ITU Regional Development Forum 2018 (RDF-ARB)

Algiers – Algeria, 12-13 Feb. 2018

SG20 standardization activities

involvement and interests of the Arab region (SG20RG-ARB)

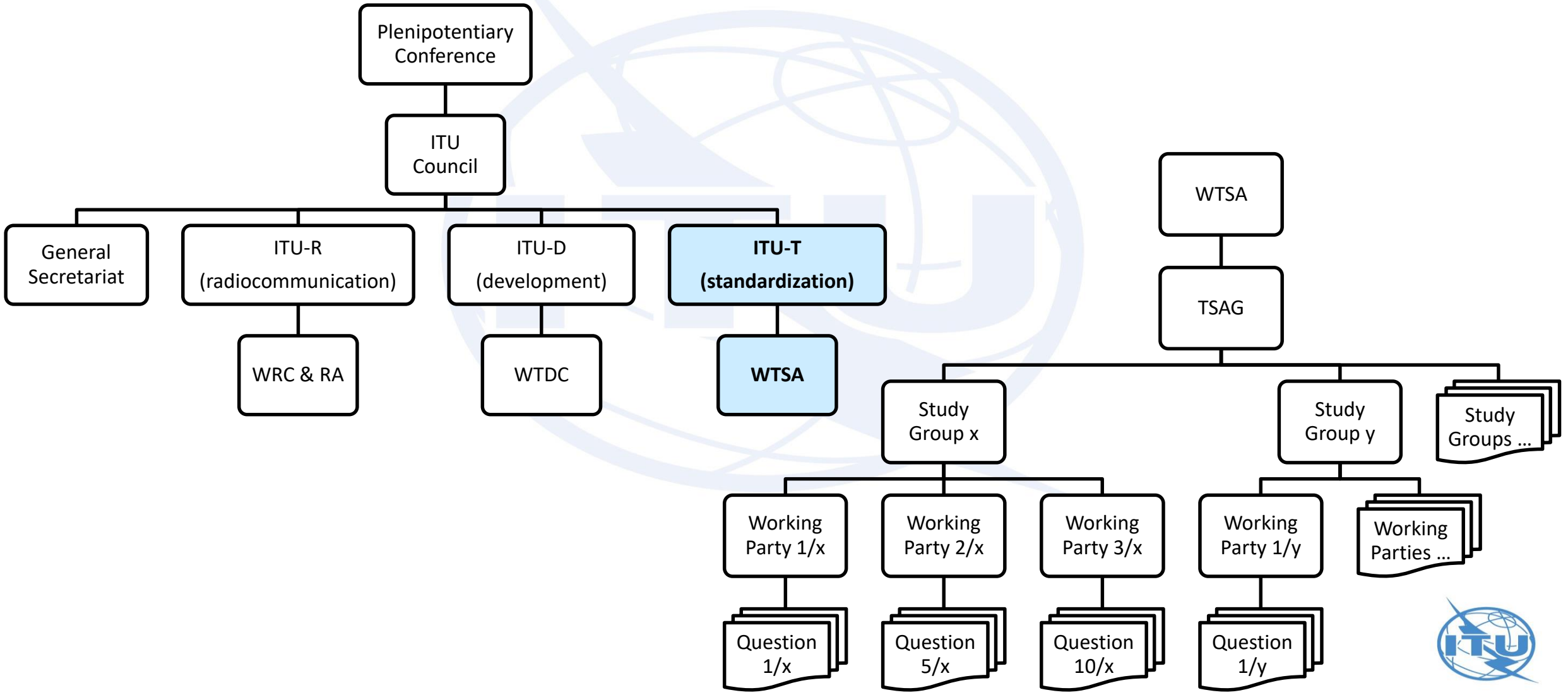
Presented by:
Mr. Ali ABBASSENE (MPTTN invited expert)
https://www.linkedin.com/in/abbassene/

Agenda

- ITU-T in a nutshell
- SG20 structure and mandate
- SG20 activities and outcomes
- SG20RG-Arb structure and activities

ITU-T IN A NUTSHELL

ITU-T in a nutshell



ITU-T in a nutshell

- The ITU Telecommunication Standardization Sector (ITU-T) is a platform for governments and the private sector to coordinate development of the telecommunication networks and services that connect the world.

- ITU-T complements ITU's Radiocommunication Sector (ITU-R), Development Sector (ITU-D) and General Secretariat in fulfilling ITU's strategic goals.

ITU-T in a nutshell

Vision "Committed to Connecting the World"

ITU-T is driven to remain the pre-eminent worldwide telecommunication standards body:

- Developing interoperable, non-discriminatory international standards
- Bridging the Standardization Gap
- Extending international cooperation

ITU-T in a nutshell

11 Study Groups:

SG02 - Operational aspects

SG03 - Economic and policy issues

SG05 - Environment, climate change and circular economy

SG09 - Broadband cable and TV

SG11 - Protocols and test specifications

SG12 - Performance, QoS and QoE

SG13 - Future networks, IMT- 2020, cloud computing and trusted network infrastructures

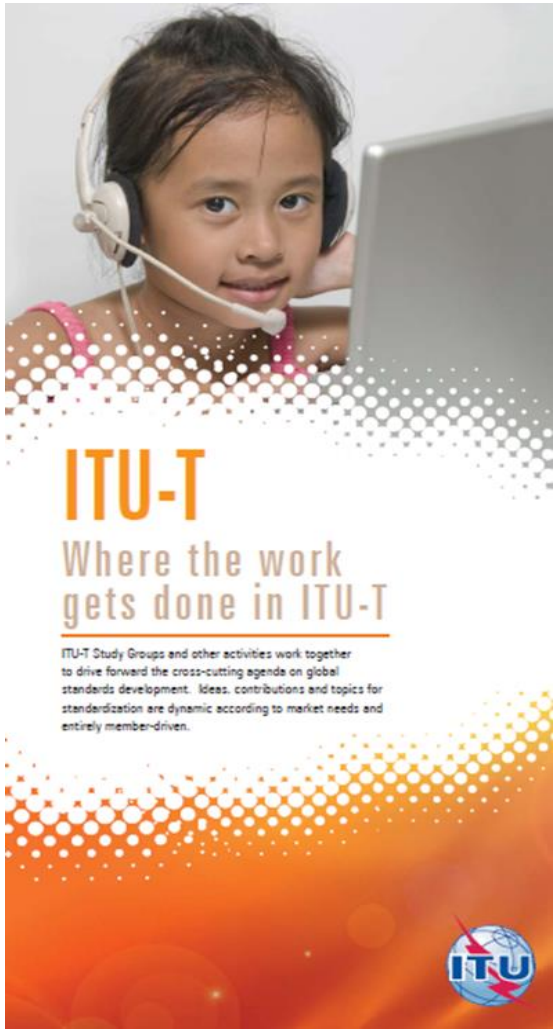
SG15 - Transport, Access and Home

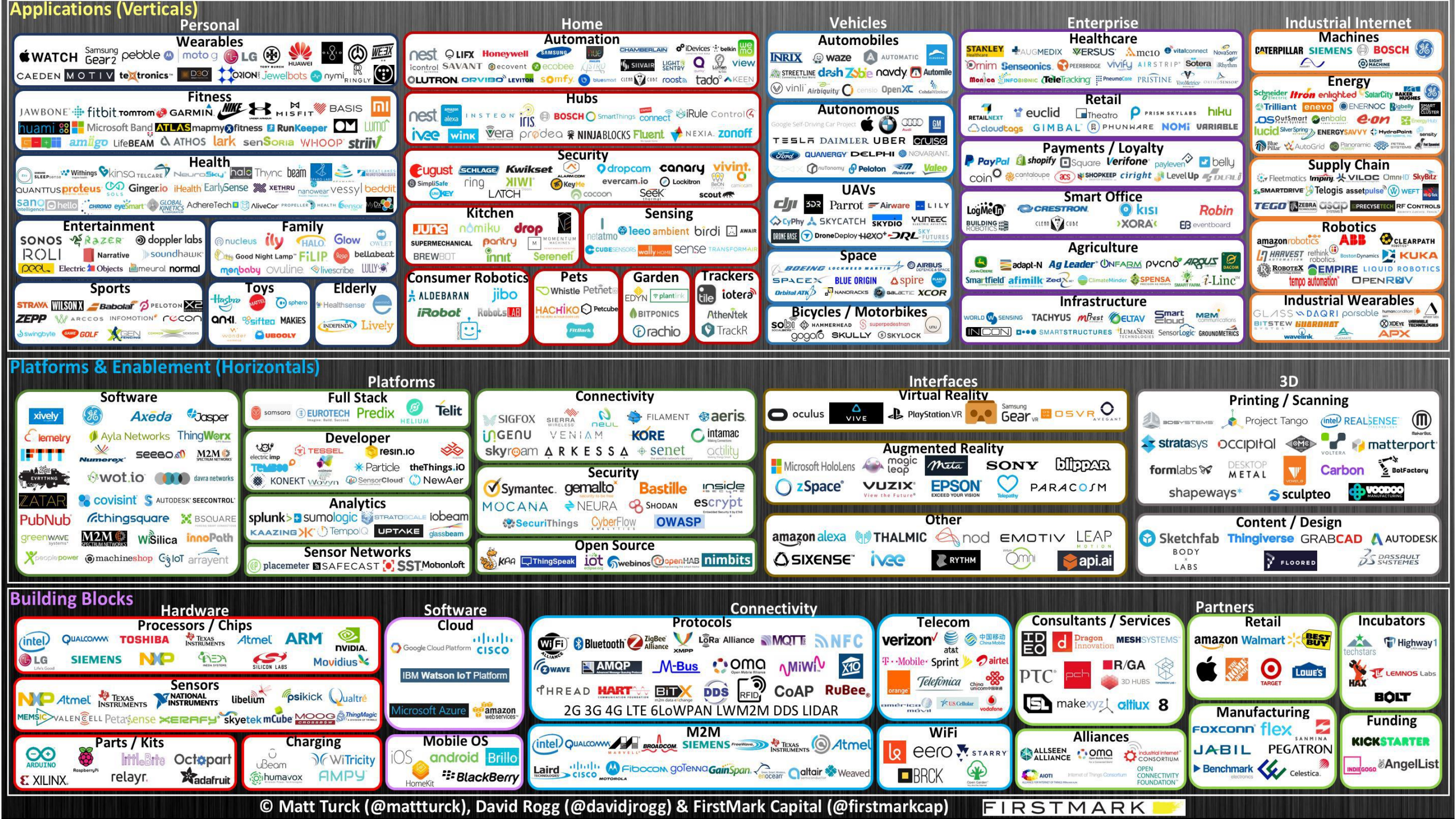
SG16 - Multimedia

SG17 - Security

SG20 – Internet of Things (IoT) and smart cities and communities (SC&C)

And other groups : TSAG, Focus groups, JCAs, GSIs, RGs…




Applications (Verticals)
Personal
Wearables
Fitness
Health
Entertainment
Family
Sports
Toys
Elderly
Home
Automation
Hubs
Security
Kitchen
Sensing
Consumer Robotics
Pets
Garden
Trackers
Vehicles
Automobiles
Autonomous
UAVs
Space
Bicycles / Motorbikes
Enterprise
Healthcare
Retail
Payments / Loyalty
Smart Office
Agriculture
Infrastructure
Industrial Internet
Machines
Energy
Supply Chain
Robotics
Industrial Wearables
Platforms & Enablement (Horizontals)
Platforms
Software
Full Stack
Developer
Analytics
Sensor Networks
Connectivity
Security
Open Source
Interfaces
Virtual Reality
Augmented Reality
Other
3D
Printing / Scanning
Content / Design
Building Blocks
Hardware
Processors / Chips
Sensors
Parts / Kits
Charging
Software
Cloud
Mobile OS
Connectivity
Protocols
2G 3G 4G LTE 6LoWPAN LWM2M DDS LIDAR
M2M
WiFi
Telecom
Partners
Consultants / Services
Alliances
Retail
Manufacturing
Incubators
Funding
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FIRSTMARK

Source: AIOTI WG3 (IoT Standardisation) – Release 2.7

ITU-T in a nutshell
Groups Working on IoT & SSC

Development and implementation of standards

SG20

Research & pre-standardization work

Focus Group on Data Processing Management (FG-DPM)

U4SSC

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.*

SG20 STRUCTURE AND MANDATE

SG20 structure and mandate
"IoT and Smart Cities & Communities"

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

Lead study group on

- Internet of things (IoT) and its applications
- Smart Cities and Communities (SC&C), including its e-services and smart services
- IoT identification

Last SG20 meeting: 4-15 September 2017
Last RGM & WP1/20 meeting: 15-24 Jan 2018
Next SG20 meeting : 6-16 May 2018, Cairo

2 Working Parties

7 Questions

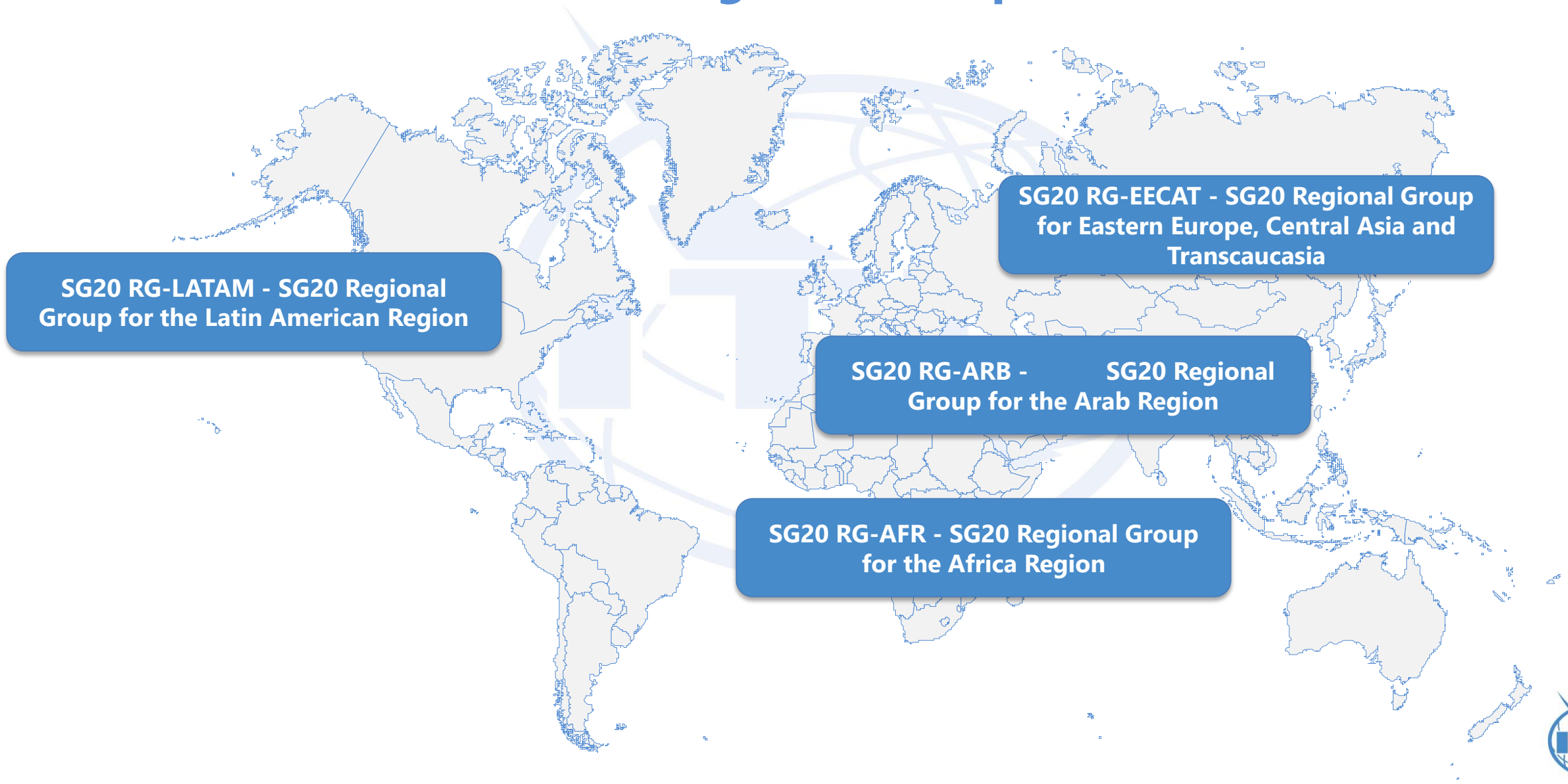
4 Regional Groups

Over **100** International experts

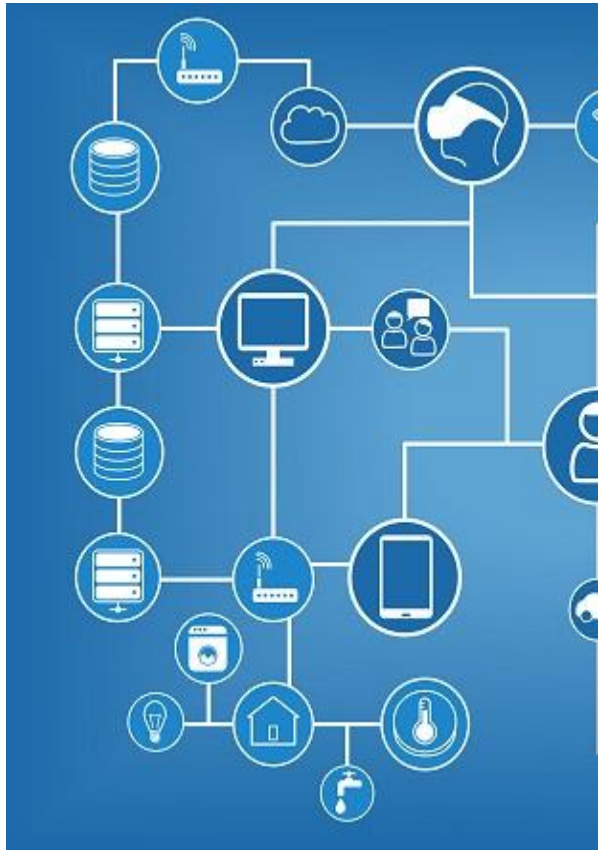
SG20 structure and mandate

ACRONYM	TITLE
WP1/20	
Q1/20	End to end connectivity, networks, interoperability, infrastructures and Big Data aspects related to IoT and SC&C
Q2/20	Requirements, capabilities, and use cases across verticals
Q3/20	Architectures, management, protocols and Quality of Service
Q4/20	e/Smart services, applications and supporting platforms
WP2/20	
Q5/20	Research and emerging technologies, terminology and definitions
Q6/20	Security, privacy, trust and identification
Q7/20	Evaluation and assessment of Smart Sustainable Cities and Communities

SG20 structure and mandate
Regional Groups



Joint Coordination Activity on IoT and SC&C



- To co-ordinate the activity on IoT & SCC across ITU-T Study Groups and to coordinate with ITU-R and ITU-D.
- To provide a visible contact point IoT and SC&C activities in ITU-T, to seek co-operation from external bodies working in the field of IoT & SCC and enable effective two-way communication with these bodies.
- Maintenance of a list of cross-SDO IoT & SCC standardization items and associated roadmap.

- **Last meeting took place on 7 September 2017**
- **Next meeting will be held in with SG20 meeting**

Co-Conveners:

- **Hyoung Jun Kim (ETRI, Korea)**
- **Fabio Bigi (Italy)**

D.2r16 - IoT and SC&C standards roadmap (free download) – **Send us your inputs!**

Secretariat:
Contact: tsbjcaiot@itu.int

Focus Group on Data Processing and Management to support IoT and SC&C (FG-DPM)

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, commercialization and monetization

First meeting: Geneva, 17-19 Jul. 2017

Second meeting: Geneva, Oct. 2017

Third meeting : Brussels, 20-23 Feb. 2018

1st ITU Workshop on Data Processing and Management for IoT and Smart Cities & Communities (Brussels, Belgium, 19 Feb. 2018)

Key priorities:

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.

United for Smart Sustainable Cities (U4SSC)

11 SUSTAINABLE CITIES AND COMMUNITIES

U4SSC is a global platform for smart city stakeholders which advocates for public policy to encourage the use of ICTs to facilitate the transition to smart sustainable cities.

Join us in the work on

- Guidelines on tools and mechanisms to finance SSC projects
- Guidelines on strategies for circular cities
- City Science Application Framework
- Guiding principles for artificial intelligence in cities
- Strategy for smart sustainable cities
- Overview of smart sustainable cities & the role of ICTs
- Guide for city leaders and more…

UN-HABITAT FOR A BETTER URBAN FUTURE · ITU · UNECE · UNEP · UNIDO · World Meteorological Organisation · United Nations Framework Convention on Climate Change · ECLAC · FAO · UN WOMEN · UNEP FINANCE INITIATIVE · United Nations Economic Commission for Africa · WORLD TRADE ORGANIZATION · United Nations Department of Economic and Social Affairs · UNCCD · UNITED NATIONS UNIVERSITY UNU-IAS Institute for the Advanced Study of Sustainability

Implementing KPIs for Smart Sustainable Cities Worldwide

- 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
Montevideo
Singapore
Manizales
Valencia
Buenos Aires
Wuxi
Guangshan
and many others…

ITU Report: *The Case of Dubai*

This case study 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.

The U4SSC welcome all cities that would like to start their SSC journey!

Measure your city's progress

KPIs structure

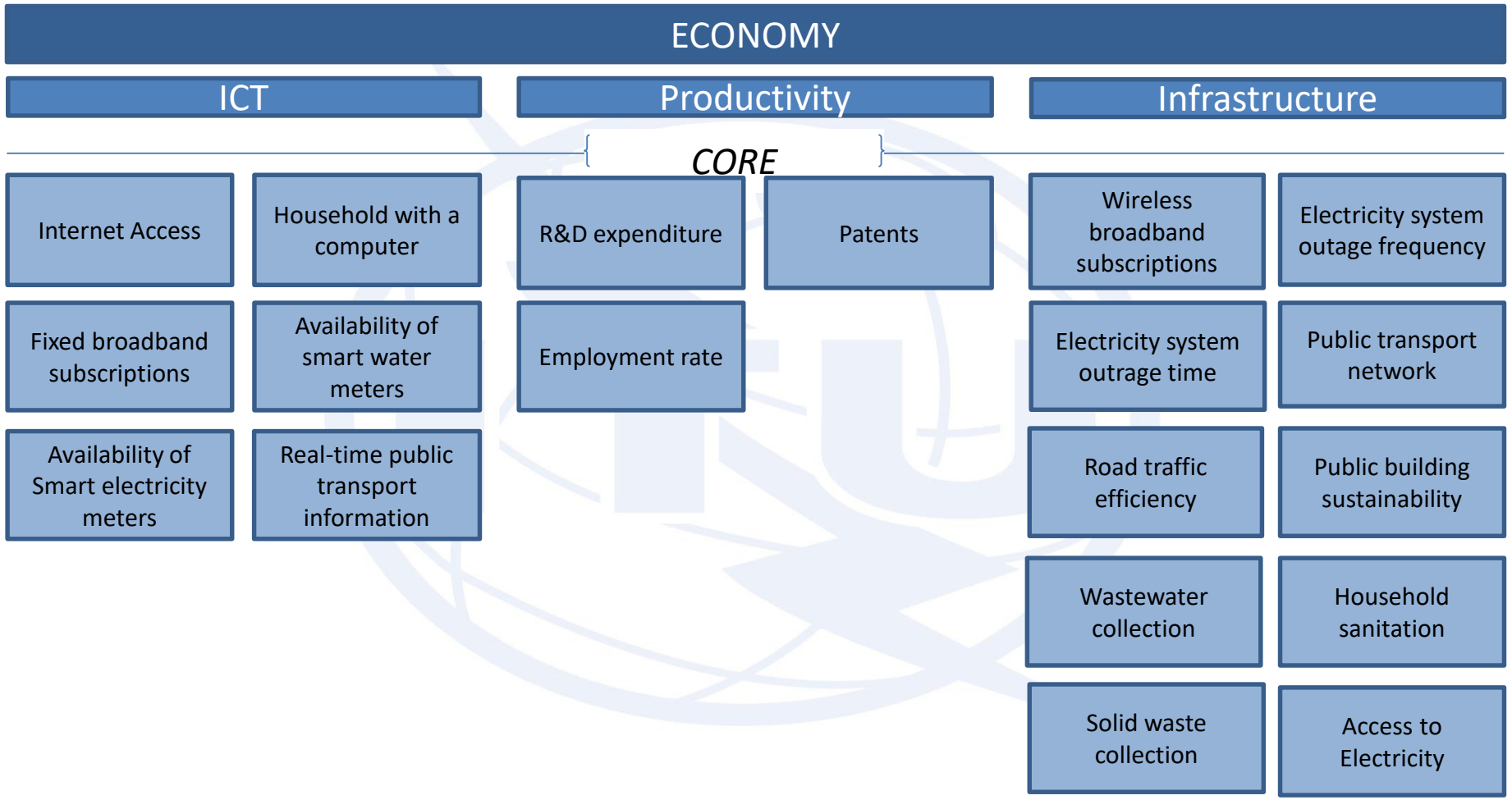
54 Core Indicators + 37 advanced Indicators

20 Smart + 32 Structural + 39 Sustainable

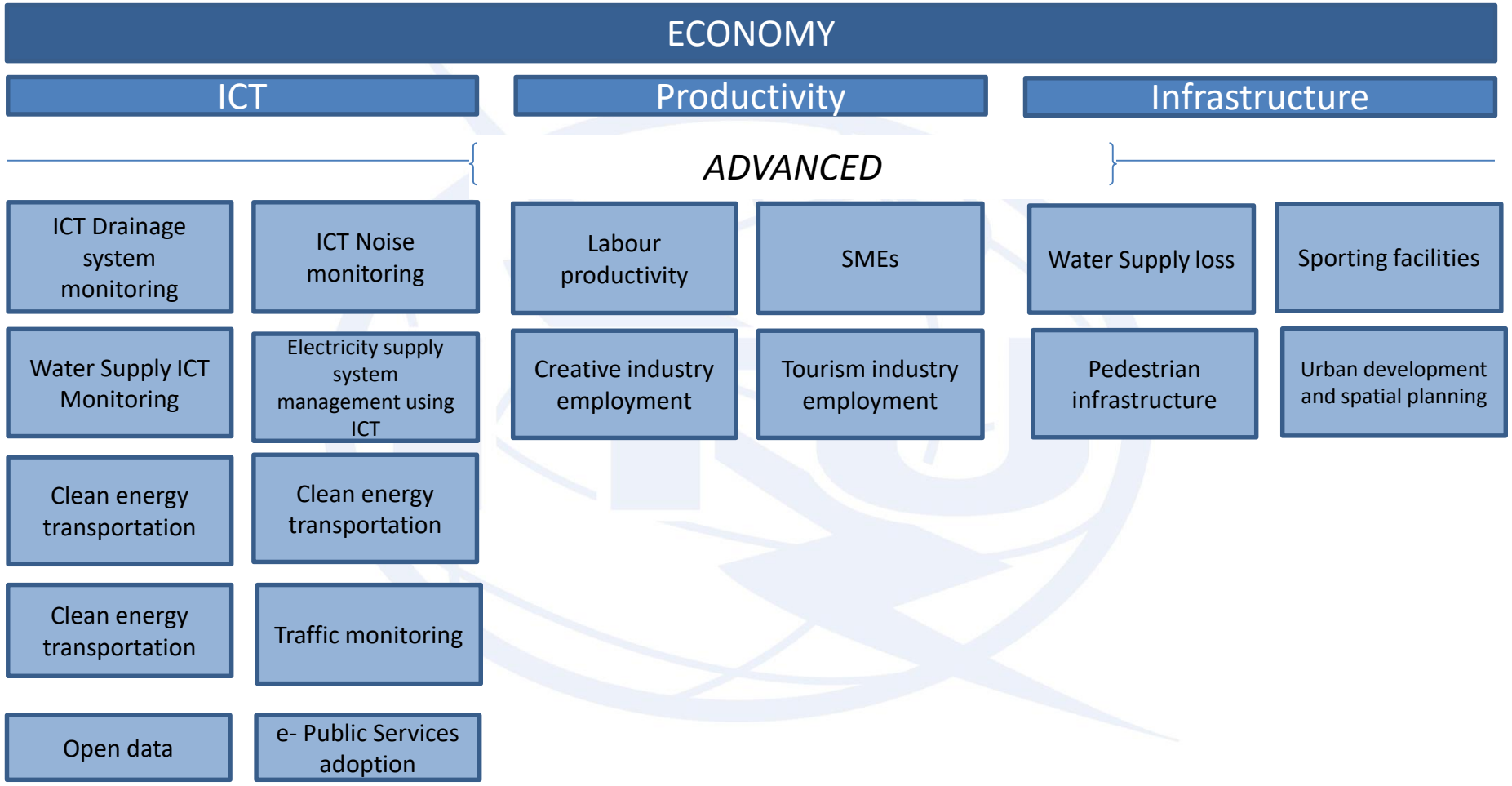
132 Data Collection Points

Dimension	Economy	Environment	Society and culture
Category	▪ ICT Infrastructure ▪ Water and sanitation ▪ Drainage ▪ Electricity supply ▪ Transport ▪ Public sector ▪ Employment ▪ Innovation ▪ Urban Planning ▪ Buildings	▪ Air quality ▪ Energy ▪ Environmental quality ▪ Infrastructure ▪ Public space and nature ▪ Waste ▪ Water and sanitation	▪ Culture ▪ Education ▪ Health ▪ Housing ▪ Safety ▪ Social inclusion ▪ Food security

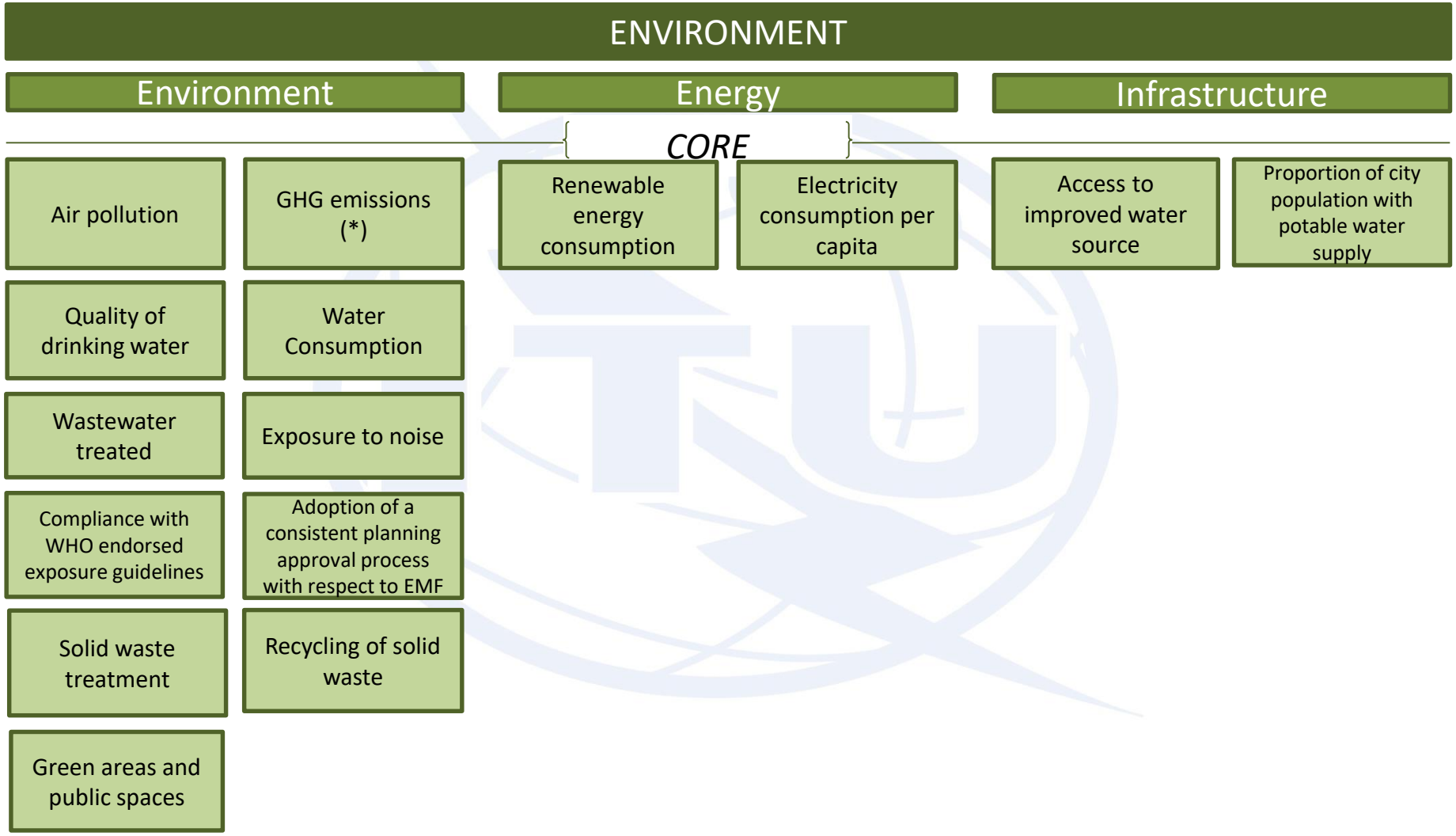
KPIs Structure



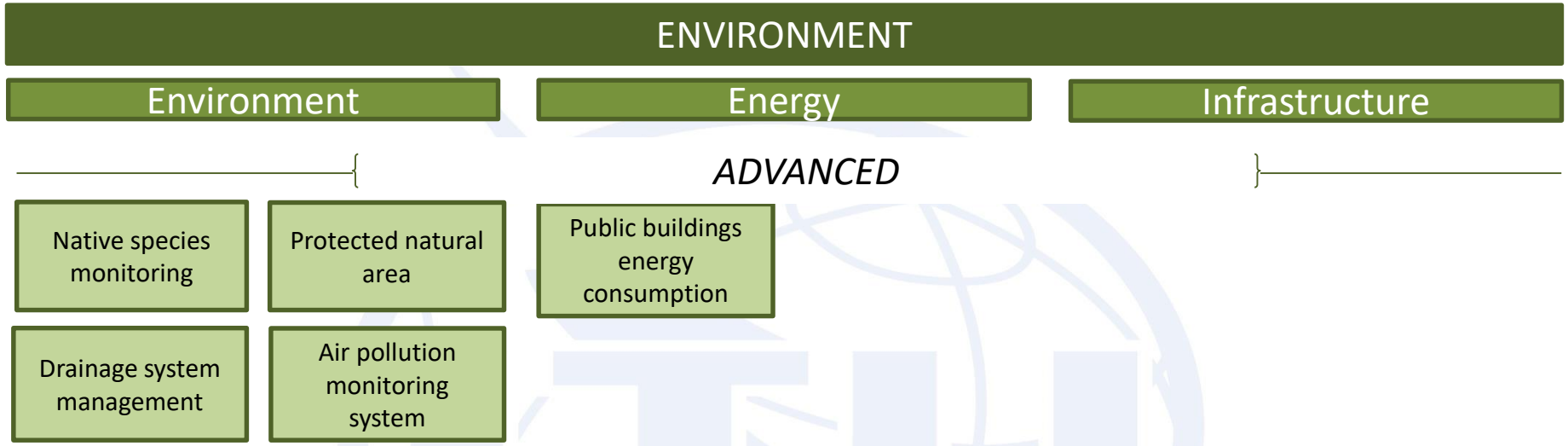
KPIs Structure



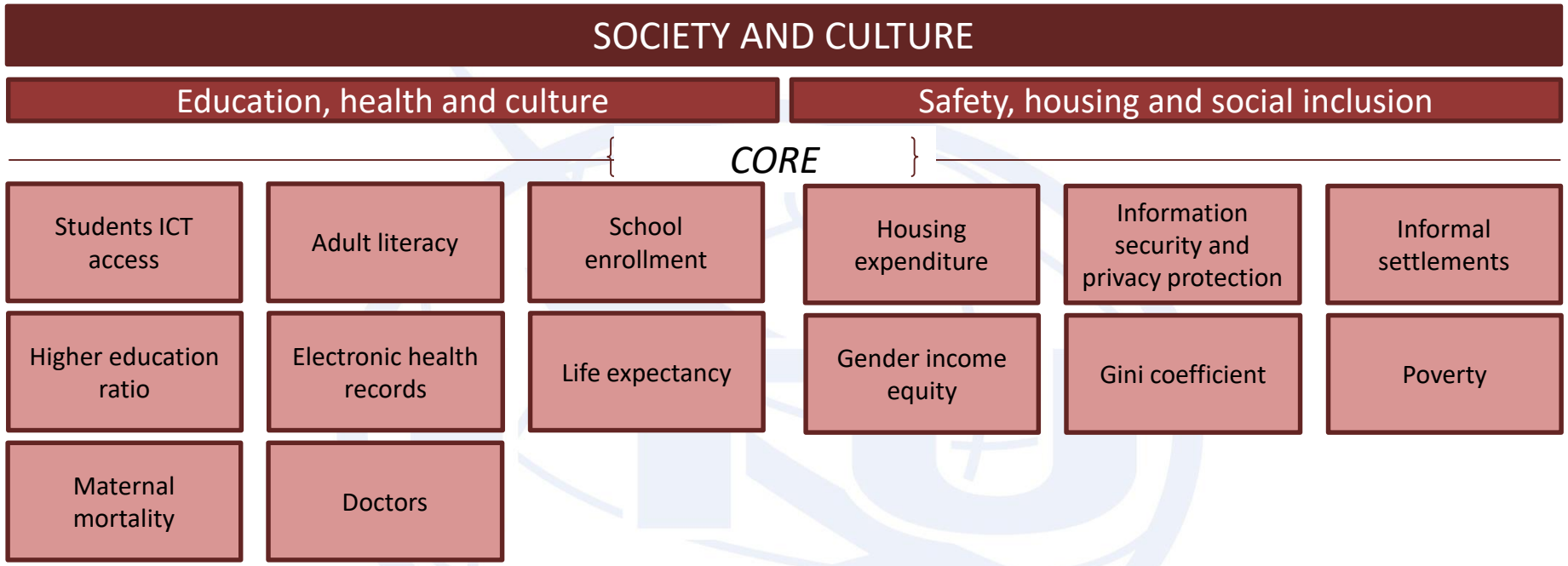
KPIs Structure



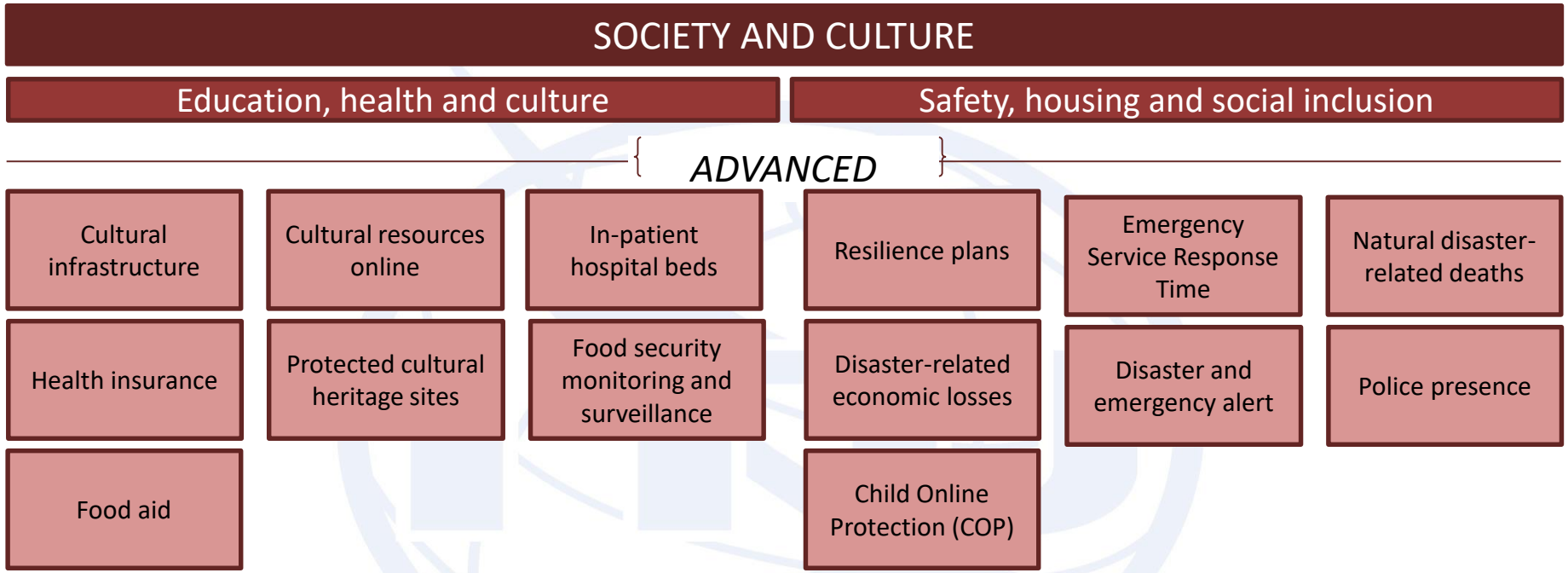
KPIs Structure



KPIs Structure



KPIs Structure



SG20 ACTIVITIES AND OUTCOMES

Recommendations transferred from other Study Groups

Study Group 20: IoT and its applications including smart cities and communities (SC&C)Y.4000 Series Stucture

Y.4000 Number	Previous Work Item	IoT and SC&C proposed subseries	From
Y.4250-Y.4399		**Infrastructure, connectivity and networks**	
Y.4250	(Y.2222)	Sensor control networks and related applications in a next generation network environment	SG13
Y.4251	(F.747.1)	Capabilities of ubiquitous sensor networks (USN) for supporting requirements of smart metering services	SG16
Y.4252	(Y.2064)	Energy saving using smart objects in home networks	SG13
Y.4400-Y.4549		**Frameworks, architectures and protocols**	
Y.4400	(Y.2063)	Framework of the web of things	SG13
Y.4401	(Y.2068)	Functional framework and capabilities of the Internet of Things	SG13
Y.4402	(F.747.4)	Requirements and functional architecture for the open USN service platform	SG16
Y.4403	(Y.2026)	Funct reqts and arch of the NGN for support of ubiquitous sensor network applications and services	SG13
Y.4404	(Y.2062)	Framework of object-to-object communication for ubiquitous networking in next generation networks	SG13
Y.4405	(H.621)	Architecture of a system for multimedia information access triggered by tag-based identification	SG16
Y.4406	(Y.2016)	Functional requirements and architecture of the NGN for applications and services using tag-based identification	SG13
Y.4407	(Y.2281)	Framework of networked vehicle services and applications using NGN	SG13
Y.4408	(Y.2075)	Capability framework for e-health monitoring services	SG13
Y.4409	(Y.2070)	Requirements and architecture of the home energy management system and home network services	SG13
Y.4410	(Y.2291)	Architectural overview of next generation home networks	SG13
Y.4411	(Q.3052)	Overview of APIs and protocols for M2M service layer	SG11
Y.4412	(F.747.8)	Requirements and reference architecture for audience selectable media service framework in the IoT environment	SG16
	Y.4413	(F.748.5) Requirements and reference architecture of M2M service layer	SG16
Y.4414	(H.623)	Web of things service architecture	SG16
Y.4550-Y.4699		**Services, applications, computation and data processing**	
Y.4450	(Y.2238)	Overview of Smart Farming based on networks	SG13
Y.4551	(F.771)	Service description and requirements for multimedia information access triggered by tag-based identification	SG16
Y.4552	(Y.2078)	Application support models of the Internet of Things	SG13

Recommendations transferred from other Study Groups

Study Group 20: IoT and its applications including smart cities and communities (SC&C)Y.4000 Series Stucture

Y.4000 Number	Previous Work Item	IoT and SC&C proposed subseries	From
Y.4700-Y.4799	**Management, control and performance**		
Y.4700	(F.747.2)	Deployment guidelines for ubiquitous sensor network (USN) applications and services for mitigating climate change	SG16
Y.4701	(H.641)	SNMP-based sensor network management framework	SG16
Y.4800-Y.4899	**Identification and security**		
Y.4800	(F.747.5)	Reqts and funct arch of an automatic location id system for USN applications and services	SG16
Y.4801	(F.748.1)	Requirements and common characteristics of IoT identifier for IoT service	SG16
Y.4802	(H.642.2)	Multimedia information access triggered by tag-based identification: Registration procedures for identifiers	SG16
Y.4803	(H.642.3| ISO29177	IT-Automatic id and data capture tech -Id resolution protocol for mm info access triggered by tag-based id	SG16
Y.4804	(H.642.1)	Multimedia information access triggered by tag-based identification: Identification scheme	SG16
Y.4900-Y.4999	**Evaluation and assessment**		
Y.4900	L.1600	Overview of key performance indicators in smart sustainable cities	SG5
Y.4901	L.1601	KPIs related to the use of information and communication technology in smart sustainable cities	SG5
Y.4902	L.1602	KPIs related to the sustainability impacts of information and communication technology in SSC	SG5
Supplements			
Y.Sup.37 to Y.4050-Y.4099	ITU-T L Suppl.17 to ITU-T L.1600	Definition for smart sustainable city	SG5
Y.Sup.38 to Y.4050-Y.4099	ITU-T L Suppl.18 to ITU-T L.1600	Smart sustainable cities: an analysis of definitions	SG5
Y.Sup.39 to Y.4900	ITU-T L Suppl.19 to ITU-T L.1600	Key performance indicators definitions for smart sustainable cities	SG5
Y.Sup.36 to Y.4550-Y.4699	ITU-T L Suppl.16 to ITU-T L.1500	Smart water management in cities	SG5
SG5 transferred Recommendations			
Y.4903	(L.1603)	KPIs for SSC to assess the achievement of sustainable development goals (consented) (under AAP ITU-T SG5)	SG5

SG20 outcomes

Main results (Oct. 15 – Jan. 18)

17 Recommendations approved

- ITU-T Y.4101 "**Common requirements and capabilities of a gateway for Internet of Things applications**"
- ITU-T Y.4116 "**Requirements of transportation safety service including use cases and service scenarios**"
- ITU-T Y.4117 "**Requirements and capabilities of Internet of Things for support of wearable devices and related services**"
- ITU-T Y.4455 "**Reference architecture for IoT network service capability exposure**"
- ITU-T Y.4805 "**Identifier service requirements for the interoperability of Smart City applications**"
- ITU-T Y.4806 " **Security capabilities supporting safety of the Internet of Things**"
- ITU-T Y.4113 **"Requirements of the network for the Internet of Things"**
- ITU-T Y.4451 **"Framework of constrained device networking in the IoT environments"**
- ITU-T Y.4452 **"Functional framework of Web of Objects"**
- ITU-T Y.4453 **"Adaptive software framework for IoT devices"**
- ITU-T Y.4553 **"Requirements of smartphone as sink node for IoT applications and services"**
- ITU-T Y.4702 "**Common requirements and capabilities"**
- ITU-T Y.4114 **"Specific requirements and capabilities of the IoT for Big Data"**
- ITU-T Y.4115 **"Reference architecture for IoT device capability exposure"**
- ITU-T Y.4500.1 **"oneM2M- Functional Architecture"**
- ITU-T Y.4200 **"Requirements for interoperability of smart city platforms"**
- ITU-T Y.4201 **"High-level requirements and reference framework of smart city platform"**

10 Supplements agreed

- ITU-T Y.Supp.45 to ITU-T Y.4000 series "**An overview of smart cities and communities and the role of information and communication technologies**"
- ITU-T Y.Supp.42 to ITU-T Y.4100 series **"Use cases of User-Centric work Space (UCS) Service**
- ITU-T Y.Supp.34 to ITU-T Y.4000 series **"Smart Sustainable Cities - Setting the stage for stakeholders' engagement"**
- ITU-T Y.Supp.33 to ITU-T Y.4000 series **"Smart Sustainable Cities - Master plan"**
- ITU-T Y.Supp.32 to ITU-T Y.4000 series **"Smart sustainable cities - a guide for city leaders"**
- ITU-T Y.Supp.31 to ITU-T Y.4550 series **"Smart Sustainable Cities - Intelligent sustainable buildings"**
- 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.27 to ITU-T Y.4400 series **"Setting the framework for an ICT architecture of a smart sustainable city".**

2 Draft Recommendations determined

- ITU-T Y.4454 **"Platform Interoperability for Smart Cities"**
- ITU-T Y.4500.2 (ex.Y.oneM2M.REQ) **"oneM2M-Requirements"**

SG20 outcomes

Main results (Oct. 15 – Jan. 18)

15 oneM2M Specifications translated into new Recommendations

- Y.4500.1 (ex Y.oneM2M.ARC) "**oneM2M- Functional Architecture**"
- Y.4500.4 (ex Y.oneM2M.SLCP) "**oneM2M Service Layer Core Protocol Specification**"
- Y.4500.6 (ex Y.oneM2M.DM.BBF) "**oneM2M Management enablement (BBF)**"
- Y.4500.15 (ex Y.oneM2M.TF) "**oneM2M- Testing framework**"
- Y.4500.10 (ex Y.oneM2M.PB.MQTT) "**oneM2M- MQTT Protocol Binding**"
- Y.4500.14 (ex Y.oneM2M.IWK.LwM2M) "**oneM2M-LwM2M Interworking**"
- Y.4500.13 (ex Y.oneM2M.InteropTest) "**oneM2M-Interoperability Testing**"
- Y.4500.22 (ex Y.oneM2M.FDC) "**oneM2M- Field Device Configuration**"
- Y.4500.5 (ex Y.oneM2M.DM.OMA) "**oneM2M-Management enablement (OMA)**"
- Y.4500.11 (ex Y.oneM2M.CT) "**oneM2M- Common Terminology**"
- Y.4500.9 (ex Y.oneM2M.PB.HTTP) "**oneM2M- HTTP Protocol Binding**"
- Y.4500.8 (ex Y.oneM2M.PB.CoAP) "**oneM2M- CoAP Protocol Binding**"
- Y.4500.23 (ex Y.oneM2M.HAIM) "**oneM2M-Home Appliances Information Model and Mapping**"
- Y.4500.12 (ex Y.oneM2M.BO) "**oneM2M Base Ontology**"
- Y.4500.20 (ex Y.oneM2M.PB.WebSocket) **"oneM2M-WebSocket Protocol Binding"**

6 oneM2M Specifications translated into new Technical Papers

- Y.oneM2M.Ind.DE **"oneM2M Industrial Domain Enablement"**
- Y.oneM2M.UCC **"oneM2M Use Case Collection"**
- Y.oneM2M.DG.AppDev **"oneM2M- Application developer guide: Light control example using HTTP binding"**
- Y.oneM2M.DG.CoAP **"oneM2M Developer Guide of CoAP binding and long polling for temperature monitoring"**
- Y.oneM2M.DG.DM **"oneM2M- Developer guide of device management"**
- Y.oneM2M.DG.SEM **"oneM2M-Developer Guide of Implementing semantics"**

SG20RG-ARB STRUCTURE AND ACTIVITIES

SG20RG-ARB
List of Member States

- Algeria
- Bahrain
- Comoros
- Djibouti
- Egypt
- Iraq
- Jordan
- Kuwait
- Lebanon
- Libya
- Mauritania
- Morocco
- Oman
- Qatar
- Saudi Arabia
- Somalia
- Sudan
- Syrian Arab Republic
- Tunisia
- United Arab Emirates
- Yemen
- Palestine (Res. 99)

SG20RG-ARB
Management Team

	Name	Country
Chairman	Abdurahman M. AL HASSAN	Saudi Arabia
Vice-chairman	Ali ABBASSENE	Algeria
Vice-chairman	Abdulhadi ABOUALMAL	United Arab Emirates
Vice-chairman	Ramy Ahmed FATHY	Egypt
Vice-chairman	Bilel CHABOU	Tunisia
Vice-chairman	Khaled ALAZEMI	Kuwait

SG20RG-ARB
Terms of Reference (1/2)

- To disseminate information on the relevant work of SG20.
- To facilitate the participation of member states, sector members and academia of the region in SG20 and related meetings, at least when these meetings are held in the concerned region.
- To act as liaison hub between the region's administrations, regulators, operators, manufacturers and academia in matters as per the SG20 mandate.
- To encourage the active participation of administrations, regulators, academia and operators in the work of SG20 and in the implementation of ITU-T Y-series Recommendations.
- To boost the standard developing capabilities of the countries in the region, with a view to facilitate the interoperability of IoT services within smart cities.
- To support any initiative/activities leading to the Group's evolution.
- To act as a liaison body between administrations, operators, regulators and ITU-T on topics relating to IoT and smart cities.
- To encourage contributions from the region to traditional and emerging areas of interest for SG20.
- To foster participation of countries in the region to workshops and other SG20 related events.

SG20RG-ARB
Terms of Reference (2/2)

- To strengthen standard-making capabilities within the region in accordance with Res. 44 on "Bridging the Standardization Gap" (Rev. Hammamet-2016).
- To identify the regional priorities and to advance on issues related to the mandate of SG20 including but not limited to: Internet of Things (IoT), smart cities and communities (SC&C), interoperability between IoT applications for different IoT verticals; quality of service (QoS) and end-to-end performance for IoT and its applications including SC&C; big data aspects of IoT and smart cities and communities; e-services and smart services for smart cities and communities; IoT and SC&C data analytics and intelligent control, Fintech, blockchain-based technologies in the context of IoT and SC&C, Smart Transportation & Logistic, Traffic and transportation (Mobility), including cooperative ITS based on the IoT, Smart Grid, trust, safety, security and Identifications related to IoT and SC&C, robotics and Smart manufacturing;
- To identify and study forward looking technologies and trends key for the region with a view to share the results with SG20.
- To collaborate (when required) with Arab league teams particularly the Arab Standardization Team and other regional groups on IoT and smart city related matters in order to build synergies.

SG20RG-ARB

Recommendations and Actions to be taken

- Effective coordination between members of the Arab Group in promoting and supporting whatever benefits come from the telecommunication and information technology sector in the Arab region, as reflected in the work of SG20.
- Monitor and support relevant SG20 recommendations.
- Involve bodies engaged in applied research in the activities of the Union.
- Involve medium-sized and small enterprises in the Union's activities in order to identify and meet needs and exchange expertise.

SG20RG-ARB

Key Priority Study Areas

- Artificial intelligence 
- BlockChain 
- Security & Privacy 
- IoT identification & description 
- Risk and crisis Management in Smart cities 
- Smart Farming 

SG20RG-ARB

Structure of Sub-Working Groups

Name of Group	Leader	Members
WG on Block chain	**Egypt and KSA**	Algeria, Kuwait, Egypt, Root technologies, KSA, Oman, Etisalat, Bahrain
WG on IoT identification and description scheme	**Egypt, Algeria and KSA**	Algeria, Egypt, UAE, KSA
WG on Risk and crisis Management in Smart cities	**Egypt**	Root technologies, Egypt, UAE, KSA
WG on Interoperability	**Algeria**	Algeria, Spime Sense Labs, Egypt, KSA
WG on Security and privacy	**UAE**	Root technologies, Alpha Electronics, Egypt, KSA
WG on data economics and commercialization for IoT and SC&C	**UAE**	Etisalat, KSA

SG20RG-ARB

Regional Meetings

- 1st Meeting : 9-10 August 2017, Cairo, Egypt
- 2nd Meeting : 19-20 November 2017, Riyadh, Saudi Arabia
- **NEXT MEETING**: Kuwait offered to host the next meeting of the Regional Group of SG20RG-ARB in the last quarter of 2018

http://itu.int/go/tsg20

Ali ABBASSENE (RDF-ARB Algiers, 12-13 Feb. 18)