

CROSS FERTILISATION THROUGH ALIGNMENT, SYNCHRONISATION AND EXCHANGES FOR IoT

H2020 – CREATE-IoT Project

Deliverable 02.06

Workshop on sustainability

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RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Summary			
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Author(s)	M. Álvarez (GRAD), R. Muleiro (GRAD), O. Vermesan (SINTEF), R. Bahr (SINTEF), D. Esteban (ATOS), G. Micheletti (IDC), B. Copigneaux (IDATE), T. Ramahandry (IDATE), M. Serrano (NUIG)		
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DoW	The objective is set at covering sustainability of LSPs business models and strategies to continue the activity beyond the funding period. The work is part of task T02.02 (Validation methodologies, best practices and business models). This document is only a verification and very short summary of the workshop on sustainability. The actual deliverable is the workshop arrangement.		
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1. INTRODUCTION

1.1 Purpose and target group

The IoT European Large-Scale Pilots Programme Workshops Series provide a Pan European platform to exchange information among projects addressing the fast-growing IoT European ecosystem. The workshops give the opportunity for IoT projects to present their research and most recent work in the field of IoT developments and deployments. The participants gain an up-to-date understanding of recent IoT developments and future trends across different industrial sectors and use cases. The Workshops series aims to foster links between communities of IoT users and providers, as well as with Member States' initiatives, and to connect with other initiatives including contractual Public-Private-Partnerships (PPP), exploit the combination of IoT and Art for stimulating innovation and acceptance and support the preparation for the next generation of IoT deployment and future funding programmes.



*Figure 1: Illustrations representing the five LSPs,
(ACTIVAGE, AUTOPILOT, IoF2020, MONICA, SYNCHRONICITY)*

This workshop is the first activity of CREATE-IoT around the concept of IoT LSP sustainability and was intended as the first of several efforts to provide support to the LSPs in their seek of LSP sustainability goals.

The main target group of the workshop was the LSPs themselves. Results of the workshop will be shared with the LSPs through AG01 and will help generate progress in the remaining lifetime of AG01 and the LSPs along the sustainability dimension.

1.2 Contributions of partners

GRAD: Workshop organization, conceptual design, content design, speakers' selection and invitation, session moderation, reporting.

SINTEF: Workshop organization, agenda preparation, speakers' selection and invitation, documents, flyers preparation, Web update, reporting.

ATOS: Workshop organization, reporting.

IDC: Workshop organization, reporting.

IDATE: Workshop co-organizer, conceptual design, content design, coordination with U4IoT, session moderation, reporting.

NUIG: Workshop organization, reporting.

1.3 Relations to other activities in the project

This workshop is the first activity of CREATE-IoT around the concept of IoT LSP sustainability and was intended as the first of several efforts to provide support to the LSPs in their seek of their sustainability goals. This workshop will be followed up by two other deliverables from CREATE-IoT that will directly benefit from D02.06:

- D02.07: Workshop on exploitation strategy (m30).
- D02.05: Business and sustainability models for large scale IoT scenarios (m36).

Cooperation with U4IoT and relation to AG01:

Although the organization of this workshop is an activity belonging to CREATE-IoT, our project has established a fruitful cooperation and coordination with the sister CSA project U4IoT, which also deals with IoT LSP sustainability. This cooperation with U4IoT stems from the joint work on sustainability being performed within Activity Group 01 (AG01) of the IoT LSP Programme and is expected to continue throughout the remaining lifetime of both projects CREATE-IoT and U4IoT.

2. WORKSHOP SUMMARY

2.1 Objectives and format

This workshop is the first activity of CREATE-IoT around the concept of IoT LSP sustainability and was intended as the first of several efforts to provide support to the LSPs in their seek of LSP sustainability goals. It was implemented as a half-day workshop with participation of representatives from the LSPs and also external actors coming from DG CONNECT, public sector (Regional Ministry of Agriculture of Andalusia, Spain) and the private sector.



Figure 2: Group photo from the event.

2.2 Agenda

The agenda of the workshop is given below, see also the website for more information:

<https://european-iot-pilots.eu/create-the-next-generation-iot-experience-for-the-future-lisbon-february-2019/>

Table 1: Workshop program 27 February 2019

09:00 – 09:30	Registration (TRYP Hotel Caparica – Conference Hall)
	Meeting Room: Costa Azul, TRYP Hotel Caparica, Avenida General Humberto Delgado, 47 2829-506 Costa da Caparica - Lisboa, Portugal
	IoT Large-Scale Pilots Sustainability Session
09:30 – 09:35	<i>Welcome and Introduction to the Sustainability Session</i> Marcos Álvarez, Gradient, Spain Bertrand Copigneaux, IDATE LAB, France
09:35 – 09:50	<i>Sustainability of IoT Large-Scale Pilots: Expectations from the European Commission</i> Peter Wintlev-Jensen, European Commission DG CONNECT, Belgium
09:50 – 10:10	<i>IoT applications and deployment - Models for sustainability: the AUTOPILOT perspective</i> Francisco Sánchez, CTAG, Spain
10:10 – 10:30	<i>The importance of sustainability in the IoT Large-Scale Pilots Programme: the ACTIVAGE perspective</i> Sebastian Pantoja, Televés, Spain
10:30 – 10:50	<i>Views on sustainability from other Large-Scale Pilots and other initiatives</i> Short presentations. Stefano Fava, Link Foundation, Italy (MONICA) Ricardo Vitorino, Ubiwhere, Portugal (SYNCHRONICITY) Pedro Diogo, SmartLampPost, Portugal
10:50 – 11:00	<i>IoT European Large-Scale Pilots Programme Projects use cases -IoT Online Catalogue</i> Bruno Almeida, UNPARALLEL, Portugal (CREATE-IoT)
11:00 – 11:30	Coffee/Tea Break

11:30 – 12:10	<p><i>IoT Large-Scale Pilots views on sustainability</i> Moderated roundtable debate among participants. Participation: Sebastian Pantoja, Televés, Spain (ACTIVAGE) Francisco Sánchez, CTAG, Spain (AUTOPILOT) Stefano Fava, Link Foundation, Italy (MONICA) Ricardo Vitorino, Ubiwhere, Portugal (SYNCHRONICITY) Moderators: Jan Waeben, IMEC, Belgium (U4IoT) Ruben D'Hauwers, IMEC, Belgium (U4IoT)</p>
12:10 – 12:20	<p>The outsider's view: "<i>Put your money where your mouth is! Public sector procurement for more sustainable and responsible IoT</i>" Peter Bihl, The Waving Cat, Germany</p>
12:20 – 13:00	<p><i>IoT pilots sustainability and the role of public authorities</i> Roundtable with the participation of the representatives from all projects and representatives of public administrations. Participation: Peter Wintlev-Jensen, European Commission DG Connect (Belgium) Sebastian Pantoja, Televés, Spain (ACTIVAGE) Francisco Sánchez, CTAG, Spain (AUTOPILOT) Stefano Fava, Link Foundation, Italy (MONICA) Ricardo Vitorino, Ubiwhere, Portugal (SYNCHRONICITY) David Lozano, Regional Ministry of Agriculture and Rural Affairs, Andalusia, Spain Moderators: Bertrand Copigneaux, IDATE, France (CREATE-IoT) Marcos Álvarez, Gradiant, Spain (CREATE-IoT)</p>

2.3 Outcomes of interactions

Welcome and Introduction to the Sustainability Session:

Marcos Álvarez (Gradiant, Spain), Bertrand Copigneaux (IDATE LAB, France)

Reminder of the 3 types of sustainability:

- Technology
- Deployments
- Relationships : federation of IoT

Roadmap including a review on what was achieved and what is the impact.

- Identification of the LSP contacts and needs
- Interviews with LSP contacts
- Workshops

Sustainability of IoT Large-Scale Pilots: Expectations from the European Commission:

Peter Wintlev-Jensen, EC (DG CONNECT, Belgium)

Four aspects of expectation from EU national initiatives:

- Digital innovation
- Platforms and partnerships
- Regulatory framework
- Skills and jobs

Issues that should be fought: lack of EU IoT platform → challenges for EU perspectives, need to have the supply side really involved. High concern when the EU is compared to other global regions, such as North America and APAC, which progress quicker in terms of IoT development and adoption than EU in many market segments. Example: connected health, where EU is lagging significantly behind. Barriers for IoT adoption:

- Security on the top of the list when connecting devices
- Complexity in implementing with existing systems
- Lack of expertise in demand side

- Vendors sustainability (GGL and AMZ can provide guarantee)
- Legal compliance, GDPR

Expectations from LSP:

- Business model validation and standardisation: validate ROI and acceptability
- Demonstrate added value while taking into account privacy and security

Supply side:

- Value of open solution
- Compliance with existed legislation (GDPR)
- Create scalable and global market to get potential return of investment
 - Viability of BM and solutions are key
 - From pilots to commercialized products (real supply side)

Demand side:

- Real financing for the continuity of the projects
- KPI highlighting performance of the projects: ROI but also acceptable life cycle costs (how many years? 45 years?)
- Ensuring standards based procurement while addressing security and privacy
 - scalability thanks to standard based approach
 - increasing investments by reducing purchasing risks
 - benefits from digital accelerating the digitalisation of different sectors

IoT applications and deployment - Models for sustainability (the AUTOPILOT perspective):

Francisco Sánchez (CTAG, Spain)

- Trends from ADAS to automated driving that brings a lot of benefits (comfort, safety, security)
- Large ecosystem: many players including Internet (GGL) and traditional vehicle makers
- Roadmap agreed with EU; level 4 for mid 2025
- Challenges
 - Connectivity for urban scenarios with IoT → focus of AUTOPILOT
- 44 beneficiaries as part of AUTOPILOT
- Targets
 - Global EU IOT PF and also in-vehicle IOT PF
 - Connectivity technology assessment
- Six pilots sites including Vigo in Spain
- Pilot in Vigo
 - Use of the platform Siscoga corridor, deployed largely not only for AUTOPILOT LSP
 - Three partners involved: Vigo city, PSA and CTAG
 - Two scenarios:
 - Vehicle self-parking: autonomous valet parking
 - Urban driving (anticipating lights, traffic, etc), essential for autonomous car
 - Three prototypes with connectivity platform in the car with cameras and sensors using IoT and 5G
 - Scenario 1: corresponds to level5 scenario: promising for IoT technology
 - Scenario 2: connectivity with road infrastructure with additional sensing capability
- Benefits in adaptability, connectivity, security, business model
- Automotive industry should take it as a standard
- Challenges remain but a lot of benefits that need to be played now



Figure 3: Francisco Sánchez (AUTOPILOT, CTAG, Spain)

The importance of sustainability in the IoT Large-Scale Pilots Programme, (the ACTIVAGE perspective):

Sebastián Pantoja (Televés, Spain)

- 49 partners of which 25 supply and 22 demand partners and multiple sites for pilots
- Demonstration of sharing data
- Demonstration of creating new pilots as part of ACTIVAGE: current 9 Deployment Sites, new 3 Deployment Sites to be included in ACTIVAGE after the Open Call
- Example: Galicia site
 - Connectivity between all middleware
 - Now 1500 devices about to 2000
 - Data analysed
 - Tools for users and professionals
 - Open call planned for Galicia
 - KPIs
 - Social care: people from demand side (information reported in the platform), business model analysed
 - Telehealth care: monitoring and capturing data, analysing KPI and cost (less visit to hospitals)
 - Plus External agency analysing all KPIs: sustainability analysis (bottom up approach)
 - Challenges: fragmentation of the market: need to be open (open call, people from outside the project bringing solution for the pilot)
 - Now: Second open call!

Views on sustainability from other Large-Scale Pilots and other initiatives, (short presentations SYNCHRONICITY):

- Major target: reducing risk, increase investment
- Value proposition
 - Standards based innovation and procurements: minimal interoperability of city needs: Open Agile Smart Cities (OASC)
- Project objectives:
 - Different reference zones
- Common technical ground
- Reference implementation based on standards
- Lots of association as part of OASC
- Core pilots presented: Porto
- Open call June-Sept 2018: new cities from the open call - 133 apps
- Standards is key in sustainability to reuse, replicate and scale

- Solution for interoperability
- Roadmap
 - Make cities ready to next step

Although the ways how AUTOPILOT addresses sustainability may differ from other LSPs, all LSPs face similar challenges.

IoT European Large-Scale Pilots Programme Projects use cases - IoT Online Catalogue:

Bruno Almeida (UNPARALLEL, Portugal)

Presentation of the IoT European Large-Scale Pilots Programme Projects use cases online catalogue/explorer (examples IoF2020 and AUTOPILOT). Sustainability linked to successful validation of technical solutions and their business models, and eventual adoption by end-users.

IoT Large-Scale Pilots views on sustainability (roundtable):

Jan Waeben (IMEC, Belgium), Ruben D'Hauwers (IMEC, Belgium)

Focus on ecosystem:

- Creation of value for existing players
- Attract new actors
- Coordination to maintain and develop the eco(S)

ACTIVAGE:

- After demonstration use case (challenges with an “controlled” ecosystem), looking for scalability.
- Real challenges to attract new players due to market fragmentation.
- IoT take-up will not happen unless there is a motivation for change on the demand side (more pull than push).

AUTOPILOT:

- Need to address not only address automotive makers to promote IoT but multi sectors to prove the necessity of IoT.
- Importance of interoperability

SYNCHRONICITY:

- Complex ecosystem
- Prove successful of experience.

Peter Witlev-Jensen (EC): Need to move from short term to long term strategy instead of fragmented actions.

The outsider's view: "Put your money where your mouth is! Public sector procurement for more sustainable and responsible IoT":

Peter Bihl (The Waving Cat, Germany)

Smart city as example with 3 types of cities (video surveillance like Beijing, long queue with the ability to have an AMZ priority pass and public security failing like in India). Trustworthiness thru the implementation guiding principles.

IoT pilots sustainability and the role of public authorities, (roundtable):

Bertrand Copigneaux (IDATE, France), Marcos Álvarez (Gradiant, Spain)

Question 1: involvement as a key start of LSP, the potential of role in long term (procurement process beyond the project)

- SYNCHRONICITY: procurement is key in the smart city sector. Harmonisation of procurement process would be desirable.
- ACTIVAGE: powerful tool, but the dynamics and the way the public sector works is, in general, not mature for innovation.

- AUTOPILOT: needs standards including procurement to accelerate the implementation
- EC view on procurement simplification
- Andalusia, new tools especially with new stakeholders allowing players to communicate through the precision farming value chain.

Question 2: potential commonalities threats on security and safety hindering the sustainability

- ACTIVAGE: GDPR good start in EU to be a competitive advantage (but no distinction at the end per region), usability for getting trust
- Peter Bihl: example of Huawei with aggressive costs while security concerns
- Andalusia: agree for secure usability focusing on users like farmers

Five-year vision after end of the project:

- SYNCHRONICITY: Avoiding vendor lock in, pushing hackathon, engaging start-ups and SMEs (newcomers)
- ACTIVAGE: IoT will be key for sustainability, huge opportunity to deal with the huge societal challenge of increasing ageing population in EU
- AUTOPILOT: A fully automated future is still far away. Importance of making progress together, therefore it is very important that requirements are collected from the many stakeholders involved in the deployment of automated driving services, solutions and infrastructures.



Figure 4: Roundtable with representatives from LSPs and public administrations

2.4 Key takeaways

- The LSP representatives welcomed the CREATE-IoT's initiative to organize the workshop as very beneficial for their projects and are enthusiastic to continue the joint work during next activities and workshops
- The LSPs recognized some differences in the road to sustainability among their different verticals, but acknowledged that many challenges and barriers to sustainability are common to all of them. Some examples are:
 - Need of coordinated action between public and private actors (all stakeholders)
 - Early demand generation
 - Importance of standardization
- Role of public sector:
 - Important role as buyer and/or driver for innovation
 - Harmonization of procurement processes is desirable
- Market take-up
 - Market fragmentation is perceived as an important barrier in most verticals
 - Possibility of reducing market fragmentation through aggregation of demand (possible in the public sector, but difficult in practice).

3. CONCLUSIONS

The IoT European Large-Scale Pilots Programme Workshops Series provide a Pan European platform to exchange information among projects addressing the fast-growing IoT European ecosystem.

The workshops are providing the framework for support and coordination for the IoT FA in order to foster the take up of IoT in Europe and to enable the emergence of IoT ecosystems supported by open technologies and platforms and through the coordination of complementary activities structured around LSPs.

The presentations related to the deployments in different LSPs allowed for open discussions and for the transfer knowledge of business/sustainability models to additional domains in terms of IoT testbeds sustainability.

This will further be supported to exchange best practices and align on sustainability of the pilots and future economic development.

The workshop allowed the participants to debate about the validation of technological choices, sustainability and replicability, of architectures, standards, interoperability properties and discussed about the exploration of new industry and business processes and innovative business models validated in the context of the pilots.