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| PROPOSED MODIFICATIONS TO RESOLUTION 98 |
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| **Abstract:** | ATU proposes to modify WTSA Resolution 98 to address the need for Member States to develop guidelines and other mechanisms within their national legal frameworks to enhance the deployment of IoT services, and make smart sustainable cities inclusive for persons with disabilities and persons with specific needs. |
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Introduction

Resolution 98 adequately provides for enhancing the standardization of Internet of Things and smart cities and communities for global development. However, there is a need to update the resolution to ensure digital inclusion and equity.

Smart sustainable cities use technology and data to improve behaviour and lives of people. As cities deploy smart solutions and digital services, making cities accessible and inclusive for everyone, particularly, persons with disabilities is intrinsic to **sustainable** development.

Proposal

ATU proposes that Resolution 98 should be updated to address:

1 The need to make smart sustainable cities inclusive for persons with disabilities and persons with specific needs.

2 The need for Member States to develop guidelines and other mechanisms within their national legal frameworks to enhance the deployment of IoT services.

3 The crucial need to study aspects related to IoT data security and digital twins. Digital twins can be utilized to create strategies to achieve specific goals of SSC&C through simulations.

MOD ATU/35A30/1

RESOLUTION 98 (Rev. New Delhi, 2024)

Enhancing the standardization of Internet of Things, digital twin and
smart sustainable cities and communities for global development

(Hammamet, 2016; Geneva, 2022; New Delhi, 2024)

The World Telecommunication Standardization Assembly (New Delhi, 2024),

recalling

*a)* Resolution 197 (Rev.Bucharest, 2022) of the Plenipotentiary Conference, on facilitating the Internet of things (IoT) and smart sustainable cities and communities (SSC&C);

*b)* Resolution 66 (Rev.Dubai, 2023) of the Radiocommunication Assembly, on studies related to wireless systems and applications for the development of IoT;

*c)* Resolution 85 (Rev. Kigali, 2022) of the World Telecommunication Development Conference, on facilitating IoT and SSC&C for global development;

*d)* the Global Pulse initiative launched by the United Nations Secretary-General to promote opportunities to use big data for sustainable development and humanitarian action;

*e)* Resolution 123 (Rev. Bucharest, 2022) of the Plenipotentiary Conference on Bridging the standardization gap between developing and developed countries, and in particular highlights the need to extend and facilitate cooperation with international, regional and national standardization bodies;

*f)* Recommendation ITU‑T Y.4000/Y.2060, on overview of IoT, which defines IoT as "a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving interoperable information and communication technologies";

*g)* Recommendation ITU‑T Y.4702, on common requirements and capabilities of device management in IoT, which establishes common requirements and capabilities of device management in IoT for different application scenarios;

*h)* Recommendation ITU-T Y.4900, on Overview of key performance indicators in smart sustainable cities, which defines smart sustainable cities as “A smart sustainable city is an innovative city that uses information and communication technologies (ICTs) and other means to improve quality of life, efficiency of urban operation and services and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social, environmental, as well as cultural aspects. (NOTE – City competitiveness refers to policies, institutions, strategies and processes that determine the city's sustainable productivity)”;

*i)* Recommendation ITU-T Y.4600, on Requirements and capabilities of a digital twin system for smart cities, which defines digital twin as “A digital representation of an object of interest. (NOTE – A digital twin may require different capabilities (e.g., synchronization, real-time support) according to the specific domain of application)”,

*j)* WSIS Action Line 5 on Building confidence and security in the use of ICTs in accordance with WSIS Declaration of Principles aiming to strengthen the trust framework, including information security and network security, authentication, privacy and consumer protection, is a prerequisite for the development of the Information Society and for building confidence among users of ICTs,

considering

*a)* that it is expected that the development of IoT technologies will make it possible to connect billions of devices to the network, impacting almost all aspects of daily life;

*b)* that IoT devices connected to these networks collect and transmit vast amount of data, which might include personal and sensitive data that can pose data security, privacy protection and trust concerns.

*c)* the importance of IoT and digital twins in contributing to achievement of the 2030 Agenda for Sustainable Development, in particular recalling Sustainable Development Goal 11 (SDG 11) (Make cities and human settlements inclusive, safe, resilient and sustainable);

*d)* that digital twins can be used to develop strategies to achieve specific goals of SSC&C by conducting simulations;

*e)* that various industrial sectors, such as energy, transportation, health and agriculture, are collaborating for the development of IoT, digital twin and SSC&C applications and services across verticals;

*f)* that IoT, digital twins and SSC&C can be key enablers for the information society and offer the opportunity to transform the urban infrastructure, taking advantage, among other things, of the efficiencies of smart buildings and transport systems, and smart water management, working together with services for the benefit of users;

*g)* that SSC&C can use IoT and digital twins to discover and respond to regional and/or global crises such as natural disasters and epidemics/pandemics;

*h)* that research and development of emerging digital technologies, including IoT, artificial intelligence (AI) and digital twins can help to improve global development, delivery of basic services and monitoring and evaluation programmes in different sectors;

*i)* that IoT involves various stakeholders and areas, which may require coordination and cooperation;

*j)* that IoT has evolved into a wide variety of applications with different aims and requirements, as a result of which it is necessary to work in coordination with other international standardization bodies and other related organizations in order to integrate better standardization frameworks;

*k)* that technical standards as well as public-private partnerships should reduce the time and cost for implementing IoT and digital twins with benefits in terms of economies of scale;

*l)* interoperability is a necessary condition for the development of IoT systems and services on a global scale, the lack of interoperability is often the main obstacle to ensure good collaboration between the different actors in the value chain;

*m)* that ITU‑T should play a leading role in the development of IoT-related, digital twins-related and SSC&C‑related standards;

*n)* the importance of collaboratively assessing and standardizing IoT, digital twins and SC&C data interoperability;

*o)* that IoT, digital twins and SSC&C may have an impact in many areas, which may require further cooperation between national, regional and international entities concerned on relevant aspects in order to maximize the benefits of IoT and digital twin;

*p)* that in IoT, digital twins and SSC&C environments, connected devices and applications represent a diverse range of ecosystems;

*q)* that the development of an IoT ecosystem relies on a regulatory framework to ensure protection of privacy and data security on its base;

*r)* that security aspects and privacy concerns are a key component in the development of a reliable, trustworthy and secure IoT ecosystem;

*s)* that the evaluation and assessment of SSC&C and related digital technologies can help measure the implementation and success of SSC&C technologies and goals,

recognizing

*a)* that industry forums, standards-development organizations (SDOs) and partnership projects are developing technical specifications for IoT;

*b)* the role of the ITU Radiocommunication Sector (ITU-R) in conducting studies on the technical and operational aspects of radio networks and systems for IoT;

*c)* the role of the ITU Telecommunication Development Sector (ITU-D) in encouraging telecommunication/information and communication technology (ICT) development at the global level, and in particular the relevant work carried out by ITU-D study groups;

*d)* that the purpose of the Joint Coordination Activity on Internet of things and smart cities and communities (JCA-IoT and SSC&C), under the leadership of ITU‑T Study Group 20, is to coordinate the work on IoT and SSC&C within ITU, and to seek cooperation from external bodies working in the field of IoT and SSC&C;

*e)* that much progress has been made in efforts to develop collaboration between ITU‑T and other organizations, such as, but not limited to, active participation in different committees and working groups of Joint Technical Committee 1 of the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC JTC 1) and of the European Telecommunications Standards Institute (ETSI), and there has also been collaboration with forums such as oneM2M, the Alliance for Internet of Things Innovation and the LoRa Alliance, and collaboration on intelligent transport system (ITS) communication standards;

*f)* that Study Group 20 is responsible for studies and standardization work relating to IoT and its applications, including SSC&C and related digital services, including effective energy management, digital health, digital twins;

*g)* that Study Group 20 is also working on standardization on security, privacy, trust, and identification issues related to IoT and SC&C;

*h)* that Study Group 20 is also a platform where the ITU‑T membership, including Member States, Sector Members, Associates and Academia, can come together to exert an impact on the drafting of international standards for IoT and their implementation;

*i)* that United for Smart Sustainable Cities (U4SSC) is a United Nations initiative coordinated by ITU, the United Nations Economic Commission for Europe (UNECE) and the United Nations Human Settlements Programme (UN-Habitat) to achieve SDG 11;

*j)* that U4SSC is supporting cities to leverage the full potential of ICT in sustainable development,

resolves to instruct Study Group 20 of the ITU Telecommunication Standardization Sector

1 to develop ITU‑T Recommendations aimed at implementing IoT, digital twin and SSC&C, including, but not limited to, on issues related to emerging technologies and vertical industries;

2 to continue, within its mandate, to work with a special focus on the design of a roadmap and harmonized and coordinated international telecommunication standards for the development of IoT and digital twin, taking into account the needs of each region and Member States, as well as the wide variety of use cases and applications, and the need for IoT and digital twin to be open and adaptable, and fostering a competitive environment;

3 to collaborate with IoT and digital twin-related standards organizations and other stakeholders such as industry forums and associations, consortia, SDOs, and UN entities as well as other relevant ITU-T study groups, taking into account relevant work;

4 to collate, evaluate, assess and share IoT use cases from the interoperability and standardization standpoints for data and information exchange,

resolves to instruct Study Groups 20 and 17 of the ITU Telecommunication Standardization Sector

to develop robust ITU-T Recommendations on security, privacy, trust, and identification standards to address specific requirement for IoT and SC&C taking into consideration existing Recommendations, increasing emerging security threats and loss of credit or trust.

instructs the Director of the Telecommunication Standardization Bureau

1 to provide necessary assistance in order to take advantage of every opportunity, within the assigned budget, to promote quality standardization work in a timely manner, and to communicate with telecommunication and ICT industries in order to promote their participation in ITU‑T's standardization activities on IoT and digital twin and SSC&C;

2 to carry out, in collaboration with Member States and cities and communities related to SSC&C key performance indicator (KPI) assessment activities, aimed at facilitating the deployment and implementation of IoT, digital twin and SSC&C standards worldwide;

3 to continue to support U4SSC, and share its deliverables with Study Group 20 and other study groups concerned;

4 to promote and encourage the implementation of U4SSC KPIs as a standard for smart sustainable cities' self-assessment in collaboration with Member States;

5 to continue encouraging cooperation with other international SDOs, industry forums, other related organizations, and global projects and initiatives, in order to increase the development of international telecommunication standards and reports that facilitate the interoperability of IoT services;

6 to encourage the development of eco-friendly, memory safe and efficient IoT solutions that promote environmental sustainability in urban and rural communities;

7 to support capacity-building programmes and initiatives to enhance literacy and skills among diverse communities towards ensuring equitable participation and benefits from IoT and SC&C,

instructs the Director of the Telecommunication Standardization Bureau, in collaboration with the Directors of the Telecommunication Development Bureau and the Radiocommunication Bureau

1 to prepare reports considering, in particular, the needs of developing countries[[1]](#footnote-1)1 in terms of the study of IoT and its applications, sensor networks, services and infrastructure, taking into account the results of work being done in ITU-R and ITU-D to ensure coordination of efforts;

2 to provide support to Member States in implementing U4SSC KPIs for smart sustainable cities;

3 to foster joint work among ITU Sectors in order to discuss the various aspects related to the development of the IoT ecosystem and solutions for SSC&C and digital services, in the context of the achievement of the SDGs and within the framework of the World Summit on the Information Society;

4 to continue disseminating ITU publications on IoT, digital twin and SSC&C, as well as organizing forums, seminars and workshops on the subject, taking into account the needs of developing countries in particular;

5 to support Member States, especially developing countries, in the organization of forums, seminars and workshops on IoT and SSC&C to promote innovation, development and growth in IoT and other emerging digital technologies and solutions;

6 to report to the next world telecommunication standardization assembly on progress made in the organization of forums, seminars and workshops dedicated to developing the capacity of developing countries;

7 to assist developing countries in the implementation of Recommendations, technical reports and guidelines related to IoT, digital twins and SSC&C,

invites the ITU Telecommunication Standardization Sector membership

1 to submit contributions and continue participating actively in the work of Study Group 20 and in the studies on IoT, digital twins and SSC&C being conducted by ITU‑T;

2 to consider developing frameworks, guidelines and other mechanisms to enhance the deployment, accessibility, and usability of IoT and SC&C, thereby making cities inclusive for persons with disabilities and persons with specific needs;

3 to encourage Member States to incorporate robust and dynamic data governance frameworks that adapts to IoT and SC&C requirements into their legal and regulatory frameworks to provide for enhancement of data management procedures so as to ensure data security and privacy protection and build trust in use of IoT services;

3 to develop master plans and exchange use cases and best practices in order to promote the IoT ecosystem, as well as SSC&Cs, and to promote social development and economic growth in order to achieve the SDGs;

4 to cooperate and exchange experiences and knowledge related to this topic;

5 to support and organize forums, seminars and workshops on IoT and other emerging digital technologies in order to promote innovation, development and growth in IoT and other emerging digital technologies and solutions;

6 to take necessary measures to facilitate the growth of IoT and other emerging digital technologies in relation to areas such as the establishment of standards.

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