





ITU Forum on "Smart Sustainable Africa" Abuja, Nigeria, 28 August 2019

Smart Cities

An International Perspective with a Local Context

Dr. Ramy Ahmed Fathy, PhD

Director of Digital Services Planning & Risk Assessment, NTRA, Egypt Co-Chairman of ITU-T WP1/20

Vice Chairman of ITU-T SG20 "IoT and its Applications including SC&C"



Cities account for about two-thirds of **global energy demand**.

Buildings account for ~40% of the world's **energy use**.

Buildings produce a fifth of the world's **CO2 emissions**.

Bless or Hazard?

Cities produce up to 70% of global greenhouse gas emissions.

An estimated 80% of global **GDP** is generated in cities.





Sustainability is not an option





Make cities inclusive, safe, resilient and sustainable

Extreme poverty is often concentrated in urban spaces, and national and city governments struggle to accommodate the rising population in these areas. Safety & sustainability means ensuring access to safe and affordable housing, and upgrading slum settlements. It also involves investment in public transport, creating green public spaces, and improving urban planning & management in a way that is both participatory and inclusive.





الجهــــاز القومـــي لتنظيــــم الاتصــالات NATIONAL TELECOM REGULATORY AUTHORITY ICT infrastructure alone is not enough

Renewable energy systems alone are not enough



"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"



الجهــــاز القومــــي لتنظيــــم الاتصــالات NATIONAL TELECOM REGULATORY AUTHORITY

Control and

measurements alone

are not enough



We need more to break the Silos!

Current applications live in "silos"



Smart Cities is about design, stakeholders, collaboration, quality of life, efficiency, and sustainability... using ICT and other means.

- Political Vision and Support
- Stakeholder Engagement
- Standards
- Implementation Challenges





الجهــــاز القومــــي لتنظيــــم الاتصــالات NATIONAL TELECOM REGULATORY AUTHORITY

New Administrative Capital of Egypt is built bottom up using top standards and with the highest levels of stakeholders engagement in Egypt.



45 Km from Cairo center, and 80 Kms from Suez Canal Economic Zone (SZEZ).

Approx. 775 Km2.

20 Residential District (215 Km2) with different targeted densities.

Green river right in the middle of the city (85 km2).



الجهاز القومي لتنظيم الاتصالات NATIONAL TELECOM REGULATORY AUTHORITY

New Administrative Capital of Egypt is built bottom up using top standards and with the highest levels of stakeholders engagement in Egypt.



>20 digital and smart service (examples):

- FTTx (Residential/Commercial/ Administrative Units)
- Smart Poles
- CCTV
- ITS
- Smart Grid
- Solar Power Generation
- Smart Meters
- BMS



الجهاز القومي لتنظيم الاتصالات NATIONAL TELECOM REGULATORY AUTHORITY



Business Processes: Different city departments have different business processes. How can we unify them?

Procurement of Different Stakeholders: Different stakeholders (utilities, transportation authorities, ...etc. have different procurement processes). RFPs should gather all stakeholder requirements \rightarrow that is a very difficult exercise.

Data Ownership and Custodianship: Data remains to be challenging without data laws, and regulations. Data authority and/or data management frameworks are key for the success of any project.

Data Management: City management platforms are essential. Question: How to select the best platform and using which criteria?



Smart Cities: Critical Challenges (Data Management Aspects)





Source: ITU-T FG-DPM

Let us have a closer look at some standardization activities: ITU-T SG20



الجهــــاز القومـــي لتنظيـــم الاتصـالات NATIONAL TELECOM REGULATORY AUTHORITY



Standardization Aspects ITU-T SG20 and Other Relevant Activities

ITU-T SG20 Perspective

Ramy Ahmed Fathy, PhD Co-Chairman of ITU-T WP1/20 Vice Chairman of ITU-T SG20 "IoT and its Applications including SC&C"



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





IoT identification

2 Working Parties

7 Questions

4 Regional Groups



Over **150** International experts

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

	Lead study gro
Responsible for studies relating to IoT and its applications, and smart cities and communities (SC&C).	Internet of things (IoT) ar its application
t includes studies relating to Big data aspects of IoT and	Smart Cities a Communitie

ap

SC&C, e-services and smart services for SC&C

nd (SC&C), including and smart services

up on

IoT identification

Examples of Standardization Work:

- Y.infra, Overview of city infrastructure
- Y.SC-OpenData, Framework of open data in smart cities
- Y.ism-ssc, Technical framework for integrated sensing and management system
- Y.isw-ssc, The integrated sensor web resource metadata for smart sustainable cities
- Y.SCC-Regts, Common requirements and capabilities of smart cities and communities from IoT and ICT perspectives
- Y.SCC-Use-Cases, Use cases of smart cities and communities





indicators for smart sustainable cities to assess the achievement of sustainable development goals".





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

Key priorities:

5 Working Groups

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, commercializat ion and monetization To propose mechanisms , frameworks and guidelines for supporting the security, privacy and interoperability of datasets and datamanagement systems within the IoT and smart city domain.



End of ITU-T SG20 Perspective





Standards: Choose your standards wisely. Portfolio of standards is very large.. You need standardization experts (selection, conformance, audit, ...etc.).

RFPs and Specifications: Integration and stakeholders collaboration are go or not go.. Business process + high level specifications + design \rightarrow assist in RFPs Design and Procurement.

International Outlook Vs Local Context: Each city has a local context, a set of objectives, challenges and opportunities. Do not replicate ready made solutions.. without proper understanding of context, needs and challenges you want to solve. Prioritize your goals.

Priorities: Data Policy, Business Process, Platforms, Infrastructure, Services, KPIs, Interoperability, Security, Scalability, Maintenance, Knowledge Transfer, Green Vs Brown Fields Approach.





Thank you

Ramy Ahmed Fathy, PhD ramy.ahmed@ieee.org rahmed@tra.gov.eg





الجهاز القومي لتنظيم الاتصالات NATIONAL TELECOM REGULATORY AUTHORITY