies. The purpose of the project is to ensure the transition to digitisation in the country and at the same time to minimise physical contact with government agencies in a pandemic. In addition to reducing the number of contacts, it also reduced the time of consideration of appeals. Applications previously considered for 15 days are now considered for 7 days.

### **ICT Tools**

Technical specifications of the system: The front end of the portal is developed by html, CSS and back-end of the portal is developed by PHP (laravel). The database was created via MySQL. The system can be integrated into other e-service platforms, and can be adapted to regulate citizen appeals in many areas.

### **Challenges / Partnership / Sustainability / Replicability**

Challenges: The main difficulties in the implementation of the project were the tight time and informing people to use this platform. As the service is intended for citizens, it was one of the problems in the unequal technological opportunities of all people living in the villages. Also, restrictions imposed by the virus affected the activities of government agencies.

Partners: Work is underway to improve the project and expand the functionality. Therefore, it is planned to cooperate with government agencies to integrate government agencies with the e-government gateway.

Replicability: This project can be replicated for the other executive power, in other administrative territories, as it is a platform for solving the problems of people living in local territories.

Sustainability: The application of security certificates for the protection of personal data, unlimited number of users, tracking of changes in the status of appeals, monitoring of statistics, interactive reporting form, ability to export reports to an excel file the convenience for government agencies provide the basis for sustainable and further expansion of the system.

### **Action Lines**

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for

development | **AL C3.** Access to information and knowledge | **AL C7.** ICT applications: benefits in all aspects of life — E-government

### SDGs

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all | **Goal 10:** Reduce inequality within and among countries | **Goal 11:** Make cities inclusive, safe, resilient and sustainable

## Case 38 - Department of Survey and Mapping Malaysia (JUPEM), Malaysia

### Title of the project, Contact Organization Name, Stakeholder type, Country

Effective Monitoring And Analysis Of The Covid-19 Pandemic Through The Defence Geospatial Information Management Application  
Department of Survey and Mapping Malaysia (JUPEM)  
Government  
**Malaysia**

### Beneficiaries

National Security Council (NSC), Ministry of Health Malaysia (MOH), Malaysian Armed Forces (MAF) security agencies and other government agencies.

### Website

<https://www.iupem.gov.my/>  
<https://bgp.maps.arcgis.com/apps/opdashboard/index.html#/58571642da3a4e68b30cfd5e7ca4deb8>

### Description

Department of Survey and Mapping Malaysia (JUPEM) via Geospatial Defence Division (BGSP) took the initiative to develop a dashboard application to provide latest information of COVID-19 outbreak in Malaysia. The information was gathered from related government entities, among others are National Security Council (NSC), Ministry of Health Malaysia (MOH), Malaysian Armed Forces (MAF) and security agencies. The platform is ESRI's Web Geography Information System (GIS) based and is capable to manage and handle the geospatial data. This made interactive online information enabled. Therefore, BGSP developed an Operation Dashboard to provide the latest information about contagious

COVID-19. This Operation Dashboard has been used by NSC where the information is displayed in the National Operations Management Center (PPON). This application provides a Common Operating Picture (COP) to deliver information. Occasionally, the information in this Operation Dashboard is enhanced according to the requirements to assist NSC in order to monitor the spread of this virus more effectively in real time BGSP further upgraded this application into a Joint Common Operating Picture (JCOP) where results of latest statistics' analysis are displayed. JCOP is a concept created to mobilised data from various agencies and bunched it into a single vehicle on shared source of information. This greatly helped NSC to prepare, plan and execute policies to fight the advancement of Covid-19.

### ICT Tools

Department of Survey and Mapping Malaysia (JUPEM) through its Geospatial Defence Division (BGSP), has developed a Dashboard application using its Defence Geospatial Information Management (DGIM) throughout ESRI's platform.

### Challenges / Partnership / Sustainability / Replicability

**Challenges:** The development of JCOP was well received by all the agencies involved in the fight. The challenge to share information derived from different data formats among agencies, which were critical, was overcome so that accurate analysis by JCOP is achieved. Prior to development of this platform, different agencies will have to work on different working platforms. With the existence of JCOP, these discrepancies were addressed and data sharing efficiency has been accomplished. There were 20 agencies involved in JCOP development in providing vital and comprehensive information. The conceptual collaboration to have a sharable content from each agency through DGIM portal. Various layers have been developed in JCOP as a result of data sharing between agencies. Among the layers are list of points of interest (POI), affected locations, quarantine stations, hot spot areas and others. Through this available data, JCOP is able to make fast and accurate analysis. It gives a visual overview which helps in the execution of further operational plan.

**Partners:** Looking for partner that have background especially in Geographical Information System (GIS) for develop more platform to give more impact and solution to restraint the Covid-19.

**Sustainability:** This project is sustainable because it can be a solution to government especially for monitoring and analyse the pandemic Covis-19 in Malaysia.

### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development | **AL C7.** ICT applications: benefits in all aspects of life — E-health

## SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 39 - Department of Telecommunications, Post and Telecom Division, Bangladesh

### Title of the project, Contact Organization Name, Stakeholder type, Country

Cyber Threat Detection and Response Project  
Department of Telecommunications, Post and Telecom Division  
Government  
**Bangladesh**

### Beneficiaries

Absolute protection from cyber threat is unattainable. The scope of the project is to install a Cyber Security System to implement strategy to deliberately avoid, mitigate, accept or transfer risk from cyber threat. Beneficiaries from the project are:

- o Law Enforcing Agencies (LEA): LEAs time to time get benefit by blocking unwanted content to ensure safety to individual, group and national.
- o Bangladesh Telecommunications Regulatory Commission (BTRC): DoT provide assistance to perform policies vested on BTRC
- o General Internet Users: General individual get safe internet as the system block porn, betting and unwanted sites.
- o Parents: Parents are little relieved as Internet in Bangladesh contains less pornography.
- o Offended citizens: Offended citizens might request to block certain contents from internet.
- o Women will be empowered and children will be protected.
- o Children & Youth Group: Protected from unethical contents and develop a a patriotic generation inline with norms & Ethics.
- o Government: To run the national and country with peacefully ensuring better life for the citizens.

Main benefits:

- Traffic Measurement
- Traffic usage pattern
- Blocking of Pornography
- Blocking of Betting Sites
- Blocking of unwanted APPs and URL

### Website

<http://www.telecomdept.gov.bd/>  
<http://www.telecomdept.gov.bd/>

### Description

To ensure quality internet in line with social values & norms and counter anti-state and terrorist activities, Cyber Threat Detection and Response Project have been taken by Department of Telecommunications (DoT) under Post and Telecommunications Division (PTD) to install required equipment system and software at all the International Internet Gateways (IIG) and National Internet Exchange (NIX). Deep packet inspection system has been installed at all the IIGs along with other network devices and all the national and International Internet traffic are flowing through the installed equipment. A Network Operation Center (NOC) has been established at DoT from where all the bandwidth of IIGs and NIXs are monitored and required policy have been applied to the devices installed at IIGs and NIXs. After coronavirus disease (COVID-19) outbreak internet usages have been increased dramatically in Bangladesh and during that time more than 23 (twenty three) thousand porn, gambling and anti-state sites have been blocked to ensure safe internet for all. Also, it is possible to analyze the impact of COVID-19 outbreak on internet in terms of bandwidth usages, usages type considering protocol, application and time of usages.

### **ICT Tools**

Deep Packet Inspection (DPI) based multi service platform deployed all over the country. Bypass Switch is used for bypassing traffic during fault to ensure service continuity of the IIG operators. DPI system steered the traffic which need further processing to Websafe personnel. Particular unwanted content might be identified and process in the Websafe Personnel (WSP) system. Also, Digital Certificate Management Infrastructure (DCMI) system is used to distribute DoT Certificate to end users to ensure trusted communications. Data Mediation servers are installed to collect the meta data for further processing. Meta data are collected to central management server (netenforcer) to provide real time and short time traffic analysis and monitoring. A central database server (ClearSee) is used to convert data in to standard formal, generate report to operate the network in better, faster and smarter way. It captures a rich variety of application, device, quality of experience and security of data records in real time and transform it into valuable business intelligence that help to plan and implement actions. The integrated system enables DoT to enforce policy from a single platform instead of manually implementing policies manually at different operators. It also provides national internet traffic statistics which helps policy makers in drafting national Internet Related policy.

### **Challenges / Partnership / Sustainability / Replicability**

Challenges: "• Detecting the unwanted content automatically. From signature database porn and betting sites have been blocked. However, there are sites which are not included in the signature database. Also unwanted sites are detected manually. Software might be used to detect the unwanted sites using different algorithm. •

Due to technological limitations (certificate pinning in App) certain content cannot be blocked using App. Also, VPN traffic is a challenge. It is possible to overcome certificate pinning issue of App by developing customized App. • Installation of Certificate at each user device. National Browser may be developed or awareness program might be taken. • Capacity need to increase considering increased traffic and new IIG PoP. Expansion of Project capacity vertically and horizontally will resolve the issue. • Capacity development of Manpower is required to operate and maintenance of the system by training and hiring new manpower. • Detection of Traffic which is bypassing the system through IIG automatically. Probe at different user site may be installed to identify the bypass traffic automatically. • 7X24 service to customer is a challenge due to shortage of Manpower. New manpower with adequate knowledge might be deployed or managed service might be procured."

**Replicability:**Project might be replicated with same or similar scope at different ISP and Mobile Operator Level. There are nation-wide distributed ISPs and distributed Point of Presence (PoP) of Mobile Operators. If the project is replicated at those level it will be possible to cover every traffic including cache server traffic and any traffic which are passing between two ISP/Mobile Operator connected to same IIG. Also, Project might be replicated at submarine cable landing station and Nationwide Telecommunication Transmission Network (NTTN) Operators which will provide 2nd level of coverage. Also new features including DDoS protection, antimalware, Bot prevention, parental control etc. might be include in the same system or replicated system or a new system. This will provide additional level of features for safe internet for Internet users of Bangladesh. The project might be replicated at IIG level to collect national monitoring information with different scope, typology and scale under ministry of Home for the safety and security of Bangladesh.

**Sustainability:** The project implemented by DoT is very much sustainable in the perspective of the country. DoT is able to continue its mission or goals of the project and project impact will be continued for a long time. The system installed by the project has a social, economic,

legal, cultural, educational and political impact and importance. There are distinguished philosophy, mission, vision, values, norms, goals and objectives which have been achieved by the installed system and those will continue for the development of the nation and to provide safe internet service for all. With respect to beneficiary assessment, legal and regulatory framework all are exist in our country and functioning properly. This system or project is only system of this nation or country which governs by a government organization & all other stakeholders are properly coordinated for proper operation. Other factors such as direct or indirect financial aspect, risk analysis, operational plan, training, human resource development, capacity building and community & social aspect, this project is already analyzed and found sustainable. The rationale, demand and supply, costs, anticipated outcomes or outputs and performance metrics which all already met to sustain.

#### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C4.** Capacity building|**AL C5.** Building confidence and security in use of ICTs

#### SDGs

**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case 40 - PRC Hospital System, Malaysia

#### Title of the project, Contact Organization Name, Stakeholder type, Country

CPRC Hospital System  
Ministerial level  
Government  
**Malaysia**

#### Beneficiaries

1. Ministry Heads – near real time visibility of hospital capacity allows for accurate information dissemination  
2. Hospital Directors – capacity planning via online dashboard, quicker call to action.  
3. Hospital Personnel – paperless referral and transfer of patients (Step-up or Step-down)

#### Website

<https://www.moh.gov.my/>  
<https://cprc.bbbs.moh.gov.my/>

### Description

Crisis Preparedness and Response Centre (CPRC) Hospital System was developed as an online reporting tool to monitor hospital preparedness in facing the pandemic COVID19. It leverages on the existing MOH Blood Bank Information System (BBISv2) Cloud Framework and Platform to support data collection during the crisis of Covid-19 and uses Power BI analytics. The new module was developed rapidly and rolled out to the 40 hospitals designated as COVID19 hospitals nationwide of which 2 were university hospitals and the remaining were the Ministry of Health hospitals. Such arrangements were made to facilitate clinical treatment of patients through centralization of resources such as consumables, equipment, and manpower. This is also to ensure efficient response towards an escalating outbreak. In the early phases of the pandemic, daily bed usage and utilization was monitored manually. Data was submitted by the 15 State Health Departments via several different mediums i.e. emails, excel files, and google drive. This poses risk to data submission error, data reliability, inefficient data transmission and pregnable data security. In response to these threats, an online reporting tool was developed equipped with analytics dashboards for effective daily monitoring and decision making.

### ICT Tools

The solution was developed using an existing multitenant based solution framework built for our Blood Bank Information System (BBIS) consisting of opensource backend engine using Java with Angular frontend and database, PostgreSQL, deployed on OpenStack opensource cloud computing infrastructure. Since the framework was already tested and used in a production environment, development and deployment of CPRC Hospital System took 1 month from ideation/conceptualization. As a cloud-based solution, there was no need for a separate site installation and reduced time to onboard multiple sites and users. With the data collected from each hospital, a data analytics solution was built on Microsoft PowerBI to provide analytical view on capacity projection, daily capacity, and capacity hotspots. This allows management to decide on reallocation of Bed, ICU and Ventilators for Covid19 usage.

### Challenges / Partnership / Sustainability / Replicability

Challenges: Due to the nature of the pandemic, onboarding and training sessions had to be done virtually via Microsoft Teams and other video call tools. Onboarding and training videos were prepared and uploaded into the system for quick access. A helpdesk module was developed and incorporated into the solution to respond and resolve user issues.

Partners: No, at this moment the Ministry of Health is working with two local partners to



develop and maintain this solution.

**Replicability:** This project can be replicated and used in many other contexts to track facility capacity and assist in executive decision making. However, there is no such requirement or scenario that fits this yet.

**Sustainability:** Though this project were developed to cater to Covid19 pandemic, it can be further developed and maintained to cover any types of emergency and future pandemics. Build mostly on opensource libraries, it can be maintained at a very low cost.

#### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C5.** Building confidence and security in use of ICTs|**AL C7.** ICT applications: benefits in all aspects of life — E-health

#### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 41 - Relawan TIK Maluku and Pemerinta Kota Ambon, Indonesia

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Sistem Administrasi Kependudukan Kota Ambon  
Relawan TIK Maluku and Pemerinta Kota Ambon  
Government  
**Indonesia**

#### Beneficiaries

residents and the city government of Ambon

#### Website

<https://ambon.go.id>

<https://acn.my.id>

### Description

We build a cloud-based information system that can be accessed from anywhere. This system provides rt / rw based resident data for each village to facilitate administrative services for residents in the village without having to go to the village office to minimize face-to-face services

### ICT Tools

web based application and kios-k

### Challenges / Partnership / Sustainability / Replicability

Challenges: the head of the household still needs assistance

Partners: city government of Ambon

Replicability: yes, the system is cloud-based so it is easy to replicate to other villages.

Sustainability: yes, with the support of the Ambon city government, 20 villages have used this application. This year there will be 30 more villages.

### Action Lines

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

### SDGs

**Goal 1:** End poverty in all its forms everywhere| **Goal 3:** Ensure healthy lives and promote well-being for all| **Goal 5:** Achieve gender equality and empower all women and girls| **Goal 10:** Reduce inequality within and among countries| **Goal 16:** Promote just, peaceful and inclusive societies| **Goal 17:** Revitalize the global partnership for sustainable development

## Case 42 - Botswana Communications Regulatory Authority

## (BOCRA), Botswana

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Connect an Employee Initiative Botswana Communications Regulatory Authority (BOCRA) Government <b>Botswana</b>
<b>Beneficiaries</b>
Employers: Employees are productive and work efficiently from home during the pandemic Employees: Research, work, training and connect other family members to access digital services from home.
<b>Website</b>
<a href="https://www.bocra.org.bw/">https://www.bocra.org.bw/</a> <a href="https://www.bocra.org.bw/">https://www.bocra.org.bw/</a>
<b>Description</b>
Connect-an-Employee Initiative: Encourages public and private organisations to connect their employees to residential broadband internet of 10Mbps. This allows employees to work from home.
<b>ICT Tools</b>
Organisations connect their employees to high speed broadband internet to facilitate remote working in public and private sector. Other organisations provide their employees with end user devices.
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: Cost of internet connectivity and budgetary constraints are a hinderance affecting speedy uptake of the Initiative. BOCRA continues to engage service providers to reduce internet prices.  Partners: Organisations are advised to form partnerships with service providers such that they benefit from volume discounts by connecting more customers to one service provider.

Replicability: Yes. The initiative was initially rolled out in the public sector then extended to the private sector during the pandemic to support working from home. It can also be adopted by other countries.

Sustainability: Yes. As more organisations connect their employees to the internet, the expectation is that internet prices will go down making the Initiative sustainable in the long term.

### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C4.** Capacity building|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C7.** ICT applications: benefits in all aspects of life — E-employment|**AL C10.** Ethical dimensions of the Information Society

### SDGs

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 43: Activities and Initiatives of the Ministry of ICT in response to the coronavirus (covid -19) crisis

Title of the project, Contact Organization Name, Stakeholder type, Country
Activities and Initiatives of the Ministry of ICT in response to the coronavirus (covid -19) crisis Information Technology Organization of Iran Government <b>Iran (Islamic Republic of)</b>
Beneficiaries
More than 19 million households received loans during the two phases in which one million loans were lent to each low-income family. Preparing packages of 500 million Iranian Rials for 5000 start-up companies Providing low-cost facilities to service providers and supporting service recipients by presenting about 50 to 100 percent

discount The ICT Ministry has collaborated with other public and private sectors in three areas of education, telecommuting, and businesses in order to implement its social responsibility. The details of these measures discussed hereunder The Social Responsibility System (<https://www.noafarincsr.ir>) is a platform which aims to use the capacity of the startup ecosystem, creative enterprises and innovative society to be able to take practical steps in the social empowerment of different individuals and groups in the society. To design a program for attracting public supports and charities, distributing resources between the poor and fair allocation of donations among the needy, a campaign was launched between Imam Khomeini Relief Foundation and the Ministry of Communications and Information Technology.

#### Website

<https://ito.gov.ir/>

#### Description

1-Immediate emergency monitoring and control at the beginning of the coronavirus crisis 2- Financial measures to create a protective shield 3-Activities in the field of education, teleworking and social responsibility 4- Taking advantage of capacities in the areas of ICT

#### ICT Tools

1-Implemented Measures in the fields of Monitoring and Control Technologies: Exploring the outbreak map of disease and congested parts based on the traffic map of infected people by considering telecommunication information of the infected patients for two weeks before hospitalization and evaluating the risk of infection for each Iranian individual based on the collected data from different sectors of the country including POS terminal information from Central Bank, household, Information from Ministry of Cooperatives, Labor, and Social Welfare, Ministry of ICT, Internet taxi transportation system, AC19 software, and Mask software 2- SMS support for sending a ten million Rials loan to low-income groups. 3-The ICT Ministry has collaborated with the private section to launch the "Buy from Home" campaign. 4-The Information Technology Organization of Iran and the Ministry of Education have developed and implemented the campaign to focus on the desirable and standard content production during the outbreak of the coronavirus and the closure of schools. The campaign revolves around identifying and appreciating teachers who have produced content in virtual learning environment. In this campaign, teachers can upload their generated content on the "Aparat" platform (VOD) and can be judged quantitatively and qualitatively in two stages. 5-Allocating 7 servers and one storage in one of the data centers of the Information Technology Organization of Iran to Providing the required infrastructure for passive defense 6- Providing the required infrastructure for passive defense 7-Design and

implementation of "AC19" application program : The process of launching this application has been performed by Coronavirus Committee of Tehran and Medical Council of the Islamic Republic of Iran to fight against Coronavirus with more than 4 million users. The main purpose of this system is to identify and monitor the people who are suspected of having coronavirus, analyze high-risk areas for disinfection by the Basij and charities, enable telephone visit, hospitalize infected people with harsh conditions, provide food and health facilities for two-weeks home isolations of infected people. 8- Payment design using integrated QR code in cooperation with the Central Bank and Tehran Municipality 9-Allocating free Internet to teachers (Accordingly, 588,519 people registered in the system, and were introduced to operators to receive free internet.) 10-Allocating free traffic to universities and higher education institutions 11-Increasing bandwidth capacity of infrastructure customers services (operators) 12-Developing internal network capacities and infrastructure of telecommunication network gateways 13-Live broadcast of daily visits to the country's museums

#### Challenges / Partnership / Sustainability / Replicability

Challenges: 1-Real and legal persons may have failed to fulfill their obligations in the intended time due to the special circumstances, which force them to pay fines. Therefore, it is recommended that a clear rule should be legislated in this regard . 2-The risk of investing on private sector is increasing due to the current crisis: Maximizing the capacity of well-developed organizations to invest and enter the government in these areas 3- Sanctions

#### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C5.** Building confidence and security in use of ICTs|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C7.** ICT applications: benefits in all aspects of life — E-health|**AL C7.** ICT applications: benefits in all aspects of life — E-employment|**AL C7.** ICT applications: benefits in all aspects of life — E-science

#### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 10:** Reduce inequality within and among countries

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Entrepreneurship development Entrepreneurship & Skills Development Project Government <b>Bangladesh</b>
<b>Beneficiaries</b>
Entrepreneur
<b>Website</b>
<a href="http://www.esdp.gov.bd">http://www.esdp.gov.bd</a>
<b>Description</b>
Free Mask Distribution And Online product Delivery
<b>ICT Tools</b>
Entrepreneurship mark and solved their problem
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: Entrepreneur Development Partners: Prime Minister's Office Bangladesh
<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development   <b>AL C3.</b> Access to information and knowledge   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning   <b>AL C10.</b> Ethical dimensions of the Information Society
<b>SDGs</b>
<b>Goal 1:</b> End poverty in all its forms everywhere   <b>Goal 10:</b> Reduce inequality within and among countries

## Case 46 - DGDA DRUG VERIFICATION

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
DGDA DRUG VERIFICATION Directorate General of Drug Administration Government <b>Bangladesh</b>
<b>Beneficiaries</b>
(i)Initially it's the citizens of Bangladesh ( 160 million + inhabitant) (ii)Safe and Effective Medicinal products for Everyone Everywhere, SDG 3.0 : Target 3.8 Universal Health Coverage.
<b>Website</b>
<a href="https://dgda.gov.bd">https://dgda.gov.bd</a>
<b>Description</b>
<p>What ? The <b>**DGDA Drug Verification**</b> apps is a free web/smart phone based app for reporting suspected adverse drug reactions, Authenticating Medicines Purchased with Price , Submission of Complaints (regarding Medicines Availability, overpricing, suspicious info on SF etc.) to National Competent Authorities i.e. DGDA (<a href="http://www.dgda.gov.bd">www.dgda.gov.bd</a>)</p> <ol style="list-style-type: none"> <li><a href="https://play.google.com/store/apps/details?id=com.dgda.adr">https://play.google.com/store/apps/details?id=com.dgda.adr</a></li> <li><a href="http://103.48.16.179/">http://103.48.16.179/</a></li> <li><a href="https://www.thedailystar.net/backpage/news/just-tap-away-1712506">https://www.thedailystar.net/backpage/news/just-tap-away-1712506</a></li> <li><a href="https://ideabank.gov.bd/projects/45">https://ideabank.gov.bd/projects/45</a></li> <li><a href="https://www.youtube.com/watch?v=VmZytbbybGI&amp;t=3s">https://www.youtube.com/watch?v=VmZytbbybGI&amp;t=3s</a> Why use the app?</li> </ol> <ul style="list-style-type: none"> <li>•Quick and easy to report adverse effects, complaints</li> <li>•Instant access to medicines Price info</li> <li>• Instant Authentication of Purchased Medicines ( PUSH-PULL SMS to 333 and Online Both) Help make medicines safer for all</li> <li>• It's free!</li> </ul> <p>key features of this application: Identifying SF / Authenticating drug Complain about over pricing of drugs Complain about medicine Adverse Drug Reaction Reporting*</p>
<b>ICT Tools</b>
Web based and smartphone apps along with feature phone enabled system ( PUSH-PULL SMS )
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenges: Sustainability depends upon the successful Nationwide scale-up and



Maintenance throughout the span of Nationwide scaleup. As we got selected from the Ministry level to do so The sustained nature of this initiative must be a bit revenue generating.the real challenge is to design them and seamlessly integrate them with this system as we got no IT personnel out of 370 Human resources so it's a must to outsource those for which we need funding.

Partners: Investor /Donor

Replicability: Yes. From Pilot phase to Nationwide scaleup nomination is the proof and at the same time The NMHRA CEO expressed his keen desire to be replicating it in Afghanistan

Sustainability: Considering this issue we already identified few premium features to be adding up with this being coherent with the E Service Roadmap of DGDA 2021 where major 16 modules ( Service Delivery ) are being listed but a few overlooked.

We want to bring in those discarded features here. For example : Now The system covers only The Allopathic System of Medicines. Midst this covid-19 situation we experienced here ttriggered us to be thinking on Medical Devices and PPEs

Authenticity. Here only 6-8% of the total consumed devices /year are being manufactured and rest are being imported;. The total Market size for medical devices is huge considering 180 million people here. Being endorsed by The regulatory authority we plan to offer a paid online services for all Medical devices importers followed by a mandatory integration of Unique code for all lots of imported products.it will serve both ends – one is service automation which is quite in line with Governments Vision of Digital Bangladesh and Other one is revenue generating which make this initiative sustainable. Like This one there are a few others planned for integration. Paid services for ADRs of All investigational Drugs ( Clinical Trials conducted here) Paid Services for Online label ( Artwork ) repositories for all Medicines and Medical devices Manufacturers .

#### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development | **AL C7.** ICT applications: benefits in all aspects of life — E-health

#### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all | **Goal 17:** Revitalize the global partnership for sustainable development

## Case 46 - SupplyAlly (Sally)

Title of the project, Contact Organization Name, Stakeholder type, Country

SupplyAlly (Sally)  
Government Technology Agency (GovTech)  
Government

<b>Singapore</b>
<b>Beneficiaries</b>
<p>Since its launch on 5 April, SupplyAlly has facilitated the management of hundreds of volunteers and the distribution of 4.2 million reusable masks. It has also been used in partnership with the non-profit Engineering Good to provide refurbished laptops to under-privileged children for home-based learning programmes. Over \$20 million in physical credit vouchers for low-income households have also been delivered through the app. SupplyAlly has also played an integral role in distributing more than 500,000 TraceTogether Tokens (digital contact tracing wearables) to the community, starting with the elderly and other digitally-excluded members of the population. Furthermore, the SupplyAlly team engaged Food from the Heart, a charitable organisation, to give out hot meals to the elderly and other groups in need.</p>
<b>Website</b>
<p><a href="https://www.tech.gov.sg/">https://www.tech.gov.sg/</a></p>
<b>Description</b>
<p>SupplyAlly is a mobile app that facilitates the process of logistics distribution during COVID-19. During this pandemic period, distributing supplies to the entirety of Singapore's population meant that the coordination of manpower had to take place on a nation-wide scale, with each item and its intended recipient accounted for. Responding to the urgent need to distribute reusable face masks to residents across Singapore, GovTech's Government Digital Services team developed SupplyAlly within a short span of four days. The app serves as a single solution for both the management of a flexible pool of supply-distributing volunteers as well as the tracking of collection quotas. SupplyAlly removes the hassle of requiring volunteers to sign up with personal details. Instead, volunteers are issued a QR code to be scanned using the app on their own device, after which they are authorised to use the app with no further details required. The QR codes are then permanently affiliated with the user's device, meaning that they cannot be used for unauthorised logins even if someone else obtains them. Using the app, volunteers can scan the identity cards of residents to verify their eligibility and log the successful distribution of the item. No personally identifiable information is ever stored, only a time-stamped digital signature that prevents the same barcode from being used for a duplicate collection.</p>
<b>ICT Tools</b>

To support multiple distribution campaigns through a single app, SupplyAlly makes use of the Government Commercial Cloud. With Cloud technology enabling multiple campaigns to be run concurrently, individuals can then access their specific campaigns by logging in with a unique QR code provided for them. Since campaigns run for an extended period of time, the SupplyAlly team needed to calculate and determine how much memory was used against the costs charged by the provider. Serverless solutions (where one only pays for the computing power used) were hence adopted, as they allowed for rapid scaling when needed while consuming less resources when campaigns were not active.

### Challenges / Partnership / Sustainability / Replicability

**Challenges:** Some of the error messages and feedback displayed to SupplyAlly's users are not intuitive. Since the messages are more technically-driven than user-driven, they can be a little hard to understand at times. The team has since revamped these messages to help users overcome simple issues while using SupplyAlly. The QR login code is key for allowing people to log into various environments so that multiple campaigns can be run concurrently. However, there is a risk of losing the code, and the administrative aspect of distribution campaigns has the heavy responsibility of managing thousands of QR login codes for the distributors.

**Partners:** We have no specific areas/requirements on partnership and are open to all possibilities.

**Replicability:** Yes, since running on Cloud technology, Sally can easily create production environments for new distribution campaigns in Singapore.

**Sustainability:** Yes, Sally has the ability to process 4,500 transactions per second with a 50-millisecond response latency, even when supporting multiple distributions concurrently. Development agility is also made possible with over-the-air update and automatic CI setup.

### Action Lines

**AL C4.** Capacity building | **AL C7.** ICT applications: benefits in all aspects of life — E-government

### SDGs

**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture | **Goal 3:** Ensure healthy lives and promote well-being for all | **Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all | **Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all | **Goal 11:** Make cities inclusive, safe, resilient and sustainable

## Case 47 - SPOTON

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
SPOTON Government Technology Agency (GovTech) Government <b>Singapore</b>
<b>Beneficiaries</b>
SPOTON is useful for temperature scanning in any environment with high footfall, allowing for time and labour savings while keeping operators and visitors safe. Without the need for manual temperature taking, SPOTON minimises physical contact between staff and the public. With instant readings and ability to screen up to 10 people at once, SPOTON reduces queues and waiting times for entry into buildings, especially during peak hours. With automatic screening and alerts, only one person is needed to operate SPOTON, streamlining operations and overcoming manpower constraints. Building operators and managers can adopt SPOTON inexpensively – SPOTON’s AI software combined with affordable commercial hardware makes it significantly more affordable (with an estimated hardware cost of \$800) than similar commercial cameras (that can cost more than \$10,000) without accuracy being compromised, making safe and fast thermal scanning operations accessible to more organisations. The non-exclusive licensing of SPOTON version 1.0 software to 3 local SMEs and a non-profit organisation for free helps develop capabilities of the local ICT sector and provide job and training opportunities to citizens.
<b>Website</b>
<a href="https://www.tech.gov.sg/">https://www.tech.gov.sg/</a>
<b>Description</b>
GovTech’s Smart Nation Platform Solutions team developed SPOTON, a smart thermal scanner, under the Digital Operations Smart Services (DOSS) platform, producing the first prototype within seven days. SPOTON can screen up to 10 people at once, with a temperature indicator for each face and automated alarms and email alerts when high temperatures (above 37.5°C) are detected. Through SPOTON, operators are alerted to individuals with high temperatures and can speed up crowd temperature screening, minimising physical contact and time spent on manual temperature checks. SPOTON is also able to distinguish humans from objects, and is not affected by masks, hats and headdresses, or by hot or cold objects like drinks. It can also detect and indicate when a person is not wearing a mask with an accuracy

of up to 80%, under optimal lighting conditions with no back lighting. SPOTON can be deployed at indoor or outdoor environments (away from direct sunlight and with a stable ambient temperature). SPOTON has been tested and deployed in different settings with high footfall, including office buildings, community centres, places of worship and community isolation facilities.

### ICT Tools

SPOTON runs on DOSS, which is a high-performance Machine Learning- and Computer Vision-based framework brought together to add Machine Intelligence to otherwise "dumb" devices. The framework is very easy to adopt because core capabilities are all implemented on the software end. The DOSS framework allows for real-time detection of human faces and computation of facial temperatures within an accuracy of 0.3 to 0.5 degrees Celsius. As a hybrid AI solution, SPOTON combines affordable off-the-shelf hardware (a long-wave infrared camera and RGB-Depth camera) with advanced software capabilities like deep learning human face detection and face mask detection, making SPOTON significantly more affordable than most commercially available scanners without compromising accuracy.

### Challenges / Partnership / Sustainability / Replicability

**Challenges:** The main challenge the team encountered while developing SPOTON was in assessing the accuracy and stability of our thermal scanner. To benchmark SPOTON's accuracy, we engaged Dr Wang Li, an expert in thermal sensing solutions from the National Metrology Centre (NMC) of Singapore. Dr Wang and her team assisted GovTech to calibrate and assess our thermal scanner performance, and we managed to achieve an accuracy of 0.3 – 0.5°C.

**Partners:** GovTech will consider requests by other companies that are interested in licensing the SPOTON software and distributing SPOTON. Interested companies may approach GovTech.

**Replicability:** The AI-based SPOTON software developed by GovTech is what powers our solution. With hardware components that are commercially available and inexpensive, SPOTON can easily be produced and deployed at scale. GovTech has licensed the SPOTON software to four Singapore-based distributors to meet the public demand for an affordable, accurate and effective automated temperature screening solution.

**Sustainability:** Temperature screening will likely be the new normal and the solution will remain relevant beyond the COVID-19 crisis. GovTech's software team is also continuing to develop new AI features for SPOTON, including human pose estimation and vital signs measurements like blood-oxygen saturation and heart rate, which will enable SPOTON to serve a wider range of medical functions beyond temperature screening.

<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development   <b>AL C4.</b> Capacity building   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-environment
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all   <b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable

## Case 48 - VigilantGantry (VG)

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
VigilantGantry (VG) Government Technology Agency (GovTech) Government <b>Singapore</b>
<b>Beneficiaries</b>
VigilantGantry is especially suitable for locations with high human traffic, augmenting existing temperature screening efforts. Multiple government agencies in Singapore have expressed interest in large scale deployments of VigilantGantry, including the National Library Board, Maritime and Port Authority, NParks, Singapore Tourism Board and the Ministry of National Development. This is testament that VigilantGantry deployment at public spaces helps to serve the public and citizens who live, work, and play in Singapore.
<b>Website</b>
<a href="https://www.tech.gov.sg/">https://www.tech.gov.sg/</a>
<b>Description</b>
As part of a nation-wide effort to prevent and contain COVID-19 transmission, government buildings and public venues have implemented temperature screening and access control measures. VigilantGantry (VG) is a fully automated, contactless gantry system for temperature screening driven by AI and deep learning that augments existing thermal scanners to improve the rate of contactless scanning,

easing queues for entry into buildings and reduces manpower required for temperature screening measures.

### ICT Tools

VigilantGantry's technical features and specifications that benefit the end-users and ICT industry include: Adaptability and scalability – It is product and brand agnostic, designed to integrate with existing access control gantries, thermal scanners, cameras and other VA solutions without the need to purchase new equipment. For building owners, this results in lesser implementation costs, and reduces manpower, adapting to their current processes and plug-and-play scalability according to their needs. Supports contact tracing efforts – Besides measuring skin temperature and performing facial indexing, VG can also capture location, date and time details to aid contact tracing when required. It can also store health and travel declaration data obtained via questionnaires. Open-sourced – VG's face segmentation algorithm has been published on GitHub for the private sector to scale and deploy to sites across Singapore. The algorithm is used to detect visitors wearing headgear or with occlusion which may hinder the effectiveness of current thermal scanners.

### Challenges / Partnership / Sustainability / Replicability

**Challenges:** While VigilantGantry works best with a physical flap-based / turnstile barrier in place, cost-conscious building owners are hesitant in adopting VG due to uncertainties on how long the COVID-19 situation is going to last, and high capital expenditure costs of deploying fixed gantries permanently. The team has overcome this by advocating leasing model of mobile-gantries as opposed to owning the physical gantries.

**Partners:** The team is looking for System Integrators who can leverage VigilantGantry solution.

**Replicability:** To spur adoption by the ICT industry and cater to different sites' installation and implementation needs, VG's face segmentation algorithm was made public, and can be found on GitHub for the private sector to scale and deploy to sites across Singapore. At present, five ICT companies have adopted VG in their products, serving the public and private sector with commercial deployments. We have also received requests and direct queries on the source codes from local and global companies. These include Echotech, APM Global, CNS Connections (NEX mall), OneBerry, AxxonSoft, Hitachi Asia, and Balixton (based in South Africa).

**Sustainability:** The next phase of VG will take in industry feedback on our codes, improve on the codes, integrate with third party devices, and tap on the open-source community for future improvements. We are also in the process of working with Government Agencies to lease or engage in tenders for fixed installation of VG for long term deployment. We envisage that as even as we approach post-COVID-19, physical barriers with thermal screening to deny entry to visitors with febrile

<p>symptoms, coupled with other access controls like facial recognition or card access, may still be part of the new concept-of-operations for building access. VG will definitely continue to benefit building owners with cost savings from automation and enhanced manpower efficiency.</p>
<p><b>Action Lines</b></p>
<p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business</p>
<p><b>SDGs</b></p>
<p><b>Goal 3:</b> Ensure healthy lives and promote well-being for all   <b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation   <b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable</p>

## Case 49 - GoBusiness COVID Portal

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>GoBusiness COVID Portal Government Technology Agency (GovTech) Government <b>Singapore</b></p>
<p><b>Beneficiaries</b></p>
<p>The GoBusiness COVID portal made it easier for both businesses and individuals to be kept up-to-date about the latest COVID-19-related safe management requirements, as well as to obtain updates about the phased reopening of the economy. Businesses can login with CorpPass (a corporate digital identity for government-to-business transactions) on the GoBusiness COVID Portal to submit their exemptions applications and manpower declarations. Businesses are also able to check the status of their applications through the portal. The pandemic had also affected the lives of individuals and GoBusiness COVID Portal was a key source of information about the latest COVID-19-related guidelines for workplaces and events. For example, couples could check on the guidelines for holding weddings, religious groups could check on guidelines about religious gatherings, etc.</p>
<p><b>Website</b></p>
<p><a href="https://www.tech.gov.sg/">https://www.tech.gov.sg/</a></p>



## Description

Jointly developed by Ministry of Trade and Industry (MTI), the Smart Nation and Digital Government Office (SNDGO), and GovTech, the GoBusiness COVID Portal was the key source of information about the latest COVID-19-related guidelines and safe management requirements for both businesses and individuals during the pandemic. The portal was the go-to site for businesses to obtain information about the conduct of their operations, and for them to submit their exemption applications and manpower declarations. The GoBusiness COVID Portal also provided information about the phased re-opening of the economy and how contact tracing support measures like SafeEntry and TraceTogether could aid in safe reopening. To help businesses adversely affected by the pandemic, the GoBusiness COVID Portal also provided information about the various government support schemes available. This was subsumed under the new GoBusiness Gov Assist portal, which launched in Aug 2020. With over 100 assistance schemes available, it allows businesses to search for support ranging from funding to references and programs for building capabilities, skills and knowledge.

## ICT Tools

To accelerate the development of GoBusiness and allowing it to address the immediate needs of the evolving pandemic situation, GovTech leveraged on several SG-Tech Stack and GoBusiness modules: GovTech's Isomer tool, helped to generate an informational website that was compliant with the Government's digital guidelines and standards. GovTech's FormSG tool, helped to create forms with customised data fields for the collection of data and information, e.g. applications for exemptions and permissions to continue operations during Singapore's "circuit breaker" period. GoBusiness' FormBuilder, a customised version of FormSG was used to develop the GoBusiness Gov Assist e-Adviser. It assists businesses adversely affected by the pandemic, by recommending available government assistant schemes based on their business needs.

## Challenges / Partnership / Sustainability / Replicability

Challenges: Uncertainty: The pandemic situation was unprecedented, resulting in uncertainty about the business requirements and the design of the portal. To manage the evolving needs of the pandemic, the system had to be easily modified, whilst being user-friendly and easy to navigate. GovTech's tools such as ISOMER and FormSG were vital in addressing these needs. Limited resources: The resources required to support the effort had not been budgeted but a lean multi-agency team was rapidly assembled. The team had to conceptualise, develop, launch, and support the new portal. Past experience with agile development of cross-agency systems provided the foundations that made this possible. 24-hr online and offline support: The need for rapid deployment meant that businesses were faced with new policies, processes, and systems. Without the luxury of time for gradual change management, the team was faced with high demand for user and

system support. We overcame the significant demand for offline user support and 24-hr system support through the dedication of public officers who worked tirelessly around the clock.

Partners: Due to the short notice, partners were not involved.

Replicability: This project is certainly replicable! GovTech's products are reusable, scalable and interoperable. The aggregated products that GoBusiness COVID Portal had adopted can be easily redeployed and scaled for other purposes. ISOMER can be adopted for projects that require the display of informational content. For example, Singapore's budget 2020 website was created using ISOMER. FormSG can be adopted for projects that require the submission of data without integration to any backend. For example, application to other COVID support schemes were built using FormSG. The e-Adviser can be adopted for projects that require customised results based on user inputs.

Sustainability: A key strategy of the Singapore Government's Digital Government Blueprint is to build common digital and data platforms, to reduce the time and effort to introduce new digital services. This strategy facilitated the development of the tools used to develop this project. In addition, the system was developed on the Cloud. This provided the project with scalable infrastructure and industry standard tools. The use of commercial Cloud providers reduces the need for dedicated Government data centres and servers. For these key reasons, we were able to deliver the project with minimal development and operating cost. We believe the project is both sustainable as well as scalable.

#### Action Lines

**AL C2.** Information and communication infrastructure | **AL C3.** Access to information and knowledge | **AL C7.** ICT applications: benefits in all aspects of life — E-government | **AL C7.** ICT applications: benefits in all aspects of life — E-business | **AL C7.** ICT applications: benefits in all aspects of life — E-health | **AL C7.** ICT applications: benefits in all aspects of life — E-employment

#### SDGs

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all | **Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case 50 - GoWhere Suite

Title of the project, Contact Organization Name, Stakeholder type, Country

GoWhere Suite  
Government Technology Agency (GovTech)  
Government  
**Singapore**

### Beneficiaries

A) Citizens: - Accurate info - Timely info - Location based search - Inclusivity ( All sites are available in 4 languages) - Consistent design and user experience B) Government Officers - Extremely high cost per transaction to launch new initiative from scratch - Speed - OpsTech integration (postergowhere) to cut down efforts required

### Website

<https://www.tech.gov.sg/>

### Description

The GoWhere Suite is a ground-up initiative by GovTech's Government Digital Services (GDS) team. It was created during the Covid-19 crisis to address the following needs: - Rapid & reliable source of information - Location/eligibility-based information query/discovery - Inclusivity to maximise the reach of info - OpsTech integration to support government distribution ops Having assisted several government campaigns, GoWhere Suite has evolved to become a mini tech stack by itself (to be explained in the next segment). In less than a year, the GoWhere suite has been used in 11 Government initiatives, totalling 14 million visits and 48 million API transactions. Key highlights of the project activities and results include: A) Mask GoWhere & Poster GoWhere: Three rounds of mask distribution exercises saw 4 million visits, 2.3 million unique visitors since Feb 2020 - Disseminate mask collection info quickly and accurately during the crisis, - Support the operation of Government call centre based on the "source of truth" data on Mask GoWhere - Poster Gowhere to create standardised multilingual posters with the most up-to-date information on the distribution exercise. B) Support GoWhere: 2.4 mil visits, 1.3 mil unique visitors since Apr 2020 A single platform for citizens to find the help they need. The eligibility checker function brings clarity on what schemes each person qualifies for. C) Pass GoWhere & Identity GoWhere: APIs were called 48 mil times Foreign workers residing in dormitories use this site to apply for an exit pass before going to the Recreation Centres. This information is piped into Safe Entry and SG WorkPass for enforcement purposes. Other GoWhere websites with similar concepts were developed subsequently as different Government agencies approached GDS to create them: - GoWhere Directory: 150k visits, 100k unique visitors from Apr 2020 - VoteQ GoWhere: 2.5 mil visits, 1.3 mil unique visitors in Jul 2020 -

Flu Gowhere : 1.3 mil visits, 1mil unique visitors from Feb 2020 - SGTogetherPack GoWhere: 1.3mil visits, 800k unique visitors in Jul 2020 - TraceTogether Token GoWhere: 1.2 mil visits, 800k unique visitors from Sep 2020 Gowhere suite of website: [gowhere.gov.sg](http://gowhere.gov.sg) [maskgowhere.gov.sg](http://maskgowhere.gov.sg) [flugowhere.gov.sg](http://flugowhere.gov.sg) [supportgowhere.gov.sg](http://supportgowhere.gov.sg) [sgtogetherpack.gowhere.gov.sg](http://sgtogetherpack.gowhere.gov.sg) [token.gowhere.gov.sg](http://token.gowhere.gov.sg) [passgowhere.gov.sg](http://passgowhere.gov.sg)

## ICT Tools

Gowhere is an end-to-end distribution stack that promotes strong reusability and increases in efficiency for Covid communications and ops with every iteration. It is a mini tech stack that consists of the following: I. React Gowhere - A design system library to allow a new location-based query website to be set up within hours, instead of weeks. II. Identity Gowhere - It constitutes a basic authentication module that we have setup to cover all residents in Singapore (citizens, PRs, workpass holders, long term social visit pass holders, and foreigners). III. Pass GoWhere - To perform status query of foreign workers staying in dormitories, to find out whether they are allowed to leave the Dorm for work/leisure purposes. IV. Poster Gowhere - Support OpsTech integration for PA staff members across 89 Constituency Divisions, 109 Community Clubs/Centres to manage several functions e.g. distribution location data entry, poster generation, stock level updates etc). V. Benefit Engine - It facilitates data capture of different criteria and powers the front-end search. VI. CDNGowhere - A central content management console that powers multiple Gowheres' frontend. This continuous and quick improvement led to pervasive use of the stack. Such digital solutions were not adopted by the government before. It also helps to promote a "One-Government, cross-agency, user-centric" narrative.

## Challenges / Partnership / Sustainability / Replicability

Challenges: 1. Need extremely short time-to-market Solution: We built GoWhere as a tech stack which drastically improved the time-to-market for any similar digital initiative through reusability. 2. Application Security in the fast paced environment Solution: Setup central application security team to "shift left" the whole application security process. 3. Continuously discover/improve product imperfections Solution: Use WOGAA Sentiments as a government tech stack product to continuously monitor feedback. This allows us to fix any legacy and new usability issues/bugs as and when needed. 4. Lean team Solution: Reusable stack

Partners: We have been constantly working with design and engineering partners to enhance the product offerings.

Replicability: The GoWhere Suite, as a Singapore Government Distribution Stack product, is all about replicability and reusability. From the first GoWhere site on 1 February, new GoWhere websites have been added where there is a need to provide

access to reliable and timely government information. Maskgowhere was the first one, and the same concept of entering one's postal code to retrieve relevant info has since been replicated for Tokengowhere, VoteQgowhere, Flugowhere and SGtogetherpackgowhere. To facilitate the design and development of the services in the Gowhere suite, a reusable, portable and rigorously tested design-system library, ReactGoWhere was created. For each new service deployed, the team can monitor user experience and consider the improvements that can be made based on feedback received from the live sites. This iterative approach allows the team to continuously improve the different Gowhere services. The design-system library also streamlines the development of new Gowhere services very quickly.

Sustainability: Beyond the Covid-19 crisis, the GoWhere suite will continue to provide up-to-date information to the public in different settings and contexts. The application stack that was built up during covid is relevant to any generic distribution ops or a location/eligibility based query information system which was common even before the crisis. At the same time, we started to see other government agencies approach the Gowhere team for collaborations that extend beyond the Covid period. For example, MSF, NCSS, SGE and AIC have intentions for Support GoWhere to evolve and become a one-stop social assistance portal. It will continue to have an eligibility checker for residents to find services and schemes that they are eligible for, and apply for them online. We are also considering an appointment feature to allow online booking for consultation and subsequent tracking of action items. Support GoWhere will start with the social service sector and potentially extend beyond the sector in subsequent stages. At the same time, the accelerated creation of a unified social portal will transform how social services are delivered. React GoWhere will continue to be highly relevant, as it allows us to create similar websites in future with a very short lead time, and it is not limited to Covid use cases. PosterGowhere will continue to serve as the agency operators backend to drive the frontend functionalities as designed. Other elements in the tech stack e.g. CDN Gowhere, IdentityGowhere are not Covid specific as well. If there is a similar use case, we can quickly create new services using such elements in the stack.

**Action Lines**

**AL C7.** ICT applications: benefits in all aspects of life — E-government | **AL C7.** ICT applications: benefits in all aspects of life — E-health

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all

**Case 51 - SafeEntry**

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>SafeEntry  Government Technology Agency (GovTech)  Government  <b>Singapore</b></p>
<p><b>Beneficiaries</b></p>
<p>The fast and pervasive adoption of SafeEntry has allowed businesses to re-open earlier than projected. Customers at their stores have their time of visits and duration logged into the SafeEntry system to help contact tracers map the activity of any COVID-19 cases. With the help of an activity map, such information allowed the Singapore Government to plan and decide how best to open the next industry vertical or implement measures to others to prevent and control the transmission of the virus.</p>
<p><b>Website</b></p>
<p><a href="https://www.tech.gov.sg/">https://www.tech.gov.sg/</a></p>
<p><b>Description</b></p>
<p>SafeEntry is a national digital check-in system developed by the Government Technology Agency of Singapore (GovTech), which logs an individual's entry into a venue. It was built to resolve the need for an effective and practical visitor management, and control measures deployed at all public locations to allow citizens to move about the community amidst growing concern for the spread of COVID-19. The pervasiveness of SafeEntry, which at point of writing is deployed at over 200,000 businesses and public venues, enables the relevant authorities to more effectively contain any new infections, drastically reduce time taken for contact tracing, and isolate at-risk individuals as quickly as possible. Should there be a confirmed case at any location, contact tracing efforts are sped up using information from SafeEntry, which in turn helps prevent new COVID-19 clusters from forming.</p>
<p><b>ICT Tools</b></p>
<p>With the Singapore Government's Cloud-first policy, SafeEntry was designed by combining architecture best practices and AWS' well-architected framework together with an experienced team of GovTech agile engineers, resulting in the following:</p> <ul style="list-style-type: none"> <li>- Same-day bug fixes</li> <li>- No-downtime since launch</li> <li>- Fully automated development-to-release process</li> <li>- Minimal human intervention during release</li> <li>- Scaling from 10,000 to over 2 million daily users on same infrastructure</li> <li>- Actively monitoring</li> </ul>

over 1 billion transactional logs daily      The introduction of SafeEntry also drove national level digitalisation. The implementation of SafeEntry QR codes at all venues with added communication efforts on cyber hygiene accelerated our citizens' exposure to technology. On a national level, our citizens are more equipped, supported and informed today.

### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** One key challenge was the inevitable resistance from less digitally savvy users, who found it difficult to scan QR codes i.e. they could not understand the concept; they were physically challenged in some aspects or even just being users who may not own a mobile phone. The SafeEntry team, together with venue owners rolled out the barcode scanning option where the users could present their physical identification cards for scanning. This provided an additional SafeEntry option for our users, fulfilling the requirement of logging individuals' access to the venues.

Another challenge was traffic crowding around QR posters – SafeEntry was designed to have users scan a QR code to check-in to the location. During peak periods, crowding around the QR poster location arises, which in turn violates the safe-distancing measures. The SafeEntry team designed and incorporated a location-based check-in feature in the National Digital Identity App (SingPass Mobile). Using GPS, the app allowed users to check-in to locations near them, without scanning a QR code. In addition, users could also 'favourite' locations that they frequently visit for faster check-ins.

**Replicability:** As SafeEntry stabilises, there is a greater push for private-sector collaboration and co-creation. GovTech's National Digital Identity team launched the SafeEntry-API which allows solution providers (e.g. thermal scanners, facial recognition gantries) to integrate it with their current tech solutions. These implementations allow visitors to seamlessly enter a mall or office without having to complete registration and SafeEntry check-in separately.

**Sustainability:** In order for the project to be sustainable, we must look for more pervasive ways to perform the basic principle of SafeEntry – knowing who was here. To achieve this, our TraceTogether programme will be merged on top of the SafeEntry infrastructure, to provide anonymised proximity tracking to form the missing piece - who you may have met. The combination of TraceTogether-SafeEntry will give the Government oversight of what is required to swiftly curb the transmission of any COVID-19 cases, while resuming to normalcy as safely as possible. The data collected via SafeEntry is encrypted and stored in the Government server, which will only be accessed by the authorities when needed for the purpose of preventing or controlling the transmission of COVID-19. The Government is the custodian of the data submitted by individuals, and there are stringent measures in place to safeguard the personal data. Only authorised public officers will have access to the data.

### **Action Lines**

**AL C7. ICT applications: benefits in all aspects of life — E-government** | **AL C7. ICT applications: benefits in all aspects of life — E-business** | **AL C7. ICT applications: benefits in all aspects of life — E-health**

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all | **Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all | **Goal 11:** Make cities inclusive, safe, resilient and sustainable

## Case 52 - Service Access Points (SAP)

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Service Access Points (SAP) Rwanda Information Society Authority(RISA) Government <b>Rwanda</b>
<b>Website</b>
<a href="https://www.risa.rw">https://www.risa.rw</a> <a href="https://www.minict.gov.rw">https://www.minict.gov.rw</a>
<b>Beneficiaries</b>
All population of Rwanda (Rural and urban)
<b>ICT Tools</b>
Computers, Internet routers/Modems ,etc
<b>Description</b>
Service Access Points (SAPs) are physical infrastructure facilities provided at the district and sector levels through which citizens access mainly public services online (Irembo services, RRA services, ect...) as well ICT basic Training other services including printery, scanning, training or internet connectivity. <ul style="list-style-type: none"> <li>• Since 2015 the establishment of Irembo services citizens more than 50 citizens reached each SAP located at Sector level per day requesting for irembo, RRA and others e services. 20 citizens are trained to basic Digital literacy, in each District SAP per day others reach districts to have access to information using internet</li> </ul> With the existing of SAP, citizens are able to access



Public Services online remotely in their districts and sectors.
<b>Challenges / Partnership / Sustainability / Replicability</b>
a) There is no enough equipments (Laptops, Internet, etc) in SAPs and Lack of permanent SAP Managers b) There is no clear sustainability model for operation
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge
<b>SDGs</b>
<b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case 53 - Electronic Health Management System (EHMIS)

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Electronic Health Management System (EHMIS) Rwanda Information Society Authority(RISA) Government <b>Rwanda</b>
<b>Website</b>
<a href="https://www.risa.rw">https://www.risa.rw</a> <a href="https://hmis.moh.gov.rw">https://hmis.moh.gov.rw</a>
<b>Beneficiaries</b>
PC, Internet routers/Modem
<b>ICT Tools</b>

Computers, Internet routers/Modems ,etc
<b>Description</b>
Electronic Health Management Information System Project have been operational since 2012 and covered all health facilities countrywide to improve Health data reporting timeliness, completeness accuracy and to show how health data is being collected and used in Rwanda.
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenge: The system is used by all Health facilities but need to be integrated with other Health system (EMR) - Need of strong digital literacy for all users at Low level Health facilities like Health Posts. The system have been developed since 2011 and operational from 2012 and will continue to survive and improve in the future.
<b>Action Lines</b>
<b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 54 - Ministry of Information and Communicaitons

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Data discount scheme for students, Druk Trace App, Entry Exit System, Health Facility System,Quarantine Management System,Check Post Managment System,National and Central Covid 19 dashboard,Essential Goods Stockpiling system,Vegetable Market Information System Ministry of Information and Communicaitons Government <b>Bhutan</b>
<b>Website</b>

<https://www.moic.gov.bt/en/>  
<http://www.moh.gov.bt/>

### Beneficiaries

The overall general public and the government machineries.

### ICT Tools

ICT related apps and systems

### Description

Among the many ICT related projects, few critical initiatives have been:

1. Internet data discount for students: With the closure of the schools, students were required to continue their academic session online. For this, the Ministry in collaboration with Telecom Operators introduced discounted data schemes to enable students to learn.
2. Druk Trace App: A tracing app to enable the government to track primary and secondary contact of individuals with possible exposure to COVID-19 positive cases.
3. Check Post management system: A system to enable the law enforcement agencies to enable them have list of people who have travelled in and out of a particular district.
4. Vegetable Market Information System: The system was developed to collect information on availability of vegetables and their demand in all Dzongkhags. The system was built to help the task force team under MoAF to collect the required locally produced information so that they can transport and distribute vegetables in other required dzongkhags. The information in the system is supposed to be fed in by Agriculture extension offices and private vegetable aggregators in the Dzongkhags.
5. Covid-19 middleware Covid-19 Middleware is a backend system that automates data processing, integration and synchronization of data between the GIS Dashboard and various other COVID19 system's data sources as well other relevant government data sources such as Immigration and Census
6. Essential Goods Stockpiling system The system was developed to get the available stock information on the essential items during the pandemic period. The system has all the available registered vendors who had come forward to be part of stockpiling during the period and also the details of the warehouse where stocks have been kept. In addition to it, the system is also integrated with some of MoEA system to display information such as Market Price, Fuel and Gas, etc.
7. National and central covid-19 dashboard The system is similar to SEP system listed in point number 5 to ensure a comprehensive Contingency Plan development and actions and to report the situation on a daily basis, an online National and central covid-19 dashboard was developed by National and Central -Covid-19 taskforce for remaining 13 dzongkhags.
8. StayHome App The mobile app is designed for use by the quarantined individuals only. The name of the app is StayHome app. The quarantined individuals can use this app to report any symptoms of the flu. The monitoring/team/user should review the reports and depute health staff case by case. The users (quarantined individuals) can submit scheduled updates such as selfie images as instructed by the quarantine manager. The app can monitor the quarantined individuals moving

away from the set quarantine boundary/perimeter set by the management for safety. If a breach is identified, the management team shall be notified for necessary action.

### Challenges / Partnership / Sustainability / Replicability

**Challenges:** Availability of data was one challenge. For this volunteer groups were gathered to collect the informations. Secondly, use of the app such as Druk Trace app was an issues. Though the App was developed, initially it was difficult to get people to use the app regularly. However, after a thorough awareness campaign the App was used by the general public. Similarly, ICT education was one other critical issue.

**Replicability:**

All the projects are replicable as it was developed keeping in mind the low level of ICT intake in the country. The project could be used by any country to trace their people, have at international border to maintain database of people moving in and out of a particular area. Keep stock of essential goods in a country and more importantly, an app to enable people in quarantine to make video and share.

### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development | **AL C5.** Building confidence and security in use of ICTs | **AL C7.** ICT applications: benefits in all aspects of life — E-government | **AL C7.** ICT applications: benefits in all aspects of life — E-health | **AL C7.** ICT applications: benefits in all aspects of life — E-agriculture

### SDGs

**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case 55 - Digital Transformation

### Title of the project, Contact Organization Name, Stakeholder type, Country

Digital Transformation  
Dubai Health Authority  
Government  
**United Arab Emirates**

### Website

<https://www.dha.gov.ae/ar/Pages/DHAHome.aspx>

## Beneficiaries

Patients, Healthcare providers with Dubai Health Authority, External Private Healthcare facilities

## ICT Tools

Unified Electronic Medical Record System, Call Center Technology, Telehealth Software, SMART Home Care Kit, Enhanced Security Tools, HIMSS 6.0 Certification

## Description

- increased telehealth consulting      The program is known as "Doctor for Every Citizen", and during covid the technology for leveraged to ensure 30000 online appointments per quarter. This has improved patient satisfaction as well as enabled care providers to reach out to patients.      - online appointments/bookings for covid vaccine.      Covid vaccine registrations/bookings were enabled for citizens and residents using medical record number and this eased for smooth roll out.      - EMR roll out to private entities for vaccine administration      DHA rolled out their EMR and provided access rights to approved nurses and admin staff in private entities to ensure vaccine administration for Emirates Airlines crew, private entities for their healthcare staff/front liners and citizens.      - Usage of outbreak management system      DHA used a system called HASANA since April 2020 for ensuring all data related to covid tests and contact tracing across Dubai. the data was updated real time by DHA facilities and private facilities across Dubai. All PCR results were updated in Hasana. The data is update regularly to NCEMA (National database) and AL Hosn App (App for covid results across UAE).      - Paperless transaction for covid vaccine certificates      Electronic certificates are sent to patient and can be viewed online anytime.      - Paperless transaction for covid test results.      Electronic results and SMS are sent to patient and can be viewed online anytime.      - increased homecare visits and usage of smart home care devices      Online appointment bookings, scheduled nurse and doctor visits, usage of SMART homecare kit to record vitals and automatically update EMR system, allow telehealth during home care visits, generate lab orders and collect samples, book next appointments.      - Online Bed Management, ventilators and oxygen cylinders update across all government and private health care facilities thus assisting in better patient care and bed assignment.      - NABIDH Program      Health Information Exchange (HIE) between government and private hospitals across Dubai.      - wave 1 completed in Oct 2020  
- Wave 2 completed in Dec 2020      - Wave 3 ongoing

## Challenges / Partnership / Sustainability / Replicability

### Challenges:

Ensuring high security, user adoption.      - Enabled additional security tools in place, 24\*7 SOC monitoring, and inhouse IT Security team working round the clock hand-in-hand with other IT teams.      Marketing was done and patients were adaptive due to covid

circumstances.

**Scalability:**

NABIDH HIE program is done in United States, Abu Dhabi (UAE), etc. Telehealth is widely used across many countries. The telehealth, smart homecare, NABIDH (HIE) will cut down healthcare costs a lot globally and enable better care across.

**Sustainability:**

This projects will provide benefits for more than 10-15 years, saves lots of cost, investment can be leveraged for private facilities, patient involvement will increase and personalized value based healthcare can be promoted

**Action Lines**

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

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 56 - MOTC

**Title of the project, Contact Organization Name, Stakeholder type, Country**

MOTC  
Government  
**Qatar**

**Website**

<https://motc.gov.qa/ar>

**Beneficiaries**

All Government entities employees and suppliers, vendors and our constituents and stakeholders

**ICT Tools**

Microsoft Teams, ZOOM and FortiGate VPN and Forti Token Mobile

<b>Description</b>
During pandemic we have used tools like Microsoft Team for remote meeting and collaboration and working from home. Used Fortigate VPN technologies to secure remote access and management purpose.
<b>Challenges / Partnership / Sustainability / Replicability</b>
<p><b>Challenges:</b> We have successfully continued and archived our target with limited resources and budget during pandemic.</p> <p><b>Sustainability:</b></p>
<b>Action Lines</b>
<p><b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development <b>AL C2.</b> Information and communication infrastructure <b>AL C3.</b> Access to information and knowledge <b>AL C5.</b> Building confidence and security in use of ICTs <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning <b>AL C10.</b> Ethical dimensions of the Information Society <b>AL C11.</b> International and regional cooperation</p>
<b>SDGs</b>
<p><b>Goal 1:</b> End poverty in all its forms everywhere <b>Goal 3:</b> Ensure healthy lives and promote well-being for all <b>Goal 5:</b> Achieve gender equality and empower all women and girls <b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all <b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation <b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable <b>Goal 14:</b> Conserve and sustainably use the oceans, seas and marine resources</p>

## Case 57 - Enablement of the Employees, government entities, and customers

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
<p>Enablement of the Employees, government entities , and customers Abu Dhabi quality and conformity council Government <b>United Arab Emirates</b></p>

## Website

<http://www.qcc.gov.ae>

## Beneficiaries

Employees Customers, Government entities.

## ICT Tools

1. Provided new laptops 2. Secure VPN Connection 3. Enabled remote access to all resources of Abu Dhabi quality and conformity council 4. Provided the meeting and communication platforms. 5. Enabled all employees to work from distance (Home) 6. provide access to all shared government services from distance 7. Providing the services through the website and Tamm portal for all customers. 8. Enabled the UAE PASS for customers for secure log in and access to the services. 9. Provided the electronic payments though AD pay and secure gate way. 10. Provided Touchless card time and attendance system in case of coming to work from Government building. all of the above is in the organization, all of the above except no. 10 at national, regional, and international level.

## Description

Abu Dhabi quality and conformity council provided all the needed enablements for employees, government entities and customers to enable working from a distance and providing high class services for government and customers remotely.

## Challenges / Partnership / Sustainability / Replicability

**Scalability:** To all government and private sectors

## Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C5.** Building confidence and security in use of ICTs|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C7.** ICT applications: benefits in all aspects of life — E-employment



## SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all | **Goal 11:** Make cities inclusive, safe, resilient and sustainable

## Case 58 - Gobierno del Estado de Sinaloa, Mexico

### Title of the project, Contact Organization Name, Stakeholder type, Country

Unidad de atención médica para la detección y seguimiento de COVID-19  
Gobierno del Estado de Sinaloa  
Government  
**Mexico**

### Beneficiaries

Positive patients People who contact the Medical Care Unit for the detection and monitoring of COVID-19, which may be: Suspected of symptoms and contact Suspected of symptoms Suspected of symptoms and risk factors Suspect serious or urgent Unsuspicious

### Website

<https://sinaloa.gob.mx/>

### Description

Online self-assessment test from salud.sinaloa.gob.mx and the App Assistant COVID-19 Creation of the Medical Care Unit for the detection and monitoring of COVID-19, an efficient and safe communication channel that allows reducing the number of infections, hospitalizations, severe cases and high-risk patients with the following results: 24,563 georeferenced and follow-up cases, with intelligence applied by addresses to design effective prevention and care strategies. 85,000 calls received and attention provided through the COVID-19 Call Center 50,743 remote medical consultations 30,540 medical and psychological care 49,000 awareness calls to suspects and risk groups for contagion containment 23,803 contagion chains identified 13,500 suspected cases identified and geographically located at an early stage 5,001 medical kits delivered to positive patients through the Medical Care Unit for the detection and monitoring of COVID-19 123 supports in hospital transfers for patients with severe symptoms

### ICT Tools

Internet Telephony Cloud services Mobile apps Streaming content Social

networks E-government
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Challenges: Avoid hospital saturation, achieving it through the use of technologies for the prevention, location and containment of the virus in Sinaloa.</p> <p>Partnership: Allies that contribute to the development of new technologies for education and information about the coronavirus in the new normal.</p> <p>Replicability: The first unit of medical care for the prevention and detection of COVID-19 was created in the Sinaloa capital Culiacan, replicating itself in the city of Mazatlán, and with projects to also operate in the cities of Los Mochis, Guasave and Guamúchil.</p> <p>Sustainability: It is a project focused on guaranteeing the basic needs of society in matters of health security and quality of life, making greater use of technology to achieve the objectives, reducing the use of resources and involving society, government and companies.</p>
<b>Action Lines</b>
<p><b>AL C2.</b> Information and communication infrastructure</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-science</p>
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 59 -Aspire to Innovate (a2i) Program, Bangladesh

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
<p>Konnect: An adolescents' education, soft skills, and counseling platform (www.konnect.edu.bd)</p> <p>Aspire to Innovate (a2i) Program</p> <p>Government</p> <p><b>Bangladesh</b></p>
<b>Beneficiaries</b>
<p>Adolescents and youth who are in the age group 10-24 are the primary beneficiaries of Konnect. In this regard, relevant education departments circulated notices for field level officers and teachers to inform students for watching lessons broadcasted on television or konnect. Teachers are communicating with students and their guardians</p>

and then instructed them to watch the programs on the konnect website. Konnect is providing the following services to students: 1. Academic program: 600+ academic contents of Grade 5 to 12 based on textbook and curriculum are available on konnect for the students. All these classes have been taken by the expert teachers of the country. 2. Psychosocial counseling and co-curricular program: Weekly 2 sessions for psychosocial counseling and two sessions for a co-curricular program like drawing, communication skills, etc. are telecasted live from Konnect FB Page. Then these contents are uploaded on the konnect website. 3. The popularization of reading habit/Books: The book section of konnect has been enriched with 1000+ books of different categories and all books have been selected according to the target age group 10-24. 4. The popularization of STEM Education: There are 200+ science-based experiments and Comics on konnect to make learners enthusiastic about science and STEM education.

#### Website

<https://a2i.gov.bd/>

#### Description

Konnect is an online platform which is working to transform 36 million adolescent and youth into the future-ready workforce through skills, education, and counseling in Bangladesh. The country-wide educational institutions shut-down implemented in Bangladesh on March 17 2020 due to pandemic, affecting the 30 million students across the country. In this context, the government's main priority has been to minimize the disruption of learning to the extent possible. To address this, the Ministry of Education(MoE) is working with konnect as a coordination platform to use it as a national education platform of mass media broadcasting and an online platform to remotely deliver educational content from the school curriculum. The government decided to broadcast recorded classes through national terrestrial TV channels following curriculum and academic calendar for grade 5 to 10. These broadcast, recorded, live online classes and other co-curricular contents are available on **কিশোর বাতায়ন** (Konnect.edu.bd). Each content brings quizzes and homework. Learners' can ask questions and get feedback. Students can create user accounts to complete quizzes on the material and quiz scores have been saved to their profile automatically. Students can find all routines of live classes, recorded classes, and co-curricular activities on Konnect.

#### ICT Tools

To continue education in this pandemic situation, the Ministry of education has taken the following alternative measures instantly with the technical support of Konnect to expand the digital transformation in Education: 1. Recorded classes on TV: MoE and Konnect used state-owned television channel called Sangsad TV to broadcast education programs on a specific slot. Every day two classes for Grade 6-8 and three

classes for grades 9-10. 2. Live and Recorded classes Social Media: Grade 11-12 are not covered under TV program. Also, not all classes of grade 6-10 can be captured due to limited broadcasting time on TV. So Konnect introduced the central live class program for grade-11 &12 on the konnect FB page. Everyday 4 classes are telecasted and till today 210 classes are taken. 3. Psychosocial Counseling Konnect FB page: Mental health is a crucial issue for the adolescent during the COVID-19 pandemic. Konnect telecast 2 episodes every week called 'Alapon' on psychosocial health and counseling based on GEMS Module. 4. Konnect website as a repository platform: All TV-based recorded classes, live classes, and psychosocial programs of the konnect FB page, class routine, quiz, and homework are available on the Konnect website.

### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** In imparting the lessons through a remote learning platform, challenges have been encountered related to infrastructure and connectivity issues. To overcome all the challenges and broaden the scope of the distance education program, MoE and Konnect have thought about telephone-based education. Konnect, a2i along with MoE have designed National Education Helpline: 333-6 which is a telephone-based educational solution for the learners who don't have access to the internet. Above 20% of 50 M learners of different educational levels do not have access to TV and the internet at all. Due to the high bandwidth cost and long duration of online classes, many students cannot afford it though they might have internet access. Most of the parents and students have only a feature phone. So, 3336 will help marginal and remote learners to get 5 minutes lesson by a teacher directly. These 5 minutes are toll-free service during COVID- pandemic. Also, any learner and parents can get the necessary educational information on 3336. Initially, a pool of 4000+ teachers is registered in 3336 to provide service. Also under the partnership with UNFPA, education and psychosocial counseling support will be available through 3336.

**Partnership:** Konnect has broadened collaboration and partnership with different government departments and organizations, non-government organizations, and development partners for distance learning purposes. Konnect is working with Government Agencies Directorate of Secondary and Higher Education, Sangshad TV, National Curriculum and Textbook Board, etc for the academic program. Konnect is also working with INGOs like UNICEF, UNESCO, UNDP, and other development partners on academic, non-academic, and psychosocial counseling program i.e. UNICEF is a donor of TV-based academic contents during COVID-19 pandemic. Other non-government organizations i.e. Save the Children, BRAC, Cambrian School, Residential Model School and College, Channel I have also provided relevant support to the academic content. Project Tiktalik is a local organization working on comics. Konnect has developed a partnership with them to take 2 classes every week on how to draw a comic. Konnect is also looking for partners who can support and fund the implementation and scale-up of the programs at the grassroots level. At the same time, konnect is interested in the partners who can develop and assess soft skills like problem-solving, critical thinking, etc. of the learners to make them ready for the job market.

**Replicability:** This initiative is a comprehensive online and offline platform for adolescents and youth to promote future-ready workforce through skills, education, and counseling. It could be replicated in other countries with similar contexts for developing human resources in different sectors using ICTs as enablers. This initiative is self-evolving and a platform to generate new ideas. So, replicating this initiative could bring some changes in other countries.

**Sustainability:** 1. ICT Division under the Ministry of Communications and Information Technology will take the lead to disseminate ICT based skills development program for the adolescents through this platform. 2. Directorate of secondary and higher Education (DSHE) will take the ownership of connecting students in one platform to give them project-based activities and monitoring them too. 3. Directorate of Health will disseminate the Sexual Reproductive Health and Rights (SRHR) awareness program through this platform to reach and implement a maximum number of adolescents. 4. Sheikh Raseel Digital Lab of Directorate of Information and Communication Technology will incorporate Konnect as part of their regular lab class activities regarding safe internet uses. 5. 'konnect' technical part is managed by a reputed public university named Shahjalal University of Science and Technology (SUST). Computer Science and Engineering department of SUST maintain the system. Thus government organizations are directly involved as technology and content partner. Also, the private sector and development partners play the role of content production and activity design. A decade long initiative called 'Generation Unlimited' in Bangladesh hosted jointly by UNICEF, a2i, BRAC and World Bank also addressed Konnect as a soft skills development platform within GenU activities.

#### Action Lines

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

**AL C2.** Information and communication infrastructure

**AL C4.** Capacity building

**AL C7.** ICT applications: benefits in all aspects of life — E-learning

#### SDGs

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

**Goal 5:** Achieve gender equality and empower all women and girls

## Case 60 - National Information Center, Sudan

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Risk Mapping  
National Information Center

Government <b>Sudan</b>
<b>Beneficiaries</b>
FMoH National Emergency Committee Citizens NGOS Benefit is the possibility of monitoring and predicting spread of virus, to make a siege of affected areas to deliver different services
<b>Website</b>
<a href="http://www.nic.gov.sd">http://www.nic.gov.sd</a>
<b>Description</b>
Building base map with different layers such as climate, UV, and health facilities in order to response in timely manner to different risks regarding virus and for fair distribution of resources
<b>ICT Tools</b>
GIS this intended to be available for decision makers at national level
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: unstable Internet service was solved by offline mode and also lack of awareness among decision makers and solved by training  Partnership: Yes. Capacity Building  Replicability: Yes. In every country with similar conditions  Sustainability: Yes. will improve decision making process in different sectors
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 61 -CITY OF JOHANNESBURG MUNICIPALITY LIBRARIES, South Africa

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
CITY OF JOHANNESBURG LIBRARIES FACEBOOK VIDEO SERIES DURING COVID 19 LOCKDOWNS CITY OF JOHANNESBURG MUNICIPALITY LIBRARIES Government <b>South Africa</b>
<b>Beneficiaries</b>
Youth (16-35) and Senior Citizens (55years to 65)
<b>Website</b>
<a href="https://www.facebook.com/JoburgLibraries/">https://www.facebook.com/JoburgLibraries/</a>
<b>Description</b>
<p>Covid19 Lockdowns were introduced in South Africa, in March 2020. In April 7, 2020, City of Joburg libraries begun an online series using Facebook. The series called "eLearning Lockdown Video Series" which involves librarians giving tips, on different activities and online content relevant for education, business and personal development, has reached more than 20 000 video views since it was introduced. <a href="https://www.facebook.com/JoburgLibraries/">https://www.facebook.com/JoburgLibraries/</a> As part of the Lockdown Video Series, between 01 June-30June, 2020 a youth competition called Teach-a-Senior Citizen Digital Skills was introduced . Participants were expected to make a short video demonstrating how their senior family members to use tablets, smartphones and computers for various purposes such as reading, doing online transactions, socializing, or surfing the internet. Most of the videos received demonstrated to senior citizens, how to us using smart phones for communication, social media and reading needs, and submissions came from all 7 regions of Johannesburg. 17 participating youth were selected for their excellent videos and awarded with tablets donated by MTN Foundation a local telecommunications company. They will use these tables for homeschooling needs</p> <p>COMPETITION VIDEOS CAN BE SEEN ON THE FACEBOOK PAGE</p>
<b>ICT Tools</b>
<p>Through Lockdown series, communities have been introduced to Apps, eresources for students and researchers and Digital Storytelling, this lead to librarians learning to create videos , editing, identifying digital content and it also taught them how to use social media to provide information services. The competition benefited the community because it was aimed at addressing the following: - Digital inclusion: Bridging the digital divide between generations to ensure that senior citizens are</p>

included in the use of technology for education and personal development. - Digital Literacy: For both youth and senior citizens. During the process of teaching another person how to use technology, one also learns new things, so the youth themselves also benefitted and learnt new things. - Social cohesion: the competition also encourages young people to interact with senior citizens around them, for them to understand the needs of their senior citizens and assist to embrace 4IR. This creates harmonious family units particularly during and post lockdown. It was also a competition that was promoted to other regions, and will be conducted again next year 2021 on a bigger scale. The competition resulted in a campaign called "Donate a Tablet or Data for Youth" which began in July 2020.

### Challenges / Partnership / Sustainability / Replicability

**Challenges:** Lack of connectivity for librarians at home...we had to only identify librarians who do have personal wifi. Insufficient tablets for youth. We have had to look for sponsorships and we are driving a campaign where we encourage communities, private companies, and NGOs to sponsor tablets and data. They can submit their interest to [jeff.nyoka@yahoo.com](mailto:jeff.nyoka@yahoo.com). The tablets and data will be distributed to regions for learners through libraries.

**Partnership:** South Africa, UK, USA, DENMARK

**Replicability:** YES, other libraries can also use social media to provide online services, the competition can also be done by libraries all over the world. A reliable website/portal and an app can also make such programs work better.

**Sustainability:** Social media is less costly, and accessibility is easier, but we want to also introduce using a reliable e-learning portal for library users. We also want to work with organizations who can create an app that is free to use by library users to access information.

### Action Lines

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

**AL C3.** Access to information and knowledge

**AL C7.** ICT applications: benefits in all aspects of life — E-learning

**AL C8.** Cultural diversity and identity, linguistic diversity and local content

### SDGs

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

**Goal 5:** Achieve gender equality and empower all women and girls

**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation

**Goal 16:** Promote just, peaceful and inclusive societies



## Case 62 - Telecommunication Infrastructure Company (TIC), Iran (Islamic Republic of)

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Expert Telecommunication Infrastructure Company (TIC) Government <b>Iran (Islamic Republic of)</b>
<b>Beneficiaries</b>
Beneficiaries are all people, and the most important benefits are encouraging the majority of people to use the Internet to do daily chores.
<b>Website</b>
<a href="https://www.tic.ir/en/home">https://www.tic.ir/en/home</a>
<b>Description</b>
Expanding the bandwidth to increase the speed of Internet access and the possibility of connecting remote parts of the country to the high-speed Internet for public access to the Internet for daily activities such as sales training, etc.
<b>ICT Tools</b>
Bandwidth enhancement tools such as fiber optics, masts and so on
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: There are many barriers to expanding bandwidth to speed up the Internet, including physical barriers and lack of knowledge and Etc. Sustainability: No , It has not yet reached full stability
<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development <b>AL C2.</b> Information and communication infrastructure <b>AL C3.</b> Access to information and knowledge <b>AL C4.</b> Capacity building <b>AL C5.</b> Building confidence and security in use of ICTs <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business

<p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-employment</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-environment</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-agriculture</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-science</p> <p><b>AL C8.</b> Cultural diversity and identity, linguistic diversity and local content</p> <p><b>AL C9.</b> Media</p> <p><b>AL C10.</b> Ethical dimensions of the Information Society</p> <p><b>AL C11.</b> International and regional cooperation</p>
<p><b>SDGs</b></p>
<p><b>Goal 1:</b> End poverty in all its forms everywhere</p> <p><b>Goal 3:</b> Ensure healthy lives and promote well-being for all</p> <p><b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p> <p><b>Goal 5:</b> Achieve gender equality and empower all women and girls</p> <p><b>Goal 6:</b> Ensure access to water and sanitation for all</p> <p><b>Goal 7:</b> Ensure access to affordable, reliable, sustainable and modern energy for all</p> <p><b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all</p>

## Case 63 - Ethiopian Institute of Agricultural Research, Ethiopia

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Social Media based Agro-Weather Advisory services for small holder farmers in Ethiopia Ethiopian Institute of Agricultural Research Government <b>Ethiopia</b></p>
<p><b>Beneficiaries</b></p>
<p>Small holder farmers and Development agents (DA)</p>
<p><b>Website</b></p>
<p><a href="http://eiar.gov.et">http://eiar.gov.et</a></p>
<p><b>Description</b></p>

<p>The objective of this project is to provide Social media based Agro-Weather Advisory services for farmers and Development agents in Ethiopia. The service will be mainly implemented using Telegram bots and farmers will be provided Weather and agronomy related information during the main crop season. The project will be piloted in major wheat growing regions and apart from providing advisory, survey and other input requirement data will be collected from farmers.</p>
<p><b>ICT Tools</b></p>
<p>Social media platforms and telecommunication services will be used to provide the service. such service will promote the digital transformation plan in Ethiopia and it will help farmers to adapt the new normal environment which is created due to COVID-19.</p>
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Challenges: Internet access in areas without cable internet and 3G coverage is a major challenge and to mitigate that we proposed GPRS based SMS and voice services for those farmers who don't have internet access.</p> <p>Partnership: Yes, I am looking for funding partners to cover the costs and pilot the project mainly in Wheat growing regions in Ethiopia.</p> <p>Replicability: Yes, the project can be replicated for other crops mainly for disease monitoring and early warning.</p> <p>Sustainability: After piloting in selected regions, the project will be transferred to cooperatives and business model will be implemented by providing training and deploying the platform in major four regions of Ethiopia.</p>
<p><b>Action Lines</b></p>
<p><b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development  <b>AL C2.</b> Information and communication infrastructure  <b>AL C3.</b> Access to information and knowledge  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-agriculture</p>
<p><b>SDGs</b></p>
<p><b>Goal 2:</b> End hunger, achieve food security and improved nutrition and promote sustainable agriculture  <b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all</p>

## Case 64 - The General Authority of Small and Medium Enterprises, Saudi Arabia

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Nawafth The General Authority of Small and Medium Enterprises Government <b>Saudi Arabia</b>
<b>Beneficiaries</b>
Nawafth app benefits entrepreneurs, ideators, and small and medium enterprises specifically which represent 99.47% of the Saudi job market and are responsible for 60% of jobs provided within the country.
<b>Website</b>
<a href="https://www.monshaat.gov.sa/">https://www.monshaat.gov.sa/</a>
<b>Description</b>
Due to the huge economic impact Covid-19 has had on small business owners and SMEs in particular, we built a mobile application to provide consultancy and mentorship services directly from elite experienced contributors through visual, audio, written communication.
<b>ICT Tools</b>
ICT tools we built native mobile apps to replace physical meetings and cover more geographically stretched out locations includes: - Video, audio, written chatting. - File exchanging. - Native coding. - Redis. - MVC PHP.
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenges: firstly, our main challenge we faced as a team was delivering a mature product that can fulfill the need we predicted to arise in record time, secondly was to get users familiar with the concept we were inching towards, thirdly it was a challenge to provide around-the-clock sessions but we quickly reworked a join now feature similar to a "walk-in "appointment in physical locations.
Partnership: Nawafth is a product of The General Authority of Small and Medium enterprises and is not currently looking for partnerships at the moment, although we have previously collaborated with many private and government entities such as EY, UPS, Ministry of work, Ministry of commerce.
Replicability: We saw great results from releasing this service to local SMEs and we believe it would be highly beneficial to SMEs and entrepreneurs all over the world. this project is highly replicable and easy to implement due to the lack of

geographical borders of the service.  Sustainability:
<b>Action Lines</b>
<p><b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development</p> <p><b>AL C2.</b> Information and communication infrastructure</p> <p><b>AL C3.</b> Access to information and knowledge</p> <p><b>AL C5.</b> Building confidence and security in use of ICTs</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business</p>
<b>SDGs</b>
<p><b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all</p> <p><b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation</p>

## Case 65 - Federal Authority for Identity and Citizenship, United Arab Emirates

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
ICA Smart Channels Federal Authority for Identity and Citizenship Government <b>United Arab Emirates</b>
<b>Beneficiaries</b>
Stops receiving customers During coronavirus • As a precautionary measure against coronavirus (COVID-19) and to further enhance the smart service offering, ICA is closing customer’s happiness centers and amending the business hours of others • ICA has confirmed to all segments of society, including citizens, residents, and visitors, to apply for their transactions online via ICA UAE smart Mobile Applications and the online platforms and stressed the authority’s commitment to providing the highest quality of services. • These decisions aim to lessen the impacts of the precautionary measures taken by the country and to facilitate procedures for citizens, residents and visitors, ensure their health and safety, and support the work progress and continuity of government work in various entities and sectors
<b>Website</b>

<https://www.ica.gov.ae/en/home.aspx>

### Description

1. ICA UAE Smart eChannels:

<https://smartservices.ica.gov.ae/echannels/web/client/default.html#/login?langen> 2

. Smart Mobile As UAE is and will always be the homeland for everyone, A set of decisions has been taken to relieve the residents of the state from the effects of the international measures taken in the face of the outbreak of the coronavirus launched a new set of initiatives to enhance the ICT and digitalization sector in this regards 1. The ICA has extended the validity of the residency and visit visas for expatriates in the country. Those visas that have expired after March 1, 2020, will remain valid till December 2020. 2. The expatriate residency, whether they are inside or outside the country, will be considered valid until the end of December of this year, when its expiry date occurred after the 1st of March 2020. 3. Visas and entry permits for those inside the country are valid until the end of December of this year, when it ends on the date after the 1st of March 2020. 4. All ID cards ending on March 1 of this year will be valid until the end of December 2020. 5. Holders of residency visas who don't arrive in the UAE before the grace period, will get their visas renewed without additional fees 6. With the beginning of the outbreak, ICA enhanced the work in the call centers. It is working around the clock and ICA answer the public with different languages.

### ICT Tools

1. ICA UAE Smart Channels project served three strategic goals: • Enabling the people to access high-quality digital Transformation government information and services anywhere, anytime, on any device. • Create an online resource to share information • Build Mobile Gov Community 2. Smart Mobile strategy and existing business continuity plans Improving Mobile Applications is a key initiative of the Administration and an integral part of the mission for all the Government entities. ICA plays a strong leadership role in providing innovative Mobile Applications products, services, and programs to the customers. In order to handle the fast moving and unknown variables of an outbreak like COVID-19 and to overcome these exceptional circumstances that the world is currently facing. ICA has focus and lead efforts to maintain, and manage the followings steps: • Accelerating digital transformations • Protect growth and profitability • Improve resiliency, and new models that incorporate economic impacts of past pandemics • Take the pulse of the customers and enabling the people to access high-quality digital government information and services anywhere, anytime, on any device by encouraging the customers to stay at home and to use smart applications of the service

### Challenges / Partnership / Sustainability / Replicability

Challenges: Stops receiving customers During coronavirus • As a precautionary measure against coronavirus (COVID-19) and to further enhance the smart service

<p>offering, ICA is closing customer’s happiness centers and amending the business hours of others • ICA has confirmed to all segments of society, including citizens, residents, and visitors, to apply for their transactions online via ICA UAE smart Mobile Applications and the online platforms and stressed the authority’s commitment to providing the highest quality of services. • These decisions aim to lessen the impacts of the precautionary measures taken by the country and to facilitate procedures for citizens, residents and visitors, ensure their health and safety, and support the work progress and continuity of government work in various entities and sectors</p>
<p><b>Action Lines</b></p>
<p><b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development  <b>AL C2.</b> Information and communication infrastructure  <b>AL C3.</b> Access to information and knowledge  <b>AL C5.</b> Building confidence and security in use of ICTs  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government</p>
<p><b>SDGs</b></p>
<p><b>Goal 3:</b> Ensure healthy lives and promote well-being for all  <b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation</p>

## Case 66 - Entreprise d'Appui au Développement du Numérique (EADN EPE SPA), Algeria

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Suivie Épidémiologique  Entreprise d'Appui au Développement du Numérique (EADN EPE SPA)  Government  Algeria</p>
<p><b>Beneficiaries</b></p>
<p>• Care Center • Blood test laboratory • Decision Maker</p>
<p><b>Website</b></p>
<p><a href="https://www.eadn.dz/">https://www.eadn.dz/</a></p>

<b>Description</b>
The project consists of a full web application dedicated to the health practitioner in order to declare and track Covid-19 suspected people and all their contacts in the last 14 days. After the detection of positive cases, our system allows a daily follow-up of the evolution by the coordination of information between the blood test laboratory result and the care centers. We provide to the user an overview with plenty of statistics in real time that can help fast decision-making.
<b>ICT Tools</b>
• Eclipse Jakarta EE (JSF, CDI, JPA, security) • Eclipse MicroProfile • PostgreSQL
<b>Challenges / Partnership / Sustainability / Replicability</b>
<p><b>Challenges:</b> Time: we had to develop the application quickly so it can be used in order to stop the Covid-19 pandemic</p> <p><b>Partnership:</b> No, we are not looking for partners as the project is for government ministry of health</p> <p><b>Sustainability:</b> Yes, this project could be used to track the evolution of any kind of disease or future pandemic, and can be improved by the connection with a GIS system to visualize in real time the evolution of the situation.</p> <p><b>Replicability:</b> The project could be helpful only in a situation of an epidemic and spreading diseases</p>
<b>Action Lines</b>
<b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Part 2: Academia

### Case 1 Khalifa University, United Arab Emirates



<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
HAFELA Khalifa University Academia <b>United Arab Emirates</b>
<b>Beneficiaries</b>
Students, employees, entrepreneurs and freelancers. The main benefit is to find the most suitable study/work environment.
<b>Website</b>
<a href="http://www.ku.ac.ae">http://www.ku.ac.ae</a>
<b>Description</b>
Due to (COVID-19) many organisations shifted their systems to working from home such as School's, Universities, Government organisations, Non-Government Organization, freelancers and other business authorities. Our project's objective is to provide the nearest, most comfortable and quiet mobile office's for those users. The mobile office's will have many different services like WIFI, coffee machines and etc.
<b>ICT Tools</b>
A user friendly application that provides a map that shows the available mobile office nearby. We will encourage the users to use the app by giving them different incentives.
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenges: to make sure the space meets the users needs. (User satisfaction) - We will provide picture, measurements, detailed information about the places regularly. - Make users surveys * to insure that nothing in the spaces is damaged. - Make regular tour's to check the spaces - Make users surveys Partners: Internationally and local partners that have different assets that meets our Requirements (Co-working space owners).
<b>Action Lines</b>

**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C11.** International and regional cooperation

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 16:** Promote just, peaceful and inclusive societies|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 2 University of Botswana, Botswana

**Title of the project, Contact Organization Name, Stakeholder type, Country**

University Industry Government Cocreation Platform  
 University of Botswana  
 Academia  
**Botswana**

**Beneficiaries**

Universities, Students, Industry, NGOs, Civic Society. Flagship project to address problems submitted by stakeholders are tackled through co-creation by teams of students with university and industry mentors

**Website**

<https://www.ub.bw/>  
<https://sais-uig.netlify.app/>

**Description**

The initiative aims to strengthen Universities’ innovation ecosystems through development of a universities’ centric co-creation platform and its associated activities, processes and services. The initiative aims to stimulate industry, Government and other societal actors’ partnerships and interfaces; facilitate mentorship and run co-creation processes centred around stakeholder defined challenges/problems to be solved by students and young innovators through well-defined mentored flagship capstone projects within a well-defined intellectual property framework favourable to their growth. The flagship projects

include ICT Use cases for Covid-19 Interventions      The envisaged higher-level impact is in skills alignment, reduction of youth employment through stimulation of a National software and ICT technology development sector and growing of locally developed technology solutions driven by vibrant university innovation ecosystems – including education technologies. The project presents the Universities with an opportunity to strengthen its internal innovation ecosystem, lead National developments in these areas and to provide opportunity for our students base through      technology development – including for services that the universities themselves can consume on campus across departments – this to provide a rounded student University experience. The project aims to deliver –

1. A sustainable Universities-Industry centric co-creation platform & Innovation ecosystem,
2. A robust student Innovation pipeline,
3. Collaborative networks and interfaces with Industry and Government and National stakeholders including civic society
4. Collaborative network with regional and international innovation ecosystems,
5. Future Skills (4IR) Training Academy, Training Programme and Partnerships for training in Software, technologies, innovation and data science - delivered through targeted practical modules through a dedicated 4IR Future skills lab and in partnership with industry partners such as IBM through the IBM Skills Academy
6. Flagship and Capstone projects driven by industry, government and stakeholder and society needs,
7. Extended hands-on training and teamwork through Hackathons, datathons, codejams and bootcamps
8. A stakeholder project and problem repository and skills platform for ICT students and graduates
9. A Data repository to facilitate data innovations
10. STEM outreach through the a STEM Digital Transformation Programme for schools covering Robotics, IoT, Astronomy and Drones

### ICT Tools

The initiative runs a robust skills for the future programme through dedicated university campus coding schools and training modules. This training complements rigorous academic training in Computer Science courses across board, including in programming,      Mobile Communications, Sensor Networks, Algorithms with skills developments in 4IR technologies such as IoT, AI, Drones, Data science etc grounded in practical use cases of impact - eg. in Smart Agriculture using sensor networks for      a farming community stakeholder, Smart Conservation using drones for a Rhino Sanctuary or Institutional Covid-19 Visitor registry & Contact tracing for compliance etc.

### Challenges / Partnership / Sustainability / Replicability

The main challenges are in building relationships with stakeholders in industry and Government to facilitate the flow of challenges to the co-creation platform, and to provide resources to support implementation. There is also challenges in the Intellectual Property Framework regarding      working with industry partners. There is also challenges with adequate well equipped training laboratories , equipment, devices,sensors, drones etc to support the 4IR Training programme. We need to build a strong network of local, regional and global support partners in the areas of mentor-ship, funding, training and technology.

Partnership: We need a strong network of local, regional and global support partners in the areas of mentor-ship, funding, training and technology.

Replicability: This project is highly replicable, we have partnered with University of Stellenbosch in South Africa for the Southern African Development Community cross boarder regional linkages, sharing lessons and student teams for crossboarder collaborations. We are disseminating information through the Southern African Innovation Support Programme Network - <https://www.saisprogramme.org/>.

Sustainability: The projects has developed 1. Future Skills (4IR) Training Academy, Training Programme and Partnerships for training, 2. Robotics Training Academy Initiative and currently engaging FIRST Global Higher Education Network <https://first.global/fghen> Stem Through Astronomy Initiative and engages in Open Astronomy Schools - <https://open-astronomy-schools.org/2020-call-for-proposals/> - this especially as Botswana will be participating in the Global Square Kilometer Array project and there is need to build pipelines of students including early stage interventions at schools 3. Drones Academy Initiative - This to train students in drones, explore drone use cases and applications - Has engaged and sent our Students to the UNICEF African Drone and Data Academy - <https://www.unicef.org/malawi/tlamelo-makati-botswana> The project has also resulted in numerous flagship projects with solutions developed by students All the above can contribute to the sustainability of the project.

#### Action Lines

**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C5.** Building confidence and security in use of ICTs|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-environment|**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture|**AL C11.** International and regional cooperation

#### SDGs

**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 10:** Reduce inequality within and among countries

## Case 3 - Wikis, Education & Research

Title of the project, Contact Organization Name, Stakeholder type, Country

Wikis, Education & Research

International Academic Network WEIWER® - Wikis, Education & Research

Academia

**Portugal**

### Beneficiaries

Our project is mainly addressed to pupils, students, teachers, and school librarian teachers. The key benefits are the following: developing/improving ICT literacies and social skills through the use of digital tools (due to the global pandemic situation such use has been additionally intensified); strengthening communication and other soft skills by participating in a learning/teaching/training community, in which typically our primary beneficiaries are not usually involved in. Besides those skills and competences, the participants have been having the chance to follow an innovative and unique training, at least in the Portuguese context, and in some cases are also benefiting from the use of certain technological services that are not generally provided by their educational organizations.

### Website

<http://www.weiwer.net>

### Description

Due to the global pandemic situation, caused by the SARS-CoV-2, the training sessions that were initially scheduled to take place in a face-to-face scenario had to shift to a b-learning modality. This implied the use of video-conference tools (namely Zoom Colibri), which was not planned in the beginning. There has also been an increase in the use of other technologies/ICT tools (email, Moodle, Word, PowerPoint, Genial.ly, videos, podcasts, WhatsApp), not only to fulfill the training tasks and assignments, but also for communication, mentoring, supervision and support (in some cases additional and extra to what was predicted and planned ahead, due to ongoing changes on the project timeline deemed necessary). The fact that alternative solutions were proposed, discussed and negotiated with the people involved in the project has helped to overcome any fear of eventually not accomplishing the work. It has also proved to be a way of keeping the group connected and committed in both individual and collaborative work being developed within the project. In addition, the preliminary diagnosis of the ICT skills was updated, so as to make everyone at ease with the following stages of the project.

### ICT Tools

We were already using the tools mentioned before (cf. 12), for communication and work (learning, teaching and training tasks) – Zoom Colibri, email, Moodle, Word, PowerPoint,

Genial.ly, videos, podcasts, WhatsApp. So, the fact that the whole team was already using them, still experiencing differences in confidence, however pretty confident enough, and on a regular basis, can help explain the success in implementing the different scenarios that we were forced to rapidly design and put into practice. Nevertheless, for some people this has yet been a major shift and challenge because most of the communication and working scenarios had to shift from face-to-face to online environments, which is not their normal, nor unique setting with regard to learning, teaching or training activities. These changes and adaptations have fostered a digital transformation, at a very fast pace, in most cases compulsory, which has only been proved possible due to the use of the above mentioned technologies/ICT tools and the extreme resilience and motivation of the people involved. Once again, the sole use of digital tools is not enough to guaranty that its effective use and purposes are achieved. In other words, the participation in a learning/teaching/training community caters for the social (soft) skills needed e.g. in long-life learning, or other daily (personal/school/academic/professional) situations.

### **Challenges / Partnership / Sustainability / Replicability**

The main challenges are related to (self) organization, in time and effort, caused by the unexpected current pandemic situation that has forced us to be working/studying at/from home 24/7. It is a fact that being a full-time citizen, parent and worker (learner/teacher), is already challenging in a prior well-known scenario, let alone in a totally unforeseen one (impacting for instance in public confinement, thus, intensifying, in a single place-location, our households, each of our different roles; arising several vulnerabilities and increasing different risks, namely in health). The literature tells us (and also our own experience in distance learning and teaching of more than a decade) that it is more demanding to follow (and succeed in) an online course/training (whether b-learning or e-learning), compared to face-to-face course/training. And the risk of drop-out is much bigger too than in face-to-face courses/training. These challenges can and have been overcome with continuous assistance and mentoring. Moreover, the fact that the whole planning and previous stages of our project were thoroughly executed and completed, taking into account former assessment, reflections and research studies, most probably adds to the team being successful, including in keeping the will to persist (resist) in attaining the goals set.

Partners and funding would be most welcome for instance to further explore one aspect of the project in which an IT specialist is needed, i.e. data science, artificial intelligence, and semantic scholarship. Partners and funding would also allow us to improve our communication strategy, aiming at a continuous dissemination of the results of the project (for instance in social media or in publications by reputed editors/publishers); this could be inspiring for others to join us/our network, become part of the team, hence enhancing the reach of the project. Partners and funding could also be most useful to allow to hire specific services (e.g. administrative support), and/or to provide for scholarships (e.g. research scholarship). Other than these Maecenas partnerships, which are important too from technical and technological providers (hardware and software), other types of partnerships are envisioned, at a higher level, for instance with political/official stakeholders in education. These would prove essential if we were to provide the training and innovating educational change at a national scale (so far, we've been acting locally, i.e. for example, at a school level).

All such partners might guarantee the scaling up of the project, meaning widening its scope and providing it to a bigger (global) audience.

A strong innovating social entrepreneurship spirit has kept the project self-sustained. Besides, due to the institutional frameworks and partnerships established so far, some resources (like classrooms, now including online virtual classrooms, due to the COVID-19 confinement) have also been catered for. The principles of open access and open science we have been following are aligned with the Portuguese national strategy for digital skills (Portugal INCoDe.2030) and, at an international level, particularly with the SDG 4. So, we have been targeting at e.g. creative commons licenses and open software, using free and license-free digital repositories and web technologies. The project has also been sustainable because it has resulted from the voluntary work of a small but very close and committed team, who has been advocating for and implementing open educational resources and open educational practices, inspired by solidarity and pedagogical values. Those features have somehow prevented us from exponentially escalating the project, and eventually risking at losing its humanitarian mission. So, we believe that, in turn, it has shed more light on (one of, if not) the key strengths of our project: the fact that we aim at impacting on people's lives, meaning that its core affordance is the human asset.

The project has started in one school, and has been steadily growing. In this school year of 2019-2020 we have been working with 6 schools, and not only with one class (teacher and pupils) per school (as in the beginning), but also involving the school's principle and the school librarian teacher. At start we were reaching only the district of Lisboa, and now we are also reaching the district of Santarém (both in Portugal, but with demographic differences, among others). Other than these mid-long term training initiatives, short term training activities have been facilitated, in different educational and training organizations, including universities in Portugal and abroad (Brazil and Spain). We expect to keep these national, European and international actions. In the near future, we expect to further replicate the project (e.g. in the United Republic of Tanzania), aiming at continuing to foster the development of digital skills and competences, including ICT and informational, on an individual or global-society scale, ultimately where most needed in close alignment with the United Nations' Sustainable Development Goals.

#### Action Lines

**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C5.** Building confidence and security in use of ICTs|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C7.** ICT applications: benefits in all aspects of life — E-science|**AL C8.** Cultural diversity and identity, linguistic diversity and local content|**AL C9.** Media|**AL C10.** Ethical dimensions of the Information Society|**AL C11.** International and regional cooperation

#### SDGs

**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 10:** Reduce inequality within and among countries|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 4 Sultan Qaboos University, Oman

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
The U Project Sultan Qaboos University Academia <b>Oman</b>
<b>Website</b>
<a href="https://www.theuproject.org">https://www.theuproject.org</a>
<b>Description</b>
The Sultan Qaboos University (SQU) launched recently an online tutoring platform for medicine college students called the U Project. The platform provide sessions planned to prep the students through discussion and smart tricks to help them recognize fundamental facts and making every learning experience memorable and easy to recall. The project founded and created by graduated doctors from college of medicine. The aim is to establish a platform that provide high quality yet simple, interactive teaching online sessions that are precise, high yield, and exhilarating.
<b>Challenges / Partnership / Sustainability / Replicability</b>
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning
<b>SDGs</b>
<b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all



## Case 5- Iran University of Science and Technology, Iran (Islamic Republic of)

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Augmented Reality (AR) Educational Apps for 8-Million Elementary School Students Iran University of Science and Technology Academia <b>Iran (Islamic Republic of)</b></p>
<p><b>Beneficiaries</b></p>
<ul style="list-style-type: none"> <li>- Immunity against COVID-19 by distance learning</li> <li>- “anywhere” and “anytime” education delivery method,</li> <li>- learn with ease at home by simply touching on the ICT gadget screen</li> <li>- listen live or asynchronously to a virtual teacher</li> <li>- interact with a virtual teacher</li> <li>- solve problems without the stress of having to physically be in a classroom</li> <li>- cheap and inexpensive</li> </ul>
<p><b>Website</b></p>
<p><a href="http://iust.ac.ir/">http://iust.ac.ir/</a> <a href="https://baloot-app.com/">https://baloot-app.com/</a></p>
<p><b>Description</b></p>
<p>The project is to provide Augmented Reality (AR)-based mobile applications to improve the quality of learning in K-6 schools during the COVID-19 pandemic, by bridging AR technology and education for more than 8,000,000 elementary students all over the country. It aims to benefit from distance learning advantages so that students can obtain instruction and learn with ease at home by simply clicking a few buttons on their phone or tablet screen and learn educational subjects in 3D objects close to reality and also listen live or asynchronously to a virtual teacher, interact with the teacher, and solve problems without having to physically be in a classroom. This method of learning speeds up the learning process and makes it exciting for elementary students so they would understand objectives more effectively and become interested in studying. Main advantages of implementing this project are making the low-cost ICT-based educational tool which costs only 1 dollar for each textbook, making educational assistance tools available for all segments of society, with a particular focus on the most vulnerable, and synchronizing the education system of the country with the latest ICT technologies. By using these mobile apps,</p>

the students can easily watch and experience the theoretical and experimental subjects which might be hard to see in daily life or it costs a lot to explore them. By this, not only the educational system of the country takes advantage of the capacity of ICTs in the best way, but also the growing educational divide within the country will be bridged. This latter achievement also satisfies the Sustainable Development Goals (SDGs), especially the G4, G9 and G10. It should be noted that the Oak project model can be replicated for the educational system of any other countries.

### ICT Tools

Mobile Phones, Tablet, Surface, Touchpad screen laptops, Touchpad screen All-in-one, Internet

### Challenges / Partnership / Sustainability / Replicability

There were too many challenges without solving which, such a great and useful project could not be implemented and it would be likely to fail. These challenges can be divided into two categories from two different perspectives; production and usage. Following are some of the main challenges in the first category we tried to overcome them by accurate planning:

- Various number of textbooks existing in elementary school level with too many diverse subjects
- Difficulties in coordinating the educational experts from different schools and geographical areas to participate in preparing the application instructions and scenarios
- Difficulties in identifying and recruitment of about 40 technical experts including programmers, graphic designers, mobile app developers, testers and marketers
- Coordinating too many human resources with different expertise to fulfill their own tasks and hand them out to the next stage
- Controlling, monitoring and meeting the milestones of such a mega project in a short period of time so that to be applicable in a school year
- Producing the right content for each age category and precisely based on their course syllabus
- Advertising and marketing the applications to introducing them to a target population including more than 8,000,000 students, more than 16,000,000 parents and more than 400,000 teachers
- Ensuring the parents and teachers to employ the AR-based applications as a useful and effective educational assistance tool along with traditional teaching tools and methods

Following are some of the main challenges in the second category, usage, we frequently face:

- A lack of necessary training: Some teachers might struggle putting these new

technologies into practice as their background training doesn't provide the necessary skills. Only the most open-minded teachers and innovative educational institutions are ready to apply augmented reality apps in education.

- Dependence on hardware: Using Augmented Reality in the classroom requires a certain resource base. For example, not all students have smartphones capable of supporting AR applications.
- Content portability issues: The AR app one builds, needs to work equally well on all platforms and devices. However, it is practically impossible to provide the same quality of AR content on any device.

Investor and Supporter to provide the necessary fund needed to accomplish this project as soon as possible during COVID-19.

Since this project removes physical books, it helps to preserve the environment for the next generation.

This project is scalable and internationally replicable approach to be easily adapted and adopted by other countries.

#### Action Lines

**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C7.** ICT applications: benefits in all aspects of life — E-learning

#### SDGs

**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 10:**Reduce inequality within and among countries

## Case 6- Al Quds Open University in response to Corona Virus Crisis, Palestine

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Al Quds Open University in response to Corona Virus Crisis  
Al-Quds Open University  
Academia  
**Palestine**

#### Beneficiaries

"The primary beneficiaries were mainly the students of Al Quds open university distributed in 18 branches among the West bank and Gaza Strip. The new

arrangement of the education at QOU made students use virtual classes and were able to present electronic exams in a way that guarantees credibility of its outputs; the developed exams schedule for QOU students in BA and Master degree. The exams will be held through the university's academic portal with the full and direct supervision of the branch administration, where the branch manager forms a committee to follow up on the exams. University academic staff were consider primary beneficiaries of QOU new education arrangements through the following: 1. QOU provided teachers with instructions manuals, on how to use the e-learning methods, developed portal for the students' activities that can be used during the classes. 2. QOU developed a mobile application for the academic staff enable them classes to upload the teaching materials and follow up with students and can be used on Android or IOS . 3. QOU created the Technical support groups in university branches, through WhatsApp Group, that follow up with faculty members and students all the time, and have at least two technical support team in each branch. Tawjihi studnets , around (>>>>>) were considered the third primary beneficiary. Students were able to follow up on their classes, through the classes that were broadcasted on teh Al Quds Educational channel."

### Description

Al Quds Open University is the largest university in and its the first one adopted the blended learning system. QOU has extensive experience in distance learning, that make it's easier for QOU and its staff and students to start using the new teaching methods, During COVID-19 Coronavirus Pandemic. The Presidency of the University and all its departments combined their efforts to develop alternative plan that ensures the progress of the educational process with high quality, while maintaining the safety of the students and staff. Therefore, QOU converted conventional lectures into e-lectures, and conducted mid and final exams online with unprecedented attendance by students. Additionally, the face-to-face lectures were replaced by entirely e-lectures, aided by the already present technological infrastructure of QOU, which is advanced and ready to face such scenarios. in this context, The University held virtual classes, taught 267 courses in the second semester 2019/2020 over a period of five weeks, recorded lectures for 35 courses and broadcasted them via al-Quds Educational Satellite Channel, besides uploading all lectures on YouTube at al-Quds educational Channel. Moreover, self-learning courses were designed and approved for this purpose, and consisted of short videos to clarify challenging concepts. Continuous communication was available between teachers and students to answer questions and inquiries. The university set up a clear and fair procedures for exams and developed exams schedule or its students in BA and Master degree which was shared with all students. The exams will be held through the university's academic portal with the full and direct supervision of the branch administration, where the branch manager forms a committee to follow up on the exams. Al Quds Educational Channel in cooperation with the Ministry of

education launched an online initiative to provide support to 12-grade students, who will be taking their general exam on 30 May 2020.

### ICT Tools

Al Quds Open University blended education philosophy has facilitated a lot to align the educational process with the COVID-19 Coronavirus Pandemic, by investing in its high technological resources to ensure healthy educational environment. The University took advantage of its current technological infrastructure which is advanced and ready to face such scenarios. The role the open learning centre was to hold more than 1000 virtual meeting and provide the necessary technical support students and teachers to hold this meeting on time along with the support they provided on emergency cases. In addition the OLC The Open Education Center has created a page that contains all the information related to the university's electronic services, instructional guides, explanatory videos, a mechanism for communicating with technical support, technical support pages on various platforms, and the most frequently asked questions to facilitate access to students and faculty members.

### Challenges / Partnership / Sustainability / Replicability

Is this project replicable? If so, please describe how and where this project has been or could be replicated. The description mentioned in the above questions are in a particular way the new arrangement of education at Al Quds open university since the state of emergency was declared in Palestine due to the Coronavirus pandemic (COVID-19)

the ministry of education

The sustainability of the new arrangement of education and strengthens is its continuity is mainly based on the university's blended education philosophy, where the university invested in its technological, academic and administrative resources to ensure this philosophy before the pandemic and ensure to proceed with the educational process while maintaining the high quality of education during Corona Virus pandemic.

### Action Lines

**AL C2.** Information and communication infrastructure|**AL C7.** ICT applications: benefits in all aspects of life — E-learning

### SDGs

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

## Case 7 - Nibras schools platform

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Nibras schools platform Online education Academia <b>Sudan</b>
<b>Beneficiaries</b>
Local schools students. We help them to study online in their homes safe
<b>Website</b>
<a href="https://www.uvschools.com/nngos/login">https://www.uvschools.com/nngos/login</a>
<b>Description</b>
We launched the platform individually from Saudi Arabia but our educational services could reach all students over the Sudan. We help them to study online and protect themselves during COVID 19.
<b>ICT Tools</b>
We use an educational platform to enable students to study online, and we use all interactive methods of teaching. Students just need a smart phone or a laptop and a network to join the school.
<b>Challenges / Partnership / Sustainability / Replicability</b>
Lack of electricity and weakness of network in rural areas. Students could overcome all of that by be sure to recharge their phones when electricity is available and recording important lessons. We look forward a partnership with Sudanese government to launch Nibras as a local platform to serve Sudanese students all over the country. It protects students during COVID 19 and keeps them safe.
<b>Action Lines</b>

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge

### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture|**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

## Case 8 - PVision

### Title of the project, Contact Organization Name, Stakeholder type, Country

PVision  
Moscow Technical University of Communications and Informatics (MTUCI)  
Academia  
**Russian Federation**

### Beneficiaries

Plekhanov Russian University of Economics; D. Mendeleev University of Chemical Technology of Russia; Grozny State Oil Technical University; Chechen State University; Moscow Technical University of Communications and Informatics (MTUCI); College of Telecommunications of the Moscow Technical University of Communications and Informatics.

### Website

<http://www.mtuci.ru>  
<https://pvision.mtuci.ru/>

### Description

Nowadays one of the most important aspects of our life has become personal protective equipment, mostly medical masks, because they help us to prevent spread of viral infections. Our project allows us to automatize process of mask mode control. Also, as a feature, PVision system provides the possibility of contactless temperature measuring. Our system can form mask mode violation reporting in a real time. Another feature of our system is collecting statistics and sending short daily report, that includes amount of people entered, number of people without masks and percentage of

violations.

### ICT Tools

Server: Linux 20.04; Titan RTX x2; Intel Xeon gold; Nvidia docker; Kubernetes; Kibana; S3; Kafka; Elasticsearch

### Challenges / Partnership / Sustainability / Replicability

Main challenges: system sustainability, autonomy, portability, high recognition accuracy. Our main future perspective is to install PVision system in every building all over the world to help humanity resist all the diseases, that are appearing with frightening frequency.

Yes, we are looking for companies, that need control over the wearing of personal protective equipment. PVision system works with various types of personal protective equipment.

Yes, our system is a server solution. It works with the Real Time Streaming Protocol (RTSP). The Pvision system can be integrated into the industrial sector (factories, construction, oil industry, agricultural holding), retail (shopping centers, shops, pharmacies, restaurants), educational institutions (universities, colleges, schools), administrative buildings (business centers, banks, state institutions, metro).

Our system is sustainable, because it is a software as a service solution. PVision project is located on the MTUCI data center, that meets Tier 4 requirements.

### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-health

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 9 - Palestine Technical University-Kadoorie (PTUK),

### Palestine

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Smart risk maps of (COVID-19) outbreak based on distributed motioning PM2.5  
Palestine Technical University-Kadoorie (PTUK)  
Academia  
**Palestine**



## Beneficiaries

- 1) local governments; it helps them to issue more realistic risk maps not only based on tested positive cases but also based on PM2.5. This gonna help them not only to prevent the spread of COVID19 but also to manage air quality.
- 2) individuals; avoid staying in polluted areas where the possibility to catch the virus is high.

## Website

<https://ptuk.edu.ps/>

[https://thingspeak.com/channels/1271443/private\\_show](https://thingspeak.com/channels/1271443/private_show)

## Description

Currently vulnerable age groups in most countries are affected by the respiratory -corona virus disease 2019 (COVID-19). Long-term-exposure to high levels of PM2.5 (particulate matter with aerodynamic diameter  $\leq 2.5 \mu\text{m}$ ) is also associated positively with repository deaths. Based on the findings of current research studies and the analysis of the data from Japan it was found that old people who are living in prefectures with high levels of PM2.5 could be the most vulnerable to COVID-19. Thus, policy decision makers could consider PM2.5 data to support their efforts not only to minimize the spread of COVID-19, but also to improve air quality. The developed system is an IOT project using the Thingspeak cloud server. It is based on collecting the data by low-cost PM monitors distributed in heavily populated areas. The collected data with the information about COVID19-tested positive cases from hospitals are used to plot the risk maps using IGS.

## ICT Tools

The systems is composed of; 1- Hardware: Micro controllers esp8266 wifi module and Arduino, DSM501 and GP2Y1010AU0F PM monitors, also mobile system was developed that is connected via Bluetooth with mobile to give instant information about the levels of PM2.5 in case there is no intent connection. 2-Software: Arduino scratch programming of the microcontroller, Thingspeak cloud server for IOT, GIS for plotting risk maps using interpolation surface option, mobile MIT app inverter.

## Challenges / Partnership / Sustainability / Replicability

Challenges: the systems was developed and tested well, however, it requires to increase the number of monitoring stations. This requires not only money but also collaboration form individuals and institutions to deploy the unit in close proximity with their buildings and make use of the wifi internet connections. -data security

Replicability: Yes of course, it is almost applicable at any place where there is an internet connection.

Sustainability: it is sustainable because of the followings; -it is related to monitoring to Air pollution and even if we hopefully managed to prevent COVID 19 there is still problems due to air pollution which caused around 4 million death (WHO, 2016). -it creates jobs for young graduates in the operation and the maintenance of the system.

**Action Lines**

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

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all

**Case 10 - Provides the largest global information database on serialized materials, and with over 6 500+ age-appropriate links to Open Educational Resources (OER) and Open Access elementary and secondary school mathematics materials**

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Provides the largest global information database on serialized materials, and with over 6 500+ age-appropriate links to Open Educational Resources (OER) and Open Access elementary and secondary school mathematics materials.

K-12math.info inc

Academia

**United States of America**

**Beneficiaries**

MERLOT reviewers who evaluated the website indicated that the “Target Student Population would be: College Upper Division, Graduate School, Professional”. The developer of the website also believes it exists to help anyone (or anything) “... to help a 7 year old (second grader) to add whole numbers” . Be they classmates, parents of, teacher of, school content coordinator, reference librarians, materials developer, curriculum designers, undergraduates

and graduate students who are preparing to help and artificial intelligence applications.

### Website

<https://www.k-12math.info>

### Description

With many of us waiting out the storm (COVID-19), k-12math.info [a 5 star MERLOT Open Access educational resource and twice recognized by the United Nations] has seen a doubling of global users and in response has added 2 398 age appropriate links to math projects in India and South Africa.

### ICT Tools

A simple [no typing needed] user interface to accelerate searches is used. Information is displayed in a “calendar style” format, with over 6 500+ age appropriate links to OER and Open Access resource materials. Some of the series are NCERT (India), Ukuqonda Math (South Africa), CK-12(USA), A+Click (United Kingdom), Khan Academy (USA), AAKnow (USA), and other OER/Open Access materials.

### Challenges / Partnership / Sustainability / Replicability

Challenge: Scalability. In order to reach learning communities which cannot afford books or computers, learning needs to be made to function on handheld devices. Low cost “Phones” with internet access need to be developed and made available globally.

Partnership: Language, especially globally in the age range of 4 to 8 years; and programming, too much time has been spent on “function” and not enough on “form”.

Sustainability: Yes, without continued cataloguing of information on the latest developments in elementary and secondary school math materials, global mathematics learning, understanding and development would suffer.

Replicability: Yes. To repeat? K-12math.info uses a set criterion to catalog materials. To duplicate? The 1 000+ spreadsheets can be easily copied and pasted in Excel, Numbers and other spreadsheet to serve user’s needs.

### Action Lines

**AL C3.** Access to information and knowledge

**SDGs**

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

## Case 11 - Contact Tracking System with people with Covid 19

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Contact Tracking System with people with Covid 19.

ISUTIC

Academia

**Angola**

**Beneficiaries**

Ministry of Health

**Website**

<https://www.isutic.gov.ao/>

**Description**

The technological solutions on the Contact Tracking (CT) is a digital tools for analysis of the mobility and tracking data, have as main objective the obtaining of information regarding the potential contacts that people suspected of being infected had during any journey that performed in a national space. The results of analyzes on geographic data allow the identification of the main areas with high potential for local / community contamination, thus allowing local authorities to take preventive and containment measures for the virus, with concrete and targeted actions.

**ICT Tools**

We use the internet access.

**Challenges / Partnership / Sustainability / Replicability**

Challenge: Type of technology to use to locate each suspect of Covid 19.

**Action Lines**

**AL C7.** ICT applications: benefits in all aspects of life — E-science.

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all.

## Case 12 - VIRTUAL TRAINING ON USE OF SOME ONLINE PLATFORMS FOR MEETINGS & TEACHINGS

**Title of the project, Contact Organization Name, Stakeholder type, Country**

VIRTUAL TRAINING ON USE OF SOME ONLINE PLATFORMS FOR MEETINGS & TEACHINGS  
UNIVERSITY OF NIGERIA  
Academia  
**Nigeria**

**Beneficiaries**

University staff, students and community members. Benefits are; 1. encouragement to use online teaching platforms 2. training on how to use online platforms in teaching

**Website**

<https://unn.edu.ng>

**Description**

The Activity was to virtually teach staff of the university on the effective use of some online platforms like Zoom, Google Meet, Google Classroom & Moodle for meetings and teachings.

**ICT Tools**

Laptops, Zoom App & Internet facilities were used in delivering this activity. The promote digital transformations in preparing the university community in embracing online mode of

meetings & teaching amidst covid-19 Pandemic.

### Challenges / Partnership / Sustainability / Replicability

Challenge: difficulty in re-orienting the people, this can be overcome by continuous training. use of free zoom app which limits time for training - subscription for educational zoom license. few resource persons as there are no motivation for the instructors.

Partnership: Yes, in areas of subscription to Zoom educational license, infrastructures and technical equipments.

Sustainability: Yes, because it can be continued and help develop and train the university community on use of online teaching platforms.

Replicability: Yes, this project can be replicated for different group of persons.

### Action Lines

**AL C2.** Information and communication infrastructure | **AL C3.** Access to information and knowledge | **AL C4.** Capacity building | **AL C6.** Enabling environment.

### SDGs

**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all | **Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation | **Goal 11:** Make cities inclusive, safe, resilient and sustainable | **Goal 16:** Promote just, peaceful and inclusive societies.

## Case 13 - Online SDG challenge for schools

### Title of the project, Contact Organization Name, Stakeholder type, Country

Online SDG challenge for schools  
Addictlab /SDGZINE  
Academia  
**Switzerland**

### Beneficiaries

students, schools, remote education.

<b>Website</b>
<a href="http://www.sdgzine.org">http://www.sdgzine.org</a>
<b>Description</b>
Due to cancellation of science and sustainability travel to Geneva for students, we created an online project: schoolkids can take control over our computers and see via video how their robots take part in our Plastic River challenge.
<b>ICT Tools</b>
video conferencing, double robotics, online programming, bluetooth, radio, zoom, new collaborative addictlab.com project platform, microbits.
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenge: crew on the ground, internet access, robots.
Sustainability: all remote challenges are scenarios created based on the sdgs Scenarios and decor build at SDGsolutionspace.
Replicability: students from Montreux, Vermont, Lausanne, France have taken part. Other schools/STEM programs could join.
<b>Action Lines</b>
<b>AL C2.</b> Information and communication infrastructure  <b>AL C3.</b> Access to information and knowledge  <b>AL C6.</b> Enabling environment  <b>AL C9.</b> Media  <b>AL C11.</b> International and regional cooperation.
<b>SDGs</b>
<b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all  <b>Goal 6:</b> Ensure access to water and sanitation for all.

## Case 14 - The Implication of COVID-19 pandemic on socioeconomic and psychological well-being of the community: The Crisis management in suburban districts



<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>The Implication of COVID-19 pandemic on socioeconomic and psychological well-being of the community: The Crisis management in suburban districts. Ahfad University for women Academia <b>Sudan</b></p>
<p><b>Beneficiaries</b></p>
<p>The project has covered four villages in the district of North and West Omdurman a number of two villages in each district. The project has covered all community members with especial involvement of the local resistance committees, Youth local Associations, women association, and local stakeholders including, health center, schools, and other locality services.</p>
<p><b>Website</b></p>
<p><a href="http://www.ahfad.edu.sd">http://www.ahfad.edu.sd</a></p>
<p><b>Description</b></p>
<p>The project will address and involve both community members and community organizations from the beginning. The project has four main objectives these are: a. To investigate on KAP regarding COVID19 through a pilot participatory research; b. To measure the socioeconomic and psychological well-being change due to the pandemic; c. To know experiences and challenges facing them and how are overcome; d. To provide capacity building to community members and organizations in knowledge and skills of pandemic crisis management; e. To exchange and communicate information and research results through media channels and through policy briefing workshops.</p>
<p><b>ICT Tools</b></p>
<p>whats-apps, facebook, twitters, emails.</p>
<p><b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: The project long term results will imply in many ways; the community will be aware of the process of participatory research, knowing the problems and challenges they faced due to the pandemic. They will be empowered to plan and manage future similar projects, particularly in issues of pandemic crisis management. In addition, the project will enable the community members to know each other better and enable them to gain confident in doing joint advocacy and research work.</p>



Moreover, the project implies clear understanding of socioeconomic problems and challenges resulted from the COVID19 and give the community chance to think, put initiatives, and participate in solving these problems. Furthermore, the project will introduce clear policies and strategies that will help decision makers and planners in future projects in the area regarding health management and alternative livelihood measures.

Partners: partners can be contacted in area of e-health education, small enterprise organizations and e-education professionals can be involved in some stages of the project implementations.

Replicability: Yes it is possible to be replicated in similar villages around Khartoum State or possibly around other States in Sudan.

Sustainability: the project will be sustainable as it will involve the community members and its organizations from the beginning in the process of the project cycle. Also, create partnership with national organizations in some stages of the project's activities will ensure its sustainability. Moreover, fund from international organization and private sector will enhance the implementation of the project activities.

**Action Lines**

AL C2. Information and communication infrastructure | AL C3. Access to information and knowledge | AL C4. Capacity building | AL C5. Building confidence and security in use of ICTs | AL C8. Cultural diversity and identity, linguistic diversity and local content

**SDGs**

Goal 3: Ensure healthy lives and promote well-being for all | Goal 5: Achieve gender equality and empower all women and girls | Goal 12: Ensure sustainable consumption and production patterns | Goal 17: Revitalize the global partnership for sustainable development

## Case 15 - AI-aided Precision Medicine against COVID-19

**Title of the project, Contact Organization Name, Stakeholder type, Country**

AI-aided Precision Medicine against COVID-19

University of Foggia

Academia

Italy

### Beneficiaries

The major beneficiaries of the use of these tools are directly healthcare professionals, clinicians, and researchers. Indirectly, patients who need quick and effective treatment.

### Website

<https://www.unifg.it>

### Description

Our team of researchers analyzed how data analysis using artificial intelligence algorithms has made a contribution in the fight against the pandemic.

### ICT Tools

Our analysis of the literature showed that different types of computational statistics and artificial intelligence algorithms have been adopted in four application macro sectors.

### Challenges / Partnership / Sustainability / Replicability

**Challenge:** Provide rapid knowledge of an unknown viral biological agent, develop new treatment protocols, and properly allocate resources.

**Scalability:** These applications can be replicated in all countries that have a computerized national health system.

### Action Lines

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

## SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 16 - PressXAI-University, Poland

### Title of the project, Contact Organization Name, Stakeholder type, Country

PressXAI-GreenaBank  
PressXAI-University  
Academia  
**Poland**

### Beneficiaries

PressXAI-Bank - household owners and their families PressXAI-Voter - all citizens of the world

### Website

[https://www.pressiton.com/ines3/?module=pressitonex\\_business\\_model\\_en\\_EN](https://www.pressiton.com/ines3/?module=pressitonex_business_model_en_EN)

### Description

[https://www.pressiton.com/ines3/?module=press\\_xai\\_voting](https://www.pressiton.com/ines3/?module=press_xai_voting)

### ICT Tools

Unique PressXAI-Mind framework (Explainable Artificial Intelligence)

### Challenges / Partnership / Sustainability / Replicability

Challenges: High project complexity was overcome recently by introducing the PressXAI-Mind framework. When people see it, they think that there is 1 billion USD needed to complete it. When in fact, it is almost ready.

Partnership: PressXAI-Bank, Central Banks to finance Climate Change PressXAI-Voter, Governments to verify solutions

Replicability: It is replicable in each country.

Sustainability: PressXAI-Bank - USA turnover 600 bln USD. PressXAI-Voter - it is a repeatable process

<b>Action Lines</b>
<p><b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development</p> <p><b>AL C2.</b> Information and communication infrastructure</p> <p><b>AL C3.</b> Access to information and knowledge</p> <p><b>AL C4.</b> Capacity building</p> <p><b>AL C5.</b> Building confidence and security in use of ICTs</p>
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 17 -Universidad de las Ciencias Informáticas, Cuba

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
<p>Pesquisador Virtual  Universidad de las Ciencias Informáticas  Academia  <b>Cuba</b></p>
<b>Beneficiaries</b>
Cuban population, doctors, Ministry of Public Health.
<b>Website</b>
<a href="http://www.uci.cu">http://www.uci.cu</a>
<b>Description</b>
<p>"Pesquisador Virtual" is an IT solution that uses surveys to capture information on the Cuban population's health status, as a complement to the active query process of the Cuban health system, in the context of the epidemiological response to the COVID-19 pandemic. It has a mobile solution and a web solution where people declare their symptoms, among other medical data. The results of the survey (statistical and nominal information) are monitored in real time through graphs and statistics by the different instances of the Ministry of Public Health (national, provincial and municipal levels). As a result of this process, people are treated in less than 24 hours, in their homes, by doctors from the primary health care system, allowing early detection of possible cases of COVID-19. In three months, the system was used by more than 200,000 citizens, of whom more than 28,000 declared at least one symptom of the disease and received timely medical attention. The system has had an impact</p>

<p>recognized by the Cuban medical authorities in confronting the pandemic and the good results obtained so far by the country.</p>
<p><b>ICT Tools</b></p>
<p>Internet access, mobile phones, web and android apps, web and database servers</p>
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Challenges: The greatest challenge has been the cultural change that the massive use of an IT tool, to report their state of health, implies in the Cuban population.</p> <p>Partnership: A collaboration for the introduction of this tool in other countries would be convenient.</p> <p>Replicability: The project is replicable to any country and can be generalized to any environment where population surveys are needed.</p> <p>Sustainability: The project is sustainable, it is already part of the Cuban health system and has the support of the university where it was developed</p>
<p><b>Action Lines</b></p>
<p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health</p>
<p><b>SDGs</b></p>
<p><b>Goal 3:</b> Ensure healthy lives and promote well-being for all</p>

## Case 18 -University of Tehran/ and Sustainable agriculture and environment, Iran (Islamic Republic of)

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Regulation of biocidal products (sterilants, disinfectants, etc.) use for developing countries in the COVID-19 time  University of Tehran/ and Sustainable agriculture and environment  Academia  <b>Iran (Islamic Republic of)</b></p>
<p><b>Beneficiaries</b></p>
<p>Please note that this important in dedication job for me with absolutely nothing for profit but with many world level discussions (please see my resume), the last live one in the Cambridge UK Sept. 2019 for the SAICM (Strategic Approach for Chemicals</p>

management) been going for a long time and always ICT and online an important part of it but concentrated on the online discussion when the COVID-19 arrived and we had to be only online. So primary beneficiaries like in the past years' people, environment and wildlife to protect them against the toxic compounds/ pollution, for helping food safety and security, for all other environmental issues I have been helping so really a wide national, regional and even global community have benefited from my activities all these years despite my very simple living situation have difficulties even for my daily expenses and thanks to GOD that during the past decade UN agencies helped me to travel and talk widely. Please see some of my talks on the YouTube eg. in the University of Kyoto, for the 2nd UN data forum 2018, etc. to see how much help I provided to the world community and despite my hard financial situation I never allowed myself to work for money perhaps because my science is about dangerous toxic materials.

### Website

<https://www.ut.ac.ir>

### Description

Wide online discussions about the regulation of biocidal products (sterilants, disinfectants, etc.) use for developing countries in the COVID-19 time. Base on my strong and long background as a regulatory toxicologist in connection to most important regulatory agencies like EPA, ECHA, OECD, Chemical Watch, etc. I am trying to prevent the misuse/ overuse of the biocidal products during the COVID-19 time. These activities have been going for more than 2-3 decades for me and now I am concentrated to use them against the COVID-19. Very wide online discussions in the form of webinars, online discussions, conferences, etc. nearly all by using computers and ICT tools. For me participating in webinars globally is a long time experience and not only after commencing the COVID-19 and so I was able to use it properly to help. Since six months ago we have been discussing very widely and globally about the effects of the COVID-19 on health, on food safety and security, etc. particularly for developing countries, please also see my Instagram: biomahda, my Facebook page, etc.

### ICT Tools

Being a long time on ICT since starting my Ph.D. studies in Canada (1985) starting with very basic computer programs and tools like amber and green monitors, 360k big tiny floppies and then 1.4, Word Perfect, Netscape, etc. programs, designing and developing color slides on computers for the first time and then trying to retrieve them remotely eg. I was in Guelph and we did it in Toronto as a scientific photographer, developing a very important Probit analysis computer program by using GW-Basic! please see my resume, this is a life of ICT and connections and connectivity for me as I call it: it is my lifeline! Fortunately, in recent years the ICT tech

developed so much that in every aspect of our life we need it and we HAVE to deal with it. I am permanently following the ICT developments by using all types of computer programs and am a member in many globally related ICT agencies like ITU, WSIS, Internet community, many and I am trying to catch the digital tech to be able to follow my science just for helping people, environment and wildlife against toxic compounds but also much wider global issues.

#### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** As an agri-environmental scientist, I like many others are only users of the beautiful ICT tech, even though during my high school years I was a physics & electronics genius but later being involved mostly in kind of biological/ toxicological sciences I have been only a user and so always struggling to cope with my compute programs especially in a place under different types of the cyberattack. So as a scientist, a retired professor every day we had to deal with learning new ICT tools, programs, etc. and we love it because it gives us the beautiful sense of communications and being connected globally and that is my life, as I said many times the computer, ICT, and internet is my lifeline. You can imagine how many difficulties people like me have to do our online discussions! We are people of DOS later on these big ocean of ICT tech, so challenges are many, unfortunately, some to prevent us from doing this beautiful global help, see what I have been doing: please see my resume, nothing for business but a 12-15 hours work to help. We need to get special attention from different UN agencies like ITU.

**Partnership:** I am always looking for partners perhaps because I have not been thinking for money but just to help. Surely ITU and WSIS and other related UN agencies would be and should be my partners because this is a really pure and important help that I have been providing to the planet very freely and in generosity, last year when I finally got the help of ITU as the financial support for an ITU conference in India finally I could not go due to problems of sanctions on Iran and so preventing any money transfer, etc. so now that I have been doing this pure help of toxic pollution reductions and regulations all free and for nearly all the planet why ITU and other related agencies do not partner with me? I really need it and please come closer to me to see how much help I need, who I am in purity for help, how much love I have for the world community that brings pain to my hearth, etc. I need partners, I need help for this pure and important job. I need help for my travels and talks, a small project to help with my very simple living situation that because of doing it for years now sometimes feel pressure but it is love that pushes me to do it.

**Replicability:** The project is going and as I mentioned it is very wide but most for developing countries concentrated on the MENA

**Sustainability:** Using internet/ ICT widely and globally for toxic pollutions reductions and regulations mostly for developing countries during the past 2-3 decades I am a senior scientist to help people, environment, and wildlife against toxic compounds. When the COVID-19 arrived here in my country Iran, regionally and globally I started to think to do this project to prevent the misuse, abuse and overuse of the biocidal

products.
<b>Action Lines</b>
<b>AL C2.</b> Information and communication infrastructure <b>AL C3.</b> Access to information and knowledge <b>AL C4.</b> Capacity building
<b>SDGs</b>
<b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation <b>Goal 12:</b> Ensure sustainable consumption and production patterns <b>Goal 15:</b> Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

## Case 19 - Ecole Nationale Polytechnique (ENP), Algeria

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Remote Engineering Education Ecole Nationale Polytechnique (ENP) Academia <b>Algeria</b>
<b>Beneficiaries</b>
The main beneficiaries are undergraduate and graduate students, as well as faculty and administration. The main benefits are to achieve the teaching objectives and waste as little time as possible while ensuring quality teaching.
<b>Website</b>
<a href="http://www.enp.edu.dz">http://www.enp.edu.dz</a>
<b>Description</b>
the activities carried out are mainly: - provide lessons during confinement - follow the students in their end of studies projects - provide consultations for doctoral students - consult on the coordination of educational activities with other colleagues
<b>ICT Tools</b>



We use various platforms; local, or available ones such as Google Meet, Zoom, etc. We introduce the course files into our platform and also send them by email. This allowed us to test the distance training with all the difficulties, psychological, of mastering modern communication tools despite certain technical problems which have been identified and which we intend to solve. We will assess the impact on the quality of training after the renewal of the experience while improving the conditions of execution.

#### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** The main encountered challenges were to provide for the first time and without prior training, a distance education in its entirety (courses, tutorials and practical work) and effective supervision, both in undergraduation end of studies projects and postgraduate for doctoral theses. The challenges will be overcome by training teachers and students in the use of the platforms tested and used. It will also be necessary to eliminate all the technical barriers linked to the use of the Internet and the failure of platforms, especially with regard to the evaluation and practical work requiring special equipment for the observation of physical phenomena of which simulation and modeling are still the subject of research investigations. There will therefore be a very wide field of innovation in this area.

**Partnership:** The main partners at the moment are the other universities to share their experiences and the research centers under the authority of the Ministry of Higher Education.

**Replicability:** Answered in the previous points

**Sustainability:** Answered in the previous points

#### **Action Lines**

**AL C2.** Information and communication infrastructure

**AL C3.** Access to information and knowledge

**AL C5.** Building confidence and security in use of ICTs

**AL C7.** ICT applications: benefits in all aspects of life — E-learning

**AL C7.** ICT applications: benefits in all aspects of life — E-employment

**AL C7.** ICT applications: benefits in all aspects of life — E-science

**AL C10.** Ethical dimensions of the Information Society

**AL C11.** International and regional cooperation

#### **SDGs**

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

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all

**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster

innovation

**Goal 17:** Revitalize the global partnership for sustainable development

## Case 20 - Ecole Nationale Polytechnique (ENP), Algeria

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Remote Engineering Education  
Ecole Nationale Polytechnique (ENP)  
Academia  
**Algeria**

### Beneficiaries

The main beneficiaries are undergraduate and graduate students, as well as faculty and administration. The main benefits are to achieve the teaching objectives and waste as little time as possible while ensuring quality teaching.

### Website

<http://www.enp.edu.dz>

### Description

the activities carried out are mainly: - provide lessons during confinement - follow the students in their end of studies projects - provide consultations for doctoral students - consult on the coordination of educational activities with other colleagues

### ICT Tools

We use various platforms; local, or available ones such as Google Meet, Zoom, etc. We introduce the course files into our platform and also send them by email. This allowed us to test the distance training with all the difficulties, psychological, of mastering modern communication tools despite certain technical problems which have been identified and which we intend to solve. We will assess the impact on the quality of training after the renewal of the experience while improving the conditions of execution.

### Challenges / Partnership / Sustainability / Replicability

Challenges: The main encountered challenges were to provide for the first time and without prior training, a distance education in its entirety (courses, tutorials and practical work) and effective supervision, both in undergraduation end of studies projects and postgraduate for doctoral theses. The challenges will be overcome by training teachers and students in the use of the platforms tested and used. It will also

<p>be necessary to eliminate all the technical barriers linked to the use of the Internet and the failure of platforms, especially with regard to the evaluation and practical work requiring special equipment for the observation of physical phenomena of which simulation and modeling are still the subject of research investigations. There will therefore be a very wide field of innovation in this area.</p> <p>Partnership: The main partners at the moment are the other universities to share their experiences and the research centers under the authority of the Ministry of Higher Education.</p>
<p><b>Action Lines</b></p>
<p><b>AL C2.</b> Information and communication infrastructure</p>
<p><b>SDGs</b></p>
<p><b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p>

## Case 21 - CodingPro CJSC, Armenia

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Online coding learning platform by games CodingPro CJSC Academia <b>Armenia</b></p>
<p><b>Beneficiaries</b></p>
<p>it's possible to use our project by website and by any android device. Android app is available by <a href="https://play.google.com/store/apps/details?id=am.webex.game">https://play.google.com/store/apps/details?id=am.webex.game</a></p>
<p><b>Website</b></p>
<p><a href="https://www.web-ex.tech">https://www.web-ex.tech</a> <a href="https://omegacoding.com">https://omegacoding.com</a></p>
<p><b>Description</b></p>
<p>We have created online learning platform of programming. Anyone can learn programming by playing mini games. And large action game.</p>
<p><b>ICT Tools</b></p>

Social media helped us to solve many ongoing marketing tricks.
<b>Challenges / Partnership / Sustainability / Replicability</b>
<p>Challenges: Anyone can learn programming in an easy(gaming) way and get hired.</p> <p>Partnership: We want investment for developing our project more( i.e to enter App Store) and for marketing purposes.</p> <p>Replicability: The project is very required in status quo. In pandemic state many many students are interested to have stable jobs and this tool will help anyone who is interested in programming to solve this problem.</p>
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning
<b>SDGs</b>
<b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all   <b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all

## Part 3: Civil Society

### Case 1 - Digitas Institute, Slovenia

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
<p>Digitas ICT Accessibility Platform Digitas Institute Civil Society <b>Slovenia</b></p>
<b>Beneficiaries</b>
The key beneficiaries are the deaf and hard of hearing and their organisations. However,

persons with other impairments, such as blind and visually impaired, can also benefit from safe and secure ICT solutions that can be used by any device or platform, without a need to download any application. The solutions are affordable and accessible and contribute to efforts to build inclusive and equitable societies. These solutions help meeting the requirements for social and physical distancing during the COVID-19 pandemic, where it is difficult for sign language interpreters to accompany deaf or hard-of-hearing persons when they have to communicate with non-sign language users. Awareness raising, capacity building and training programmes, as well as stakeholder engagement, are important for local and regional actors, such as local or regional development agencies. Cooperation with local actors promoting cultural heritage and sustainable tourism has also been established. It is envisaged to establish regional digital accessibility centres in order to promote capacity building and training programmes as well as cooperation among stakeholders in the area of ICT accessibility. Cross-border cooperation has already been established with beneficiaries from Croatia. It can be further expanded regionally, with potential partners from Austria, Hungary, Italy and South-Eastern Europe.

#### **Website**

<https://www.digitas.si/>

#### **Description**

In 2020, our organisation has launched several activities as a response to the COVID-19 pandemic. It launched the Information and Communication Technology (ICT) Accessibility Testbed to develop and test accessible ICT solutions, especially targeted at the deaf and hard of hearing communities. A particular focus was on safe and secure solutions, including those based on WebRTC (Web Real-Time Communication) technology. Several deaf and hard of hearing persons, sign language interpreters and experts participated in testing solutions, such as video remote interpreting (VRI) services, online meeting applications, and language technologies. The testbed activities were aimed, among others, at improving the understanding of functional and accessibility requirements of accessible ICT solutions, and defining regulatory requirements for their deployment, and for the betterment of the deaf and hard of hearing communities. The testbed activities have been complemented by a broad Accessibility Partnership with organisations of persons with disabilities from Slovenia and Croatia, and by a partnership with experts and academia in order to develop and provide accessibility training. Our organisation has also launched awareness raising, capacity building and training programmes on accessible ICT solutions to meet COVID-19 challenges. It collaborates with organisations of persons with disabilities and other local, regional and national stakeholders.

#### **ICT Tools**

We are using standards-based ICT solutions for capacity building, online training, meetings, conferences, and video remote interpretation services. We also support the work of persons with disabilities and their organisations amidst COVID-19, and help them to use standards-based ICT solutions in various situations, such as education, healthcare, meetings, as well as government, social and financial services. Safe and secure technologies are used based on WebRTC that do not require any application download neither on desktop nor on mobile platforms. The solutions used are compatible with different browsers and with all major desktop and mobile platforms. They are safe, secure, affordable and accessible. We took ITU-T FSTP.ACC-WebVRI “Guideline on web-based remote sign language interpretation or video remote interpretation (VRI)” as a reference for VRI. Standards-based ICT solutions such as WebRTC promote interoperability and therefore our organisation can address the accessibility needs at the international level. It is now almost an imperative to use remote sign language interpretation or VRI services. Requirements for social and physical distancing during the COVID-19 pandemic has made it difficult for sign language interpreters to accompany deaf or hard-of-hearing persons when they have to communicate with people who do not understand sign language.

#### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** In the testbed activities, various challenges have been identified. In most countries in Central Europe and South-Eastern Europe, national sign languages have been recognised by law. However, not all countries have established national qualification systems for sign language interpreters. In several countries in the region, it is hard to find enough qualified and competent sign language interpreters. There is also a general lack of qualified captioners. Language technologies such as text-to-speech, speech-to-text and captioning are not yet available for languages with small numbers of speakers or their quality is not yet comparable to more common languages such as English. Due to COVID-19, all testbed experiments and evaluations as well as all the meetings have taken place online. This has been a particular challenge, as we have mainly worked with the deaf and hard of hearing. Availability, affordability and quality of broadband internet access has also been encountered as one of the challenges, especially in the rural and remote areas. We have provided advice to organisations of persons with disabilities to address these issues with network operators, service providers and national regulatory authorities.

Partnership and stakeholder engagement activities have been in the centre of our project. These activities and a process of working with partners and identified stakeholders have been carefully planned as the project is growing organically.

**Replicability:** The ICT solutions used in our project are based on international standards and can be replicated in any part of the world. The same applies to the organisational aspects (the testbed, accessibility partnerships, and digital accessibility centres). We are discussing

expanding our project to other countries in the region as well as to other parts of Europe and to Asia.

Sustainability: We promote accessible ICTs, provide capacity building and training, and cooperate with national governments, regulatory authorities, organisations of persons with disabilities, and other stakeholders. It is our aim to incorporate international standards-based ICT solutions such as VRI into the existing national accessibility frameworks. In this way, the project can sustain itself in the same way as the existing accessibility services can be sustained by, e.g., governments or other relevant stakeholders.

### Action Lines

AL C1. The role of governments and all stakeholders in the promotion of ICTs for development|AL C2. Information and communication infrastructure|AL C3. Access to information and knowledge|AL C4. Capacity building|AL C5. Building confidence and security in use of ICTs|AL C6. Enabling environment|AL C7. ICT applications: benefits in all aspects of life — E-government|AL C7. ICT applications: benefits in all aspects of life — E-business|AL C7. ICT applications: benefits in all aspects of life — E-learning|AL C7. ICT applications: benefits in all aspects of life — E-health|AL C7. ICT applications: benefits in all aspects of life — E-employment|AL C7. ICT applications: benefits in all aspects of life — E-environment|AL C10. Ethical dimensions of the Information Society

### SDGs

Goal 3: Ensure healthy lives and promote well-being for all|Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|Goal 8: Promote inclusive and sustainable economic growth, employment and decent work for all|Goal 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation|Goal 10: Reduce inequality within and among countries|Goal 11: Make cities inclusive, safe, resilient and sustainable|Goal 12: Ensure sustainable consumption and production patterns|Goal 16: Promote just, peaceful and inclusive societies|Goal 17: Revitalize the global partnership for sustainable development

## Case 2 - PythonesiaORG, Indonesia

**Title of the project, Contact Organization Name, Stakeholder type, Country**

IOT and Machine Learning Application Development Training and Learning  
PythonesiaORG  
Civil Society  
**Indonesia**

**Beneficiaries**

The beneficiaries are the general public to help activities during the Covid-19 pandemic by using IoT equipment built through the training process and learning to build IoT device , Machine Learning .

**Website**

<https://www.pythonesia.org>

**Description**

Providing Training and Learning to Build IoT Applications and Machine Learning online to help overcome the Covid-19 pandemic through several IoT applications and devices.

**ICT Tools**

The device used is a Microcontroller device that is connected to the Internet network and provides IOT and Big Data support for Machine Learning as an analysis of the covid-19 pandemic conditions.

**Challenges / Partnership / Sustainability / Replicability**

Challenges: Learning to build IoT is considered something new and difficult to do, especially for participants who do not have basic knowledge of electronics, so the training is carried out by practicing online.

Partnership: We are looking for partners, especially local governments and non-governmental organizations who are consistent in developing IoT for the response to the Covid-19 Pandemic.

Replicability: This activity can be replicated and implemented by local governments to produce IoT devices needed in the conditions of the Covid-19 Pandemic and after the pandemic.



Sustainability: This program is carried out in a sustainable manner, this sustainable activity can be carried out with the application development process that was built and developed by the Pythonesiaorg team.

#### Action Lines

**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C5.** Building confidence and security in use of ICTs

#### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 11:** Make cities inclusive, safe, resilient and sustainable

## Case 3 - Ada Lovelace Foundation, India

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Isolation Ward and Touch free Investigation of Patients : Smart City-P( P=Pandemic Preparedness)  
Ada Lovelace Foundation  
Civil Society  
**India**

#### Beneficiaries

Hospitals, Health care Units, Rural health settings and for patients with determination in India and cross borders

#### Website

<https://adalovelace.in/>

#### Description

Problem we are addressing: Airborne Smart Isolation ward play a predominant role in protection of patients and minimize risk and spread of infectious disease such as

Tuberculosis, SARS, Covid-19 and future pandemic and also help frontline medical hospital staff from risk of infection. It embraces Multimode air purifier that cleans exhaled air and kills airborne viruses is used extensively. The ultimate idea is Smart CityP = Pandemic Preparedness Model. We adopt negative pressure gradient principle which helps covid-19 quarantined patients, prevent from airborne droplets sneezing, coughing, exhalation and transmission to other persons. Smart Sensors are used to continuous monitoring of ambient atmosphere inside the Isolation ward/cubicle.

**ICT Tools**

Smart Sensors, Smart Devices, Cyber Security Equipment, Aromatic Pressure Equalizers

**Challenges / Partnership / Sustainability / Replicability**

Challenges: Misinformation, disinformation, fake news, cyber threats and cyber criminals targeting hospitals and healthcare systems. We are leveraging technology to overcome bad actors and impact on patients and Medical Professionals.

Replicability: Our Airborne Smart Isolation ward/Cubicle solutions is amazing low cost product, which is modular, portable, scalable, Installed and dismantled within few minutes which helps, prevent spread of Infectious diseases in the hospital ecosystem.

Sustainability: The main idea is Smart CityP model, which enhances health care facilities abundantly. We want to establish Internet of things (IOT) facilities for still better communication facilities for patient, frontline professional staff, Caregivers and entire hospital ecosystem for smarter approach and also Sustainability.

**Action Lines**

**AL C4.** Capacity building

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all

**Case 4 - Asociación Mundo Posible, Guatemala**

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Community Networks to Facilitate Home Schooling, Self-Learning, and Access to Information for All  
 Asociación Mundo Posible  
 Civil Society

**Guatemala****Beneficiaries**

Our primary beneficiaries are the students and teachers within the community where we are setting up this network. The main benefits are having free access to some of the best international and local educational resources for free through their devices, not only at school but at their homes. The digital library also has an offline MOOC for teachers that they will be able to complete from home at their own pace. This will certainly help improve the students' performances in the different subjects, and it will motivate them to stay in school and to learn about subjects based on individual interests. Teachers will also have the chance to improve their teaching practices by integrating technology and the different methods proposed to develop XXI Century skills with their students. Given that this digital library allows the upload of local content, teachers will be able to share different files with their students and community authorities can share information with the community in general.

**Website**

<https://worldpossible.org/>

<https://mundoposible.org/>

**Description**

This project's general goal is to support distance learning in communities with limited to no access to the internet, by providing free access to digital educational resources and training programs to teachers, community leaders, facilitators, and local authorities. This is possible through the offline digital library RACHEL (Remote Area Community Hotspot for Education and Learning) developed by World Possible, and a wireless community network to support a large number of simultaneous users in an extended area. This network will allow any person within the community with a smartphone or any device with WiFi capability to have instant free access to some of the best educational websites and modules with curated local resources, making it available over a local wireless connection. Websites include Wikipedia, Khan Academy, Hesperian Health Guides, among many others. Local modules include materials from the Ministry of Education in the different Mayan languages, Latin American Libraries, an offline MOOC (Massive Open Online Course) to train teachers about developing "soft skills" or "XXI century skills" with their students, a comprehensive COVID-19 module, and many more.

**ICT Tools**

We are using an offline and mesh network technology that allows students and community members to have free access to a great deal of the educational content that is normally available through the internet. The RACHEL servers that we have deployed in more than 300 schools have the capacity to serve up to 50 simultaneous users in a 50 meters range. We are now setting up and piloting a network capable of serving 500-1000 users in a 5-10 Km area range. In order to achieve this, we are using a combination of robust servers, a load balancer, and a mesh wireless network composed of several station-based antennas, switches and strategically located access points. This technology will certainly help close the digital divide in rural areas, at a national level, where most of the students are not able to do research at home or continue their education during lockdown, while also allowing most community members to learn about almost anything they have an interest for.

### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** One of the main challenges is that not every student, especially the younger ones, has access to a smartphone, tablet or laptop to work at home. However, almost 100% of the households in rural areas have access to at least one smartphone, which could be used by younger members of the family, at certain times of the day. We also expect that as this model of community network will prove to be effective, and widely known by the central government's educational authorities and organizations that support education programs in these contexts, more coordination and efforts will be made to provide every student with a laptop or tablet. Setting up a mesh network in rural areas of Guatemala can be very challenging due to its topography and the security needed for the external equipment. Nevertheless, our team has the support of Ubiquity experts who advise on best settings and configurations for the network, and from local governments who are committed to making sure that the deployed equipment is secure and maintained.

**Partnership:** We are currently strengthening the partnership we started years ago with the Guatemala Ministry of Education to coordinate efforts in selecting the most appropriate schools and communities to implement the RACHEL digital library and to engage teachers in our training program. We also need to partner with the local governments and community leaders where a community network is set up, so that there is a strong ownership of this project and the resources deployed are looked after and maintained. Besides the above, we are always looking for partner organizations that focus on gender equality, environmental preservation, entrepreneurial activities, etc., and that could benefit from this platform, as they too can upload their content to make it easily available in a community to facilitate their activities; and organizations that support educational efforts by providing computers, laptops or tablets to students.

**Replicability:** Yes. Since 2014 we have been replicating the RACHEL digital library and teacher training program in Guatemala, having reached to date over 300 public schools.

Last year in partnership with a Canadian organization we successfully started this replication process in an indigenous region of Nicaragua and soon we expect to continue this process there and in Honduras. It is important to mention that RACHEL has been deployed in more than 40 countries through different organizations and World Possible chapters. The RACHEL Community Network will be the first of its kind and we are aiming to replicate it at a national level, with support from educational authorities and other organizations that have helped us implement RACHEL in many public schools. We believe it is one of the best solutions to close the digital divide and allow students in rural settings to continue and improve their education during lockdowns and beyond.

Sustainability: Yes. The digital library RACHEL works offline, so all users will not need to pay for internet fees or any kind of fee ever, and all the content within the library is open source. There is only one initial investment to purchase all necessary equipment and since it is a local network topology, it dynamically self-organizes and self-configures, which can reduce installation overhead. The ability to self-configure enables dynamic distribution of workloads, particularly in the event a few nodes should fail. This in turn contributes to fault-tolerance and reduced maintenance costs. Additionally, as mentioned before, since this is a much needed resource for students and teachers, there will always be a strong partnership with local governments so that they oversee and maintain the well-functioning of the network.

#### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C8.** Cultural diversity and identity, linguistic diversity and local content

#### SDGs

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

## Case 5 - Digital project for the prevention of COVID-19 in Chad

Title of the project, Contact Organization Name, Stakeholder type, Country

Digital project for the prevention of COVID-19 in Chad  
Association des Techniciens en Technologies de l'Information et de la Communication  
Civil Society  
**Chad (Republic of)**

### Beneficiaries

all people without gender exceptions. At least ten thousand people will be direct beneficiaries of this project

### Website

[https://twitter.com/ticprojec\\_attic](https://twitter.com/ticprojec_attic)

### Description

Fighting against the coronavirus epidemic in Chad and more specifically in N'Djamena. This project aims to: Sensitize, guide, orient Chadians on the potential dangers of the disease Help the Chadian populations to respect the prevention guidelines decreed by the state or the WHO Track and report transmissions Provide reliable updates and alerts from public health authorities Answer live / direct all questions relating to the coronavirus door to door awareness campaign against covid-19. This project pursues a social objective of fighting COVID-19. We are aiming to decrease the rate of contamination of the coronavirus within the population by allowing them to adopt new behaviors. As an example, we can cite the cancellation of groups of more than 5 people, distance at least 2m, protection by helmet or visor, hand washing with chlorine or bleach every 10 minutes. Awareness campaign focused on barrier measures against COVID-19 and aimed at traders in the markets of N'Djamena town in barrier measures, so that they themselves become awareness agents. (1) Availability of 2000 complete handwashing kits, (2) Distribution of 1,000,000 locally produced washable masks, (3) Activation of a citizen watch committee against COVID-19. raise public awareness through social networks against COVID-19.

### ICT Tools

We use Facebook, Google, LinkedIn, Microsoft, Reddit, Twitter and YouTube to train and sensitize the Chadian population against COVID-19 and also to fight against fraud and misinformation linked to Covid-19

### Challenges / Partnership / Sustainability / Replicability

The main challenges is the pandemic of COVID-19 ravaging the world. And to overcome, it is enough to apply barrier gestures and transmission contexts: -The individual barrier gestures to be implemented; -The collective barrier gestures to be implemented; -The contexts of transmission in rallies and related risks; -The contexts of transmission in the

family.

We are looking for partners in ICT area.

The project will be replicable in the city of Moundou in the south of Chad where the number of the population is immense.

Yes, We give water in the peripheral districts of N'Djamena to allow them to break the chain of transmission of the virus by disinfecting the environment and promoting individual and collective hygiene; - make protection kits available to the population (Protection surgical masks, Protection cloth masks, Protection visor, hydroalcoholic gel, soaps, Single-use protection gloves.) - professional training of young people in IT maintenance and empowerment.

### Action Lines

**AL C3.** Access to information and knowledge | **AL C4.** Capacity building | **AL C6.** Enabling environment | **AL C7.** ICT applications: benefits in all aspects of life — E-health | **AL C7.** ICT applications: benefits in all aspects of life — E-employment

### SDGs

**Goal 6:** Ensure access to water and sanitation for all | **Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all | **Goal 11:** Make cities inclusive, safe, resilient and sustainable

## Case 6 - Association Eseniors

### Title of the project, Contact Organization Name, Stakeholder type, Country

Association Eseniors  
Civil Society  
**France**

### Beneficiaries

The primary beneficiaries are seniors all over Paris (but not only!) = the ones who understand French. We are helping them in practical issues while part of them are alone at home and have no contact with the external world.

### Website

<http://www.e-seniors.asso.fr>

### Description

Eseniors has sent out to several thousands of seniors who attend association activities and professional partner institutions regular newsletters (every few days) with useful information for physical and mental health.

"Life is not about waiting for the storm to pass, it's about learning how to dance in the rain."  
- Sénèque.

### ICT Tools

The whole team has got accustomed to ZOOM meetings We also sent tutorials to seniors about ZOOM and TeamViewer and offer to further help over the phone

### Challenges / Partnership / Sustainability / Replicability

We keep the minds of our target population busy with links to cultural online events (free of charge always!) ) and fight against loneliness and depression.

We would be happy to find partners informing us about other activities or news or even just to disseminate our letters to as large as possible an audience.

The information I sent is mostly written in English so that all the people reading French can read it but we could do exactly the same in any other country with the local language.

This action leads to interaction and a lot of people who received my newsletters sent me back information that I could publish on the following newsletter.

### Action Lines

**AL C3.** Access to information and knowledge|**AL C5.** Building confidence and security in use of ICTs|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C7.** ICT applications: benefits in all aspects of life — E-health

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 7 - Using Drones to urge people to stay home



<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Using Drones to urge people to stay home Royal Oman Police Civil Society <b>Oman</b>
<b>Beneficiaries</b>
Society
<b>Website</b>
<a href="https://www.rop.gov.om">https://www.rop.gov.om</a>
<b>Description</b>
The Royal Oman Police is using drones to disseminate the critical message of avoiding public spaces, to fight the spread of coronavirus (Covid-19). ROP is utilizing the emerging technologies by using the drones to instruct the citizens and residents to stay home and avoid stepping out unless it is necessary. The messages are in different language urging people to avoid doing anything that jeopardies their lives and public health. The police request the residents to stay home, avoid crowded places and protect themselves and their families.
<b>ICT Tools</b>
Drones
<b>Challenges / Partnership / Sustainability / Replicability</b>
<b>Action Lines</b>
<b>AL C5.</b> Building confidence and security in use of ICTs
<b>SDGs</b>
<b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable

## Case 8 - Covid-19 Online Correspondence Course and Covid-

## 19 Poetry/Essay Anthology

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b> Covid-19 Online Correspondence Course and Covid-19 Poetry/Essay Anthology (E-BOOK) Society of Young Nigerian Writers Civil Society <b>Nigeria</b>
<b>Beneficiaries</b>
General Public, writers, readers etc.
<b>Website</b>
<a href="http://societyofyoungnigerianwritersblog.blogspot.com/">http://societyofyoungnigerianwritersblog.blogspot.com/</a> <a href="https://menegiansarowiwacovid19course.blogspot.com/">https://menegiansarowiwacovid19course.blogspot.com/</a>
<b>Description</b>
COVID-19 ONLINE CORRESPONDENCE COURSE <a href="https://menegiansarowiwacovid19course.blogspot.com/">https://menegiansarowiwacovid19course.blogspot.com/</a> Covid-19 Correspondence Course" aim at informing, educating and testing the knowledge and ability of the participant on issues surrounding the Covid-19 pandemic virus. The course covers areas like introduction to the Virus, Transmission, Medical information and Prevention. The course is an internet based and certificate of participation/completion will be issued to individual participant at the end of the course. "The correspondence course has been rightly renamed after Menegian Saro-Wiwa, son of late playwright, Ken Saro-Wiwa, who recently died of COVID-19 in London. Objectives of the Course include; To inform and educate the masses on the Convid-19 Pandemic disease; to test the ability/knowledge of the participant on issues surrounding the virus; to help the Federal Government fight against the spread of Covid-19 virus in Nigeria and to help Nigerian government provide advice on how best to fight the virus. COVID-19 POETRY/ESSAY ANTHOLOGY (E-BOOK) The anthology is in reaction to the novel COVID-19 pandemic currently 'harassing' the world; and it offers writers copious page to register their views on the pandemic, as well as contribute their pencraft towards winning the war against the virus. WRITERS AGAINST COVID-19 MOVEMENT <a href="https://writersagainstcovid19movement.blogspot.com/">https://writersagainstcovid19movement.blogspot.com/</a> The movement was primarily formed to integrate writers in the ongoing fight against COVID-19 pandemic, and to give them platforms to employ their pen, creativity and dexterity towards combating and winning the war against the novel virus, which is currently 'harassing' the world in all ramifications. The ideation cum formation of the movement is more or less corroboratory to Edward Bulwer-Lytton's age-long pithy saying, that 'pen is mightier than sword'; and is also in keeping with the fact that writers have a plethora of roles to play in this global fight against the novel virus, and to which many of them are very ardent to give

their best, if given a platform. The statement reads in part: "The pursuit of this new movement is tripartite in nature, with regards to the (equally new) projects it has been launched to undertake. "One of these is administration of the association's newly launched online certificate course on coronavirus, called 'SYNW Covid-19 Correspondence Course' We publish poems, articles, essays and other information media on Covid-19 from aspiring and established writers. COVID-19 INFORMATION HUB <https://synwCOVID19informationhub.blogspot.com/> Our Covid-19 Information hub offers information which covers areas like introduction to the Virus, Transmission, Medical information and Prevention.

### ICT Tools

Blogs and social media tools were utilized.

### Challenges / Partnership / Sustainability / Replicability

Sponsorship is the major challenge. We need fund to make hardcopies of the correspondence course and other Covid-19 IEC materials we have produced. Also the fund to produce the hard copies of our anthology.

We are currently talking with the Oyo State Government on the need to adopt the correspondence course.

### Action Lines

**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C9.** Media

### SDGs

**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 11:** Make cities inclusive, safe, resilient and sustainable|**Goal 16:** Promote just, peaceful and inclusive societies

## Case 9 - Special Needs Initiative for Growth, Nigeria

### Title of the project, Contact Organization Name, Stakeholder type, Country

STEM AND ROBOTICS EDUCATIONAL INTERVENTION FOR YOUNG ADULTS WITH DOWN SYNDROME  
 Special Needs Initiative for Growth  
 Civil Society  
**Nigeria**

## Beneficiaries

This practice is designed to support our primary beneficiaries such as children, teenagers, young adults and youths living with Autism Spectrum Disorder, Down Syndrome, Cerebral Palsy and Visual Impairment( Blindness) between the ages of 9 years old to 40 years. Also, we provide support to their carers, special needs educators and families so that they can transfer the set of skills and practices to the persons with disability. Our geographical regions for vocational support covers rural areas, remote areas and urban areas. The main benefits/services focuses on demand-driven IT entrepreneurship and career development to enable either employment or self-employment, after which they are mentored, supported to secure an internship or job, or given a small grant to start a business within the ICT Sector.

## Website

<https://biolinky.co/specialneedsinitiativeforgrowth>  
<https://t.guardian.ng/news/down-syndrome-young-adults-get-introduced-to-robotics/>

## Description

We use a variety of training techniques so that young adults with Down syndrome can learn according to differing and preferred learning styles while leveraging STEM and Robotics. We also employ a flexible approach not only to content but to goals, methods, materials and assessment techniques that suits the young adults with Down syndrome and their special educators. We proffer STEM and Robotics leveraging on various schematic pieces to enable them construct robots, buggies and devices, while ensuring they can physically “move” or “operate” together to successfully and repeatedly perform a given task. Trainees and their special educators had the opportunity to build electronics, and learn about basic physics, electricity, and how electronic devices work. With Content around STEM and Robotics, early and young adults with intellectual and physical challenges are now encouraged to integrate with computational skills as the rest of 21st century society during the pandemic and even during the post COVID-19. Our STEM AND ROBOTICS educational intervention is improving digital transformation and inclusive education for children and young adults with intellectual disabilities in Lagos State Nigeria by developing and improving the right skill set, methods and techniques relevant for Nigerian children and young adults with disabilities to compete in or create a job market locally and globally during the Crisis and beyond. Also through our educational ICT tools , we deploy researched based objectives to equip the educators or trainers with the right capacity so that they can transfer the right skills to the Children and young adults with disabilities and their peers thus enabling us to proffer each problem-solving skills within STEM contexts (e.g. problem stories about the velocity of a car, body temperatures, probability genetics, chemicals), generalize problem-solving skills when engaging in hands-on activities in an engineering classroom eg, by measuring and calculating which will increase students with disability motivation to

access internship platforms, job opportunities and entrepreneurship grants to scale their career after the training. This is a way that we measure the level of educational impact that we provide for them.

### ICT Tools

Our benefit is helping children get rid of addiction to violent games and to be producers for useful game and to be creative

### Challenges / Partnership / Sustainability / Replicability

Challenges we encounter are mainly Employment Opportunities for adults who have been trained technically with us into employment or entrepreneurship roles related to ICT. After empowering persons with disabilities on technical skills in September 2019, We had few organizations to mentor or integrate them for internship because they believe that persons with disabilities have limited functionalities. In overcoming this obstacle, we had to conduct awareness and advocacy outreach online and onsite to enable association of employers to see the positive outcomes that could be derived from their obligations to employment equity for persons with disabilities. We buttressed that if Persons with Disabilities were granted opportunities to integrate into technical roles in the workplace, they will have insights into how to serve customers with disabilities. There will be greater diversity at the work sites so that a wide variety of perspectives are utilized when resolving problems. Since then, 47% of employers of technical fields saw reason to this and have affirmed their support to include persons with disabilities in mentorship, internship and other employment roles.

Partnership: There is a large chasm between the potential of data-driven information and its actual use in helping solve the social problem. We would like to have partners who are using big data to tackle complex social problems related to persons with disability. We would like to partner with them to deploy big data to tackle issues in identifying the number of people who experience disability (persons with intellectual, sensory and physical disability) across low-middle income countries, as well as the unmet needs, barriers and inequalities they face; so that we can replicate our social change across these countries. Also, we would like to have partners dealing with assistive and rehabilitative technologies for children and young adults with special needs. These are areas around Robotics and other STEM Related services. Having partners in this field will help us digitally fabricate and sustain rehabilitative technology curriculum and prototypes for children and young adults with disabilities.

Sustainable: Yes it is Sustainable. It is sustainable because our training content not only addresses STEM education and therapeutic needs but it has also addressed how persons with disabilities can access employment and business development services while leveraging on technology. This has helped to motivate employers in Nigeria to hire and leverage accessibility to business settings for training purposes for persons with disabilities. Over 80 persons with disabilities have benefitted from this training content and practise in the past 2 years and one month. Our STEM education training content includes the structure for overseeing the inclusion efforts, stakeholder cooperation, gender issues and monitoring and

evaluation for Down Syndrome young adults, Visually-impaired young adults, cerebral palsy children and early adults and young adults with autism spectrum disorders. Since 2017 to 2020, We have facilitated 18 community projects that have provided technical and vocational training support for 2,470 young adults with blindness, down syndrome, cerebral palsy and autism spectrum disorders through information technology and IT Entrepreneurship. 69% of them have been provided internship platforms and entrepreneurship grants to scale their career after the training.

Replicability: Given the circumstances of the unprecedented time we found ourselves due to the global pandemic, we began engaging most of our vocational and technical support virtually as well as in person. Our virtual empowerment programs in STEM education and other technical skills increased by 57% since March 26th 2020, we provide capacity building programs and technical training to disabled persons, special educators and families of persons with disabilities in partnership and support from the Civil Society Organizations, Government, Public and Private stakeholders. This has been replicated across other low income countries through our Disability and Covid-19 Global Town Hall Meetings which took place in July and December 2020.

#### Action Lines

**AL C4.** Capacity building

#### SDGs

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

## Case 10 Association E-SENIORS, France

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Happy hours on ZOOM  
 Association E-SENIORS  
 Civil Society  
**France**

#### Beneficiaries

Our primary beneficiaries are all the seniors who, in normal times, come to our workshops in public places all over Paris  
 - in social centers , cultural centers, in townhalls, also in retirement homes or residences.  
 Then we have the professional nurses or caregivers who need to find a new way to

communicate with their patients or sick family members.

For all these people, we organize online teaching and, for people who do not have computers, we try to help them by giving recycled computers.

We try to give as much possible information about the situation ,about practical solutions to different problems or needs.

We try to keep social links /contacts by talking online or even organizing games.

### Website

<http://www.e-seniors.asso.fr>

<http://www.e-seniors.paris/>

### Description

For promoting 'Ageing well" among independent seniors , we organized several online activities , in replacement of our regular workshops in public places:

1. Regular workshops about the use of computers , tablets, smartphones and , more generally Internet - for people isolated at home , i.e. our usual target population which nowadays has to stay at home and, very often , alone.

2. Online happy hours with the idea of bringing people to discuss online together

3. Some other online meetings with specific activities such as memory training, English conversation (between French and also pan-european with seniors for all EU countries

4. We also published , very often at the beginning of the Covid crisis – nearly 2-3 times a week – a newsletter containing links to possible activities (like films theatre, online exhibitions, concerts, conferences, videos, workshops, also practical hints...in order to keep people busy at home Then to support fragile old people with their family caregivers (at home) the action consists of equipping caregiver / home help pair families with connected tablets, in order to maintain the link with resource partners, to avoid isolation, and moreover:

-identify basic needs, assess dependency, degree of autonomy at any time

- to offer animation workshops

- to transmit useful and practical information in the daily life of the caregivers: newsletter, orientation towards digital links (cultural and others)

Support can be aimed at people who cannot carry out activities outside the home. Thus, the goal is to allow seniors to participate in all programs that use digital. This platform would allow associations and partners working with seniors:

- to have information on their quality of life

-to facilitate responses to their possible needs This is a way that we measure the level of educational impact that we provide for them.

### ICT Tools

Our workshops are mostly aimed for computers but we can also teach features about tablets and smartphones. The first type of tools used are cloud-based video conferencing services that you can use to virtually meet with others - either by video or audio-only or both It can Be ZOOM JITSI MEET GotoMeeting Teams.... We need also to use fast and secure solutions for gaining access to computers and networks remotely with tools like Teamviewer, This enables us to help seniors at home, when they have a problem with their computer, tablet, etc

Among the proposed themes of the workshops , we offer:

1. Join and / or organize a group video call with Zoom
2. Google Meet or Skype
3. Hidden functions of WhatsApp
4. Share your mobile phone's Internet connection
5. Presentation of Google and Firefox
6. E-administration = help with administrative procedures (retirement, employment center, social security, etc.)
7. TeamViewer

For the more advanced participants:

Purchasing security

How to make a professional layout, with WinWord or PowerPoint. Photo, sound and video properties and formats

Explorer and Windows environment

Google drive on the computer or on the Internet (local or online)

### **Challenges / Partnership / Sustainability / Replicability**

One of the obstacles to learning the use of digital technologies is the fact that seniors are afraid of not being up to the task of learning computers and may refuse any help. Another problem is how to teach beginners who never used a computer; For this, at least at the very beginning, one needs to help in face to face and install ZOMOM software on the computer. Then things can be managed on distance. The Covid pandemic has highlighted the risks of isolation of all the elderly , especially because of the state recommendations telling them to stay at home and not have visitors. Among them there is also the category of those with loss of autonomy. The restriction of access to day centers and especially the limitation of face-to-face contact have had negative consequences on their physical and mental well-being. The good side is that this period also revealed a growing interest in the use of new communication technologies, as well to maintain social (online) as well as to help the work of caregivers and maintain continuity of care. Based on the lessons learned from this pandemic, our idea is to offer online training for all seniors (even adults!) and for the caregivers. And equipment (tablets adapted to seniors) and a platform to maintain a permanent link between seniors (as well autonomous than patients), informal caregivers and caregivers.

Partnership: We are always interested in working with associations doing similar actions with seniors in other countries



Sustainability: The fact of teaching people to get autonomous, in terms of access to information and knowledge through Internet, is, by itself a major success in terms of sustainability. With our actions we help achieve different of the SDG (Sustainable development) goals such as Quality Education (SDG 4), good Health and wellbeing (SDG3), Reduces Inequalities (SDG10) or sustainable cities and communities (SDG11). Indirectly even in Area 10: of the GREEN DEAL =Empowering citizens for the transition towards a climate neutral, sustainable Europe Or Area 9: Strengthening our knowledge in support of the European Green Deal.

Replicability: As E-seniors association, we are members and even involved in the management of EURAG which is the oldest federation of ageing people' associations in Europe and other affiliated countries. We are constantly working and meeting with partners from all these countries and share our best practices, under others in the frame of European Erasmus or Horizon projects.

### Action Lines

**AL C3.** Access to information and knowledge|**AL C5.** Building confidence and security in use of ICTs|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C7.** ICT applications: benefits in all aspects of life — E-health

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 11:** Make cities inclusive, safe, resilient and sustainable|**Goal 16:** Promote just, peaceful and inclusive societies

## Case 11 - Agromedium, Hungary

### Title of the project, Contact Organization Name, Stakeholder type, Country

Agromedium  
Agromedium Kft.  
Civil Society  
**Hungary**

### Beneficiaries

The Agromedium is a mobile application, a digital information database for the farmers and

agricultural advisors. The users can use it offline and online too, and they can get up to date information about the agricultural input market. Our solutions target are the big farms and the smallholder farmesrs too. Each type of farms need to make good decisions about input products. Everybody who need to make decisions about plant protection, nutrient replenishment and sowing.

#### Website

<https://appgallery.huawei.com/#/app/C103665881>

#### Description

We had started the Agromedium project in 2017, and we released the first public available version in 2018 in august. Now in 2021 we have 10 000 hungarian users and many of them use it every day in season. We have many good rating in the App Store and in the Google Play (5 / 4,829 star with 70 ratings). In the Huawei App Galery is available the Agromedium about one week. We was promoted for the "Agricultural Man of the Year"award in 2018 in the "agricultural innovation category": <https://www.azevagrarembere.hu/jelolt/470>

Dr. Harcsa Marietta - plant protection advisor's blog:

<http://gazdahely.hu/agromedium/?fbclid=IwAR2rQxeQ1w6rhFcfCxfwYfMZI2wZt6rGoabVBELRStJDWf5UQk1yXZtmg8I>

#### ICT Tools

Smartphones (features, apps); Web platforms (forums, communities, e-governance); Cloud (data storage and computing, Big data); Software solutions (programs and packages)

#### Challenges / Partnership / Sustainability / Replicability

It is a free decision support system, an up to date information database for the farmers and agricultural advisors. The Agromedium helps the users compare the plant protection products, fertilizers and seeds in several aspects so they can make a good decision. Those companies who are make farm management software no need to make these databases, no need human resource for it, they can focus the more important things. We can make market research for the input product manufacturers, governments, authorities and we can show trends for they, even for the whole of Europe. We can help the flow of information to adopt good practices in other countries.

#### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-environment|**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture

#### SDGs

**Goal 12:** Ensure sustainable consumption and production patterns|**Goal 15:** Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

## Case 12 -AGRICITY FOODS: INTEGRATING TECHNOLOGY IN REGENERATIVE URBAN FOOD PRODUCTION SYSTEMS

#### Title of the project, Contact Organization Name, Stakeholder type, Country

AGRICITY FOODS: INTEGRATING TECHNOLOGY IN REGENERATIVE URBAN FOOD PRODUCTION SYSTEMS  
CITY OF KISUMU URBAN AREAS ASSOCIATION  
Civil Society  
Kenya

#### Beneficiaries

Urban poor households in Cities and Urban areas in Kenya. We offer the training on urban farming techniques and permaculture practices. We offer them certified farm inputs such as seeds and organic fertilizers. We offer them access to online market in addition to continuous mentorship and extension services

#### Website

<http://www.ckuaa.or.ke>

#### Description

Agricity Foods is a modern vertical farming technology and permaculture practices that uses locally available materials to produce food within urban spaces in an integrated circular economic process that incorporates reducing human hunger, absolute food poverty, urban waste generation, climate change mitigation, jobs and wealth derived from food systems.

We have integrated technology in delivering training and extension services through mobile applications and internet platforms. We also use technology in accessing markets for ready farm fresh harvests thereby reducing human contacts.

### ICT Tools

Mobile Text messaging    USSD    Mobile Apps    Websites    Social Media

### Challenges / Partnership / Sustainability / Replicability

The cost of accessing the internet services still remains prohibitive to majority of our target customers/beneficiaries. In some areas the signal strength of the ISP is weak and therefore reducing live streaming. This is a huge challenge in delivering video supported training content. Also our customers find it expensive to afford our equipment and services.

We additional support in Financing of farm equipment and inputs to allow our customers benefit from instalment payments instead of one off payment.                      We need support in refining, redesigning and improving    the Mobile Apps and Web based platforms.

With so many concerns about chemicals in food products, food accessibility and affordability, many people are now adopting the idea of growing their own foods. Today 50% of global population live in cities and urban centers, this is expected to increase to 70% by 2050 thus posing a huge challenge to access to food and security of persons in Cities & Urban Areas. Urban farming is becoming more popular among homeowners, apartment dwellers and health-conscious individuals who want to take full charge of their nutrition by growing food for self-consumption and/or as income generation. So essentially this technology is versatile and universally acceptable.

The global urban population shall increase to 70% by 2050. This shall create a sustained annual increment in demand for fresh chemical free foods for improved quality of urban life. The Milan Urban Food Policy Pact of 2015 binds all cities and urban areas globally to establish robust urban food systems. This is also supported by the Food-For-Cities, The Right-To Food Initiatives and the New Urban Agenda (Quito 2016)                      In this regard, and to ensure a self sustaining permanent    impact,    we shall continuously mobilize and lobby for support from local and international development partners, local government agencies and other stakeholders from civil societies, faith based organizations and the business community.

### Action Lines

**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture

### SDGs

**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable

agriculture| **Goal 11:** Make cities inclusive, safe, resilient and sustainable| **Goal 12:** Ensure sustainable consumption and production patterns| **Goal 13:** Take urgent action to combat climate change and its impacts

## Case 13 - TechnoSpect, Syrian Arab Republic

### Title of the project, Contact Organization Name, Stakeholder type, Country

Intelligent Medical Robot IMC  
TechnoSpect  
Civil Society  
**Syrian Arab Republic**

### Beneficiaries

-Patients who are having heart attacks-Patients requiring cardiac care,especially Corona Patients -Cardiologists to monitor their Patients-Athletes who undergo exerted muscle strain-Hospitals and health centers

### Website

<https://technospect-sy.com>  
<http://nowsiteyet.com>

### Description

Due to the high number of daily cases of Covid-19 all over the world and the consequences of having a heart attack whether during or after being affected with Covid-19 hence we came by the idea of having an intelligent medical robot that can check and assess the patient and figure out of expected heart attack based on collecting parameters and arguments. This robot can be utilized for all heart diseases patients where could be used not only for Corona patients which all in all get along with SDG goal (3) which about Good Health And Well-Being

### ICT Tools

Hardware part and software tools used to analyse the parameters and figures and provide an output.

### Challenges / Partnership / Sustainability / Replicability

Challenges: Difficulties of taking real data from a Corona patient due to quarantine and self-isolation. Difficulties of taking real data from medical centers because of quarantine also

Partners: Medical centers and hospitals    Ministry of health    AI Medical companies

Sustainability: This project is sustainable and could be even more developed to suit special cases of Covid19 and much more, with the tools of AI then a lot can be done.

### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-health

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 14 -Kelas Bersama (Class for Everyone), Indonesia

### Title of the project, Contact Organization Name, Stakeholder type, Country

Kelas Bersama (Class for Everyone)  
Kelas Bersama (Class for Everyone)  
Civil Society  
**Indonesia**

### Beneficiaries

A. Kelas Bersama for Teens: Provides free online classes with themes about teenagers.    B. Kelas Bersama for College Students: Provides free online classes with themes relevant to college students.    C. Kelas Bersama for Parents: Provides free online classes with themes around parenting.    D. Kelas Bersama for Teachers: providing free online with themes around teaching and learning activities from early childhood level to the middle school level.

### Website

<https://kelasbersamakita.id/>  
<https://kelasbersamakita.id/>

### Description

KELAS BERSAMA is one of the communities under the auspices of the Library of the Ministry of Education and Culture of the Republic of Indonesia. KELAS BERSAMA or Class for Everyone is a community engaged in the field of education by becoming a connector between anyone

who is moved to share knowledge and seekers of lifelong knowledge. KELAS BERSAMA exists so that educators and knowledge seekers can meet in face-to-face or virtual classrooms to study together. KELAS BERSAMA makes the library the main room for gatherings of educators and knowledge seekers with the hope that the library can continue to grow into a place to seek knowledge, not only by reading existing collections but also by providing space for learning together. KELAS BERSAMA exists as a concern for knowledge seekers who are sometimes constrained by the costs of attending workshops, training, seminars, and so on. Therefore, Kelas Bersama comes by providing free classes. Besides that, Kelas Bersama pays attention to the phenomenon that many facilities owned by the library are not being fully utilized, so it would be nice if they are used to provide free classes where educators and knowledge seekers meet.

### ICT Tools

Kelas Bersama uses several Technology/ICT Tools: 1. Open source design tools (Canva) 2. Open source live streaming tools (Streamyard) 3. Open source meeting platform (Zoom, GoogleMeet) 3. Social Media (Youtube, Instagram, Facebook) 4. Open source survey administration application (Googleform)

### Challenges / Partnership / Sustainability / Replicability

Challenges: 1. Recruitment 2. Passing the torch to new volunteers 3. Retaining volunteers long-term Solutions: 1. Identifying key volunteers 2. Developing a simple Learning Management System (LMS)

Partners: 1. International volunteers 2. International resource person 3. Learning Management System

Replicability: Yes, this project is easily replicable: 1. Set up a team 2. List potential resource persons to share knowledge and contact them 3. Design and promote the events on social media 4. Live stream

Sustainability: Yes, this project is easily replicable, because: 1. Technologies/ICT tools used are open source and very user friendly 2. The team and the resource person sharing their knowledge are volunteers

### Action Lines

**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C9.** Media|**AL C11.** International and regional cooperation

### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 10:** Reduce inequality within and among countries|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 15 - NASSCOM Foundation, India

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
MyAmbar NASSCOM Foundation Civil Society <b>India</b>
<b>Beneficiaries</b>
Women undergoing gender based violence, allies helping women. It is a holistic solution to help women understand the effects on their mental, physical and emotional health due to violence even if they are not able to report the cases due to various reasons. BENEFITS/SERVICES: 1. Easy one step verification for users. 2. Anonymous user feature 3. Risk Assessment tool to help users know how and where to start from. 4. Emergency helpline numbers in India along with emergency SOS button. 5. Directory of service providers for counselling, mental health services, legal support services geo-tagged to location. 6. Personalized messages to 5 selected emergency contacts. 7. Self guiding Audio based content for users.
<b>Website</b>
<a href="https://nasscomfoundation.org/">https://nasscomfoundation.org/</a> <a href="https://www.myambar.org/">https://www.myambar.org/</a>
<b>Description</b>
Use of technology to help our beneficiaries better their life opportunities, promoting equality, providing support & services and enable ecosystem. MyAmbar mobile application is designed for promoting gender equality and provide women safety with the objective to help women understand the effects of violence on their physical and mental wellbeing, changes manifested in their behavior during traumatic experiences of domestic violence and avail support services. COVID-19 saw an increase in number of cases of Domestic violence with no means to report or support, the mobile app provide users with information and access to avail support services and understand and manage the effects of



the traumatic experience on themselves. Designed by-NASSCOM Foundation Supported by- Vodafone Idea CSR, UN Women, Sayfty Trust Website- <https://www.myambar.org/>

### ICT Tools

MyAmbar mobile application to help the beneficiaries download it and avail the support services of counselling or legal and mental health support around them geo-tagged to their phone. An easy to use app always available near them which helps them cope with this experience by supporting and developing their understanding of the issue, its causes and effects on their health along with mental health exercises, access to important support services available around them. Features: 1. Easy Risk Assessment Tool 2. SoS button 3. Accessibility with Audio based content 4. Local care support services 5. Content in multiple languages

### Challenges / Partnership / Sustainability / Replicability

Challenges: 1. Access to smartphones specially for women in the country. The application can be used by allies also to help women understand and get help during the traumatic experience. 2. Reporting of cases even after providing all the knowledge and support information. Actual reporting by women requires attitudinal change and courage for them to come out despite their circumstances and societal pressure. 3. Reading and understanding the content and knowledge provided in the application. The application provides audio based feature to help illiterate users also listen to the content and information written. 4. Gender based violence is of various forms and the application will be continually upgraded to include more and more issues and forms of violence against women.

Partners: 1. Looking for partners to take the product into the communities among the beneficiaries and helping them understand the features, know how to navigate the application and understand the content. Hence, organizations working with women groups across India are to be partnered with to have more users download and use the application. 2. Content partners and service providers to cover more content on different other forms of violence against women along with providing support services across India.

Replicability: A mobile application can be made accessible to users across India. It is a simple to navigate application and we are looking to cover more women safety and empowerment issues and information. We are currently partnering with various civil society organizations to take the product across the country. The application can be replicated internationally in other countries by providing important information about laws, helpline numbers and details of support services in respective countries.

### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for

development | **AL C3.** Access to information and knowledge | **AL C4.** Capacity building | **AL C5.** Building confidence and security in use of ICTs

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all | **Goal 5:** Achieve gender equality and empower all women and girls | **Goal 16:** Promote just, peaceful and inclusive societies

## Case 16 -MOUSSA IBRAHIM BARAKA AS COUNTRY DIRECTOR, AFRRICAN COVID-19 YOUTH TASK FORCE PROJECT OF COVID-19 IN CHAD

### Title of the project, Contact Organization Name, Stakeholder type, Country

MOUSSA IBRAHIM BARAKA AS COUNTRY DIRECTOR, AFRRICAN COVID-19 YOUTH TASK FORCE PROJECT OF COVID-19 IN CHAD  
CARTHAGE  
Civil Society  
**Chad (Republic of)**

### Beneficiaries

The Government of Chad announced a mandatory curfew in several provinces bordering Cameroon between 8pm and 5am starting April 2 until now. The government of Chad has implemented enhanced screening and quarantine measures to reduce the spread of COVID-19. The Chadian Ministry of Public Health has a hotline “green” number 1313 for inquiries about the COVID-19 virus. The call is free and available 24/7. • As of 27 may 2020, there are 700 confirmed COVID-19 cases, of which hospitalized in every Provincial Hospital and, and 62 death cases, and 303 patients recovered.

### Website

<https://www.itu.int/net4/wsis/stocktaking/Surveys/Surveys/Submit/15863>

### Description

Peace and economy.

### ICT Tools

**Highlights** • Chad declared its first case of COVID-19 on 19 March 2020. The individual had been travelling in the past weeks through two other African countries already reporting more cases. N'Djamena Hassan Djamous International Airport remains closed to international passenger traffic until now. The Government of Chad announced a mandatory curfew in several provinces bordering Cameroon between 8pm and 5am starting April 2 until now.

### Challenges / Partnership / Sustainability / Replicability

**Challenges:** Under the leadership of the newly set up Health Monitoring and Safety Unit (Cellule de veille et de sécurité sanitaire) coordinated by the Minister Secretary of State at the Presidency, the Government finalized the National Contingency Plan for Preparedness and Response to the Epidemic of Coronavirus COVID-19 (Plan National de contingence pour la préparation et la riposte à l'épidémie de la maladie coronavirus COVID-19) and is seeking the UN and development partners' support.

**Partners:** In addition, to prevent the spread of the disease, the Government has taken a series of measures with the major ones focused on: suspension of all international flights, closure of schools, universities, places of worship, and of non-essential businesses, a ban on public transport, closure of the main markets and a curfew in the capital of N'Djamena and 4 provinces of Logone Occidental, Logone Oriental, Mayo-kebbi Ouest and Mayo-kebbi Est.

**Replicability:** Key challenges include: Limitation in consumables, personal protection equipment (PPE) and equipment for critical clinical care to equip Farcha Provincial Hospital and render the unit entirely functional; reinforcement of surveillance, tracing and case management capacity at provincial level; increase in laboratory capacity in N'Djamena and in the provinces; lack of infrastructure and sanitation of quarantine sites; and strengthening assistance provided to Chadian students returning from Cameroon.

Sustainability: How we can participate in covid-19 fighting? - We make a sencivisation to the public in chad - Advice the people to respect the government measure. - Provide a mask to the people - Provide a hand washing point to the most crowded places - Provide a hydro alcoholic gel to sanitizing the hand.

**Action Lines**

**AL C2.** Information and communication infrastructure | **AL C6.** Enabling environment

**SDGs**

**Goal 15:** Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

## Case 17 - Literay work via research

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Literay work via research  
 Childcare Consortium  
 Civil Society  
**India**

**Beneficiaries**

Friends and Facebook readers

**Website**

[https://www.facebook.com/AnandAAAKumbakonam/?modal=admin\\_todo\\_tour](https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour)

**Description**

24 July 2020      Tit-Bits: 76 .....      368 Word analyses      Explaining Human Population Genetics:      Very less Human beings are infected by a COVID-19 virus from wildlife and later how the very vast number of people affected by such virus around the world?      Wildlife has few Natural necessary commitments such as survival;

reproduction and recycling process where humans are interfering in their natural commitments which was limited and infected COVID-19 virus with limited people. The connectivity of such limited infected people under socioeconomic commitments is largely affecting the people those who are in lack of due diligence in control genes in their body in a thickly populated area without proper space in living is express, transmit infected COVID-19 virus and affect a larger number of people. The lack of due diligence in control genes among the people is originated in obscene of innate immunity caused by Gene repression interrelated with environmental factors such as missing essential nutrients in health and poor education, cultural and religious discrimination, unemployment, Graft and corruption with irregular space in livings. These are the reason and fundamental cause for COVID-19 infected and affected people to express or transmit to spread the virus all over the world, among the surplus human population where the vast number of people gets affected with this virus on day to day basis. Further that the infected and affected people of COVID-19 virus are in lack of due diligence in control genes are falsely urged and produce IgG antibodies instead of activating the production of messenger RNA to receive genetic information copied from DNA to reduce sickness and morbidity ratio. This kind of false inhibition of control genes is not only happening in COVID-19 virus infected and affected people. It happens between Nations too, where the control genes are falsely urged the antibody forces to reach out to war instead sending the messengers who receives information from the direct democratic process for Peace living. One has to face such consequences in present world as humans are failing in protecting the environment and Wildlife to complete the natural commitment in Ecosystems to lead a hale and healthy life. Therefore take care in the near future in protecting the nature of each in biosphere to avoid the generation of viral infected population for prosperity in Global socioeconomic structure. Thank you for reading The truth prevails By Anandaraj Karunakaran-Ex.Navy Author, From the desk of Aam Aadmi Research & development program, Kumbakonam, 612001 Email: a\_karuna@live.com NGO is in Special Consultative Status with the Economic and Social Council of the United Nations [Childcare consortium –CCC]

### ICT Tools

Facebook and e mail

### Challenges / Partnership / Sustainability / Replicability

Challenges: Need sponsors to sponsor my literary on COVID 19 in Face book to boost

Partners:Need partner to sponsors to sponsor my literary on COVID 19 in Face book to boost

Sustainability: Relieve Covid 19 patients via my literary work and promote self sustainability

<b>Action Lines</b>
<b>AL C4.</b> Capacity building
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 18 Literary work via research

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Literary work via research Childcare Consortium Civil Society <b>India</b>
<b>Beneficiaries</b>
Friends and Facebook readers
<b>Website</b>
<a href="https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour">https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour</a>
<b>Description</b>
<p>How to build solidarity among various people and Governments to fight against COVID 19 for success at Globe?</p> <p>Humans are exposed to hazardous substances in the air, water, soil, and food that lives with Natural and technological disasters under Climate change and facing an occupational hazardous COVID 19 infected disease in a built environment at biosphere. But, to build solidarity among such human population and governments, one needs repair all these above mentioned hazards to overcome and gain transparency and accurate information to understand the nature of each to function against COVID 19 viral infection for success at Globe. The good work and drill of the most open governments with transparency</p>

such as Taiwan and New Delhi in the world has provided accurate information to understand the nature of each to function against COVID 19 viral infection and fought and brought the infected cases under remarkable dip for success. This is the right and high time for the United Nations to rush and get all Nations endorsed and signed on a climate change treaty in Glasgow, Scotland from 1 to 12 November 2021 without fail to rebuild solidarity and protect life forms to relieve from such occupational hazardous livings of the population on Earth.

### ICT Tools

Facebook and e mail

### Challenges / Partnership / Sustainability / Replicability

Challenges: Need sponsors to sponsor my literary on COVID 19 in Face book to boost

Partners: Need partner to sponsors to sponsor my literary on COVID 19 in Face book to boost

Sustainability: Relieve Covid 19 patients via my literary work and promote self sustainability

### Action Lines

**AL C4.** Capacity building

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 19 - Mesh Mash Webinar Pi

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Mesh Mash Webinar Pi Janastu Civil Society <b>India</b>
<b>Beneficiaries</b>

<p>Our primary beneficiaries are low-literate rural and tribal communities who do not have good data connection to the internet - especially, the students who are affected by the changes post covid-lockdown. They would benefit by peer group interactions, special learning and online workshops in addition to curriculum work as promoted by their schools or the education dept.</p>
<p><b>Website</b></p>
<p><a href="http://blog.janastu.org">http://blog.janastu.org</a></p>
<p><b>Description</b></p>
<p>We have introduced a logical mesh for students and other group activity so that learning activities can sustain in small groups interactions over the mesh network or data plans.</p>
<p><b>ICT Tools</b></p>
<p>We configure a "webinar pi" along with an annotation service and synchronization tools so others in the logical mesh share/see each others or teacher student activities as if it is a local media service. Yggdrasil, Papad audio annotation tools, syncting and Raspberry Pi with a screen, camera, mic and speakers that can be connected to a wifi hotspot or to another mesh node.</p>
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Challenges: The main challenge is to provide an alternative to the smart phone as a necessary device for youngsters - especially young women. Also configurable for the unique learning needs supported by peer group activity. To help bring about an context of inclusive online interaction and publication wherein a group of girls can work together instead of a device being designated as an individually owned device.</p> <p>Partners: Community Mesh and Learning for all projects. Especially for young women. Also we hope to work with women and technology entities that can nurture tech girls coops.</p> <p>Replicability: The project is open source and built so as to be replicable. We have replicated in 2 different places in India - 1 in Karnataka and 1 in Mirzapur, UP</p> <p>Sustainability: Our design is for this to be sustainable by enabling local groups to own and maintain it which in turn can be supported by a number of beneficiaries including local donors and educational outfits.</p>
<p><b>Action Lines</b></p>



**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C7.** ICT applications: benefits in all aspects of life — E-employment|**AL C8.** Cultural diversity and identity, linguistic diversity and local content|**AL C9.** Media

**SDGs**

**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all

## Case 20 - Ayni Learning Platform - My first job online!

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Ayni Learning Platform - My first job online!  
 Ayni Bolivia  
 Civil Society  
**Bolivia**

**Beneficiaries**

Direct beneficiaries 10 secondary public schools of the urban and rural area of Tarija and Oruro will get access to digital material through the online learning platform. At least 300 teachers (30 teachers per school) and 300 students (30 students per school) are trained in the use of this online learning platform. Female participation 60% and male participation 40% Indirect beneficiaries 10 school communities, where the students will be able to exchange this knowledge with other students from other schools. The schools serve a total of 3,000 students, 300 teachers are working there and 4,000 parents and/or family members (like brothers or sisters in other schools) will get used to a online learning platform with official content.

**Website**

<https://redayni.org/>

**Description**

With Ayni we are committed to face-to-face education, but due to COVID we are challenged to reinforce our technologic tools that have proven to be great. We prioritize preparing our schools to ensure the possibility of homeschooling with the highest quality and equity. Children and adolescents are the best advisers to build this new normality in

education. The objective of this project, to create a virtual teaching-learning model that facilitates the integration process between: (1) the creation of own content, (2) the investigation of internet content, (3) evaluations and (4) digital tools so that they do not saturate the teacher or the student. The activities respond to the following specific objectives:

- Create a online learning platform according to the needs of students and teachers in online and offline formats, to improve access to formal education for students and teachers.
- Train teachers in the management of online learning platforms, virtual learning techniques and dynamics, evaluations and other functionalities. Train groups of students as well in managing the learning platform.
- Generate digital learning content according to the official school curriculum, using digital tools such as: scratch, canvas and video editing.
- The best students will learn how to manage an online learning platform. Students will provide technical support with supervision of Ayni staff (My first job online!) after they are trained and will earn a small salary.
- Systematization of online learning experiences: the best teaching practices will become an “online learning model” and will be disseminated on social networks for the benefit of other Bolivian teachers.

### ICT Tools

The inequalities are accentuated by the pandemic, it increases the situation of vulnerability and educational gaps. This is why, it is necessary to act quickly and with determination to guarantee the accessibility to education for all. This project aims on guaranteeing quality education in the post-Covid-19 context and giving learners the possibility to experiment their first job online. We learn them technological tools such as Zoom and Moodle mainly, other tools such as Google classroom, scratch, canvas and video editing are complementary. Soft skills like creative thinking, communicational skills (Q&A) telephone and chat software as well. The online learning platform is developed in Moodle because it is free, it uses open source, it works online and offline (local server). These characteristics are useful to obtain better results and better access for students and teachers from different contexts. Our activities have a regional impact.

### Challenges / Partnership / Sustainability / Replicability

Challenges: Inequality has increased to the point that the majority of Bolivian students face a triple gap: economic, social and educational. Social: with parents who can not guide them because of lack of resources (time, health) Economic: with the school and/or parents who are incapable of assumming the costs of connectivity. Educational with parents who can not guide the students because of lack of knowledge. This gap will continue to increase if decisions are not made focused on fulfilling the rights of children and adolescents to quality education. The challenges we faced are: Lack of local useful online content adapted to the Bolivian context. It is not enough to give courses in the management of technological tools to teachers; the challenge is to create a new learning methodology online, which requires basic skills. The lack of knowledge was the biggest challenge. The teachers became learners. Lack of connectivity in rural areas. We can ‘distribute’ connectivity to teachers and students to use internet for learning purposes. . Lack of school regularity: Due to the uncertainty experienced during Covid-19, it was necessary to take measures to ensure that no child was left without 'going to' school. Children who had connectivity during COVID and no schooling got addicted to Play Station and gaming.

Partners: yes. We will need the collaboration of the government and the CSR. Telecom companies have to offer their services low cost and reach also the rural areas.

Replicability: This initiative is replicable in any public or private school in Bolivia, since the online learning platform is already designed. What is required in order to implement it, is the development of capacities for teachers and students.

Sustainability: The project is sustainable. This project facilitates the development of skills and abilities acquired by teachers and students. The only costs are the subscription to the hosting and the domain. For both, an annual amount of approx. 215 USD, which schools would have to pay to maintain their online learning platform.

#### Action Lines

**AL C4.** Capacity building

#### SDGs

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

## Case 21 - Literay work via research

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Literay work via research Childcare Consortium Civil Society <b>India</b>
<b>Beneficiaries</b>
Friends and Facebook readers
<b>Website</b>
<a href="https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour">https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour</a>
<b>Description</b>

Aam Aadmi Plasma therapy versus commercial tipped vaccine: 99.9 percent of the Universe is made up of plasma," says Dr. Dennis Gallagher, at NASA's plasma physicist. In humans, there are three possible antibodies is present in the blood plasma: A, B and Rh antibodies.

Convalescent plasma or serum of COVID-19 from cured individuals has virus-neutralizing antibodies and act as a passive antibody therapy. Sound due diligence from control genes and its regulation is released Rh antibodies in Coved 19 pregnant women to protect the fetus. But, the lack of due diligence in control genes in some of the men and women of Coved 19 patients is suddenly regulate cytokines in panic and falsely trigger Rh antibodies instead of activating the production of messenger RNA to receive genetic information copied from DNA to reduce sickness and morbidity ratio.

The convalescent sera of COVID-19 from cured patients is collected in measure of 129 ml to 120 ml and injected into patients each day for 5 days by storing plasma in 60 Degree temp.

The A antigens from anti-A antibodies and anti-B antibodies held in convalescent sera of COVID-19 cured patients' plasma will recognize alien protein held in affected/infected patient's red blood cells and clean them. Sometimes A & B combine as and when required to target and destroy invading foreign elements in circulating human blood.

Such therapy of plasma cleaning, targeting and destroying the abnormal substances held in Coved 19 patient's circulating blood is stops the syndromes of cytokine storm to protect multiple organ function and reduce inflammation in lungs for easy breathing of patients to relieve from oxygen cylinder support for normal breathing.

No major side effects from such plasma treatment and easily transportable in any part of the world under cold chain transport support system like for vaccine.

The Convalescent Plasma therapy successfully handled by the Delhi Aam Aadmi Government in India and mutually benefiting population as that is not only relieving patients but develop social inclusion too via plasma donors. The commercial tipped vaccine is yet to prove its metal like plasma therapy did. The Vaccine is liable to create conflict between Vaccine Alliance countries and Vaccine non

Alliance countries on profit issues. The world needs nearly 4.7 billion doses, if the threshold or control system of the population is 60 percent. Out of that 2 billion doses will be required to cover the health care workers and other high risk groups in the world. The Serum Institute, India promised 400 million doses of the vaccine ready by year end. How are ordinary men & women going to sustain in such world without proper resources?

These questions that the World Health Organization needs to ask to overcome such menace by encouraging mutually benefiting Plasma therapy. The mutually benefits plasma therapy need to be established like Delhi Government all over the world in opening plasma banks in each state, city and towns to serve both villages and to protect; Haves and Have Nots; in maintaining United Nations sustainable development goals (SDGs) 3 for Peace and prosperity.

**ICT Tools**

Facebook and e mail
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Challenges: Need sponsors to sponsor my literary on COVID 19 in Face book to boost</p> <p>Partners: Need partner to sponsors to sponsor my literary on COVID 19 in Face book to boost</p> <p>Sustainability: Relieve Covid 19 patients via my literary work and promote self sustainability</p>
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge   <b>AL C4.</b> Capacity building
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 22 - Digital Woman Uganda

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
<p>Digital Woman Uganda</p> <p>Digital Advocacy / Literacy Training</p> <p>Civil Society</p> <p>Uganda</p>
<b>Beneficiaries</b>
<p>The rural women and we equip and skill them on how to be able to own their space online and be inclusive as well as improve their businesses there.</p>

<b>Website</b>
<a href="https://www.digitalwomanuganda.org">https://www.digitalwomanuganda.org</a>
<b>Description</b>
<p>We have held digital literacy training through our online radio to reach more people esp the rural people in Uganda. We have also helped the vulnerable groups ie refugees in Kyaka refugee camp to be able to use the internet and also a mobile phone to access services since now most services are being offered online.</p>
<b>ICT Tools</b>
<p>We use an Internet radio (<a href="https://www.t-radio.live">https://www.t-radio.live</a>) that we developed to help disseminate content to our clients. We also created a shortcode (8228), too. It is fully free.</p>
<b>Challenges / Partnership / Sustainability / Replicability</b>
<p>Challenge: Main challenge is to find meaningful partnerships to help scale the idea or project to a wider region. The cost of Internet in Uganda is still high, this we are advocating with other CSOs to help it addressed.</p> <p>Partnership: In the areas of scalability and also funding to help procure atleast feature phones for these women</p> <p>Scalability: we used the same model amongst the refugee camp. All it needs is a partnership within the locality.</p> <p>Once the goals are achieved, the skills received are for life, and it incorporates our daily work schedules too.</p>
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge

**SDGs**

**Goal 5:** Achieve gender equality and empower all women and girls

## Case 23 -COVID-19 Vaccine Opinion Analysis: Monitoring the Vaccines through Twitter Analysis

**Title of the project, Contact Organization Name, Stakeholder type, Country**

COVID-19 Vaccine Opinion Analysis: Monitoring the Vaccines through Twitter Analysis

Artificial Intelligence Laboratory - University of Udine

Civil Society

Italy

**Beneficiaries**

The first beneficiary is the civil society, because they can find useful information on COVID-19 Vaccines. Moreover, our initiative can be interesting to pharmaceutical companies, which have to monitoring their drugs in their social channels. Accademia will be also interesting, because we are collecting a huge amount of data: we started collecting data in Nov 2020 and we update them everyday.

**Website**

<http://ailab.uniud.it/covid-vaccines/>

**Description**

With the recent approval of COVID-19 vaccines, a large debate about safety has

emerged on social media. Positions in favor and against the vaccines have fueled such a discussion with arguments that are often based on unreliable sources, when not on fake news. This project aims at monitoring and visualizing the dynamics of the Twitter debate, to get a sense of the public sentiment, while highlighting tweets that mention potential adverse events. A website has been created and has been a constantly updated to visualize what the crowd is talking about and what pieces of information are being shared.

Team: Lead Board Giuseppe Serra (University of Udine) Enrico Santus (AI Advisor @ Women's Brain Project) Emmanuele Chersoni (Hong Kong Polytechnic University) Developers Beatrice Portelli (University of Udine) Roberto Tonino (University of Udine) Edoardo Lenzi (University of Udine) Simone Scaboro (University of Udine).

### **ICT Tools**

The full System behind this website consists of a module dedicated to data collection and five separate Artificial Intelligence modules dedicated to data processing: Localization, Hashtag Analysis, URL Analysis, Sentiment Analysis, Symptom Extraction. In particular, the ICT tools developed for this project are Natural Language Processing algorithms to extract and understand the text collected by social media.

### **Challenges / Partnership / Sustainability / Replicability**

Challenge: First challenge is to deal with this such of huge amount of data, second challenge is to design and develop Natural Language Processing Algorithm to extract efficiently meaningful information from these data.

Partnership: We are looking for ICT and pharmaceutical companies who want to support this initiative to become a commercial product for monitoring vaccines or drugs in social



media.

Scalability: To our knowledge our initiative is unique around the world, and all citizens of the world can use it.

#### Action Lines

**AL C3.** Access to information and knowledge | **AL C7.** ICT applications: benefits in all aspects of life — E-health | **AL C7.** ICT applications: benefits in all aspects of life — E-science

#### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 24 -Omar Dengo Foundation (Fundación Omar Dengo), Costa Rica

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Support provided by the Omar Dengo Foundation (FOD) to the Costa Rican public educational system in response to the COVID-19 crisis Omar Dengo Foundation (Fundación Omar Dengo) Civil Society <b>Costa Rica</b>
<b>Beneficiaries</b>
The beneficiaries of activities to Costa Rica's public educational system (between March 15 and July 15, 2020), were the following: - 8,901 teachers participated in FOD's online courses through the virtual campus "Upe" - 5,994 teachers participated in Profuturo Foundation's online courses available through the virtual campus "Upe" - 6.999 teachers and students participated in online courses offered through our partnership with Cisco Networking Academy - 2,339 teachers participated in FOD's telepresence courses - 9,915 teachers participated in virtual workshops and 1,690 in virtual tutorials on the use of Microsoft Teams (March 15 to May 15, 2020). - Content about the use of Microsoft Teams posted through Facebook reached, on average 9,763 viewers. - 6,603 teachers' WhatsApp and Email messages and 1,184 phone calls on the use of Microsoft Teams responded through FOD's Help Desk. - Through the partnership with Cisco, FOD supplied teachers with up to 1,000 Webex licenses. Each of these licenses supported up to 200 participants connected simultaneously per session, thus allowing a maximum of 200,000 participants.
<b>Website</b>

<http://www.fod.ac.cr>

### Description

Since March 16, 2020, schools closed in Costa Rica, cancelling in-person classes and moving the educational system to at-home schooling. The Omar Dengo Foundation, in coordination with the National Program of Educational Informatics Ministry of Public Education – Omar Dengo Foundation (PRONIE MEP-FOD), offered the following services: - Teacher training activities through FOD’s virtual training campus “Upe” and other online training services such as Cisco Networking Academy. Including the offering of online courses, workshops and tutorials in subjects such as learning with mobile technologies, computational thinking, programming, electronics, cybersecurity, digital citizenship and entrepreneurship. - Encourage the use by teachers of Microsoft Teams through social networks. - Digital resource toolbox “LIE++ from home”, to guide online, at-distance and offline educational informatics learning, by primary and secondary school students. - Provision of alternative communication tools, such as Cisco Webex licenses. - Home access to PRONIE MEP-FOD’s laptops so that students could continue with their educational processes through at-distance and virtual schooling. - Teacher Help Desk to answer inquiries using WhatsApp messages, Email and phone calls. - Transportation of educational materials to students without Internet access.

### ICT Tools

The activities undertaken by FOD included the use of the following tools and online platforms to promote the continuation of the educational services by students and teachers: - Online Virtual Campus “Upe” ([www.upe.ac.cr](http://www.upe.ac.cr)) - “LIE++ from home” digital toolbox ([lieencasa.fod.ac.cr](http://lieencasa.fod.ac.cr)) - Microsoft Teams, the communication platform selected by Costa Rica’s Ministry of Public Education to be used within the country’s public educational system. - Cisco Webex - WhatsApp messaging - Email services - Social networks, used to share learning capsules and to organize live training events on subjects related to new strategies towards online learning at home.

### Challenges / Partnership / Sustainability / Replicability

Challenges: FOD addressed two main challenges: 1. The first challenge dealt with was reaching teachers with poor connectivity conditions and/or lack of experience with technology. This was overcome by designing resources and training opportunities that could be attractive and easily accessible, even for teachers under those conditions. For example, live events through social networks such as Facebook, virtual workshops and live tutorials through Microsoft Teams were used as tools for teachers to participate and get clarification on their questions and doubts. 2. The second challenge dealt with was how to obtain information and data on the extent of which teachers are using digital and online tools to reach their students, and providing them with useful learning experiences and ongoing support.

Partnership: Our partners in the above-mentioned initiatives were: - Costa Rica’s Ministry of Public Education (MEP) - Cisco Systems - Institute for Training and Studies in Democracy - IFED (from the Supreme Electoral Court of Costa Rica) - Profuturo Foundation - Microsoft

Replicability: The project’s activities can be replicated by other public and private educational systems, by following the methodological strategy of training the educators first, and then provide them with continuous advice and support. The use of social media to deliver live broadcasting and educational learning capsules can be useful to reach a majority amount of population. FOD’s new training formats, such as mini-workshops and virtual tutorships can be easily replicable through Microsoft Teams or other online video conferencing tools. They are characterized by requiring little production and preparation time and, as being very short, they can be replicated numerous times. At the same time, participants have shown very high levels of satisfaction with these type of activities.

Sustainability: The support activities undertaken to respond to the Covid-19 pandemic rely on the long-standing multi-stakeholder partnership that has allowed the Ministry of Public Education and the Omar Dengo Foundation to establish a solid National Program of Educational Informatics benefiting 92% of K-9 public school students nationwide. New modalities of training and support activities can be embedded into the educational practices at public schools. Virtual environments provide an opportunity for teachers to learn, in a hands-on manner, about the methodologies and contents on how to use technology. This can help them to better understand technological tools, and enable them to use available resources with a wider reach. The virtual platforms used by FOD during this public health emergency, such as “Upe” Virtual Campus, “LIE++ from home”, Microsoft Teams for mini-workshops and tutorials, as well as the Help Desk tools, will be available even after students and teachers return physically to their classrooms. It is important to notice that teachers have gained knowledge and are more skillful with online tools. The expectation is that, as teachers incorporate these tools into their repertoire, they will continue using them further on with their students and for their own professional development training. We have reported here activities undertaken until July 15, 2020. FOD and PRONIE MEP-FOD are continuing their efforts to provide online and at-distance services to students and teachers from public schools nationwide.

#### Action Lines

**AL C4.** Capacity building

#### SDGs

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

## Case 25 -Saksham and its subsidiary Saktek Foundation, India

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Saksham Project (Saktek, Accessital and Sugamaya Pustakalaya) Saksham and its subsidiary Saktek Foundation Civil Society <b>India</b>
<b>Beneficiaries</b>
The projects primarily benefit PVI in India across different age groups, gender, class-division and its different regions including those in tier-two and three cities. In addition to results highlighted in answer 12, the project enables PVI to smoothly shift to online-education and employment amid lockdown ensuring that they are not disadvantaged due to mobility and other restrictions. Our subsidized distribution-programme provides support to those who otherwise may not be able to afford A.T. devices because of high-cost despite Saksham bringing down cost significantly compared to international-market. The devices are further offered with content and training ensuring holistic solution-delivery. Our services are part of larger accessible-ecosystem of India and in that sense we work closely with Government of India, NGOs, Boards and Universities and publishers. Our projects therefore not only benefit PVI but also their immediate-circle of influence including family, education-stakeholders such as schools, employers et cetera. It is important to note here that the project-activities are not limited to current situation but will have a bearing on PVI lifecycle. For example, previous impact-assessments have reported that A.T. devices such as smartphones not only allow PVI to participate actively in education but also assist in employment and interpersonal-communication etc.
<b>Website</b>
<a href="http://saksham.org/">http://saksham.org/</a>
<b>Description</b>
Saksham empowers persons-with-visual-impairment (PVI) through technology-solutions, education and skill-development by using ICT-infrastructure/devices to remove environmental and attitudinal-barriers: 1. Saktek online-store ( <a href="http://saktek.in/">http://saktek.in/</a> ) a. Objective: Active participation of PVI in education employment-sectors amid shift to online-learning and work because of lockdown. Result: 350+ students provided digitally-literacy A.T. solutions under subsidy-scheme with training and content (including laptops, smartphones, tablets, DAISY-players, Dotbooks, RBDs) through support of Embassy-of-Germany and other partners. b. Objective: Timely-delivery of A.T. products/devices including medical/health-products so that PVI are independent/self-reliant during COVID-

19. Result: Delivered 3000+ A.T. solutions from Saktek's portfolio of 160+ products for PVI with all necessary precautions. Especially procured/disseminated devices relevant for pandemic like talking-oximeter and talking-thermometer. 2. Accessital: Web-based-platform for accessible-book-creation a. Objective: Meet urgent demand of accessible-book-production while following necessary restrictions amid shift to online-learning and PVI inability to travel and buy bulky braille-books. b. Result: Through Accessital Saksham registered 300+ volunteers worldwide who supported our efforts with complete online-workflow. The project also partnered with local disability-NGOs (Enable, Amogh) and employed 25 PwDs for this project therefore providing them steady work-from-home opportunity. 3. Sugamaya Pustakalaya: Online-library of accessible-books for PVI a. Objective: Students-with-visual-impairment have accessible-books irrespective of their location to appear for exams. Adequate support is offered to new-users. b. Results: Sugamaya-Pustakalaya provided accessible-books for PVI including Delhi-University students. Recorded 200% increase in usage of this tech-platform with 400 new-titles being created and uploaded during Covid. Library enabled users to download and read books from their hometowns. Saksham-Helpline was created to assist users whereby they could directly place and receive content-request.

### ICT Tools

Saksham uses variety of A.T./ICT tools for promoting digital-transformation of PVI:

- We provide mainstream-technologies like laptops, tablets, smartphones at subsidized cost to enable active PVI participation in education, employment irrespective of their socio-economic background.
- Devices are provided with training and preloaded-content along with A.T. solutions like INDO-NVDA (screen-reader adapted to Indian-context by Saksham) that enables PVIs to read/write in normal-script while offering multiple Indian-languages suited to Indian-context.
- Dotbooks and RBDs offered under subsidy-scheme allow users to read-books, create/edit word-documents, browse-Internet, manage emails, connect directly to online-libraries through built-in applications, in addition to connecting with PC and phone through NVDA and talkback screen-readers through USB and bluetooth.
- Saktek.in offers diverse portfolio of 160+ affordable assistive devices so that PwDs from remotest parts of India are able to receive their devices at their doorsteps amid lockdown.
- We work on accessible-media and formats through Accessital and Sugamaya Pustakalaya. Accessital (web-based-platform) allows for management of complete-workflow including OCR in Indian-languages for books in accessible-digital e-text format. Sugamaya-Pustakalaya (tech-platform) provides free access to 700k+ titles for print-disabled in multiple-modes and channels. It automates creation, distribution of accessible-content and protects publishers' intellectual-property while bringing together an ecosystem of stakeholders and offering tools for one-click accessible content-generation.

### Challenges / Partnership / Sustainability / Replicability

Challenges: Saksham strongly believes that a device without training does not benefit the individual. Since COVID-19 lockdown has hampered face-to-face training, we

initially faced challenge of providing training amid lockdown. We have mitigated this challenge by providing online support through Saksham helpline and delivering webinars online on our various platforms. Earlier persons had to travel and come to the office to provide support for the conversion of book through scanning which was a concern amid the pandemic. The Accessital platform with complete online workflow management has enabled volunteers/employees from remote parts of the country and even other countries to support this process and meet the high-demand for accessible books. In addition, our partnership with local-NGOs in engaging PwDs in the creation process has also enabled us to generate steady income for them amid the lockdown from their homes. We did face a few challenges as PVI found it difficult to make a shift to online education/learning but we were able to mitigate the same by providing technical support through our WhatsApp groups, emails and technology helpline where users could communicate with our technology experts.

**Partnership:** As shared above, under Accessital project we have partnered with local NGOs in Bangalore who are providing employment to PwDs for supporting Saksham's work in accessible-book creation. Our aim is to further expand this programme to meet the goal of book conversion while also offering employment to PwDs who may have lost employment due to the lockdown. We are therefore looking for civil society organisations to partner with for this project. Another area where we require support is that of device distribution. While Saksham has successfully generated funds for the distribution of devices such as laptops, smartphones through support of our partners, we require local partners who can help us in distributing devices across India, especially in remote/rural areas.

**Replicability:** Saksham has always believed in ensuring that devices are provided along with content and training to users as a holistic solution ensuring ease of access and one-stop solution for users. We believe this methodology is replicable and can be adopted by schools, organisations and institutions working for PVI. We also believe that our Accessital platform and Sugamaya Pustakalaya library are well suited for the current lockdown and can be replicated in middle-income and low-income countries.

**Sustainability:** The World Blind Union estimates that less than 1% of published books are ever made into accessible-formats in the developing countries. There is a significant demand for accessible books in India. The Sugamaya Pustakalaya is filling this gap and is powered by TCS Infinity which made the technology available to the DFI consortium of 190+ entities including government bodies, educational-boards and universities, publishers and NGOs involved in providing accessible-books available to PVI with a perpetual license at zero-cost. In addition to this all books created on our Accessital platform (developed as part of previous DAISY consortium project) are uploaded onto Sugamaya Pustakalaya. Accessital therefore compliments Sugamaya Pustakalaya and ensures there is minimum wastage of resources and no duplication of work. At the same time Sugamaya Pustakalaya also provides a complete ecosystem for various stakeholders and has 80+ production and distribution partners on-board thereby ensuring communication among all stakeholders and effective stocktaking and strategy. Saktek is a not-for-profit company, which makes

affordable A.T. devices available to customers on not for profit basis and sustains itself through this. We also utilize our existing database of donor organisations and raise money through CSR grants, individual donors, institutional grants and govt. tenders.
<b>Action Lines</b>
<p><b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development</p> <p><b>AL C2.</b> Information and communication infrastructure</p> <p><b>AL C3.</b> Access to information and knowledge</p> <p><b>AL C5.</b> Building confidence and security in use of ICTs</p> <p><b>AL C6.</b> Enabling environment</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-employment</p> <p><b>AL C8.</b> Cultural diversity and identity, linguistic diversity and local content</p> <p><b>AL C9.</b> Media</p>
<b>SDGs</b>
<p><b>Goal 3:</b> Ensure healthy lives and promote well-being for all</p> <p><b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p> <p><b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all</p> <p><b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation</p> <p><b>Goal 10:</b> Reduce inequality within and among countries</p> <p><b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable</p> <p><b>Goal 16:</b> Promote just, peaceful and inclusive societies</p>

## Case 26 - Special Needs Initiative for Growth, Nigeria

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
<p>STEM AND ROBOTICS WORKSHOP FOR DOWN SYNDROME YOUNG ADULTS AND THEIR SPECIAL NEEDS EDUCATORS</p> <p>Special Needs Initiative for Growth</p> <p>Civil Society</p> <p><b>Nigeria</b></p>
<b>Beneficiaries</b>
Children and young adults with Down syndrome, Autism spectrum disorders, cerebral palsy and Visual-impairment.

<p><b>Website</b></p>
<p><a href="http://biolinky.co/specialneedsinitiativeforgrowth">http://biolinky.co/specialneedsinitiativeforgrowth</a></p>
<p><b>Description</b></p>
<p>We use a variety of training techniques so that persons with various disabilities such as Autism spectrum disorders, cerebral palsy, blindness and Down syndrome can learn according to differing and preferred learning styles. We also employ a flexible approach not only to content but to goals, methods, materials and assessment techniques. At the novel outbreak of the Corona Virus, we conducted the STEM and Robotics Empowerment workshop in collaboration with the Barack Obama American Corner to develop the cognitive and technical capacity of young adults with Down syndrome and their educators so that they can be well equipped to lead technology roles, gain access to STEM and Robotics related jobs and earn a living for themselves especially during the Covid 19 crisis.</p>
<p><b>ICT Tools</b></p>
<p>With Content around STEM and Robotics, early and young adults with intellectual and physical challenges are encouraged to integrate with computational skills as the rest of 21st century society. For this reason, our curriculum adopts and demonstrates pedagogical practices and resources that allow young adults with disabilities to address and develop their skills based on their individual goals and capacities. This training content has been proffered to over 50 young adults with Down syndrome for over 2 years in Lagos State Nigeria under our administration.</p>
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Challenges: Most of our challenges are centered around data. some of our team members experience difficulties in contacting the families of the students with special needs because some of the parents did not provide the right data. Teachers get worried that because of the communication gap during this period, the students miss out on important learning experiences that should stimulate their therapeutic and academic skills. To address this, we have partnered with other organisations whose vision and mission aligns with ours to compare data and retrieve data of families of persons with disabilities whom we proffer solutions to.</p> <p>Partnership: Yes. Partners in Assistive Technology Support services, organizations who provide employment opportunities for young adults with Physical challenges.</p> <p>Replicability: This project was conducted for the special needs educators of the Down Syndrome Foundation Nigeria and the young adults with Down syndrome. Currently, the educators are replicating the positive outcome of the STEM and Robotics workshop to the children adaptive eLearning opportunities that meets each Down syndrome young adult learning style/pattern and capacity building in terms of his or</p>



her cognitive flexibility. Currently, the young adults with Down syndrome are undergoing mentorship and Monitoring and Evaluation to discover how well they are utilizing the technical expertise and training delivered to them to change their capacity building for access to decent work. Also, we are partnering with technology based organization to link some of the Down Syndrome young adults to technology based organizations where they can Intern and leverage upon the STEM and Robotics opportunities proffered to them,

Sustainability: We have put in place another curriculum for 2021 to proffer STEM and Robotics training to more special needs educators and down syndrome young adults across other parts of Nigeria via virtual and onsite sessions. This will be sustained through our continuous partnership with the Barack Obama American Corner and donation from the Sifax Group. Also, we have carried out a survey and discovered that the training conducted early this year has improved the cognitive flexibility, critical thinking and technical ability of 70% of the Down Syndrome children and young adults as well as 80% of the special needs educators. If we keep up with this training on a yearly basis, we will demonstrate and replicate a positive outcome to more down syndrome young adults and educators who will be well be well equipped to take on technology roles, bridge the divide encountered in unequal access to career development and promote inclusiveness for them.

#### Action Lines

**AL C2.** Information and communication infrastructure

**AL C3.** Access to information and knowledge

#### SDGs

**Goal 10:** Reduce inequality within and among countries

## Case 27 -Datamation Foundation Charitable Trust, India

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Assisting in the surveillance of Covid-19 symptomatic and asymptomatic patients using International traveler data

Datamation Foundation Charitable Trust

Civil Society

**India**

#### Beneficiaries

The Primary beneficiaries are at one level the nation and society at large who have benefited due to timely testing and surveillance support and testing support. Providing ICT support and concurrent analysis made available to the local municipal

authorities, health authorities are beneficiaries at second level.

#### Website

<https://www.datamationfoundation.org>

#### Description

The project entailed setting up a standalone database of arriving international travelers from a special arrival form. The arrival form contained name, address, email, contact# last countries visited; and also accompanying family members. Incoming passengers from February onward from the international airports were scanned. Due to time sensitivity involved for tracking the passengers; the digitization process was necessary to be completed within shortest time. Image enabled data entry was deployed for digitization. Entire digitization process was completed in 2 weeks time; and digital data was shared concurrently with the Health authorities for an effective surveillance. Tele profilers were deployed for tracking Covid-19 suspects and testing. Without ICT solution it would not have been possible to conduct an effective Covid-19 testing and surveillance.

#### ICT Tools

We deployed minimalist onsite scanning and digitization process at the first stage. Image based look up data entry tools were deployed for capturing the information from the scanned images. Data cleaning, and BI/BA tools were deployed for data analysis and for submission of the reports to the Health Authorities so that effective tracking and surveillance at the ground level is made possible. A tracker and RDBMS enabled dashboard were also established.

#### Challenges / Partnership / Sustainability / Replicability

**Challenges:** Main challenges were in systematic digitization of data of over 500,000 international travelers. Hand written forms also proved to be a major challenge since it is very critical to maintain accuracy of data so that effective surveillance does not get compromised. Since time was the essence of ICT application it was also mandatory to conclude the digitization process as soon as possible on a war footing. Working with the Govt. agencies and the health authorities in a participatory and democratic process were other challenges.

**Partnership:** We are looking for technology and funding partners for up scaling the initiative, so that we can implement effective surveillance and tracking enabled by ICT in various countries.

**Replicability:** The project is easily replicable in all geographies irrespective of language, cultural and administrative barriers. The software tools and the ICT solutions are also replicable without any barriers and hindrances.

Sustainability: The project is sustainable since it is low cost and also financial support from the Govt. agencies and authorities is available for effective surveillance and tracking of both symptomatic and asymptomatic Covid-19 and other virus infections.
<b>Action Lines</b>
<b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 28 -Datamation Foundation Charitable Trust, India

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Supporting Covid-19 Entrepreneurs survey : Tools and Methods Datamation Foundation Charitable Trust Civil Society <b>India</b>
<b>Beneficiaries</b>
Research and academic organizations are the primary beneficiaries and also the policy planners. The small and medium entrepreneurs are also second level stakeholders benefiting from this initiative.
<b>Website</b>
<a href="https://www.datamationfoundation.org">https://www.datamationfoundation.org</a>
<b>Description</b>
The project entailed reaching out small and medium entrepreneurs for understanding Covid-19 pandemic's impact on their businesses and lives. ICT enabled interactive calling solutions were deployed for calling and for the recording of the responses.
<b>ICT Tools</b>
IVRS and ICT enabled calling were deployed for capturing the responses of the SME entrepreneurs.
<b>Challenges / Partnership / Sustainability / Replicability</b>

<p>Challenges: In a post lock down scenario, the access to the Entrepreneurs and also conduct of the surveys has been very challenging. The recording of the responses in multiple languages in the ICT solutions has been a major challenge too. Identification of a random stratified SME entrepreneurs for coherent feedback collection and compilation was also a major challenge which we overcame by adopting effective sampling and analysis.</p> <p>Partnership: Industrial Associations and the Entrepreneurs Associations as well as Academic institutions and policy planners are effective partners.</p> <p>Replicability: Yes the project is repliacable in any country and in any settings.</p> <p>Sustainability: The project is sustainable in every scenario due to limited investment as well as funding available for the replication of the same.</p>
<b>Action Lines</b>
<b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business
<b>SDGs</b>
<b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all

## Case 29 - Gatef organization, Egypt

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
<p>Gatef organization Civil Society <b>Egypt</b></p>
<b>Beneficiaries</b>
<p>The main beneficiaries are: . Education and training; Citizens; • Man power; • Professionals in Information and Communication Technology Today digital skills have become a basic precondition for anyone in any country to participate meaningfully in the development of the economy Digital and digital society. This toolkit sought to equip policy makers and stakeholders Others provide practical guidance for developing a digital skills strategy tailored to meet the needs of each country same. And since there is no single strategy that fits all countries - each country has different strengths and goals On the other hand - there are a number of promising approaches that have proven their worth in many contexts, and are offered for every country A range of models to be explored and adapted. It is hoped that the toolkit will be useful in stimulating discussions That leads to concrete steps through new</p>

policies and programs. It goes without saying that countries can use the entire toolkit in developing a comprehensive skills strategy Digital or they can simply focus on a specific area and use elements of the toolkit as much as they cater to any Specific needs - for example, how to target underprivileged groups. The International Telecommunication Union is pleased to make this set of tools available to Members, and is eager to support Members strive to provide their citizens with the digital skills they need to thrive in the twenty-first century

### Website

<https://www.atf11.com>

### Description

The most important projects presented to prevent the spread of Covid-19 by using information and communication technology With the technology at our disposal, we did the following 1- Imposing strict health control This is in order to ensure that the region is free of any suspected cases of infection with the virus, through the intensive campaigns carried out by the Ministry of Health during the past days to protect everyone in the region. 2 - We have succeeded in using technology that has played a big role recently to reduce the negative effects of the spread of the Coronavirus, whether at the level of individuals or businesses, as it facilitated communication and remote work. Since the outbreak of the Coronavirus began, we have conducted awareness campaigns for all of our employees about the necessity of hand hygiene and the areas around them, whether at home or work, and adhering to all measures taken by the state to protect citizens, whether in reducing gatherings or being in crowded places. 3 - We carried out counseling campaigns for the importance of transferring money via phone to help non-bank countries reduce cash circulation As a result of our success in using technology, it can be said clearly that our success as a result of using technology to limit the spread of disease has been monitored. Smart technology has provided us with wide-ranging awareness methods for all sectors in society, as well as reduced direct contact between people through artificial intelligence systems, and as a result of our use of modern technology, we succeeded in discovering people with the disease on the one hand, and sterilizing streets and regions on the other hand.

### ICT Tools

1- Building a world-class digital infrastructure 2- Enabling everyone to access the digital skills they need; 3- Helping all business enterprises to become digital business enterprises; 4- Data - exploding the power of data in an economy as a whole and improving public confidence in its use. 5- Skills building, highlighting new initiatives and existing programs, including a variety of formal and informal learning approaches for digital skills Basic and advanced. One of the most ambitious new developments is the creation of a new digital skills partnership that aims to provide

free training opportunities over the next few years through partnerships across sectors - and includes matching skills to prepare individuals to fill vacancies locally.

### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** The challenge is clear. There is a huge skills gap - tens of millions of jobs open around the world. For those with advanced digital skills - with the attendant shortage of qualified people, and today digital skills have become a prerequisite for anyone in any country to participate meaningfully in the development of the economy. Digital and digital society. This toolkit sought to equip policy makers and stakeholders. Others provide practical guidance for developing a digital skills strategy tailored to meet the needs of each country. And since there is no single strategy that fits all countries - each country has different strengths and goals. On the other hand - there are a number of promising approaches that have proven their worth in many contexts, and are offered for every country. A range of models to be explored and adapted. It is hoped that the toolkit will be useful in stimulating discussions that leads to concrete steps through new policies and programs. It goes without saying that countries can use the entire toolkit in developing a comprehensive skills strategy. Digital or they can simply focus on a specific area and use elements of the toolkit as much as they cater to any specific needs - such as how to target semi-groups.

**Partnership:** of course, I will need partners, in important areas

**Replicability:** This project is definitely replicable, I'd suggest any country in Asia and Africa

**Sustainability:** This is a sustainable project. Imagine a country where basic digital skills are valued and promoted and have priority. For all the people of the country - as one of the basic skills of the nation combined with literacy and numeracy skills. Traditional. Imagine a country where all segments of the population can access news and information, and communicate with friends and individuals. Family, daily use of services related to e-health, e-government, digital finance, Agricultural technology, smart transportation - and making full use of immersion in a vibrant global knowledge society. Imagine a community of people with the digital skills required to be employable, productive, creative, and successful - a community that can. In it for all our youth to develop basic skills and then progress to acquire the skills of intermediate and advanced levels of know-how. Digital - young people who are able to participate in emerging industrial sectors and to launch their own business ventures

### **Action Lines**

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

**AL C3.** Access to information and knowledge

**AL C5.** Building confidence and security in use of ICTs

<p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-employment</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-environment</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-agriculture</p> <p><b>AL C8.</b> Cultural diversity and identity, linguistic diversity and local content</p>
<p><b>SDGs</b></p>
<p><b>Goal 2:</b> End hunger, achieve food security and improved nutrition and promote sustainable agriculture</p> <p><b>Goal 3:</b> Ensure healthy lives and promote well-being for all</p> <p><b>Goal 5:</b> Achieve gender equality and empower all women and girls</p> <p><b>Goal 6:</b> Ensure access to water and sanitation for all</p> <p><b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation</p> <p><b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable</p> <p><b>Goal 12:</b> Ensure sustainable consumption and production patterns</p>

## Case 30 - Alamsurya Kubara Endriharto, Indonesia

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Education Application Alamsurya Kubara Endriharto Civil Society <b>Indonesia</b></p>
<p><b>Beneficiaries</b></p>
<p>Without thinking of purchase of Data Packages, Quota and Signals. In our application too there is a learning to help students easier to understand the meaning of a learning materials.</p>
<p><b>Website</b></p>
<p><a href="https://lestariilmu.id">https://lestariilmu.id</a></p>
<p><b>Description</b></p>
<p>During COVID-19 condition, this innovation is motivated by the condition of the parents of students in the hilly area, if learning must be used Internet quota purchased will certainly be burdensome.</p>

<b>ICT Tools</b>
Along with the conditions of learning at home, from our side we are developing IT-based education with a concept without data packages and can be accessed nationally through Google Playstore.
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Challenges: The delivery of digital literacy to the public because society is still running with conventional methods. Meanwhile, at this time of COVID-19, a breakthrough in digital learning is very much needed.</p> <p>Partnership: Partners needed are the Ministry of Education, Teachers, Edu. Institutions, Telecommunications Companies in National that was built with Lestari digital Text starting from being engaged in education.</p> <p>Replicability: Can be developed with developer permission. Cooperate with Lestari Digital Text was cooperate according to and based on Formal Education Unit in 2010 as a publishing company located in Magetan Regency</p> <p>Sustainability: This project sustainable and committed to make changes in how we learning in class that combines between the existing print in the paper text with android which can appear in Smartphone.</p>
<b>Action Lines</b>
<b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning
<b>SDGs</b>
<b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

## Case 31 - Women in Technology in Nigeria, Nigeria

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Digital Skills for Women and Girls Women in Technology in Nigeria Civil Society <b>Nigeria</b>
<b>Beneficiaries</b>
Women and Girls



<b>Website</b>
<a href="http://wit.ng/">http://wit.ng/</a> <a href="http://wit.ng/">http://wit.ng/</a>
<b>Description</b>
We provided digital skills for girls via our Girls in ICT Day 2020 Celebrations. We are extending to these training with entrepreneurship to women who have lost their jobs this pandemic
<b>ICT Tools</b>
Coding tools and the internet. We are building a Mobile App for women
<b>Challenges / Partnership / Sustainability / Replicability</b>
<p><b>Challenges:</b> Our main Challenge is funding. We are hoping the ITU would connect us with funders</p> <p><b>Partnership:</b> Yes. In the development of our app</p> <p><b>Sustainability:</b> yes. App can be downloaded by anyone</p> <p><b>Replicability:</b> through affiliate link</p>
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge
<b>SDGs</b>
<b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

## Case 32 Childcare Consortium, India

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
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Research via Literary work  
Childcare Consortium  
Civil Society  
**India**

### Beneficiaries

Facebook Readers

### Website

[https://www.facebook.com/AnandAAAKumbakonam/?modal=admin\\_todo\\_tour](https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour)  
[https://www.facebook.com/AnandAAAKumbakonam/?modal=admin\\_todo\\_tour](https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour)

### Description

Explaining Human Population Genetics: Very less Human beings are infected by a COVID-19 virus from wildlife and later how the very vast number of people affected by such virus around the world? Wildlife has few Natural necessary commitments such as survival; reproduction and recycling process where humans are interfering in their natural commitments which was limited and infected COVID-19 virus with limited people. The connectivity of such limited infected people under socioeconomic commitments is largely affecting the people those who are in lack of due diligence in control genes in a thickly populated area without proper space and express COVID-19 virus and affect a larger number of people. The lack of due diligence in control genes among the people is originated in obscene of innate immunity of information , missing essential nutrients in health and poor education, cultural and religious discrimination, unemployment, Graft and corruption with irregular space in livings. These are the reason and fundamental cause for COVID-19 infected and affected people to express or transmit to spread the virus all over the world, among the surplus human population where the vast number of people gets affected with this virus on day to day and increases. Further that the infected and affected people of COVID-19 virus are in lack of due diligence in control genes are falsely urged and produce IgG antibodies instead of activating the production of messenger RNA to receive genetic information copied from DNA to reduce sickness and morbidity ratio. This kind of false inhibition of control genes is not only happening in COVID-19 virus infected and affected people. It happens between Nations too, where the control genes are falsely urged the antibody forces to reach out to war instead sending the messengers who receives information from the direct democratic process for Peace living. One has to face such consequences in present world as humans are failing in protecting the environment and Wildlife to complete the natural commitment in Ecosystems to lead a hale and healthy life. Therefore take care in the near future in protecting the nature of each in biosphere to avoid the generation of viral infected population for prosperity in Global socioeconomic structure.

### ICT Tools

E-mail and social media
<b>Action Lines</b>
<b>AL C11.</b> International and regional cooperation
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

### Case 33 - Childcare Consortium, India

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Literary work via research Childcare Consortium Civil Society <b>India</b>
<b>Beneficiaries</b>
Friends and Facebook readers
<b>Website</b>
<a href="https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour">https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour</a> <a href="https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour">https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour</a>
<b>Description</b>
COVID 19 role play in Human Population Genetics: Humans are commonly subject to major changes in their number and distribution due to their activity in a geographical region where they have DNA in the body for mutation, diversity and reproduction. Human immunity is interrelated with the utility of soil, food and Ecosystem in the biosphere. There is no DNA in COVID 19 virus and it uses a recombination method for reproduction in duping evolutionary processes at host cells during gene flow by posing like a parent element and following the sign language of poor innate ability of immunity without response. When the innate ability of immune response, improved via service oriented natural elements & techniques held in Plasma treatment is bringing major changes during evolutionary processes and disables the duping recombination technique of COVID 19 reproduction of host cells of the patients who get relieved permanently from such virus and discharges from hospital. This very simple analysis is insisted by the Aam Aadmi research and development program to use service

<p>oriented natural Plasma treatment all over the world since February 2020 on Facebook. But, the egoism still prevails around the world that is not bothered about such literary works and busy in making business oriented vaccine by hyping Gene which are liable to resurface again with COVID 19 virus after treatment. The World Health Organization must excommunicate such egoistic bureaucrats, administrators and reestablish communication with the able administrators, researchers, medical team and writers to establish service oriented natural elements &amp; techniques held in Plasma treatment with plasma banks at State, district and town level to chase out COVID 19 virus permanently from our planet Earth. Wisdom treat and dismantle the mechanism of COVID 19 virus for successful existence and not issue warnings time to time to generate fear psychosis among human population in Globe who are socially and economically very weak in understanding the nature of each at this juncture.</p>
<p><b>ICT Tools</b></p>
<p>Facebook and e-mail</p>
<p><b>Action Lines</b></p>
<p><b>AL C4.</b> Capacity building</p>
<p><b>SDGs</b></p>
<p><b>Goal 3:</b> Ensure healthy lives and promote well-being for all</p>

## Case 34 - Childcare Consortium, India

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Literary work via research  Childcare Consortium  Civil Society  <b>India</b></p>
<p><b>Beneficiaries</b></p>
<p>Friends and Facebook readers</p>
<p><b>Website</b></p>
<p><a href="https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour">https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour</a>  <a href="https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour">https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour</a></p>

## Description

Why Human processes in administrations need to adopt a cosmic process to avoid dangerous consequences in Globe? Human processes are based on judging the nature of each. Human judging capability is liable to mismanage the energy sources due to the prevailing volume of overpopulation in failure of family planning, gender inequality, graft and corruption. Such energy mismanagement promotes ego of self interest among Parent, Adult, and Child and generate misunderstanding. Misunderstanding generates conflict among human active forces in the form of politics which aimed improving someone's status with consistent feelings and behaviors to achieve its aim and objectives. The consistent feelings and behaviors without understanding the nature of each is erase common interest in political forces and governing bodies in the world of democracy and face dangerous consequences as of now experiencing with COVID 19 viral menace and war. When the universe plans our destiny, this is an example of our cosmic destiny. The Cosmic destiny and process is inconceivably vast in understanding the nature of each that needs common interest. Human understanding, common interests and judging capabilities require absorbing capabilities in experiencing the familiar black energy held in the Universe. The familiar black energy in the universe moves largely outward to counter the gravity of the physical forces that move inward to maintain the contraction between energy and forces and avoid collisions, violence among revolving billions of Galaxies in the universe. Maintaining the contraction between energy, forces are a common phenomenon hidden in cosmic destiny and the process which replaces the depleted usage and consumption values via natural reproduction where human process in the administration is failing in doing so and facing dangerous consequences as specified in Para 1,2 & 3. When, human process fails to maintain the contraction between energy and forces due to overpopulation in failure of family planning, gender inequality, graft and corruption are liable to deplete natural resources and ecosystem for energy needs. Human process is continued to deplete energy resources beyond the optimal limit without replacing it due to overpopulation and expanding of forces with intensity. The intensity in expanding forces affects the contraction with energy in conflict and dishonestly releases the infectious disease of graft, corruption and war in collision by spreading all over like COVID 19 virus. After COVID 19 lockdown period our global statisticians and scientists wondered on measuring the fall of energy utility in optimal limit which improved the healing ratio of our planet Earth and made invisible to visible in the human sense. The burdening overpopulation, pollution and gender inequality with graft and corruption are the culprits who intensify the forces which extend physical might in conflict to conduct war and extract energy with its bullying behavior of lousy expansionism from the civilization. Such, civilizations are liable to suffer and face the consequences in begging for their rights and privileges after the war of destruction which develops nothing except facing the dangerous consequences thereafter. It is nonsense in human process which needs to be avoided by adopting a cosmic process in administrations to improve human understanding, common interest and judging capabilities for the maintenance of periodic contraction between energy and forces to avoid collision and violence among human populations for Peace. Improving human understanding, common interest and judging capabilities in civilization is depending upon the family planning on controlling overpopulations, gaining gender equality and stamp out graft and corruption that simultaneously turn the human

process into a cosmic process in the administration. Such simultaneous natural change in the administrative process is maintaining the contraction between energy and forces for sustainable development. The volume of egoistic physical character in lack of information among human process of administration has to avoid polluting the biosphere to synchronize with cosmic processes which send signals of information for all life forms living in the biosphere for diversity. But, the civilizations polluted biosphere which distorted information and delayed diversity, transformation processes and retained stagnant population under Global warming. The stagnant population is bound to lead the dull and ordinary life to spread COVID 19 virus all over irrelevant to internal immune failure of natural processes. Currently, humans are in search of information under distorted informative conditions in the biosphere to produce vaccine against COVID 19 virus which may not be true to a cosmic process in nature and hype gene to complete the human process in error. The true natural elements are held in plasma, which are interrelated with cosmic processes in treating nature of each to avoid dangerous consequences by relieving severe and moderate patients from COVID 19 viral infection and overcome human error in Globe. The human error still remains with human processes in administration all over the world in allowing COVID 19 patients from 1st stage with 4th stage to reach the danger zone. Human process needs to rush and adopt a cosmic process in various administrations in the world to stop COVID 19 viral spread and death among a stagnant population with plasma treatment to improve immunity for the reduction in mortality rate and develop socioeconomic structure for hale and healthy life.

#### ICT Tools

Facebook and e mail

#### Action Lines

**AL C4.** Capacity building

#### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 35 - Childcare Consortium, India

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Literary work via research  
 Childcare Consortium  
 Civil Society  
**India**

#### Beneficiaries

Friends and Facebook readers

**Website**

[https://www.facebook.com/AnandAAAKumbakonam/?modal=admin\\_todo\\_tour](https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour)  
[https://www.facebook.com/AnandAAAKumbakonam/?modal=admin\\_todo\\_tour](https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour)

**Description**

How to counter the effect of affects COVID 19 virus? When, human administrative processes of rule, regulation and policies fails in protecting the Ecosystem and spreading of COVID 19 virus in the biosphere is require searching for new process such as a cosmic process to avoid violence spreads like an infectious disease and collision among human populations. The Author's study reveals that the Dark energy in the cosmic process moves outward to counter the gravity of the physical forces which move inward to maintain the contraction between energy and forces in expanding universe for periodic cosmic changes to avoid collision and violence among trillions of Galaxies. The loss of contraction between energy and forces ends in Supernova explosion and release the dust of violence in the universe. The released COVID 19 virus out of bats in the biosphere is getting plenty of energy from human body and solar energy to spread all over and pushes human forces backward until one sum up the rest of the forces to counter the effect of affecting COVID 19 virus in reducing and eliminating it via medical treatment. To counter the effect of affecting COVID 19 virus, one needs a net single vector sum of forces to counter the gravity of the COVID 19 virus infected physical forces which move inward towards cities, town and villages and further remote places. The net force is the vector sum of all the forces and what about our forces except human forces of police and medical team to counter the gravity of the COVID 19 virus which infecting physical forces at large? Administration's rule, regulation and policies alone won't work in fight against COVID 19 viral infection and human process need to follow the cosmic process of handling with vector forces which has magnitude and direction along certain rules of combination to maintain the contraction between energy and forces to avoid collision and spreading the dust of infections all over. He who ignores this analysis in reverting back from the human process to cosmic process may find spreading of COVID 19 viral infection rapidly without indicating where the rule, regulation and policies get tired without results.

**ICT Tools**

Facebook and e mail

**Action Lines**

**AL C4.** Capacity building

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 36 - Childcare Consortium, India

### Title of the project, Contact Organization Name, Stakeholder type, Country

Literary work via research  
Childcare Consortium  
Civil Society  
**India**

### Beneficiaries

Friends and Facebook readers

### Website

[https://www.facebook.com/AnandAAAKumbakonam/?modal=admin\\_todo\\_tour](https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour)  
[https://www.facebook.com/AnandAAAKumbakonam/?modal=admin\\_todo\\_tour](https://www.facebook.com/AnandAAAKumbakonam/?modal=admin_todo_tour)

### Description

How COVID-19 turn into community transmission and spread like forest fire? The system failure in the world of democracy is responsible to turn COVID-19 into community transmission and spread like forest fire. Direct democracy or pure democracy makes policies directly with the people, which never fail at any good or bad situation. But, representative democracies, the indirect democracy are in fear to consult and coordinate with people to gain clues and make policy along policy makers. Therefore, that the representative democracies are always bound relay on bureaucratic state officials who do not have direct connectivity to people and become clueless which turn COVID-19 epidemics into community transmission. Hope, now everyone understands the importance of People's power hidden in direct democracy. Direct all the elected representatives to visit physically at their respective constituencies to interact with people to gain clues to make fresh policies collectively to prevent from limited to unlimited community transmission of COVID-19 epidemics in the world of the largest democracy of India bearing the population of 1.38 billion.

### ICT Tools

Facebook and e mail

### Action Lines



<b>AL C4.</b> Capacity building
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 37 - Association des Techniciens en Technologies de l'Information et de la Communication, Chad (Republic of)

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
DIGITAL PROJECT FOR THE PREVENTION OF COVID-19 in Chad. Association des Techniciens en Technologies de l'Information et de la Communication Civil Society <b>Chad (Republic of)</b>
<b>Beneficiaries</b>
men, women, youth, children
<b>Website</b>
<a href="https://twitter.com/ticprojec_attic">https://twitter.com/ticprojec_attic</a> <a href="https://web.facebook.com/at.tic.1485">https://web.facebook.com/at.tic.1485</a>
<b>Description</b>
Humanity today finds itself facing a pandemic caused by the COVID-19 virus. Today, there are still many questions about the origin of this pandemic. We know that it is transmitted by direct contact with respiratory droplets produced by an infected person or by contact with contaminated surfaces. As COVID-19 continues to advance across the world, what is the fate of African populations and especially the most deprived? It is essential that our communities take measures to prevent the transmission of the virus and reduce the impacts of the pandemic, and that they also support measures to combat it. In Chad, despite the government's salutary efforts, in its fight against COVID-19, it is clear that it continues to be a nightmare for the Chadian people. So as Chadians, we must all take initiatives to contribute to the fight against this pandemic. The only solution to defeating this pandemic in our country is collective commitment, because our survival is in our hands. It is within this framework that the Association of Technicians in Information and Communication Technology (ATTIC) in collaboration with Betsaleel Busy Technology Pro (BBTP) initiates this project for training, awareness and the fight against infox COVID-19 circulating on social networks in Chad.

## ICT Tools

the war against the coronavirus will also have to be waged on the Web. Many pandemic poisonings are currently circulating on Facebook, YouTube and others. And we are obliged to act by training and sensitizing young people, women, men, old people, children everyone without exception against the infox of COVID-19 which circulates on social networks.

## Challenges / Partnership / Sustainability / Replicability

### Challenges:

The whole world is currently facing a pandemic of "fake news" / "infox" about the Coronavirus COVID19! "Infodemic" is the expression chosen by the WHO to describe the rumors surrounding the epidemic that are circulating. The fight against "infox" then takes on its full meaning and urgency. Thanks to new means of communication, every person becomes a vector of information in a context of immediacy. This digital boom is a real challenge to take up as it is revolutionizing the way we communicate in our society by generating innovation and economic attractiveness. However, it should be compared with the new regulations for global platforms with regard to press freedom and State sovereignty. If everyone shared information ethically and fairly, ensuring its veracity and verifying its source, the infox phenomenon would not have the same magnitude, nor the consequences that we know of it. A case of Covid-19 is on the rise and is causing concern, disinformation and fake news are also growing. Unproven information is circulating on social networks and several digital platforms, which could mislead users. Thus, and to limit the circulation of fakes news, the ATTIC association in collaboration with Betsaleel Busy Technology Pro took the initiative to launch the campaign which aims to raise awareness and provide the right information on the pandemic in N'Djamena in Chad.

### Partnership:

Yes, ICT area

### Sustainability:

yes, we will create a website for awareness even after the end of the project

## Action Lines

**AL C3.** Access to information and knowledge | **AL C4.** Capacity building

## SDGs

**Goal 6:** Ensure access to water and sanitation for all

# Part 4: Private Sector

## Case 1 RegoPantes, Indonesia

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
8villages RegoPantes Private sector <b>Indonesia</b>
<b>Beneficiaries</b>
Farmers, fair price, we manage to increase farmers income up to 22x, by involving them more in the value chain
<b>Website</b>
<a href="http://8villages.com">http://8villages.com</a> <a href="http://regopantes.com">http://regopantes.com</a>
<b>Description</b>
With the low demand from culinary businesses, making farmers' incomes decrease significantly, the alternative taken is to sell to end consumers, a digital market is needed to connect farmers directly to end consumers so that in this difficult time farmers still get the proper income. RegoPantes.com (means FairPrice) by 8villages continues to try to be a marketplace between farmers and consumers and keep involve farmers in the value chain to reduce dependence on many parties. Shopping for vegetables and fruit online is no longer a lifestyle, but has become a necessity.
<b>ICT Tools</b>
Smartphone, by giving the right incentive which is marketplace for farmers and buyer, farmers want to learn more, upgrade themselves to go beyond planting and involve more in the value chain.
<b>Challenges / Partnership / Sustainability / Replicability</b>
Logistics, before COVID-19, farmers depend on bus to send their product from outside West Java, now since the bus stop operating, the connection cut out, together with Coordinating Ministry for Economic Affairs, 8villages leverage the state-owned train company to deliver

fruits, and not just solving the logistic problem, it also reducing logistic cost up to 60%. NGOs and companies who want to empower farmers beyond just planting partner up by introducing 8villages as their digital ecosystem so they can increase their income. It's very sustainable, because it's already running for 3 year now, farmers receive better income, buyer receive fresh product directly from farmers, 8villages take margins on the product sell.

We manage to start the project by connecting farmers in Central Java to customers in Jakarta, now we have supply coming from farmers in Java and Bali and connect them to consumers in Jakarta, Bogor, Depok, Tangerang, and Bekasi. We also successfully connect farmers to businesses too.

#### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture|**AL C9.** Media

#### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture|**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 6:** Ensure access to water and sanitation for all|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 10:** Reduce inequality within and among countries|**Goal 12:** Ensure sustainable consumption and production patterns

## Case 2 - Waselat AlMuffaker for educational services Co., Palestine

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Muffaker app  
Waselat AlMuffaker for educational services Co.  
Private Sector  
**Palestine**

#### Beneficiaries

Palestinian society and in general Arab societies consist of 48-50% children with 3% annual increase . 12% of this children population is with special needs 3-12 years children can be found in : \*Special needs institutes \*Kg's \*Primary schools \*Fun educational programs \*Children in Diaspora

### Website

<https://www.facebook.com/Muffaker-307254966128302>

### Description

Designing a comprehensive e- application covering all aspects of learning : academic, life skills & crafts, systematically classified into major and sub-major concepts according to age & mental abilities ; particularly targeting 3-12 yrs children with special needs supported with interactive learning methods & parents app. to follow up the progress and development of their children.SUPPORTED WITH AMEASUREMENT TO DETECT THE DEGREE OF DISABILITY

### ICT Tools

Using unity in developing the app. Enemy videos & effects enabling easier understanding for the concepts for better learning. Parents app'll facilitate the follow up. App'll be available in the store for android & IOS

### Challenges / Partnership / Sustainability / Replicability

Challenges: Collecting data based on a scientific basis,designing a comprehensive content(+450 concepts) suitable for special needs children:specialist in each field& special needs specialist New to the market: suitable prices,variety of concepts ,marketing campaign & awareness workshops in the educational institutes.

Replicability: By adopting scientific experiments in such interesting interactive learning method; by collecting more data to design more interactive concepts; by targeting normal children with such comprehensive interactive learning system; by designing the concepts as VR.

Sustainability: Collecting data for more than 450 concepts. Supervision of special needs specialist, with other specialists in all other fields, to make sure that this category is perfectly able to use this app Parent flexible access to the progress & development of the child throw parent app. By designing the concepts as VR Hard copy of the concepts (product) are already available in the market & special needs institutes' feedback is very satisfactory & promising.

<b>Action Lines</b>
<b>AL C4.</b> Capacity building   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning
<b>SDGs</b>
<b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all   <b>Goal 10:</b> Reduce inequality within and among countries.

### Case 3 - Ajad, Palestine

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
UMAN Ajad Private Sector <b>Palestine</b>
<b>Beneficiaries</b>
Contracting companies, and contractors, Subcontractors, Manpower companies, Work site managers and construction project managers.
<b>Website</b>
<a href="https://ajadagency.com">https://ajadagency.com</a> <a href="http://uman.app">http://uman.app</a>
<b>Description</b>
It reduces the closeness between individuals and increases social distancing, and avoid use biometric devices to mange the attendance.
<b>ICT Tools</b>
by using (UMAN App) you For scheduling & arranging, Application of recording work diaries and workers , creating reports and accounts and archiving them.

### Challenges / Partnership / Sustainability / Replicability

To maintain security and functionality, we need to increase the specifications of the servers, We need more Developers for the updates on the Web application and the Mobile App.

Partners: Investment financially.

Non-replicable. It's new in market.

Sustainable. This application can work for long time , as we are using new technologies and available any ware.

### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C5.** Building confidence and security in use of ICTs|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C7.** ICT applications: benefits in all aspects of life — E-health|**AL C7.** ICT applications: benefits in all aspects of life — E-employment|**AL C7.** ICT applications: benefits in all aspects of life — E-environment|**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture|**AL C7.** ICT applications: benefits in all aspects of life — E-science|**AL C8.** Cultural diversity and identity, linguistic diversity and local content|**AL C9.** Media|**AL C10.** Ethical dimensions of the Information Society|**AL C11.** International and regional cooperation

### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture|**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 6:** Ensure access to water and sanitation for all|**Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 10:** Reduce inequality within and among countries|**Goal 11:** Make cities inclusive, safe, resilient and sustainable|**Goal 12:** Ensure sustainable consumption and production patterns|**Goal 13:** Take urgent action to combat climate change and its impacts|**Goal 14:** Conserve and sustainably use the oceans, seas and marine resources|**Goal**

**15:** Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss|**Goal 16:** Promote just, peaceful and inclusive societies|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 4 - OREL Vision, Pakistan

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
AloTs, Machine Learning, Drone Deployment, Precision Agriculture OREL Vision Private Sector <b>Pakistan</b>
<b>Beneficiaries</b>
Agriculture, Crop Reporting Services KP, Mines and Mineral, HZM company, Ministry of Climate Change, Islamabad.
<b>Website</b>
<a href="https://www.orelvision.com">https://www.orelvision.com</a>
<b>Description</b>
We are IoTs based ML company working on drone and deploys multiple type of sensor difference Govt. sector, Including Agriculture Department, Mines and Minerals exploration and mine detection and other defense projects for the Govt. sector organizations.
<b>ICT Tools</b>
AloTs, Sensors, Python, PHP, Mysql etc.
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenges: in crop reporting the differentiation of similar species crops from other like wheat from barley etc. The problem overcome through NDVI values with min max and means. Partnership: Currently, Technological partner are required to enhance our capabilities. Sustainability: Yes this project is sustainable. In Precision Agriculture and related including Climate Change are implementable and sustainable. Replicability: yes, this project can be replicated within Pakistan other provinces Punjab and



Sindh and other Geography like Africa etc.

#### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development | **AL C3.** Access to information and knowledge | **AL C7.** ICT applications: benefits in all aspects of life — E-agriculture | **AL C11.** International and regional cooperation

#### SDGs

**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture | **Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all | **Goal 13:** Take urgent action to combat climate change and its impacts.

## Case 5 - LibraRisk and the coronavirus COVID-19 emergency

#### Title of the project, Contact Organization Name, Stakeholder type, Country

LibraRisk and the coronavirus COVID-19 emergency  
LibraRisk srl  
Private Sector  
**Italy**

#### Beneficiaries

Italian citizens and foreign communities living in Italy

Website

<https://www.librarisk.com/>

#### Description

LibraRisk platform provided a service aimed at communicating COVID-19 emergency to foreign communities, in Italy. Foreigners represent little less than 10% of the overall population, but the national media did not provide information specifically conveyed for those communities

#### ICT Tools

In the early phases of COVID-19 emergency, LibraRisk regularly sent, via push notification (translated in italian, english, spanish and french), press releases and news published by both the National Department of Civil Protection and the “Nuovo Coronavirus” portal of the Italian Ministry of Health

**Challenges / Partnership / Sustainability / Replicability**

To foster a more inclusive communication of risk, comprising information to be provided to foreign communities living on the Italian territory.  
 - Cultural mediators agencies

**Action Lines**

**AL C8.** Cultural diversity and identity, linguistic diversity and local content

**SDGs**

**Goal 11:** Make cities inclusive, safe, resilient and sustainable

**Case 6 Mbumba Lapaque, Democratic Republic of the Congo**

**Title of the project, Contact Organization Name, Stakeholder type, Country**

MukuilimaSoko  
 Mbumba Lapaque  
 Private Sector  
**Democratic Republic of the Congo**

**Beneficiaries**

With as potential Beneficiaries : The Congolese government through the National Agricultural Investment Plan The Ministry of Agriculture and Rural Development Peasant and Rural Organizations Private farmers and agricultural buyers Agronomists, researchers, schools, universities and teachers of agricultural sectors International and national organizations organizing agriocles fairs the main benefits/services: A single B2B2C market place centralizing the supply and demand of agricultural products improving the functioning of the market for the benefit of agricultural actors through the precision and cost reduction of buying and selling operations. Innovation in real-time knowledge of the quantity of available agricultural products. The coalition of villages into a community network of farmers by setting up virtual and physical relay depots in their production environment for the grouping of products and joint sales, A system of triggering stronger energy

through weaker energies enabling farmers to live decently and benefit from their activities, working in solidarity to better defend their interests and mutualize the sale of their products, with fair trade ensuring a stable price and a fair income for the players. At the level of the local population, MukulimaSoko actively participates in : The support to the displaced people from the different conflicts, who are mostly farmers, the solution motivating them to return to their environment and a way to improve their lives. A win-win cooperation sharing collectively the wealth generated and improving their lives (schooling, health). Slows down the rural exodus by the return of brains, the creation of employment for each associate and all the peasant layers. Shifting from subsistence agriculture to economic development thanks to the Investment Area, which will make it easier for everyone to be an actor in development.

#### **Website**

<https://mukulimasoko.com>

#### **Description**

Mukulima\_Lab will above all be an interprofessional crossroads, a place for exchanges and debates to make proposals about a local agronomic situation of a farm or an experimental station to apprehend and solve agricultural, environmental and sustainable development problems, at the different scales where they arise, from the plot, the seeds, the pesticides, the growing seasons to the planet. A participatory space offering agronomists from different professions, teachers and researchers to exchange their knowledge and farmers to expose specific hazards occurring in their farms. Based on these exchanges, ways can be found to help the farmer in the evolution of his practices, and serve as examples for other farmers in other territories where the agronomic problems and pedoclimatic situations are similar. In short Mukulima\_lab wants to be a unique directory of agronomists, clinics and veterinary pharmacies, coupled with an agricultural library where farmers will freely diagnose diseases that attack their crops through access to a text, audio and visual library describing the pests of certain plants and crops. This library will be fed by local agronomists. An agricultural network of phytosanitary mutual aid to have all the complete information concerning pest diseases, seeds and advice on good agricultural practices and to take the best solutions.

#### **ICT Tools**

A web platform that Offers better accessibility to knowledge, also to a participation networking, through the deposit on the platform of content or consultation of complementary multimedia resources, for example. Students, scientists, ministries,

researchers can access it from anywhere, at their convenience to consult, alert, make suggestions and surveys, question or share agronomic situations. NB: the Mukulimasoko project has already succeeded in setting up 7 Community Farmers' Networks, knowing that a Community Farmers' Network is a gathering of at least 10 villages. 7 physical and virtual agricultural relay depots with agricultural right-hand men who inform us of the available stocks and update us in the virtual depots. True that our project with its service of optimization of supply and demand of agricultural products works well. The reality of COVID-19 has revealed us some challenges, among which the one of logistics, the map directory of agricultural actors, so this reality motivates us today to digitalize the whole agricultural value chain adding to our project: a map directory of agricultural transporters and the buyer can call and set the costs and conditions.

### **Challenges / Partnership / Sustainability / Replicability**

Obstacles related to the sources of financing to scale up, as the financing avenues remain very limited in Africa, even more so in DR Congo where even the banks do not have this option nor the government. Obstacles also stem from the profound upheaval in the agricultural economy where many buyers and farmers have no knowledge and experience in E-services. With Internet tariffs remaining high, available bandwidth remains very low compared to the situation in other countries such as Rwanda, for example; and when one moves away from the capital or urban centers, difficulties in accessing the Internet are observed. Also because of the high cost of connection many people remain disconnected from the Internet, financial and other services, the size of the market decreases and becomes a problem. The poor state of the agricultural desert roads in some areas causes difficulties in transporting the goods to buyers and farmers, delivery throughout the country, but also to neighboring nations: Express delivery remains an obstacle.

We look forward to networking opportunities such as : The creation of bridges between the different economic zones of activities and agronomic development of other skies and between young innovators from different participating countries. The creation of communities of solutions around our initiative in order to allow for long-term collaboration in several ways: technical support, resource mobilization, volunteering, sharing of information, good practices and modern methods used in agriculture.

The grouping of products for joint sales, a device for triggering stronger energy by lower energy; The permanent supply and satisfaction of large quantity orders in the medium and long term; A team of agricultural right-hand men to assist the farmers of the networks; The support to the displaced people from the different conflicts, who are mostly farmers, the solution motivating them to return to their environment and a way to improve their lives. A win-win cooperation sharing collectively the wealth generated and improving their lives (schooling, health). Slows down the rural exodus by the return of brains, the creation of employment for each associate

and all the peasant layers. Shifting from subsistence agriculture to economic development thanks to the Investment Area, which will make it easier for everyone to be an actor in development. Digital literacy in the village groupings of the agricultural relay depots to create digital leadership and collective action capacities likely to transform the agricultural sector and for each of them to benefit 100% from the advantages offered by MukulimaSoko in order to advance the three Pillars of GDP. Although the MukulimaSoko platform works all over the DR Congo, Mukulima\_Lab has the ambition to cover all 26 provinces of the country.

**Action Lines**

**AL C2.** Information and communication infrastructure|**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C7.** ICT applications: benefits in all aspects of life — E-health|**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture

**SDGs**

**Goal 1:** End poverty in all its forms everywhere|**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 17:** Revitalize the global partnership for sustainable development

**Case 7 Solercool technologies LLC( Trading as solerchil in Africa), United States of America**

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Bring the reality of Tele-Health in developing countries  
 Solercool technologies LLC( Trading as solerchil in Africa)  
 Private Sector  
**United States of America**

**Beneficiaries**

Our major beneficiaries were women and children but later added male patients . We also had the key NGOs as our key beneficiaries for example medical team

international used our tools to offer services in 8 refugee settlement in Uganda. We can not forget the governments especially of Uganda who used our technologies to also store other patients' records in other government hospital.

### Website

<https://www.solercool.com/about.html>  
<http://www.solercooltechnologies.com/tele-health/telehealth-connectivity-configuration.html>

### Description

Solercool technologies through her Tele-health department managed to bring the relativity of tele-health to Africa . Using our spoke and hub strategy we deployed our tele medicine software to the marginalized people in Uganda ,Rwanda and in Bostwana and Haiti who were at that time restricted to move from their villages to other places where they could have gotten services . With our Artificial intelligence Teleconferencing software ,341000 women and 220090 children were able to seek medical services from our virtual doctors .

### ICT Tools

Our major tools are the Artificial intelligence video conferencing tool ( which uses automated sign language interpretation to also allow disabled have access and use it) which was developed in house, the electronic medical records platform which allows us store medical records for all our patients ( developed in house ) VSAT Satellite technology for Internet ( since most of the places we work have no 3G internet) and a USB satellite modem .All these were meant to vail our project end user have access to doctors world wide without having any interruption.

### Challenges / Partnership / Sustainability / Replicability

Our major challenge wad poor connectivity in some areas where our customers were coming from . our team worked with the respective governments and put VSAT satellite data hotspot in some areas where there was totally no internet. More to that many people could not easily adopt the video conferencing method of seeing the doctor .Our team came up with various online campaigns targeting those in our areas of scope ,educating members of the society about the new normal and how video conferencing is the way to go.

We looking at scaling and we are looking for Health care Ngos that we can scale this initiative with in their countries of operation . We also looking for Financial partners who could actually some how helps fund some key issues like internet connectivity. These can be governments or private sector or Ngos.

Solercool technologies originally makes solar powered refrigeration technology which she sells to farmers and food transporters to avoid post harvest loss .This partly brought in money to make sure the tele-Health services reach the four corners of the world .More to that those who use our tele-health services pay some reasonable amount of money and this was and is used to increase the scope of the project . We also get grants from friends and family members to periodically avail us with financial support .

Tele-health is the way to go. I for one i believe that it will be hard for people who had gotten used to meeting their doctors at the comfort of their homes to back to lining up at the doctors physical doors. The new normal has proved that even those countries where tele-health has not been adopted in the past ,now is the order of the day .As i speak our tele-health services are now covering Uganda Haiti ,Rwanda ,Bostwana , Haiti and scaling to South Africa and UAE. We are seeking partnerships with various governments to allow us bring this important health aspect to their countries.

**Action Lines**

**AL C7.** ICT applications: benefits in all aspects of life — E-health

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 8 - Senetec Africa, Zimbabwe

**Title of the project, Contact Organization Name, Stakeholder type, Country**

SenetecGas  
 Senetec Africa  
 Private Sector  
**Zimbabwe**

**Beneficiaries**

SenetecGas targets off-grid urban and rural households, and under-served urban areas thereby helping reduce the spread of Covid-19 and the switch from harmful firewood and charcoal as cooking fuel.

**Website**

<https://www.facebook.com/senetecgas/>  
<https://www.facebook.com/senetecgas/>

### Description

Senetec Africa introduced SenetecGas, a smarter and simpler way of ordering LP Gas in the comfort of your home on your phone and getting it delivered to your doorstep.

### ICT Tools

SenetecGas uses smart metering and mobile technology that helps us monitor gas cylinders, allow customers to order gas on their phones and schedule deliveries before gas ever runs out.

### Challenges / Partnership / Sustainability / Replicability

The main challenge is the initial high upfront cost of purchasing the systems for the customers. It can be overcome by engaging financial institutions to provide Pay-as-you-Go Credit Loans.

We are looking for strategic partners to supply and deliver LP Gas countrywide. We are also looking for financial partners to provide Pay-as-you-Go Credit Loans targeting low-income households.

The project is sustainable as it reduces the spread of Covid-19 by promoting the ordering of gas on your phone in the comfort of your home, and helps reduce the cutting down of trees as cooking fuel.

This project is replicable targeting low-income households by engaging financial institutions to provide Pay-as-you-Go Credit Loans that lowers the initial high upfront cost.

### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C7.** ICT applications: benefits in all aspects of life — E-environment

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all|**Goal 15:** Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

## Case 9 - Village Link Company Limited, Myanmar



**Title of the project, Contact Organization Name, Stakeholder type, Country**

Htwet Toe (MYVAS4AGRI)  
Village Link Company Limited  
Private Sector  
**Myanmar**

**Beneficiaries**

- Smallholders/Growers/Farmers (access to farming knowledge, climate-crop based personalized advisory services, access to products)
- Contract farming organizations (farm management tool, climate-crop based personalized advisory services, satellite-based farming intelligence)
- Extension workers (access to farming knowledge, farm management tool)

**Website**

<https://www.linkedin.com/company/villagelink.co>  
<https://g4aw.spaceoffice.nl/en/g4aw-projects/g4aw-projects/17/myvas4agri.html>

**Description**

We provide a digital platform for farmers that provides key farming information and connects them to agriculture professionals, products and services so that they may still increase their farming productivity during COVID. Our app is assisting more than 750,000 farmers in Myanmar with the farming knowledge they need, especially in the pandemic as field extension workers can no longer visit them. Moreover, through our e-commerce feature in the app, farmers can find farming services online, allowing them to access products and services easier than before. The highlight of this project is providing individual farmers with personalized farming advisory services through using satellite data such as weather and crop monitoring data, to help them increase their climate resiliency and combat climate change.

**ICT Tools**

Through our mobile app "Htwet Toe", farmers can access anything they need for farming without leaving their farms. The app is also integrated with remote sensing analytics engine which provides farmers with contextual farming advisories which are created using satellite derived crop data, weather data and GIS data. We are also experimenting with Cognitive Artificial Intelligence that automatically detects pest and diseases on crops and provides the most appropriate recommendation.

## Challenges / Partnership / Sustainability / Replicability

Online purchasing behavior amongst Farmers is still low. through education and customer awareness, we will be able to Overcome this particular challenge. Mobile internet data cost is relatively high and Farmers prefer to spend it for entertainment and Social media. we can Overcome this by introducing gamifications in the app which keeps the Farmers engaged while using our app.

We are looking for financial institutions to partner with so that we can extend financial products digitally through our platform to farmers. Moreover, we also want to co-create innovative crop insurance products for Smallholders in the country using satellite derived crop and climate data.

The project is both financially and operationally sustainable as we are able to generate revenue from the satellite data we have created for Myanmar and also able to monetize by allowing companies and organizations to promote their contents and products to our userbase. It is also sustainable for stakeholders since our project is helping them improve their farming productivity, in turn increasing their income, and at the same time helping them minimize wastage and losses during the growing season.

The project is easily replicable as both our backend and frontend systems are designed and developed using scalable architecture and the entire app ecosystem is hosted on a cloud. Moreover, we have created many APIs for our services which can be easily integrated to a new app in a new project The model can be replicated in any geography without any substantial upfront tech development cost. Since we developed our project with being digital native in mind, all of our operations are also very streamlined and agile as we only need 10-15 people to serve 750,000 farmers in our platform. Even our contextualized advisory services for farmers are automated through machine learning and require very little human input to send personalized messages to farmers.

### Action Lines

**AL C3.** Access to information and knowledge|**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture|**AL C9.** Media

### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture|**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 10:** Reduce inequality within and among countries|**Goal 12:** Ensure sustainable consumption and production patterns|**Goal 13:** Take urgent action to combat climate change and its impacts|**Goal 15:** Sustainably manage forests, combat desertification,

halt and reverse land degradation, halt biodiversity loss

## Case 10 - WonderTree, Pakistan

### Title of the project, Contact Organization Name, Stakeholder type, Country

WonderGames  
WonderTree  
Private Sector  
**Pakistan**

### Beneficiaries

Our primary beneficiaries are children with special needs (children with autism, cerebral palsy, down syndrome, developmental delays, slow learners children with physical disabilities, and children with cognitive disabilities). The benefit of our solution for these children is their development in motor, cognitive, and academic areas. Our solution can be easily installed at homes so parents do not need to take their children to a hospital, therapy center, and school. Our solution also provides well-needed exercise and a way to have fun for the children since they can't go outside during COVID times. Another benefit of our solution is that it is easily accessible, affordable, and effective. It's accessible because it only requires a laptop and webcam in order to work. It is affordable because it is 70% cheaper than conventional therapy for a month and it is effective because it uses the power of gamification to engage and develop the child.

### Website

<https://mukulimasoko.com>

### Description

We have developed a software platform for the physiotherapy, cognitive development and education of children with special needs. During COVID-19 parents haven't been able to take their children to special schools or clinics because of social distancing and because most institutions have been closed. But with our solution parents can make their children go physiotherapy, cognitive development, and education sitting at their homes. Our solution is accessible, affordable, and effective. Since it only requires a computer and a webcam. Here is a short video that shows how our product works: <https://youtu.be/IDbqSg8t5U8>

## ICT Tools

Our software platform consists of 2 components. 1) Games: We have taken physiotherapy, cognitive and educational exercises and gamified them using augmented reality. This creates a very engaging and motivating experience for the child. The painful or boring physiotherapy becomes fun and gamification accelerates with development and learning. We have developed 18 games so far each of the games designed to improve a certain skill set in children (e.g: hand-eye coordination, balance, upper body movement, lower body movement, response time, memory, phonics, sorting, addition, subtraction, and many more). 2) Reporting: The progress of every child and their skill development can be monitored through our reports. The technologies that we are using are Pytorch and OpenVino for Human Pose Estimation. ASP.NET Core, Unity 3D, Azure for games, reporting, and hosting.

## Challenges / Partnership / Sustainability / Replicability

Our main challenge is 1) The Hardware Requirements. Right now our solution has only been developed for Windows PC/Laptops that were released 5 years ago or sooner. Because of this, our solution is not accessible by parents who have PC/laptops older than 5 years, parents who have MacBooks, and parents who don't have any computer and only a mobile phone. This challenge can be overcome by RnD and further development through funding or saving up enough revenue from our sales. We have the expertise to bring our solution to older laptops, MacBooks, and mobile phones. Another challenge is 2) Scaling The Solution: We are getting good traction from Pakistan regarding our solution. But we would want to scale our solution globally. This requires spending a budget on marketing and ads and having a small team that can manage customer relations and resolves their queries. Organically we have been able to penetrate 2 countries besides Pakistan but if we want to scale faster we would need funds that we can put into marketing, and hiring a small customer service team.

We are looking for the following partners:

- 1) Research partners: We are looking for researching bodies that would be interested in partnering with us to do clinical trials or researches to clinically prove the efficacy of our product. A medical university would be an ideal partner.
- 2) Resellers/Distributors: We are looking for partners in different countries that would like to resell our product in their countries.
- 3) NGOs and Govt bodies: We are looking for NGOs and Govt bodies who have a mandate of working for education, physiotherapy, and the development of special needs children. If we have a big enough order (in terms of purchase) we can even customize/localize our games and make new on-demand games for them.

Yes, this project is sustainable. Our business model is \$3 per child per month. It is a monthly recurring revenue model. Our pricing is based on the purchasing power of the people of the country i.e we are charging \$10 in Malaysia and \$20 in Qatar.

Our capital cost has already been incurred and we don't have a big variable cost since the entire solution is online and does not require additional resources when the users increase. We launched our solution for parents for their special needs children in Aug 2020 so far we have 170 parents who have downloaded the games. With some optimization to our sales, we will be able to get more paid users and make our solution cashflow positive and scalable.

This project is scalable and replicable easily. In our solution, we have developed games that are based on physiotherapy, cognitive and educational exercises used by teachers and therapists. These games have been designed in a way that all children can play and learn from them. Our solution only requires a computer and a webcam in order to be played. This makes our games highly replicable in every area of the world as long as they have a computer and a webcam. Another thing that adds to the applicability of our solution is the fact that our solution can be made available in every language (since everything is developed by our team). This localization has been done in Qatar. We presented our solution to MADA (the Qatari regulatory body for disability and assistive technology.) and they asked us to convert our games into Arabic. We were able to convert the game into Arabic in 1 week's time. And now MADA is about to accredit our games and help us promote our games in Qatar for the Qatari citizens.

**Action Lines**

**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C7.** ICT applications: benefits in all aspects of life — E-health

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

**Case 11 - Ajman free zone - Ajman, United Arab Emirates, United Arab Emirates**

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Ajman free zone - Ajman,United Arab Emirates

Ajman free zone  
Private Sector  
**United Arab Emirates**

### **Beneficiaries**

The main parties that will benefit from these systems are AFZ investors who make use of the cloud services by accessing their portal from anywhere and when they would need to begin their services. As an example, the RPA system is used to process customer requests that leads to faster service request processing time, which in turn, will increase customer satisfaction and will benefit the customer in processing his requests in fast and quicker ways. Another likely advantage gained is that employees can easily work remotely. This is attributed to the presence of RPA, which supports the daily operation and minimize the time taken in providing the required service to the customer.

### **Website**

<https://www.afz.ae/en>

### **Description**

During the pandemic, Ajman Free Zone enabled a work from home and remote working system using capabilities of the automated and digitalized services. AFZ also took advantage of cloud technologies, giving customers easier access to their services via a centralized portal that seamlessly connects investors with its employees. AFZ also made use of its Robotics Process Automation (RPA), which was designed to support internal operations to speed up the process to fulfill investor demand and expectation and to utilize the existing technologies in the customer journey.

### **ICT Tools**

As earlier pointed out, AFZ made use of cloud technologies to help in the provision of services for the investors--which is part of the digital transformation journey of AFZ. Under this move, the AFZ aimed to provide and extend all its services through cloud service--ensuring that all services are reachable everywhere at any required time. Meanwhile, RPA represents another form of technology that AFZ is using to support and back up the daily operations. It is also used to reduce manual intervention where the investor will submit his request in one for the areas and will be processed by the RPA technology without human intervention. RPA technology has been deployed in parallel to support the could services and to process investor's requests.

## Challenges / Partnership / Sustainability / Replicability

One of the key challenges faced was the deployment of the RPA technology, especially during the pandemic as providing the training to employees served as a challenge. The issue was resolved via the provision of ample training sessions that involved the participation of employees during the implementation phases and during the User Acceptance Test ( UAT ), making them aware of the procedures and the required action from their side for the cases. This also involved the continuous follow up and process review after the system deployment. Another challenge was making sure that the customer was aware of the process-- taking advantage of Ajman Free Zone social media advertising practices, the customer became more active and interactive in knowing all the new services by encouraging them to follow our accounts on social media.

At AFZ, we see partnerships as a key factor needed to enable the success of these services and businesses in itself. With this in mind, the AFZ looks forward to using new services to develop and enhance the community process. Our technology partners and market leaders in AI and RPA serve as our main focus. Market leader technology partners are the focus of Ajman Free Zone when it comes to deploying and practicing new technologies. Market leader in Robotic Process Automation is also the focus of Ajman free zone along with Cloud service providers as they are the enablers of the new Technologies. The use of these technologies is a main factor to AFZ's business continuity--making sure that it is a global best practice that is adhered to constantly.

The project is deemed sustainable as it comes down to maintaining the new technologies and opening the door for innovation.

The RPA system is replicable and can be duplicated in operations as it maintains a repeated workflow that can be deployed and impeded in its day-to-day operations. This project can be replicated by adding more services into the platform. The RPA is capable of handling more services within the same platform as it was designed to explore and to handle more services that will lead to consumer satisfaction. These service are not limit to one. The RPA was designed to manage further service and to handle them as per the designed scope, which can be further expanded to cover extra process and ensure that process and workflow follows the required deigned plan for it considering the project requirements.

### Action Lines

**AL C6.** Enabling environment

### SDGs

**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case - 12 Athena Times, Bangladesh

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Athena Times Athena psychiatric & de-addiction treatment center Private Sector <b>Bangladesh</b>
<b>Beneficiaries</b>
Working professionals    Students    Family    Young adults    Teenagers    Woman Pregnant women    Individuals with mental health issues
<b>Website</b>
<a href="https://athenaltddb.com/">https://athenaltddb.com/</a>
<b>Description</b>
As Athena works with mental health and it was one of the most significant area to focus on during the pandemic. As social media usage within people grew, we started hosting Facebook live shows to address the mental well being of individuals. We focused on how to deal with stress and anxiety during pandemic, Living ahead of Corona, Women's health in current pandemic, Pregnancy during Covid pandemic, mental wellbeing during pandemic and more. We welcome industry experts, international practitioners to address the burning issues.
<b>ICT Tools</b>
Social media (Facebook, YouTube): We used Facebook live and live streaming platform Stream yard to host different guests and practitioner to talk about the pressing issues during the pandemic. We ensures the content was circulated properly so that we can touch maximum lives. Our content on social media has 4,00,000 organic reach. Digital content: We created and distributed digital content to reach out to people who does not have the awareness of mental health and the significance of it. We focused on increasing the literacy on this issue. PR and media: With collaborating with different PR and media representative, we distributed the content to reach the mass audience. Email outreach: We outreached to many individuals through email to spread the awareness on mental health and well being.



### Challenges / Partnership / Sustainability / Replicability

The main challenge is breaking the taboo regarding mental health. People are not still comfortable talking about mental health. The taboo can be broken by constantly taking initiative for the betterment of mental health and talking about the issues that needs the attention. We think breaking the taboo will open avenues that we can explore and ensure betterment of the society in the long run. Along with that, the pandemic situation is prolonging and it will start having its effect on the people eventually. In order to tackle that, we need to level up our initiative and ensure we create and maintain awareness for mental health and well being.

Government International Patron

The project deals with mental well being and it is an essential necessity that is needful for people of every walks of life. We can continue the project with our initiatives and keep raining awareness on mental health and well being. Plus, the resources and technology used in the project is also sustainable .

Yes the project is replicable to some extent. It can be replicated by hosting similar Facebook live show on Facebook. But having good quality spokesperson might not be replicable as we have prominent resources with us.

### Action Lines

**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge|**AL C7.** ICT applications: benefits in all aspects of life — E-health

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case - 13 Agromedium Kft., Hungary

### Title of the project, Contact Organization Name, Stakeholder type, Country

Agromedium  
Agromedium Kft.  
Private Sector  
**Hungary**

### Beneficiaries

Everybody who need to make decisions about plant protection, nutrient replenishment and sowing.

### Description

Our solutions target are the big farms and the smallholder farmesrs too. Each type of farms need to make good decisions about input products. The Agromedium is a mobile application, a digital information database for the farmers and agricultural advisors. The users can use it offline and online too, and they can get up to date information about the agricultural input market.

### ICT Tools

Smartphones (features, apps); Web platforms (forums, communities, e-governance); Cloud (data storage and computing, Big data); Software solutions (programs and packages)

### Challenges / Partnership / Sustainability / Replicability

It is a free decision support system, an up to date information database for the farmers and agricultural advisors. The Agromedium helps the users compare the plant protection products, fertilizers and seeds in several aspects so they can make a good decision. Those companies who are make farm management software no need to make these databases, no need human resource for it, they can focus the more important things. We can make market research for the input product manufacturers, governments, authorities and we can show trends for they, even for the whole of Europe. We can help the flow of information to adopt good practices in other countries.

We want to expand the Agromedium to all in Europe. We start the Agromedium system in Romania in the mid of 2021, and in 2022 want to be in every European country. We want to develop in the Agromedium an agricultural dropshipping system for the farmers and the distributors and we want to develop a social media platform where can the farmers and advisors discuss the actual agri- horticultural problems (it is in progress and available at the end of 2021).

Proven/ Scale-up stage Our software is available just in Hungary at now from the Apple App Store, Google Play and Huawei App Galery.

### Action Lines

**AL C7. ICT applications: benefits in all aspects of life — E-environment**|**AL C7. ICT applications: benefits in all aspects of life — E-agriculture**

## SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all| **Goal 12:** Ensure sustainable consumption and production patterns| **Goal 15:** Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss| **Goal 17:** Revitalize the global partnership for sustainable development

## Case 14 - COVID19 Society

### Title of the project, Contact Organization Name, Stakeholder type, Country

COVID19 Society  
Nabeel Yasin Training and Consulting Center  
Private Sector  
**Yemen**

### Beneficiaries

Anyone who concerned about the COVID 19 and its impact on our life and interested in how to overcome the pandemic

### Website

<https://nabeelyasin.com.ye/>  
<https://nabeelyasin.com.ye/covid19society>

### Description

The impact of the Covid19 on our life is huge in many ways, and to overcome this impact I have my initiative, which is an independent non-government online web based, localized collaboration platform for the COVID19 for all interested individuals, stakeholders, NGO/INGOs etc. To discuss, share real stories, positive stories of COVID19 survivors, raise awareness, share ideas, lessons learned, real data collection, COVID19 data science, suggestion, ideas, donations, initiatives and projects aiming to help reducing the impact of COVID19 on my society.

### ICT Tools

1) Website CMS such as WordPress with plugins      2) Mobile Data collection tools such as kobo toolbox      3) Smartphone App ( iOs and Android)

Challenges / Partnership / Sustainability / Replicability

Challenges: Internet Access Digital literacy Rural Areas Financial Support Freedom of speech Social Taboo.

Partners: in the arears such as website designing , Blogs , Data collection tools , BI Dashboard , Smartphone App developers.

This project is replicable , and the project could be implements in many countries and could linked together.

The project is sustainable , Donations and operation cost sharing from Projects and sponsors.

### Action Lines

**AL C3.** Access to information and knowledge|**AL C7. ICT** applications: benefits in all aspects of life — E-learning|**AL C7. ICT** applications: benefits in all aspects of life — E-health

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

## Case 15 - Entnest, Switzerland

### Title of the project, Contact Organization Name, Stakeholder type, Country

Entnest - Home of Entrepreneurs  
Entnest  
Private Sector  
**Switzerland**

### Beneficiaries

Our primary beneficiaries are the members of Entnest. These members are either individual entrepreneurs, those that work with entrepreneurs (investors, coaches, consultants, program managers etc.), or what we can Support Organizations (coworking spaces, incubators, accelerators, investor groups, business networks, educational institutes, governmental organizations, NGOs and a few other groups). The main benefits can be defined by our 3 fundamental pillars: 1) Our trust and relevance based community, created through our invite-only system. 2) Our aggregation and improvement on the ease-of-use of tools, as we have brought the main tools entrepreneurship needs in one place in a simple to use way. 3) The ability for creation of private members-only sub-communities within Entnest, to facilitate communication and collaboration within a coworking space for example, while also enabling the members of this coworking space sub-community to go "beyond" this sub-

community and communicate and collaborate with entrepreneurs outside that organization, globally.

### Website

<https://www.entnest.com>

<https://www.entnest.com>

### Description

It has become clear that COVID-19 has affected our world in almost every way. Catering to this explosion of time spent online, and to the rapid acceleration of first-time entrepreneurs, Entnest is perfectly positioned to leverage our ICT technology to support, connect and inspire the global entrepreneurship ecosystem. Our video conferencing technology also enables people who otherwise would be at home alone to connect with colleagues, like-minded people, clients, investors and more. Improved communication and collaboration helps the entire supply chain, from the individuals, to the organizations like coworking spaces, incubators, accelerators etc., to the governments of the nations we are active in. We have also recently been accepted as a partner of the Global Deal, a multi-stakeholder initiative for social dialogue and inclusive growth – a partnership of governments, businesses and employers’ organisations, trade unions, civil society and other organisations. The aim of the Global Deal partnership is to benefit from, and contribute to, a platform that highlights the value of social dialogue and strengthens existing co-operation structures.

### ICT Tools

Entnest is in itself a coded digital platform with a spectrum of in-house built tools like video conferencing technology (both 1:1 and group), smart matching, marketplace-style services exchange, community and event management, space and room booking systems and more. We promote digital transformation by enabling communication within teams and communities, and across team and communities, both locally, nationally and internationally. Online, there are no national borders and we believe in the human right of global communication and collaboration.

### Challenges / Partnership / Sustainability / Replicability

Challenges: The main challenge in ensuring efficient use of ICT as a COVID-19 response is the focus on collaboration rather than duplication of efforts. It is great to see so many new initiatives, but often a lot of these initiatives requires a digital infrastructure and the entrepreneurs behind the initiatives want to build their own network or their own community. This takes a lot of effort, energy, time and money, and is often almost identical to hundreds if not thousands of other communities. Since 2015, Entnest has been focused on developing a digital infrastructure that not only allows for global communication and collaboration, but also allows for initiatives to set up their own private sub-communities

within which to discuss and take action on their own projects. This means the entrepreneurs can focus 100% on their mission, and not need to worry about digital infrastructure. This also means that each initiative has its own private space for internal communication and collaboration, while also being able to find external support in numerous different ways.

Partners: We are looking for partners within government (supporting and inspiring innovation and entrepreneurship), NGOs (to support local entrepreneurs gain access to knowledge, partners, investment and clients for more impact), corporates (to take a more active role both for entrepreneurship within the company itself and in terms of collaboration with startups and scaleups), and innovation support organizations like coworking spaces, incubators/accelerators, investment groups, educational institutes etc. (who want to provide their members with a dedicated all-in-one toolbox while improving connectivity and collaboration opportunity with the wider global network).

Replicability: Entnest is a digital platform for local and global communication and collaboration, in order to improve the impact and success of entrepreneurs everywhere. Entnest is globally applicable and scalable, and we intend to aid entrepreneurs in every country. The most effective way for Entnest to enter and bring positive effects to a new market is to establish a cooperation with local entrepreneurs and initiatives.

Sustainability: Entnest is sustainable as we are building a strong yet flexible digital infrastructure. As a service (not a product), we are not dependent on raw materials, and we intend also to take a proactive position in the sustainable economic development of our active markets through the Entnest Fund. Entnest is committed to donating at least 51% of its profits to the Entnest Fund, which will in turn re-invest that capital back into the Entnest community in the form of micro-grants, subsidies and direct investments. In this way, we support our community members with knowledge, tools, like-minded people and financially, in a way that will ensure the sustainability of the Entnest values, concept and platform, and most importantly, the success of our members.

#### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C5.** Building confidence and security in use of ICTs|**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C10.** Ethical dimensions of the Information Society|**AL C11.** International and regional cooperation

#### SDGs

**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and

girls| **Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all| **Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation| **Goal 10:** Reduce inequality within and among countries| **Goal 16:** Promote just, peaceful and inclusive societies| **Goal 17:** Revitalize the global partnership for sustainable development

## Case 16 -China Mobile Group Shanxi Co., Ltd. JinCheng Branch, China

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Jincheng Joint Defense Joint Control Checkpoint Inspection Control Register System China Mobile Group Shanxi Co., Ltd. JinCheng Branch Private Sector <b>China</b>
<b>Beneficiaries</b>
The beneficiaries are the general public and government departments. Realize the information management and control of entry and exit personnel, greatly alleviate the pressure of manual registration of vehicles at 31 prevention and control checkpoints in Jincheng, shorten the inspection and registration time from more than 5 minutes to more than 1 minute, improve the efficiency of passage, and greatly reduce the chance of cross infection between personnel. Record the name, ID card, place of origin, destination, specific address, reason for coming to advancement and body temperature of the migrants. The data is synchronized with the database of the Municipal Bureau of Statistics in real time, and real-time detailed reports can be provided. More than 1 million pieces of data were provide reference for government decision-making on epidemic prevention and control.
<b>Website</b>
<a href="http://www.10086.cn/sx">http://www.10086.cn/sx</a> <a href="http://1119.93092.com:8012/">http://1119.93092.com:8012/</a>
<b>Description</b>
As China's first online traffic bayonet epidemic prevention and control system, it assists in the information management and control of mobile personnel during the epidemic, shortening the inspection time from more than 5 minutes to more than 1 minute, greatly improving the efficiency of traffic and reducing cross-over between personnel infection.

More than one million pieces of high-value data were collected and analyzed to provide a basis for government decision-making on epidemic prevention and control. It has great influence on social society and it was reported by CCTV13, Shanxi Daily and other media and they have been affirmed by Secretary Zhang Zhichuan of Jincheng City, Deputy Mayor Liang Liping and the New Crown Epidemic Prevention Headquarters. The system was developed by China Mobile, and the embedded company logo greatly promoted the corporate image.

### ICT Tools

Log in by scanning the QR code and clicking on the SMS link; the system has a built-in itinerary query function, which can track the user's detailed itinerary positioning trajectory within a month, operator information sharing, and full network coverage. The data is synchronized with the database of the Municipal Bureau of Statistics in real time, and real-time detailed reports are provided for the government to analyze and make decisions. Cloud network integration technology, support multi-system compatibility (support WINDOWS, linux, Android), multi-scene access (mobile terminal, PC, large screen), multi-service functions (personnel track positioning, personal identification information authentication, access information registration, etc.) "Support dynamic and seamless expansion. The above practices have effectively promoted regional and national informatization management and realized digital transformation. It embodies the values of WSIS, sharing information, eliminating the gap between rich and poor and diseases.

### Challenges / Partnership / Sustainability / Replicability

**Challenges:** In 2020, the new crown pneumonia epidemic is sweeping the world, and companies are facing resumption of work and production. How to balance the prevention and control of the epidemic and economic and social development? Actively using information technology to improve the efficiency of investigation, control and registration and reduce exposure risks have become the key. Based on its own network advantages, Jincheng Branch of China Mobile Communications Group Shanxi Co., Ltd. has developed an inspection and control registration system for the government, which is published through a unified H5 page, for personnel information filling, itinerary information management and control, data verification, SMS interaction, and database analysis Inquiry and other functions provide standard interfaces to form an integrated application system for inquiry, management and control.

**Partners:** Look for partners worldwide. Partners do not need any hardware deployment except hand-held terminals that can access the Internet. The system can be deployed remotely through APP, applet, B/S, etc. In theory, it can be copied and promoted quickly and easily in any country and region with an Internet environment in the world.

**Replicability:** This system is extremely replicable. We have carried out promotion and replication, and have received good results. The community version of the joint epidemic prevention and control system of Zezhou County, Yangcheng County, and Gaoping City of



Shanxi Province, and the joint prevention and control system of the new crown pneumonia epidemic in Changzhi City and Yangquan City have completed system deployment and application through cooperative development and code replication. This system is a Browser/Server structure, developed based on the IIS middleware environment, relying on Shanxi Mobile and other three-level security assurance systems and Jincheng Mobile cloud platform, and adopts distributed deployment of databases and application systems. Villages and cities in any country and region can be deployed through the Internet. Realize remote deployment.

Sustainability: Facts have proved that global cooperation in the fight against the new crown epidemic is a long-term task. The system can quickly log in through various methods such as URL, SMS link, scanning QR code, etc., and can check the entry and exit of various personnel, recent geographic location and other data. Realize informatization control, traceability, and analysis; as the new crown epidemic continues to spread around the world and the new crown virus variants continue to be discovered, the global fight against the new crown epidemic will be a arduous and long-term task. The system will contribute to deepen cooperation for the world and fight together The new crown epidemic has made a positive contribution.

**Action Lines**

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C5.** Building confidence and security in use of ICTs

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 11:** Make cities inclusive, safe, resilient and sustainable|**Goal 16:** Promote just, peaceful and inclusive societies|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 17 - Arabic computer systems, Saudi Arabia

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Saudi enablement program  
 Arabic computer systems  
 Private Sector  
**Saudi Arabia**

## Beneficiaries

Please make a selection for Target beneficiary group(s) or enter a value for Other target beneficiary group(s). 1. Indigenous and nomadic peoples 2. Migrants 3. Older persons 4. People with disabilities 5. Refugees and internally displaced people 6. Remote and rural communities 7. The poor 8. The unemployed 9. Women 10. Youth Other target beneficiary group(s) (please specify) : Companies which are looking for specialist in IT for entry level.

## Website

<https://www.acs.com.sa/careers/>

<https://www.acs.com.sa/careers/>

## Description

Saudi Enablement Program is Enabling the youth to contribute to their own growth and the prosperity of Saudi Arabia. This initiative primarily involves equipping them with the skills that are in demand in the contemporary marketplace. The SEP involves actual hands-on practice in a real work environment. Project Objectives:

- Building a career-path.

The SEP was initiated to help fresh graduate students to chart their own career path in the field of information technology. The program targets students with a non-IT Bachelor's degree if they are interested in the IT field; or have certificates related to IT like: Management Information Systems (MIS) or an IT diploma.

- Simplify job duties in the IT field. The SEP is developed by IT experts who are aware of the skills needed for entry level jobs and which do not need a high level of expertise--skills which even a fresh candidate, with active support from mentors, will be able to acquire.
- Cover companies' employment shortage. SEP is aimed at helping cover employment shortages at Saudi companies. Many local and international companies in Saudi Arabia are unable to find qualified Saudi employees to be employed in IT. The existing experienced talent demands very high salaries.

Results achieved:

- Knowledge transfer. The program offers on-job training opportunities with close supervision by technology leaders who are experts in their field to support fresh talent and enable them to master critical needed areas in IT field.
- Program release Certificate talent with based knowledge practice
- Saudi Enablement Program challenge talents to get qualified self-motivated employees who are seeking for continues skills & experience development
- Saudi Enablement project will minimize the gap between university's outcomes and market needs.
- Participating in minimizing unemployment rate.
- Increase women's opportunity in IT field within Saudi Arabia

## ICT Tools

ACS is always looking for utilizing technology to enhance employee's productivity by

improving work efficiency and reducing wasting time over routine and duplicated tasks. Since we are living in the digital transformation Era, ACS believes that automating business processes and giving employees ICT tools will have a great positive impact over individuals' performance as well as organizations overall productivity. Examples of ICT Tools in ACS;

- ITSM Ticketing tool
- CRM
- IVR Tools
- Asset Management tool
- Recruitment portal

### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** Main challenges

- **Emerging technology:** A major challenge is to train a workforce to meet the demands of emerging technology in IT. This will require an imaginative curriculum that will select bright minds to be groomed in AI, Blockchain, IOT and the like.
- **Companies behavior.** Most IT companies do not trust employees with limited experience. Fresh candidates who do not qualify for well-paying jobs after the training can find it discouraging and may be motivated to give up further learning. Mentors and counsellors need to ensure the spirits are kept high.
- **Employees behavior.** Employees with limited skills have commitment issues. They may be unsure of what they want to be or do. They may leave the program before getting the needed qualification planned for them, this will inevitably affect the development of their skills in the IT field.
- **Expertise mindset.** Some experts are very conservative. They fear of getting replaced with younger people. So they may not facilitate information access.
- **Complicated role of IT positions.** Simplifying IT jobs to be included in the program is another challenge since all IT jobs cannot be easily simplified to fit fresh graduate students' capabilities.
- **Changing in Career path:** The dynamic nature of the market is such that skills need to be updated at frequent intervals. This can be dissuasive

**Project's future perspectives.** Recruitment portal: Saudi Enablement Program plans to develop a dedicated portal which will be integrated with other recruitment portals to serve as a source for candidates for the program, and, after completion of the program, candidates can refer to the recruitment portal to explore opportunities for experienced IT personnel.

**AI Technology:** SEP plans to use AI technology to understand the standard tasks for each position and map the needed skills and experience for each task. This can help building and simplifying a career path for new aspirants.

**Expand to non-IT jobs:** The core Idea of this program is to simplify the requirements for different IT jobs and hand-hold new employees, assisted by experts who are aware of the challenges of the desired position. This practice has succeeded in a couple of IT fields such as technical support and cyber security. This indicates that the practice can be expanded to any other position regardless of the sector.

**Involved universities:** We envisage, shortly, to tie-up with Saudi universities to make SEP more effective and all-encompassing

**Include high school students:** SEP can include high-school students during their summer vacations for short IT-skills' training programs

**Partners:** "In ACS, we believe that the most strategic way to enhance business outcome, Scale Innovation and solve business challenges is through PARTNERSHIPS. partnership agreement with a firm whose corporate goals and values augment in a company Due to our strategic partnerships with different local and international technology leaders, ACS has managed to expand our expertise skills, develop our services portfolio and increase our

Addressable market. business that does share primary objective may lead to increase values customer loyalty We are pleased to work with the many domestic and international technology Partners.

- UI path
- HP
- Huawei
- Dell EMC
- Lenovo
- Simtix
- Esri
- Clsco
- Hewlett Packard
- Exceeders"

Replicability: The program Idea can be replicated with any field. All needed is expertise in filed who can simplify jobs requirements and understand the real need within the same field. We are planning to expand to cover all Saudi and going outside Saudi

Sustainability: Yes. The project is based on the basic jobs with simple defined task either to help customer, monitoring & field remote support which is always needed. And if replaced with new technology the need is still exist to follow up and guarantee continues operations.

**Action Lines**

**AL C4.** Capacity building

**SDGs**

**Goal 5:** Achieve gender equality and empower all women and girls | **Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all | **Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation | **Goal 17:** Revitalize the global partnership for sustainable development

## Case 18 - HOPE HORIZON, Tunisia

**Title of the project, Contact Organization Name, Stakeholder type, Country**

[www.anna.tn](http://www.anna.tn)  
 HOPE HORIZON  
 Private Sector  
**Tunisia**

**Beneficiaries**

Any human being on earth, any user who doubt he is COVID+.

**Website**

<https://www.facebook.com/HopeHorizon.AI.Startup>

<https://anna.tn>

## Description

[www.anna.tn](http://www.anna.tn) is a free access web application which predict the probability of being COVID+ from a simple list of clinical datas and geolocation of the user. [www.anna.tn](http://www.anna.tn) is an intelligent worldwide accessible screening method for COVID19. [www.anna.tn](http://www.anna.tn) is based on artificial intelligence algorithms. Anna has been statistically tested, sensitivity was about 80% and specificity about 75%.

## ICT Tools

Anna will allow any human being on earth with an internet connection to be able to perform a simple screening of COVID19. Anna is using artificial intelligence technology perfectly integrated in a web application. This web application is a cutting edge method, easy to use, that allow a pathology screening using only an internet connection.

## Challenges / Partnership / Sustainability / Replicability

Challenges: Anna was already used by over 20'000 users over the world but mainly in Tunisia. The main challenge for Anna is to become known worldwide. We believe that Anna can save lives around the world, and the main challenge to achieve this goal is to launch a worldwide promotional campaign which needs to raise funds or to have sponsors. We think that having an official partnership with organization like WHO or other national healthcare institutions will help Anna to be known and used by significantly a larger number of human being.

Partners: We are looking for partners in healthcare sector. Organizations like WHO, national institutions, pharmaceutical labs, or other companies interested in high technology and human well being.

Sustainability: Sustainability of the project is depending on the presence of sponsors which is depending on the number of users worldwide.

## Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-health

## SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 19 - stc, Saudi Arabia

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Sustainability Digital Platform stc Private Sector <b>Saudi Arabia</b>
<b>Beneficiaries</b>
Non-Profit Governmental Organization and Charities, as well as the public training organization. Also our stc employees are the main stockholders from our side
<b>Website</b>
<a href="https://www.stc.com.sa/">https://www.stc.com.sa/</a> <a href="https://sustainability.stc.com.sa">https://sustainability.stc.com.sa</a>
<b>Description</b>
Project supported the NGO charities by allowing them to register to stc as a beneficiary and avail volunteering opportunities to stc employees covering the COVID opportunities engagement
<b>ICT Tools</b>
We used web portal and Business process management (BPM) tools to support the needed requirement implementation, web application technology all based on open source technologies.
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: Bootstrapping new project in the pandemic crisis was very challenging, we were in the stage of hiring and aviation lock-down occurred, the development model have changed to offshore instead of onsite  Partners: Our partners are the NGO charities, whenever help needed, we are there to support and help  Replicability: The applied concept can be introduced and used for any other corporate to support sustainability and corporate social responsibility, of enabling corporate employees to involve in their community

<b>Action Lines</b>
<b>AL C8.</b> Cultural diversity and identity, linguistic diversity and local content
<b>SDGs</b>
<b>Goal 1:</b> End poverty in all its forms everywhere  <b>Goal 2:</b> End hunger, achieve food security and improved nutrition and promote sustainable agriculture  <b>Goal 3:</b> Ensure healthy lives and promote well-being for all  <b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all  <b>Goal 5:</b> Achieve gender equality and empower all women and girls  <b>Goal 6:</b> Ensure access to water and sanitation for all  <b>Goal 7:</b> Ensure access to affordable, reliable, sustainable and modern energy for all  <b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all  <b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation  <b>Goal 10:</b> Reduce inequality within and among countries  <b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable  <b>Goal 12:</b> Ensure sustainable consumption and production patterns  <b>Goal 13:</b> Take urgent action to combat climate change and its impacts  <b>Goal 14:</b> Conserve and sustainably use the oceans, seas and marine resources  <b>Goal 15:</b> Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss  <b>Goal 16:</b> Promote just, peaceful and inclusive societies  <b>Goal 17:</b> Revitalize the global partnership for sustainable development

## Case 20 - Startup Business Gate, Palestine

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Capsule Startup Business Gate Private Sector <b>Palestine</b>
<b>Beneficiaries</b>
All Community ,, Doctors,, Health Care Centers
<b>Website</b>
<a href="http://www.delivery.ps">http://www.delivery.ps</a> <a href="https://www.facebook.com/">https://www.facebook.com/</a>

<b>Description</b>
The idea of the project is to start with registering patients when they start using the program and on a growing basis. The user's medical record is recorded in their visits to doctors, medications used, etc. The record is viewed by the doctor visited by the user. There is no need to explain what kind of previous medications the patient has used
<b>ICT Tools</b>
Digitalize the medical records
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: Separated Care Centers, and No Past Medical Records... we must to implement it and push more efforts to digitalize the past medical situation  Partners: Ministry of Health of Palestine & Jordan  Replicability: Yes. to each country can make a centralized database  Sustainability: Sure, Health Care need every time and extended
<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development  <b>AL C3.</b> Access to information and knowledge  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all  <b>Goal 17:</b> Revitalize the global partnership for sustainable development

## Case 21 - Smart Sustainable Farms

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Smart Sustainable Farms Center of Information technology Pakistan Private Sector <b>Pakistan</b>



## Beneficiaries

Primary Beneficiaries are Youth at Grassroots looking for new Jobs and Entrepreneurship based Engagements on the Model of LEARN - Earn - Lead

## Website

<http://E-Pakistan.org>

## Description

Smart Sustainable Farms ( SSF ) aims to engage Agriculture Land Owners at Grassroots, Local Community Unemployed ( All Already Unemployed or Became Jobless due to Covid-19 serving in Local organizations in Pakistan Or Repatriated from Abroad ) in ICTs Based Services ( Already Developed by CIT ) for Offering ICTs based Services & Solutions like Facilitation Services for Govt / Banking Loans, availing Internet-based Govt Services, Advisory Services, Jobs, Storing SDGs Progress ( Goal / Target-Wise on Projects being Carried Out by NGOs, SMEs, Schools, Hospitals at Grassroots ... CIT Partner Organization SDGs Academy of Pakistan ( [www.SDGsAcademy.pk](http://www.SDGsAcademy.pk) ) has prepared an On-line System for this Function and Exclusively offered to CIT in Pakistan )

## ICT Tools

DataBases for Information Storage / Process ( From Village / UC level ), Training Programs ( On-Line Earning, Certificate Courses to Learn IoTs applications ( [www.lot-Center.pk](http://www.lot-Center.pk) an Exclusive Partner Organization of CIT ), Training Programs on SDGs, Basic and Advanced Learning in ICTs Solutions / Services, Organic Farming, Fish and Livestock Farming etc

## Challenges / Partnership / Sustainability / Replicability

Challenges: The main Challenge is Internet Penetration, Outreach till the last mile and Creating Required Awareness to Jointly Work in Smart Sustainable Farm under the Model of Circular Economy. By taking available help from the Government ( Internet in Unserved Areas, Partnerships with Internet Service Providers ( ZONG etc ) Internet outreach is being managed, Local Community Champs, and Local body Functionaries are being engaged to meet these Challenges

Partners: Global Partners offering Agriculture Extension based services ( On Profit Sharing Models ), Universities/ Training Courses Providers to Impart Latest Courses to Young Jobless Graduates for Local and International Markets and Global NGOs interested to Work in Tourism Initiatives in Pakistan

Replicability: Project Can be replicated in any Developing Country having Huge Piece of Unused land and Jobless youth

Sustainability: Yes, totally sustainable as all stakeholders have ' Skin in the Game ' and Utilizing Govt Loan Offers ( starting from August 2020 at a Mega level ) Youth would be empowered at a Large Scale to Get Engaged in their own areas and stop Population Migration from Villages to Cities

### Action Lines

**AL C2.** Information and communication infrastructure|**AL C4.** Capacity building|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C7.** ICT applications: benefits in all aspects of life — E-health|**AL C7.** ICT applications: benefits in all aspects of life — E-employment|**AL C7.** ICT applications: benefits in all aspects of life — E-environment|**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture|**AL C8.** Cultural diversity and identity, linguistic diversity and local content|**AL C11.** International and regional cooperation

### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture|**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 6:** Ensure access to water and sanitation for all|**Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 10:** Reduce inequality within and among countries|**Goal 13:** Take urgent action to combat climate change and its impacts|**Goal 14:** Conserve and sustainably use the oceans, seas and marine resources

## Case 22 - Saahas

### Title of the project, Contact Organization Name, Stakeholder type, Country

Saahas  
Saahas

Private Sector <b>India</b>
<b>Beneficiaries</b>
Survivors of gender-based violence across 196 countries
<b>Website</b>
<a href="https://www.saahas.space">https://www.saahas.space</a>
<b>Description</b>
Saahas comprises a directory of support across 196 countries, a database of guidance notes on understanding gender-based violence and ways to respond to them. The directory of support comprises over 40000 organizations across 196 countries offering medical, legal, education / employment, resources (food, shelter, clothing, emergency support), consular and refugee-specific support, police and ambulance services for survivors of gender-based violence and child support service. The app has been curating resources for survivors of domestic and other forms of gender-based violence during lockdowns.
<b>ICT Tools</b>
Mobile App    Web App    Facebook Chatbot    Telegram Channel and Bot
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: The lack of available resources for survivors at all times during the lockdown.
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge
<b>SDGs</b>
<b>Goal 5:</b> Achieve gender equality and empower all women and girls   <b>Goal 16:</b> Promote just, peaceful and inclusive societies

## Case 23 - Enhancing Internally Generated Funds (IGF) Through Technology

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Enhancing Internally Generated Funds (IGF) Through Technology  
Subah Infosolutions Ltd.  
Private Sector  
**Ghana**

**Beneficiaries**

Local governments subsidiaries

**Website**

<https://www.subahghana.com>

**Description**

Deployment of systems (hardware and software) to assist local assemblies and municipalities collect property rates and building operating permits as well as other legislated levies

**ICT Tools**

data collection and payment platform

**Challenges / Partnership / Sustainability / Replicability**

Challenges: Computer Literacy (how to administer the system). This challenge can be overcome through general ICT training and training on the deployment, usage and administration of the system

Partners: Yes.....in sensitization on the efficiency and advantages of leveraging on technology in the collection of local government legislated taxes and levies as well training on the usage

Replicability: Yes.....through deployment of already developed standardized software

Sustainability: Yes....technology is the way to go now so since it is technology based it is sustainable with relevant updates.

#### Action Lines

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

#### SDGs

**Goal 1:** End poverty in all its forms everywhere | **Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all | **Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case 24 - Capacity Building for Women SMEs

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Capacity Building for Women SMEs  
InspireMill  
Private Sector  
**Pakistan**

#### Beneficiaries

Small Scale Women Entrepreneurs.

#### Website

<http://www.inspiremill.com>

#### Description

Delivered online training for women SMEs to help them digitize their portfolio and make sales online through social mediums/ market places.

#### ICT Tools

Facebook, Instagram, Twitter, Streamyard, Zoom

### Challenges / Partnership / Sustainability / Replicability

Challenges: Access to internet, payment and logistics constraints, lack of appropriate customer services.

Partners: Technology Development, Staffing, Funding

### Action Lines

**AL C4.** Capacity building

### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 5:** Achieve gender equality and empower all women and girls

## Case 25 - POMOCtu

### Title of the project, Contact Organization Name, Stakeholder type, Country

POMOCtu  
SayEnergy  
Private Sector  
**Poland**

### Beneficiaries

everybody who may need help and who is open to help others

### Website

<https://pomoctu.pl>

### Description

The POMOCtu application connects people who need help with those who want to help within the local community. The POMOCtu application was created as a part of social responsibility project of SayEnergy company. Help or get help. So close. So simple. See more on <https://pomoctu.pl> and get free app for Android:

<https://play.google.com/store/apps/details?id=pl.pomoctu> or iOS:  
<https://apps.apple.com/pl/app/pomoctu/id1506186552#?platform=iphone>

### ICT Tools

Responsive web app, android an iOS apps. Using address and location services to enable simple and effective way of asking for help and/or finding people who need help.

### Challenges / Partnership / Sustainability / Replicability

Challenges: app visibility. app will only work with users, best in local communities - as physical distance does matter. we seek for help in promoting app via local gov / municipalities, organisations providing help to people in need.

Partners: marketing, publicity, local gov / municipalities, organisations providing help - so people learn about POMOCtu. for now app is available in polish and english, we are open for partners who might help with adding more languages

Replicability: yes, effective use of the app in countries with other languages than polish / english would requires translation / localisation

Sustainability: yes, if app is used ...

### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C3.** Access to information and knowledge|**AL C5.** Building confidence and security in use of ICTs|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-health|**AL C8.** Cultural diversity and identity, linguistic diversity and local content|**AL C9.** Media|**AL C10.** Ethical dimensions of the Information Society|**AL C11.** International and regional cooperation

### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture|**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 11:** Make cities inclusive, safe, resilient and sustainable|**Goal 12:** Ensure sustainable consumption and production patterns|**Goal 16:** Promote just, peaceful and inclusive societies

## Case 26 - Pandemic Tracker

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Pandemic Tracker ICT4DEV Private Sector <b>Côte d'Ivoire</b>
<b>Beneficiaries</b>
The first beneficiaries are the populations who will be able to respect and self-regulate in terms of social distancing through reminders via the application and the number of people contacted per day which is displayed in the application. The public authorities will also be able to monitor the pandemic and quickly trace the contacts of patients for rapid treatment.
<b>Website</b>
<a href="http://www.ict4dev.ci">http://www.ict4dev.ci</a>
<b>Description</b>
We launched Pandemic Tracker in collaboration with 2 other startups. Pandemic Tracker is a mobile application that informs populations about barrier gestures and measures taken by the government. The application recalls the measure of social distancing between close individuals within 2 meters through a beep and the vibration of the mobile. It therefore records contacts and, in the event of illness, makes it possible to trace the people with whom we have been in contact over the past few days. Pandemic Tracker also has a QR code scanner option that provides information on an individual's state of health in relation to COVID-19. And from the Dashboard, we can follow people in quarantine and areas with a high concentration of the disease.
<b>ICT Tools</b>
The Pandemic Tracker mobile application uses Bluetooth technology to manage social distancing activation and compliance, it is an Android application and works for its updates with the Internet. The Dashboard is designed from the php Laravel framework. Mobile use in Côte d'Ivoire is growing rapidly with around 12 million users out of a population of 25 million, the adoption and use of Pandemic Tracker will help inform a large number of the



population while following efficiently the pandemic

#### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** The biggest challenge was obtaining the authorities for the deployment of the project, to face it, we have taken steps with the investment promotion center in Côte d'Ivoire which has a support unit for startups that we do. part. This center allowed us to meet the Minister of Investment Promotion who allowed us to get in touch with the National Security Council which is in charge of the pandemic response. Things are slowly changing.

**Partners:** We are looking for partners, mainly financial, to allow us to finalize the development of the application and continue to pay the hosting and maintenance costs of the platform. We are also looking for strategic partners for deployment in other countries.

**Replicability:** Pandemic Tracker is fully replicable at a low cost and in a very short time. We designed the solution ourselves so we have perfect control over it and it is also already deployed in Benin under the name of Xover.

**Sustainability:** This project is sustainable because today, everything suggests that we would be forced to live with COVID-19; moreover, the platform can be easily adapted to pursue and manage other viral diseases which are the basis of epidemics such as ebola virus, cholera and yellow fever.

#### **Action Lines**

**AL C7.** ICT applications: benefits in all aspects of life — E-health

#### **SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all

## **Case 27 - collaborative repository website for projects and people**

**Title of the project, Contact Organization Name, Stakeholder type, Country**

collaborative repository website for projects and people  
Addictlab  
Private Sector  
**Switzerland**

**Beneficiaries**

students, organisations, people

**Website**

<http://www.addictlab.com>

**Description**

Online website for responsible creatives working on sdg related projects - people, projects, works, hubs and SDGs.

**ICT Tools**

DIY created website and online platform (check site)

**Challenges / Partnership / Sustainability / Replicability**

Challenges: budget and complexity of the project

Partners: yes, support and hubs

Replicability: yes - concept allows for hubs and growth of ecosystem around SDGs

Sustainability: online platform with SDG navigation concept

**Action Lines**

AL C2. Information and communication infrastructure | AL C4. Capacity building | AL C7. ICT applications: benefits in all aspects of life — E-learning

**SDGs**

**Goal 1:** End poverty in all its forms everywhere|**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|Goal |**Goal 16:** Promote just, peaceful and inclusive societies|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 28 Business Continuity Plan - Health Emergency

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Business Continuity Plan - Health Emergency COOPERATIVA DE AHORRO Y CRÉDITO COOPAD Private Sector <b>Ecuador</b>
<b>Beneficiaries</b>
Internal and external clients, the primary benefit is not exposing them to viral contagion and / or personal contact. Also benefiting suppliers and the general public.
<b>Website</b>
<a href="https://www.coopad.fin.ec/">https://www.coopad.fin.ec/</a>
<b>Description</b>
Social distancing, Hygiene, Use of Mask, Surface Disinfection, PREVENTION MEASURES ATTENTION OF PARTNERS AND CUSTOMERS, Commuting to the workplace and return home, Workplace safeguards
<b>ICT Tools</b>
Telework application, centralized and shared remote data base, security, internet access. Complemented with institutional policies, and guidelines taken and approved by the cooperative government
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenges: The main challenge is confinement and culture. They are eliminated with good customer treatment, education and good corporate governance, supported by the bases of

cooperativism.

Partners: We are looking for partners in the areas of external financing, training in popular finance and social inclusion as well as in the application of good cooperative governance that benefits our clients.

Replicability: This project can be replicated in any financial services and products company of the popular and solidarity economy, in Ecuador or in any country in the world.

Sustainability: The project is sustainable, generating trust in the client, avoiding volatility of its income and guaranteeing it. Well managed money builds trust and our clients have decided to keep their savings.

#### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-business

#### SDGs

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all

## Case 29 Ghana Chamber of Telecommunications

Title of the project, Contact Organization Name, Stakeholder type, Country
Telecommunications Industry Support for COVID-19 Response Ghana Chamber of Telecommunications Private Sector Ghana
Beneficiaries
Citizens of Ghana, Students and Pupils, Government Agencies and their workers

**Website**

<https://telecomschamber.com/>

**Description**

i. Members have put in measures to ensure our network remains robust to support businesses and individuals amid the crisis. ii. Zero rated official online/e-learning platforms for schools across the country. iii. Giving citizens free access to a wide range of educational materials for students iv. Zero-rated calls to the National COVID-19 response number (112) v. Zero rated access to government information websites for citizens to obtain daily updates on COVID-19 vi. Zero-rating of government portal to enable seamless work from home for selected government employees. vii. Institutional partnerships with the Government to broadcast emergency communications using our network infrastructure to educate the general public viii. Free SMS text messages per day to customers in, partnership with Ghana Health Service (GHS). ix. Social Media daily tips on COVID-19 x. COVID-19 notifications on our Customer Apps xi. Providing SIM cards, airtime, Internet connectivity and devices to some hospitals, for contact tracing & other government institution xii. We have been encouraging our customers to avoid cash transactions and use Mobile Money to make and receive payments; have made it easy to register xiii. Collaborating with the Bank of Ghana to implement free mobile financial services transactions within certain bands to promote digital forms of payments and augment social distancing which will reduce the rate of new infection. xiv. Waiver of Mobile

<p>Money charges for up to GHS100      xv. Commercial deals and packages have been offered to all customers.</p>
<p><b>ICT Tools</b></p>
<p>SMS, Social Media, Digital Financial Tools (Mobile Money), Mobile Data Connectivity</p>
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p>
<p><b>Challenges:</b> Prank calls to the emergency lines, - Educations      Perceptions that COVID-19 was not real - Education  <b>Scalability:</b> We would use this to handle all national disasters and emergencies. The project demonstrates how government can work with the private sector to manage these challenges  <b>Sustainability:</b> The project was about the customers of our members. It is about survival and it makes it sustainable as business we appreciate we only have a business when our people are healthy and safe</p>
<p><b>Action Lines</b></p>
<p><b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development <b>AL C3.</b> Access to information and knowledge <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government AL C7. ICT applications: benefits in all aspects of life — E-learning <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-environment</p>
<p><b>SDGs</b></p>
<p><b>Goal 1:</b> End poverty in all its forms everywhere <b>Goal 3:</b> Ensure healthy lives and promote well-being for all <b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all <b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all <b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable <b>Goal 17:</b> Revitalize the global partnership for sustainable development</p>

## Case 30 - DGT Sp. z o.o., Poland

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Connectivity for hospitals  DGT Sp. z o.o.  Private Sector</p>

<b>Poland</b>
<b>Beneficiaries</b>
Hospitals, Crisis Management, Rescuers, Ambulances, other services. Accelerating the effective use of paramedics and faster isolation and possible hospitalization of patients. Group communication between rescuers and services, regardless of the communication system used. The use of group video transmission allows for remote diagnosis in crisis situations. It is also possible to use video transmission from the drone to monitor isolated areas.
<b>Website</b>
<a href="http://www.dgt.pl">http://www.dgt.pl</a>
<b>Description</b>
We have prepared an ICT solution for hospitals, ambulances and paramedics, which allows for fast and precise communication and diagnostics thanks to video connections. Our solution allows to determine the position of the paramedic who is closest to the patient who needs help and guide him in order to isolate or hospitalize as soon as possible. Our solution is fully integrated with the European 112 number and allows for cooperation with operators.
<b>ICT Tools</b>
It is a comprehensive solution that allows interoperability between the various digital and analog systems used. Our solution uses the IP infrastructure via LTE or WIFI and is integrated, for example, with the TETRA or DMR radio system.
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: Our solution is ready and tested. The biggest challenge seems to us to convince the relevant authorities that it is worth applying.  Partnership: We are looking for a partner who has the ability to convince decision-makers in various EU countries that it is worth implementing our solution.  Replicability: Our solution can be effectively implemented in any country where 112 operates.
<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development

<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all <b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable

## Case 31 - Bioniks.Org, Pakistan

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Vpro Masks Bioniks.Org Private Sector <b>Pakistan</b>
<b>Beneficiaries</b>
everyone who goes out for work in public places, corporate sector , academia, industries.
<b>Website</b>
<a href="https://viscous.co">https://viscous.co</a>
<b>Description</b>
we designed face masks/respirators which can be reused till 6 months all you have to do is to replace filters and your good to go the masks is at very affordable price accessible for everyone.
<b>ICT Tools</b>
3D Printing, 3D scanning, CAD designing
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: starting mass manufacturing and marketing is one of the major challenges that we faced in this process. so we searched small scale industries which can help us in mass production and for marketing we used social media and created distribution channel in major cities of Pakistan  Partnership: marketing and sales.  Replicability: it can be replicated but it required a minimum of 4 months to do so by reverse engineering  Sustainability: yes, people pay for these masks/respirators in this pandemic after this



pandemic people will like to wear it for filtration of urban pollution and industrial usage.
<b>Action Lines</b>
<b>AL C6.</b> Enabling environment
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all <b>Goal 13:</b> Take urgent action to combat climate change and its impacts

## Case 32 - TechNovator, Poland

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
TechNovator wireless charging solution for the drones TechNovator Private Sector <b>Poland</b>
<b>Beneficiaries</b>
Our wireless charging ports for the drone
<b>Website</b>
<a href="https://technovator.co/">https://technovator.co/</a>
<b>Description</b>
We have found the solution that can help people in COVID time. Drones are very useful in such a period for different needs, food transportation, blood, tests, disinfection but still a problem with their autonomy. We can solve the problem with our wireless charging port for drones.
<b>ICT Tools</b>
Our wireless charging port for the drone can be useful for government organisation, police, military, rescue and security, climate control, also eligible for U-space program and also very requested for the other international markets.

<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Challenges: Government organisations that use drones for different needs, drone manufacturers, delivery, construction companies, etc. Using our wireless charging ports drones with endlessly perform all tasks assigned to them 24/7</p> <p>Partnership: Yes, we are looking for partners to start pilot projects with them. They are energy sector, police, hospitals, clinics, delivery company, military, agrarian sector, drones manufacturers.</p> <p>Replicability: Replicable, but depends on country, drones regulation, drone specification, partner needs</p> <p>Sustainability: Yes, this project meets 3 of 17 sustainable goals. Sustainable cities and community (11), industry innovation and infrastructure (9), partnership for the goals (17).</p>
<p><b>Action Lines</b></p>
<p><b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development</p> <p><b>AL C4.</b> Capacity building</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-agriculture</p>
<p><b>SDGs</b></p>
<p><b>Goal 3:</b> Ensure healthy lives and promote well-being for all</p> <p><b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation</p> <p><b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable</p> <p><b>Goal 17:</b> Revitalize the global partnership for sustainable development</p>

## Case 33 - DuoKey SA, Switzerland

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Protecting sensitive data in cloud  DuoKey SA  Private Sector  <b>Switzerland</b></p>
<p><b>Beneficiaries</b></p>
<p>We target mainly financial services/insurance as Tiers 1 and Health/Public sector as Tiers 2. But we start our deployment with humanitarian organizations that need</p>

strong document protection for highly sensitive documents.
<b>Website</b>
<a href="https://duokey.ch">https://duokey.ch</a>
<b>Description</b>
With digital security threats on the rise as the world grapples with COVID-19, encryption is more important than ever. DuoKey mission is to protect the privacy and sensitive information when using cloud.
<b>ICT Tools</b>
We help companies and individuals to store highly sensitive documents or files in cloud services with an innovative way to protect the encryption key using MPC (Multi-party computation). We offer strong privacy and trust by hiding the encryption key from the cloud provider. We provide key management as a service.
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Challenges: Enterprises that store corporate data in on-premises workstations and servers rely on network security and endpoint security solutions for data protection. The management of large data volumes is likely to incur significant costs. Enterprises can increase their availability, scalability, and operational efficiency by moving to the cloud or adopting virtualization.</p> <p>Partnership: Willing to work with government and public/NGO for helping them to move their workload to cloud while keeping their sensitive document protected and own/keep control of their encryption keys in their jurisdiction.</p> <p>Replicability: DuoKey is fully replicable as the organization owns the encryption keys.</p> <p>Sustainability: DuoKey helps secure our work from home, protects the integrity of critical public health information, and keeps our communications with friends and family confidential. And yet some governments and organizations are pushing to weaken encryption, which would compromise the health and security of billions of people and nations around the world.</p>
<b>Action Lines</b>
<p><b>AL C2.</b> Information and communication infrastructure</p> <p><b>AL C5.</b> Building confidence and security in use of ICTs</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health</p>

<b>SDGs</b>
<p><b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all</p> <p><b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation</p> <p><b>Goal 16:</b> Promote just, peaceful and inclusive societies</p>

## Case 34 - CCEducare Myanmar, Myanmar

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
<p>WomenLead CCEducare Myanmar Private Sector <b>Myanmar</b></p>
<b>Beneficiaries</b>
<p>Vulnerable women who are leading impactful business. 200 women in 7 states and regions of Myanmar.</p>
<b>Website</b>
<p><a href="https://www.cceducare.org/">https://www.cceducare.org/</a></p>
<b>Description</b>
<p>Womenlead is hosting an online workshop program which is targeting to women lead businesses who are facing challenges in Covid-19 outbreaks. We train them to skill up their digital skills to able to overcomes Covid-19 challenges. We have already trained 200 Women across Myanmar, and now targeting to focus on helping them grow their businesses. We received positive feedbacks from women-led businesses who completed our training and improving their marketing and selling skills using digital technology.</p>
<b>ICT Tools</b>
<p>We use the Learning Management System (LMS) to train women-led businesses and also teach them digital skills such as how to use email, cloud system, social media, digital marketing skills.</p>
<b>Challenges / Partnership / Sustainability / Replicability</b>

Challenges: Women in businesses in Myanmar are facing multiple challenges, especially those who have lacked access to the skill set to improve their business. There are many challenges being faced by women from vulnerable communities. Top 3 challenges are below here in Myanmar; 1. Lack of business skills (business, marketing, digital, etc.) In the vulnerable area, there are very few professional education such as business training and marketing training which lead women to make it more difficult to start or improve their businesses 2. Knowledge about financial access Vulnerable communities in Myanmar have very little access to financial knowledge and access to financial resources (loans, investment, etc.) 3. Motivational factors Socio-cultural barriers, Women need to take care of family and also it is not easily accepted by an immediate family that women to lead the role in business However, there are many women who are working to support family income

Partnership: For partners, we are working with women-led businesses.

Sustainability: Plan A) Build a platform to sell local-made products via website or platform or Social Media (Facebook, instagram, etc.) to promote local-made products from WomenLead Network WomenLead will gain percentage % from the profits of the transactions and invest those into growing network across myanmar as below; 1) Trainings in other cities; From the fund that WomenLead received, WomenLead will host additional workshops in other cities 2) Grow Networks; WomenLead will promote to grow networks 3) Mentorship; WomenLead will dedicated to promote their members businesses into international network and also provide continuous membership and trainings to the members \*\*\*This plan is to make sure we can support ourself 100% sustainability without any sponsorships at the end of the project. Our Alumni team member Chit have experience in information technology for more than 10 years and also have experience in building a platform for selling products. Our Alumni team member Stella have her own local made products called StellaCollections which produced hand-craft rattan bags and selling those product into local and international marketplace. Plan B) Setting up WomenLeader Membership Community with yearly fees Inviting women in businesses to become a member by payment fee 15,000 MMK per year (equivalent to \$10 per year) Member benefits are Assess to mentorship program with volunteer women from businesses Assess to trainings/ workshops/ forums with member rates Be in a network of women in businesses across Myanmar \*\*Estimate 2.5 k members sign up in the first yer and 50% growth on the next year \*\*\*This is the plan if we can get partial or in-kind support from local or international organisations to support us for our works in continuous activities. Potential supporters; Gender-Team from International Finance Corporation: IFC Business Coalition for Gender Equality Association (BCGEA) Myanmar Women Leadership Network ( For Mentorship) Our Alumni team member Chit is already a member of BCGEA and working with Akhaya Women Myanmar. Our alumni team member Htet is a teacher and an alumni of Women Leadership Network which she can support in mentorship sessions. Plan C) Funding or In-kind Support for ongoing activities Create an impact analysis report - Proven record of achievements from the program - Networks of women in business across

<p>Myanmar 2. Apply funding Apply fundings especially supporting to economic empowerment and women inclusion Potential funders; - Dana facility - UN Women - USAID 3. Request for sponsorship Apply fundings especially supporting to economic empowerment and women inclusion Potential funders; - Dana facility - UN Women - USAID With the funding we received, we will continue to host trainings in other states and regions; Revisit to the program plan and re-structure to made it more effective Upgrade the program materials Alumni participants to provide mentorship support to the current one Continue to grow network not just locally but also planning to do cross-border projects with YSEALI Alumni from Southeast Asia countries ***This is the plan if we get full support from local or international organizations to continue our program not just local but also in SE Asia countries.</p>
<p><b>Action Lines</b></p>
<p><b>AL C2.</b> Information and communication infrastructure  <b>AL C4.</b> Capacity building  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning</p>
<p><b>SDGs</b></p>
<p><b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all  <b>Goal 5:</b> Achieve gender equality and empower all women and girls  <b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all  <b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation</p>

## Case 35 - I LOVESWAG MEDIA, Botswana

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>I LOVESWAG Media 's Artists Ecommerce site and Communication Platform  I LOVESWAG MEDIA  Private Sector  <b>Botswana</b></p>
<p><b>Beneficiaries</b></p>
<p>Artists, Developers and individual entrepreneurs can use the platform in the pandemic times to create direct sales with their fans and customers and complete market their projects digitally.</p>

<b>Website</b>
<a href="http://www.iloveswagmedia.co.bw/">http://www.iloveswagmedia.co.bw/</a>
<b>Description</b>
The project is available in the form of mobile app and website. It is an Artist's digital monetization platform. Its to market and digitally promote an artist's commodities like music and merchandise.
<b>ICT Tools</b>
Instant messaging Apps like Telegram, Messenger API integration. Service Query request form Traffic Monitor Analytics Social media profile Sharing integration
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenges: The project faced low traffic visit to the website and mobile app due lack of marketing funds for it to be promoted on a global scale. Lack of internet connectivity by users
<b>Action Lines</b>
<b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business
<b>SDGs</b>
<b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all

## Case 36 - Heallax, Pakistan

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Home health care Heallax Private Sector <b>Pakistan</b>
<b>Beneficiaries</b>
primary beneficiary are the Patients and elderly/special people who are in need of home health services . The benefits are : 1. In covid times , when even a simple visit to hospital can prove disastrous for health , Heallax health workers provide quality services in order to reduce Hospital visits and risk of infection. 2. Reduction

<p>in transport costs for patients who visit hospitals oftenly . also leading to decreased pollution . 3. Reliable and Affordable healthcare workers that ensure quality services . 4. Provision of Jobs to health workers who were jobless . 5. Our project also aims to include female population workers for post pregnancy care of mothers .</p>
<p><b>Website</b></p>
<p><a href="https://heallax.com">https://heallax.com</a></p>
<p><b>Description</b></p>
<p>Heallax has connected patients to nurses and physiotherapists through online website and calls centre booking . This has led to decrease in the hospital visits of patients and hence reduction in infectivity in Covid time when even visiting a hospital for simple stiches removal can be indanger your health. Heallax vision is to provide home health care services such as Nursing ,physiotherapy and caretkaer services at affordable prices via oir heallax application / website and call centre throughout Peshawar city and eventually grow into whole pakistan .</p>
<p><b>ICT Tools</b></p>
<p>The concept of heallax is connecting nurses , physiotherapists and caretakers to people at one click . simple tapping on the booking button , and they will be connected to the nearest reliable registered healthcare workers via GPS integrated system in our application. The Technologies integrated are Google Maps , online payment methods , adobe tools .</p>
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Challenges: 1. The first challenge was providing healthcare workers who won't be the cause of spread of virus . for that , we used regular PPEs . and Regular santizing before every patients visit . 2. Second was tranport of our health worker , which we aim to partner up with careem , uber and bykea . 3. Challenges with government support which we aim to solve if we are given support from WHO and other relavant support organization.</p> <p>Partnership: We are looking for partners in world health organziation and other health organizations through whom we can become a better entity and representatives of health .</p> <p>Replicability: Yes this project is replicable and expandbale . since the App uses GPS integration that can be expanded to cities . The business can be expanded rapidly with ample support by organziation .</p> <p>Sustainability: yes it is sustainable , as on every connection of patients to health worker , heallax take 25% percentage of payment from health care worker services</p>



rendered to patient. In this way , the more we connect patients , the more we earn money and sustain ourselves.
<b>Action Lines</b>
<b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 37 - SOOP Technologies, Pakistan

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
SOOP (School on our Phone) SOOP Technologies Private Sector <b>Pakistan</b>
<b>Beneficiaries</b>
Schools, Colleges, and universities. Transparency in the financial management of institutions. Communicating the student's progress to parents seamlessly through our app. Enabling remote learning for students.
<b>Website</b>
<a href="https://soop.io">https://soop.io</a>
<b>Description</b>
We worked on virtual classrooms to enable the tier-2 schools and colleges to continue delivering education to their students despite corona.
<b>ICT Tools</b>
Ruby on Rails
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: Achieving the Product Market Fit, enhance the technology adoption in the education sector of Pakistan.

<b>Action Lines</b>
<b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health
<b>SDGs</b>
<b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case 38 - sarl idenet geolocalisation, Algeria

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Ott plateforme family app for use messaging and peer to peer contact sarl idenet geolocalisation Private Sector <b>Algeria</b>
<b>Beneficiaries</b>
all person need Ott service family , friends B2B or B2c it's the same the idea is to create this service in our country for a spécifique way of communication with a national security for the data
<b>Website</b>
<a href="http://www.ide-net.com">http://www.ide-net.com</a>
<b>Description</b>
ott app on android and ios for family contact and possibilité for Sos sending for children and possibility to create groupe of members or friends also it's integrated a peer to peer that allow to see the other also messaging and sending documents or photos it's sécurisé and we give it's a authentication with OPT
<b>ICT Tools</b>
integrated a peer to peer that allow to see the other also messaging and sending documents or photos it's sécurisé and we give it's a authentication with OPT
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenges: the challenge is to prouf that our ott is also helpfully and can do the same think that do the great actors like whatsapp ou viber , we do it now we hope it's

will have the same confidence from our people and why not international Sustainability: yes it's will develop more and we have a vision that allow us to see more and get opportunity.

### Action Lines

- AL C2.** Information and communication infrastructure
- AL C3.** Access to information and knowledge
- AL C4.** Capacity building
- AL C5.** Building confidence and security in use of ICTs
- AL C6.** Enabling environment
- AL C7.** ICT applications: benefits in all aspects of life — E-government
- AL C7.** ICT applications: benefits in all aspects of life — E-business
- AL C7.** ICT applications: benefits in all aspects of life — E-learning
- AL C7.** ICT applications: benefits in all aspects of life — E-health
- AL C7.** ICT applications: benefits in all aspects of life — E-employment
- AL C7.** ICT applications: benefits in all aspects of life — E-environment
- AL C7.** ICT applications: benefits in all aspects of life — E-agriculture
- AL C7.** ICT applications: benefits in all aspects of life — E-science
- AL C8.** Cultural diversity and identity, linguistic diversity and local content
- AL C9.** Media
- AL C10.** Ethical dimensions of the Information Society
- AL C11.** International and regional cooperation

### SDGs

- Goal 1:** End poverty in all its forms everywhere
- Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3:** Ensure healthy lives and promote well-being for all
- Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5:** Achieve gender equality and empower all women and girls
- Goal 6:** Ensure access to water and sanitation for all
- Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all
- Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation
- Goal 10:** Reduce inequality within and among countries
- Goal 11:** Make cities inclusive, safe, resilient and sustainable
- Goal 12:** Ensure sustainable consumption and production patterns
- Goal 13:** Take urgent action to combat climate change and its impacts
- Goal 14:** Conserve and sustainably use the oceans, seas and marine resources
- Goal 15:** Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

**Goal 16:** Promote just, peaceful and inclusive societies

**Goal 17:** Revitalize the global partnership for sustainable development

## Case 39 - sarl idenet geolocalisation, Algeria

### Title of the project, Contact Organization Name, Stakeholder type, Country

DZmeet Visio conference and webinar

sarl idenet geolocalisation

Private Sector

**Algeria**

### Beneficiaries

B2B and B2c ,institution and all type off user for the app or for the fullweb

### Website

<http://www.ide-net.com>

### Description

dzmeet is a webrtc integration with two other platfome one for medical and other for learning we use peer to peer protocol java and android studio for the two app android and xcode for ios we develop them for the crisis of corona virus as it's a very good way to help our population in other to be connected it's a free development wich is actualy on production

### ICT Tools

for the crisis of corona virus as it's a very good way to help our population in other to be connected it's a free development wich is actualy on production dzmeet is a webrtc integration with two other platfome one for medical and other for learning we use peer to peer protocol java and android studio for the two app android and xcode for ios

### Challenges / Partnership / Sustainability / Replicability

Challenges: the real challenge is to prouf that we can do what great group do we are ingeneer in this model of work and hope to change some thing that way this solution is free we try to help the more we can

Sustainability: yes for more integration on a workplace and other tool

### Action Lines

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

**AL C2.** Information and communication infrastructure

**AL C3.** Access to information and knowledge

**AL C4.** Capacity building

**AL C5.** Building confidence and security in use of ICTs

**AL C6.** Enabling environment

**AL C7.** ICT applications: benefits in all aspects of life — E-government

**AL C7.** ICT applications: benefits in all aspects of life — E-business

**AL C7.** ICT applications: benefits in all aspects of life — E-learning

**AL C7.** ICT applications: benefits in all aspects of life — E-health

**AL C7.** ICT applications: benefits in all aspects of life — E-employment

**AL C7.** ICT applications: benefits in all aspects of life — E-environment

**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture

**AL C7.** ICT applications: benefits in all aspects of life — E-science

**AL C8.** Cultural diversity and identity, linguistic diversity and local content

**AL C9.** Media

**AL C10.** Ethical dimensions of the Information Society

**AL C11.** International and regional cooperation

## SDGs

**Goal 1:** End poverty in all its forms everywhere

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

**Goal 3:** Ensure healthy lives and promote well-being for all

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

**Goal 5:** Achieve gender equality and empower all women and girls

**Goal 6:** Ensure access to water and sanitation for all

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

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all

**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation

**Goal 10:** Reduce inequality within and among countries

**Goal 11:** Make cities inclusive, safe, resilient and sustainable

**Goal 12:** Ensure sustainable consumption and production patterns

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

**Goal 14:** Conserve and sustainably use the oceans, seas and marine resources

**Goal 15:** Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss

**Goal 16:** Promote just, peaceful and inclusive societies

**Goal 17:** Revitalize the global partnership for sustainable development

## Case 40 - Orbit-Ed, Pakistan

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Orbit-Ed Orbit-Ed Private Sector <b>Pakistan</b></p>
<p><b>Beneficiaries</b></p>
<p>Primary beneficiaries of our application are: 1. Teachers: our tool provides a one stop shop for teachers. All the necessary resources including reading material, lesson plans, interactive games, related videos, and assessments are provided within Orbit-Ed reducing the preparation time for each lesson. Our content is inline with IB, Cambridge, NGSS, and National Curriculum of Pakistan which makes it easier for teachers to embed this in their ongoing routine lectures. The AI engine of our application automates the assessments and reporting part for teachers producing personalized results while providing guiding pointers on the progress of the whole class. 2. Students: the core value Orbit-Ed delivers to students is in providing interactive science content for students that makes learning a fun activity for them. At Orbit-Ed - we believe – learning is inherently a fun activity and the pedagogical approach followed by educators should keep it so. Children are born curious, hungry to learn more, and that is what our tool does – keeping their curiosity alive. Our AI engine also identifies learning patterns for students which makes it easier to identify where each student excels/lacks.</p>
<p><b>Website</b></p>
<p><a href="https://www.orbit-ed.com">https://www.orbit-ed.com</a></p>
<p><b>Description</b></p>
<p>We rolled out our online experiential learning tool for k12 during the pandemic to help educators teach, engage, and manage students in their online classes. Our 3d interactive games designed for science learning helped students learn in a fun environment while our AI based engine captured their learning progress and provided important insights to teachers and parents about the cognitive abilities of each student. Our tool is designed to fulfill three goals during the pandemic: 1. Make the job easier for teachers 2. Engage students, make the best use of their time, and promote self-learning 3. Keep a record of their learning behaviour and guide parents and teachers in making informed decisions.</p>
<p><b>ICT Tools</b></p>
<p>Our software system consists of: 1. A cloud based web application (LMS) that allows teachers to conduct online classes, manage students, and keep learning and</p>

assessment records. It maintains individual student accounts allowing them to attend classes, learn through our interactive gamified content, take quizzes, and view personal performance in each subject/topic. 2. 100+ 3D STEM topics are included in our application 3. An AI based analytics and reporting engine that provides multi-tiered reporting to students, teachers, parents, and administrators 4. An augmented reality based mobile application providing fun learning opportunities during these challenging times

### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** Two core challenges faced during the rollout have been: 1. Professional development of teachers: online professional development/training exercises have been challenging for our teams. With all the information overload, teachers are overworked and took longer than usual to have a full grasp of our online tool. However, after spending more than a year in this new routine, both our team and teachers are better prepared (ready) for the PD sessions. 2. Internet connectivity and lack of devices: this has been and still is a major bottleneck especially in the public sector where students either do not have PCs or it is shared between multiple siblings with overlapping time. Our tool now allows recorded/self-learning brackets which somehow caters to this problem. We also optimized our content/application so that it runs on 4G too now

**Partnership:** We are now looking to scale the project to more cities/regions and in order to do so, we need to partner up with donors who are willing to fund the marketing and sales activities as per our growth plan.

**Replicability:** The content we have created is cross cutting between multiple curricula including IB, Cambridge, NGSS, Common Core, and the National curricula of Pakistan making it usable in a wider geographical area. Our platform is cloud based, can be accessed from anywhere around the world and can support more than 30,000 simultaneous users. We have built, rolled out and iterated the product. All this makes the platform scalable and replicable. With the right growth partners, It is now ready for scaling to more regions.

**Sustainability:** The software development for this project has been completed with the help of government of Pakistan and some private investors. The only costs incurred now are of sales, marketing, and support activities which are now being supported by our SaaS model in which we charge monthly fee to each user for using our platform and content. The fee is as low as PKR 50 per user per month. It makes the platform affordable to users and sustains the project.

### **Action Lines**

**AL C7.** ICT applications: benefits in all aspects of life — E-learning

### **SDGs**

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

## Case 41 - Spectrum Analytics, Botswana

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Mma B Covid19 Social Welfare Registry App Spectrum Analytics Private Sector <b>Botswana</b>
<b>Beneficiaries</b>
Vulnerable Citizens: Efficient and transparent delivery of COVID-19 food relief and protection services to vulnerable Batswana. This would reduce potential hunger, delays and anxiety experienced by the citizenry. Government: By optimising the process through automation, the Ministry can deliver relief quickly and cost effectively. This system saves many hours needed to manually collect data and associated costs and time taken to deliver. Administrators: Programme managers will get a dashboard that offers actionable insights for not just Monitoring and Evaluation, but for planning, designing and delivering evidence-based interventions on managed programmes. This will have a positive impact in the lives of many Batswana counting on relief from Government programmes. Beyond COVID-19, the government can extend the solution to cover the management of other relief programmes offered by the Department of Social Welfare, assisting social workers to make the vulnerable visible around Botswana. Mma B will also be expanded to include modules for all NGOs/Charities/Foundations which are assisting in providing help to the vulnerable in society. This would provide an opportunity for Govt to fully see all efforts for vulnerable people in the country.
<b>Website</b>
<a href="https://web.facebook.com/SpectrumAnalyticsBW/">https://web.facebook.com/SpectrumAnalyticsBW/</a>
<b>Description</b>
In April 2020, Botswana government instituted a nationwide lockdown to combat the Covid19 virus. It therefore committed to provide food relief to its most vulnerable citizens. Unfortunately no database existed of the vulnerable in society therefore social workers had to be sent house to house around the whole country to identify, register, assess and deliver food baskets to the vulnerable. Crucial inefficiencies include the following: <ul style="list-style-type: none"><li>• Manual and paper-based processes</li><li>• Visibility of beneficiaries</li><li>• Enrolment of beneficiaries.</li><li>• Delivery of social relief.</li><li>• Reporting</li></ul>



and Accountability. MmaB (which is short for Mma Boipelego meaning social worker) app is a digital registration platform that automates the registration, assessment and enrolment of vulnerable citizens on the COVID-19 Food Relief programme. It offers Program administrators reporting dashboards for effective and efficient programme management. The collection and aggregation of data behind the scenes would give the government actionable insights that will allow them to plan, monitor and evaluate the programme effectiveness in a data driven way – optimising the supply chain and delivering required interventions to vulnerable citizens in a timely manner. Mma B will also be expanded to include modules for all NGOs/Charities/Foundations which are assisting in providing help to the vulnerable in society.

### ICT Tools

The adoption of MmaB provides a digitised solution that addresses the manual and paper-based administered system. MmaB automates the registration, assessment, and enrolment of vulnerable citizens. This reduces costs, increase efficiencies, provide data for evidence based decision making and allow for better service to the vulnerable in our society. Universal Access for Beneficiaries. • e-forms (Mobile, Web, USSD, Facebook Messenger & WhatsApp) Digital Workflows for Operational Users. • e-Operations (Mobile, Web) e-Records for Document Management • e-Record Keeping Data for Actionable Insight Derivation. • Data Management (Pipeline Tools & Technologies, Governance, Security, Privacy) Dashboards for Programme Managers and Administrators. • Data driven M&E. • Live e-Reports. These features would also be available in the module for NGOs/charities/Foundations.

### Challenges / Partnership / Sustainability / Replicability

Challenges: In terms of the Covid19 Food Relief the challenges were: • The process of registering and assessing citizens for vulnerability involves house to house visits by social workers. This is a health risk as it poses both social workers and the public to COVID-19 transmission. • The information required to assess Batswana for COVID-19 Food Relief Programme eligibility is collected through a manual and paper-based process. • Social workers additionally have to assess each household using an assessment matrix. • Those who have not been enrolled are never given feedback that they do not stand to receive food relief from the government. • For each region (district, town or city council) in the country, the information on vulnerable citizens is then sent on a spreadsheet to coordinators at the Ministry of Local Government and Rural Development. • With the delivery of food packages requiring trucks for delivery, regional government, for example Gaborone City Council, register truckers and assign delivery jobs manually. • The end-to-end process is entirely manual and heavily paper based. Solution • MmaB automates the registration, assessment and enrolment of vulnerable citizens on the COVID-19 Food Relief programme. • It offers Program administrators reporting dashboards for effective and efficient programme management. • The collection and aggregation of data behind the scenes would give the government actionable insights that will allow them to plan,

monitor and evaluate the programme effectiveness in a data driven way – optimising the supply chain and delivering required interventions to vulnerable citizens in a timely manner. • For example, administrators can know the quantities of items required per ward, village or region, and reconcile food inventory ordered from suppliers with that deliver to Batswana. • Social workers can know vulnerable citizens and their needs at the touch of a button.

Partnership: Financial partners: the system has more potential beyond being a registry for Covid19 Food relief. It can be expanded to include: - Registry for all Protection Services housing all government programs ranging from school feeding schemes, destitute and orphan assistance schemes, agricultural and farming subsidies, veteran benefits and old age pension scheme administration etc. - NGOs/Charity/Foundation – modules need to be designed to offer a similar service to organisations also helping the vulnerable in our society. Collation of this data and Governments would allow for a greater transparency and data in making policy decisions. - Donor platform – a module can be built to connect individuals and institutions who want to donate to the vulnerable in society. This module would allow the vulnerable to appeal on the system and be matched with donors. For all of these modules, we would need to fund the development and rollout. International Partners: we believe this system is replicable across the world. We would need partners in various countries to sell it to governments and other stakeholders for use in their various localities. Technical partners: Assistance with best practice and guiding our team through process of building and scaling the different modules.

Replicability: Yes this project is replicable. The Mma B app is a digital citizen self registration that can be used for Covid19 registration of vulnerable people. It uses web, app, WhatsApp, FB messenger and USSD. This app can be used for any form of emergency relief or efficient self registration need. It is also a universal register for any social welfare programs hence it is applicable in any country that currently does not have a digital register of its citizens but also has welfare programs.

Sustainability: The main selling point for the application created is that it would 1. Save man hour costs related to collecting vulnerable people data when done manually 2. Save costs related to travelling across the country, stationary, accommodation etc. 3. Reduce man hours related to manual reporting and assessment of vulnerable individuals. 4. Reduce wastage of resources related to double counting, poor assessment etc. All of these saved costs would easily compensate for the cost of setting up the system, maintenance and licenses that a Government would have to incur. To further reduce the cost, governments can leverage digitisation funds across the world which could pay for initial development costs using grants hence reducing cost of licenses.

### Action Lines

**AL C2.** Information and communication infrastructure

**AL C3.** Access to information and knowledge

<p><b>AL C6.</b> Enabling environment  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-government</p>
<p><b>SDGs</b></p>
<p><b>Goal 1:</b> End poverty in all its forms everywhere  <b>Goal 2:</b> End hunger, achieve food security and improved nutrition and promote sustainable agriculture  <b>Goal 3:</b> Ensure healthy lives and promote well-being for all  <b>Goal 10:</b> Reduce inequality within and among countries  <b>Goal 16:</b> Promote just, peaceful and inclusive societies</p>

## Case 42 - TAP ERP, Pakistan

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Business Management Application  TAP ERP  Private Sector  <b>Pakistan</b></p>
<p><b>Beneficiaries</b></p>
<p>We target all businesses at international level while offering to automate their activities among departments over the setup including branches located all over the world.</p>
<p><b>Website</b></p>
<p><a href="https://trapaccounting.com">https://trapaccounting.com</a></p>
<p><b>Description</b></p>
<p>We offered virtual employees to run our application while managing business activities. There was need regarding to control and safe from Covid-19 pandemic, indeed, to offer low cost services needs to be offered to business in the situation.</p>
<p><b>ICT Tools</b></p>
<p>It is an application which is available at global level. It is developed with different stakes e.g. PHP, JavaScript(JQuery and others), and other tools. It automates whole business globally.</p>

### Challenges / Partnership / Sustainability / Replicability

Challenges: No doubt competition was there in the market but it's our potential to overcome the situation and now working more for business community. No issue regarding development of application but marketing efforts needed so we did. Currently we feel better to run business smoothly.

Partnership: Yes! we need investment to grow more and more. Area does not matter. We focus to grow TAP all over the world as we need local offices at popular cities of some countries. So partner from any country can approach us to operate TAP at his own country even globally.

Sustainability: Yes! It is for business and we believe to serve life time. We would offer reliability regarding automation of their activities and safe their data. We would be with them as their business exists.

### Action Lines

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

**AL C3.** Access to information and knowledge

**AL C4.** Capacity building

**AL C5.** Building confidence and security in use of ICTs

**AL C6.** Enabling environment

**AL C7.** ICT applications: benefits in all aspects of life — E-government

**AL C7.** ICT applications: benefits in all aspects of life — E-business

**AL C7.** ICT applications: benefits in all aspects of life — E-learning

**AL C7.** ICT applications: benefits in all aspects of life — E-health

**AL C7.** ICT applications: benefits in all aspects of life — E-employment

**AL C7.** ICT applications: benefits in all aspects of life — E-environment

**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture

**AL C7.** ICT applications: benefits in all aspects of life — E-science

**AL C8.** Cultural diversity and identity, linguistic diversity and local content

**AL C9.** Media

**AL C10.** Ethical dimensions of the Information Society

**AL C11.** International and regional cooperation

### SDGs

**Goal 1:** End poverty in all its forms everywhere

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

**Goal 3:** Ensure healthy lives and promote well-being for all

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

**Goal 5:** Achieve gender equality and empower all women and girls

**Goal 6:** Ensure access to water and sanitation for all

- Goal 7:** Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all
- Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation
- Goal 10:** Reduce inequality within and among countries
- Goal 11:** Make cities inclusive, safe, resilient and sustainable
- Goal 12:** Ensure sustainable consumption and production patterns
- Goal 13:** Take urgent action to combat climate change and its impacts
- Goal 14:** Conserve and sustainably use the oceans, seas and marine resources
- Goal 15:** Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss
- Goal 16:** Promote just, peaceful and inclusive societies
- Goal 17:** Revitalize the global partnership for sustainable development

## Case 43 - Ywai Aqua Life Integrated systems, Nigeria

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
RainRangers champion show Ywai Aqua Life Integrated systems Private Sector Nigeria
<b>Beneficiaries</b>
Youth community awareness and mean of credible information across media platforms programme such as using materials at home to make mask that are safe to use.
<b>Website</b>
<a href="https://www.aquaculture1.com/aquaculture-suppliers/ywai-aqua-life-integ">https://www.aquaculture1.com/aquaculture-suppliers/ywai-aqua-life-integ</a> <a href="https://m.facebook.com/rainrangers/">https://m.facebook.com/rainrangers/</a>
<b>Description</b>
A mass media publicity and awareness campaign programme that vividly explains what people hear and read using online media showing how to access, made, use and dispose face masks properly.
<b>ICT Tools</b>
Internet technology

<b>Challenges / Partnership / Sustainability / Replicability</b>
<p><b>Challenges:</b> Unprotective face mask covering make me vulnerable to CONVID -19 infection and improper use and disposal leads to contaminate and infection. A media programme promoting personal hygiene on mask</p> <p><b>Partnership:</b> Yes am looking for partners to reachout to many people, in the area to media awareness programme</p> <p><b>Sustainability:</b> Yes is replicable on media platforms</p> <p><b>Replicability:</b> This project is sustainable because minimum investment is required with great benefits to our audiences. Through our partnership with expect in various fields of endeavours we create awareness</p>
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge   <b>AL C4.</b> Capacity building   <b>AL C6.</b> Enabling environment   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-environment   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-agriculture   <b>AL C9.</b> Media
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 44 – Earlyone, Armenia

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Retail Queue Management Solution Earlyone Private Sector <b>Armenia</b>
<b>Beneficiaries</b>

Earlyone's primary beneficiaries are those institutions that have a limit on the capacity of customers that their premises can sustain at a certain time period. The solution will help those institutions to - Control entry to premises to limit the number of customers allowed in - Limit opportunities for COVID-19 to spread by eliminating crowding outside - Minimise waiting time of shoppers by scheduling their entry time beforehand

### Website

<http://earlyone.com/>  
<http://earlyone.com/earlyone-retail-queue-management/>

### Description

Earlyone has released a new solution to battle the outcomes of the coronavirus outbreak. Besides, Earlyone has improved the existing solution by offering a new feature to its users - QR check-in that allows contactless activation of virtual tickets created with Earlyone app.

### ICT Tools

Programming languages: C#, ASP, JavaScript Technologies and systems: Android OS, Apple iOS, Linux/Unix, Microsoft Windows, Microsoft .NET Platform

### Challenges / Partnership / Sustainability / Replicability

#### Challenges:

Due to the COVID-19 outbreak, many Governments around the world are putting restrictions and limits on the number of people that can gather in one place, such as supermarkets, shops, pharmacies or public facilities. Retail Queue Management Solution is designed to help retailers control entry to store letting in only allowed number of shoppers, and prevent crowding outside the premises.

#### Partnership:

We are open to new partnerships all around the world as our solution can be implemented anywhere.

#### Sustainability:

This project can replicated to meet the needs of an institution that has unusual type of customer flows. This needs to be discussed.

#### Replicability:

The pandemic will leave its mark on the society. One of the main competitive advantages of organizations will become the extent to which they ensure the safety of their customers.

### Action Lines

<b>AL C2.</b> Information and communication infrastructure
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 45 – Earlyone, Armenia

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Retail Queue Management Solution Earlyone Private Sector <b>Armenia</b>
<b>Beneficiaries</b>
Earlyone's primary beneficiaries are those institutions that have a limit on the capacity of customers that their premises can sustain at a certain time period. The solution will help those institutions to - Control entry to premises to limit the number of customers allowed in - Limit opportunities for COVID-19 to spread by eliminating crowding outside - Minimise waiting time of shoppers by scheduling their entry time beforehand
<b>Website</b>
<a href="http://earlyone.com/">http://earlyone.com/</a> <a href="http://earlyone.com/earlyone-retail-queue-management/">http://earlyone.com/earlyone-retail-queue-management/</a>
<b>Description</b>
Earlyone has released a new solution to battle the outcomes of the coronavirus outbreak. Besides, Earlyone has improved the existing solution by offering a new feature to its users - QR check-in that allows contactless activation of virtual tickets created with Earlyone app.
<b>ICT Tools</b>
Programming languages: C#, ASP, JavaScript Technologies and systems: Android OS, Apple iOS, Linux/Unix, Microsoft Windows, Microsoft .NET Platform
<b>Challenges / Partnership / Sustainability / Replicability</b>
<b>Challenges:</b> Due to the COVID-19 outbreak, many Governments around the world are putting



restrictions and limits on the number of people that can gather in one place, such as supermarkets, shops, pharmacies or public facilities. Retail Queue Management Solution is designed to help retailers control entry to store letting in only allowed number of shoppers, and prevent crowding outside the premises.

**Partnership:**

We are open to new partnerships all around the world as our solution can be implemented anywhere.

**Sustainability:**

This project can replicated to meet the needs of an institution that has unusual type of customer flows. This needs to be discussed.

**Replicability:**

The pandemic will leave its mark on the society. One of the main competitive advantages of organizations will become the extent to which they ensure the safety of their customers.

**Action Lines**

**AL C2.** Information and communication infrastructure

**SDGs**

**Goal 3:** Ensure healthy lives and promote well-being for all

## Case 46 - GEOSYS

**Title of the project, Contact Organization Name, Stakeholder type, Country**

covid19.aina.dz  
GEOSYS  
Private Sector  
**Algeria**

**Beneficiaries**

The Ministry of Health, health science research centers, research laboratories

**Website**

<https://www.about.aina.dz>  
<https://www.covid19.aina.dz>

<b>Description</b>
Our project is based on a platform that was awarded at the WSIS 2014. It is a collaborative space platform that each African country can use while keeping its data confidential. Data from each country will be analyzed after the pandemic
<b>ICT Tools</b>
We use webmapping technologies. The geolocation of victims in a territory using environmental data (Hospital, air quality, availability of the medical profession, etc.) will allow analysts to do geodecional.
<b>Challenges / Partnership / Sustainability / Replicability</b>
<p><b>Challenges:</b> Collecting information from reliable sources</p> <p><b>Partnership:</b> Yes . World Health Organization</p> <p><b>Replicability:</b> Yes, in all poor and developing countries</p>
<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development   <b>AL C3.</b> Access to information and knowledge   <b>AL C5.</b> Building confidence and security in use of ICTs   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-environment   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-agriculture
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Part 5 : International Organisations

### Case-1 China Mobile Group Shanxi Co., Ltd., China

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Epidemic safety control platform  
China Mobile Group Shanxi Co., Ltd.  
International Organization  
**China**

**Beneficiaries**

ThroughThe Epidemic safety control platform of China Mobile, ordinary users can timely and accurately get relevant epidemic policy information, and at the same time, they can also timely and accurately fill in relevant procedures when moving across regions.For the epidemic management personnel, the relevant policies can be timely and accurately conveyed to the corresponding people and the epidemic control of the floating population can be effectively carried out, thus improving the efficiency of policy transmission and management.

**Description**

Through The Epidemic safety control platform of China Mobile, electronic information registration and pre-reminder were carried out on the provincial prevention and control checkpoints. The Epidemic safety control platform of China Mobile can accurately analyze the location of mobile users in Shanxi Province, and at the same time, users of the prevention and control checkpoints in Shanxi Province, all the entry and exit checkpoints can receive the pre-notification message of information filling. The text message contains the website link for information filling, and the user directly enters the page for information filling through the link. At the same time, it can accurately push the text message to the local people from other places, so that they can report to the community or village committee in time. Through the use of The Epidemic safety control platform of China Mobile, it can timely and effectively remind the mobile target population during the epidemic, which plays an important role in the prevention and control of the epidemic in Shanxi Province.

**ICT Tools**

The system uses Spark-Streaming for real-time signaling processing, uses Kafka to receive data sources, uses Oracle to load real-time rules, uses Redis to cache data, uses Spark rule computing engine to divide the target population of rules into nine categories and three triggering modes, and analyzes the position signaling data of the whole population strictly according to the rules. By analyzing the data, the upper application can accurately match the corresponding rules according to the real-time location of the user and send relevant SMS reminders, so as to meet the needs of epidemic prevention and control.

### Challenges / Partnership / Sustainability / Replicability

During the epidemic period, personnel mobility is high, personnel sources are complex, and data sources are numerous. Traditional data analysis methods cannot effectively support epidemic prevention and control. Big data platforms can integrate signaling data, Internet data, MR data, industry data, asset management data, etc. Data from multiple channels is analyzed and processed uniformly, which improves the efficiency of data analysis during the epidemic.

The Epidemic safety control platform of China Mobile on the basis of epidemic prevention and control, relying on Shanxi Mobile's big data platform, provides real-time analysis by acquiring location signaling related data, using intelligent mining and analysis methods, and providing big data for the information service needs of major industry customers SAAS service capabilities of public information, build an ecosystem of public information services, realize core capabilities based on rule engine configuration, meet the public information service needs of government and enterprise customers, and play the role of big data technology in boosting public information services.

### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development | **AL C7.** ICT applications: benefits in all aspects of life — E-government

### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all | **Goal 11:** Make cities inclusive, safe, resilient and sustainable

## Case 2 - Focus Group AI for Health Working Group on Digital Technologies for Health Emergencies, AI for Good Webinar Series on Contact Tracing

### Title of the project, Contact Organization Name, Stakeholder type, Country

Focus Group AI for Health Working Group on Digital Technologies for Health Emergencies, AI for Good Webinar Series on Contact Tracing  
International Telecommunication Union  
International Organization  
**Switzerland**

<b>Beneficiaries</b>
The general public and policymakers.
<b>Website</b>
<a href="https://aiforgood.int.int/">https://aiforgood.int.int/</a>
<b>Description</b>
The ITU-WHO Focus Group on AI for Health has a working group on Digital Technologies for Health Emergencies The AI for Good Webinars have a series on contact tracing using mobile technologies
<b>ICT Tools</b>
Zoom, Bluetooth, Wifi, GPS, cellphone masts
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenges: I don't understand why this question is mandatory
Replicability: Why is the geographical coverage form in this format, should global be the default? currently it's not even an option.
<b>Action Lines</b>
<b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 3 - Global Open Data initiative for Agriculture and Nutrition (GODAN), Canada

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
COVID-19 Food Systems Emergency response in the SAHEL region Global Open Data initiative for Agriculture and Nutrition (GODAN)

International Organization <b>Canada</b>
<b>Beneficiaries</b>
1- Governments: Managing emergency food stocks and mitigating food systems disruptions 2- producers/processors: learning where food gaps are/market opportunities 3- Consumers/buyers aware of availabilities and prices. Benefits are immediate, and thanks to analytics, allowing for long term planning.
<b>Website</b>
<a href="https://www.godan.info">https://www.godan.info</a>
<b>Description</b>
Discussing with relevant Stakeholders in Mali, Niger and Burkina Faso, we designed a 4 modules action plan using data as key tool in the countries/region response: 1- Implementing emergency food stocks management module 2- Establishing predictive analytics models (with NEF) to help countries forecast and mitigate food systems disruptions 3- Landscaping and integrating modules as integral part of the country's agriculture/food management systems 4- Module extension to farmers/processors, including a market place for producers and consumers. It is therefore an emergency response plan, but yet, building up the long term sustainability of the Ag/Food management systems in the region.
<b>ICT Tools</b>
1- Geodata for tagging food/agri resources 2- predictive analytics making use of supercomputing facilities available locally 3- User friendly apps designed for senior leaders, for producers, and for consumers.
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: #NAME?  Partnership: ICT Ministries, Statistics depts, Ministries of Agriculture; Farmer associations; universities.  Replicability: Yes. The four modules in the project were designed in collaboration with the three target countries, but are most suitable and easily replicable in other parts of Africa, as confirmed through requests received from other countries. GODAN has partners in 127 countries, with trained trainers/champions ready to lead, and a very broad range of expertise readily available.  Sustainability: Yes. The modules will be implemented within the ranks of the

contributing units (especially Governments) therefore they will be fully integrated in the day to day operations during and beyond the project.
<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development
<b>SDGs</b>
<b>Goal 2:</b> End hunger, achieve food security and improved nutrition and promote sustainable agriculture

## Case 4 - Norwegian Refugee Council, Uganda

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
CHAGAMKA community based youth inspiration ICT Hub Norwegian Refugee Council International Organization <b>Uganda</b>
<b>Beneficiaries</b>
Kampala urban poor and urban refugees who have access within their locality to be able to continue with self reliance initiatives amongst Covid 19 pandemic restrictions and protocols
<b>Website</b>
<a href="https://www.nrc.no/">https://www.nrc.no/</a>
<b>Description</b>
Promoting business online through the community digital hub and continued diverse online free courses
<b>ICT Tools</b>
An online platform with diverse services has been created and urban poor and refugees supported to have free access. Internet of good and reliable speed has also been provided accessible to the most vulnerable in Kampala
<b>Challenges / Partnership / Sustainability / Replicability</b>
Challenges: Those accessing the Community digital Hub "CHAGAMKA (Swahili word

<p>meaning be inspired" are many and some come from far. Scaling the digital hub through establishing more of the same concept will bring great transformation to the most vulnerable and reduce the levels of poverty in urban settings</p> <p>Partnership: Yes those offering free online courses, foundation and sponsors for students who aspire paid online courses, those with gadgets like laptops and computers as donations etc</p> <p>Replicability: Yes, in Kampala other areas mainly inhabited by refugees and urban poor, its suburbs and other urban towns in Uganda especially those hosting refugees like Arua, Adjumani, Hoima and Mbarara</p> <p>Sustainability: The project will be handed over to Local NGO's who are part of the initiative and are already having other projects that support refugees</p>
<p><b>Action Lines</b></p>
<p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-employment  <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-environment  <b>AL C9.</b> Media</p>
<p><b>SDGs</b></p>
<p><b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all  <b>Goal 5:</b> Achieve gender equality and empower all women and girls  <b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all  <b>Goal 10:</b> Reduce inequality within and among countries  <b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable</p>

## Case 5 - United Nations Economic Commission for Africa, Ethiopia

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Africa UN Knowledge Hub on COVID-19  United Nations Economic Commission for Africa  International Organization  <b>Ethiopia</b></p>
<p><b>Beneficiaries</b></p>



Member States, General Public, Policy Makers, UN Officials, UN Partner organizations (AU, etc.)
<b>Website</b>
<a href="https://www.uneca.org">https://www.uneca.org</a>
<b>Description</b>
The Africa UN Knowledge Hub for COVID19 is a portal developed by the UN Development System in Africa to act as a one-stop-shop on information and resources relevant to Africa on the COVID-19 pandemic. The Hub harnesses information and resources from credible sources including WHO, regional UN agencies, Ministries of Health of African governments, and credible news channels amongst other reliable information sources. The portal also provides intelligent data dashboards and an intelligent, contextualized federated search engine to provide up-to-date and trusted information on the pandemic in a user-friendly manner.
<b>ICT Tools</b>
AI/ML, data visualization, Drupal CMS, Federated Search Engine technology with advanced algorithms, information harvesting - these technologies and the portal are part of the overall digital transformation process taking place within the UN system to improve regional coordination and responses to common issues affecting the Member States served by the different UN agencies in the region.
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Challenges: Short timelines, limited resources, the scope of collaboration required, technology awareness across all partners - the project was delivered under the OIBC framework to ensure collaboration across all agencies was done in a coordinated fashion.</p> <p>Partnership: We have worked with different partners, internal and external. We continue to welcome technology partners as well as partner organizations with similar interests.</p> <p>Replicability: Yes - technologies are implemented in a modular way and can be easily replicated.</p> <p>Sustainability: Yes, the project is supported by existing resources within the UN system and additional resources to be provided under the OIBC framework.</p>
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge

**AL C6.** Enabling environment  
**AL C7.** ICT applications: benefits in all aspects of life — E-government  
**AL C9.** Media  
**AL C11.** International and regional cooperation

**SDGs**

**Goal 1:** End poverty in all its forms everywhere  
**Goal 3:** Ensure healthy lives and promote well-being for all  
**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all  
**Goal 16:** Promote just, peaceful and inclusive societies  
**Goal 17:** Revitalize the global partnership for sustainable development

Chapter Name: Part 6

## Part 6: Others

### Case - 1 K-12math, K-12math.info inc

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
K-12math K-12math.info inc Other <b>United States of America</b>
<b>Beneficiaries</b>
The website helps anyone “... to help a 7 year old to add whole numbers” . Be they classmates, parents of, teacher of, school content coordinator, reference librarian, materials developer, and others.
<b>Website</b>
<a href="http://k-12math.info">http://k-12math.info</a>
<b>Description</b>

The project continues to help a learner and those who help a learner to learn and understand elementary and secondary school mathematics without a classroom.
<b>ICT Tools</b>
A simplified user interface is used. Information is displayed in a “calendar style” format with over a 1,000 "months" of links to elementary and secondary school mathematics resources.
<b>Challenges / Partnership / Sustainability / Replicability</b> To improve global understanding of mathematics. This is being achieved by providing an age appropriate information searching resource. Anyone developing OER/Open Access elementary and secondary school materials that has been properly tested for the age group. It continues to add new links to its’ www.k-12math.info is a globally available Open Access (free) educational resource, which provides links to many of the world’s best OER/Open Access math educational resources.
<b>Action Lines</b>
<b>AL C7</b> - ICT applications: benefits in all aspects of life — E-learning
<b>SDGs</b>
<b>Goal 1:</b> End poverty in all its forms everywhere  <b>Goal 2:</b> End hunger, achieve food security and improved nutrition and promote sustainable agriculture  <b>Goal 3:</b> Ensure healthy lives and promote well-being for all  <b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all  <b>Goal 9:</b> Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case 2 - UNESCO Youth As Researchers, Lebanon

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Digital and Civic Action Among Arab Young Adults in the Time of COVID-19 UNESCO Youth As Researchers Other <b>Lebanon</b>
<b>Beneficiaries</b>

Our main beneficiaries are the young Arab adult population (20-35 years old) who are active in both digital and civic initiatives. Our research will highlight the digital and civic alternatives that were successful in building and strengthening social support during the pandemic. Our research will be publicly available on the Youth As Researchers website and discovers Arab young adults driving change in their communities using ICTs and identifies the support they need to be more effective in their cause. Many Arab states are conflict affected already and are dealing with additional burdens posed by the pandemic and associated economic deterioration without social safety nets. Meanwhile young adults are helping, both locally and regionally, fortify their skills and education online during an extremely uncertain time and the solutions and spaces they create hold relevant policy and practice implications for volunteerism, digital, and civic action. Many of our interviewees lacked enough meaningful coverage in their communities for the change they bring on a daily basis and publishing this research is one small way of recognizing them. If we had an online directory/platform with a knowledge repository we could be generating much more content and visibility about these young positive deviants in our region.

#### **Website**

<https://yar.bangkok.unesco.org/>

#### **Description**

The UNESCO Youth As Researchers Arab States Team 1 was established in October 2020 as a virtual research collaboration to investigate the alternative digital and civic activities Arab young adults (20-35 years old) and how successful they were at building social support during this pandemic. Using ICTs we designed our mixed-methods approach, obtained ethics approval for our research proposal, and are now in the data analysis phase unpacking our 1100+ quantitative web-based survey results (where all 22 Arab states are represented) and our 24+ in-depth virtual interviews with youth NGO/digital & civic initiative founders across the Arab states.

#### **ICT Tools**

Using Google Meet and Zoom we meet at least once every week, sometimes twice if necessary. Zoom was also used to conduct our virtual interviews with young Arab NGO/digital & civic initiative founders. Google forms was used to launch a bilingual, English and Arabic, web-based survey to solicit responses from Arab young adults aged 20-35 years. We maintain daily communication via a WhatsApp group and use a common google drive to store all our data, work related materials, meeting minutes, track progress on tasks, and share a common weekly to do list and agenda. This virtual collaboration is at a regional level involving 8 multidisciplinary research members from Egypt, Iraq, Lebanon, occupied Palestinian territories, Qatar, Sudan, Syria and Yemen. In concluding our in-depth virtual

interviews with young Arab NGO/digital & civic initiative founders we are preparing a directory online to be shared with our interviewees so that they may learn about each other, meet, and exchange ideas.

### **Challenges / Partnership / Sustainability / Replicability**

**Challenges:** Throughout our study we wished we had access to a grant that would enable us to build a directory and knowledge repository for NGOs/digital and civic initiatives founded by youth in the Arab states to enable greater regional coordination and exchange. The experiences of young Arab NGO/digital and civic initiative founders resemble each other as we are all dealing with a similar fabric in our communities, many of which are affected by conflict and negatively impacted by the weak structural foundations in which we find ourselves operating in. At the same time, many of the Arab young founders share the belief that volunteering, both digital and civic, is essential in character building, augmenting self-esteem, and expanding one's perception of the world. We would have really benefited from access to a nationally representative sample of young adults from each Arab state's government-based central bureau of statistics. In addition, it was challenging to create a questionnaire that a diverse Arab people from 22 separate states could equally relate to so it would have been especially helpful to be guided in this process by sub-regional (Mashreq, Maghreb, Gulf and Least Developed Countries) social science researchers.

**Partnership:** We are looking for web developers and graphic designers interested in building an online platform with an ability for youth founded NGOs/digital and civic initiatives to self-register, peruse a directory with filtering mechanisms based on area of work, location, size, and others, as well as generate content, communicate and exchange ideas. It would be great to have e-government partners as well to facilitate the registration and/or other transactions needed by young Arab founders through our digital platform.

**Sustainability:** This is a volunteer based UNESCO supported program. I do believe that this program can be sustainable particularly if we are able to garner resources that will help us build a youth-based NGO/digital and civic initiative platform in our region. Any research product born out of a virtual collaboration with a strong motive can potentially be published and if successful, this publication can be used to justify the serious intention of the team and with it they could apply for a grant to implement their actions or encourage policies or practices. In 2050, this region will witness almost 300 million young adults entering the labor market and they will need jobs, which are currently not available. By sustaining a project such as this and enabling regional teams to deliver action based on evidence, it promote jobs for the younger generation in the long term.

**Replicability:** Our virtual research can be replicated in this and other regions in the world and we encourage this as it allows for really meaningful regional collaboration across disciplines. For research to truly make an impact and possibly translate into actionable or implementable projects it needs to be motivated by a strong 'why', one of which is being of service to a community. Research is often constrained by international funding agendas external to the community and affects how research is framed and whether it reflects the

research priorities of the community it seeks to benefit. Our virtual research team has acted as a teaching platform where the potentials of each team member are nurtured and honed together. It offers a much needed perspective on what extent do we, as collective youth researchers in the region, need to be more assertive to funders. It could also encourage multi- and trans-disciplinary research as an exercise in thinking together, opening communication channels about common concepts, and improving our understanding of the world based on relations with others.

#### Action Lines

**AL C2.** Information and communication infrastructure|**AL C4.** Capacity building|**AL C5.** Building confidence and security in use of ICTs|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C11.** International and regional cooperation

#### SDGs

**Goal 3:** Ensure healthy lives and promote well-being for all|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 10:** Reduce inequality within and among countries|**Goal 11:** Make cities inclusive, safe, resilient and sustainable|**Goal 16:** Promote just, peaceful and inclusive societies

### Case 3 - Oman Technology Fund (OTF)

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Funding technological initiatives against Covid-19  
Oman Technology Fund (OTF)  
Other  
Oman

#### Website

<https://www.otf.om>

### Description

The novel COVID19 has turned a global pandemic which haven't been seen for roughly a century, and has put enormous pressures on the healthcare system and the economy alike. The pandemic has caused a major economic ripple with the bulk of shops, restaurants and other services closed in the Sultanate of Oman OTF has allocated USD 2.6m (OMR 1m) from Fund to immediately fund startups (SMEs) dealing with the day to day problems facing the Oman population and also invest in long-lasting solutions to fight chronic disease and pandemic situations The purpose is to support and motivate the existing companies (portfolio and non-portfolio) to deal with the current crisis and encourage the youth to come up with high tech. ideas to facilitate remote engagement and care which can help the society.

### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development | **AL C3.** Access to information and knowledge | **AL C5.** Building confidence and security in use of ICTs

### SDGs

**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case 4 - COVID-19 Research Program

### Title of the project, Contact Organization Name, Stakeholder type, Country

COVID-19 Research Program  
The Research Council  
Other  
**Oman**

### Website

<https://www.trc.gov.om>

### Description

The Research Council has launched a national program and called for pre-proposal for projects addressing the current COVID-19 Pandemic. The pro-proposals must focus on

COVID-19 epidemic and address the clinical & public health scope, and non-clinical scope. The non-clinical scope include but not limited to:

- 1) Artificial intelligence
- 2) e-learning during pandemic (problems and solutions),
- 3) Emergent tracking and monitoring technologies.
- 4) Economic and business impact
- 5) Crisis Management.

**Challenges / Partnership / Sustainability / Replicability**

**Action Lines**

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development | **AL C7.** ICT applications: benefits in all aspects of life — E-science

**SDGs**

**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation

## Case 5 -THE TECHNOLOGICAL INNOVATION COMMITTEE

**Title of the project, Contact Organization Name, Stakeholder type, Country**

THE TECHNOLOGICAL INNOVATION COMMITTEE  
Ministry of Technology and Communications  
Other  
**Oman**

**Website**

<https://www.mtc.gov.om/tic>

**Description**

The technological innovation committee has been formed in coordination with Oman Supreme Committee for Dealing with COVID-19 and in line with government's efforts to limit the spread and counter of coronavirus Covid-19 by adopting IT solutions as modern IT



alternatives in dealing with its impact. The committee called upon all the innovators in the field of emerging technologies, whether individuals or private sector companies to provide them with the consultancy and support their initiatives to become technological solutions contributing to mitigate the severity of Coronavirus outbreak. The committee has many responsibilities and role, Undertake supervising all IT initiatives directed to counter Coronavirus.

**Challenges / Partnership / Sustainability / Replicability**

The Committee headed by Minister of Ministry of Technology and communication and representative of members from ministry of Telecommunication Regulatory Authority, Sultan Qaboos University, The Research Council, Public Establishment for Industrial Estates, Oman Technology Fund and Oman ICT Group.

**Action Lines**

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

**SDGs**

**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all

**Case 6 - "G Suite for Education"**

**Title of the project, Contact Organization Name, Stakeholder type, Country**

"G Suite for Education"  
 Ministry of Education  
 Other  
**Oman**

**Beneficiaries**

Students and teachers

**Website**

<http://www.moe.gov.om>

<b>Description</b>
"G Suite for Education" Students and teachers will be able to use the platform, a group of free Google applications designed specifically for schools to share documents, digitally attend class, submit assignments take tests electronically and communicate with students. The digital education platform can also be used from any computer or mobile phone and access assignments, tutorials and share comments electronically. Through this platform, education in the Sultanate is moving towards a new phase, which mainly depends on distance learning.
<b>Challenges / Partnership / Sustainability / Replicability</b> Partnership with Oman mobile
<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning
<b>SDGs</b>
<b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

## Case7 BizB, Pakistan

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
BizB BizB Other <b>Pakistan</b>
<b>Beneficiaries</b>
Our customers in Pakistan are actively looking for affordable preloved apparel but don't have one homogenized platform for this need where their anonymity would be maintained as well. Within a week of launch with only 25 dresses in the inventory, we started getting sales and had 10 registered sellers by the end of the month. This early traction showed us that the need is there and a huge gap exist in the market which we aim to fill. Statistics show that 50% of a woman's wardrobe is rendered useless and we are providing them an opportunity to make money off of their unused assets and save thousands on buying new

dresses that they love without feeling guilty about it. And we have successfully been able to resonate this message among our audience. We are now working on the social stigma that is attached with publicly telling that one is wearing or selling a preloved apparel to create a community that supports and is proud to be sustainable.

#### Website

<https://bizb.store>

#### Description

BizB is a marketplace for the buying and selling of preloved dresses which was started with the aim of promoting sustainable fashion in Pakistan. The corona virus broke out soon after we started and our sales spiked! On a global level, there was a spike in second hand buying and selling by June 2020 with the second hand market growing into a 68 billion dollar market in a matter of 4 months! The reason mainly was that people were more morally conscious given the turn of events and how everyone's lives changed. Another reason was that people suddenly had decreased pocket sizes. So to help more and more people go second hand in Pakistan, we partnered with more influencers to spread awareness and break the taboo linked with second hand buying in Pakistan and have now to date served more than 5000 customers.

#### ICT Tools

All of our business is purely online and we have an app and a website. All the buying and selling is digitized and we are empowering women technologically who can now earn sitting at home without any extra investment.

#### Challenges / Partnership / Sustainability / Replicability

Challenges: Technology restraint for seller who don't have good quality phones.  
Breaking the social stigma of convincing people that its not degrading to buy second hand rather its the responsible choice to make.  
Partnership: We are looking for partners that can help us in monetary terms so that we can expand our operational capacity since currently that is a bottleneck for us and also help us increase our reach out to customers.  
Sustainability: 3 dresses per wardrobe. 100000 wardrobes. 300000 dresses making our platform house to one of the biggest variety of stylish preloved apparel suiting to all tastes. 50% of a woman's wardrobe is useless which is thrown out filling up landfills every passing second. BizB is the first preloved dresses platform in Pakistan helping women enjoy their love of fashion without burning a hole through their pocket and also make money off their wardrobe, all while sitting in the comfort of their home.

Replicability: Being the first movers, the brand equity and loyalty we've built with our customers is something not replicable and that sense of personalized dealing is what gets people coming back to us.

#### Action Lines

**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C7.** ICT applications: benefits in all aspects of life — E-environment|**AL C10.** Ethical dimensions of the Information Society

#### SDGs

**Goal 12:** Ensure sustainable consumption and production patterns

## Case 8 - Behar plus platform

#### Title of the project, Contact Organization Name, Stakeholder type, Country

Behar plus platform  
Ministry of Agriculture & Fisheries  
Other  
**Oman**

#### Website

<https://www.maf.gov.om>

#### Description

Behar Plus is an online market place for fresh fish sellers and stores to offer their merchandise to individual customers in the first such platform primarily targeted at the retail segment of the market, The portal allows the individual consumers to check out what's on offer in their neighbourhood fish stores or local outlets, select the fish and quantities they want online Behar Plus makes it simple for individuals and families to do all of their shopping for fresh fish online, without having to step out, and thereby adhere to the 'stay at home' guidelines championed by the Omani authorities amid the current pandemic. Behar is one of three Omani start-ups selected by Oman Technology Fund (OTF), a specialised government-backed fund that invests in IT and innovative startups, for funding support from an endowment of RO 1 million earmarked for Omani entrepreneurial initiatives spawned by the COVID-19 crisis.

<p><b>Challenges / Partnership / Sustainability / Replicability</b></p> <p>Partnership with Oman Technology Fund</p>
<p><b>Action Lines</b></p>
<p><b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-agriculture</p>
<p><b>SDGs</b></p>
<p><b>Goal 12:</b> Ensure sustainable consumption and production patterns</p>

## Case 9 - GSMA, United Kingdom

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>We Care GSMA Other <b>United Kingdom</b></p>
<p><b>Beneficiaries</b></p>
<p>Mobile users are the main beneficiaries of the We Care initiatives. Under this framework, we have brought together the mobile operators in 21 countries worldwide with the public sector, not only creating a public private partnership for a specific project but building the framework for a continued private-public collaboration. Now more than ever, telecommunications networks are a nation's critical infrastructure, and through "We Care" we unite this key industry, where companies are fierce competitors, to work as one with the government. Furthermore, since the projects aim at tackling societal problems, "We Care" contributes to provide solutions for the most vulnerable people and communities. The initiative has indeed a strong focus on inclusivity, either being the direct objective of the project, e.g. digital inclusion, assistive tech or infrastructure deployment, or being one of the key considerations when deploying a technological solution, e.g. in Tunisia using SMS against cell broadcasting in the Early Alert Warning System to reach people with feature phones.</p>
<p><b>Website</b></p>
<p><a href="https://www.gsma.com/">https://www.gsma.com/</a> <a href="https://www.gsma.com/betterfuture/we-care">https://www.gsma.com/betterfuture/we-care</a></p>

## Description

Now more than ever, and especially since the COVID-19 pandemic, telecommunication networks are a nation's critical infrastructure, and through the We Care initiative, we unite this key industry, where companies are fierce competitors, to work as one with the government. Furthermore, since the projects aim at tackling societal problems, We Care contributes to develop and strengthen trust between citizens and institutions, bringing them closer together. Under the We Care initiative we have brought together the mobile operators in 21 countries worldwide with the public sector, not only creating a public-private partnership for a specific project but also building the framework for a continued public-private dialogues. This has contributed to the effort put in place to respond to COVID-19, where trusted relationship between the public sector and the mobile industry has been critical to fight the pandemic and to keep the economy and society functioning while social distancing is the norm.

## ICT Tools

The We Care model provides a multi-stakeholder platform where mobile operators join forces as an industry with policymakers to allow the mobile phone and mobile networks to provide various solutions to social problems at national level. Each solution is designed to positively impact society, including:

- Digital Inclusion
- Children and Mobile Technology
- Assistive tech
- Contribution to Public Safety
- Transparency
- Disaster Response
- Environmental Care
- Mobile Privacy
- Infrastructure Development
- Reduction of Handset Theft

Since We Care's launch in 2014, 30 projects have been launched involving more than 70 mobile network operators and 30+ governmental institutions in 21 countries, and we systematically organised a press conference for each launch with local press and media. One of the main objectives of the press conference is to promote the use of mobile technology as a catalyst to transform the lives by providing access to essential services and timely information.

## Challenges / Partnership / Sustainability / Replicability

Challenges: "Stakeholders involve in each GSMA We Care initiative include all local mobile operators and the local government and/or regulatory authority. Additional partners, such as Government Agencies or NGOs can also contribute to the project. For each project, we look for commitments at CEO level and at Minister/Head of Regulatory Authority level for the public sector. So the main challenge is to unite this key industry, where companies are fierce competitors, to work as one with the government. To overcome this challenge, the model allows stakeholder to choose among a list of 10 different topics including as many implementation configurations as possible. Indeed, projects are always designed according to the local context. Here is an example of a complex We Care project in Tunisia involving many different stakeholders:

- Mobile Operators Orange, Ooredoo and Tunisie Telecom
- The Ministry of Interior
- The Ministry of Defence
- The Ministry of Communication Technologies
- The Ministry of Health
- The National

Telecommunication Regulatory Authority - INT - The National Institute of Data Protection - INPDP - National Institute of Methodology"

Partners: "We are currently looking to further develop partnerships with NGOs and International Organizations. Building partnerships with these stakeholders will allow us to strengthen the We Care model, and provide greater impact on citizens and bring a different perspective and dimension for each project. Organisations can include UNDP with their Accelerator Lab for example. This partnership will allow us to combine UNDP's expertise and local ecosystem with our GSMA members' network, uniting more than 750 operators with almost 400 companies in the broader mobile ecosystem, including:

- Handset and device makers
- Software companies
- Equipment providers
- Internet companies
- Adjacent industry sectors

A partnership with UNDP will help us to find and grow local solutions that are already working and accelerate the learning process about what works and doesn't by experimenting with many different angles to a problem. Other potential partners include the NGOs, which will allow us to leverage expertise from everywhere, especially by valuing those in communities facing social challenges."

Replicability: Initially, We Care was only focused in Latin America (launched in 16 countries of the region), until 2018 when we've decided to replicate the model in other regions. Today, We Care has been expanded in Sub-Saharan Africa, Middle East & North Africa and Asia-Pacific. Examples include:

Latin America: Argentina's mobile operators committed to transparency in personal data use through measures providing customers greater transparency and clarity around the handling of their personal data.

Sub-Saharan Africa: Rwanda's mobile operators, supported by Rwanda's Ministry of ICT and Innovation, joined forces to drive mobile internet adoption and increase digital literacy, by using the GSMA's Mobile Internet Skills Training Toolkit (MISTT) to train sales agents and educate customers on how to access mobile internet services.

Asia-Pacific: South Korea's mobile operators implemented the GSMA Black List, allowing reported lost or stolen phones to be blocked both home and abroad.

MENA: Tunisian mobile operators developed an SMS Disaster Alert System in collaboration with the Tunisian Ministry of Interior and the Tunisian Ministry of Technologies of Communication and Digital Economy.

Sustainability: "Since its launch in February 2014, the We Care model has proven to be sustainable through the following results:

- 30 We Care initiatives launched in 21 countries
- 8 SDG impacted
- 70 Mobile Network Operators involved
- +30 governmental institutions involved across 21 countries, including Ministries of ICT, Interior, Health, Telecommunication Regulatory Authorities, National Meteorological Agencies, etc.

Moreover, the funding model for any GSMA We Care initiative is very simple and flexible. For each project, participating mobile operators are required to contribute in-kind or in-cash to deliver the solution. We ask the public sector to endorse the initiative, promise to further support the mobile industry and usually contribute in-kind (facilitate, leverage Government's network etc.). And finally, the role of the GSMA is to facilitate dialogue between stakeholders, provide technical assistance, manage the project

and raise awareness of each initiative (events, digital channel, PR partners...) In 2021, we expect to launch a new We Care initiative in Democratic Republic of Congo (DRC) following strong demand from local stakeholders."

**Action Lines**

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C3.** Access to information and knowledge|**AL C5.** Building confidence and security in use of ICTs|**AL C6.** Enabling environment|**AL C10.** Ethical dimensions of the Information Society

**SDGs**

**Goal 1:** End poverty in all its forms everywhere|**Goal 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all|**Goal 5:** Achieve gender equality and empower all women and girls|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 10:** Reduce inequality within and among countries|**Goal 11:** Make cities inclusive, safe, resilient and sustainable|**Goal 13:** Take urgent action to combat climate change and its impacts|**Goal 16:** Promote just, peaceful and inclusive societies

## Case 10 - Promotion of organic Agriculture information

### During covid 19

**Title of the project, Contact Organization Name, Stakeholder type, Country**

Promotion of organic Agriculture information During covid 19  
 Sciencecast  
 Other  
**Kenya**

**Beneficiaries**

Farmers be it maize farmers, livestock farmers, vegetable farmers i cover a wide range to help all farmers stick with that psoroptes mange in thier livestock, that blackspot in there kale and fall army worm i target organic farmers because i love my environment and food security is one goal i do pursue

**Website**

<https://sciencecast.co.ke>



## Description

its a self developed projects to assist farmers access agriculture extension services on there phones i do write articles and share them in various farmer WhatsApp groups ,Telegram groups ,twitter ,Facebook groups and individual farmers whom i get access to. i use my own airtime to do comprehensive research and provide farmers with latest technology farming updates engaging farmers in the social media and sometimes skype so i help farmers for free and its really interesting My big challenge and worry is how to get to he rural farmers on the ground who lacks smartp

## ICT Tools

my laptop and tablet use them through social media to engage the farmers the good thing about social media is sometime you even get consultations from international farmers

## Challenges / Partnership / Sustainability / Replicability

Challenges: the challenge of getting down to the rural farmer on the ground who lacks smartphones to access these information to overcome these governments create radio channels specifically for agriculture information where we can easily convese through zoom and benefit the farmer on the ground

Partners: yes Radio stations ,Tv stations( communication), NGOS, government of kenya,smart farmer

Replicability: yes, it has been done by most companies on there website the only difference is that i get these information to there varius groups and engage them

Sustainability: YES, well i do it as a hobby plus the enthusiasism i have for it i just want to further it in varius radio stations by requesting free session

## Action Lines

AL C1. The role of governments and all stakeholders in the promotion of ICTs for development|AL C2. Information and communication infrastructure|AL C3. Access to information and knowledge|AL C7. ICT applications: benefits in all aspects of life — E-agriculture|AL C9. Media

## SDGs

**Goal 1:** End poverty in all its forms everywhere | **Goal 2:** End hunger, achieve food security and improved nutrition and promote sustainable agriculture

## Case 11 - 27" interactive monitors

### Title of the project, Contact Organization Name, Stakeholder type, Country

27" interactive monitors  
LEVEL 33 AV sp. z o.o.  
Other  
**Poland**

### Beneficiaries

business, education, administration

### Website

<http://www.level33.rzetelnafirma.pl/>

### Description

We generally promote videoconferencing equipment, which in the Covid-19 era allows you to stay connected despite keeping social distance. The possibility of working on joint documents, very good audio and video, is something that all entrepreneurs, offices and private persons need now and in the near future.

### ICT Tools

Multi-Touch Display    3-Camera Array    8-Microphone Array    Integrated Speakers  
DISPLAY: LED 27", 1080p, 16:9, Capacitive Touch Screen Display    ROOM SIZE: Up to 16 x 16 ft (5 x 5m)    CAMERA SYSTEM: 3 Camera Array, Horizontal Field of View (HFOV): 160 Degrees Combined, Camera Distance: Up to 16ft    AUDIO SYSTEM: 8-Microphone Array, Microphone Pickup Range 0-16 ft., Integrated Stereo Speakers, Acoustic Echo Cancellation, Automatic Gain Control (AGC), Automatic Noise Reduction    INPUTS: HDMI in x 1, RJ45 x 1

### Challenges / Partnership / Sustainability / Replicability

Challenges: convincing decision-makers about the benefits of a high culture of working from home. The 27 "touch screen monitor can be used as an additional monitor at home or in the office. Due to the fact that the device is equipped with excellent cameras, microphones with noise reduction system and speakers, it will be a perfect combo for work. Possibility of

remote work on documents and the possibility of editing them not only keeps social distance, but also saves time and money. A monitor of this size is ideal for transport and will fit in virtually any car trunk. The device is thin and very light, which is another advantage. In a word, it is an ideal solution. for a modern manager in the Covid-19 era.

Partners: I am able to organize and finalize the sale of even large volumes myself. We can also train new users in the optimal use of the equipment and handle possible warranty claims.

Replicability: The project can be considered as continuous.

### Action Lines

**AL C1.** The role of governments and all stakeholders in the promotion of ICTs for development|**AL C2.** Information and communication infrastructure|**AL C3.** Access to information and knowledge|**AL C4.** Capacity building|**AL C6.** Enabling environment|**AL C7.** ICT applications: benefits in all aspects of life — E-government|**AL C7.** ICT applications: benefits in all aspects of life — E-business|**AL C7.** ICT applications: benefits in all aspects of life — E-learning|**AL C7.** ICT applications: benefits in all aspects of life — E-health|**AL C7.** ICT applications: benefits in all aspects of life — E-employment|**AL C7.** ICT applications: benefits in all aspects of life — E-environment|**AL C7.** ICT applications: benefits in all aspects of life — E-agriculture|**AL C7.** ICT applications: benefits in all aspects of life — E-science|**AL C8.** Cultural diversity and identity, linguistic diversity and local content|**AL C9.** Media|AL C10. Ethical dimensions of the Information Society|**AL C11.** International and regional cooperation

### SDGs

**Goal 1:** End poverty in all its forms everywhere|**Goal 8:** Promote inclusive and sustainable economic growth, employment and decent work for all|**Goal 9:** Build resilient infrastructure, promote sustainable industrialization and foster innovation|**Goal 17:** Revitalize the global partnership for sustainable development

## Case 12 - Poetry and Essay Anthology on Covid-19 Pandemic

Title of the project, Contact Organization Name, Stakeholder type, Country

Poetry and Essay Anthology on Covid-19 Pandemic  
Society of Young Nigerian Writers

Other <b>Nigeria</b>
<b>Beneficiaries</b>
General Public
<b>Website</b>
<a href="http://www.societyofyoungnigerianwritersblog.blogspot.com">http://www.societyofyoungnigerianwritersblog.blogspot.com</a>
<b>Description</b>
Call for entries were sent out to poets and essayists to write any topic on Covid-19. We published an electronic poetry and essay anthology on Covid-19 Pandemic.
<b>ICT Tools</b>
Sociam Media tools
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: There are many challenges but lack of funds played a prominent part Partners: Computer Guild of Nigeria (CGN) and Infortude Consult Replicability: Other literary and publishing platformrs have started replicating same. Sustainability: We hope to be updating it with new and fresh entries
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge   <b>AL C4.</b> Capacity building
<b>SDGs</b>
<b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

## Case 13 - BRIDGE Foundation, Bangladesh

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Social Mapping to find out how aware persons with disabilities (PWDs) are about the Covid-19 pandemic. BRIDGE Foundation Other <b>Bangladesh</b>
<b>Website</b>
<a href="http://bridgebd.org/">http://bridgebd.org/</a>
<b>Description</b>
Bridge Foundation, a non-government organisation, conducted a survey to find out how aware persons with disabilities (PWDs) are about the Covid-19 pandemic.
<b>ICT Tools</b>
According to the survey, 53.7 percent of women with disabilities are unemployed at the moment, but they have the skills to work.
<b>Challenges / Partnership / Sustainability / Replicability</b> Challenges: While disseminating information on Covid-19, government and non-government entities should ensure that they are available in sign language and Braille. -Counselling should be made available for PWD  Partnership: Digital services that would be accessible through work from home  Replicability: The awareness campaigns on prevention and treatment of Covid-19 could reach people with non-disabilities in a normal way, but they have not fully reached those with speech, hearing and visual PWDS  Sustainability: In order to break the monotony of staying indoors, various skill-enhancing and educational courses can be introduced online for PWDs. It is essential to implement social security services for COVID 19
<b>Action Lines</b>
<b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development <b>AL C2.</b> Information and communication infrastructure <b>AL C3.</b> Access to information and knowledge <b>AL C4.</b> Capacity building <b>AL C6.</b> Enabling environment

<p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-learning</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health</p> <p><b>AL C7.</b> ICT applications: benefits in all aspects of life — E-employment</p>
<p><b>SDGs</b></p>
<p><b>Goal 3:</b> Ensure healthy lives and promote well-being for all</p> <p><b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p> <p><b>Goal 8:</b> Promote inclusive and sustainable economic growth, employment and decent work for all</p> <p><b>Goal 10:</b> Reduce inequality within and among countries</p> <p><b>Goal 11:</b> Make cities inclusive, safe, resilient and sustainable</p> <p><b>Goal 16:</b> Promote just, peaceful and inclusive societies</p> <p><b>Goal 17:</b> Revitalize the global partnership for sustainable development</p>

## Case 14 - Hello, Kenya

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Laibu Mkononi - A library in the palm of your hand. Hello Other <b>Kenya</b></p>
<p><b>Beneficiaries</b></p>
<p>Our beneficiaries are vulnerable children aged 6-13 years from remote areas of Kenya, the program is still new but our main objective is to increase literacy levels, reduce techno-phobia and enhance their critical thinking skills and make them great at solving problems.</p>
<p><b>Website</b></p>
<p><a href="https://www.techeck.co.ke">https://www.techeck.co.ke</a></p>
<p><b>Description</b></p>
<p>Our focus is on digital access and inclusion for the remote, socio-economically deprived areas by use of smartphones and tablets as an innovative way of engaging children aged between 6 and 13 years. Lack of educational resources to support learners and teachers during this pandemic is a key trigger of this concept. With COVID-19 pandemic, majority of the children especially candidates are unable to access online classes or curriculum materials due to lack of a computer or internet</p>

connection, Laibu Mkononi in partnership with two community libraries in target areas is lending devices preloaded with offline content to help children hone their understanding of a subject, read a storybook or play educational games in a controlled environment, our objective is to enable them to access specific curriculum-aligned subject content to enable them not only be at par with their peers once school resume but also to have had an opportunity to learn about technology and pass their exams. No website yet, but we have a presence on social media, our Twitter handle is @LMkononi

### ICT Tools

Every child deserves the chance to learn, through the Laibu Mkononi project, we are using digital devices to promote early Literacy in Kenya and provide equal access to quality offline and open source electronic resources such as curriculum-based materials, storybooks, educational videos and games, through lending of smartphones, tablets, E-readers, and laptops preloaded with the mentioned electronic content and to the target population, on an hourly to long term basis and at no cost to the loanee. This means that children who don't have access to a computer or internet connection can substitute it with our Laibu Mkononi devices and engage in informal learning activities anywhere and anytime. The devices come secured with parental Control software to limit the applications' accessibility and the time spent on the device, currently set to one and a half hours a day but unlimited storybook reading, therefore creating a safe space for them. Our content is from free emerging mobile learning programs and curriculum-delivery platforms that seek to improve or expand access to learning content for children.

### Challenges / Partnership / Sustainability / Replicability

**Challenges:** The main challenge is scarcity of devices as the list of beneficiaries keeps on increasing, to reduce the gap, I use a donated printer to print hard copies of materials to keep those on the pending list engaged as they await their turn to access the devices. The materials are distributed free of charge.

**Partnership:** Yes, in the resource mobilization, general consultancy, and financial aid to repair donated devices. This is an ongoing project.

**Replicability:** Yes, the project can be replicated elsewhere, I started the project in Kibera, one of the biggest impoverished settlements in the capital city, Nairobi and then replicate the same to Moyale, a marginalized border town about 700 kilometers from Nairobi. So far it's going as planned but I find Moyale beneficiaries to be more aggressive.

**Sustainability:** Affirmative, the overheads so far are to the minimum, if the devices are well taken care of, they will be of benefit to many children in our target areas.

### Action Lines

<p><b>AL C3.</b> Access to information and knowledge</p> <p><b>AL C4.</b> Capacity building</p> <p><b>AL C5.</b> Building confidence and security in use of ICTs</p>
<p><b>SDGs</b></p>
<p><b>Goal 4:</b> Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p> <p><b>Goal 5:</b> Achieve gender equality and empower all women and girls</p>

## Case 15 - IT-Spark LLC, Armenia

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Providing cloud PBX services IT-Spark LLC Other <b>Armenia</b></p>
<p><b>Beneficiaries</b></p>
<p>UCOM, ROSTELECOM, BEELINE PBX and call center Unlimited extension numbers, The ability to quickly and easily organize a call center, Transfer calls (if busy and not answering or the employee is unavailable), Call waiting, ringtone while waiting, Integration with CRM systems, Auto attendant / IVR / voice menu</p>
<p><b>Website</b></p>
<p><a href="https://ipats.su">https://ipats.su</a> <a href="https://ipats.su">https://ipats.su</a></p>
<p><b>Description</b></p>
<p>SOCAP-COVID-19 Project Projects to help travel companies Projects to help courier companies Remote Work Projects</p>
<p><b>Challenges / Partnership / Sustainability / Replicability</b></p>
<p><b>Challenges:</b> Problems of organizing telephone communications in this situation Organize telephony competently with our help</p>



<p><b>Partnership:</b> Armenia, Russia We are looking for partners for the integration of CRM systems</p> <p><b>Replicability:</b> Our projects are individual and flexible.</p>
<p><b>Action Lines</b></p>
<p><b>AL C1.</b> The role of governments and all stakeholders in the promotion of ICTs for development. <b>AL C2.</b> Information and communication infrastructure</p>
<p><b>SDGs</b></p>
<p><b>Goal 17:</b> Revitalize the global partnership for sustainable development</p>

## Case 16 – EADN, Algeria

<p><b>Title of the project, Contact Organization Name, Stakeholder type, Country</b></p>
<p>Dashboard sur l'évolution de Covis-19 EADN Other <b>Algeria</b></p>
<p><b>Beneficiaries</b></p>
<p>Algerian Health Ministry</p>
<p><b>Website</b></p>
<p><a href="https://www.eadn.dz">https://www.eadn.dz</a></p>
<p><b>Description</b></p>
<p>The project consists of a dashboard with an integrated map that shows the evolution of different statistical indicator about the evolution of the Covid-19 pandemic in Algeria. The dashboard is used the daily press conference that the health ministry do to inform the public about the numbers of confirmed, recovered, deaths scattered over the country's provinces.</p>

<b>ICT Tools</b>
ESRI ArcGis
<b>Challenges / Partnership / Sustainability / Replicability</b>
<p><b>Challenges:</b> Time: we had to develop the dashboard quickly so it can be used in order to inform the public about the Covid-19 pandemic evolution and raise awareness of the danger it represents.</p> <p><b>Sustainability:</b> Yes, this type of projects could be user to track the evolution of any kind of situation in the country.</p>
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all

## Case 17 - EADN, Algeria

<b>Title of the project, Contact Organization Name, Stakeholder type, Country</b>
Website for awareness and communication about Covid-19 EADN Other <b>Algeria</b>
<b>Beneficiaries</b>
Algerian Ministry of Health
<b>Website</b>
<a href="https://www.eadn.dz">https://www.eadn.dz</a> <a href="https://m.facebook.com/rainrangerss/">https://m.facebook.com/rainrangerss/</a>

<b>Description</b>
A mass media publicity and awareness campaign programme that vividly explains what people hear and read using online media showing how to access, made, use and dispose face masks properly.
<b>ICT Tools</b>
Internet technology
<b>Challenges / Partnership / Sustainability / Replicability</b>
<p><b>Challenges:</b> Unprotective face mask covering make me vulnerable to CONVID -19 infection and improper use and disposal leads to contaminate and infection. A media programme promoting personal hygiene on mask</p> <p><b>Partnership:</b> Yes am looking for partners to reachout to many people, in the area to media awareness programme</p> <p><b>Sustainability:</b> Yes is replicable on media platforms</p> <p><b>Replicability:</b> This project is sustainable because minimum investment is required with great benefits to our audiences. Through our partnership with expect in various fields of endeavours we create awareness</p>
<b>Action Lines</b>
<b>AL C3.</b> Access to information and knowledge   <b>AL C4.</b> Capacity building   <b>AL C6.</b> Enabling environment   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-business   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-health   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-environment   <b>AL C7.</b> ICT applications: benefits in all aspects of life — E-agriculture   <b>AL C9.</b> Media
<b>SDGs</b>
<b>Goal 3:</b> Ensure healthy lives and promote well-being for all   <b>Goal 6:</b> Ensure access to water and sanitation for all   <b>Goal 17:</b> Revitalize the global partnership for sustainable development

## Final Remarks

The principal role of the World Summit on the Information Society (WSIS) Stocktaking exercise is to leverage the activities of stakeholders working on the implementation of the WSIS outcomes and share knowledge and experience by replicating successful projects designed to achieve Sustainable Development Goals (SDGs).

The world has faced numerous and extraordinary economic, social and developmental challenges since the outbreak of COVID-19. However, it has also changed how we perceive and use information and communication technologies (ICTs) as we continue to battle the fallout of the ongoing pandemic.

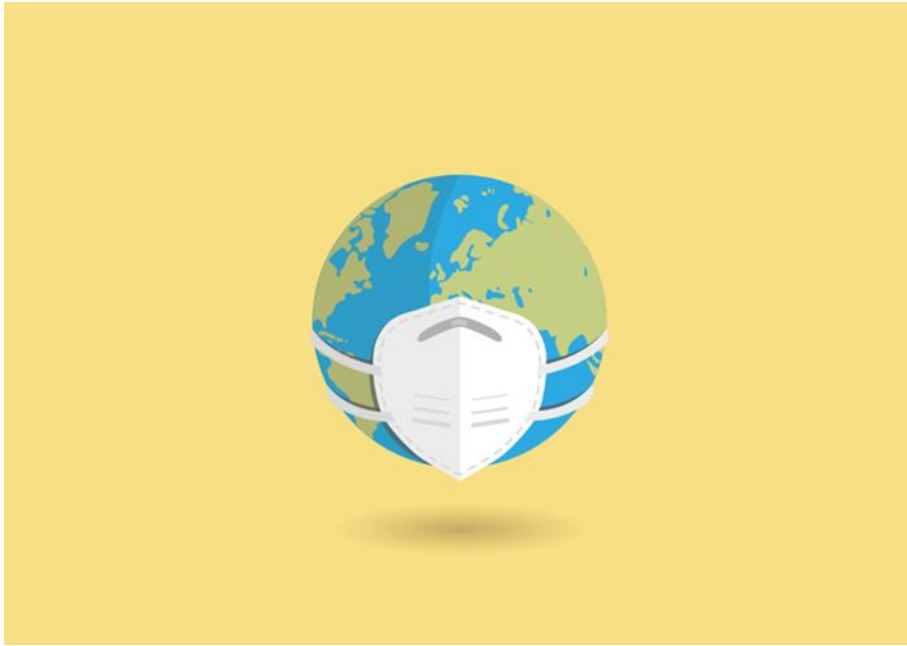
As a part of the WSIS Stocktaking ongoing efforts to promote the good use of information and communication technologies (ICTs) in making a social impact and provide useful, replicable and actionable information to the WSIS community and beyond, we launched a call for action to collect data on projects and activities where ICTs are assisting stakeholders in their everyday life and work, helping them to combat the many challenges brought on by the global pandemic.

The 192 case studies that can be found in this first edition of the WSIS Stocktaking: The Coronavirus (COVID-19) Response - ICT Case Repository is a result of that call.

The COVID-19 ICT Case Repository aims to help individuals and communities worldwide continue to partner, collaborate and implement impactful ICT-led solutions in these exceptional pandemic circumstances. It is hoped that the ICT practices found in this report are replicated elsewhere and thus join the collective effort in responding to the COVID19 pandemic and advancing the SDGs.

The WSIS Stocktaking process serves as a register of activities – including projects, programs, training initiatives, conferences, websites, guidelines, toolkits, and other materials and projects – carried out by governments, international organizations, the private sector, civil society and other entities. To that end, under paragraph 120 of the Tunis Agenda for the Information Society adopted by WSIS, ITU has been maintaining the WSIS Stocktaking Database as a publicly accessible system providing documentation on ICTs-related initiatives and projects with reference to the 11 WSIS Action Lines (Geneva Plan of Action) and 17 SDGs. The call for submissions to the COVID-19 ICT Case Repository is open and ongoing, and WSIS stakeholders are invited to continue submitting their COVID-19 projects to help respond to the various challenges created by these extraordinary circumstances.

If you would like more information on the COVID-19 ICT Case Repository or wish to submit your case study to the database, please contact the WSIS team via the [WSIS website](#).



Ref: Image by cromaconceptvisual from Pixabay - <https://pixabay.com/vectors/virus-mask-coronavirus-disease-4999857/>



Ref: STUDENTS IN ICT BY ROSINE ABENETO, USA, International Organization



Ref: FROM PAST TO THE FUTURE BY MS. SARA KARROUBI, Iran (Islamic Republic of) Government