ITU transforming cities in smarter and more sustainable
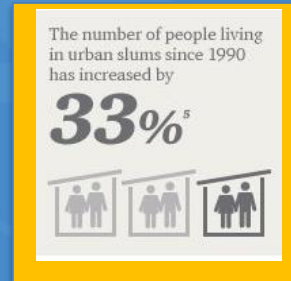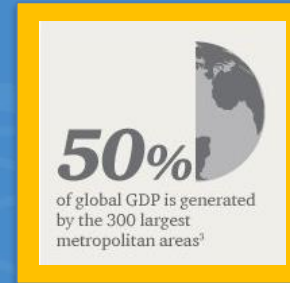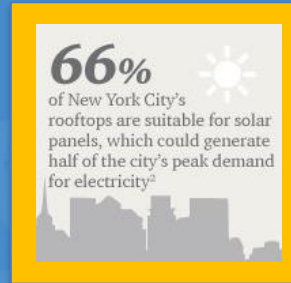
Reyna Úbeda
ITU-T
26-04-2018

Cities are facing a rapid urbanization…

60,000 people added to the Chinese and Indian urban population every day[1]

66% of New York City's rooftops are suitable for solar panels, which could generate half of the city's peak demand for electricity[2]

50% of global GDP is generated by the 300 largest metropolitan areas[3]

$8 trillion is the amount we predict will need to be spent on infrastructure in New York, Beijing, Shanghai, London over the next 10 years[1]

By 2025, there could be nearly 40 cities with a population of over 10 million[8]

$16bn is the expected cost to develop the desert city of Masdar in the UAE[4]

The number of people living in urban slums since 1990 has increased by **33%**[5]

Income inequality in the 50 biggest cities in the US is 20% higher than the US average[6]

1.5 million people are added to the global urban population every week[7]

Cities need to establish and maintain sustainable economic growth and prosperity, relying strongly on the urban dweller who accounts for **80 percent of global GDP**.

Their futures are intrinsically linked to smart sustainable cities

International Telecommunication Union
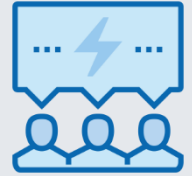
OUR MEMBERS

193
MEMBER STATES

550
SECTOR MEMBERS

140
ACADEMIA MEMBERS

170
ASSOCIATES

3 SECTORS

Each sector has separate mandate, but all work cohesively towards connecting the world

STANDARDIZATION

DEVELOPMENT

RADIOCOMMUNICATION

ITU-T Groups working on IoT & Smart Sustainable Cities

Development and implementation of standards → **ITU-T Study Group 20**

Research & pre-standardization work → Focus Group on **Data Processing Management (FG-DPM)**

Open platform for knowledge sharing & Forward looking research → United for Smart Sustainable Cities (U4SSC)

Resolution 98
Enhancing the standardization of IoT and Smart Cities and Communities for global development

IoT4SDGs: Considers the importance of IoT to contribute to achieving the 2030 Agenda for Sustainable Development.

ITU-T Study Group 20: Internet of things (IoT) and smart cities and communities (SC&C)

Lead study group on

Responsible for studies relating to IoT and its applications, and smart cities and communities (SC&C).

It includes studies relating to Big data aspects of IoT and SC&C, e-services and smart services for SC&C

Internet of things (IoT) and its applications

Smart Cities and Communities (SC&C), including its e-services and smart services

IoT identification

Next meeting: 6-16 May 2018, Egypt

4 Regional Groups

| SG20 RG-AFR | SG20 RG-EECAT |
| SG20 RG-LATAM | SG20 RG-ARB |

What is SG20 currently working on:

Smart cities and communities

- **Open Data** in Smart Cities
- **Use cases, requirements and architectures for** Smart cities and communities
- **Smart Services in rural communities**
- **Disaster notification** of the population in smart cities and communities
- **Smart Tourist** destinations
- *Smart City Infrastructure*

Internet of things (IoT)

- **Drones** for IoT
- IoT requirements for **edge computing**
- **Artificial Intelligence** and IoT
- Smart Manufacturing - **Industrial Internet of things**
- **Blockchain** and IoT
- IoT for **developing countries**
- **Intelligent Transport Systems (ITS)** based on IoT
- **Privacy and trust** of IoT systems
- **Interoperability**

Data management & processing

- Data structure and data transfer protocol for **automotive emergency response system**
- Function description and metadata of Spatio-temporal Information Service for SSC
- *Integrity*

Smart Sustainable city definition

"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".

UNECE

Smart Sustainable Cities

ITU

Some examples of ITU Standards on Smart Sustainable Cities

- ITU-T Y.4200 **"Requirements for interoperability of smart city platforms"**
- ITU-T Y.4101 **"High-level requirements and reference framework of smart city platform"**
- ITU-T Y.4805 **"Identifier service requirements for the interoperability of Smart City applications"**

Standards on KPIs for SSC

- ITU-T Y.4900/L.1600 **"Overview of key performance indicators in smart sustainable cities"**
- ITU-T Y.4901/L.1601 **"Key performance indicators related to the use of information technology in smart sustainable cities"**
- ITU-T Y.4902/L.1602 **"Key performance indicators related to the sustainability impacts of information and communication technology in smart sustainable cities"**
- ITU-T Y.4903/L.1603 **"Key performance indicators for smart sustainable cities to assess the achievement of sustainable development goals"**

Some examples of ITU Supplements on Smart Sustainable Cities

- ITU-T Y.Supp.27 to ITU-T Y.4400 series "**Setting the framework for an ICT architecture of a smart sustainable city**"
- ITU-T Y.Supp.28 to ITU-T Y.4550 series "**Integrated management for smart sustainable cities**"
- ITU-T Y.Supp.29 to ITU-T Y.4250 series "**Multi-service infrastructure for smart sustainable cities in new-development areas**"
- ITU-T Y.Supp.30 to ITU-T Y.4250 series "**Overview of smart sustainable cities infrastructure**"
- ITU-T Y.Supp.31 to ITU-T Y.4550 series "**Smart Sustainable Cities - Intelligent sustainable buildings**"
- ITU-T Y.Supp.32 to ITU-T Y.4000 series "**Smart sustainable cities - a guide for city leaders**"
- ITU-T Y.Supp.33 to ITU-T Y.4000 series "**Smart Sustainable Cities - Master plan**"
- ITU-T Y.Supp.34 to ITU-T Y.4000 series "**Smart Sustainable Cities - Setting the stage for stakeholders' engagement**"

Focus Group on Data Processing and Management to support IoT and Smart Cities & Communities (FG-DPM)

5 Working Groups

Key priorities:

| WG1 - Use Cases, Requirements and Applications/ Services | WG2 - DPM Framework, Architectures and Core Components | WG3 - Data sharing, Interoperability and Blockchain | WG4 - Security, Privacy and Trust including Governance | WG5 - Data Economy, commercialization and monetization |

To propose mechanisms , frameworks and guidelines for supporting the security, privacy and interoperability of datasets and data-management systems within the IoT and smart city domain.

Next meeting: Cairo, 1-3 May 2018

Implementing Key Performance Indicators for Smart Sustainable Cities Worldwide

Over 50 cities are implementing these KPIs

KPIs Project for Smart Sustainable Cities to Reach SDGs

Join this Project now!

- To support cities in the implementation and use of the SSC KPIs

- To test and verify the applicability of SSC-KPIs in several cities of the world.

- To develop a global **Smart Sustainable Cities (SSC) Index**.

Dubai

Singapore

Valencia

Wuxi

Foshan

Kairouan

Moscow

and many others...

Montevideo

Maldonado

Manizales

Pully

Guangshan
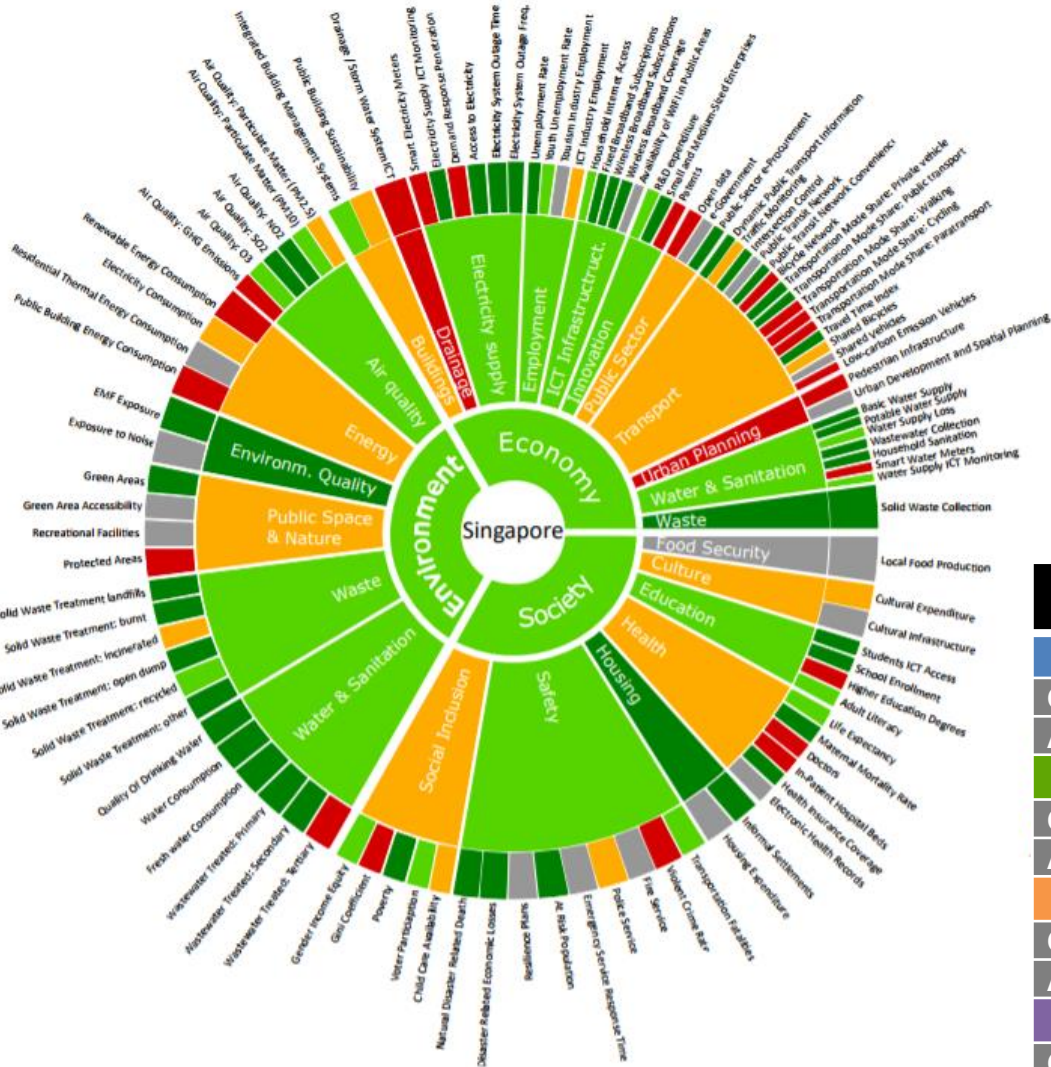
Bizerte

KPIs Project for Smart Sustainable Cities to Reach SDGs

The Case of Singapore

87%
of the KPIs verified

Target(s) has (have) been reached

- **completely (+/- 5%)** (dark green)
- **by more than two thirds** (light green)
- **between one and two thirds** (orange)
- **by one third or less** (red)
- **no target found** (grey)
  (i.e. no score available)

	Total	% KPIs Verified of Total KPIs
Economy		
Core KPIs	23	100%
Advanced KPIs	22	82%
Environment		
Core KPIs	12	100%
Advanced KPIs	5	60%
Society & Culture		
Core KPIs	20	90%
Advanced KPIs	9	56%
Overall		
Core KPIs	55	96%
Advanced KPIs	36	72%
Total	**91**	**87%**

Implementing ITU-T International Standards to Shape Smart Sustainable Cities

The case of Dubai

Implementing ITU-T International Standards to Shape Smart Sustainable Cities: The Case of Dubai

Dubai Reports Results from Implementing ITU's Key Performance Indicators for Smart Sustainable Cities

New case study shares insight into the experience of the Smart Dubai initiative
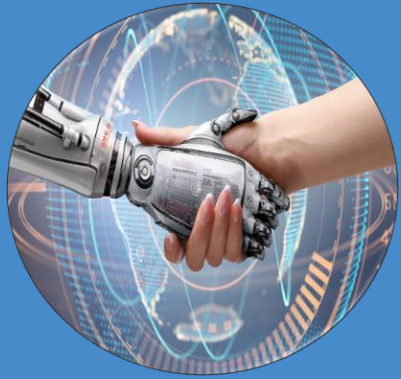
IoT/Smart Cities

Geneva, 21 December 2016

The Case of Dubai" details Dubai's ambitious and trailblazing journey towards becoming a smart city, a venture worthy of emulation by other aspiring smart cities around the world.

Available for free on the ITU-T SSC website: http://itu.int/go/ITU-T-SSC

Publications on IoT and Smart Sustainable Cities

Flipbook on Unleashing the potential of the Internet of Things

Flipbook on Shaping smarter and more sustainable cities: Striving for Sustainable Development Goals

- **Flipbook on "Connecting cities and communities with the SDGs"**
- **Flipbook on "Enhancing innovation and participation in smart sustainable cities"**
- **Flipbook on "Implementing SDG11 by connecting sustainability policies and urban planning practices through ICTs"**

Available on ITU website for free!

Raising awareness on IoT and SC&C

Over 15 events organized on IoT and smart cities and communities

- **ITU-T SG20 meeting,** Cairo, Egypt, 6-16 May 2018.

  &
  - • **Forum on Exploring the Potential of Artificial Intelligence and Internet of Things Training on IoT,** 6 May 2018, Cairo, Egypt
  - • **Showcase on IoT solutions,** 6-8 May 2018, Cairo Egypt
  - • **Interop testing event on IoT,** 8-9 May 2018, Cairo, Egypt
  - • **JCA-IoT and SC&C**, 10 May 2018, Cairo, Egypt

- **1st Forum on Artificial Intelligence and the Internet of things in Smart Sustainable Cities in Latin America,** Buenos Aires, Argentina, 29-30 May 2018
  - ▪ Information Session on "Exploring the Role of Small Medium Enterprises (SMEs) in Linking AI and IoT in Smart Cities", 30 May 2018 (09.30 to 11.30 a.m.), Buenos Aires, Argentina

- **IoT Week,** Bilbao, 4-7 June 2018

- **Meeting of ITU-T SG20 Regional Group for Eastern Europe, Central Asia and Transcaucasia (SG20 RG-EECAT),** Saint Petersburg, Russian Federation, 4-6 June 2018.
  - ▪ **ITU Regional Conference on "Internet of Things, Telecommunication Networks and Big Data as Basic Infrastructure for Digital Economy"** , 4-6 June 2018 (mornings)

- International Workshop on Smart City and e-Government, Vietnam, 4-6 July 2018

Thank you!

For more information, please contact:
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