

25 October 2017, Brussels



Digital Platforms for 'Interoperable and smart homes and grids'

Focus Area "Digitising and Transforming
European Industry and Services

by Svet Mihaylov
DG CONNECT



Focus Area 'Digitising and transforming European industry and services', Platforms and Pilots

LEIT-ICT

DT-ICT-07-2018-2019: Digital Manufacturing Platforms for Connected Smart Factories

95 M€

DT-ICT-08-2019: Agricultural digital integration platforms

30 M€

~~*DT-ICT-09-2020: Digital service platforms for rural economies*~~

~~30 M€~~

DT-ICT-10-2018-2019: Interoperable and smart homes and grids

30 M€

DT-ICT-11-2019: Big data solutions for energy

30 M€

DT-ICT-12-2020: The smart hospital of the future

25 M€

DT-ICT-13-2019: Digital Platforms/Pilots Horizontal Activities

4 M€

SC1:

- **DT-TDS-01-2019: Smart and healthy living at home** **60 M€**

LEIT-NMBP:

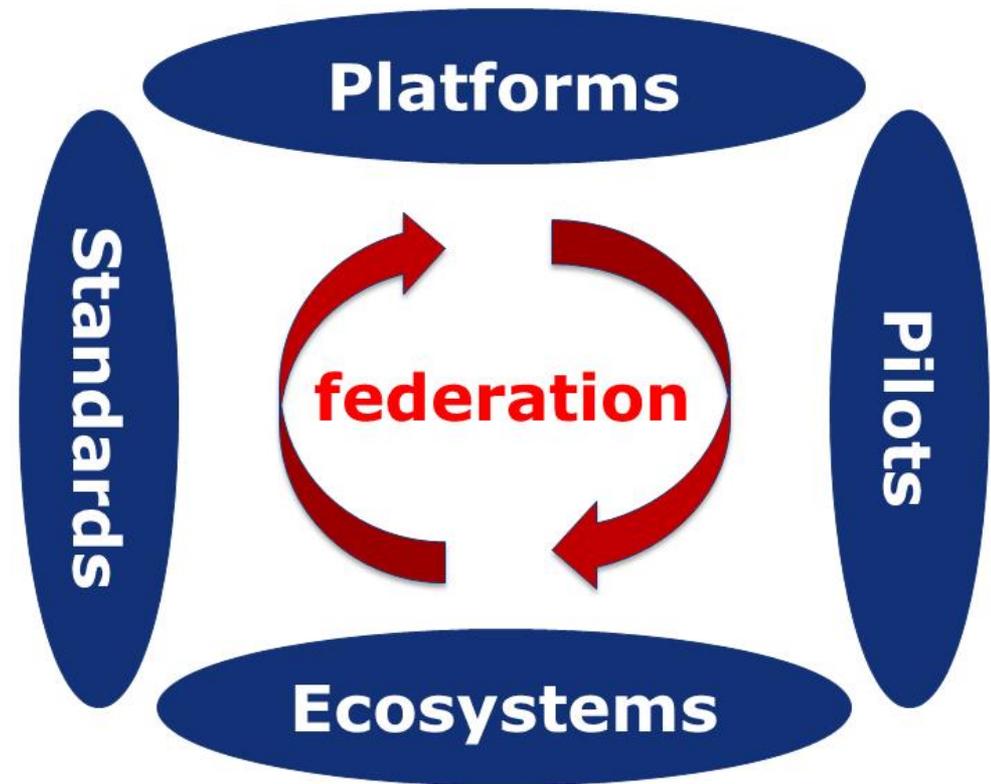
- **DT-NMBP-20-2018: A digital 'plug and produce' online equipment platform for manufacturing**

20 M€

EU actors join forces along common interests
Future global standards & platforms driven by interests of EU actors

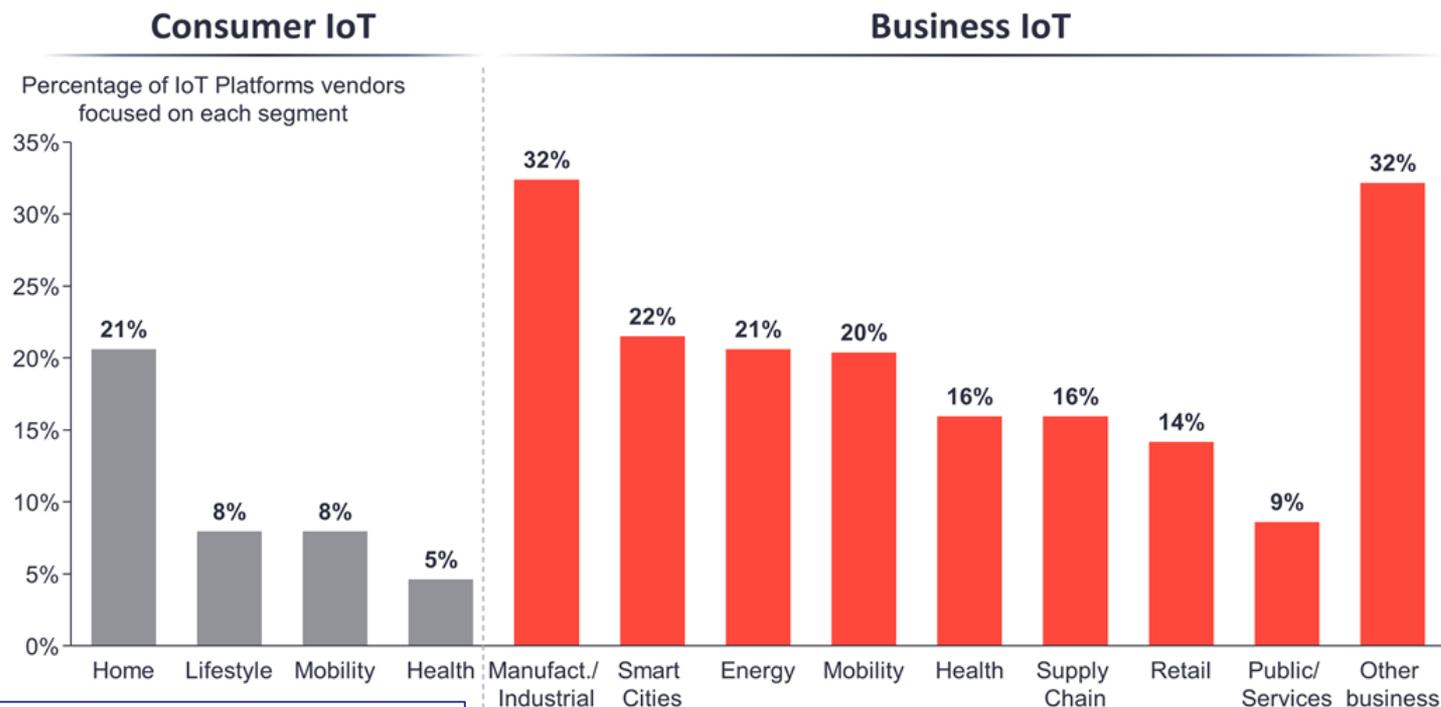
Focus investments on:

- **Integration** of key digital technologies
- Digital industrial platforms, reference architectures, ...
- Reference implementations, **large-scale piloting**, experimentation environments
- **Ecosystem building** and standardisation



- **WHY?**

- Market fragmentation makes it challenging to create novel IoT products and services
- Issues related to interoperability and IoT standardisation have not yet been solved
- Consumer market is evolving quickly → thread to B2C?

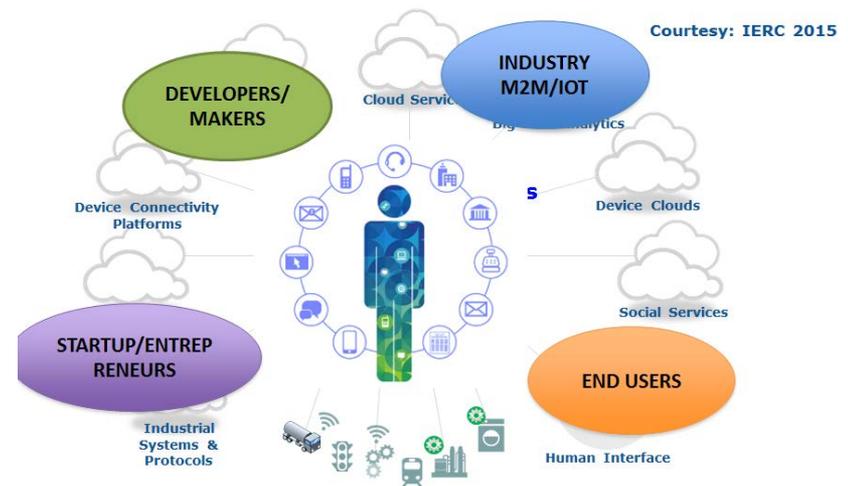


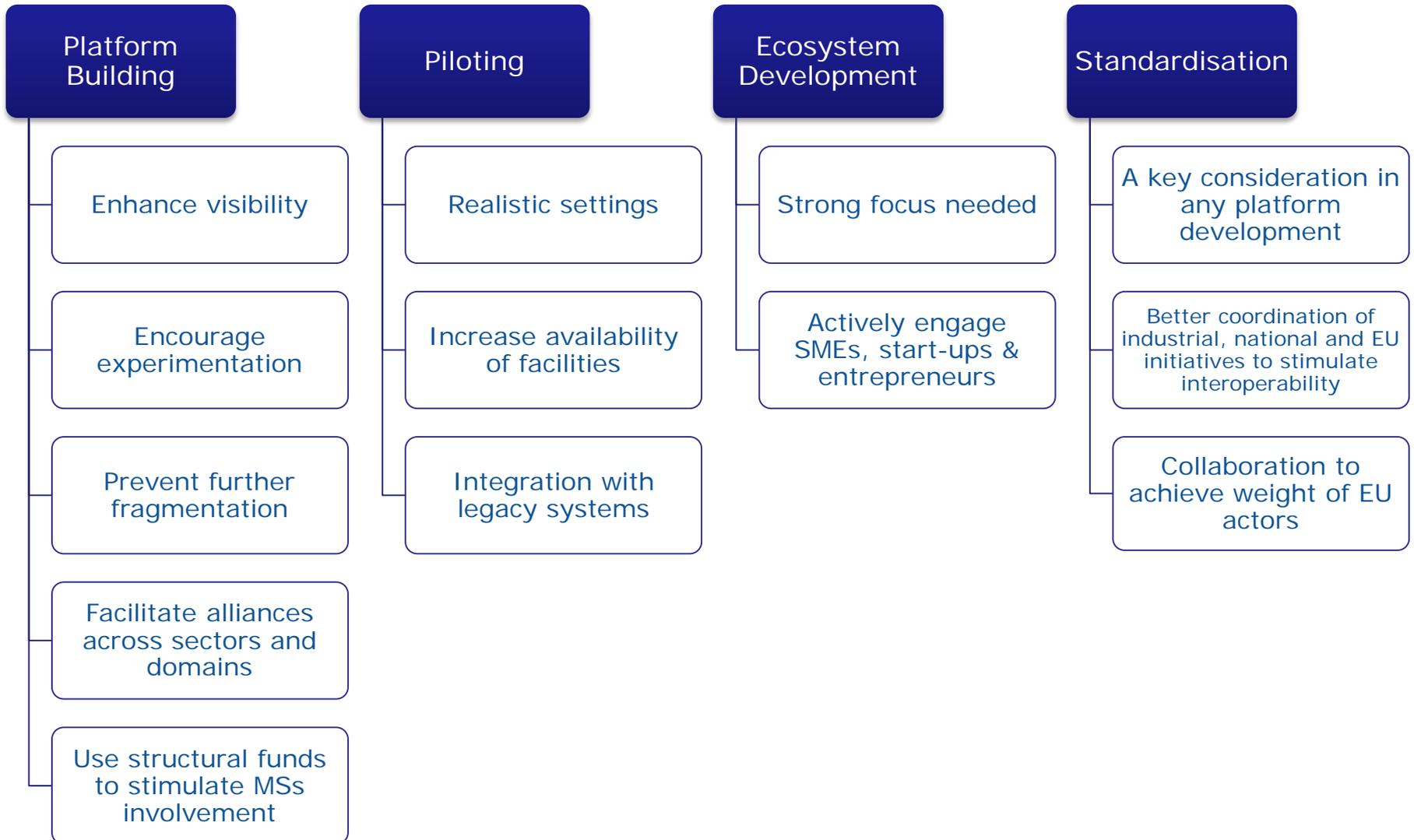
Courtesy: IoT Analytics, 2017

- Target
 - Link and align to **Strategy Digitising Europ. Industry DEI**
 - Fostering the take-up of IoT in Europe and enabling the emergence of **IoT ecosystems supported by open technologies and platforms.**

- The challenge

- **Address business model validation & standardisation**
- Address user validation and acceptability
- Organisation of **open calls**
- Exploitation of **security & privacy** mechanisms?







Topic: DT-ICT-10-2018-2019

Timeline:

- Call opening: 26th July 2018
- Call deadline: 14th November 2018, 17.00h
- Budget: 30 Mio € - 1 Pilot only

Specific Challenges:

- Novel services for more comfortable, convenient and healthier living environment at lower energy costs for consumers
- The integration of renewable energy sources (RES) and promotion of energy efficiency
- To match user needs with the management of distributed energy across the grid.
- Management of distributed energy across the grid, and to gain access to benefits from Demand Response

- Understanding IoT for the Home Consumer
 - Awareness – Fun
 - Interaction – Satisfaction
 - Security – Ownership
- B2C Considerations
 - Cross-cutting managed services
 - Managed Security & Lifecycle
 - Provision as a Service



Courtesy: Smart Living2Market, BMWi 01/2017



Make me
feel safer
at home
(60%)



Help me deal
with emergency
situations (59%)



Help me stay
healthy (59%)



Help me live
a healthier
lifestyle (44%)



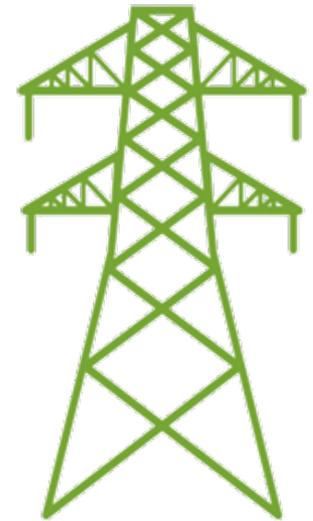
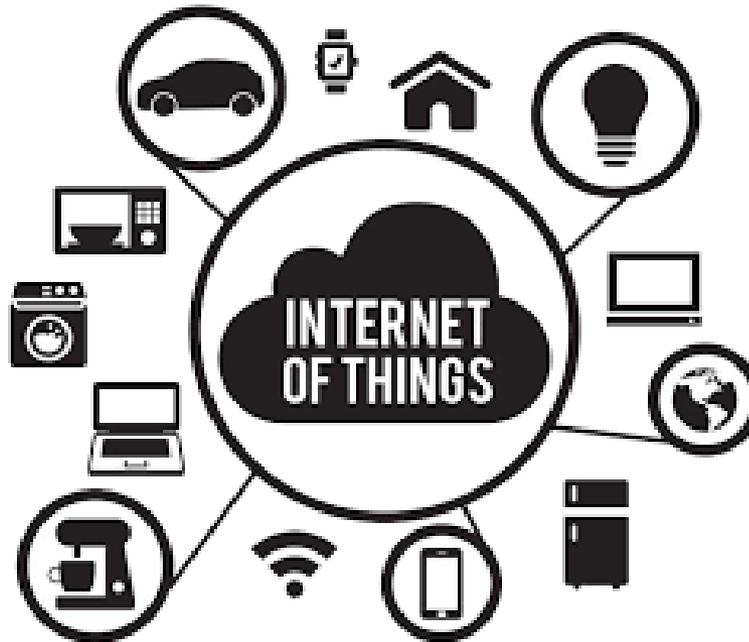
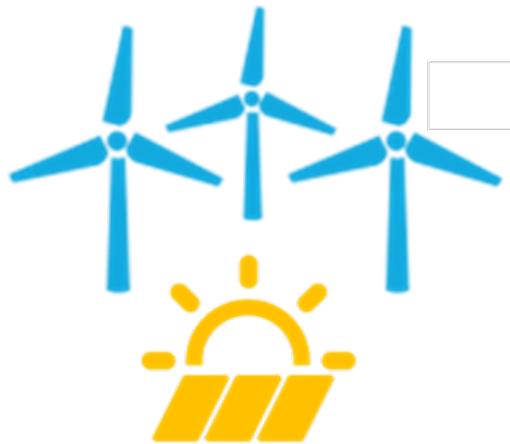
Protects my
privacy (41%)



Is compatible
with my sm-
phone (32%)

Key challenge: flexibility (demand-side)

Key enabler: interoperability



- **Goal: Delivering a fair deal for consumers**
 - efficient integration of renewables
 - integrated smart home services through IoT
 - interoperable smart grids (production capacity optimisation)

Success Factors of a large-scale pilots

Approach:

- **Internet of Things (IoT) enables a seamless integration** of home appliances with related home comfort and building automation services // IoT reference architectures models based on platforms that enable the integration of relevant digital technologies like IoT, AI, cloud and big data services and where applicable, combined with blockchain technologies.
- **Developing interoperability and seamless data sharing across** different application domains such as home comfort & well-being, smart appliances, building automation and energy management,
- **Aligning existing standards from the utility and ICT domains;** and explore the need for further standardisation and legislation
- Active **user engagement** and a multi-disciplinary approach to ensure the understanding of user needs
- The envisaged **architecture** should **allow for third party** contributions that may lead to **new value added services** both in energy and the home/building domain.

Scale:

- **promote** the **use** of these **interoperable** solutions as widely as possible involving many different types of appliances
- Clear evidence of **demonstrating** the **benefits** of energy management through IoT application and services for the users
- **demonstrate** that such **platforms lead to** a marketplace for **new services** in EU homes and buildings

- Increasing number of **energy apps/services and home devices and appliances** allowing to shift consumption according to wholesale market or grid-constraints-related price signals.
- Validation of **user acceptance**, as well as demonstration of viable concepts that ensure privacy, liability, security and trust in connected data spaces.
- Accelerated wider deployment and adoption of **IoT standards and platforms** in smart homes and buildings in Europe.
- Platforms lead to a **marketplace for new services in EU homes and buildings** [*built on a sustainable European IoT ecosystems and related business models with opportunities also for SMEs and start-ups*]
- Increasing the **use of renewable energy and increased energy efficiency**, offering access to cheaper and sustainable energy for consumers and maximising social welfare.

- **SAREF (Smart Appliances REference ontology)** - one common "language" for any home appliance to talk to any energy management system/entity
- **Stakeholder-inspired** at a workshop
- **Energy and product related info**
- **Fast track standardisation** via a study by a broad stakeholder community (appliances, ETSI, TNO, EC, etc.) -> **Global ETSI /OneM2M standard in 2015**
- **Version 2 – modular** structure with **extensions** (Energy, Building, Environment and many others upcoming such as Smart Cities)
 - SAREF v2 ETSI [TS 103 264 V2.1.1](https://w3id.org/saref), <https://w3id.org/saref> , <http://ontology.tno.nl/saref.ttl>
 - SAREF for Energy (SAREF4ENER) ETSI [TS 103 410-1](https://w3id.org/saref4ener), <https://w3id.org/saref4ener>, <http://ontology.tno.nl/saref4ener.ttl>
- **Commercial products** by EEBus/Energy@Home **since 2016**

- Study on **aligning the standards** in the full **smart grid (demand-side flexibility (DSF))** value chain
 - Address the **multitude** of non-aligned **standards** on a **semantic** level in the Demand-side flexibility (DSF) flow
 - End result - from a semantic point of view the **most important DSF use cases are possible**.
 - Stakeholder workshop in June:
<https://www.dnvgl.com/events/interoperability-for-demand-side-flexibility-93109>
 - Demoed at the European Utility Week in Amsterdam 3-5/10/2017
<http://esmig.eu/news/major-european-alliances-are-closing-gap>
 - Final report expected in November/December 2017

The Smart Grids Task Force (co-chaired by CONNECT and ENER)

- Set up by the European Commission in 2009 to advise on issues related to smart grid deployment and development.
- Currently the Task Force work is dedicated to the alignment of energy data formats with the aim to ensure interoperability and the development of network codes for demand-response, as well as cybersecurity. First interim reports: December 2017, final reports: December 2018.

Cybersecurity

- We are developing a comprehensive energy-sector strategy on how to reinforce the implementation of the NIS directive at energy sector level and also foster synergies between the Energy Union and the Digital Single Market agendas.
- In addition to the above, we are currently reviewing the EU Cyber Security strategy that will entail a proposal for the creation of a voluntary, flexible European Certification and Labelling Framework for ICT products and services (including for Internet of Things products and services).

- **Interoperability** – essential for a Digital Single Market, with seamless flow of data across sectors and value chains.
- All **high-level semantics standards defined** and after the EC study **aligned**. Scaling up needed.
- Underlying **IoT standards** - Chicken and egg – supply- and demand-side are both struggling to define standards at appropriate level and scale-up.
- **Innovation** – open innovation systems move fast, and the standards processes struggle to keep up.



European
Commission

.... Guiding Principles

Platforms
Interoperability Frameworks
Reference Architectures
...

Labs & Testbeds
Large-scale / System-level
Experimentation

Up-scaling

Standardization in a Global
Context

Pan-European Acceleration
Pooling of Investment

Thank you - useful links



European
Commission

- Digitising European Industry Strategy (DEI):
<https://ec.europa.eu/digital-single-market/en/digitising-european-industry> → FUTURIUM
- The Alliance of Internet of Things Innovation
<http://www.AIOTI.eu>
- Energy Info Days: 23-25 October in Brussels
<https://ec.europa.eu/inea/en/news-events/events/energy-info-days-2017>
- ICT Proposers' Day: 9-10/11/2017 in Budapest
<https://ec.europa.eu/digital-single-market/en/events/ict-proposers-day-2017>

