

INTERNET of THINGS

Call SMARTCITIES 2013

Opening: 10th July 2012

Closing: 4th December 2012

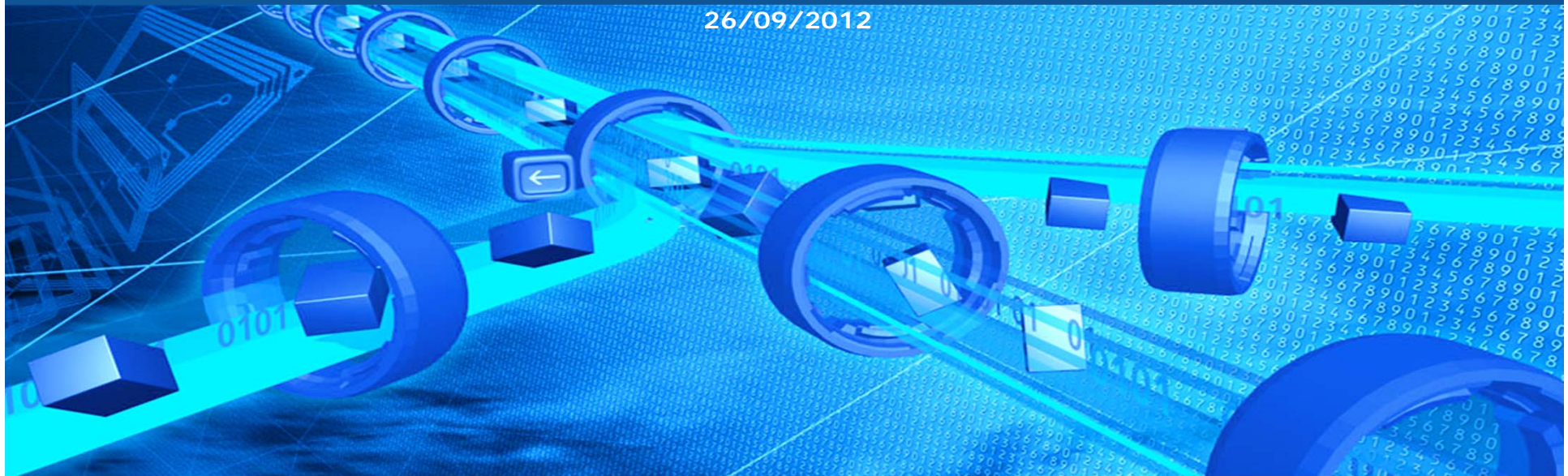


Objective ICT-2013.1.4

A reliable, smart and secure Internet of Things for Smart Cities

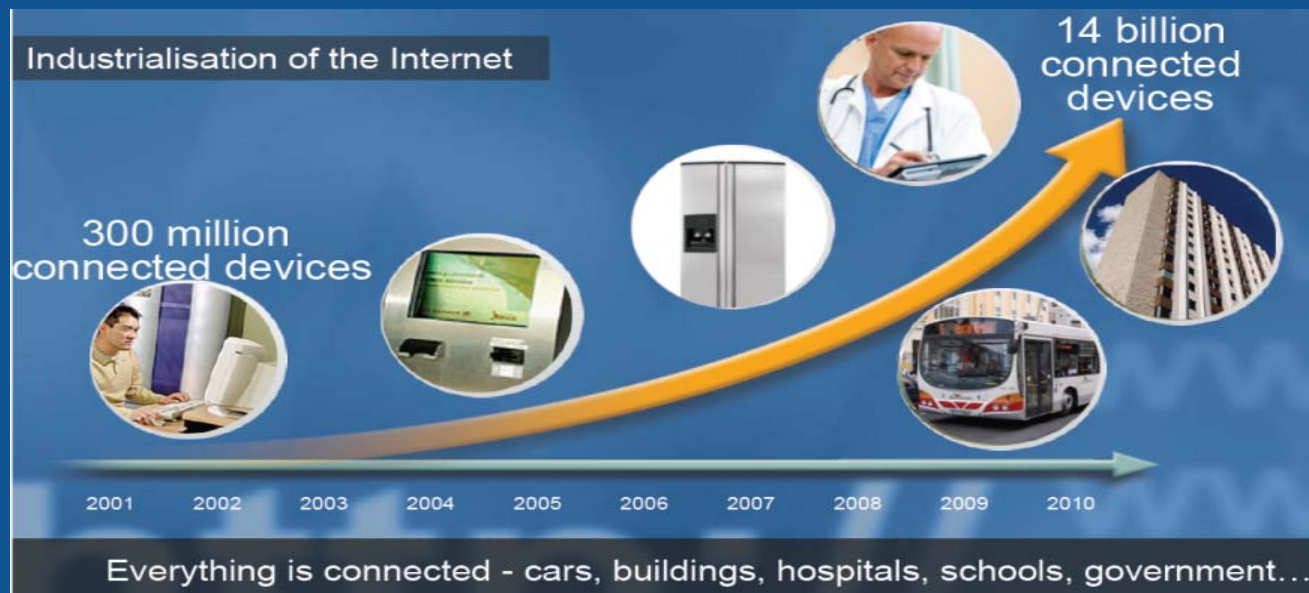
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26/09/2012



Today the number of connected devices is increasing exponentially

Today, there are **nine billion devices** connected to the Internet. By **2020**, this will have increased to **24 billion** although some estimates place the number at 100 billion.





What is the Internet of Things - definition

'Internet of Things' (IOT) is a dynamic global network infrastructure with self-configuring capabilities based on standard and interoperable communication protocols where physical and virtual "things" have identities, physical attributes and virtual personalities and use intelligent interfaces and are seamlessly integrated into the information network.

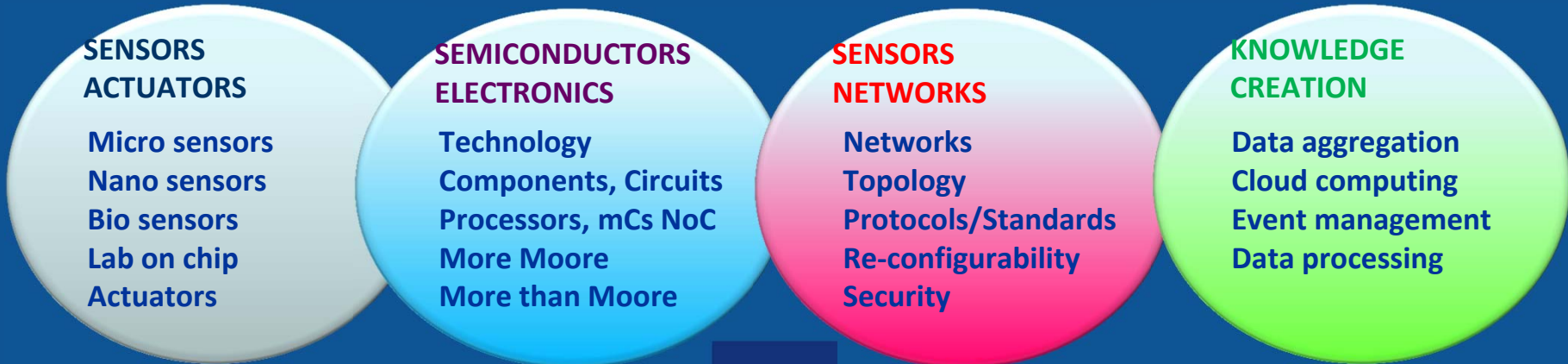
*Definition by ITU, shaped by the IERC Internet of Things European Research Cluster
Today the IOT uses the Internet but can be based on any network in the future*



The Internet of Things is moving towards Smart Spaces and Novel networks



SMART ENVIRONMENTS SMART SPACES





The internet of Things research is part of Europe's IOT Action plan

Trust, security and acceptance

Standardisation

Governance

Privacy /data protect.

**Europe's
Action plan**
(EC Communication 2009)

Innovation

Research

International dialogue

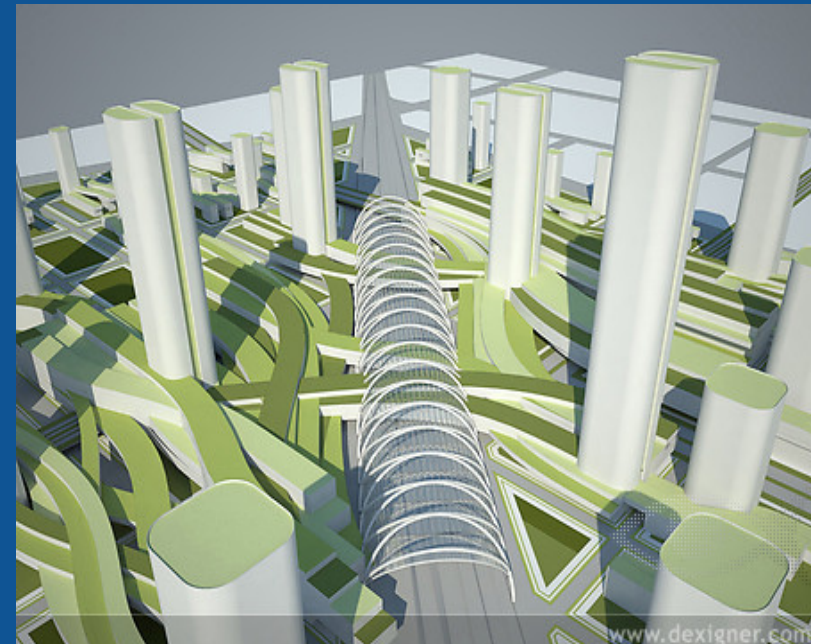
Waste Management

Smart Cities has become a hot topic in recent years

Smart Cities are a real driver for connecting application domains

Smart Cities are identified as a target research and innovation area in Horizon 2020 under the challenge 'Secure Clean and Efficient Energy'.

In order to prepare the constituency for Horizon 2020 the themes Energy and ICT have defined in a coordinated way a set of activities, in each respective Work-Programme, addressing jointly Smart Sustainable Cities. This Work Programme includes several activities that will contribute to the Smart Cities initiative. In particular the objective 'Optimising Energy Systems in Smart Cities' will focus on system integration and validation of ICT infrastructures for energy-efficient neighbourhoods for carbonneutral cities. **In addition objectives on 'A reliable, smart and secure Internet of Things for Smart Cities', 'Data Centres in an energy-efficient and environmentally friendly Internet' and 'Integrated personal mobility for smart cities' will also support Smart cities technologies and applications.**





<http://www.internet-of-things-research.eu/>

The European Internet of Things research is integrated in the IERC - IOT European Research Cluster

Bringing together EU-funded projects, the national approaches and EU-policy activities



Sustaining Europe's leading position in the future **Internet of Things** within a global context

- Conceived as a private-public partnership, now including 42 projects
- Part of the IOT Europe Action Plan – EC Communication 2009
- Co-operation with national IOT Value creation networks
- Preparation for Horizon 2020



<http://www.internet-of-things-research.eu/>

The Cluster's work portfolio is organised around Activity Chains

- AC1 - Architecture approaches and models
- AC2 - Naming and addressing schemes. Means of search and discovery
- AC3 - Application scenarios and Pilots
- AC4 - Service openness and inter operability issues/semantic interoperability
- AC5 - Governance, Privacy and Security issues
- AC6 - Standardisation and pre-regulatory research
- AC7 - IOT Enabling technologies
- AC8 - Cognitive Technologies for IOT

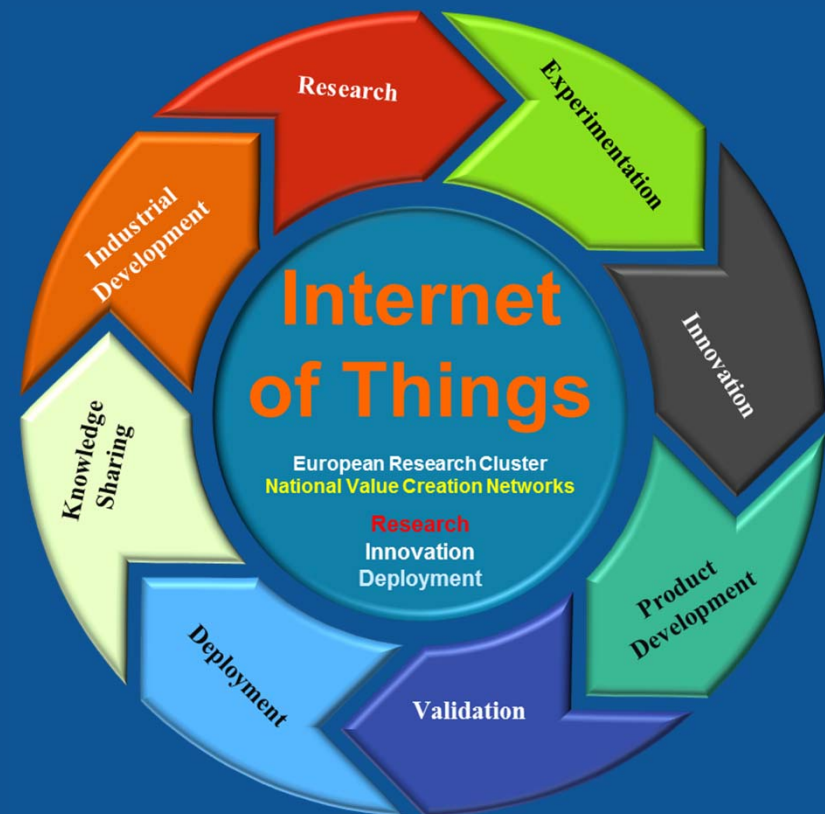


The European IOT research is connected to national IOT value creation networks

Build and sustain new partnerships with member states.

Assist EU, and national policies with new examples of good practices.

Exchange of good IOT applications and technology developments practices for business networks.





Objective ICT-2013.1.4: A reliable, smart and secure Internet of Things for Smart Cities

Target Outcomes

- The goal is to facilitate wider uptake of IoT-based systems with an emphasis on sustainable smart city applications, but also in relation to a wider context
- The technological focus is on built-in privacy and security, and on scalable data management capabilities applicable to heterogeneous device platforms.
- Fostering and completion of the IOT research portfolio

Expected Impact

- Scientific and technological models of resilient and reliable IOT applications supporting confidentiality, authenticity, and integrity of the data sensed and exchanged by smart objects.
- Technological and standardised solutions for IOT virtualised platforms supporting "green" and sustainable smart city applications.
- Enabling European suppliers to reach by 2020 a share of the IOT market above 30%.

Funding Schemes a, b): STREPs, c): One CSA

Indicative budget distribution a, b): EUR 19.25 million, c): EUR 0.75 million

Call FP7-SMARTCITIES-2013: 10/7/12 – 4/12/12



a) A reliable and secure Internet of Things

Security and privacy by design architectures and technologies for connected objects.

Research covers integration of security and privacy by design with core functionalities (e.g., naming, addressing, routing) across the full data and information life cycle: data capture, storage, processing, delivery, exploitation, within a comprehensive IOT governance framework.

It includes hardware coded safety and security. It takes into account the cross-application nature of objects supported by use cases in multiple fields such as smart home/spaces, smart living, smart communities, and the emerging requirements of smart sustainable cities and related industrial applications.

Notes:

- Consideration of security, privacy and trust aspects from a specific IOT perspective (data sharing, intelligent objects, autonomous devices, ...)
- Smart Cities context but also related to industrial requirements for reinforcing Europe's industry





b) A smart Internet of Things

Scalable and adaptive middleware supporting data flows from sensing devices and a high quantity of object instances.

It supports the Internet of Things as a heterogeneous network made up of federated private/public area networks composed of devices with different technological properties (virtualisation). It is complemented with event filtering and management capabilities.

Smart Cities applications are expected to drive the requirements.

Notes:

- Consideration of the huge amount of data flows from various sources and its treatment, questions of automated treatment vs. end-user control
- Smart Cities perspective for providing the variety of various data sources (traffic and logistics, weather, pollution, home automation, health care, assisted living, energy, leisure, business, administration, ...)





c) Coordination and Support Action

One CSA covering:

- i) International road-mapping activity on the future of the Internet of Things about the integration of research results in various scientific and technological disciplines, including ICT, nanotechnology, biomedicine and cognitive sciences, and their further applicability to smart city scenarios;
- ii) support to a) research coordination and b) policy activities of the Internet of Things European activities.

Notes:

- Continuation of cluster management, research related policy support and international collaboration
- Anticipation of the impact and potential on the IOT from basic research results
- Bridging towards Horizon 2020
- Recommendation of a small core project team





Additional remarks and clarifications

- Proposals should demonstrate integration with on-going EU (IERC – Internet of Things European Research Cluster) and foreseen (activities and budget) participation in Cluster co-operation
- Projects can test and demonstrate novel IOT applications and business models in real settings in the sense of a proof-of-concept
- The indicative number of participants is expected to be around 8 for STREPs; additional partners and stakeholders could be included via Extended Member Groups, Fora etc.
- At least one valuable Smart Cities partner contractually involved (beyond “alibi function”)





Relationship to other WP 2013 objectives...

Objective ICT-2013.1.1 Future Networks: Call 11

Objective ICT-2013.1.2 SW Engineering, Services, Cloud Computing: Call 10

Objective ICT-2013.1.8 FI-PPP Expansion...: Call FP7-ICT-2013-FI

Objective ICT-2013.2.1 Rob., Cog. Systems & Smart Spaces... : Call 10

Objective ICT-2013.3.4 Adv. comp., embed. & control systems: Call 10

Objective ICT-2013.4.2 Scalable data analytics: Call 11

Objective ICT-2013.5.3 ICT for smart and personalised inclusion: Call 10

Objective ICT-2013.5.4 ICT for Governance and Policy Modelling: Call 10

Objective ICT-2013.6.4 Optimising Energy Systems in Smart Cities: FP7-SMARTCITIES-2013

Dates

SMARTCITIES: 10/7/12 - 4/12/12

Call 10: 10/7/12 - 15/1/13

Call 11: 18/9/12 - 16/4/13

FI: 16/5/13 - 10/12/13