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20 November 2015 – [Ad Hoc eHealth Open Meeting](#)

AIOTI and WG03 IoT Standardisation report to eHealth

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Introduction to Alliance for IoT Innovation – AIOTI

www.aioti.eu

- ❖ AIOTI was launched by the European Commission in March 2015 to create a vibrant IoT ecosystem in Europe, and aims notably at breaking silos between leading vertical IoT application areas.
- ❖ AIOTI will be an important tool for supporting the policy and dialogue within the Internet of Things (IoT) ecosystem and with the European Commission.
- ❖ AIOTI builds on the work of the IoT European Research Cluster (IERC) and expands activities towards innovation within and across industries. This also offers an opportunity to discuss legal obstacles to further IoT take up, and to forge consensus. The Alliance will also help the Commission prepare future IoT research and innovation, standardization and policy.



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AIOTI Structure

❖ Steering Committee

- WG Chairs, European Commission, Startupbootcamp (SME Representative)

❖ Working Groups (Chair, Alternate Chair):

- WG 01: IoT European research cluster (SINTEF)
- WG 02: Innovation Ecosystems (Philips, Stromatolite)
- WG 03: IoT Standardisation (ETSI, Schneider Electric)
- WG 04: Policy issues (Vodafone, Thales)
- WG 05: Smart living environments for ageing well (STMicro, Telecom Italia)
- WG 06: Smart farming and food security (Gradiant, Orange)
- WG 07: Wearables (Samsung, iMinds)
- WG 08: Smart cities (Telefonica, Engineering)
- WG 09: Smart mobility (Bosch, Dunavnet)
- WG 10: Smart environment/smart water management (Sigfox, Texas Instrument)
- WG 11: Smart manufacturing (Cisco, EFFRA-FoF)



AIOTI WG3 – IoT Standardization scope of work

- ❖ Standardisation will play a key role in the uptake of IoT. Since many of the benefits from the Internet of Things will occur on the basis of widespread adoption, sharing data across the value chain and novel services, the development of global - industry-led - standards is pivotal to ensure effectiveness, interoperability and economies of scale. In particular reference models as the basis for a reference architecture, that can be shared by industrial actors across different application domains can help breaking silos between leading vertical IoT application areas.



WG3 IoT Standardisation

❖ AIOTI WG3 achievements : since March 2015 (on 3rd Nov)

- **191 Members** in WG3 (325 Members in all AIOTI WGs), **252 subscribers** in AIOTI WG3 EC Intranet, **~30 SDO/Alliances** in liaison with AIOTI WG3 during phase 1 : 3GPP, AIM, BBF, CEN, CENELEC, ETSI, FIWARE, GS1, GSMA, IEC, IEEE P2413, IETF, IIC, IoT-Forum, IPSO Alliance, IPv6 Forum, IRTF, ISO, ISO/IEC JTC1 WG10, ITU-T SG20, MIPI Alliance, OASIS, OGC, OIC, OMA, oneM2M, ULE Alliance, W3C, Weightless SIG, WWRF, ZigBee, ZVEI...
+ AFNOR and BSI

❖ AIOTI WG3 activities

- IoT-Week in Lisboa on 16-18 June and the FoF/EFFRA EC Workshop on 5-6 October
- Between March and October 2015 (Phase 1): three **3 AIOTI face-to-face** meetings were hosted using ad hoc joint/open AIOTI-ETSI TC SmartM2M meetings ~25 Web conferences.
- **3 reports** were delivered : **IoT Landscape** , **High Level Architecture** and **Semantic interoperability** recommendations : <http://bit.ly/1GtzJ5l>

“The work of AIOTI WG03 is seen as a reference for the AIOTI Working Groups in order to address the interoperability issues and to recommend the use of standard-based solutions for the deployment of IoT solutions. We have been talking to SDOs and Alliances about collaborations and interworking as a means to reduce fragmentation. What AIOTI brings to all is a dramatic acceleration of the pace of those discussions.”



AIOTI WG3 – IoT Standardization work

- ❖ **Original scope of phase 1:** *“To develop accompanying documents for the IoT LSP (Large Scale Pilot) calls. The documents should make reference to existing and emerging IoT architectures from SDO's, consortia. The document may also make recommendations with regard to gaps, issues facing IoT architectures and challenges which may be included within the scope of the calls (e.g. the challenge of semantic interoperability).”*
- ❖ **Results:** The method was to start from a comprehensive IoT landscape and standardisation framework, then to identify common High Level IoT architecture and recommend how to achieve IoT Semantic interoperability. A massive effort conducted in a very short period of time to the production of three main deliverables : **IoT Landscape** and IoT LSP Standard Framework Concepts, IoT **High Level Architecture** (HLA) and IoT **Semantic interoperability** recommendations.



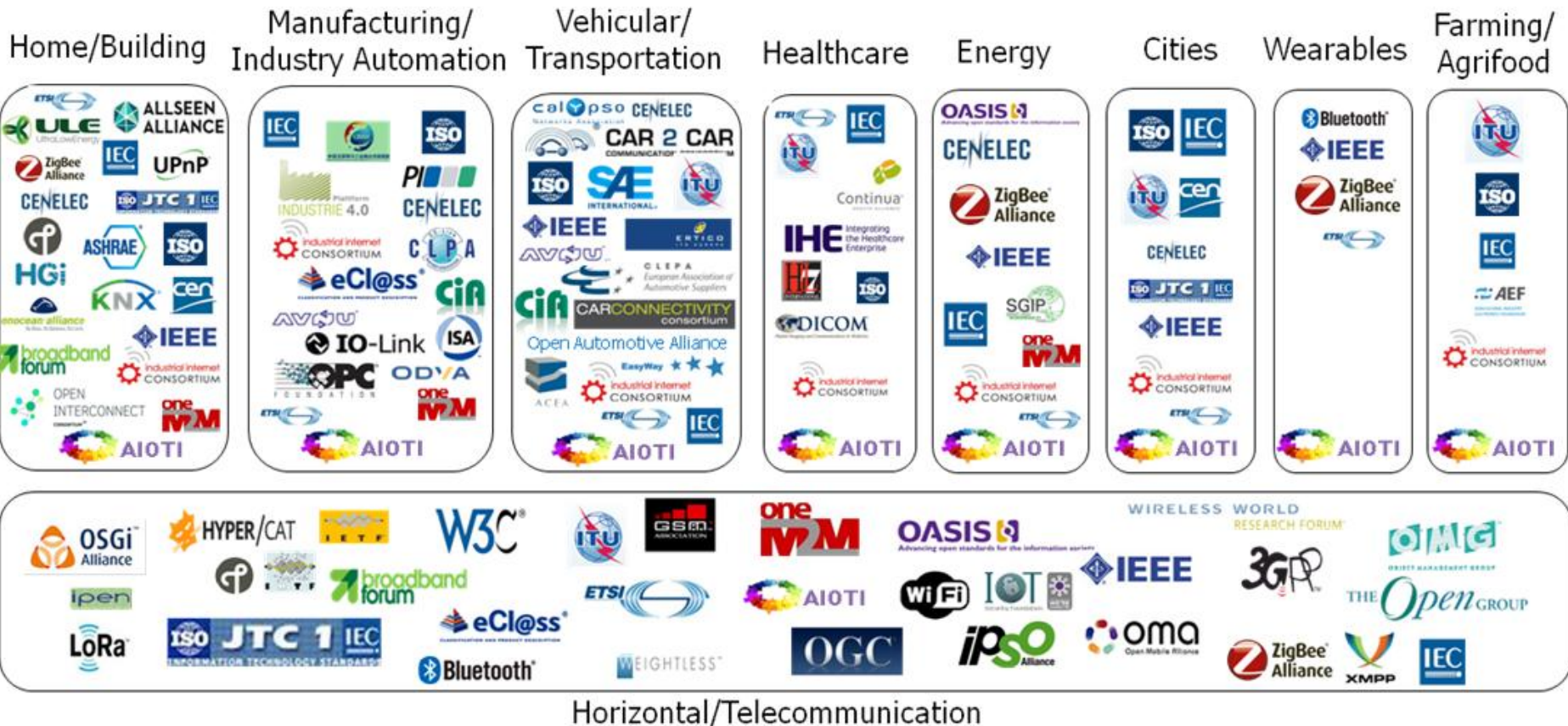
IoT SDOs and Alliances Landscape (Technology and Marketing Dimensions)



IPv6 Forum Logo is considered to be included in Release 3.0 of IoT landscape

Many related vertical and horizontal activities

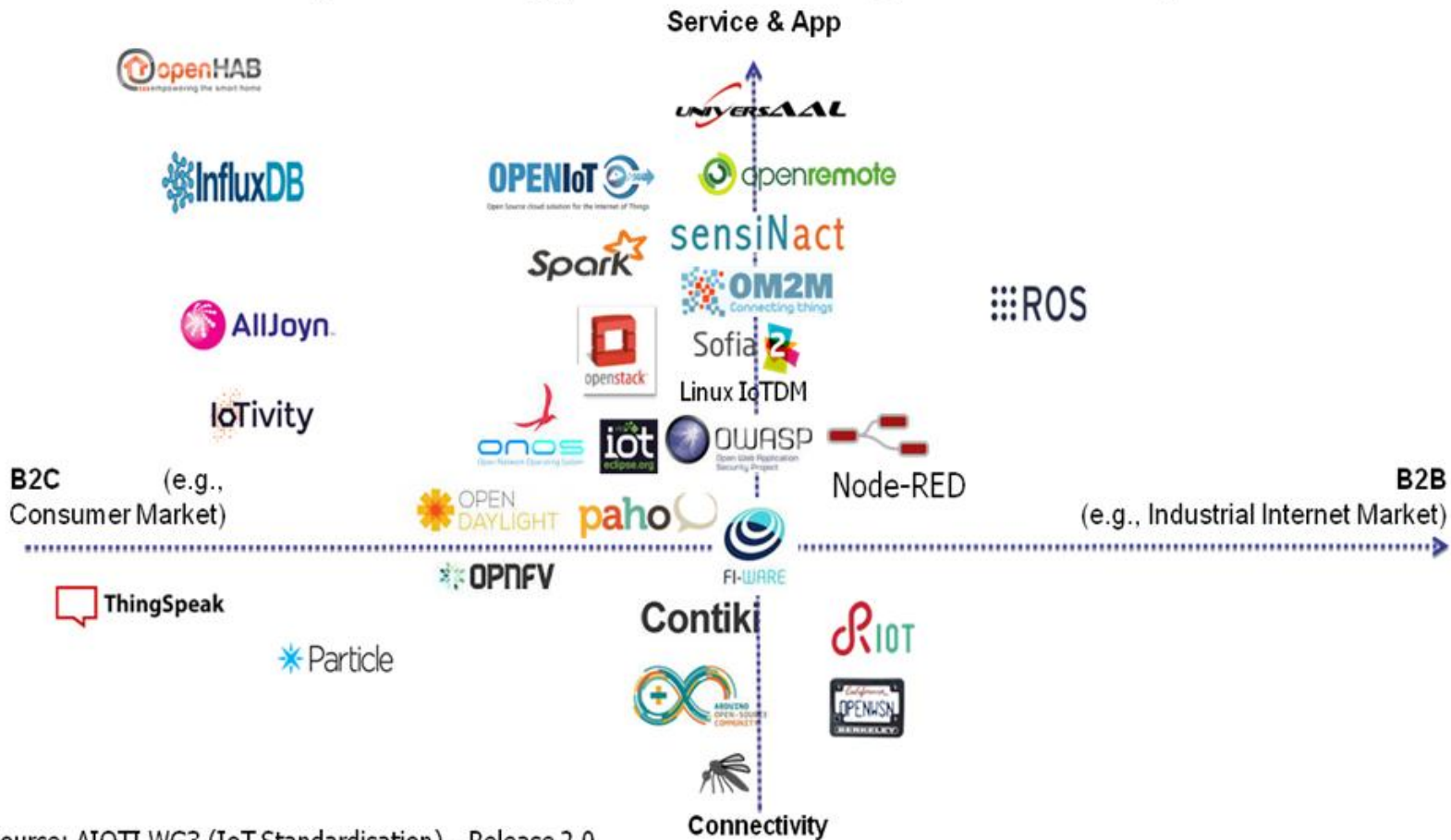
IoT SDOs and Alliances Landscape (Vertical and Horizontal Domains)



Source: AIOTI WG3 (IoT Standardisation) – Release 2.0

And Open Source developments

IoT Open Source Initiatives Landscape (Technology and Marketing Dimensions)



Source: AIOTI WG3 (IoT Standardisation) – Release 2.0



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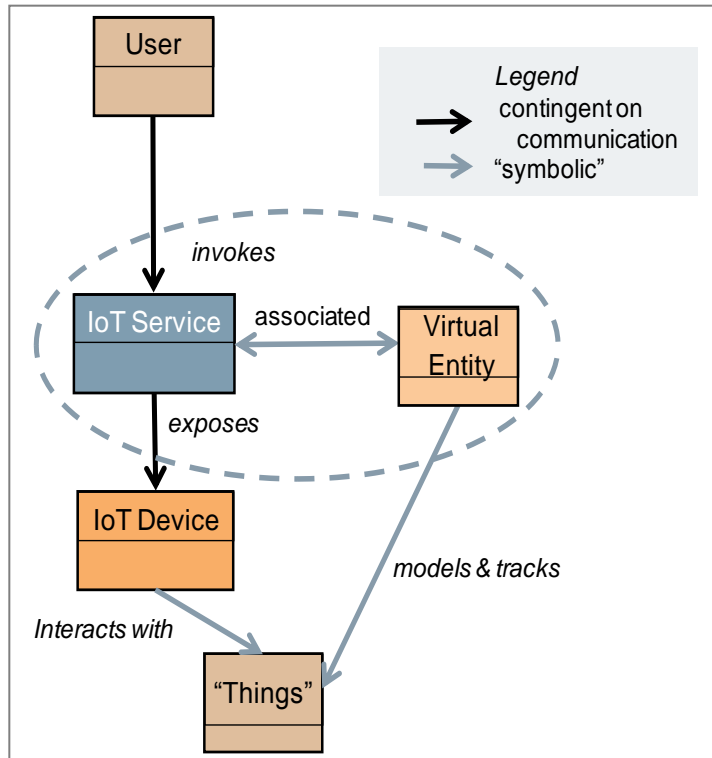
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A consolidated high level IoT Reference Architecture

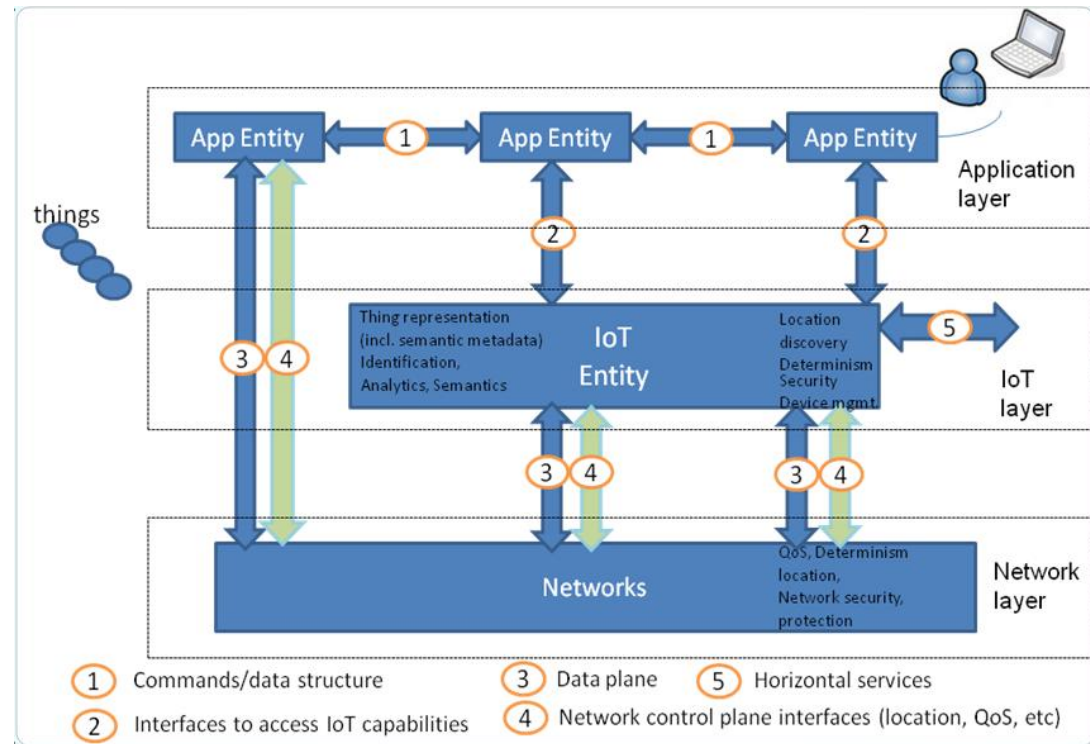
❖ AIOTI WG03 IoT Reference Architecture

- Consolidation of IoT reference architecture from many sources, i.e. IoT-A, IEEE P2413, OneM2M, ITU-T, ISO/IEC JTC1
- Architectural views based on ISO/IEC/IEEE 42010

❑ Domain model:



❑ Functional model:



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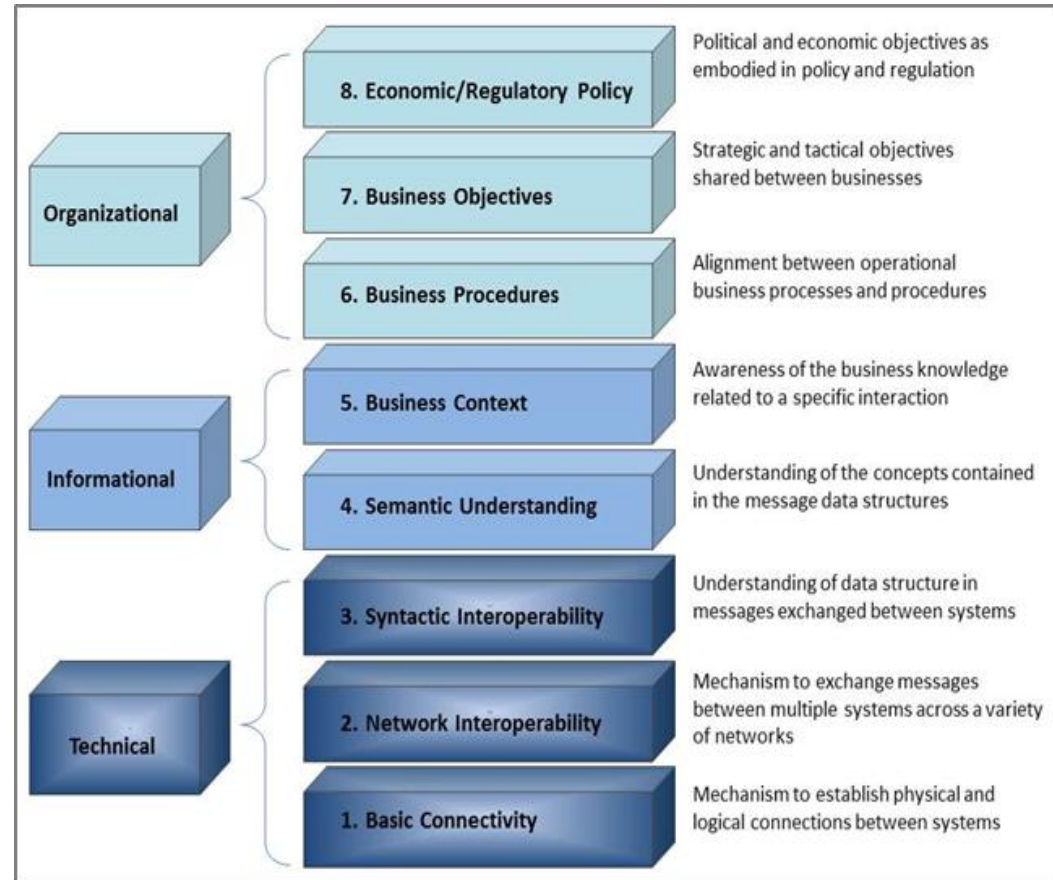
Semantic interoperability is key for IoT

❖ AIOTI WG03 Semantic Interoperability

Semantic interoperability a cross the various application domains is a major issue for IoT

Key challenges:

- Ontologies that formalize the meaning of domain data and information models
- Ontology merging, matching and alignment strategies a cross domains
- Semantic discovery of services, devices, things and their capabilities
- Semantic metadata



ETSI Support to AIOTI WG3 will continue

❖ The publication of AIOTI WG3 reports 'releases' will continue

- Release 1: end September 2015 : for EC/AIOTI WG3 toward other AIOTI WGs
- Release 2: 16 October 2015 to AIOTI Steering Board made public on 26 October 2015
- 3rd Nov AIOTI GA reporting, 4th Nov EC-AIOTI WG3 EC workshop with SDOs and Alliances

Plans:

- 3 ETSI White Papers will be published AIOTI WG3 Release 2
- Release 3 is planned by end 2015
- ETSI STF 505 (IoT Analysis) in full collaboration with AIOTI and funded by the EC will publish 2 ETSI Technical Reports on IoT Landscape + Use Cases and Gap Analysis (+dissemination +EC workshops)
- H2020 IoT LSP Pilots **CSA**

“In the meantime IoT research, development, innovation and standardisation will continue. It is necessary to keep the momentum of AIOTI WG3 because this forum is useful for its members but also for the entire IoT community. There is obviously space for improvement to sustain the AIOTI WG3 open approach spirit. It is also necessary to provide more structured liaisons to SDOs/Alliances that are willing to collaborate formally with AIOTI.”



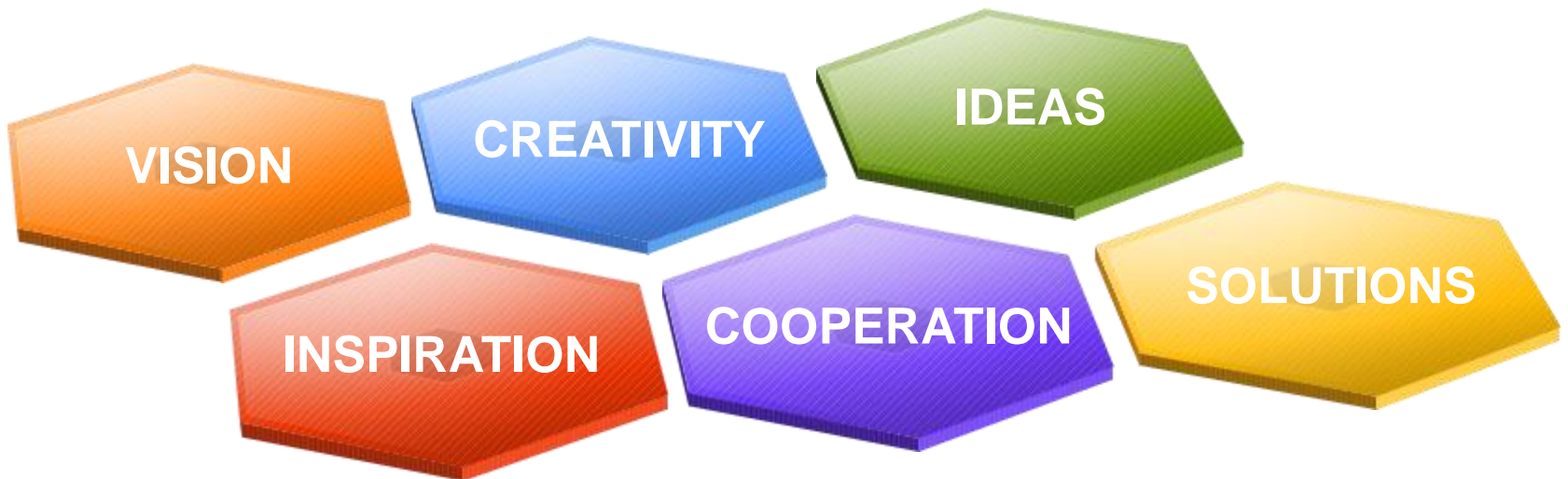
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AIOTI – the next steps

❖ AIOTI way forward

- Promotion of H2020 IoT LSP calls and AIOTI recommendations by European Commission
 - Dissemination and promotion of AIOTI results in conferences and workshops
 - Organization of open information days
 - IoT reference architecture workshop of EC and AIOTI WG3
- Future directions and setup of AIOTI after this first phase (IoT LSP calls) discussed by the AIOTI steering group



Thank you!

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