Outcomes of the ITU Regional Workshop
on the Internet of Things (IoT)
and Future Networks

(19-20 June 2017, Saint Petersburg, Russia)

Current situation
International standardization of IoT, future networks' applications and technologies

- There are issues of permanent roaming, limited services and localization issues in the region (e.g. connected cars)

- 2G and 3G shut down is considered by operators. Automotive industry is concerned

- There are issues with interconnection VoLTE/ViLTE

- Threats occur in SS7 (e.g. SMS intercept is one of the main concerns of financial institutions)

- Measuring network performance and QoS are essential

- 5G network standardization and deployment is a major global trend

The way forward
International standardization of IoT, future networks' applications and technologies

- **Automotive industry requests global service for connected cars**

- **ITU-T Recs are used in the Region for establishment of agreements between operators**

- **There is a need for new authentication procedure for SS7**

- **Current networks need to be migrating to flat network structure implementing 5G technologies**

Current situation
Prospects of implementation of IoT networks in the Region

- Network security is a sensitive issue for the energy industry

- Need to reduce operation expenses for buildings maintenance

- There is a need of standardization of SDN and IoT interaction on the regional level

- Development of Smart City and City Management

- There are no standards of measurement QoS in IoT

- LoRaWAN development is a new trend in IoT

The way forward
Prospects of implementation of IoT networks in the Region

- Smart building technologies help reduce waste of resources

- ITU-T Recs. for standardization SDN/IoT interaction need to be proposed

- Approving QoS requirements and measurement methodologies at the national level is needed

- Software development, monitoring, indoors/outdoors testing, devices design, services and applications should be done in case of development of LoRaWAN

Current situation
Prospective directions of development of communication networks in the Region

- Current networks are not ready for 5G implementations

- New types of networks emerge (e.g. flying sensor networks)

- Current networks require new handover mechanisms in heterogeneous wireless networks

- There are no standards for QoS parameters and testing IoT traffic

The way forward

Prospective directions of development of communication networks in the Region

- Development and implementation of multilevel cloud systems to provide decentralization of existing networks to achieve 5G architecture

- Creation of mobile heterogeneous gateways will help to implement flying sensor networks

- Method of active and passive observation of traffic parameters was proposed

- Development of integrated monitoring and testing systems is also important

Round table

- There is a need to establish a strategy of IoT implementation for the region

- There is a need to establish a strategy of 5G implementation for the region

- Role of government is essential in creating enabling environment for the implementation and development of IoT and 5G

- Telecom operators, Regulators and other interested parties need to cooperate on the implementation of 5G and IoT technologies

- Cost-effective model needs to be used in order to deploy 5G and IoT technologies

- All industries in the region should implement IoT and 5G based on the above strategies

Round table

- **Terms and definitions of telecommunications/ICT need to be defined/unified**

- **There is a need a common legislation of IoT and 5G in the region**

- **IPR of the developer of national standards need to be studied**

- **EMC requirements and sustainability of IoT to external influences**

- **The impact of the electromagnetic radiation from IoT to human being**

Round table

- **Key directions of International standardization that benefit the region:**

  - Identification of IoT

  - Socio-technical standards on the different applications of IoT

  - New authentication mechanism for SS7

  - Internet performance measurement

  - QoS parameters for IoT

  - Signaling protocols for 5G (e.g. D2D communications)

  - Personal data privacy for M2M traffic

  - license-free frequency band for IoT

- **New companies from the region expressed their wish to contribute to ITU-T Study Groups**

Round table

- **Future events:**

  - Training courses on the basis of existing R&D and testing laboratories (e.g. St. Petersburg State University of Telecommunications IoT lab)

  - New workshops and seminars on IoT with other industries involved (e.g. health, agriculture, automotive)

  - Back-to-back workshops/seminars with ITU-T Regional Groups meetings