



## Outcome report: IoT & 5G as enabler for smart and sustainable cities in the Arab Region

**Session Date and Time: Wednesday, 7 July 2021** (10:20 – 12:00 Geneva time). 100 minutes.

**Master of ceremony:** Rouda Alamir Ali, Programme Officer, ITU Regional Office for the Arab States

**Moderator:** Rouda Alamir Ali, Programme Officer, ITU Regional Office for the Arab States

### **Panelists:**

- Ms. Rim Belhassine-Cherif, Chief Innovation and Strategy Officer, Tunisie Telecom, Tunisia
- Ms. Daneh Al Rayes, Vice President, Smart Way Consulting; Bahrain Smart Cities Summit
- Dr. Jawad Abbassi, Head of Middle East and North Africa (MENA), GSMA
- Dr. Marianne Azer, Member of the Egyptian Parliament, member of Telecommunications, and Foreign Affairs Committees in the Parliament. & Associate Professor, Nile University, Egypt
- Mr. Fadel Digham, PhD Sector Head, National Projectors, National Telecom Regulatory Authority (NTRA), Egypt
- Sultan AlBaloosh, Manager Spectrum Policy, Spectrum Management Affairs Department, Telecommunications and Digital Government Regulatory Authority (TDRA), UAE

**Session summary :** the session aims to discuss the role of the Internet of Things (IoT) and 5G for development and creating a smart world. In addition, it will discuss the role that Internet of Things (IoT) play in relation to converging technologies for building smart sustainable cities with integrated ecosystems as well as discussing the Arab New Urban Agenda, its key opportunities and challenges for policy and practice.

This session will provide a high level overview of the innovative applications of IoT and 5G to achieve smart and sustainable cities in the Arab region. It will discuss the the challenges related to emerging technologies including the regulatory and cybersecurity concerns from the different stakeholders point of view including the regulators, operators, and private sector .

Main topics discussed in the session are:

1. Sustainable Smart Cities in the Age of 5G: Role of Telecom Operators
2. Urbanization trends in the Arab countries (growth, challenges, ...)
3. IoT as catalyst for the development of Smart Cities and how it could improve security, quality of life and well-being of citizens through several applications.
4. 5G as catalyst for IoT provides real-time analytics, better connectivity and less risk of data privacy and represents opportunities for Smart Cities.

5. 5G services will improve a variety of smart city use cases but the three sectors that are currently the main areas of market focus are transportation, public safety and citizen services.
6. Role of Telecom Operators in Smart Cities Projects: There are vast opportunities for smart city value chain actors, including telecom operators who represent reliable connectivity partners for smart city infrastructure, connecting people and objects and enabling industrial solutions; However: Connectivity only represents 5% to 10% of the smart city value chain and the context of smart cities raises new requirements in terms of coverage, speeds, QoS, etc. that requiring significant investments by the operators.
7. There is a great opportunity for telecom operators to aggregate the data generated from their networks, while also coupling Data Analytics with Edge Computing to generate more contextual analysis and conducive insights. In addition telecom operators can position themselves as solution providers for a multitude of specific vertical use cases around smart transport, connected cars, smart buildings, healthcare, etc.
8. Overview of the efforts made by Tunisie Telecom in the context of Smart Cities.
9. Examples of Smart Cities initiatives in some Arab Countries
10. Although the technology is there but the question is always are we driven by technology or are we trying to build cities that are citizen-centric cities. So the most important is to know how to apply the right technology to address these needs and to get the best out of it, leave room for innovation and provide best experiences for citizens.
11. Smart cities have many challenges for transitioning into smart cities for the Arab Region. including Funding and ROI, Regulations, Dealing with legacy infrastructure, Mindset, Standardization, and After sales support among others. Security and data privacy, integration with existing technologies, the cost of implementation, the change management and how employees and users adopt or adapt to the new technology and the lack of in house skills and unclear roll represent some of the big concerns that need to be tackled.
12. To nurturing smart cities there is a need to create partnerships ( PPP, international agencies, etc) that harness collaboration for innovation.
13. There are several drivers for the smart cities initiatives. 62% of them were part of the transformation agenda, 59% were mandated by headquarters, 54% was saving costs, 54% generating new revenue, 51% to comply with regulations, and 49% to new business benefit.
14. cellular networks will definitely be a big part of enabling the smart cities that rely on many IoT solutions and the related wireless solutions.
15. How IoT and emerging technologies being reflected in the architecture of smart cities. Smart city architecture model that applied in Egypt as a guide in establishing smart cities there that is made up of several layers. The first layer is data collection, followed by a layer on connectivity. then the platform layer, and last is the application, data and analysis layer. This model can be found in the final report on the ITU-T SG on smart cities and in ITU-D SG2.
16. The UAE National Strategy for 5G and beyond for the years 2021 2025 is considered one of the first of its kind in the region in cooperation and coordination with all the stakeholders. One of its main clusters is related to smart cities and education.

## Key Takeways

1. The need for telecom operators to move up the value chain of smart cities to increase their incomes and return on their investments and thus take full advantage of opportunities related to smart cities.
2. With its interesting capacities in terms of speed, latency, mobility, density, and spectral and energy efficiency, in addition to its diversified use cases serving individuals and industries; 5G will have a strong contribution to the achievement of sustainable Development Goals, including Goal 11: sustainable cities and communities.
3. Smart cities are increasing in terms of number, market and applications, which is an opportunity for ICT players in Arab countries to diversify their offerings, target a wider customer base and new markets, and increase their income.
4. Operators are expected to provide offers combining multiple technologies and solutions, including IoT / M2M, mobility, artificial intelligence, cloud and big data; which have specific vertical and horizontal functionalities. Hence it is important for them to develop the necessary skills and partnerships that bring them with the technical capacities needed to offer global solutions.
5. Prepare / Update national strategies in the Arab region for the deployment of 5G which cover regulatory, technological and commercial aspects in order to accelerate the migration process.
6. Increase investment in capacity building to have the necessary expertise in the context of smart cities to ensure sustainable development.
7. Revise regulations governing the ICT sector to be more responsive to future challenges and new technologies while fostering innovation.
8. Encourage the organization, in Arab countries, workshops, forums and other events on smart cities, applications and related technologies, and also encourage participation in international events on the subject.
9. Invite ITU-D to conduct periodic studies on the impact of Smart Cities on socio-economic development in Arab countries.
10. Create an Arab working group on Sustainable Smart Cities and 5G that would define the mechanisms to exploit the expertise available in relation to these matters, in order to accelerate the deployment of Smart Cities Sustainable and 5G in Arab countries and share the experiences of advanced Arab countries in these areas.
11. Encourage greater involvement of Arab countries in the ITU work on the topic of Sustainable Smart Cities and 5G.
12. Importance of collaboration and plans alignment between all concerned stakeholders in deployment of both IoT & 5G for Smart and sustainable cities.
13. Rich opportunities of 5G and IoT requires immediate actions to amplify the benefits for citizens.
14. Stable and predictable policies encourage long-term investments, policies that ensure technology neutrality, net neutrality, financial sustainability of mobile operators , and spectrum & fair use policies.
15. Regulatory frameworks are extremely important to ensure this compliance and to ensure also smooth introduction of IoT-based technologies based on the requirements and trust.
16. The success factors to use the capabilities of 5G and IOT in enabling Smart and Sustainable Cities that there should be a platform that hosts all the interests from

technical point of view, data point of view, even business point of view and the regulatory point of view.

17. The importance to enabling supporting innovation frameworks in terms of data driven (data availability, open data, data sharing, data collection, etc.).