Welcome
to the World
of Standards

ETSI

World Class Standards

STANDARDS FOR REAL-TIME URBAN SERVICES SESSION
ETSI IN THE SMART CITY STANDARDIZATION

Presented by Patrick.GUILLEMIN@etsi.org   12 January 2017 Connected Smart Cities Conference

Agenda

- ETSI Groups working on Smart City related Technologies

- 3GPP work to support IoT and Smart Cities

- oneM2M work to support IoT and Smart Cities

- ETSI cooperation with External Smart City Groups

Smart City related Technologies in ETSI

Impacted groups: (from ETSI portal) **http://portal.etsi.org**

BOARD	FC	GA	IPR	OCG	3GPP	oneM2M	ATTM	BRAN	BROADCAST	CABLE
CYBER	DECT	EE	eHEALTH	EMTEL	ERM	ESI	HF	INT	ITS	LI
MSG	MTS	NTECH	PLT	RRS	RT	SAFETY	SAGE	SCP	SES	SmartBAN
SmartM2M	STQ	TCCE	USER	CCM	ECI	IP6	ISI	MBC	MEC	mWT
NFV	NGP	OEU	QKD	QSC	SMT	OSM	NSO	STF	WORKSHOP	

SmartM2M, ATTM, CABLE, NTECH, PLT, NFV, MEC, NGP, **oneM2M, 3GPP**, AERO, BRAN, DECT/ULE, EMTEL, ERM (TG28/LTN), mWT, ITS, MSG, RRS, RT, SES, TCCE-SA6… . **and the new ISG CIM !**

Security (ESI, Li, SAGE, Cyber, ISI, QKD, QSC), **Energy Efficiency** (ATTM/EE/OEU), **Machine to Machine/IoT** (**oneM2M, smartM2M**), **QoS/QoE** (STQ), **Interconnect & test** (INT, MTS) **Smart Card** (SCP) **data management / semantics** (Cloud/SmartM2M), **Health** (eHealth, SmartBAN), **Other** (USER, HF, SAFETY)…

Smart City related Groups in ETSI

TC ATTM Working Group on <u>Sustainable Digital Multiservice Cities</u>

Recent Working Group, chaired by eG4U (City of Bordeaux CIO, chairman of the standardization group of EuroCities)
Works on deployment of ICT systems, and networks, and sites allowing interactions for data capture (both data consumers and providers) and management of data within each service and between different functions and services and will produce:

- Standardisation work on specific engineering of ICT for Sustainable Digital Multiservice Cities

- Specifications of topology and functional requirements

- Specifications of functional and physical characteristics of interfaces

- Standardisation work on operational sustainability management

Smart City related Groups in ETSI

ISG OEU "Operational energy Efficiency for Users"

ISG OEU brings together ICT professionals from a wide cross-section of European industry including the aeronautical, automotive, banking, insurance and **smart cities**. Key deliverables include:

- ETSI GS OEU 001 « Energy Management; Global KPIs for ICT sites»

- ETSI GS OEU 018 « Waste management of ICT equipment »

- ETSI GS OEU 020 « Definition of CO2 equivalent emission level for ICT sites »

- Work on "Global KPI Modelling for **Green Smart Cities**" with the City of Bordeaux as Rapporteur relates to the creation of a new NGO **eG4U**

- **https://www.eg4u.org/**

e.green for users

Smart City related Groups in ETSI

- **ETSI SmartM2M (supporting AIOTI):**
  - Developed two releases of M2M specifications.
  - **Used as one of the initial baseline proposal for the oneM2M initiative**
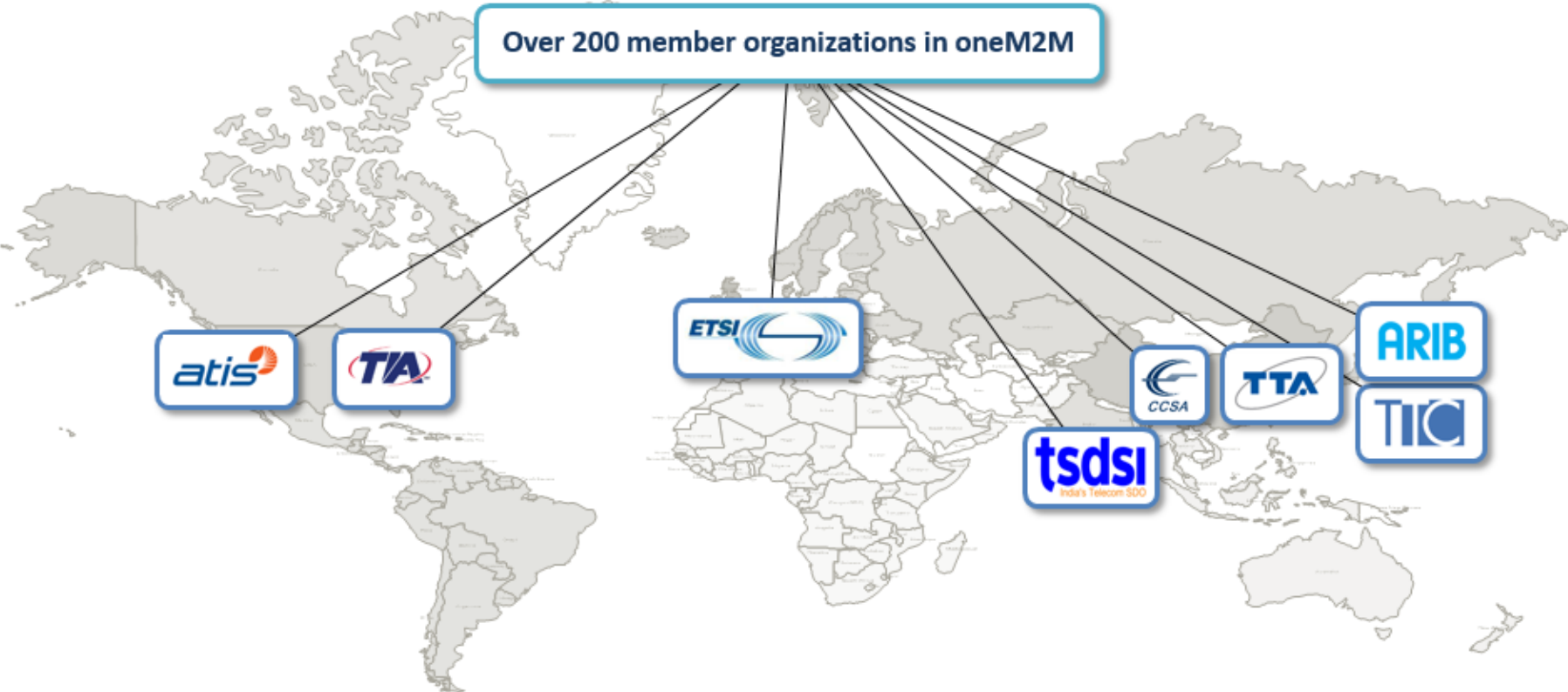
- **ETSI SmartM2M is currently working on:**
  - Supporting the European industry and institutions on the identification and adoption of standards, in particular regarding the oneM2M framework
  - Bridging the European needs in the area of M2M/IoT towards **oneM2M**
  - Smart Appliance REFerence ontology SAREF / oneM2M IoT Semantic Interoperability

Over 200 member organizations in oneM2M

www.oneM2M.org
All documents are publicly available

Smart City Initiatives

- ETSI is active and/or cooperating with:

  - **SSCC-CG**: CEN-CENELEC-ETSI Coordination Group Smart and Sustainable Cities and Communities (ISO, IEC, UN, ITU-T..) + SM-CG + SEG-CG

  - **AIOTI** www.aioti.org: WG3 (IoT Standardisation) and AIOTI WG08 (Smart Cities) with many SDOs (ITU-T, W3C, IEEE, ISO, IEC, JTC1, ETSI, oneM2M, 3GPP..), OSS, Industry/Verticals and IoT Alliances, IERC, IoT-EPI, IoT LSPs...

  - FIWARE / OASC.. **in the new ISG CIM**

- ETSI is a partner in the H2020 Smart City project **ESPRESSO** (*OGC, CITYKEYS/Eurocities, Sharing Cities, EIP-SCC, Urban Platforms*), IoT-EPI/**UNIFY-IoT** and IoT LSP CSA **CREATE-IoT**

3GPP IoT related work

3GPP Release 13 includes several topics that address IoT Standards

- **Release 13: eMTC: Further LTE enhancements for MTC,**
  - **building on REL-12 work (UE Cat 0, new power saving mode: PSM)**
- **Release 13: NB-IoT (Narrowband IoT)**
  - **supports 3 modes of operation with last 2 able to share the band with an LTE network:**
    - Stand-alone operation: utilizing e.g. the spectrum currently being used by GERAN systems as a replacement of one or more GSM carriers
    - Guard band operation: utilizing unused resource blocks a LTE carrier's guard-band
    - In-band operation: utilizing resource blocks within a normal LTE carrier
  - **reduced data rate/bandwidth + reduced mobility support and protocol optimizations:**
    - UE with 180kHz RF bandwidth in DL & UL, half-duplex UE category NB1 peak data rate: DL: ~250kbps, UL: ~20kbps; 10 years battery life time
- **Release 13: EC-GSM-IoT (Extended Coverage GSM for IoT)**
  - **achieves comparable results to NB-IoT but is based on GERAN technology**
    - (up to ~50.000 devices per cell and coverage up to 164dB coupling loss)

3GPP has started work the 5th generation (IMT-2020) Release 14 where massive Machine Type Communication is considered as major use case family

- **Non-IP for Cellular Internet of Things (CIoT) for 2G/3G-GPRS(EC-EGPRS)**
- **Study on extended architecture support for Cellular Internet of Things (UID 720081)**

ETSI involvement in I-ES City Project (NIST)

- ETSI and NIST have signed a partnership agreement (early 2016) to explore opportunities for cooperation in the domains of Smart Cities and IoT (Internet of Things)

- ETSI hopes that through this collaboration with NIST and other partners we may encourage global cooperation and knowledge sharing as well as the development of global technical specifications and recommendations to help accelerate the numerous Smart City deployments around the globe.

- Three workshops in both US and Europe have progressed the work on identifying potential "Pivotal Points of Interoperability (PPIs)" between numerous IoT frameworks

- https://pages.nist.gov/smartcitiesarchitecture/

Conclusions

- ## M2M Workshop – Sophia-Antipolis

  - **15 – 17 November 2016**

  Promoting oneM2M Release 2, in particular Security and semantic interoperability, in the context of **ETSI activities on Smart Cities** and Smart Appliances.
  http://www.etsi.org/news-events/past-events/1086-2016-11-etsi-iot-m2m-workshop-2016-featuring-the-smart-world

Clearly we need to

Cooperate, coordinate, communicate

re-use the work already done elsewhere