MOD

QUESTION 1/2

Enabling telecommunications/ICTs for digital transformation and smart sustainable cities and communities

1 Statement of the situation or problem

Information and communication technologies (ICTs) and services can play a key role in all sectors of society including – culture, science, business, agriculture, environment, education, health, transport, trade and tourism. Applications can include: the protection of persons and property; smart management of traffic, saving electricity, measuring the effects of environmental pollution, improving agricultural yields, increasing efficiency in travel and tourism; management and delivery of health care, management and control of drinking-water supplies; and solving the problems facing cities and rural areas. This is the smart society. Similarly, as highlighted by the World Summit on the Information Society (WSIS), ICT applications can support sustainable development in public administration, business, education and training, health, the environment, agriculture and science within the framework of national cyberstrategies.

A smart society can be realized by achieving smartness; and digitalization across either:

1) A specific sector: employing digital services in different sectors such as health, education, tourism.

2) A specific region: at a city, village, or community level.

The offerings of smart services present new opportunities for social and economic development, particularly in developing countries. Enabling technologies, such as cloud computing and AI, offer increased convenience, improved productivity, industrial development, and can improve overall quality of life.

The United Nations 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs) recognizes the enormous possibilities offered by ICTs and calls for significant increase in access to such technologies. ITU therefore deems it a priority to support its membership in achieving the SDGs, in close collaboration with other stakeholders.

In 2024, the United Nations accepted Global Digital Compact, and one of the actions is to map and connect all schools and hospitals to the Internet, building on the Giga initiative of the ITU and UNICEF, and enhance telemedicine services and capabilities.

Delivering the promise of smart sustainable cities and communities relies on three technological pillars – connectivity, smart collection points and software

Connectivity and underlying infrastructure encompass both traditional and emerging networks and new technologies. They are key enablers that support the provision of smart services. Examples include machine-to-machine (M2M) communication, the Internet of Things (IoT), and resulting applications and services such as e-government, traffic management and road safety.

Smart data collection points are connected via the underlying infrastructure and connectivity layer to exchange data between the field and the city operation centre. Cars, traffic lights and cameras,

water pumps, electricity grids, home appliances, streetlights and health monitors are all examples of things that can be connected to smart devices/terminals.

Capitalizing on connectivity and collected data, software and processing layer supports the provision of smart services. Software includes both the city platform which interfaces with all terminals and data collection points seamlessly and the service-specific functions tailored for either a vertical application or a service in a smart city or community.

It will be possible for the work carried out under this study Question to be founded on Resolution 11 (Rev. Kigali, 2022) on telecommunication/ICT services in rural, isolated and poorly served, Resolution 68 (Rev. Kigali, 2022) on assistance to indigenous peoples and communities through ICTs, and Recommendation ITU-D 19 on telecommunications for rural and remote areas of the World Telecommunication Development Conference; on Resolutions 139 (Rev. Bucharest, 2022), on the use of telecommunications/ICTs to bridge the digital divide and build an inclusive information society, and 197 (Rev. Bucharest, 2022), on facilitating IoT to prepare for a globally connected world, of the Plenipotentiary Conference; Resolutions 44 (Rev. New Delhi, 2024), on bridging the standardization gap between developing and developed countries, and 98 (Rev. New Delhi, 2024), on enhancing the standardization of IoT, digital twins, and smart sustainable cities and communities for global development of the World Telecommunication Standardization Assembly; and Resolution ITU-R 66-2 (Rev. Dubai, 2023) of the Radiocommunication Assembly, on studies related to wireless systems and applications for the development of IoT.

2 Questions or issues for study

Based on the statement of the situation set out in § 1 above, the issue of study will revolve around the three main pillars in addition to other complementary components, as follows:

1) Consideration of smart sustainable cities and communities (SSCCs) to enlarge the scope of study and include smart villages and any form of communities, including those for rural and remote areas.

2) Raising awareness and sharing experiences on improving connectivity and telecommunications/ICTs as an enable for smart sustainable cities and communities (SSCC), and potential smart services.

3) Study methods and examples of how software and platforms, both open-source and/or proprietary, enable provision of smart services.

4) Studying policies, business models and regulatory frameworks that ensure the involvement of different stakeholders and yield sustainable and harmonious development of smart services and SSCCs.

5) Study reference data management architectures that would promote and enable development of SSCCs.

6) Sharing performance benchmarks and assessment mechanisms for smartness in terms of quality-of-life, technical aspects and policy mechanisms.

7) Sharing of experiences and best practices in building SSCCs and choosing/providing smart services and applications.

8) Capacity building and the acquisition of knowledge on ICTs for adoption of the skills required for development of a smart services and SSCCs (in collaboration with Question 5/2).

9) Encouraging city planners, city officials and other relevant stakeholders to participate in the study and share their experiences.

3 Expected output

The output expected from this Question will include:

a) Guidelines on policy approaches to facilitate the development of ICT applications in society, fostering social and economic development and growth.

b) Case studies on the application of IoT, communications and ICT applications in building SSCCs, identifying the trends and best practices implemented by Member States as well as the challenges faced, in order to support sustainable development and foster smart societies in developing countries.

c) Increasing awareness among relevant participants regarding the adoption of open-source strategies for enabling access to telecommunications, and studying the drivers for increasing the degree of preparedness to use and develop open-source software to support telecommunications in developing countries, as well as creating opportunities for cooperation between ITU members by reviewing successful partnerships.

d) Analysis of factors affecting the efficient roll-out of connectivity to support ICT applications that enable e-government applications in SSCCs.

e) Organization of workshops, courses and seminars for the development of capacities allowing improved uptake of ICT applications and IoT.

f) Annual progress reports, which should include case studies, and a detailed final report containing measurement analysis, information and best practices, as well as any practical experience acquired in the areas of use of telecommunications and other means of enabling ICT applications and connecting devices for development of the smart society.

g) Development of a city's ability to respond to crises like the global pandemic through smart cities, with special emphasis on a contactless society and continuity of urban systems.

4 Timing

A preliminary report should be submitted to the study group. The studies should be concluded in 2029, by which time a final report will be submitted.

5 Proposers/sponsors

ITU-D Study Group 2.

6 Sources of input

1) Progress on study of the Questions relevant to this issue in the ITU Telecommunication Standardization Sector (ITU-T) and ITU Radiocommunication Sector (ITU-R) study groups.

2) Contributions from Member States, Sector Members, Associates, other United Nations agencies, regional groups and BDT coordinators.

3) Progress of BDT initiatives with other United Nations organizations and the private sector on using ICT applications for development of the smart society.

4) Progress on any other relevant activity carried out by the ITU General Secretariat or BDT.

7 Target audience

Target audience	Developed countries	Developing countries
Telecom policy-makers	Yes	Yes
Telecom regulators	Yes	Yes
Service providers/operators	Yes	Yes
Manufacturers (telecommunication/ICT equipment manufacturers, automobile industry, etc.)	Yes	Yes
Corresponding ministries	Yes	Yes
BDT programmes	Yes	Yes
City planners and operational managers	Yes	Yes

a) Target audience – Who specifically will use the output

Relevant policy-makers, regulators and participants in the telecommunication/ICT and multimedia sectors, as well as manufacturers and service providers, and city planners and operational managers.

b) Proposed methods for the implementation of the results

In guidelines for implementing regional initiatives.

8 Proposed methods of handling the Question or issue

Within ITU-D Study Group 2.

9 Coordination and collaboration

The ITU-D study group dealing with this study Question will need to coordinate with:

– The relevant Questions under both ITU-D Study Groups 1 and 2. In particular joint collaboration is sought with Questions 1/1 (for broadband and connectivity infrastructure), 4/1 (for business models and economics), 2/2 (on e-services), 3/2 (on data management and trust-related issues) and 5/2 (on adoption of ICTs and improving digital skills).

– The relevant BDT unit dealing with the Question issues.

– Relevant work in progress in the other two ITU Sectors.

– Connection between the Question and other development projects carried out by ITU (e.g. BDT projects).

– Broad cooperation with other United Nations agencies in the relevant fields for creating a smart city or community.

10 BDT programme link

All BDT programmes are concerned by the Question as regards, in particular, aspects relating to information and communication infrastructure and technology development, ICT applications, enabling environment, digital inclusion and emergency telecommunications.

11 Other relevant information

As may become apparent within the life of the Question.