Strategic Visions on Future IoT Evolution
– Towards a New IoT Paradigm for Business and Society

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1. IoT Ecosystem

2. 4th Industrial Revolution and IoT

3. ITU-T work on IoT

4. IoT and Sustainable Development Goals
Compound annual growth rate of IoT related spending could be 13.6%.

Revenue opportunities for network operators as high as $1.3 Trillion.

Potential business impact worth $4.3 Trillion.

50 billion connected devices by 2020.

IoT Market Projections

ITU, 2015

GSMA and Machina Research

GSMA

IDC, 2018
Creating value with IoT: A few applications

- Smart Agriculture
- Smart Water
- Smart Buildings
- Internet of Things
- Smart Cities
- Intelligent Transport Systems
- Smart Manufacturing
Creating value with IoT: A few applications

**Smart Agriculture**
- Smart greenhouse
- Soil monitoring sensors
- Smart irrigation sprinkler controllers

**Smart Building**
- IoT-based smart grid
- IoT-enabled security
- Secure remote health monitoring

**Smart Water Management**
- Smart water meters
- Water quality monitoring with IoT sensors
- IoT rainwater harvesting systems

Icons adapted from fontawesome.com
Creating value with IoT: A few applications

Smart Cities

IoT for urban and spatial planning

Smart Learning

Internet of living things

Smart Manufacturing

Smart waste collection and consumption monitoring

Quality checks and maintenance using cameras and sensors

Cloud computing for supply chain management

Intelligent Transport Systems

Fuel leak wireless detection systems

Real-time traffic management

Parking monitoring

Icons adapted from fontawesome.com
4th Industrial Revolution using IoT

- Smart sensors
- Human-machine-interface
- Big data analytics
- Cloud computing
- Virtual reality
- Supply chains
- Business models
- Customer interaction
- Customer access

Adapted from World Economic Forum 2017
IoT Service Ecosystem: Main Players

- **Users**: Provided with information, applications etc. on demand
- **IoT service providers**: Hosting applications using available IT infrastructure and platforms
- **Platform service providers**: Operating a platform which serves as the filler between device sensors and networks to make sense of the data generated
- **Device Manufacturers**: Designing and manufacturing of IoT devices and sensors
- **Connectivity service providers**: Providing a range of options including LTE-M, Sigfox, LoRA etc
- **Software Developers**: Building and testing applications
IoT Value creation: Sneak peek

- Dynamic pricing model
- Service-based models
- Cloud-based model
- Data monetization model
- Pay-by-use model
Focus Groups

- Focus Group on Artificial Intelligence for Health
- Focus Group on Data Processing and Management
- Focus Group on Application of Digital Ledger Technologies
- Focus Group on Digital Currency including digital fiat currency
- Focus Group on Vehicular Multimedia
- Focus Group on Technologies for Network 2030
- Focus Group on Machine learning for future networks including 5G
- Focus Group on Environmental Efficiency for AI and other emerging technologies
Focus Groups serve as an instrument for the quick development of specifications in defined domains of interest.

Focus Groups aim at providing an alternate working environment for the creation of standards.

Addressing industry needs.
ITU-T Study Group 20

Q1/20 Interoperability, infrastructures and Big Data for IoT and SC&C
Q2/20 Requirements and use-cases across verticals
Q3/20 Architecture and Quality of Service
Q4/20 E-services and applications
Q5/20 Emerging technologies and terminology
Q6/20 Security, privacy and identification
Q7/20 Evaluation and assessment of SC&C

Lead Study Group on

Internet of Things and its applications
Smart cities and communities
IoT Identification
oneM2M Partnership Project

Almost 200 member organizations in oneM2M

founded 1 July, 24th 2012
TP#1: Sep 24th-29th 2012

- 8 regional Standards Development Organizations jointly develop the oneM2M technical specifications.
- oneM2M specifications are then referenced by regional legal and regulatory bodies
- BBF and OMA specifications are re-used
- oneM2M specifications became also ITU-T recommendations see Y.4500.x series

[1] Partnership Agreement V 2.0 (Approved March 2013)
Focus Group on Data Processing and Management

Smart Communities

IoT

Data

Smart Cities
Role of international instruments in the implementation of IoT
Role of international instruments in the implementation of IoT

17 Goals
Universality

169 indicators
Stakeholder Accountability

15 years
Inclusivity
Glimpse into our urban future through SDG 11

World Summit on Information Society

United for Smart Sustainable Cities

AI for Good Global Summit
An ITU experience
SDG 17: The glue that holds us together!
Thank you

Questions?
Please contact Study Group Department for more information

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