Digital Innovation Ecosystem Cluster

# 2019 ITU Innovation Challenges Outcome report

ITU**Innovation**
Challenges

Insight to the
2019 challenges

#rediscoverinnovation

**Telecommunication Development Bureau (BDT)**

Contents

# 1 Executive Summary

In 2015, amid the Fourth Industrial Revolution (4IR), world leaders embraced the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs), a global action plan for people, planet and prosperity.

If the world is to achieve the SDGs, it needs a new approach to technology and innovation. In this new paradigm, building ecosystems and fostering digital entrepreneurship to bring technology, innovation, and development together are paramount.

Thanks to the 4IR, information and communication technologies (ICTs) are evolving at an incredibly fast rate — encompassing 3D printing, Internet of things, mobile money and services, social networks and more. The consequences of this rapid evolution are twofold: on one hand, ICTs have the potential to improve people's lives and significantly impact development. On the other, true digital development has been limited to a few communities, cities and countries with access to a nurturing environment that allows ICT innovation to create new products and services, enable entrepreneurs to flourish, small businesses to grow and industries to develop.

Every community should be empowered and possess the right tools and environment to embrace change. A real effort must be made to create an enabling environment that will nurture ICT-centric innovation to sustainably and digitally transform society.

The International Telecommunication Union (ITU), as the lead United Nations (UN) agency for ICTs, looks for new opportunities to accelerate digital transformation and create sustainable, ICT-driven innovation ecosystems.

Through a range of products, services and tools that make up the ITU Innovation Platform, ITU places ICT innovation front and centre in national development planning; helps its Member States foster vibrant ICT-centric innovation ecosystems and accelerate digital transformation to create jobs and inclusive growth in the digital economy.

ITU launched the ITU Innovation Challenges in 2019 as part of the ITU Innovation Platform. The challenges are an open competition where people present their ideas and projects to transform their communities through innovation. It enables innovators to transform their ideas, as well as build and scale their own start-ups that will benefit their nation's development.

Forty-one global winners were chosen by a jury of experts and participated in one of the two ITU events on digital innovation: ITU Telecom World 2019 in Budapest, Hungary and the Young ICT Leaders' Forum in Busan, Korea. Both events took place in September 2019.

ITU is grateful to all participants, sponsors and Member States who made the first edition of the ITU Innovation Challenges possible.

# 2 Introduction

## 2.1 Purpose of this report

This document explains how the ITU Innovation Challenges 2019 were developed and provides an overview of the challenges and project proposals submitted by winners. It shows the purpose of implementing the ITU Innovation Challenges, explains how digital innovation is essential to solving problems in local communities and underscores the importance of having all stakeholders on board to accelerate digital transformation and development around the world. It also provides insight into

some of the innovations already taking place and highlights the need for implementing robust policies and developing strong ICT-centric digital innovation ecosystems.

This report also provides information about the challenge application process; including using the platform, the relevance and importance of co-creation, the selection of the expert jury and the evaluation criteria used to select winners.

Finally, this report gives an overview of the prizes, including winners' participation in forums for innovators, knowledge-sharing events and access to networks and resources to help them develop and scale-up their innovations, as well as explaining how different stakeholder groups can get involved in innovation challenges.

## 2.2    About the challenges

The Telecommunication Development Bureau (BDT) is the secretariat of the [ITU Development Sector (ITU-D)](#), which "fosters international cooperation and solidarity in the delivery of technical assistance and in the creation, development and improvement of telecommunication and ICT equipment and networks in developing countries". The inaugural edition of the ITU Innovation Challenges were launched in June 2019 as part of BDT's digital ecosystem building initiative. This challenge's purpose was to identify ideas to bridge the digital innovation divide, connect the world and empower communities. They targeted ICT innovators, ecosystem builders, and small and medium enterprises (SMEs).

The ultimate goal of the challenge is to accelerate sustainable digital transformation; which can be broken down into smaller goals: identifying innovators and entrepreneurs and the specific problems they are trying to solve through innovation; identifying other stakeholders including financers, policy-makers, financiers, private companies, academia and entrepreneurial support networks; leveraging these networks to help innovators succeed in finding resources gaining expertise, knowledge sharing; and scaling and replicating these projects.

# 3    The 2019 Innovation Challenges

## 3.1    Challenge categories

The 2019 edition of the ITU Innovation Challenge consisted of three separate categories. Each addressed different aspects of ICT-centric innovation; focusing on three of the nine themes from the ITU Digital Innovation Framework. The framework was developed with a multi-stakeholder and cross-sectoral lens. In 2019, the three challenges were:

*Figure 1 Digital Change-Maker Challenge 2019*



*Source: ITU Digital Innovation Ecosystem Cluster, 2019*

1.    **Digital Change-maker Challenge** took innovators on a journey to simplify complex or technical ideas, simplify them and weave them into compelling stories to move decision-makers, resource owners and partners.

2. **Ecosystem Best Practice Challenge** took innovators on an empowering journey to learn with a global community of ecosystem builders, share knowledge and experiences, and identify working best practices that can be globally recognized and shared.

3. **Smart Communities Challenge** took innovators on a journey to understand how to scale and provide access to users with any type of digital service, in an urban or a rural settings.
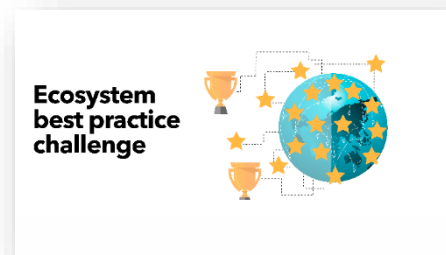
## 3.2   Co-creation

As part of their applications, challenge participants were required to go through a series of co-creation and engagement activities. Doing so helped foster a spirit of and encouraged knowledge sharing in an innovative way.

As depicted in Figure 4, participants first submitted an overview of their or proposal for community feedback and voting. Community members were fellow challenge participants (those in the same category) and moderators. After receiving a minimum number of votes, they could move to the next stage of the challenge.

Participants were able to earn additional votes by commenting, "liking" and voting for other members' submissions. Based on feedback received from the community, they refined their proposals and submitted their final documents for evaluation.

*Figure 6 Process of ITU Innovation Challenges*
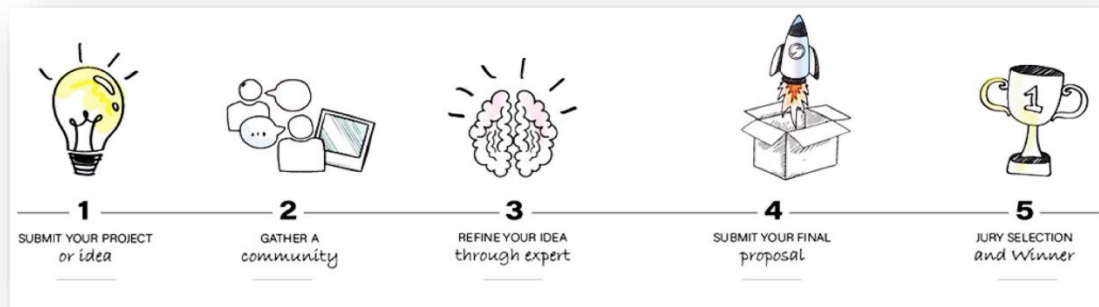


*Source: ITU Digital Innovation Ecosystem Cluster, 2019*

Furthermore, to encourage continuous participation, points and badges were awarded to active participants. Their progress was displayed on the leader board for their challenge categories (Figure 5). This information was also reflected on each participant's individual profile (Figure 6).

*Figure 5 Smart Community Challenge's Leader board*
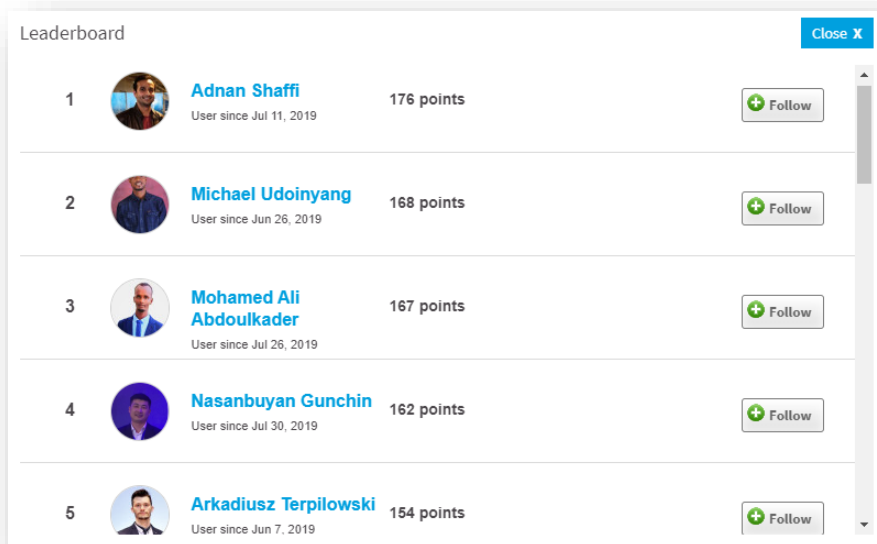


*Source: ITU Innovation Challenges, 2019*

*Figure 4 Digital Change-Maker Challenge Participant's Profile*
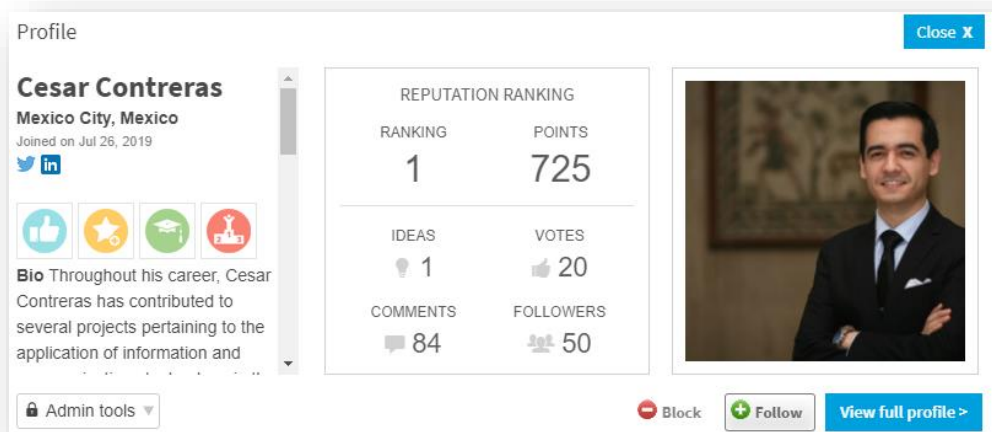


*Source: ITU Innovation Challenges, 2019*

## 3.3 Evaluation criteria

ITU received 140 submissions in total. Seventy-one were refined based on feedback and sent as final submissions.

After thoroughly reviewing all the final submissions, **41 promising proposals** (13 from the Digital Change Maker Challenge, 12 from Smart Communities Challenge and 16 from Ecosystem Best Practice Challenge) were **selected as winners** based on the following criteria:

- **Originality:** The concept of the proposal was original for its context.
- **Creativity:** The idea was innovative and unique.
- **Sustainability:** The ways and methods to sustain the key activities were clearly described.
- **Viability:** The proposed solutions were realistic and logical. Bonus points were awarded if the participant categorized their solutions into short-, medium- and long-term goals.
- **Impact:** The idea/proposal fit the challenge context. The participant considered cross-cutting impacts, problems and relevant solutions.
- **Co-creation:** Special attention was paid to participant who actively helped other ITU Innovation Challenges' Community members advance their ideas.

## 3.4 Jury

The challenge submissions were assessed by a jury of experts from composed of experts in governance, entrepreneurship, business development, communications and ICTs from ITU, and the private and public sectors. Experts in different fields were chosen to provide a holistic assessment of all submissions.

**External experts**

**David Maasz** is a retired internet/digital serial entrepreneur turned angel investor with over 20 years' experience in building successful companies and 10 years' experience in investing. His portfolio includes issues like global health, food and tech.

**Tinyiko Ngobeni** is an electrical engineer by training with over 20 years' experience in ICT in both the public and private sector. Currently he is the Deputy Director General of ICT infrastructure support at the South African Department of Telecommunications and Postal Services. He leads is responsible for broadband, radio frequency spectrum, satellite, cybersecurity and ICT applications portfolios.

**Marta Arsovska Tomovska** is an international digital innovation expert. Between 2011 and 2017, she was the ICT and public administration minister for the Macedonian Government. Currently, she is a digitalization adviser to the Prime Minister Ana Brnabić of Serbia. Ms Arsovska Tomovska provides her expertise on a few boards, including the Emerging Europe Alliance for Business Services and the Macedonian Economic Chamber.

**Jong-woo Yu** is a Business Development Support Department team leader, at Busan IT Industry Promotion Agency. Mr Yu is responsible for start-up acceleration and business innovation support.

Visit the jury page on the ITU Innovation Platform to learn more about the external members.

**ITU experts**

The ITU staff members who were part of the selection team were:

- **Monica Albertini**, Communications Officer, Development Sector
- **Catalin Marinescu**, Head of Corporate Strategy

- **Dr Reinhard** Scholl, Deputy Director, Telecommunication Standardization Sector
- **Dr Ismail Shah**, Regional Officer, ITU Asia-Pacific Regional Office
- **Christine Sund**, Study Group Coordinator, Development Sector

## 3.5   Reward

### 3.5.1   Flagship events

Winners attended one of two events chosen by the Digital Innovation Ecosystem cluster: the Young ICT Leaders' Forum (YILF) in Busan, Korea or ITU Telecom World in Budapest, Hungary. These events were chosen due to their relevance to the cluster's operational mandate. YILF was developed specifically for innovators while the Innovation Ecosystem Programme was a tailored event that took place at ITU Telecom World.

#### 3.5.1.1   Young ICT Leaders' Forum

This annual event, gathered a global community of young ICT leaders, aged between 18 and 35 years, to promote the participation of the youth in the digital economy. The forum programme includes promoting youth engagement in the digital economy, addresses how to bridge the digital divide and discusses research on emerging ICTs, particularly Internet of Things (IoT), among other topics.

The 2019 YILF theme was Mind the gap: sustainability and impact in Smart Cities. It explored two gaps: barriers to youth entrepreneurs addressing relevant problems in their communities and challenges in scaling their solutions in an increasingly complex and interdependent world.

Thirty of the 41 challenge winners experienced a four-day journey that empowered them with the knowledge and skills to become champions in their communities, scale their solutions and create sustainability. The first two days were dedicated to workshops and bootcamps for them to develop their ideas furthers. The third day of the forum was dedicated to knowledge sharing and networking with global experts. On the final day, participants were given a tour of the Busan Smart City ecosystem to a see showcase of a smart city's infrastructure.

#### 3.5.1.2   ITU Telecom World: Innovation Ecosystem Programme

In 2019, the Digital Innovation Cluster hosted its first edition of the Innovation Ecosystem Programme. This event was fully integrated into the exhibitions and forums at ITU Telecom World 2019.

Eleven of the 41 challenge winners participated in this programme. Most of the winners were from the Ecosystem Best Practice challenge category. Participants learned how to use relevant tools to further enhance and pitch their proposals during the event. They also took part in the round-table discussions and innovation power sessions with industry experts.

### 3.5.2   Sponsors

The following sponsors were essential to the challenges' success.

**Busan Metropolitan City**, a city of 3.5 million residents and the country's second largest, is located on the Republic of Korea's south-eastern tip. Busan, a smart city, hosts YILF. The forum launched in 2014 in collaboration with ITU.

**The Busan IT Industry Promotion Agency (BIPA)** fosters ICT development to help the region expand growth in ICT and related industries to boost the city's competitiveness. Founded in 2002, BIPA now has five resident support facilities for local ICT companies and 18 tailored support centres, which support start-ups by providing expertise in developing business ideas and seeking investments, working spaces, and collaboration opportunities; ultimately leading to sustainable job creation. Its support facilities include the Content Korea Lab Busan and the Busan Internet Culture Center.

**The INPUT Program (INPUT)** is an EU-financed Hungarian initiative that fosters internationally competitive tech start-ups. First, the initiative finds talent with innovative tech start-ups or ideas. It then helps get them ready for market by providing them tools and skills to prepare innovators to develop viable projects without cost to the innovator. INPUT then leverages its network to provide opportunities for start-ups to go international through competitions, conferences and meetings.

### 3.5.3   Bootcamps

Bootcamps were integrated into both of YILF and the Innovation Ecosystem Programme agendas. These bootcamps were intensive sessions designed to help the challenge winners understand the technicalities involved in bridging the digital innovation divide and thought them new technical skills using the ITU Digital Innovation Ecosystem frameworks.

Bootcamp highlights included:

- Representatives from selected countries sharing the key actions they are taking to close gaps in programmes or policies to build competitive and sustainable innovation ecosystems.
- The ITU Digital Innovation Ecosystem cluster sharing insights on the services it can provide to assist developing countries in building their ecosystems.
- Knowledge sharing with expertise on the problems that stakeholders are addressing.
- Provision of additional insight on how to amplify best practices from digital innovation ecosystem.
- A matchmaking session in which challenge winners pitched their ideas to an audience of experts and the opportunity for participants to connect and commit to a joint action to carry their ideas forward.

### 3.5.4   Networking sessions and awards ceremonies

Both YILF and the Innovation Ecosystem Programme offered networking with experts and stakeholders; enabling challenge winners and other participants to benefit from the expertise of the digital innovation community.

After the networking session, winners, experts and organizers participated in awards ceremonies. A guest of honour or a jury representative awarded the challenge winners with ITU certificates recognizing their accomplishments.

## 4   Winners

### 4.1   Digital Change-maker Challenge

#### 4.1.1   Overview

This challenge solicited submissions from innovators who have identified a problem in their communities, had a minimum viable project (MVP) and at faced challenges in finding support for scaling up their ideas. The challenge themes were:

- **Digital services** which enable digitalization and transformation of a country into a competitive economy.
- **Skills**: ideas that helped share knowledge, develop competencies and provide expertise to facilitate digital transformation.
- **Infrastructure**: proposals to build inclusive, sustainable and affordable ICT infrastructure.

## 4.1.2 Challenge winners

### 4.1.2.1 Barter Currency

| | Snapshot |
|---|---|
| Extreme poverty has resulted in millions of people in Brazil going hungry. Barter Currency is digital solution to hunger in Brazil. It enables people to exchange goods and services free of charge, enabling people in poverty to access necessities. The app contributes to job creation and helps reduce waste. | **Snapshot**<br>Challenge theme:<br>Digital Services<br>Country of submission:<br>Brazil<br>Relevant SGD(s):<br>1, 2, 10<br>BDT areas of actions:<br>(i) Digital Inclusion (ii) ICT applications |

### 4.1.2.2 Energiest

| | Snapshot |
|---|---|
| While the usage of electric vehicles is growing around the world due to their environmental friendliness, they still only make up 2 per cent of vehicles on the road. This is largely due to the lack of public charging stations, long charging time and short driving time per charge. **Energiest** addresses this problem through a mobile app that connects vehicle owners with home charging station owners. This allows vehicle owners to charge their vehicles more efficiently while allowing those who own home chargers to also make a profit by allowing other to use them, resulting in more people owning electric vehicles than traditional ones. | **Snapshot**<br>Challenge theme:<br>Digital Services<br>Country of submission:<br>Egypt<br>Relevant SGD(s):<br>12, 13<br>BDT areas of actions:<br>(i) ICT applications (ii) Climate change and E-waste |

### 4.1.2.3 GifTeD

| | Snapshot |
|---|---|
| The Philippines national development plan aims to have the entire population enjoying comfort, stability and social protection by 2040. However, government work to achieve this goal is fragmented. This project aims to solve this problem by consolidating data collection, applying this data for sound decision making in business and governance, providing up-to-date information on food consumption and production, and providing smarter disaster risk reduction facilities and services. GifTeD would provide a centralized and trustworthy source of information for the public and private sectors alike to achieve the national development vision. | **Snapshot**<br>Challenge theme:<br>Digital Services<br>Country of submission:<br>Philippines<br>Relevant SGD(s):<br>8, 9, 11<br>BDT areas of actions:<br>(i) Capability Building (ii) Statistics and indicators (iii) Innovation |

### 4.1.2.4 MOVENS - Technology for social movements

| | Snapshot |
|---|---|
| The Fourth Industrial Revolution has, in many ways, left the non-profit sector behind. MOVENS is an app that works to close the public-private digital divide. It addresses civil society's needs by providing NGOs with M&E tools, providing them with the opportunity to build networks and strengthening civil society's digital capacities. | **Snapshot**<br>Challenge theme:<br>Digital Services<br>Country of submission:<br>Switzerland<br>Relevant SGD(s):<br>8,9,11<br>BDT areas of actions:<br>(i) Capacity Building (ii) Innovation |

### 4.1.2.5 Observatory of Digital Technologies and Public Policy Trends

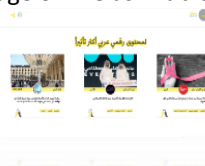| | Snapshot |
|---|---|
| This project works to bring the Fourth Industrial Revolution to Mexico, improving its competitiveness in comparison to other countries. The observatory monitors national and international trends in ICTs, including public policies that promote digital transformation. It then analyses the research and identifies ways to trigger technological development, and then makes policy recommendations by publishing reports. Project stakeholders include academia, civil society, governments, regulators, industry, think tanks and international organizations. | Challenge theme: <br> Digital Services <br> Country of submission: <br> Mexico <br> Relevant SGD(s): <br> 9, 11, 17 <br> BDT areas of actions: <br> (i) Innovation (ii) Least developed countries and small island developing States |

### 4.1.2.6 Powering digital reach to relevant Arabic information through AI

| | Snapshot |
|---|---|
| Fifty-eight per cent the 185 million Internet users in the Arab region struggle to find relevant information in their language online as Arabic-speaking digital publishers do not have the capacity and resources to optimize their content for the search engines or conduct efficient digital marketing. <br> Sejaal addresses this problem by using AI to source credible Arabic content, allowing users to access information through a personalized feed. | Challenge theme: <br> Digital Services <br> Country of submission: <br> Lebanon <br> Relevant SGD(s): <br> 10 <br> BDT areas of actions: <br> ICT applications |

### 4.1.2.7 WomenLead

| | Snapshot |
|---|---|
| Gender inequality is a serious problem facing Myanmar in all aspects of society: in lack of skills to enter formal employment, accessing financial resources like loans and in society's gender expectations. WomenLead was created to rectify this problem by providing women with digital skills, have greater ownership over decisions in their households and teaching them business skills. The project does this by teaching digital literacy and providing online platforms to generate income by selling their products and services. This project targets women who already own small businesses, women who would like to begin their own businesses but do not yet have the requisite resources or knowledge, and women from vulnerable communities. | Challenge theme: <br> Digital Services <br> Country of submission: <br> Myanmar <br> Relevant SGD(s): <br> 4, 5, 8, 9 <br> BDT areas of actions: <br> (i) Capacity Building (ii) Digital Inclusion (iii) Innovation |

### 4.1.2.8 EduPoint

| | Snapshot |
|---|---|
| Millions of children throughout the Africa region lack access to quality education — content, qualified teachers and teacher-student ratio. EduPoint addresses this problem by providing an alternative platform for educational resources. It connects students to verified teachers for one-on-one lessons, and helps them access, evaluate, book and track lessons. It also provides a source of income for instructors. | Challenge theme: <br> Skills <br> Country of submission: <br> Nigeria <br> Relevant SGD(s): <br> 4, 5, 8, 10 <br> BDT areas of actions: <br> (i) Capacity Building (ii) Digital Inclusion (iii) ICT applications |

### 4.1.2.9 Gamifiying Science Education (GamiSciEd)

| | Snapshot |
|---|---|
| There are many challenges facing science education around the world, such as lack of infrastructure, funding, shortage of or unqualified teachers. In other words, adequate science education is inaccessible for students, especially in developing countries. GamiSciEd addresses this problem by providing a centralized learning platform that uses gaming, collaboration and cooperation. The app keeps students engaged in scientific learning, enabling them to pursue careers in science. | Challenge theme: Skills<br>Country of submission: Jamaica<br>Relevant SGD(s): 4, 8, 9, 10<br>BDT areas of actions: (i) Capacity Building (ii) Digital Inclusion (iii) ICT applications (iv) Innovation |

### 4.1.2.10 Homeschooling platform

| | Snapshot |
|---|---|
| Schools in Uzbekistan are overcrowded; with resources available for only is 4.8 million students for an compared to the 6.1 million students in the country. The Home-schooling platform addresses this problem by providing students with access to affordable education. Additionally, it would provide students with additional educational assistance if their parents are unable to provide additional clarity by leveraging digital advancements. Some of the challenges faced by this project are lack of reliable Internet throughout the country and inadequate stakeholder buy-in. | Challenge theme: Skills<br>Country of submission: Uzbekistan<br>Relevant SGD(s): 4<br>BDT areas of actions: (i) Capacity Building (ii) ICT applications |

### 4.1.2.11 Inspire Entrepreneurs

| | Snapshot |
|---|---|
| Young and vulnerable people from disadvantaged backgrounds often lack the resources to further their education or enter formal employment and are often victims of violent crime and exploitation. This project is a digital platform that addresses this problem by focusing on entrepreneurial education. It helps young people, specifically those in primary and secondary school, learn how to begin their own companies, as well as access further education and receive mentorship. | Challenge theme: Skills<br>Country of submission: United Kingdom<br>Relevant SGD(s): 4, 8, 10<br>BDT areas of actions: (i) Capacity Building (ii) Digital Inclusion (iii) ICT applications |

### 4.1.2.12 Mission Possible: Social Innovation Labs

| | Snapshot |
|---|---|
| Young Eritrean refugees in Ethiopia lack opportunities for education and income generation. Mission Possible addresses this problem by leveraging volunteers to help these young people a) develop digital skills and b) learn how to problem solve collaboratively. To overcome the issue of poor Internet connectivity, there is an app which can be downloaded and used online, so those without a steady connection are still able to benefit. The project targets Eritrean refugees ages 14–18. | Challenge theme: Skills<br>Country of submission: United Kingdom<br>Relevant SGD(s): 4, 8, 10<br>BDT areas of actions: (i) Capacity Building (ii) Digital Inclusion (iii) ICT applications |

### 4.1.2.13 Young IT Professional Development

| | Snapshot |
|---|---|
| Eighty per cent of public and private enterprises in Myanmar are analogue and need to be brought into the 21st century through digital transformation. This project works to modernize the country's economy and create decent jobs for the country's young talent pool. It does this by training final-year students for three months per year so they can put the digital skills learned in higher education to practice. At the same time, it helps meet the demand by employers to modernize their internal infrastructure. | **Snapshot** <br> Challenge theme: <br> Infrastructure <br> Country of submission: <br> Myanmar <br> Relevant SGD(s): <br> 4, 8, 10 <br> BDT areas of actions: <br> (i) Capacity Building (ii) Digital Inclusion (iii) ICT applications |

## 4.2 Ecosystem Best Practice Challenge

### 4.2.1 Overview

This challenge sought ecosystem builders who could share practices that support ICT innovation and pitfalls to avoid, enabling good practices could be scaled and replicated globally. Applicants were asked to submit practices that enables innovators to develop ICT-centric ecosystems. The challenge themes were:

- **Integrating ICT innovation in key sectors** to help entrepreneurial ventures realize their full potential and scale up into prospective markets.
- **Guiding innovation dynamics**: proposals that helped nurture an ICT-centric innovation mindset and culture.
- **Innovation capacity building**: proposals that would provide infrastructure and spaces to develop digital solutions.

### 4.2.2 Challenge Winners

#### 4.2.2.1 Evercity

| | Snapshot |
|---|---|
| This project introduces digital innovations to accelerate achievement the SDGs by identifying public and private sector needs for sustainable smart cities. **Evercity** does this by providing early stage investment and acceleration for tech companies that help make global cities smarter and more sustainable. It also organized the AI, Blockchain and IoT Smart Sustainable City Hackathon with public and private partners, as well as other competitions. | **Snapshot** <br> Challenge theme: <br> Integrating ICT innovation in Key sectors <br> Country of submission: <br> Russia <br> Relevant SGD(s): <br> 8, 9, 11, 17 <br> BDT areas of actions: <br> (i) Innovation (ii) Capacity Building |

#### 4.2.2.2 Open innovation in Mobile Agriculture- Telenor Pakistan

| | Snapshot |
|---|---|
| This project helps accelerate digital transformation of the agriculture sector in Pakistan, which accounts for 21 per cent of the country's GDP and employing 43 per cent of the country's labour force.  This project's fosters an open innovation ecosystem, creating partnerships between Telenor's mobile agriculture service and tech start-ups to co-create innovative, disruptive solutions to address the needs of Pakistan's rural farmers.  It does this by using technologies to improve yields, build resilience to disasters and improve market access. These innovative technological solutions are then scaled efficiently and effectively leveraging Telenor's digital assets. | **Snapshot** <br> Challenge theme: <br> Integrating ICT Innovation in Key sectors <br> Country of submission: <br> Pakistan <br> Relevant SGD(s): <br> 9, 17 <br> BDT areas of actions: <br> (i) Digital Inclusion (ii) ICT applications (iii) Innovation |

### 4.2.2.3    Accra Digital Center

| | Snapshot |
|---|---|
| Despite the talent and infrastructure in Accra, Ghana, the city has yet to build a mature, ICT-centric digital innovation ecosystem. The Accra Digital Centre provides a solution to this problem by the Ministry of Communications, which will set up a mini digital technology park. The centre has a combination of infrastructure, support services and carefully designed programmes that contribute to developing an ecosystem for digital innovation and entrepreneurship in Ghana. Five hundred disadvantaged youth have additionally been trained in digital skills, providing them with opportunities and unleashing their talent to help develop Accra's tech innovation ecosystem. | Challenge theme: <br> Innovation Capacity Building <br> Country of submission: <br> UAE <br> Relevant SGD(s): <br> 4, 8, 9, 11, 17 <br> BDT areas of actions: |

### 4.2.2.4    Bit Bots

| | Snapshot |
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| This project works to bring Pakistani education into the 21st century to enable people to compete in our increasingly digital world. Bit Bots focuses on getting children in north-west Pakistan interested and knowledgeable in science, technology, engineering, arts and mathematics (STEAM). The project facilitates education reform by integrating science, technology, engineering, arts and mathematics (STEAM) education into school curricula in north-western Pakistan so that children are exposed to potential professions at an early stage. | Challenge theme: <br> Innovation Capacity Building <br> Country of submission: <br> Pakistan <br> Relevant SGD(s): <br> 8, 11 <br> BDT areas of actions: <br> (i) Digital Inclusion (ii) Capacity Building |

### 4.2.2.5    Boosting &amp; Accelerating Chilean Ecosystem

| | Snapshot |
|---|---|
| Start-Up Chile (SUP) is a public start-up accelerator created by the Chilean Government to ensure that the country is a world hub for technological innovation and drives tech enterprises to positively impact the nation's economy. SUP does this by providing participants with equity-free money; training, mentors and investors; community and networks; and soft landing and one-year work visa. In the past six years, SUP has received more than 1 400 start-ups. | Challenge theme: <br> Innovation Capacity Building <br> Country of submission: <br> Chile <br> Relevant SGD(s): <br> 8, 9, 11, 17 <br> BDT areas of actions: <br> (i) Capacity Building (ii) Innovation |

### 4.2.2.6    Capacity Building Accessible Anywhere Anytime

| | Snapshot |
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| This project conducts several activities accelerate the National Plan for UAE Smart Government's human capital development. These activities include capacity building by conducting ICT-related courses online, onsite or through on-demand videos. The centre also has an active research and development unit through which the CoDI team develops digital solutions to real-life. As a result of these activities, CoDI has published books, digital content, and papers sharing their experiences, knowledge and best practices; helping to train over 20 000 people in 53 countries. | Challenge theme: <br> Innovation Capacity Building <br> Country of submission: <br> UAE <br> Relevant SGD(s): <br> 4, 8, 9, 11, 17 <br> BDT areas of actions: <br> (i) Capacity Building (ii) Innovation |

### 4.2.2.7    Code & Play: Coding Club & TechKids Camp for young generations

| | Snapshot |
|---|---|
| These two projects work to provide students with opportunity for early exposure to and education in programming and coding, helping students and teachers meet international ICT standards. Code & Play has two primary activities for primary and secondary school students. The first is a coding camp which provides primary school students with "hands-on, minds-on" coding experience. The second activity is the National TechKids Camp, during which participants use coding skills to build their own applications and compete with one another. | Challenge theme:<br>Innovation Capacity Building<br>Country of submission:<br>Brunei<br>Relevant SGD(s):<br>8, 11<br>BDT areas of actions:<br>(i) Digital Inclusion (ii) Capacity Building |

### 4.2.2.8    Coding with UKE - programming learning for children

| | Snapshot |
|---|---|
| New technologies present many opportunities for development; yet not everyone has the knowledge or skills to benefit from them. The UKE project teaches children and youth skills in new technologies, improving their digital competency and literacy, and fostering digital inclusion. This project educates young people by providing concrete tools: knowledge, skills and workshops. UKE also runs Code Week, allowing participants to apply their coding skills to real-life context such as museums, hospitals and fairs. | Challenge theme:<br>Innovation Capacity Building<br>Country of submission:<br>Poland<br>Relevant SGD(s):<br>8, 9<br>BDT areas of actions:<br>(i) Digital Inclusion (ii) Capacity Building |

### 4.2.2.9    Smart Incubation Replication Grows Innovation (SIR-GI)

| | Snapshot |
|---|---|
| This non-profit South African business incubator specializes in media, ICTs and electronics. The project assists individuals in building digital skills and scaling start-ups to enable communities to leapfrog their digital transformation. One of its major targets is to combat youth unemployment by helping to seed start-ups. It has incubated 67 start-ups, resulting in job creation, and helped create 27 innovations that were created. | Challenge theme:<br>Innovation Capacity Building<br>Country of submission:<br>South Africa<br>Relevant SGD(s):<br>8, 9, 11, 17<br>BDT areas of actions:<br>(i) ICT applications (ii) Capacity Building (iii) Innovation |

### 4.2.2.10   Summerside Prince Edward Island Living Lab Program

| | Snapshot |
|---|---|
| This project is a test bed for firms looking to develop market solutions. It helps to facilitate full-scale deployment of products and services. It is open to companies seeking rapid results in testing and modelling for advanced deployment in the early stages of product life. This unique programme enables companies, researchers and developers to work directly with the community and its unique infrastructure to further product development, programme applications, product testing and integration in a real-world setting. | Challenge theme:<br>Innovation Capacity Building<br>Country of submission:<br>Canada<br>Relevant SGD(s):<br>8, 9, 11, 17<br>BDT areas of actions:<br>(i) Capacity Building (ii) Innovation |

### 4.2.2.11 Certified Ethical Technology

| | Snapshot |
|---|---|
| This project works to maximize the positive social impacts of ICT products and minimize the social harms and dangers that these products could have on peoples' lives, their community and broader society. It does this by developing methods and processes that enable technology companies to conduct ethical analyses when building new products by bringing together ethicists, technologists, regulators and social commentators to assess the ethical concerns regarding the design and development of ICTs such as artificial intelligence, big data and the growing power and influence of digital platforms; ultimately building an international ecosystem.  The project's goal is to develop a certification that will indicate that a technology product has been designed and developed to serve people, planet and society in the best way possible. | **Snapshot** Challenge theme: Guiding Innovation Dynamics Country of submission: Australia Relevant SGD(s): 16, 17 BDT areas of actions: (i) Cybersecurity |

### 4.2.2.12 First virtual IT Park "Moldova IT Park"

| | Snapshot |
|---|---|
| Moldova IT Park is a cluster facilitator, promoting collaboration between ICT-centric innovation ecosystem stakeholders. It does this by soliciting investment in IT, encouraging flexibility in IT policy, and nurturing an environment conducive to ICT innovation and a digital transformation. Companies are incentivized to participate in the Moldova IT Park through a single flat tax rate of 7 per cent, which cuts down on bureaucratic red tape. The project's activities primarily concern R&D in engineering, prototyping,  various activities in IT, special video and audio effects, graphic design, IT consultancy and education. | **Snapshot** Challenge theme: Guiding Innovation Dynamics Country of submission: Moldova Relevant SGD(s): 9, 11, 17 BDT areas of actions: (i) Innovation (ii) Technology and Network Development |

### 4.2.2.13 Insights

| | Snapshot |
|---|---|
| This project helps companies innovate by solving real business problems with the help of a nationwide community of creative and entrepreneurial high-school students. This initiative has two stakeholder groups: students, who participate in a design thinking boot camp, after which they pitch a solution to a real business issue to companies. The  boot camps and pitching sessions helps young people develop their business, critical thinking, empathy, creativity and analytical thinking skills. The other stakeholder group, private companies, benefit from innovative solutions from young people in Romania. | **Snapshot** Challenge theme: Guiding Innovation Dynamics Country of submission: Romania Relevant SGD(s): 8, 9, 11, 17 BDT areas of actions: (i) Innovation (ii) Capacity Building |

### 4.2.2.14 Rural Innovation Lab (B-Lab)

| | Snapshot |
|---|---|
| B-Lab, Bangladesh's first ICT-enabled incubation facility, combats unemployment among rural youth by fostering entrepreneurial skills. Its entrepreneurship development platform. This project focuses on local economic growth and will facilitate virtual incubation platform to promote agro-based businesses and services.  B-Lab's main objective is to address unemployment by creating entrepreneurship and self-employment opportunities. | **Snapshot** Challenge theme: Guiding Innovation Dynamics Country of submission: Bangladesh Relevant SGD(s): 8, 9 BDT areas of actions: (i) Digital Inclusion (ii) Innovation |

### 4.2.2.15  Tomorrow Lab

| | Snapshot |
|---|---|
| This project's objective is to solve societies' problems by leveraging digital technologies for innovation. They do this by (i) generating new innovations and (ii) validating hypotheses of pre-existing ideas. They then intensify investment in these ideas for the market by conducting research and building solutions based on themes identified through data collection. Through this model, the project has brought digital transformation to public health services, transportation, financial services and more. | Challenge theme: Guiding Innovation Dynamics Country of submission: Brazil Relevant SGD(s): 8, 9, 11, 17 BDT areas of actions: (i) Capacity Building (ii) Innovation |

### 4.2.2.16  Web Analytics Community Development

| | Snapshot |
|---|---|
| This project helps companies understand their potential customers' needs, easily analyse data and efficiently respond to new market demands by using growth hacking strategies.  This project aims to expand triple the network of Romanian web analytics professionals from Romania from 250 to 750 by the end of 2020.  It does this by providing web analytics workshops and meet ups, organizing and conferences like MeasureCamp Bucharest and providing online web analytics courses. | Challenge theme: Guiding innovation dynamics Country of submission: Romania Relevant SGD(s): 8, 17 BDT areas of actions: (i) ICT applications |

## 4.3  Smart Communities Challenge

### 4.3.1  Overview

The Smart Communities Challenge looked for ideas that would enable smart communities to unleash opportunities and connect the unconnected using a strong business ecosystem approach to close the access and usage gap facing communities. This challenge sought submissions aspiring entrepreneurs with an ICT-centric solution that can be scaled up to unlock the potentials of a smart community. The themes were:

- **Economic**: proposals that would improve economic opportunities and facilitate inclusive growth in a community.
- **Social**: ideas that enable individuals to access and receive services in their communities.
- **Environmental**: proposals that improve a community's capacity to be sustainable and resilient to climate change.

### 4.3.2  Challenge winners

#### 4.3.2.1  Bridging the Urban-Rural Divide by Digitizing the Rural Retailer

| | Snapshot |
|---|---|
| In Pakistan, the sixth most populated country in the world, over 60 per cent of the population lives in rural areas and consequently face significant barriers to accessing the goods and service they need. PriceOye's DukanWala is a technological platform built to solve this problem by connecting rural customers to urban sellers. This co-created, user-centric platform enables rural customers to assess the goods available in urban markets and place an order through a local retail partner. This cuts down significantly on costs for both the retailer and the customer and provides an essential service to rural dwellers. | Challenge theme: Economic Country of submission: Pakistan Relevant SGD(s): 2, 11 BDT areas of actions: (i)Digital Inclusion (ii) ICT applications |

### 4.3.2.2 Cysec - Protecting the world's assets

| | **Snapshot** |
|---|---|
| The rapid growth of digital data during the past few years has raised the question of how to securely store and transmit data. To assist companies in data management and protection, Cysec provides businesses with a highly secure environment called ARCA1, which guarantees accurate execution of software codes and preservation and secure processing of digital data. The result is a secure, uncompromised, scalable platform for generating, storing, managing and leveraging digital assets. Cysec plans to generate new digital assets by undertaking security management for products and services from other companies, start-ups and institutions. | Challenge theme: Economic Country of submission: Switzerland Relevant SGD(s): 9, 17 BDT areas of actions: (i) Cyber Security (ii) Innovation |

### 4.3.2.3 Publiseer

| | **Snapshot** |
|---|---|
| African artists— including authors, musicians and filmmakers— earn below the minimum wage and cannot afford to publish, promote, protect and monetize their creations. At the same time, artists are forced to use expensive western digital content aggregators due to a lack of African ones. Publiseer is a digital content distribution problem that addresses this problem by allowing artists to publish, protect, promote and monetize their creative works on over 400 partner stores in 100 countries at no charge with a single click. Publiseer provides additional services, such as grammar a spell checking, online music mastering and local bank and/or mobile monetization systems. | Challenge theme: Economic Country of submission: Ghana Relevant SGD(s): 8, 10 BDT areas of actions: (i) ICT applications (ii) Digital Inclusion |

### 4.3.2.4 Qumaq - Instant help

| | **Snapshot** |
|---|---|
| Drones are everywhere nowadays, yet most rely on a pilot using a remote control. Qumaq has developed a solution in which a drone fleet can be piloted automatically, safely and cost effectively. Users do this through an online dashboard that allows for remote control of drones. Through its platform, Qumaq equips drone operators the necessary tools you need to use their drones for deliveries, aerial pollination, surveillance and monitoring, mapping, and 3D modelling, among other uses. | Challenge theme: Economic Country of submission: Pakistan Relevant SGD(s): 9 BDT areas of actions: (i) ICT applications (ii) Innovation |

### 4.3.2.5 RegoPantes: Help Farmers, Get Fresher Products

| | **Snapshot** |
|---|---|
| Goal 2 of the SDGs (Zero Hunger) aims to ensure that everyone in the world has access to adequate food and nutrition. In Indonesia, most agricultural commodities must pass through long supply chains after leaving the producer — going through collectors, village and district scale traders, wholesalers, distributors and retailers — before arriving at the consumer; resulting in low selling prices for the farmers and high buying prices for the consumer. RegoPantes was developed to keep prices low for consumers and for farmers to earn a fair price. It does this through an online marketplace that connects farmers and consumers, facilitating the sale of quality products. | Challenge theme: Economic Country of submission: Indonesia Relevant SGD(s): 2 BDT areas of actions: (i) Digital Inclusion (ii) ICT application |

### 4.3.2.6 Save The Chicken AI

| | Snapshot |
|---|---|
| Poultry and eggs are acceptable to most cultures and religions; and have the potential to achieve Goal 2 (Zero Hunger) of the SDGs by eliminating malnutrition. However, poultry disease outbreaks result in financial losses for the millions around the world who make a living from poultry farming. The Save the Chicken AI application helps save chicken by performing instant diagnoses based on a picture of the infected bird, providing results and advising treatment. This app can review over 200 000 scans simultaneously. | **Snapshot**<br>Challenge theme:<br>Economic<br>Country of submission:<br>Cameroon<br>Relevant SGD(s):<br>2<br>BDT areas of actions:<br>(i) Digital Inclusion (ii) ICT applications |

### 4.3.2.7 DamoGO : Rescue Delicious Unsold Food Around You! Tackle Food Waste With Us

| | Snapshot |
|---|---|
| Two-thousand tons of perfectly good food is thrown away by restaurants, bakeries, and grocery stores in Korea, adding up to 15 per cent to their food costs. DamoGO provides these service providers to sell this food before it reaches the waste bin, significantly cutting down on food waste. This mobile application allows consumers to find unsold and safe food for a discounted price. DamoGO aims to cut down food waste in Korea by 20 per cent within the next five years. | **Snapshot**<br>Challenge theme:<br>Social<br>Country of submission:<br>Indonesia/South Korea<br>Relevant SGD(s):<br>2<br>BDT areas of actions:<br>(i) Digital Inclusion (ii) ICT applications |

### 4.3.2.8 Empowered - eWork Solution for Persons with Disabilities

| | Snapshot |
|---|---|
| Persons with disabilities (PWDs) are particularly vulnerable to unemployment and poverty; and they and their families face significant economic and social barriers. Empowered - eWork Solution for Persons with Disabilities addresses this problem by providing an accessible, virtual work platform that offers PWDs the opportunity to access employment and service provider contracts from the comfort of their homes. Additionally, the project aims to train PWDs in digital skills and employ them. Empowered ensures its sustainability by charging a 15 per cent commission fee and a USD 10 monthly subscription fee. | **Snapshot**<br>Challenge theme:<br>Social<br>Country of submission:<br>Trinidad and Tobago<br>Relevant SGD(s):<br>8, 10<br>BDT areas of actions:<br>(i) Capacity Building (ii) Digital Inclusion (iii) ICT applications |

### 4.3.2.9 OneAcademy

| | Snapshot |
|---|---|
| While e-learning has grown in popularity during the Fourth Industrial Revolution, many service providers have found that the existing platforms were time consuming and cost ineffective. OneAcademy is a platform created to address these issues. IT does this by combining a learning management system, virtual classrooms and an e-commerce system into one platform. This saves up to 60 per cent for e-learning service providers and reduces the amount of time they spend on administration, as well as cutting down on human error. | **Snapshot**<br>Challenge theme:<br>Social<br>Country of submission:<br>United Kingdom<br>Relevant SGD(s):<br>4, 8<br>BDT areas of actions:<br>(i) Capacity Building (ii) ICT applications |

### 4.3.2.10 Pan-African Center for Autism (PACA)

| | Snapshot |
|---|---|
| The Africa region suffers from a lack of policies, social workers infrastructure, healthcare centres and social information centres that are equipped to assist autistic people. Their families are also often ill-equipped to know how to respond to their needs. The Pan-African Center for Autism addresses this problem by providing a marketplace for trained and certified caregivers can be hired by autistic people. There is both a web-based and mobile app version of the service, which also provides relevant information. PACA also connects with special-education public schools that allows users to track their progress and needs, and collate donations to offer scholarships, subsidize therapy and empower autistic people to live independent lives. | **Challenge theme:** <br> Social <br> Country of submission: <br> Nigeria <br> Relevant SGD(s): <br> 8, 10 <br> BDT areas of actions: <br> (i) Capacity Building (ii) Digital Inclusion (iii) ICT applications |

### 4.3.2.11 Zip Services Platform

| | Snapshot |
|---|---|
| Unemployment and underemployment are serious problems in Mongolia: in the capital city of Ulaanbaatar alone, 160 000 (out of 1.5 million) are unemployed. The Zip Services Platform addresses this problem by providing service providers to find consumers. A website and two mobile versions (Apple and android) of Zip Services provides connects customers and service providers in Mongolia through GPS technology, allowing people to access nearby on demand taxis, deliveries and professional services. The Zip Services Platform also offers secure payment methods and is available in six languages. | **Challenge theme:** <br> Social <br> Country of submission: <br> Mongolia <br> Relevant SGD(s): <br> 8 <br> BDT areas of actions: <br> (i) ICT applications |

### 4.3.2.12 WaterKit

| | Snapshot |
|---|---|
| Lack of access to clean water and sanitation is a global issue, with 2 billion people worldwide using water sources contaminated with feces and lacking access to improved sanitation. WaterKit is a social enterprise that addresses this problem by using machine learning and AI to analyse community-generated data to assess water quality and recommend water treatment methods. WaterKit does this through a combination of routine manual and automatic surveillance of water points, using a combination of IoT and a mobile app. The app's pilot project, which monitors the hygiene, availability and reliability of water points, is being piloted in Northern Uganda. | **Challenge theme:** <br> Environment <br> Country of submission: <br> Uganda <br> Relevant SGD(s): <br> 6, 10 <br> BDT areas of actions: <br> (i) ICT applications (ii) Least developed countries and small island developing States |

## 5 Aftermath

Although the 2019 ITU Innovation Challenge(s) have ended, the journey is far from over. Through the challenge, winners were able to connect with a network of stakeholders who have continued to help them develop, refine and get their ideas ready to be introduced to market.

Twenty-nineteen was only the first edition of the challenge. Due to its success, the Digital Ecosystem Cluster will continue to host the challenge, applying good practice and lessons learned from its first year to improve the platform; continue to identify innovators, entrepreneurs and stakeholders; and leverage ecosystems to contribute to positive and sustainable social and economic development through digital transformation.

# 6   Conclusion

The first edition of the ITU Innovation challenge proved to be a success. By leveraging on expertise from ITU and its network, including sponsors, the ITU Innovation Challenge was able to identify original ideas from innovators and entrepreneurs around the world who are working to solve development challenges in their communities.

Through a co-creation platform, innovators were able to receive feedback from one another and challenge moderators, strengthening their ideas and shaping them into compelling narratives that would capture the attention of other stakeholders, including support networks, financers, researchers and policy-makers for all three challenges: Digital-Change Maker, Ecosystem Best Practice and Smart Communities.

The winners of these ideas attended tailored programmes at one of two events; YILF or ITU Telecom World, where they participated in workshops and bootcamps; networked with other innovators, experts, financers, policymakers and decision-makers; and pitched their ideas. Participants also witnessed first-hand the transformative effects that digital innovation and entrepreneurship can have on communities, allowing them to visualize what their creations could mean for inclusive and sustainable development in their own communities and around the world.

# 7   Call to action

Digital innovation requires communities, not individuals. As demonstrated in this report, the challenge was not the work of one person or organization; but rather combined the creativity, knowledge, expertise and resources from all ecosystem to make it a success.

To be involved in the 2020 edition of the ITU Innovation Challenges or to learn more about the Digital Innovation Cluster, contact innovation@itu.int.

## 7.1   Innovators

Are you an aspiring innovator in dire need of right guidance and resources to bridge the digital innovation divide? If yes, we invite you to take part in our 2020 ITU Innovation Challenges (Phase I). Visit our website for more information.

## 7.2   Former winners

Share your story either as a write up or a two minutes video and tag us (#rediscoverinnovation #innovation ecosystem). Also, stay in touch with us so that you can mentor prospective challenge winners and engage with us in other initiatives.

## 7.3   Stakeholders

Contact us if you think you can support us or the former winners in any meaningful and impactful way.

## 7.4   ITU staff

Contact us if you think you can collaborate with either any of the 2019 batch of challenge winners or with us to co-develop an initiative/challenge.