**PACP-05**

**PRELIMINARY APT COMMON PROPOSAL**

**MODIFICATIONS TO ITU-D STUDY QUESTIONS AND TERMS OF REFERENCE**

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| **Summary:**  Based on the work done in APT Preparatory Group for WTDC and agreement reached by consensus, it is proposed to amend ITU-D study questions and their terms of reference as annexed to this document.  **Expected Results:**  APT Member Administrations invite WTDC to examine the proposal and approve the changes to ITU-D study questions and their terms of reference.  **References:** WTDC Resolution 2 (Rev. Kigali, 2022), TDAG document D22-TDAG32-C-0019!P4-R2!MSW-E, and TDAG document D22-TDAG32-C-0019!P5-R2!MSW-E |

1. **PROPOSALS**

APT Member Administrations propose to amend ITU-D study questions and their terms of reference, according to the annex below.

**ANNEX**

**Terms of Reference for ITU-D Study Questions**

**QUESTION A/1 - Enabling policies and regulations to extend connectivity including broadband everywhere with focus on rural and remote areas**

**1. Statement of the situation or problem**

In order to contribute to achieving the objectives of the Geneva Plan of Action of the World Summit on the Information Society (WSIS) and, assist in the attainment of the Sustainable Development Goals (SDGs) , it is necessary to address the rural urban digital divide through digital infrastructure development to facilitate accessing digital services for all in rural and remote areas of developing countries[[1]](#footnote-1), including LDCs, LLDCs and SIDS, where more than half of the world's population live. Solutions that involve both terrestrial and satellite connectivity to support network technologies that enable the use of common broadband applications required by citizens for digital transformation is now priority

According to ITU data, 2024 marked the first year when more than 70% of the world begun to participate in the global digital economy by logging onto the Internet. The latest ITU data show that some 30 per cent of the world's population currently remain unconnected (ITU, 2024 estimates).

Broadband technologies have transformed the way we live. Broadband infrastructure, applications and services offer important opportunities for eco­nomic growth, enhancing communications, improving energy efficiency, safeguarding the planet, and improving people's lives. Broadband access has had a significant impact on the world economy and is instrumental in providing meaningful connectivity to all. Rapid evolution and new business opportunities are driving rapid but uneven growth in digital technologies.

The needs of least developed countries, small island developing states, landlocked developing countries and countries with economies in transition in this regard include:

a) policies, strategies and regulatory aspects of broadband;

b) analysing best practices for national broadband plans;

c) broadband access technologies including wired/wireless terrestrial and non-terrestrial networks;

d) financing and investment aspects of broadband;

e) digital Infrastructure that is a required for inclusive digital transformation with consideration of co-deployment and sharing.

It is also important to consider broadband demand creation and affordability programmes for the adoption of broadband and e-services by people in rural and remote areas. Government incentives, subsidies and other financing mechanisms are necessary. Work on the effective use of Universal Service Funds and best practices also needs to continue.

**2. Questions or issues for study**

It is important to update the study of broadband digital connectivity for rural and remote areas and to adapt and embrace social innovation and emerging technologies for rural inhabitants of developing countries, including LDCs, LLDCs and SIDSs, in respect of the following items

**2.1 Continuing topics to consider from Question 1/1 and Question 5/1 of 2021-2025 study period**

* + 1. Techniques and sustainable solutions that can impact on the provision of telecommunications/ICTs and availability of broadband digital infrastructure in rural and remote areas, with emphasis on those that employ up-to-date suitable technologies to lower infrastructure capital and operating costs and support convergence between services and applications.
    2. Challenges in creating, building and deploying broadband digital infrastructure in rural and remote areas.
    3. Needs and policies, mechanisms and regulatory initiatives to reduce digital divide between rural and urban areas by increasing broadband digital access, including 1) methods for planning and implementation of migration to broadband technologies, taking into account existing networks, as appropriate; and 2) national digital policies, strategies and plans that seek to ensure broadband is available to as wide a community of users as possible.
    4. Improving the quality of the services in rural and remote areas and with increased data traffic in broadband infrastructure (in possible collaboration with Question 4/1 and Question B/1).
    5. Licensing approaches and business models for sustainable deployment of network in rural and remote areas using new and emerging suitable technologies. This includes consideration of public, private and public-private partnerships for investment in broadband deployment at large with more effective integration of terrestrial, satellite, backhaul and submarine telecommunication infrastructure.
    6. Local content development and relevant policies to tap on the opportunities, and address the challenges to access to services in locally relevant languages for indigenous people and for people with specific needs.
    7. Affordability of services/devices especially for rural users to adopt so as to fulfil their development needs (in collaboration with Question 4/1).
    8. Strategies to promote small and medium enterprises (SMEs), and complementary access and village connectivity networks, in accordance with national regulations, for providing telecommunication/ICTs services in rural and remote areas, and for promoting innovation and achieving national economic growth, in order to reduce the digital divide between rural and urban areas.
    9. Cross-border connectivity and challenges for small island developing states.
    10. The regulatory and market conditions necessary to promote deployment of broadband networks and services, including, as appropriate, the establishment of asymmetric regulation for operators with significant market power (SMP), such as local loop unbundling, if required, for such SMP operators, and organizational options for national regulatory authorities resulting from convergence. This will also include considerations for 1) flexible, transparent approaches to promoting robust competition in the provision of network access (in possible collaboration with Question 4/1); and 2) co-investment, co-location and co-deployment and sharing of broadband infrastructure with other infrastructure networks.
  1. **New topics for this study period**
     1. Harnessing the complementarity of Terrestrial and Non terrestrial networks.
     2. How AI can improve access to telecommunication/ICT infrastructure and services in rural and remote areas (in collaboration with Question D/2).
     3. Harnessing AI to enhance digital literacy and skills in rural and remote communities (in collaboration with Question D/2).
     4. Innovative solutions to deliver high-speed broadband connectivity.
     5. Pricing models and affordability strategies for satellite-based broadband (in collaboration with Question 4/1).
     6. Innovative PPP models for financing infrastructure deployment and service delivery, blended financing mechanisms and incentives, including multilateral development banks, relevant international organizations and other private sector stakeholders (in collaboration with Question 4/1).
     7. Renewable energy sources and energy-efficient technologies for powering network infrastructure (in collaboration with Question B/2).

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**QUESTION 2/1 - Enabling policies and regulations for adopting digital technologies for content distribution and broadcasting**

**1. Statement of the situation or problem**

Migration to digital broadcasting technologies has been completed in some countries, while others are in the process of completing the transition. The final reports of the last study periods indicate that the transition results in a variety of strategies, plans and implementation actions that achieve a successful process to maximize the benefits.

The ITU Telecommunication Development Sector (ITU-D) can continue playing a role in helping Member States evaluate the technical and economic issues involved in the adoption and implementation of digital technologies and services. On these matters, ITU-D has been collaborating closely with both the ITU Radiocommunication (ITU-R) and the ITU Telecommunication Standardization Sector (ITU-T), thus avoiding duplication.

ITU has been working on analysing and identifying best practices for adoption and implementation of digital broadcasting, including new and innovative systems.

In this context, the reports from the last study periods presented best practices that accelerate the transition and narrow the digital divide by deploying new services, adopting communication strategies for public awareness on digital broadcasting, and managing radio spectrum issues related to the analogue switch-off process, among other case studies.

It is also important to acknowledge the relationship between different environments, notably broadcasting and broadband, and the necessity to treat broadcasting in a more general manner and consider the relationship among the various networks which deliver audiovisual content in addition to the adoption and implementation of new and innovative broadcasting services and applications.

Moreover, the broadcasting arena is changing and the offers to users are evolving. New experiences in accessing audiovisual content are being provided, and one of the consequences of these new offers is that users no longer have only the traditional media services/applications. They are instead starting to experience different ways of watching audiovisual content in their broadcasting services. It is important, in this context, to analyze other digital audiovisual service offers, and new and emerging broadcasting/audiovisual content distribution systems, services, and applications, including OTTs and other distribution platforms, such as satellite and cable networks, to assess the television landscape.

Therefore, to implement new broadcasting technologies, services and applications in this new environment, which seems to be heading towards a global media strategy for service providers and not restricting the service offers to the traditional broadcasting market, it seems that consolidation, co-investment and infrastructure sharing are key trends to reduce costs and allow massive investments in network deployment and content delivery.

Bearing that in mind, it is beneficial to study broadcasting as a key infrastructure for delivering innovative applications and services when combined with other networks and service platforms. Additionally, it is important to consider these interactions from the regulatory, economic and technical points of view, so as to leverage the strengths of each network for the benefit of the users and to make available a more diverse range of services.

There have been developments of broadcasting systems and integration with ICT networks using IP throughout the broadcasting chain, and using cellular networks for media transmission. Such developments and convergence between media and ICT sectors call for special consideration from policy, investment, and technology perspectives and open the door for a variety of services and applications.

Taking into account possible innovations for broadcasting in the UHF band, proposed by new systems like 5G Broadcast, ATSC3.0 and the expected new Brazilian second-generation system, and also with the use of VHF Band III for DAB or DTT, this could lead to new forms of broadcasting services and applications.

The use of the "digital dividend" is an important issue and continues to be widely debated by broadcasters and operators of telecommunication and other services operating in the same frequency bands. The role of the regulatory authorities in this regard is crucial to balancing the interests of users with the demands of growth in all branches of the industry. Furthermore, it appears that the availability of the digital dividend and its effective usage, for example, to bridge the digital divide and to provide new innovative broadcasting applications and services, is an important issue that needs to be urgently addressed.

Other issues to consider are the studies from other ITU Sectors, especially taking into account the decisions of the World Radiocommunication Conferences (WRC-15, WRC-19 and WRC-23) on exploiting the digital dividend in the future. In this regard, it is relevant to consider maintaining study topics related to technical and economic aspects involved in the transition from analogue to digital broadcasting.

Finally, another important issue for the future of broadcasting is the emergence of new broadcasting technologies and standards that could be taken into account when developing countries[[2]](#footnote-2) are implementing the digital television transition. At the same time, traditional broadcasting services, with or without the interaction with other platforms and networks, should also be considered.

**2. Questions or issues for study**

The focus of the Question’s items of study will be on new and emerging broadcasting / audiovisual content distribution systems, services, and applications, including OTTs and other distribution platforms, such as satellite and cable networks, and new topics targeted at new deliverables for the ITU-D study period 2026-2029, as appropriate.

Aggregate study of spectrum planning, digital broadcasting and the usage of the digital dividend, to cover new topics and interests from developing countries will continue.

Studies under the Question will focus on the following issues:

* 1. **Continuing topics to consider from Question 2/1 of 2021-2025 study period**

2.1.1. Analysis of methods and issues for the adoption and implementation of digital broadcasting (sound and television), including the deployment of new services and applications, such as UHDTV, AR/VR, interactive applications, for consumers/viewers in various environments (in possible collaboration with Question A/2).

* + 1. Analysis of the effects for public broadcasting services in the developing countries of the rapid growth of traditional and online linear TV and video-on demand subscription services.
    2. National experiences on strategies for the introduction of new broadcasting technologies, applications, emerging services and capabilities, including regulatory, economic, financial and technical aspects, reflecting the need for massive cost of the implementation and investments to cope with the ever-growing demand for video content (in possible collaboration with Questions A/2 and 4/1, where appropriate).
    3. Analysis of the development and deployment of broadcasting systems using IP-based technologies throughout the broadcasting chain, including the production, contribution and transmission parts.
    4. Best practices and national experiences on spectrum-related issues, including interference mitigation, the use of the digital dividend technical, regulatory and economic aspects, and other related spectrum management matters. Also, analysis of the gradual transition to digital sound broadcasting, study cases, sharing of experiences and strategies implemented, including the use of VHF Band III for DAB or DTT.
    5. Analysis of possible innovations for broadcasting in the UHF band, proposed to be used by new systems for broadcasting, such as 5G Broadcast, ATSC3.0 and other next generation systems.

**2.2 New topics for this study period**

2.2.1. Analysis of strategies, policies and regulation for the adoption and implementation of digital audiovisual services, in the context of audiovisual content distribution.

2.2.2. Evaluation of new broadcasting services and technologies, emerging applications and capabilities, including regulatory, economic and technical aspects, both in the traditional and other distribution platforms, including through IP.

2.2.3. Assessment of next generation broadcasting and audiovisual content distribution systems, including IP-based technologies.

2.2.4. Analysis of the deployment strategies of new services and applications for audiovisual content distribution platforms, such as UHDTV, AR/VR, interactive applications, and metaverse, among others; (in possible collaboration with Question D/2).

2.2.5. Evaluation of other digital audiovisual service offers, and new and emerging broadcasting / audiovisual content distribution systems, services, and applications, including OTTs and other distribution platforms, such as satellite and cable networks, to assess the television landscape.

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**QUESTION 3/1 - The use of telecommunications/ICTs for disaster risk reduction and management**

**1. Statement of the situation or problem**

The importance of telecommunications and ICTs to support disaster mitigation, preparedness, response and recovery is well established. Over the study period from 2022 to 2025, under Question 3/1, ITU-D Study Group 1 examined the use of ICTs for disaster risk reduction with case studies, examples of technologies, applications and planning for ICT resilience for disaster management. Before that, during the study period 2018-2021, the focus had been on the utilization of telecommunications/ICTs for disaster preparedness, mitigation and response' with focus on drills and exercises.

Disasters - ranging from earthquakes and hurricanes to floods and droughts – have claimed approximately 40,000 to 50,000 lives each year, on average, over the last few decades. In 2023, the Emergency Events Database (EM-DAT) recorded 399 disasters related to natural hazards. These events resulted in 86,473 fatalities and affected 93.1 million people. The economic losses from these disasters amounted to US$202.7 billion. The most catastrophic event of the year was the earthquake in Türkiye and the Syrian Arab Republic, which caused 56,683 deaths and US$42.9 billion in damages. This earthquake impacted an estimated 18 million people, making it the second most impactful event in terms of affected individuals, following the 2023 Indonesian drought, which affected 18.8 million people between June and September.

While these figures represent a relatively small fraction of global deaths, disasters can have disproportionately large impacts on specific populations. Extreme events can kill tens to hundreds of thousands of people in a single instance. In the 20th century, it was not uncommon for disasters to claim over a million lives annually.

Beyond loss of life, disasters also lead to significant displacement, with millions of people left homeless each year. The economic costs of such events can be severe and difficult to recover from, particularly in lower-income countries.

However, we are not helpless in the face of disasters. The number of deaths from disasters has significantly decreased over the last century, thanks to early warning systems, better infrastructure, improved agricultural productivity, and more coordinated responses.

As climate change increases the frequency and severity of extreme events, strengthening resilience will be critical to prevent reversing our recent progress. To achieve this, we must continue working towards enhancing resilience in vulnerable countries, leveraging Information and Communication Technologies (ICTs) and other strategies to reduce the vulnerability of populations and ensure that no one at risk is left behind.

Most developed and developing[[3]](#footnote-3) countries recognize emergency telecommunications as a priority and are taking steps to:

a) build national emergency telecommunication plans;

b) develop and implement early warning systems; and

c) test that technologies and systems are in place and ready to be used to ensure disaster-resilience.

Based on the past three years' experience, it is felt that during the next phase of study the focus should be on preparing : checklists; guidance on how to prepare standard operating procedures as well as best practices for countries to use to create resiliency in disaster response and recovery.

In view of the above, the focus of the study Question for the year 2026-2029 should remain: ''The use of Telecommunications/ICTs for disaster response and recovery''.

**2. Questions or issues for study**

2.1. Utilizing terrestrial, space based and integrated telecommunications/ICTs to assist affected area for disaster prediction, detection, monitoring, early warning, response, relief and recovery, including best practices/guidelines for an efficient regulatory environment to enable rapid deployment and implementation.

2.2. Sharing national experiences and case studies on the use of telecommunications/ICTs for disaster preparedness, mitigation, response and recovery, including response to pandemics, and analysing lessons learned and common themes between them.

2.3. Reviewing the role that Administrations and Sector Members and other relevant organizations and stakeholders in collaboratively addressing disaster management and the effective use of telecommunications/ICTs, particularly in the areas of planning for ICT resilience for disaster management.

2.4. Promoting enablers for more resilient communication networks and for the deployment of emergency communication systems and the appropriate digital communication technologies, for emergency preparedness, response and recovery.

2.5. Sharing case studies and best practices to ensure the inclusion of vulnerable groups such as persons with disabilities, women and youth for the use of ICTs for disaster management and risk reduction.

2.6. Sharing national experiences, case studies, and best practices for the elaboration, implementation and refinement of national and regional disaster-management plans or frameworks for the use of telecommunications/ ICTs in disaster and/or emergency situations, including pandemics, working in coordination with the relevant BDT programmes, regional offices and other partners. This would include a guide for countries to develop standard operating procedures, and for the development and implementation of National Emergency Telecommunication Plans as well as early warning systems.

* 1. Responding to and managing emergency infrastructure cut-off or its unavailability to provide network resilience and continuity.
  2. The use of new and emerging technologies such as AI tools for disaster risk prediction, reduction, and management (in collaboration with Question D/2).

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**QUESTION 4/1 - Economic aspects of national telecommunications/ICTs**

**1. Statement of the situation or problem**

As recognized in the Final Reports on Question 4/1 for the ITU-D study period 2022-2025, consideration of economic aspects of national telecommunications/ICTs continues to be important.

With the emergence of new types of telecommunication enterprise, such as mobile virtual network operators (MVNOs), tower companies and capacity wholesale operators, and the convergence of traditional telecom businesses, regulators and operators need to adapt their policies and strategies to this new digital reality. Finding suitable authorizations, cost models and business models and using relevant policy and regulatory tools such as infrastructure-sharing can be considered by national regulatory authorities (NRAs) in order to help their national markets thrive, as shown in contributions received from NRAs, policy-makers and operators alike which were considered by the Rapporteur Group for Question 4/1 in the most recent study period.

At the same time, further global forces pushing towards increased digitalization, as well as national economic and global emergencies like the coronavirus disease (COVID-19) pandemic, are opening many new relevant issues that call for additional study and investigation in the next ITU-D study period.

The final reports of ITU-D Study Question 4/1 for 2018-2021 and 2022-2025 may be revised to provide updates.

**2. Question or issue for study**

**2.1. Continuing topics from ITU-D study period 2018-2021**

The Question will continue to cover the following main topics from national perspectives for possible revision of the Final Report of Question 4/1 for the ITU-D study period 2018-2021:

2.1.1. New charging methods (or models, if applicable) for services provided over NGNs, including cost-modelling methods.

2.1.2. Consumer price and tariffs evolution and impact on ICT service usage, innovation, investment and operator revenues.

2.1.3. Trends in the development of virtual mobile operators and their regulatory framework.

**2.2 Continuing topics for ITU-D study period 2022-2025**

The Question will continue to cover the following main topics from national perspectives for possible revision of the Question 4/1 Final Report for ITU-D study period 2022-2025:

2.2.1. Impact of new converging ICTs on cost-modelling strategies traditionally carried out by stakeholders constituting the ICT networked value chain (e.g., telecom operators, over-the-top, digital service providers, etc.) in possible collaboration with Question A/2:

2.2.1.1. The role and design of new tariffs for convergent networks/services (e.g. bundling).

2.2.1.2. The role and impact of tower companies as new entrants for a converging telecommunication/ICT market.

2.2.2. The role and impact on achieving the United Nations Sustainable Development Goals (SDGs) on new types and modes of investment in telecommunications/ ICTs, e.g., blended investment and crowdfunding.

2.2.3. Analysis of case studies on the economic contribution of digital telecommunication/ICT technologies and services to the national economy and country’s GDP.

2.2.4. Economic incentives and mechanisms for bridging the digital divide to provide accessible and affordable access.

2.2.5. Economic aspects/implications of digital transformation.

2.2.6. The economic value of usage of personally identifiable information (PII) (in possible collaboration with Questions B/1 and 3/2).

2.2.7. Impact on innovation and productivity and other national economic aspects of digital financial inclusion.

**2.3 New topics for the next study period**

The Question will cover the following main topics from a national perspective:

* + 1. The economic impact of new and emerging technologies related to telecommunication/ICT including AI and Metaverse (in collaboration with Question D/2).
    2. National aspects of spectrum economics.
    3. Case studies on how telecommunication/ICT services contribute to GDP and sectoral development, including social return on investment.
    4. Sharing national experiences and best practices in collecting data and measuring the affordability of end-user telecommunication/ICT devices, with particular regard to disaggregation by gender and geography (in collaboration with Question C/2).

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**Question B/1 -** **Consumer protection, and universal and meaningful accessibility**

**1. Statement of the situation or problem**

The rapid advancement of telecommunications/information and communication technologies (ICTs) reshapes how people work, learn, communicate, access essential services, and interact with governments, businesses, and communities. For developing countries in particular, these advancements provide opportunities to accelerate socio-economic development.

However, this transformation also generates complex challenges. As telecommunications/ICTs become increasingly embedded in everyday life, disparities in access, affordability, and reliability risk deepening existing inequalities, including for aging populations, persons with disabilities, and those facing literacy and/or economic barriers. The World Health Organization estimates that over one billion people live with some form of disability. Global demographic trends show that by the mid-2030s, more than 265 million people worldwide will be over the age of 80. UNESCO reports that approximately 750 million people remain illiterate, two-thirds of whom are women.

These realities highlight that digital accessibility and integration of inclusive features and design principles need to be cornerstones of inclusive development, to enable communication for all — regardless of gender, age, ability, or location. Outcomes of the World Summit on the Information Society (WSIS) and United Nations General Assembly also underscore that accessibility is essential for ensuring participation and equality for vulnerable groups, including persons with disabilities, older persons, youth, and migrants.

At the same time, the evolution of telecommunication/ICT markets has created challenges for consumer protection and empowerment. New business practices, such as profiling and behavioral targeting, can amplify inequalities by exploiting consumer vulnerabilities. These trends demand that regulators adopt proactive strategies that anticipate risks, prevent exploitative practices, and protect users in advance. Behavioral insights, which study how individuals make decisions and can be influenced, offer tools for designing more effective regulatory interventions that promote transparency, fairness, and confidence.

The current global context — characterized by technological acceleration, demographic shifts, and rapidly changing markets — highlights a need for policies that integrate both universal and meaningful accessibility and consumer protection. Accessibility guarantees that everyone can use telecommunications/ICTs effectively. Consumer protection ensures that users can participate in an environment that is transparent, fair, and empowering If telecommunication/ICT products and services are not designed to be inclusive, many individuals will be excluded from the benefits of the digital economy. Likewise, if consumer protection does not account for new forms of digital risk, those who are already vulnerable will be further marginalized.

Only by pursuing both agendas in an integrated way can societies build digital ecosystems that are equitable, sustainable, and truly inclusive — ensuring no one is left behind.

**2. Questions or issues for study**

The Question will continue to cover the topics in the scope of possible revision of the Final Reports on Questions 6/1 and 7/1 for the ITU-D study period 2022-2025, and new topics targeted at new deliverables for the ITU-D study period 2026-2029, as appropriate.

Studies under the Question will focus on the below issues:

2.1. **Innovative Consumer Awareness and Empowerment Strategies**

* + 1. Share good practices by regulators, service providers, and civil society that enhance consumer awareness.
    2. Share methods to equip consumers with the knowledge, skills, and confidence to advocate for their rights and navigate digital services effectively.
    3. Share strategies targeting consumers in developing countries, where digital literacy gaps remain wide.
    4. Share good practices to address the challenges for consumer confidence and protection created by rogue mobile base stations.

2.2. **Protection of Vulnerable and Marginalized Groups:**

* + 1. Examine how behavioural insights, data disaggregation, and inclusive policies can help identify and support vulnerable users — including older persons, persons with disabilities (PwDs), women, children, and people facing literacy and/or economic barriers.
    2. Investigate mechanisms to ensure that these groups are safeguarded against exploitation, exclusion, and digital inequities in ICT environments.
  1. **Behavioural Insights for Smarter Regulations:**
     1. Study how a deeper understanding of consumer decision-making and behavioural biases can inform the design of forward-looking regulatory approaches.
     2. Assess how regulators can apply behavioural science to strengthen transparency, fairness, and accountability in telecommunications and digital markets.
  2. **Modernizing Regulatory Frameworks:**

2.4.1. Explore regulatory toolkits that address challenges such as online fraud, fraudulent practices carried out through rogue mobile base stations, unsolicited communications, and the misuse of personally identifiable information.

* + 1. Consider proactive models of regulation that go beyond reactive enforcement, aiming to prevent harm and promote consumer trust

2.5. **Embedding Universal Design and Accessibility Standards:**

* + 1. Share best practices for integrating accessibility features at the design stage of telecommunications/ICT products, platforms, and services.
    2. Ensure that digital solutions are inherently usable by all, including persons with disabilities, older persons, and people facing literacy and/or economic barriers.
    3. Study how universal design principles can empower vulnerable groups and enhance usability for all users.

2.6. **Inclusive Design and Accessibility in Telecommunication/ICT Services:**

* + 1. Promote strategies to ensure that e-government and other socially significant digital platforms are accessible to all.
    2. Investigate how new and emerging telecommunications/ICTs can enhance inclusivity in public service delivery.
    3. Examine national strategies that guarantee the accessibility of digital education platforms from the design stage.
    4. Promote training for persons with disabilities and persons with specific needs - including older persons and people facing literacy and/or economic barriers to ensure their confident use of telecommunication/ICT services.
    5. Encourage the development of telecommunication/ICT accessibility professionals for strengthening institutional expertise.

2.7. **Employment and Economic Inclusion:**

* + 1. Assess how accessible telecommunication/ICT solutions for equal and equitable employment opportunities, especially for persons with disabilities and marginalized communities.
    2. Study how telecommunication/ICT-enabled work environments can support inclusive and equitable workplaces.

2.8. **Data, Evidence, and Monitoring**

* + 1. Develop national capacity for the systematic collection and use of disaggregated data and statistics on telecommunication/ICT accessibility and consumer protection.
    2. Ensure that evidence-based insights guide both policy development and regulatory interventions, enabling targeted and effective solutions.

2.9. **Multi-Stakeholder Collaboration for Consumer Empowerment:**

* + 1. Identify effective cooperation models among regulators, industry, consumer organizations, and civil society to strengthen consumer protection and empowerment frameworks.
    2. Promote the active involvement of persons with disabilities, older persons, women, and other groups with specific needs from the design stage of policies, regulations, standards, and services.
    3. Encourage inclusive approaches to smart city, smart village and smart island development, ensuring that accessibility is integrated from planning to implementation.

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**QUESTION A/2 - Digital services 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.

Smart sustainable cities and communities can use ICTs and other means to improve quality of life, efficiency of urban operation and services, and competitiveness. These improvements can be extended to:

1. a specific sector: employing digital services in different sectors such as health, education, agriculture, tourism, etc.; and/or
2. a specific region: at a city, village, or community level.

The offerings of digital services, including e-services, m-services and over-the-top (OTT) applications, 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 and rural 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.

Delivering the promise of smart sustainable cities and communities relies on three technological pillars – con­nectivity, smart devices/terminals, 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 devices/terminals 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.

Software is essential to capitalize on connectivity and terminals to support new services. Software includes both the city platform which interfaces with all terminals seamlessly and the service-specific functions tailored for vertical application or service in the city.

The work under this Study Question is justified as in WTDC Resolution 11 (Rev. Kigali, 2022) on telecommunication/ICT services in rural, isolated and poorly served areas, WTDC Resolution 68 (Rev. Kigali, 2022) on assistance to indigenous peoples and communities through ICTs, WTDC Resolution 85 (Rev. Kigali, 2022) on facilitating the Internet of Things and smart sustainable cities and communities for global development, WTDC Recommendation 19 on telecommunications for rural and remote areas, PP Resolutions 139 (Rev. Bucharest, 2022) on the use of telecommunications/ICTs to bridge the digital divide and build an inclusive information society, PP Resolution 197 (Rev. Dubai, 2018) on facilitating IoT to prepare for a globally connected world, WTSA Resolutions 44 (Rev. New Delhi, 2024) on bridging the standardization gap between developing and developed countries, WTSA Resolution 98 (Rev. New Delhi, 2024) on enhanc­ing the standardization of IoT, digital twins and smart sustainable cities and communities for global development, and RA Resolution ITU-R 66-2 (Rev. Dubai, 2023) on studies related to wireless systems and applications for the development of IoT.

1. **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 underlying infrastructure to support the SSCCs and potential smart digital services, which include smart grids, public administration, transport, business, the environment, agriculture, tourism and science, education, health, commerce, and finance.
  3. Methods and examples of how software and platforms, both open-source and/or proprietary, enable efficient architecture and operation of smart services.
  4. Policies and business models that ensure the involvement of different stakeholders and yield sustainable development of SSCCs.
  5. Reference data management architectures that would promote and enable development of SSCCs.
  6. Performance benchmarks and assessment mechanisms for smartness in terms of quality-of-life, technical aspects and policy mechanisms.
  7. 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 SSCCs (in collaboration with Question D/2).
  9. Strategies and policies to foster the emergence of a cloud-computing ecosystem in developing countries, taking into consideration relevant standards recognized or under study in the other two ITU Sectors.
  10. The application and impact of AI technologies in support of digital services and applications to enable an efficient telecommunication/ICT ecosystem and to empower the traditional telecommunication/ICT industry (in collaboration with Question D/2).
  11. Supporting BDT's digital service and application projects in cooperation with WHO or other UN bodies.

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**QUESTION B/2 - ICTs for the environment, and human exposure to electromagnetic fields**

1. **Statement of the situation or problem**
   1. **ICTs and climate change**

The issue of climate change has emerged as a global concern and requires global collaboration by all concerned, in particular the developing countries[[4]](#footnote-4) (which are the most vulnerable group of countries with respect to climate change). International initiatives in this domain are seeking to achieve sustainable development and identify ways and means in which information and communication technologies (lCTs) can monitor climate change and reduce overall global greenhouse gas (GHG) emissions. The focus of this study Question is ''responsible consumption and production''.

ICTs have a direct and indirect effect on the environment. ICTs can help emerging economies overcome and thrive despite climate change and fluctuations, while helping the world mitigate climate change.

New technologies, systems and applications can monitor climate and reduce its adverse impact by utilizing big data. They can be pivotal in helping policy-makers and industry to tackle challenges with regard to environmental changes while formulating new policies and setting new standards of production towards reduction of emissions. Also, artificial intelligence (AI) can contribute to the collection of information through various methods and channels of data collection, by utilizing both human and historical experience to face extreme and unpredictable weather scenarios. AI can contribute to environmental conservation by monitoring climate change, optimizing resource use, and supporting renewable energy development.

Study Group 5 of the ITU Telecommunication Standardization Sector (ITU-T) is the lead study group for the study of ICT environmental aspects of electromagnetic phenomena and climate change, including design methodologies to reduce environmental effects, such as recycling related to ICT facilities and equipment; and Study Group 7 (Science services) of the ITU Radiocommunication Sector (ITU‑R) is the lead study group for studies related to the use of radio technologies, systems and applications, including satellite systems, for environment and climate‑change monitoring and climate‑change prediction.

In this respect, the outcomes of ITU‑T and ITU‑R resolutions and Recommendations, and in particular Resolution 73 (Rev. Geneva, 2022) of the World Telecommunication Standardization Assembly (WTSA) and Resolution 673 (Rev. WRC‑12) of the World Radiocommunication Conference, should serve as a basis for the study of this Question.

* 1. **Telecommunication/ICT waste material**

The growth of telecommunications/ICTs, especially in developing countries, has been exponential in recent years. For instance, between 2002 and 2007, mobile‑phone penetration in the Americas region grew from 19 to 70 terminals per 100 inhabitants. Globally, the share of mobile‑phone subscriptions in developing countries increased by 20 percentage points, from 44 per cent to 64 per cent over the same period of time.

The growth of electrical and electronic equipment and their peripherals, as well as the continuous updating of technology, has generated a significant growth in telecommunication/ICT waste. It is estimated that between 20 and 50 million tonnes of telecommunication/ICT waste are generated every year worldwide. However, recycling and responsible disposal of telecommunication/ICT waste remain at low levels, making it difficult to even find figures on this issue at regional level.

According to the Global E-waste Monitor 2020, the world generated 53.6 million tonnes of e‑waste in 2019, whilst global waste generation is predicted to reach 74 Mt by the year 2030, which is almost double the 2014 figures. This equates to an average of 7.3 kg per person.

Recycling and efficient disposal of telecommunication/ICT waste have not been handled properly, so it is proving a major challenge even to obtain correct figures for total ICT waste/e-waste present in the world.

The consequences of not carrying out proper recycling or disposal of e-waste constitute environmental problems of large magnitude and give rise to health issues, especially for developing countries.

The exponential growth of telecommunication/ICT terminals, the associated high turnover of terminals and advances in technology make it imperative to put forward actions in the immediate future to prevent the environmental catastrophe that would result in developing countries if we fail to produce an adequate regulatory framework and work towards policies that address this problem.

* 1. **Human exposure to electromagnetic fields**

With the advent of the wireless technologies, human exposure to electromagnetic fields (EMF) raised public concerns. The importance of developing strategies and guidance concerning human exposure to EMF has been well discussed. Over the study period from 2018 to 2025, under study Question 7/2 Study Group 2 of the ITU Telecommunication Development Sector (ITU-D) has studied science-based policies, guidelines, national experiences and assessments of human exposure to radio-frequency EMF (RF-EMF). New versions of EMF standards have also been published during the study cycles: in March 2020, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) published an update to the ICNIRP (1998) Guidelines. The Institute of Electrical and Electronics Engineers (IEEE) also published the updated C95.1-2019 in October 2019. The ICNIRP and IEEE limits are largely harmonized, and the power density limits for whole-body exposure to continuous fields are identical above 30 MHz.

Due to the characteristics of multiple-input multiple-output (MIMO), beamforming and millimetre-wave technologies used in new communication systems, pioneering studies have been conducted to evaluate RF-EMF levels. Risk communication, including the benefit of new wireless technologies for people, in particular during the pandemic, is an important method to reduce unnecessary public concerns about RF-EMF exposure. WHO and ITU constantly help the exchange of knowledge between countries and regions on the current state of the science.

1. **Question or issue for study**

A number of issues will be addressed in this Question in the study period. The following steps will play a major role in order to study the Question:

* 1. In close collaboration with the respective BDT programme(s), identify the regional needs for relevant applications for developing countries.
  2. Elaborate a method for study of the Question, in particular gathering evidence and information regarding current best practices on how ICTs can help reduce overall GHG emissions, considering the progress by ITU‑T and ITU‑R in this regard.
  3. Consider the role of Earth observation in climate change, as determined by the implementation of Resolution 673 (Rev. WRC‑12), on the use of radiocommunication for Earth observation applications, in order to enhance the knowledge and understanding of developing countries in respect of the utilization and benefits of relevant applications in connection with climate change.
  4. Develop best-practice guidelines for the implementation of relevant ITU-T Recommendations that are related to WTSA Resolution 73 (Rev. New Delhi. 2024), both for monitoring changes in the climate and reducing the impact of climate change using the action plan in WTSA Resolution 44 (Rev. New Delhi, 2024), in particular programmes 1, 2, 3 and 4 thereof.
  5. Strategies to develop a responsible approach to, and comprehensive treatment of, telecommunication/ICT waste: policy and regulatory actions required in developing countries, in close collaboration with ITU‑T Study Group 5 and Question C/2.
  6. The role of ICTs and new and emerging technologies like AI in efficiently handling e-waste, and in reducing climate change-related disasters like flash floods and large-scale fires (in collaboration with Question 3/1 and Question D/2).
  7. Collection of case studies, identification of lessons learned, and best practices related to human exposure to electromagnetic fields.
  8. Examine new wireless technologies, best practices in EMF management, harmonization of standards and risk communication, with priority focus on:
     1. Responding to EMF misinformation.
     2. Exposure in new EMF scenarios.
     3. Examining the implementation of exposure limits via a broad range of country case studies, including on the ICNIRP (2020) Guidelines.
     4. EMF aspects of new deployment methods of wireless equipment.
     5. IMT-2020/IMT-2030 EMF.
     6. EMF in low-altitude airspace and drone.
     7. AI in EMF evaluation (in collaboration with Question D/2).
     8. EMF in smart wearable devices.

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**QUESTION 3/2 - Securing information and communication networks: Best practices for developing a culture of cybersecurity**

1. **Statement of the situation or problem**

The use of telecommunications and information and communication technologies (ICTs) has been invaluable in fostering development and social and economic growth globally. However, despite all the benefits and uses these technologies offer, there are risks and threats to security.

From personal finances to business operations, from national infrastructure to public and private services, all transactions are increasingly managed through information and communication networks, making them more vulnerable to some form of attack.

In order to build trust in the use and application of telecommunications/ICTs for appli­cations and content of all kinds, especially those having a major positive impact in eco­nomic and social areas where all players exert an effect on the protection of personal data, network security and the actual network user, close collaboration is required between national authorities, foreign authorities, industry, academia and users.

Based on the foregoing, securing information and communication networks and devel­oping a culture of cybersecurity have become key in today's world for a number of reasons, including:

1. the explosive growth in the deployment and use of ICT;
2. cybersecurity remains a matter of concern of all, and there is thus a need to assist countries, in particular developing countries[[5]](#footnote-5), to protect their telecommunication/ICT networks against cyberattacks and threats;
3. the need to endeavour to ensure the security of these globally interconnected infrastructures if the potential of the information society is to be achieved;
4. the growing recognition, at the national, regional and international levels, of the need to develop and promote best practices, standards, technical guidelines and procedures to reduce vulnerabilities of and threats to ICT networks;
5. the need for national action and regional and international cooperation to build a global culture of cybersecurity that includes national coordination, appropriate national legal infrastructures, watch, warning and recovery capabilities, government/industry partnerships and outreach to civil society and consumers;
6. the requirement for a multistakeholder approach to effectively make use of the variety of tools available to build confidence in the use of ICT networks;
7. United Nations General Assembly (UNGA) Resolution 57/239, on creation of a global culture of cybersecurity, invites Member States "to develop throughout their societies a culture of cybersecurity in the application and use of information technology";
8. UNGA Resolutions 68/167, 69/166 and 71/199, on the right to privacy in the digital age, affirm, inter alia, "that the same rights that people have offline must also be protected online, including the right to privacy";
9. best practices in cybersecurity must protect and respect the rights of privacy and freedom of expression as set forth in the relevant parts of the Universal Declaration of Human Rights, the Geneva Declaration of Principles adopted by the World Summit on the Information Society (WSIS) and other relevant international human rights instruments;
10. the WSIS Geneva Declaration of Principles indicates that "A global culture of cybersecurity needs to be promoted, developed and implemented in cooperation with all stakeholders and international expert bodies", the Geneva Plan of Action encourages sharing best practices and taking appropriate action on spam at national and international levels, and the Tunis Agenda for the Information Society reaffirms the necessity for a global culture of cybersecurity, particularly under Action Line C5 (Building confidence and security in the use of ICTs);
11. ITU was requested by WSIS (Tunis, 2005), in its agenda for implementation and follow-up, to be the lead facilitator/moderator for Action Line C5 (Building confidence and security in the use of ICTs), and relevant resolutions have been adopted by the Plenipotentiary Conference, the World Telecommunication Standardization Assembly (WTSA) and the World Telecommunication Development Conference (WTDC);
12. UNGA Resolution 70/125 adopted the outcome document of the high-level meeting of the General Assembly on the overall review of the implementation of the WSIS outcomes;
13. the WSIS+10 statement on the implementation of WSIS outcomes, and the WSIS+10 vision for WSIS beyond 2015, adopted at the ITU‑coordinated WSIS+10 high-level event (Geneva, 2014) and endorsed by the Plenipotentiary Conference (Busan, 2014), which were submitted as an input into the UNGA's overall review on the implementation of WSIS outcomes;
14. WTDC Resolution 45 (Rev. Kigali, 2022) supports the enhancement of cybersecurity among interested Member States;
15. Resolution 130 (Rev. Dubai, 2018) of the Plenipotentiary Conference resolves to continue promoting common understanding among governments and other stakeholders of building confidence and security in the use of ICTs at the national, regional and international level;
16. WTSA Resolution 50 (Rev. Geneva, 2022) highlights the need to harden and defend information and telecommunication systems from cyberthreats and cyberattacks, and continues to promote cooperation among appropriate international and regional organizations in order to enhance exchange of technical information in the field of information and telecommunication network security;
17. the conclusions and recommendations set out in the Final Report of ITU Telecommunication Development Sector (ITU-D) Study Group 2 on Question 3/2, to the effect that the activities in the current terms of reference be continued and that evolving and emerging technical threats beyond spam and malware be considered for the next study period;
18. there have been various efforts to facilitate the improvement of network security, including the work of Member States and Sector Members in standards-setting activities in the ITU Telecommunication Standardization Sector (ITU‑T) and in the development of best-practice reports in ITU‑D; by the ITU secretariat in the Global Cybersecurity Agenda (GCA); and by ITU‑D in its capacity-building activities under the relevant programme; and, in certain cases, by experts across the globe;
19. governments, service providers and end users, particularly in least developed countries (LDCs), face unique challenges in developing security policies and approaches appropriate to their circumstances;
20. reports detailing the various resources, strategies and tools available to build confidence in the use of ICT networks and the role of international cooperation in this regard are beneficial for all stakeholders;
21. spam and malware continue to be a serious concern, although evolving and emerging threats must also be studied; and
22. the need for simplified test procedures at basic level for security testing of telecommunication networks to promote a security culture.
23. **Question or issues for study**
    1. Promote awareness-raising for users and capacity building regarding cybersecurity (in possible collaboration with Question D/2).
    2. Update the perspectives, studies and experiences of the report on Question 3/2 for the last study period.
    3. Share experiences on cybersecurity assurance practices.
    4. Discuss approaches and best practices for cybersecurity incident responses.
    5. Discuss approaches and best practices, and collect experiences on the implementation of national cybersecurity strategies and policies.
    6. Discuss challenges and approaches for IMT-2020/IMT-2030 cybersecurity.
    7. Discuss challenges and approaches to addressing smishing and SMS incidents.
    8. Discuss approaches and share experiences of computer incident response team (CIRT) national coordination for the resilience of critical infrastructure.
    9. Best practices for assessing cybersecurity measures and performance.
    10. Cybersecurity tests and measures to ensure safe and approved access of terminals (especially vulnerable IoT devices) to smart services, with special focus on the critical ones.
    11. Institutional/legal and regulatory mechanisms to tackle new cybersecurity challenges arising from the widespread application of AI (in collaboration with Question D/2).

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**QUESTION C/2 - Availability and affordability of users’ terminals/devices, and equipment conformance and interoperability**

1. **Statement of the situation or problem**

Indicator 5.b.1 – the proportion of individuals who own a mobile telephone, by sex – is one of the seven ICT indicators agreed by the UN General Assembly to measure global progress on attaining the Sustainable Development Goals ([A/RES/71/313](https://undocs.org/A/RES/71/313)). It is also an indicator within the ICT Development Index. Latest ITU data suggests this indicator rests at 81% of men and 75% of women worldwide, with notable disparities by geographic region and by gender ([ITU, 2023](https://www.itu.int/en/ITU-D/Statistics/Pages/SDGs-ITU-ICT-indicators.aspx)).

Several factors relate to the availability and affordability of users’ terminals/devices, across the globe. The policies and regulations adopted by ITU Member States around affordability of users’ terminals/devices, conformance and interoperability, counterfeits, and device theft, each have an influential impact on the ultimate price that consumers pay for the devices they use. In addition, barriers such as gender norms can impede or limit the availability of users’ terminals/devices and ultimately our collective attainment of the ICT-related Sustainable Development Goals.

This challenge and its related policy and regulatory levers merit study by the ITU-D membership and the provision of guidance to the ICT community.

1. **Question or issue for study**

Study Question C/2 will examine issues related to the availability and affordability of users’ terminals/devices,to equipment conformance and interoperability, and to combating counterfeiting and theft of mobile devices. The work covers the following items:

* 1. Sharing national experiences and best practices of users’ terminals/devices within broadband policy and regulation, such as national broadband plans, ICT strategies, and mandates of Universal Service Funds (USFs) (in collaboration with Question A/1).
  2. Sharing national experiences and best practices in collecting data and measuring the availability and affordability (in collaboration with Question 4/1) of user’s terminals/devices, with emphasis on disaggregation by gender and geography.
  3. Sharing national experiences and best practices in the public provision of users’ terminals/devices, such as through schools, libraries, and other public access points.
  4. Analysing of the impacts of availability and affordability (in collaboration with Question 4/1) of users’ terminals/devices in the attainment of the Sustainable Development Goals.
  5. Sharing national experiences and best practices in digital skills development with available users’ terminals/devices (in collaboration with Question D/2).
  6. Sharing national experiences and best practices in consumer awareness of issues relevant to users’ terminals/devices, including device theft and consumer willingness and ability to pay (in possible collaboration with Question B/1).
  7. Sharing innovations and developments in conformance and interoperability (C&I) best practices, including regard to ITU-T standardisation activities, BDT programmes, and national experiences.
  8. Examining how capacity development can strengthen the ability of developing countries to reduce risks associated with low-quality equipment and equipment interoperability issues.
  9. Sharing information regarding the establishment of mutual recognition agreements (MRAs) between countries.
  10. Assessing the impact of the number of ICT devices on the radiocommunication environment, including the Internet of Things (IoT), and providing guidelines to the ITU-D membership for ICT‑readiness related to C&I (in possible collaboration with Question B/2).
  11. Sharing national experiences and best practices on combating counterfeit, sub-standard, tampered devices, and theft of mobile devices.

Due to their global prevalence and their relationship with the Sustainable Development Goals, the Question should give priority to consideration of mobile phone (particularly smartphone) availability and affordability, including willingness and ability to pay, but it may also consider the availability and affordability of other users’ terminals/devices, such as personal computers.

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**QUESTION D/2 - Utilisation of new and emerging telecommunication/ICT technologies, and development of digital skills**

1. **Statement of the situation or problem**
   1. **Utilisation of new and emerging telecommunication/ICT technologies**

New and emerging telecommunication/ICT technologies are undergoing rapid advancements and novel applications are continuously developed. Technologies such as AI can also be applied to telecommunications/ICTs to make them more efficient. As a driver of digital transformation and innovation, the application of these technologies to telecommunications/ICTs can also assist in tackling critical challenges such as the achievement of the sustainable development goals (SDGs) and bridging the digital divide.

In bridging the digital divide, these technologies can foster accessibility and inclusion through innovative tools and platforms. Applications, digital infrastructure, and equitable access to these technologies are vital to ensuring everyone can benefit from digital transformation.

As Member States face varied challenges in these areas, fostering dialogue and collaboration is essential for effective solutions. Member States can actively engage in dialogue and explore best practices to utilize new and emerging telecommunication/ICT technologies, as well as other related technologies, to maximize their societal benefits and build a more inclusive and sustainable future.

* 1. **Development of digital skills**

Broadband technologies are fundamentally transforming the way we live. Broadband infrastructure, applications and services offer important opportunities to boost economic growth, enhance communications, improve energy efficiency, safeguard the planet and improve people's lives. Broadband access and adoption have a significant impact on the world economy and are important to bridging the digital divide.

According to the ITU 2021 edition of Facts and Figures, an estimated 2.9 billion people – or 37 per cent of the world’s population – remain offline. In developed countries, 90 per cent of the population is online compared to 57 per cent in developing countries[[6]](#footnote-6) and 27 per cent in least developed countries (LDCs). Of the 37 per cent of people who are offline, 5 per cent cannot connect even if they wanted to due to a lack of network coverage (“coverage gap”), while 32 per cent remain offline for other reasons (“usage gap”).

Since the onset of the coronavirus disease (COVID-19) pandemic, Internet connectivity has played a vital role in allowing individuals to continue to participate in everyday social, political and economic activities as millions of people turned to remote work, distance learning, e-commerce and Internet-enabled telehealth services. Almost 70 per cent of the workforce in some countries shifted to remote work, and 94 per cent of the world's student population was affected by school closures. Unfortunately, of those affected, at least 31 per cent of school-age children are still unable to access online educational content.

Disparities are found across countries. With respect to gender, globally, only 48 per cent of women use the Internet compared to 55 per cent of men. In developing countries, women are almost 10 per cent less likely to use the Internet than men, compared to only 2 per cent less than men in developed countries. The gender gap further widens in LDCs (15 per cent women to 28 per cent men) and in LLDCs (21 per cent women to 33 per cent men). Broadband adoption directly contributes to the likelihood that a community will participate in and benefit from the digital economy.

In indigenous communities, the digital divide plays an even larger role in widening the economic, educational and social divides. Due to the sparse population in rural and remote areas where many indigenous people live combined with the challenges of broadband mapping and data collection, available information sources often provide incomplete data for Internet access and adoption. Methods to increase adoption in these areas will optimally focus on factors at the household and personal level to include price, availability of computers or other devices, content provided in local languages and digital skills.

Global stakeholders have become increasingly focused on alleviating disparities in broadband adoption by investing in approaches that address the affordability of devices and services and emphasize the importance of digital skills and digital literacy to effec­tively participate in the global economy. In a survey conducted by ITU, less than 40 per cent of the population in 40 per cent of countries surveyed had basic ICT skills, while, similarly, less than 40 per cent of the population in over 70 per cent of countries had standard ICT skills, and in over 95 per cent of countries less than 15 per cent of the population had advanced ICT skills.

There must be a significant uptake in broadband services and technologies for a com­munity to participate fully in the digital economy. As stakeholders around the world work to deploy broadband networks, it is also important to develop and execute strat­egies that enable their citizens to adopt and effectively use broadband technologies, services and devices, supported by adequate digital skills. Increasingly, stakeholders use local languages and iconography to increase computer and overall literacy. Optimally, all strategies for adoption will be studied in the context of the social, economic and cultural factors faced by individuals in urban, rural and remote areas in both developed and developing countries.

1. **Questions or issues for study**
   1. Policies, regulations, and initiatives for utilizing new and emerging telecommunication/ICT and related technologies, such as AI, to support digital transformation.
      1. Utilizing these technologies for empowering telecommunication/ICT industry and service providers, and provision of best practices for all stakeholders.
      2. Utilizing of these technologies related to telecommunications/ICTs, including AI, for achieving the SDGs and bridging the digital divide.
      3. Case studies on building capacity to utilize these technologies.
   2. Trends in digital skills development and training programmes.
   3. Methods to promote and encourage digital literacy, training and skills development to close the digital skills gap.
   4. Ways to encourage the adoption of telecommunications/ICT services and devices among school-aged children and youth and to teach them basic, intermediate and advanced digital skills so that they can safely participate fully in the information society.
   5. Ways to encourage widespread adoption of new and emerging telecommunication/ICT services and technologies to increase fast and reliable connectivity for all in developing and least developed countries (LDCs), landlocked developing countries (LLDCs), and small island developing states (SIDS).

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1. These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition. [↑](#footnote-ref-1)
2. These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition. [↑](#footnote-ref-2)
3. These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition. [↑](#footnote-ref-3)
4. These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition. [↑](#footnote-ref-4)
5. These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition. [↑](#footnote-ref-5)
6. These include the least developed countries, small island developing states, landlocked developing countries and countries with economies in transition. [↑](#footnote-ref-6)