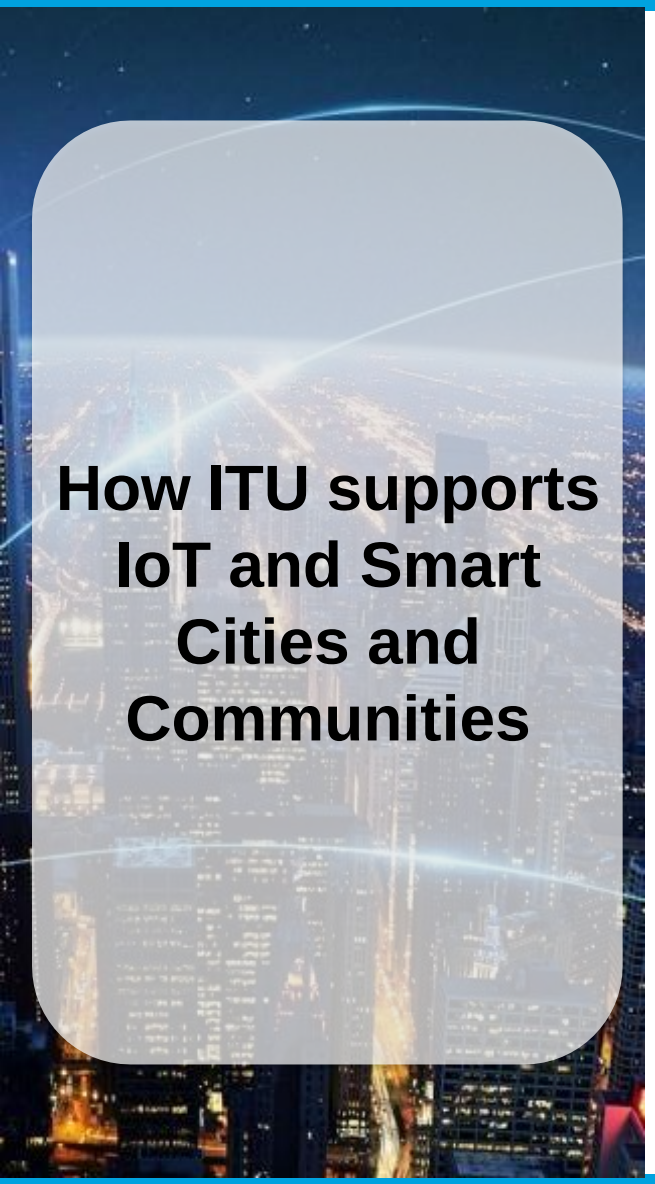
ITU-T Study Group 20
“IoT and Smart Cities and Communities”



How ITU supports IoT and Smart Cities and Communities

ITU:
International Telecommunication Union – the UN specialized agency for ICTs

ITU-T Study Group 20:
ITU Study Group on IoT and Smart Cities and Communities

Correspondence Group on Artificial intelligence of Things (CG-AIoT)

JCA-IoT and SC&C:
Joint Coordination Activity on IoT and Smart Cities and Communities

Joint IEC-ISO-ITU Smart Cities Task Force

Focus Group on "Artificial Intelligence (AI) and Internet of Things (IoT) for Digital Agriculture" (FG-AI4A)

U4SSC:
United for Smart Sustainable Cities initiative

ITU Resolutions on IoT and Smart Cities and Communities (1)

Resolution 197 – Facilitating the Internet of things and smart cities and communities

Resolves,

- to promote investment in and development of IoT in order to support the SDGs;
- to continue and further develop studies and activities on IoT and SSCCs, in order to promote their development.

Instructs the Directors of TSB and Radiocommunication Bureau:

1 to support the work of relevant ITU-T and ITU-R study groups on IoT and SSCCs and to facilitate the emergence of diverse services in the globally connected world, in collaboration with relevant sectors;

2to continue cooperation with relevant organizations, including SDOs, for exchanging best practices and disseminating information to increase interoperability of IoT services, through joint workshops, training sessions, joint coordination activity groups and any other appropriate means;

3to encourage the development of IoT and SSCCs, taking into account the outcomes of the work of the relevant ITU study groups on various aspects of IoT and SSCCs.

ITU Resolutions on IoT and Smart Cities and Communities (2)

ITUWTSA-20
GENEVA2022
1- 9 March 2022
Geneva, Switzerland

Resolution 98 - Enhancing the standardization of Internet of things and smart cities and communities for global development

Resolves to instruct Study Group 20 of the ITU-T:

- to develop ITU T Recommendations aimed at implementing IoT and SC&C, including, but not limited to, on issues related to emerging technologies and vertical industries;
- 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, 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 to be open and adaptable, and fostering a competitive environment;
- to collaborate with IoT related standards organizations and other stakeholders such as industry forums and associations, consortia and SDOs, as well as other relevant ITU T study groups, taking into account relevant work;
- to collate, evaluate, assess and share IoT use cases from the interoperability and standardization standpoints for data and information exchange.

ITU Resolutions on IoT and Smart Cities and Communities (3)

ITU WTSA-20
GENEVA2022
1 – 9 March 2022
Geneva, Switzerland

Resolution 78 - Information and communication technology applications and standards for improved access to e-health services

Instructs Study Groups 16 and 20 of the ITU Telecommunication Standardization Sector, each according to its mandate:

- to identify and document examples of best practice for e-health in the field of telecommunications/ICTs, for dissemination among ITU Member States and Sector Members;
- to coordinate activities and studies relating to e-health among the relevant study groups, focus groups and other relevant groups in ITU T, the ITU Radiocommunication Sector (ITU R) and ITU D, in order in particular to foster awareness of telecommunication/ICT standards pertaining to e-health;
- for ensuring the broad deployment of e-health services in diverse operating conditions, to study communication protocols relating to e-health, especially among heterogeneous networks;
- within the current mandate of the ITU T study groups, to give priority to the study of security standards (e.g. for communications, services, network aspects and service scenarios for databases and record handling, identification, integrity and authentication) relating to e-health, taking into account recognizing e)

Connect 2030 Agenda: Innovation

Resolution 200 (Rev. Dubai, 2018)
Connect 2030 Agenda for global telecommunication / information and communication technology, including broadband, for sustainable development

Goal 4 – Innovation: Enable innovation in telecommunications / ICT in support of the digital transformation of society

Target 4.1: By 2023, all countries should have policies / strategies fostering telecommunication / ICT-centric innovation

ITU-T's focus on IoT and Smart Cities and Communities

ITU-T Study Group 20 is responsible for:

- studies relating to Internet of Things (IoT) and its applications, and smart cities and communities (SC&C);
- studies relating to big data aspects of IoT and SC&C, digital services for SC&C, and digital transformation relevant IoT and SC&C aspects.

ITU-T Study Group 20: IoT and Smart Cities & Communities

Lead Study Group 20 Roles

Internet of Things and its Applications

Smart Cities and Communities

IoT Identification

Digital health related to IoT and SSC

ITU-T SG20 - Management Team

Chairman

Hyoung Jun KIM
- (Electronics and Telecommunications Research Institute (ETRI))

Vice-Chairmen

Ali ABBASSENE
(Ministère de la Poste et des Télécommunications (MPT))

Ramy Ahmed Fathy
(National Telecom Regulatory Authority)

Achime Malick Ndiaye
(Ministère de l'Économie Numérique et des Télécommunications)

Muath ALRUMAYH
(Communication and Information Technology Commission)

Harinderpal Singh GREWAL
(Infocomm Media Development Authority (IMDA))

Ziqin Sang
(China Information Communication Technologies Group)

Fabio Bigi
(Ministero Dello Sviluppo Economico (Dipartimento Comunicazioni))

Shane HE
(Nokia Corporation)

Toru Yamada
(NEC Corporation)

Héctor Mario Carril
(CeSPI, Universidad Nacional de la Plata)

Emmanuel MANASSEH
(Tanzania Communications Regulatory Authority)

Counsellor

Cristina Bueti
(ITU)

Administrative Assistant

Chiara Co
(ITU)

ITU-T SG20 - Management Team

WP1/20 Co-chairmen

- **Ramy Ahmed Fathy**
  (National Telecom Regulatory Authority)
- **Achime Malick Ndiaye**
  (Ministère de l'Économie Numérique et des Télécommunications)

WP1/20 Vice-chairman

- **Héctor Mario Carril**
  (CeSPI, Universidad Nacional de la Plata)
- **Shane HE**
  (Nokia Corporation)
- **Rana Kamill**
  (British Telecom)

WP2/20 Co-chairmen

- **Harinderpal Singh Grewal**
  • (IMDA)
- **Ziqin Sang**
  • (China Information Communication Technologies Group)

WP2/20 Vice-chairmen

- **Abdulhadi Aboualmal**
  • (E-Space)
- **Tania Marcos Paramio**
  • (Spanish Association for Standardization (UNE))
- **Sushil Kumar**
  (Telecommunication Engineering Center (TEC))

SG20 - Study Group Structure (Study Period 2022-2024)

Q1/20
- Interoperability and interworking of IoT and SC&C applications and services

Q2/20
- Requirements, capabilities and architectural frameworks across verticals enhanced by emerging DT

Q3/20
- IoT and SC&C architectures, protocols and QoS/QoE

Q4/20
- Data analytics, sharing, processing and management, including big data aspects, of IoT and SC&C

Q5/20
- Study of emerging digital technologies, terminology and definitions

Q6/20
- Security, privacy, trust and identification for IoT and SC&C

Q7/20
- Evaluation and assessment of Smart Cities and Communities

Key Topics & ITU-T Recommendations

Requirements and use cases

Recommendation ITU-T Y.4208: “IoT requirements for support of edge computing”

Recommendation ITU-T Y.4211: “Accessibility requirements for smart public transportation services”

Recommendation ITU-T Y.4214: “Requirements of IoT-based civil engineering infrastructure health monitoring system”

Infrastructure and architecture

Recommendation ITU-T Y.4470: “Reference architecture of artificial intelligence service exposure for smart sustainable cities”

Recommendation ITU-T Y.4480: “Low power protocol for wide area wireless networks”

Recommendation ITU-T Y.4500.1: “oneM2M-Functional Architecture” (Y.4500 series)

Interoperability

Recommendation ITU-T Y.4200: “Requirements for interoperability of smart city platforms”

Recommendation ITU-T Y.4201: “High-level requirements and reference framework of smart city platform”

Recommendation ITU-T Y.4805: “Identifier service requirements for the interoperability of smart city applications”

Data management and Processing

Recommendation ITU-T Y.4461: “Framework of open data in smart cities”

Recommendation ITU-T Y.4464: “Framework of blockchain of things as decentralized service platform”

Recommendation ITU-T Y. 4472: “Open data application programming interface (APIs) for IoT data in smart cities and communities”

Evaluation and Assessment

Recommendation ITU-T Y.4903: “Key performance indicators for smart sustainable cities to assess the achievement of sustainable development goals”

Recommendation ITU-T Y.4904: “Smart sustainable cities maturity model”

Recommendation ITU-T Y.4906: “Assessment framework for digital transformation of sectors in smart cities”

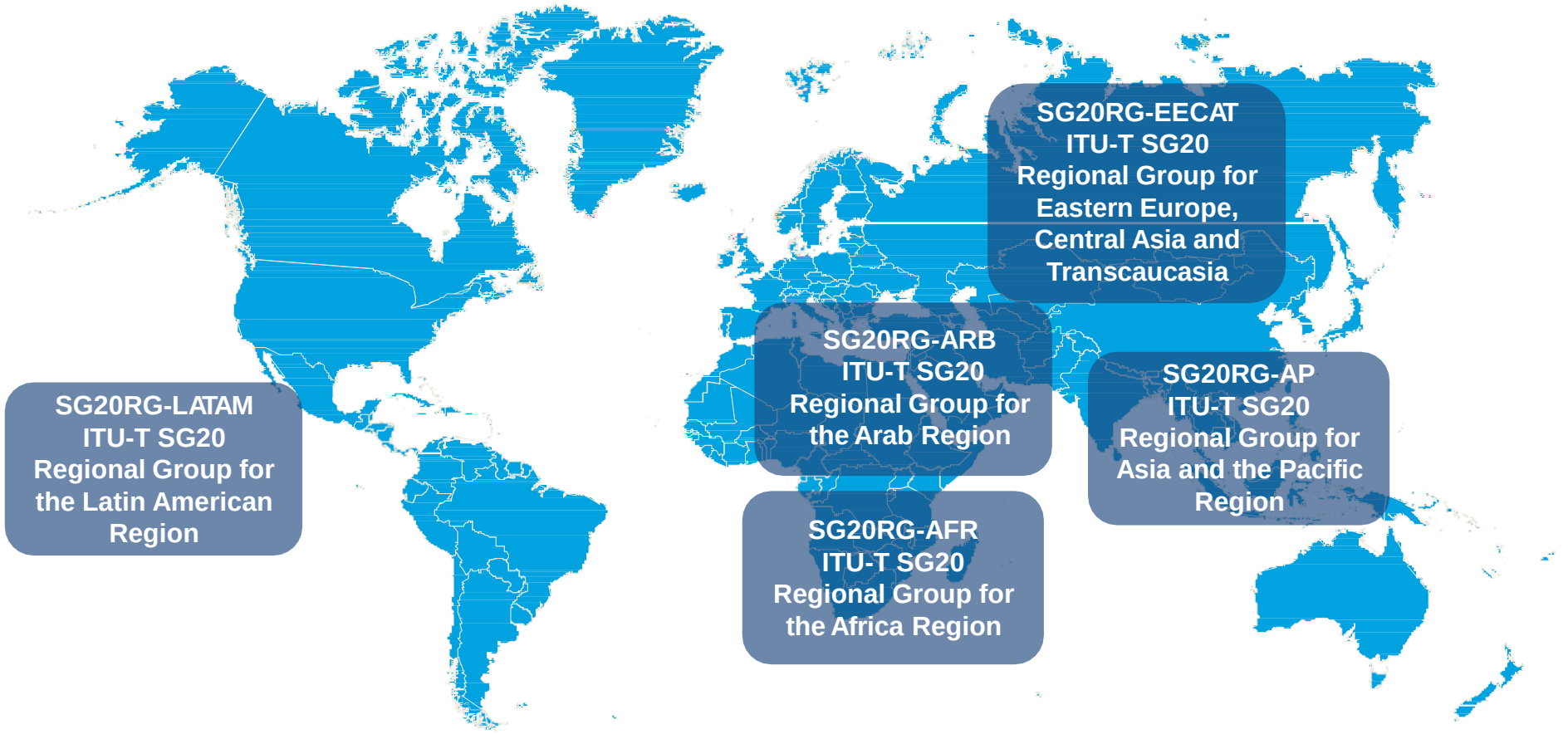
Identification and security

Recommendation ITU-T Y.4807: “Agility by design for ICT Systems security used in the Internet of Things”

Recommendation ITU-T Y.4808: “Digital entity architecture framework to combat counterfeiting in IoT”

Recommendation ITU-T Y.4809: “Unified IoT Identifiers for intelligent transport systems”

ITU-T SG20 - Regional Groups



ITU-T SG20 Regional Group for Latin America (SG20RG-LATAM)

SG20RG-LATAM - Management Team

SG20RG-LATAM Chairman:	**Juan Pablo Martín** (Universidad Tecnológica Nacional, Argentina)
SG20RG-LATAM Vice-chairmen:	**Héctor Budé** (Unidad Reguladora de Servicios de Comunicaciones (URSEC), Uruguay)
	Neil Checo (Instituto Dominicano de las Telecomunicaciones (INDOTEL), Dominican Republic)
	Marco Baten (Superintendency of Telecommunications of Guatemala (SIT), Guatemala)

Note: As of 18 July 2022

Last Meeting:

13-14 October 2020

Virtual via MyMeetings

ITU-T SG20 Regional Group for Eastern Europe, Central Asia and Transcaucasia (SG20RG-EECAT)

SG20RG-EECAT - Management Team

SG20RG-EECAT Chairman:	**Alexey Borodin** (PJSC «Rostelecom», Russian Federation)
SG20RG-EECAT Vice-chairman:	**Umida Musaeva** (Ministry for Development of Information Technologies and Communications, Uzbekistan)

Last Meeting:

16-18 March 2021

Minsk, Belarus

ITU-T SG20 Regional Group for the Arab Region (SG20RG-ARB)

SG20RG-ARB - Management Team

SG20RG-ARB Chairman:	**Muath S. AlRumayh** (Communication and Information Technology Commission, Saudi Arabia)
SG20RG-ARB Vice-chairmen:	**Ali Abbassene** (Ministère de la Poste et des Télécommunications (MPT), Algeria)
	Abdulhadi Aboualmal (E-Space, United Arab Emirates)
	Khaled Al-Azemi (CITRA, Kuwait)
	Bilel Chabou (Ministère Des Technologies De La Communication Et De L économie Numérique, Tunisia)
	Ramy Ahmed Fathy (National Telecom Regulatory Authority, Egypt)

Last Meeting:

1 August 2023

Virtual via MyMeetings

ITU-T SG20 Regional Group for Africa (SG20RG-AFR)

SG20RG-AFR - Management Team

SG20RG-AFR Chairman:	**Ramy Ahmed Fathy** (National Telecom Regulatory Authority, Egypt)
SG20RG-AFR Vice-chairmen:	**Ali Abbassene** (Ministère de la Poste et des Télécommunications (MPT), Algeria)
	El Hadj Sekou Ascofare (Autorité Malienne de Régulation des Télécommunications, des Technologies de l'Information et de la Communication et des Postes (AMRTP))
	Bilel Chabou (Ministère Des Technologies De La Communication Et De L économie Numérique, Tunisia)
	Mwesigwa Elton Felician (Tanzania Communications Regulatory Authority (TCRA))
	Mel Paule Renee Lasme (Autorité de Régulation des Télécommunications de Côte d'Ivoire (ARTCI))
	Achime Malick Ndiaye (Ministère de l'Economie numérique et des Télécommunications)
	Sayyadi Sani (Nigerian Communications Commission (NCC))

Last Meeting:

8 June 2023

Sharm El Sheik, Egypt

ITU-T SG20 Regional Group for Asia and the Pacific (SG20RG-AP)

SG20RG-AP - Management Team

SG20RG-AP Chairman:	**Sushil Kumar** (TEC, India)
SG20RG-AP Vice-chairmen:	**Chao Ma** (China Academy of Information and Communications Technology, China) **SHAMSUZZOHA** (The Bangladesh Telecommunication Regulatory Commission (BTRC)

First Meeting:

25-26 July 2023

Virtual via MyMeetings

AI and Internet of Things for Digital Agriculture

AI and Internet of Things for Digital Agriculture
ITU Focus Group

Co-Chairs:

- Ramy Ahmed Fathy (Egypt)
- Sebastian Bosse (Fraunhofer HHI, Germany)

Working Groups

Working Group on Digital Agriculture Use Cases and Solutions (WG-AS)

Working Group on Data Acquisition and Modelling for digital agriculture (WG-DAM)

Working Group for Mapping and Analyzing AI and IoT standards related Activities in Digital Agriculture (WG-Roadmap)

Working Group on Ethical, Legal, and regulatory Considerations relating to the use of AI for agriculture (WG-ELR)

Working Group on Collaboration and Outreach (WG-CO)

Working Group on Glossary (WG-Gloss)

Topic Groups

TG-Data Science for surface and underground water monitoring

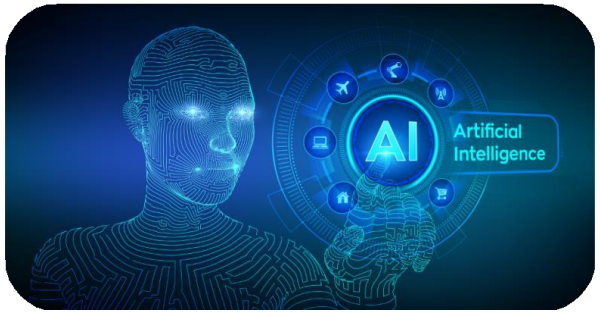
TG-Georeferenced Data Management

TG-Weather modelling and forecasting

TG-Irrigation strategy and smart water management

TG-Weather modelling and forecasting

Correspondence Group on Artificial intelligence of Things (CG-AIoT)



SG20, at its October 2021 meeting agreed to continue or set up the Correspondence Group listed below. To subscribe to any of the mailing lists, visit http://www.itu.int/ITU-T/services/

Correspondence Group on Artificial intelligence of Things (CG-AIoT)

- Terms of reference: SG20-TD2458
- Convener: Gyu Myoung Lee
- Mailing list: cg-aiot@lists.itu.int

Joint Coordination Activity on Internet of Things (IoT) and Smart Cities and Communities (SC&C)

Coordinating ITU-T work on IoT and SC&C

Providing contact point for IoT & applications, including SC&C activities

JCA-IoT and SC&C roadmap

Joint Smart Cities Task Force

J-SCTF
Joint Smart Cities Task Force

ISO co-Chairman	ITU co-Chairman	IEC co-Chairman
Mr Bernard Gindroz (Chair, ISO/TC 268)	Mr Hyoung Jun Kim (Chair, ITU-T SG20)	Mr Michael Mulquin (Chair, IEC SyC Smart Cities)

Joint Collaboration is Key

JOINT SMART CITY TASK FORCE

LoRa Alliance®

IEEE

oneM2M

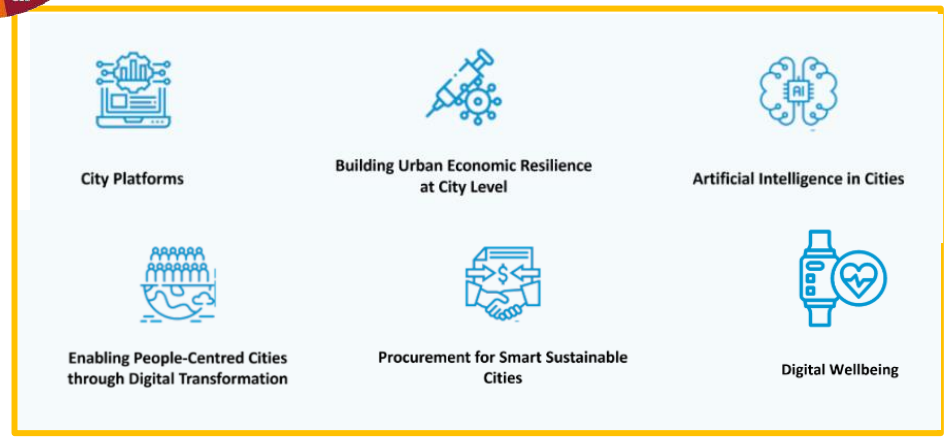
Mailing Lists

General distribution list for SG20 • t22sg20all@lists.itu.int	Q1/20: Interoperability and interworking of IoT and SC&C applications and services • t22sg20q1@lists.itu.int	Q2/20: Requirements, capabilities and architectural frameworks across verticals enhanced by emerging digital technologies • t22sg20q2@lists.itu.int	Q3/20: IoT and SC&C architectures, protocols and QoS/QoE • t22sg20q3@lists.itu.int
Q4/20: Data analytics, sharing, processing and management, including big data aspects, of IoT and SC&C • t22sg20q4@lists.itu.int	Q5/20: Study of emerging digital technologies, terminology and definitions • t22sg20q5@lists.itu.int	Q6/20: Security, privacy, trust and identification for IoT and SC&C • t22sg20q6@lists.itu.int	Q7/20: Evaluation and assessment of Smart Sustainable Cities and Communities • t22sg20q7@lists.itu.int
ITU-T SG20 Regional group for the Arab Region • tsg20rgarb@lists.itu.int	ITU-T SG20 Regional group for the African • tsg20rgafr@lists.itu.int	ITU-T SG20 Regional group for Latin American • tsg20rglatam@lists.itu.int	ITU-T SG20 Regional group for Eastern Europe, Central Asia and Transcaucasia • tsg20rgeecat@lists.itu.int
ITU-T SG20 Regional group for Asia and the Pacific • tsg20rgap@lists.itu.int	Correspondence Group on Artificial intelligence of Things (CG-AIoT) • cg-aiot@lists.itu.int		

United for Smart Sustainable Cities (U4SSC)

U4SSC Partners

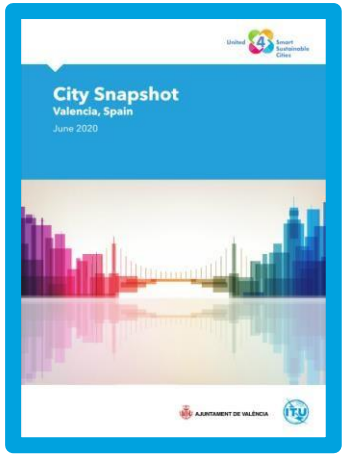
U4SSC Thematic Groups

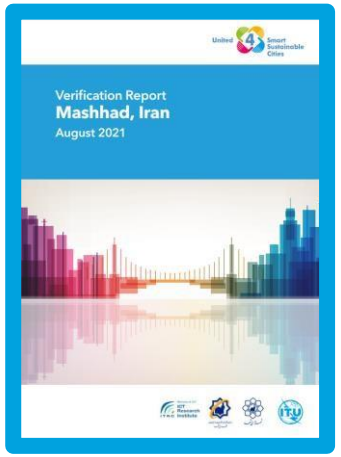


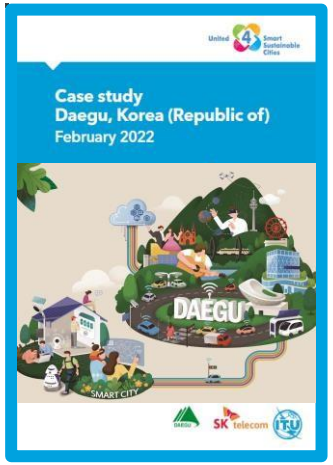
U4SSC Key Performance Indicators

- Dubai
- Singapore
- Riyadh
- Valencia
- Daegu
- Santa Fe
- Wels
- Pully
- Bizerte
- Krimpen aan den Ijssel

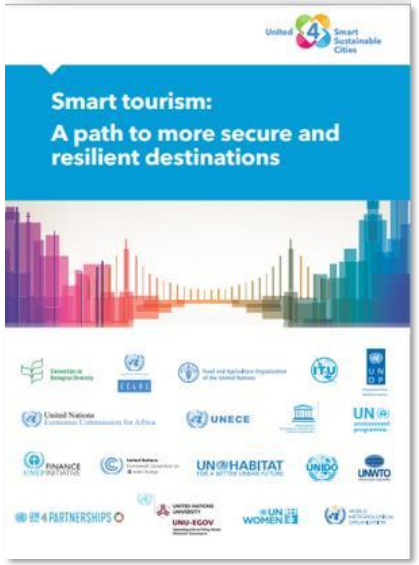
150+ more cities!

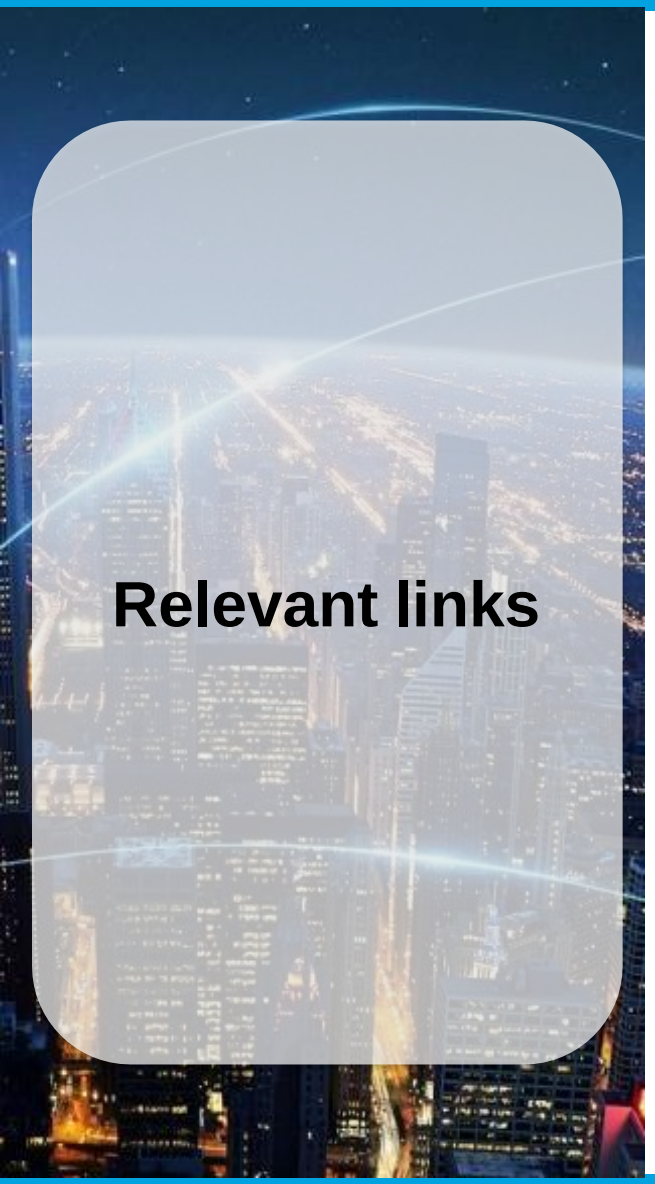






U4SSC Key Performance Indicators





Relevant links

ITU-T, Smart Sustainable Cities	• https://www.itu.int/en/ITU-T/ssc/Pages/default.aspx
ITU-T Study Group 20: Internet of things (IoT) and smart cities and communities (SC&C)	• https://www.itu.int/go/tsg20
SG20 Correspondence Group on Artificial intelligence of Things (CG-AIoT)	• https://www.itu.int/en/ITU-T/studygroups/2022-2024/20/Pages/Correspondence_groups.aspx
ITU-T SG20 Regional Group for the Africa Region	• https://www.itu.int/en/itu-t/regionalgroups/sg20-afr
ITU-T SG20 Regional Group for the Arab Region	• https://www.itu.int/en/itu-t/regionalgroups/sg20-arb
ITU-T SG20 Regional Group for the Latin America Region	• https://www.itu.int/en/itu-t/regionalgroups/sg20-latam
ITU-T SG20 Regional Group for Eastern Europe, Central Asia and Transcaucasia	• https://www.itu.int/en/itu-t/regionalgroups/sg20-eecat
ITU-T SG20 Regional Group for Asia and the Pacific	• https://www.itu.int/en/itu-t/regionalgroups/sg20-ap
Focus group on Artificial Intelligence (AI) and Internet of Things (IoT) for Digital Agriculture (FG-AI4A)	• https://www.itu.int/go/fgai4a
Focus Group on Data Processing and Management to support IoT and Smart Cities & Communities (FG-DPM)	• https://www.itu.int/en/ITU-T/focusgroups/dpm/Pages/default.aspx
Joint Coordination Activity on Internet of Things and Smart Cities and Communities (JCA-IoT and SC&C)	• https://www.itu.int/en/ITU-T/jca/iot/Pages/default.aspx
United for Smart Sustainable Cities (U4SSC)	• https://www.itu.int/go/u4ssc

Digital Transformation Resource Hub

Smart sustainable cities

Cities' actions to tackle Covid-19

Artificial intelligence

Internet of things

Blockchain

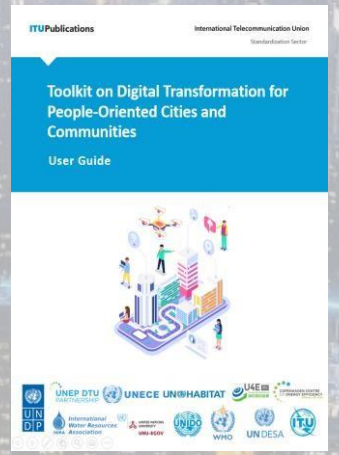
Digital twin

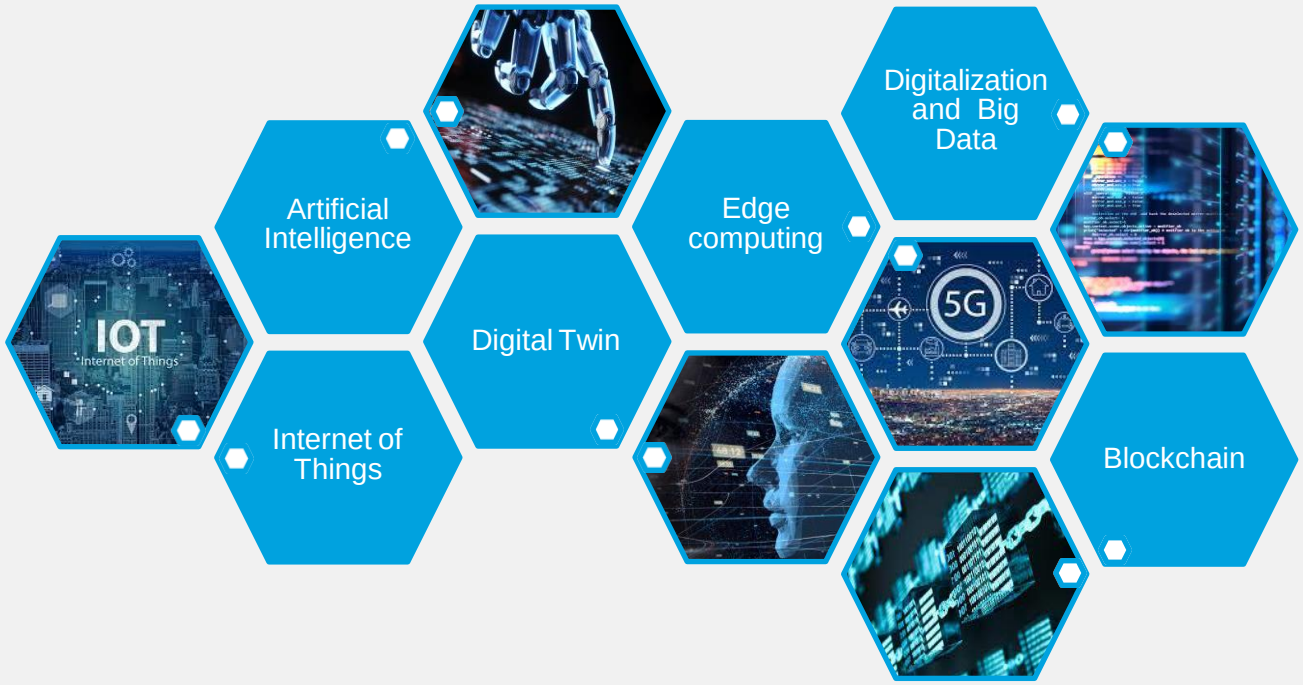
Metaverse

Digital transformation trends

Cross-Sector Partnership

Standardizing digital transformation for people-oriented cities





Digital Transformation Webinar Series

These webinars discuss topics related to cross-sectoral digital transformation and related standardization activities. The goal of this webinar series is to increase the collaboration with global stakeholders and it also aims to bring new knowledge which may contribute to ITU-T standardization activities in alignment with the Sustainable Development Goals and the New Urban Agenda.

https://itu.int/go/dt4cc

Thank you!

Questions? Interested in learning more?

Let us know!

tsbsg20@itu.int

Marco Carugi – SG20 Mentor (marco.carugi@gmail.com)

SG20: IoT and Smart Cities and Communities