



# Session 1: The Digital Transformation: IoT & Data

Gérald Santucci

Head of unit 02, Knowledge Sharing

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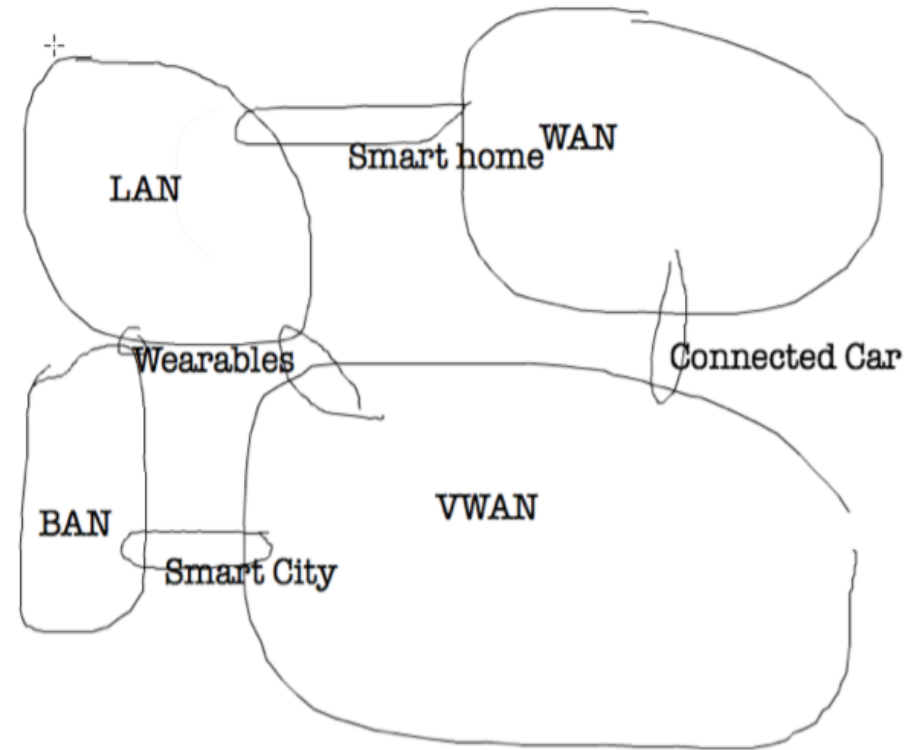
# IoT has a large potential

- **IoT is not another technology hype.** It is dynamic but is here to stay.
- **The IoT ecosystem is in a nascent state in Europe but is rapidly evolving.** The emergence of horizontal platforms will be a key component of the future IoT ecosystem.
- Standardization and interoperability will play a critical role for IoT development.



# The IoT DNA

Internet of Things is in essence the seamless flow between the **BAN** (body area network: the ambient hearing aide, the smart t-shirts), the **LAN** (local area network: the smart meter as a home interface), the **WAN** (wide area network: the bike, car, train, bus, drone...), and the **VWAN** (very wide area network: the smart city as e-government services everywhere no longer tied to physical locations).

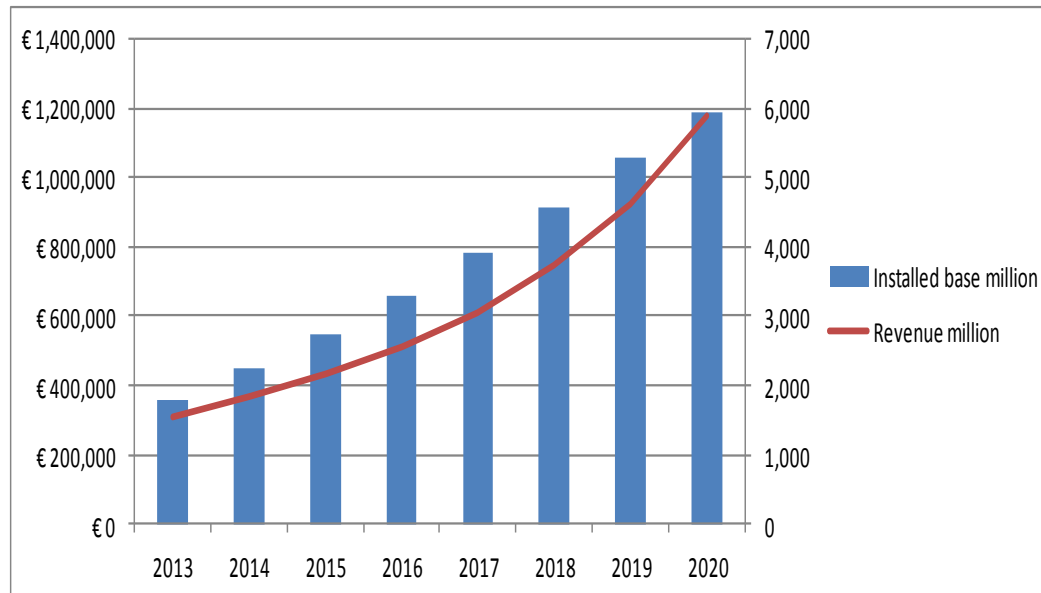


## IoT will expand with yearly growth rates over 20% in value between 2013 and 2020.

According  
to IDC

The number of IoT connections within the EU28 will increase from approximately 1.8bn in 2013 (the base year) to almost 6bn in 2020.

IoT revenues in the EU28 will increase from more than €307bn in 2013 to more than €1,181bn in 2020, including HW, SW and services.



# IoT Vision in 2020



IoT connections within EU28

6B Units

€ 1,181B Revenues

All EU countries will gain from the IoT revolution (Top 3 UK, FR, DE)

IoT will impact all sectors (Top 3 Manufacturing, Finance and Utilities)

## EU IoT Industry Ecosystem

An industry ecosystem (components vendors, suppliers creating solutions, service providers, and enterprise users in all sectors of the economy) will have emerged and will measure € billions in Europe alone



Cloud Computing



IoT Technologies



Big Data

Cloud computing and Big Data/analytics will be central elements of, and key contributors to, enabling the growth of the European and worldwide IoT ecosystems.

Towards hyperconnected society and economy

**Security**

**Trust**

**Open Standards**



Smart environments

**SMEs participation**

**Time and cost savings**

**Privacy**

**Interoperability**

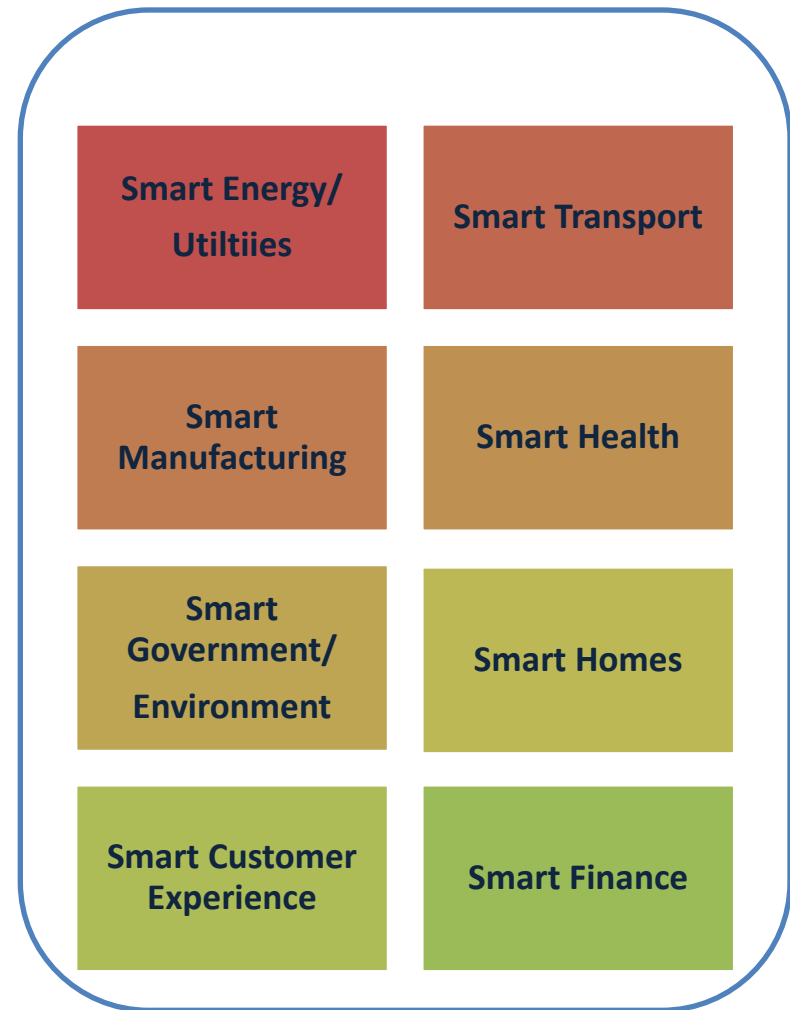
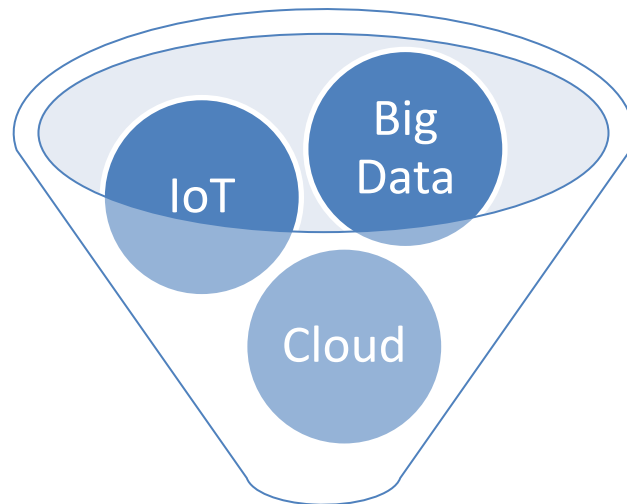
**Digital Single Market**

**Innovation**

*Needed = a sophisticated industry ecosystem across vertical silos and consisting of:*



# New business opportunities combining IoT, Cloud and Big Data



# Internet of Things has been continuously supported on research and policy level during FP7

- **Research funding over seven years (FP7, CIP, joint calls)**
  - Creation of research portfolio - 3 FP7 calls with a direct budget of 100 MEUR
  - 5 IPs for conception R&D and piloting
  - > 15 STREPs for specific challenges (e.g. security)
  - 5 CSAs for innovation support and international co-operation
  - Application areas: Smart City, e-Health, Industry, Logistics, ...
  - Support by European Technology platforms – EPOSS, ARTEMIS
  - Creation of IERC – Internet of Things European Research Cluster
  - Link to Future Internet PPP (Generic Enabler)
- **Policy support towards innovation and take-up**
  - Driving IoT Standardisation initiatives
  - Convocation of a dedicated IoT Expert Group on IoT Governance
  - Exchange and cooperation with MS government initiatives on IoT
  - International co-operation on IoT with China, Japan, Korea, Taiwan, US and Brazil
  - CAF – Connect Advisory Forum IoT workgroup (innovation stakeholder)
  - Link to new EC Data Protection Regulation



# Breaking silos: the role of standards





# Interoperability

## Mapping/Gap analysis conducted by ETSI

- Launched July 2014, duration of circa 1 year
- <http://www.etsi.org/news-events/events/771-2014-etsi-ec-dg-connect-iot>
- identification of business scenarios and applicable (or missing) standards
- ETSI's expertise “Making Better Standards”  
<http://portal.etsi.org/mbs>

## Testing of standards

- Demonstrate standards/interoperability in operational conditions
- test reference implementations and open source approaches





# Real-life testing and deployment



# Internet of Things 2016-2017

139 M€

- **Cross-cutting Focus Area**
  - Contributions from **SC1** and **SC2**
- Increased support with the ambition to **foster the take-up of IoT in Europe** and to **enable the emergence of IoT ecosystems** supported by open technologies and platforms
- Organised in three topics:
  - **Large scale pilots (100 M€)**
    - Smart living environment for ageing well
    - Smart farming and food security
    - Wearables for smart ecosystems
    - Reference zones in EU cities
    - Autonomous vehicles in a connected environment
  - IoT Horizontal activities (4 M€)
  - **R&I on IoT integration and platforms (35 M€)**



# IoT – Large Scale Pilots

## **Beyond technology demonstration, specific features**

- make use of advanced ICT Technologies;
- include feed-back loop mechanism for adaptation/variations;
- are large scale (dimension, geographical, systemic/integral);
- involve all value-chain actors: components, embedded processing and communication, system integration, middleware, architecture design, software, security, service provision, usage, test, etc.;
- address business model validation;
- seek to assess users' acceptability;
- position as close to real-life/market conditions as possible;
- promote European IoT supply and demand partnership.

## **IoT as Focus area for Horizon 2020**

- At least 5 pilots should be tendered 2016-2017, e.g. smart living environments for ageing well, smart farming and food security, wearables for smart ecosystems, reference zones in EU cities, autonomous vehicles in a connected environment, water management for resilient cities.



# Policy actions

- Trust and Security
- Privacy
  - 2015? General Data Protection Regulation (GDPR)
  - 09/2014: Article 29 Working Party: Opinion 8/2014
- Structuring the eco-systems around IoT in the EU
  - 05/2015: IoT in the context of the Digital Single Market (DSM)
  - 03/2015: creation of the Alliance for IoT Innovation (AIOTI)
  - Support start-ups and demand side (cities, health, smart agri-food)
- Link with infrastructures (5G PPP, Future-Internet PPP)
- International co-operation on IoT
  - China, Japan, Korea, Taiwan, India, US and Brazil
  - Convergence on standards and platforms





# Thank you

DG CONNECT 02

[gerald.santucci@ec.europa.eu](mailto:gerald.santucci@ec.europa.eu)

Tel. +32 2 296 89 63

Twitter: @GeraldSantucci

