The challenge of smart cities R&D and standardization convergence

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European Commission - DG CONNECT

HORIZON 2020

European Commission

The challenge of smart cities R&D

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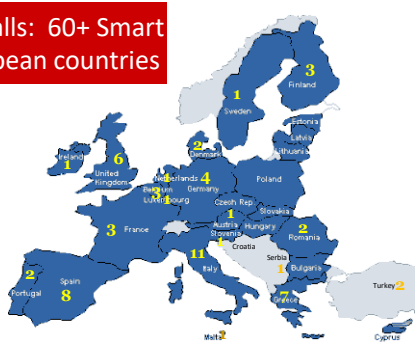
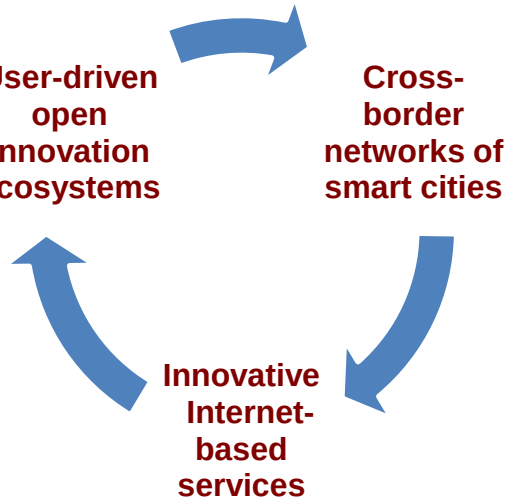
FIRE lady image by Turku Touring

Open Innovation for Future Internet-enabled Services in Connected Smart Cities

- 20+ experimental platforms projects, 50 M€ EU funding
- Boost deployment of Internet enabled services
- Real-life experiments by creative smart citizens

In CIP 2010-12 calls: 60+ Smart Cities in 20 European countries





Supported e.g. by the Competitiveness and Innovation Programme - EC, DG CONNECT, Experimental Platforms

OrganiCity - Co-creating Smart Cities of the Future

- 2015-18 Integrated Project, in H2020 FIRE+, EC contribution 7,26 MEUR, 42 months, 15 participants.
- OrganiCity combines top down planning and operations with flexible bottom-up initiatives where citizen involvement is key.
- OrganiCity develops an integrated Experimentation-as-a-Service facility.
- Two open calls invite 25-35 experiments to use the new OrganiCity facility and its co-creation tools for trans-disciplinary participatory urban interaction design. See: http://organicity.eu/open-call

Three clusters – Aarhus (DK, coordinator), London (UK) and Santander (ES)

EIP-SCC

European Innovation Partnership
on Smart Cities and Communities

The EIP-SCC

European Innovation Partnership for Smart Cities & Communities

- ❑ 4,600 partners
- ❑ 370 commitments
- ❑ 31 countries

Deliver: scale, acceleration, & impact,...

Through: common solutions, an integrated approach, & collaboration

Focus on Energy, Transport and ICT

H2020

Lighthouse projects ~100 M€/year; ~4 projects/year ; per project – 3 lead cities, 3 follower cities and other cities)

CSAs (Espresso, CityKeys, etc.)

The Urban Platform Initiative within the overall EIP Context

110 cities

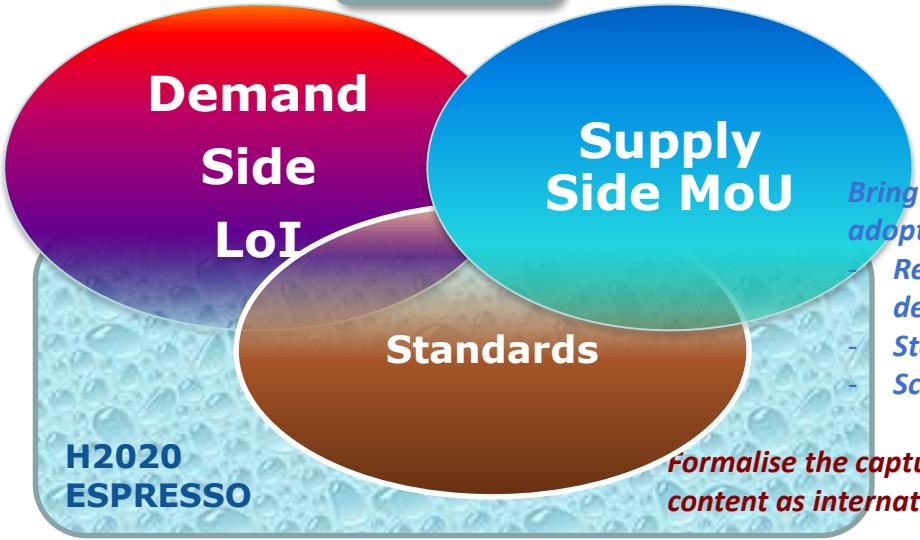
Agree common requirements, and speed adoption

- *Requirements*
- *Leadership guide*
- *Management framework*

Commission

Urban Platform

Accelerate the adoption of Urban Platforms in EU cities



Bring together EU Industry to adopt common open solutions

- *Reference architecture and design principles*
- *Standards*
- *Scale*

DIN 91357 standard

Formalise the capture of the core content as international standards

➢ By **2025**, ensure that **300m residents of EU cities** are supported by Urban Platform(s) to manage their business with a city and that the city in turn drives efficiencies, insight and local innovation through the platform(s)

ICT Standardisation
The EU Rolling Plan

EU Standardisation Policy

- **Why ?**
- - Single Market, Innovation, Competitiveness
- - Support of Union Legislation or Policies

- http://ec.europa.eu/growth/industry/policy/digital-transformation_en

Multi-Stakeholder Platform on ICT standardisation (MSP)

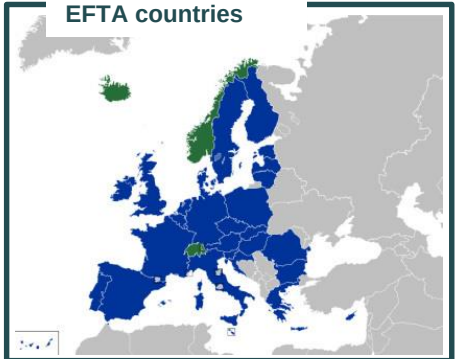
- Commission Decision of 28 November 2011 (2011/C 349/04)

- **Advisory Expert Group** on all matters related to European ICT Standardisation and its effective implementation:
  - Rolling Plan for ICT standardisation
  - Possible ICT standardisation mandates
  - Identification of common technical specifications in the field of ICT for public procurement
  - Cooperation between standards developing organisations
  - Identification of potential future ICT Standardisation needs

Composition of the MSP

European Commission

Member States and EFTA countries



ICT Standardisation Actors

CEN · CENELEC European Committee for Electrotechnical Standardization · ETSI 2013 Celebrating 25 years · IEC · GS1 · ISO · IEEE Advancing Technology for Humanity · ITU · ecma International · IETF · The Open Group · OASIS Advancing open standards for the information society · OMG We set the standard · oma Open Mobile Alliance · UN/CEFACT Simple, transparent and effective processes for global business · W3C

Industry, SMEs and society representatives

AGE Platform Europe · BUSINESSEUROPE · Cable Europe · DIGITALEUROPE · EDiMA Shaping Internet Policy in the EU · ecta · Openforum europe open, competitive choice for IT users · Small Business Standards · ECOS · GSMA · ANEC · EBU · EuroISPA · etno · european disability forum · ECIS European Committee for Interoperable Systems

European Commission's view on needs in standard activities

Political

Annual Union Work Programme (Art. 8 of Reg. 1025/2012)

- An annual EC Communication to identify strategic priorities, mandates to be launched. Links to the EU political agenda.

Technical

Rolling Plan for ICT Standardisation

- Much more detailed and technical. Much wider view on internationally ongoing actions.
- Drafted with the Multi-Stakeholder Platform (**MSP**) ~70 Members + EC Services. **Is not only the EC view**.
- Medium term, specific to **ICT.**
- **For ICT, the EC funds standard activities IN the Rolling plan**

Content

Rolling plan for ICT standardisation

2017

And others: ehealth, smart grids, e-skills, accessibility, Blockchain and distributed ledgers, ...

European Commission

From R&D to Standardisation
The challenge of convergence

HORIZON 2020

Policy Foundations

- **DIGITISING EUROPEAN INDUSTRY 19 April 2016**
  DEI Action Plan COM(2016)180,
  - co-financing the testing and experimentation of technologies to accelerate standards setting in cooperation with relevant industrial partnerships.

  ICT standardisation priorities for DSM COM(2016)176
  - focusing on five priority areas, when asking industry and standardisation bodies to work on standards: 5G, cloud computing, internet of things, data technologies and cybersecurity.

  Advancing the Internet of Things SWD(2016)110
  - Organised around three pillars: DSM for IoT, Thriving Ecosystem, Human Centered IoT
- **2017 Rolling Plan for ICT Standardisation 03 March 2017**
  - that takes a unique look at standardisation by linking them to EU legislation and the Digital Single Market policy

IoT Standards: Challenges

- **Interoperability** – essential for a Digital Single Market, with seamless flow of data across sectors and value chains.
- **Chicken and egg** – supply- and demand-side are both struggling to define standards at appropriate level.
- **Innovation** – open innovation systems move fast, and the standards processes struggle to keep up.
- **Non-technical aspects** – solutions should be more than technical solutions, existing standards should be refined.
- **Policy & Legislation** – security and privacy are still a limiting factor.
- **Acceptance** – communities are sceptical, and often with good reason.

IoT Standards: Our reply

- **Large Scale Pilots** – Innovation & Experimentation in real scale.
- **Focus Area** – Steer Convergence within and between Verticals.
- **AIOTI – BDVA - ECSO – ARTEMIS** – Stakeholder and industrial engagement in PPP
- ***Open meetings and workshops*** – consensus building
- **Light Steering** – channel input towards more engagement and policy governance.

Standardisation & Clustered Projects

RIAs Cluster

IERC
European Research Cluster on the Internet of Things

AC01 - Architecture and open platforms

IoT European Platforms Initiative

TF02 Platforms Interoperability

LSPs & CSAs

CREATE-IoT

U4IoT

AG02 - IoT Standardisation, Architecture and Interoperability

F-INTEROP

BIG IoT

interiot

AGILE

AUTOPILOT

ACTIVAGE PROJECT

IOF 2020 INTERNET OF FOOD & FARM

symbIoTe

bIoTope

VICINITY 2020

TAGIT SMART

MONICA

SYNCHRONICITY

IoT Leadership Strategy in Horizon 2020

2014-15 Building the IoT- EPI cluster (**E**uropean **P**latforms **I**nitiative)

2016-17 Building the IoT **F**ocus **A**rea

2018-20 FA DEI Strategy

EPI: *Building the eco-system, breaking silos CPS-IoT, Using architectures integrating devices, systems and networks for a multiplicity of novel applications*

http://iot-epi.eu

55 M€

LSPs: Focus Area on Internet of Things will focus on experimentation with real-life solutions being tested at large scale with users

+ ODI, FI-ware accelerators, IERC, standardisation etc.

https://european-iot-pilots.eu/projects/

100 M€

DEI Platforms: Focus Area Digitising European Industry will focus on integrating digital innovation across societal challenges

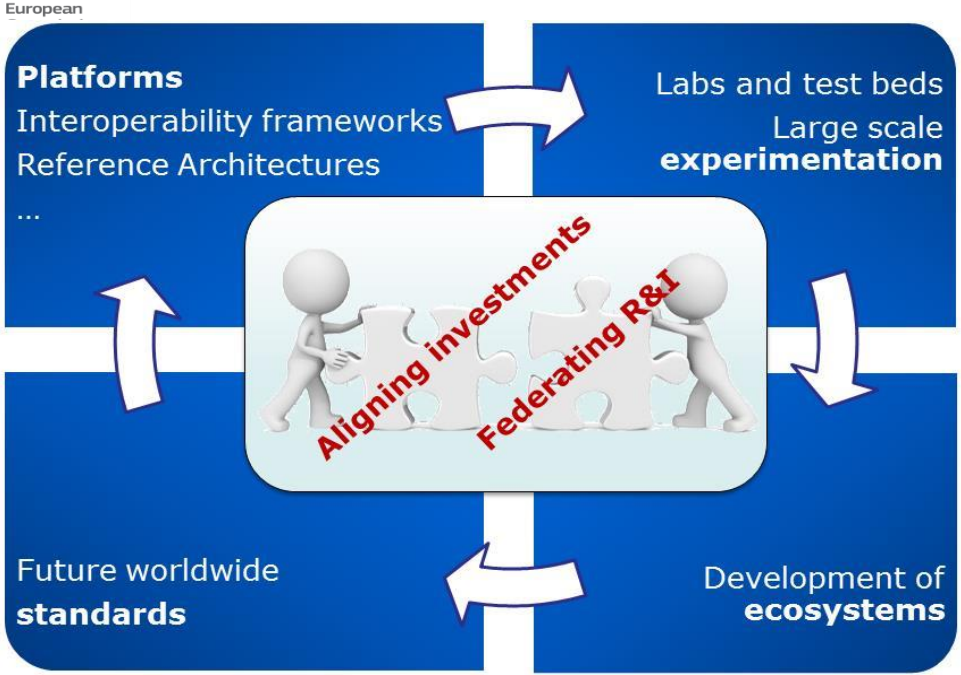
+ ***DEI Policy support****, e.g. security, privacy, ownership, liability, GDPR .*

300 M€

EU Markets

Platforms and pilots

- Leadership in next generation open and interoperable digital platforms
- To foster competitiveness hubs/testbeds that will drive the creation of ecosystems and projects for cross-sector industrial platforms adapted to IoT



Platform-building and piloting projects have a strong structuring effect towards standardisation

→ **How to better exploit this on it on EU-scale**

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AIOTI Working Group Structure

WG 01	IoT Research									
WG 02	Innovation Ecosystems	Smart Living Environment for Ageing Well								
WG 03	IoT Standardisation	Smart Farming and Food Security								
WG 04	IoT Policy	Wearables	Smart Cities	Smart Mobility	Smart Water Management	Smart Manufacturing	Smart Energy	Smart Buildings and Architecture		
	SME Interests	WG 05	WG 06	WG 07	WG 08	WG 09	WG 10	WG 11	WG 12	WG 13

AIOTI WG03 engagement model

Analyze landscape

Identify gaps, divergences, common concerns

- High Level Architecture
- Semantic Interoperability
- Identifiers
- Security and Data Protection

Task sub-teams to address themes

Publish guidance and recommendations

Engage, disseminate and influence

AIOTI WG03

WGs support to AIOTI in:

- **Digital Single Market**
- **Digitising European Industry**
- **Smart Cities and Communities**
- **EC's H2020 Large Scale Pilots**

IoT SDOs and Alliances Landscape (Tech&Mktg Dimensions)

Source: AIOTI WG3 (IoT Standardisation) – Release 2.7

IoT SDOs and Alliances Landscape (V&H Domains)

Home/Building | Manufacturing/ Industry Automation | Vehicular/ Transportation | Healthcare | Energy | Cities | Wearables | Farming/ Agrifood

Source: AIOTI WG3 (IoT Standardisation) – Release 2.7

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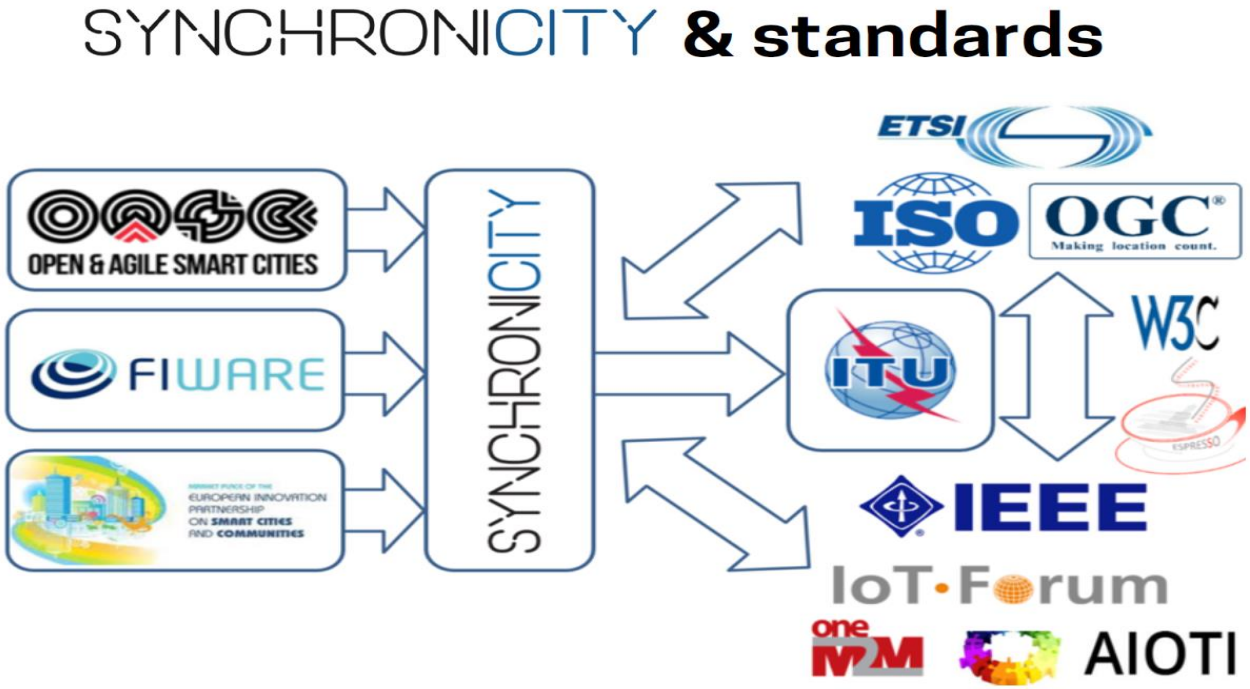
Leveraging EU Projects to global leadership



Leveraging EU P…al leadership

NEW: ETSI ISG CIM

OPEN & AGILE SMART CITIES

ETSI

PRESS RELEASE

ETSI launches new group on Context Information Management for smart city interoperability

Sophia Antipolis, 11 January 2017: ETSI is pleased to announce the creation of a new Industry Specification Group on cross-sector Context Information Management (ISG CIM) for smart cities applications and beyond. The first meeting of the ISG CIM is planned to take place at the ETSI premises in Sophia Antipolis, France, on 9-10 February 2017.

Data without context are meaningless. Every sensor measurement, every entry in a database, every tweet sent and every webcam video watched has its own context. The context seems obvious to humans: the temperature sensor is attached to an air-conditioner in the house, the database of vehicle registration numbers is used by a policeman in the city, the tweet comes from a person who has just witnessed something interesting and the webcam shows a particular city street with its

SYNCHRONICITY

By Omar Elloumi

The first meeting of the new ITU-T Focus Group on Data Processing and Management (DPM) confirmed that "data is the new oil", fast becoming powerful fuel to innovation in a wide range of industries and public-sector

H2020 Synchronicity LSP Created a New Work Item at the ITU to Develop a New Standard on Open API for IoT Data in Smart Cities

September 18 2017

Contribution to ITU-T Study Group 20 on IoT and Smart Cities and Communities

The International Telecommunication Union (ITU) Study Group 20 accepted to create a new work item on Standardized Open Data API for IoT Data in Smart Cities and Communities. It was proposed and submitted by Mandat International (which leads the standardization activities of Synchronicity), during the SG20 meeting (4-15 September 2017). The new work item is directed at developing a draft ITU-T Recommendation on the concerned topic.The creation of this new work item was approved by the meeting and is supported by various ITU-T members including non-European States.

Context Introduction

Synchronicity is the H2020 European Large Scale Pilot on IoT for Smart Cities. The IoT paradigm has facilitated the adoption of various IoT-based solutions within the smart city environment. This in many ways has the way to an unprecedented rise in the number of solutions and technology suppliers within the IoT domain. The implementation of these solutions has been highly fragmented and has led to many non-interoperable solutions and applications. Such a fragmented environment of IoT technical implementations is expected to inhibit value for cities, service companies, citizens and other users. In view of the above problems, the availability of open data and open data APIs and platforms for smart city is considered critical for data interoperability and smooth functioning of the IoT system. Such platforms help avoid data lock-in problems and to ensure fair and optimal competitiveness.

The new work item will enable Synchronicity to transfer its achievements directly at the ITU level. It

Deliverables: Reports and Workshops

Get ready for Next Workshops

- **ITU FG DPM –**

Rest of the week – OASC facilities

- **Large Scale Pilots – AIOTI**

TBA 26-27 April Brussels in this room

IoT Week Bilbao 2018

4-7 JUNE 2018, BILBAO (SPAIN)

EUSKALDUNA CONFERENCE CENTRE

THANK YOU