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D4.1: Cooperation Strategy with LSPs and End-user Outreach

Initial Report

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Authors	Christopher Hemmens (MI)
Reviewers	Martin Potts (MARTEL), Srdjan Krco (DNET)

Abstract	The LSP cooperation strategy details important communication channels between U4IoT, the LSPs, CREATE-IoT, and end-users and explains what steps will be taken to ensure robust cooperation takes place between all these entities during each stage of the project.
Keywords	End-user engagement, co-creation, LSP

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CL	Classified, information as referred to in Commission Decision 2001/844/EC	
CO	Confidential to FLAME project and Commission Services	

EXECUTIVE SUMMARY

The U4IoT-LSP-CSA cooperation strategy provides an overview of the communication tools that U4IoT will make use of over the course of the project - especially the various components of the end-user engagement toolkit, the joint website with CREATE-IoT and the LSPs, and the horizontal activities among others.

Each channel is included in an overall cooperation strategy with the LSPs that includes a timeline featuring key events in the project's development as well as a phase for validation at the end.

Each LSP's needs are summarised along with their expected engagement with the U4IoT tools, points of contact, exploitation of results, and their initial feedback on the need for robust end-user engagement. Communication strategies are split into face-to-face and online components and collaboration with external entities is also explored. Cooperation with the LSPs that has already taken place is summarised.

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ABBREVIATIONS

CSA   Coordination and Support Action

DoA   Description of Action

EU   European Union

H2020   Horizon 2020

IoT   Internet of Things

KPI   Key Performance Indicator

LSP   Large Scale Pilot

SECTION: INTRODUCTION

U4IOT OVERVIEW

U4IoT is a CSA that is supporting the LSPs of the IoT-1 call. With an estimated 50 billion connected devices by 2020, IoT is a technology that has wide-ranging implications for the way in which modern societies and economies serve their citizens.

Its aim is to further the role of citizens in the IoT process by bringing together expertise from a range of disciplines and knowledge bases to engage and work with people who will ultimately be those using the technology being developed in this call.

It concerns itself primarily with societal, ethical, and ecological issues and provides the LSPs with recommendations on how to tackle IoT adoption barriers created due to the average citizen's lack of understanding and technical know-how. Its composition of leading experts on the most prescient aspects of IoT end-user engagement makes sure that these issues are dealt with from all possible angles including crowdsourcing, Living Labs, co-creative workshops, and meet-ups.

Ultimately, the design, implementation, and exploitation of the LSPs should be such that end-users are fully engaged and have every opportunity possible to interact. To this end, U4IoT will create and maintain a set of resources and community that will include an online knowledge base and expert pool with the support of the IoT Forum.

SECTION: OBJECTIVES AND KPIS

OBJECTIVES

As described in the DoA, the objectives are:

"U4IoT will support the Large Scale Pilots (LSPs) of the IoT-1 call. It will enable a citizen-driven process by combining multidisciplinary expertise and complementary mechanisms from the European state-of-the-art. It will also analyse societal, ethical and ecological issues related to the pilots in order to develop recommendations for tackling IoT adoption barriers, including educational needs and skill-building.

U4IoT combines complementary expertise from leading European partners in end-user engagement through crowdsourcing, Living Labs, co-creative workshops and meet-ups to support end-user engagement in the LSPs. It will:

Develop a toolkit for LSP end-user engagement and adoption, including: online resources and tools for end-user engagement; privacy-compliant crowdsourcing and crowd-sensing tools and surveys to assess end-user acceptance in pilots; online resources and an innovative game for privacy and personal data protection risk assessment and awareness with guidelines on personal data protection;

Give support to mobilise end-user engagement by training and supporting LSPs teams for organising co-creative workshops; organising meet-ups and training meet-ups animators; training on the use of crowdsourcing and crowd- sensing tools in an efficient and privacy friendly manner, in line with IoT Lab tools; and presenting and facilitating Living Labs support. U4IoT will provide an online pool of experts for end-user engagement; and online training modules.

Analyse societal, ethical and ecological issues related to the pilots with end-users and make recommendations by analysing IoT adoption barriers and making recommendations for tackling IoT adoption barriers, including educational needs and skill-building. It will leverage on end-user interactions to design participatory sustainability models that can be replicated across LSPs and future IoT pilot deployments in Europe.

Support communication, knowledge sharing and dissemination, including: an interactive website development, with the online tools as well as an online knowledge database of lessons learned, FAQ, solutions and end-user feedbacks. It will support the end-user communication and outreach strategy for LSPs and will enable information sharing and feedback towards LSPs and end-users.

An important outcome of the project will be a closer engagement and interaction with end-users in the design, implementation and exploitation of LSPs. In addition, by making the analysis of the current state-of-the-art of the EC-funded IoT LSPs and liaising closely with these projects and their user communities, U4IoT will be in a unique position to support the EC in the consultation process that will guide and define the topics and working methodologies that will be the focus of IoT activities in future Work-programmes."

The objectives of **Work Package 4 - Collaboration, Outreach, and Dissemination** - are:

- "To develop and lead the cooperation with the LSPs, as well as with the other IoT2 CSA in order to define a common strategy for horizontal activities, end-user outreach, and engagement."

- "To develop the Project website and online platform."

- "To lead the dissemination."

- "To develop an online knowledge base on lessons learned, solutions, and user feedback."

The objectives of Task 4.1 - Cooperation strategy with LSPs and end-user outreach - are:

"This task will lead the cooperation strategy with the LSPs, including horizontal activities such as cluster meetings, Open Call support, etc., to ensure a proper exploitation the support provided by the project. It will also ensure a close coordination with the other CSA project to work in complementarity. The task's prime objective is to align the project's development with the LSPs' needs and requirements.

MI will lead the task with the support of all partners.

Outcomes: A clear strategy for end-user engagement in the various LSPs, as well as clear guidance and orientation for the other tasks in order to better address the LSPs' needs."

KEY PERFORMANCE INDICATORS

Table 1: Key Performance Indicators for Work Package 4

Dimension	KPI	Target
Communication & Knowledge	1.1 - Yearly growth rate of visitors on the website	>100%
Sharing	2.1 - Number of online pages and articles	>200
	2.2 - Knowledge base established	documented
	2.3 - % of users satisfied with knowledge base	>85%
Validation Support	3.1 - % of LSP coordinators satisfied regarding end-user engagement	>85%
	3.2 - % of end-users satisfied with the LSPs	>85%

COMMUNICATION & KNOWLEDGE

The sole KPI for Communication & Knowledge requires the number of visitors to the website to at least double between years one and two, and to at least quadruple between years one and three.

To achieve this KPI (1.1), the first step, primarily in the first year, is to establish the website (DNET) and then populate it with materials and links demonstrating the tools and expertise that U4IoT will provide over the course of the LSPs (ALL). This will include articles, videos, and images produced and published by the U4IoT partners in addition to clear descriptions of the various elements of the online toolkit (ALL). In month 9, both the knowledge base and Living Labs methodology handbook will be published on the website (ENoLL).

As the initial support for the LSPs, the amount of traffic generated by the end of the first year will determine the benchmark for the following years (DNET).

In year two, we will establish the website as one of the primary communication tools with which any member of the LSPs can directly communicate with U4IoT. This will require delegating one or several partners who will be responsible for responding to messages or comments received through the website. Before this can happen, a U4IoT email address must be established. This may include some coordinating with CREATE-IoT - the other CSA.

Throughout year two, the website content will continue to grow starting with the introduction of the online training programme and expert pool at the end of month 12 (SD). This will be followed with the addition the privacy handbook and game at the end of month 18 (AS). By marketing these additions and pushing the LSPs to visit the site, it should be feasible to make the increase in visits that we're expecting.

In year three, we will develop the tools further and push our presence on social media further (ALL). We will also start advertising our presence to citizens and other entities not officially associated with the LSPs. Opening up will promote transparency, not just for us but for the LSPs as well, and increase the number of visits to the website in the manner laid out by the KPI (ALL).

SHARING

One of the KPIs is for the knowledge base to be established and documented (2.2), however, this is also a milestone so we expect this KPI to be achieved through the course of the project (DNET).

(2.1) Pages and articles will be added over the course of the project and will cover every aspect of the U4IoT toolkit from the co-creative workshops and privacy game to the crowdsourcing tool and expert pool. Our representatives will also appear at IoT conferences and meet-ups, especially when a possibility to interact directly with the partners of the LSPs is made available. Each appearance and meeting can generate a new article and each piece of feedback will generate new pages online. Everything will be catalogued and, over a three-year period, will amount to a significant number of pages and articles (ALL).

This is an on-going process but each year will have a target for the minimum number of pages and articles online as follows:

Table 2: Target number of articles/pages on U4IoT website by date

31st Dec 2017	31st Dec 2018	31st Dec 2019
60	120	200

(2.3) Regarding user-satisfaction with the knowledge base, there are four factors that will be concentrated on to help maximise end-user satisfaction:

- Ease of use - it should be possible for someone who has never accessed the knowledge base before to be able to find exactly the information they want to find as quickly, as easily, and with as little outside help as possible. This will require a focus on design of the search algorithms (if required) and presentation of the material. All partners will be asked to test the design of the knowledge base's layout to suggest improvements mostly before but also after its publication in Month 9.

- Quality of content - Once the user has found the content they're looking for, the relevant information should be written as concisely as possible. There shouldn't be any more text than is absolutely necessary and it should be written in a way that is straightforward and easily understood. If possible, it should be available in other languages although the principal language will be English. Support for other languages should be driven by the wishes of the LSPs and whether U4IoT has the resources to make that content available.

- Breadth of content - The knowledge base should include content on as many different topics as would be conceivable. This will require a concerted effort to get as much information from the LSPs and CSAs as possible. It will also require detailed reports on lessons learned, solutions, and user feedback as laid out in the DoA.

- Quality of external assistance - A contact on U4IoT's side should be nominated for the purpose of supporting users of the knowledge base. Their contact details need to be easy to find and that person needs to be able to respond to a user's request within 24 hours. This does not need to be the solution to the user's problem but at least a recognition that their request has been seen, recorded, and forwarded to the appropriate U4IoT partner. Again, this will require support from all U4IoT partners.

These are the main considerations for ensuring that user satisfaction with the knowledge base is as high as possible. Our primary end-users are the LSPs, of which there are five. In these terms, it is necessary for all LSPs to be satisfied with the knowledge base. On the contrary, by defining a user as any member of the LSPs that uses (or attempts to use) the knowledge base, since each LSP is made up of dozens of individuals, KPI 2.3 will require identifying individual LSP-partners that have had experience with using the U4IoT knowledge base.

Once a user has interacted with the knowledge base, we will engage them with the U4IoT survey tool and ask them questions based on the four considerations listed above plus a fifth category regarding general satisfaction with the knowledge base. Answers will generally be ranked on a five-point scale and answers of either 4 or 5 out of 5 will be considered as being satisfied.

VALIDATION SUPPORT

KPI 3.1 requires that at least 85% of LSP coordinators are satisfied regarding end-user engagement. There are only five LSP coordinators which means that all them must be satisfied with their end-user engagement in order to reach this KPI. Their satisfaction - especially in regard to the end-user engagement tools provided by U4IoT - will come down primarily to communication. The factors we will have to be most aware of are:

- Clarity of communication - The communication channels between U4IoT and the LSPs must be clear and direct. Defined points of contact must exist, not just in U4IoT but in CREATE-IoT and the LSPs as well. In each case, this should be the leader of the Work Package dedicated to end-user engagement or someone nominated by them to take that task. If such a Work Package does not exist for that project, it should be the project coordinator or someone nominated by them to take that task. As far as U4IoT is concerned, these communication channels will largely be used to discuss direct end-user engagement strategies and, in particular, the use of U4IoT's toolkit.

- Quality of information - A list of the available end-user engagement tools, or soon-to-be available tools, must be easy to find and easy to read. In addition, their descriptions must also be concise and clearly outline what the tool does and in which situations it is best deployed. Each page relating to a different aspect of the end-user engagement toolkit must include a link to the interactive flow diagram with a note explaining that "if you are unsure which U4IoT tool is correct for your end-user engagement strategy, please use our easy-to-use, online, interactive flow diagram to help find out which tool is right for you". All partners will be asked to test the available information and online layout to ensure that there are no issues with finding anything important out and reaching the outcome that any one visitor to our site may want.

- Quality of the toolkit - Each tool must do its job as effectively and as efficiently as possible. This will be down to the individual task leaders and, potentially, the other partners if it is necessary to have test subjects to determine the effectiveness of each tool.

- Quality of external assistance - Much like the knowledge base (see the previous section on Sharing KPIs), a point of contact will be made available and their contact details should be easily found on the website or wherever information on the U4IoT end-user engagement toolkit is available. There is no reason why this shouldn't be the same person responsible for providing external assistance for the knowledge base. Again, all partners should be prepared to provide assistance to users who need more information about the potential of the toolkit or simply how and where an individual tool should be used.

Satisfaction of the LSP coordinators will be determined by surveys sent to them at the end of the third year of U4IoT (M36 - December 2019). Questions will be based on the four considerations listed above plus a fifth category regarding general satisfaction with their end-user engagement. Answers will generally be ranked on a five-point scale and answers of either 4 or 5 out of 5 will be considered as being satisfied.

This will be conducted on a project-by-project basis with a detailed breakdown of what worked and what didn't, minor and major improvements, and what elements were missing and need to be introduced.

KPI 3.2 relates to the satisfaction of end-users with the LSPs. The first part of this is to identify the principal end-users for each LSP and then to engage as representative as possible sample of each group. Identifying the correct group for each LSP will require some help from the LSP themselves, however, the final end-user group should not be decided on by the LSP, rather an independent entity that may include partners within U4IoT or CREATE-IoT.

Once the end-user groups for each LSP have been identified, they will be engaged using the crowdsourcing and survey tools and asked questions on the following topics:

- Improvements in your quality of life
- Improvements in the quality of your everyday experiences
- Perceptions of whether privacy and personal data protection were respected
- Perceptions of societal impact
- Perceptions of environmental impact
- Desire to continue using the LSP's service/product
- Overall satisfaction

U4IoT will design the survey to be sent out and identify the end-users it should be sent out to, however, they should only be sent out at the conclusion of the LSP and, unfortunately, some of the LSPs run longer than U4IoT. For these, in order to provide some feedback regarding this KPI, we will need to send out interim surveys to gain information on how the LSPs are progressing, rather than get an idea of the final outcome. This will be useful information, even if we have to extrapolate in order to determine whether we were successful in attaining our KPI or not.

SECTION: TIMELINE

YEAR ONE

The first year of U4IoT will see the vast majority of U4IoT's end-user engagement tools being made available for use by the LSPs. This starts in Month 6 with additional resources being made available in Months 9 and 12.

Initial work to encourage the LSPs to start using the tools will start as soon as the first set is available (M6) and will start in earnest at the end of the year (M12). This is a priority for all partners.

Table 3: U4IoT Timeline - Year One

Month	Action	Description
3	Website online (DNET)	The U4IoT website forms one section of the European IoT Pilots website along with CREATE-IoT and the LSPs. It was published in Month 3, however, at time of writing, the website features only a description of U4IoT and its goals, a factsheet, and a list of deliverables. Over the course of the project, the website will incorporate the various elements of the U4IoT end-user engagement toolkit in the manner described in *Objectives and KPIs*. It will also feature a clear point of contact for LSPs looking for support from U4IoT as well as other users looking for more information in general. Promotion of the website to the LSPs has started.
6	Online resources for pilots, first release (ENoLL)	This is the first release of the toolkit, including tools and methodologies for the end-user engagement. This toolkit is to guide the Large-scale pilot (LSP) projects and especially the pilot sites through the innovation processes, with a special focus on user-engagement, comprising methodologies and tools.
6	Co-creation Workshops methodology made available (SD)	The first set of resources to be made available online by U4IoT features the co-creative workshops methodology handbook in addition to the initial set of video tutorials and articles. Promotion of the handbook to the LSPs has started.

Month	Action	Description
6	Cooperation strategy published (MI)	This document regarding the strategy for cooperation with the LSPs and CREATE-IoT is published and made publicly available. As well as this timeline it includes strategies for meeting U4IoT's KPIs, cooperating with each individual LSP, and streamlining communication between the different projects.
9	Knowledge base published online (DNET)	The knowledge base will form the central repository for challenges that have been faced, how they were tackled, and what was learned from the experience. It will also include feedback from not only the end-users of the LSPs enabling them to improve their services, but also the LSPs providing feedback on U4IoT allowing us to update our on tools and resources. At launch, it will be relatively empty but will be expected to increase in size as more work on the LSPs, and especially in the field of end-user engagement, is conducted. Promotion of the knowledge base to the LSPs has stated.
9	Living Labs methodology handbook made available (ENoLL)	The Living Labs methodology handbook joins the co-creative workshops methodology handbook as an additional resource for the LSPs. Promotion of the handbook to the LSPs has started.
12	Crowdsourcing and survey tool made available (MI)	The crowdsourcing and survey apps for smartphones - developed using technology for IoT Lab - will join the existing resources. Promotion of the app to the LSPs has stated.
12	Online training programme and expert pool made available (SD)	The addition of the online training programme and expert pool completes the set of resources due to be made available by U4IoT in Year One. Promotion of the programme and expert pool to the LSPs has started. These constitute the majority of the resources and the collection of feedback on them and the encouraging of the LSPs to use them should be in full swing at this stage.

YEARS TWO AND THREE

At the beginning of Year Two, all partners should be working with the LSPs and CREATE-IoT to ensure that they are making full use of the end-user engagement tools now available on the website. This will include, at the minimum, encouraging them to use the interactive flow diagram that will point them to the other tools.

Once the LSPs have started using the tools, we will be able to collect feedback and user-statistics on problems encountered and general satisfaction with the toolkit. This information should be used to improve the tools in addition to the general maintenance that we will carry out on the tools as the project goes on.

Month 18 will see the toolkit fully complete and that is when we will be able to start fully analysing the end-user work of the LSPs and developing our final reports.

Table 4: U4IoT Timeline - Years Two and Three

Month	Action	Description
18	Game and handbook on privacy and personal data protection made available (AS)	The privacy handbook and game are the final elements of the U4IoT end-user engagement toolkit. These are important because, as H2020 projects, the LSPs need to conform to the current EU standards on privacy and personal data protection. Promotion of the handbook and game to the LSPs has started. As this completes the toolkit, focus needs to shift at this point towards analyse of the outcomes of the LSPs' engagement with end-users.
18	Report on societal, ethical, and ecological issues published (LTU)	At the mid-point of the project, a report on societal, ethical, and ecological issues will be published. This will require information from the LSPs and may ultimately lead them to modifying how they conduct research and development for their projects.
18	Mid-term report on outreach and dissemination published (DNET)	At the same time that the online toolkit is completed, the mid-term report will be published regarding our efforts on outreach and dissemination.
30	Report on tackling IoT-adoption barriers (LTU)	Many of the LSPs expressed a distinct interest how to overcome IoT-adoption barriers, especially ActivAge and IoF2020. These LSPs will be particularly useful for developing this report.

Month	Action	Description
36	Final reports on the toolkit, end-user engagement support, outreach, and dissemination (ENoLL, SD, DNET)	At the end of the three years, the final reports on the toolkit and other engagement activities will be completed at the project's conclusion.
36	Design of participatory and sustainability models based on interactions with end-users (IMEC)	In preparing these models, communicating with the LSPs' end-users as well as the LSPs themselves will be crucial and will require robust communication channels and crowdsourcing tools before the design phase begins.

SECTION: LSP NEEDS AND REQUIREMENTS

OVERVIEW

A questionnaire was sent out by Work Packages 1 and 2 in attempt to identify what end-user engagement needs each LSP has. Using the answers derived from the survey, we have identified the key areas in which each LSP will require the most help from U4IoT. We go on to outline what this means for working with each LSP, primarily in regard to which U4IoT tools the LSP is most likely to need and use.

Collaboration with the LSPs is not complete until we have been able to study the results obtained by each of the LSPs and through all of their use cases and databases (compiled following strict guidelines on privacy and personal data protection) and used these results to improve the tools and develop new strategies and recommendations for IoT adoption and sustainability models through our work with the LSPs.

Each section also specifies the main contacts for end-user engagement in each LSP.

AUTOPILOT

Contact

The dissemination and end-user engagement activities for Autopilot is led by FIA (Federation Internationale de l'Automobile) based in France.

Identified needs

Autopilot will be primarily focusing their attention on:

- organisations that run transport infrastructure (governments, cities, municipalities, etc.)

- providers of mobility services such as taxi, car-sharing, and social care companies

- telecommunication companies for cementing the communications infrastructure

- citizens including those who may not use the vehicles but will still need to be engaged with for the sake of safety and wider understanding of the technology

They will be engaging end-users throughout the life of the project and expect to involve at least a thousand, if not more. Enthusiasm for all the end-user engagement tools offered by U4IoT is high.

Autopilot is particularly concerned with the perception of security, safety, and privacy as well as the perceived advantages of self-driving cars not just for individuals, but for municipalities as well.

Use of U4IoT tools

The primary tools for Autopilot's use start with the co-creative workshops and the survey and crowdsourcing tools. Although the concept of a self-driving car is simple enough, the full range of possible situations that driverless cars may find themselves is too extensive for even a moderately-sized group of people to completely envisage. These tools would be the perfect entry point for determining what the most important design decisions for the self-driving system would be by finding out how the end-users would ultimately use it. In the case of the co-creative workshops, even the end-users themselves may discover situations that they would likely find themselves in that they would not have offered if simply asked via a survey or the crowdsourcing app.

Later in the project, use of Living Labs methodology can have an important role to play as the technology may be in a position to fully inspect the usefulness and feasibility in everyday life when used by the general public and other stakeholders. These approaches will also need to uncover information about the psychological aspects associated with using driverless cars - loss of control, trust, stress, and situational awareness - as well as information about the stability of the market environment for the cars and what the demand for them would be including the features consumers would like to see in the final product.

Privacy considerations are extremely important in Autopilot due to the capture and utilisation of user data. The privacy handbook and privacy game supplied by U4IoT will provide all the information the LSP will need to make sure all issues regarding informed consent and the security and vulnerability of user data are covered and paid attention to. Of particular interest is location data, which would create problems if users are especially sensitive about people knowing where they are or where they've been.

Regarding the expert pool, if U4IoT can gather experts on transport and mobility infrastructure and deployment, this would be the most useful addition for them. Anything regarding end-user engagement will most likely be found in the standard tools provided by U4IoT.

Assimilation of LSP results

In general, Autopilot is not be opposed to sharing the outcomes of their end-user engagement activities for the benefit of improving U4IoT's tools and identifying potential avenues of progress and gaps in our chosen approach - subject to results.

MONICA

Contact

The dissemination and end-user engagement activities for MONICA is led by In-JeT ApS based in Denmark.

Identified needs

MONICA will be primarily focusing their attention on:

- city administrations and other public authorities

- organisers of cultural or sporting events such as those presenting open-air concerts and festivals among others

- citizens - especially those who are located close to places that are likely to host big events as well as those who would be participating directly in the event itself

- technology companies, entrepreneurs, and innovators

- researchers and regulators

MONICA is looking to work with potentially hundreds of thousands of end-users in order to adequately develop their IoT system in such a way that it can be implemented successfully in built-up urban environments where noise pollution is likely to be a significant issue. Enthusiasm for the tools provided by U4IoT is high.

Primary concerns for MONICA include encouraging event-organisers, event-attendees, and public authorities to embrace the technology and convincing them that this service solves problems that they may not be aware they have. This goes in hand with the development of business models that will maximise the impact and effect made by the technology.

Potential use cases identified by MONICA include helping event attendees to find exits in an emergency and identify areas of the event with higher or lower sound intensities. Mitigating privacy concerns as a result of audio and image recording, as well as location and sensor data is also important.

Use of U4IoT tools

MONICA will have extensive use for both the co-creative workshops and the crowdsourcing and survey tools provided by U4IoT. MONICA is unusual among the LSPs because its service is one that people in general would not have thought of as being an obvious need or use of the technology. To this end, having a robust end-user engagement strategy will be key to the success of this project. For example, a potential use of the technology that event participants would like is the ability to keep track of the sound levels they've been subjected to while at the event.

Helping them to arrange the co-creative workshops will give them in idea of the dynamics of the events they are trying to cover in an intuitive manner. Materials and support provided to them by U4IoT will allow them look at the problem, with their end-users, from a number of unique perspectives that they'll be able apply easily to music and sporting events among others. This approach will be applied in combination with the CAPs (collective awareness platforms) that will be established during the project.

MONICA's direct end-users are likely to only use the service for the length of the event so, unlike for driverless cars, consent to gather personal data must be swift, and long-term data collection must be considered and analysed. The privacy handbook and game will be able to provide the information MONICA needs to develop a conforming data-collection system, this they will be able to use to improve the service in future so it would be worth trying to implement.

Due to the intended number of end-users MONICA intends to include in their design and implementation processes, the crowdsourcing and survey apps will be able to accommodate all of the end-users responses and provide analysis and recommendations thereupon. U4IoT will also be able to provide on-going support and advice for these applications.

Recommendations on IoT adoption barriers will be especially important for MONICA for the reasons already laid out. New business models will also have to be created and adapted in order to make sure that the technology is adequately represented and makes a reasonable return for the organisers and producers of the events, wearables, and that the authorities of the event locations are also happy.

In addition to online training programs, the interactive flow diagram, and the overall online toolkit, U4IoT will work particularly hard on putting together materials for MONICA's end-user engagement activities, primarily due to the project's especially esoteric nature. The expert pool contribution for MONICA should focus on the best ways to sell this technology and its application to large-scale events to not just the general public, but also to product manufacturers and local authorities among others. The work of economists specialising in encouraging individuals to engage with new ideas will be particularly useful.

Assimilation of LSP results

MONICA will provide U4IoT with best practices data on organising and coordinating with large-scale yet localised events - an unusual yet important combination. Information on engagement success with individual and multiple different commercial and social levels will also be vital in adapting techniques and methods for further use.

SYNCHRONICITY

Contact

SynchroniCIty reported that its tasks are focused more on co-creation methodologies and toolkits as opposed to direct end-user engagement. The co-creation work is led by IMEC based in Belgium.

Identified needs

SynchroniCity is primarily focusing their attention on coordinating directly with the 11 cities identified in the project (8 in Europe, 2 in North America, and 1 in East Asia) and the SMEs that will later join through the upcoming Open Calls. Space will need to be made for additional cities and companies that decide to join the project at a later date.

They are expecting to engage more than a thousand end-users in their development process and enthusiasm for co-creation and Living Labs methodologies is of particular interest. Information on privacy considerations and methods for tackling barriers in IoT adoption will also be helpful in this project.

Smart Cities, unique among the LSPs, has an especially high number of interconnected systems and potential problems with implementing IoT technologies. Acceptance by

the citizens is of the utmost importance if the project is a success and, indeed, an active embracing of the features of the smart city will ensure that the payoffs from the project will be maximised.

Use of U4IoT tools

Due to the unusually high number of interconnected systems that will be at work in a smart city, the co-creation workshops will be extremely useful for SynchroniCity, indeed, they are expected to use these tools more than any other that U4IoT has to offer. It's also important to remember that cities vary wildly in their culture and services - to this end, the workshops will need to be diverse and far-reaching. U4IoT will develop the materials needed for SynchroniCity to explore all of the necessary use cases.

The Living Labs methodologies will, for similar reasons, also play a significant part in developing the technology in such a way that citizens will feel comfortable living in a smart city. Having a functioning testbed in this manner may be the most crucial aspect of the end-user engagement strategy for SynchroniCity so they will need support from U4IoT for this.

SynchroniCity covers a much wider user base than either Autopilot or MONICA and, at the same time, the technology won't necessarily be connected to individuals in the same way. However, privacy is still of the utmost concern and, perhaps because the individuals are more likely to find themselves *unwillingly* surrounded by the IoT technology in this LSP than in others, the guidelines on privacy set out by the handbook and game will be especially important if more for engagement purposes rather than practical ones. These considerations also mean that U4IoT's recommendations on overcoming IoT adoption barriers will also be of significant interest to SynchroniCity.

Engaging with the cities at all levels, from the authorities down to the individual citizens, across numerous countries and cultures, will be the big challenge for end-user engagement in SynchroniCity. Focussing on the co-creation and Living Labs tools will be central to working with this LSP. Regarding the expert pool, experts on people-driven urban systems and working with SMEs would be highly beneficial for this LSP.

Assimilation of LSP results

SynchroniCity will allow us to identify a large number of use cases and the systems involved in each one. The high-level interconnectedness of the objects involved in the smart cities project will be invaluable for understanding how everything works together when put in the hands of everyday people living in complicated urban environments.

IOF2020

Contact

IoF2020 stated that there is no single organisation responsible for end-user engagement and dissemination activities due to these considerations being central to the project. The overall coordinator is Wageningen Research based in The Netherlands.

Identified needs

IoF2020 is primarily focusing their attention on:

- farmers

- food-processing companies

- logistics companies

- farm input suppliers

- inspection services and others

The biggest concerns for IoF2020 is tackling IoT adoption barriers and, by extension, ensuring that privacy is fully considered and not causing problems for farming professionals. Sustainability is also an extremely important factor for the farming community especially with the uncertainty that comes with climate change.

Tied to these concerns is the need to develop complementary business models that will aid uptake of the technology and keep the farming community happy. By and large, IoF2020 is already heavily integrated with its end-user community, however, considered expertise on end-user engagement tools and opinions would be welcome.

Use of U4IoT tools

IoF2020 will make most use of the expertise in privacy and personal data protection that will be provided by the handbook and game. This is arguably the main facet that the LSP has the least knowledge of in terms of the support U4IoT will offer; in addition, since IoF2020 is already so comparatively close with prospective end-users, sharing that expertise with the farming community will also aid in the engagement related to IoT adoption.

The provision of Living Labs methodologies will also be of particular use to the LSP due to the controlled way in which their services are likely to be used and also with respect to the locales in which they are most likely to be used. General help with end-user engagement is the best way place for U4IoT to focus its efforts of IoF2020 so promotion of the interactive flow diagram should the primary way of working with the LSP.

Regarding the expert pool, experts working with business and large-scale markets would be particularly helpful for the farming LSP as they have their own agriculture experts.

Assimilation of LSP results

U4IoT will gain information about the use of the Living Labs methodologies in an agricultural setting as well as that regarding the implementation of IoT technology in a more structured and organised market setting than that of the other LSPs.

ACTIVAGE

Contact

The dissemination and end-user engagement activities for ActivAge are led by MYSPHERA based in Spain.

Identified needs

ActivAge is primarily focusing their attention on:

- elderly people in need of care

- care-givers

- care providers

- service providers

- technology and solutions companies

Privacy concerns are very important in ActivAge due to the inherent vulnerability of the end-users the LSP is designed for. Expertise on the legal and technical aspects of personal data protection will be invaluable. Much like MONICA, the possible scenarios this LSP may encounter are highly localised but have a number of complex and unforeseeable factors that may not be obvious without working directly with the end-users. Enthusiasm for all the end-user engagement tools is high and they anticipate working with over a thousand end-users in the development of the LSP.

ActivAge partners currently lack expertise in end-user engagement and, therefore, training and hands-on work with them to develop their ability to work with the tools U4IoT is providing is essential.

Use of U4IoT tools

Using the co-creative workshop materials and methodologies will be ideal in this LSP due to the large number of unpredictable use cases that could present themselves. Working through these with designers, care-givers, and the people receiving care, would be an ideal situation to find solutions to possible problems. Similarly, the Living Labs methodologies can give ActivAge a way of testing the technology while it's in use at the actual locations.

Due to the sensitive nature of the implementation of the technology in this LSP, privacy considerations are especially important and the privacy handbook and game will be indispensable for ActivAge. Legal information on consent will need attention because if the elderly end-user suffers from dementia, for example, what would the repercussions for consent be in this situation? This will be a particular case that U4IoT's experts will be able to help with.

Surveys will be easily applicable in this situation but will need adapting to ensure user-friendliness for everyone who is likely to use it. Data from large numbers of both care-givers and those receiving care would be invaluable for a project like this. This will overlap with the work done in the co-creative workshops. Unlike the workshops,

however, it will be easy to use the crowdsourcing app at different stages in the LSP to see how progress in the development is improving outcomes for the care-givers and care-receivers.

ActivAge are also interested in finding the best end-user engagement tools U4IoT can offer so working with them on the e-courses, webinars, and other online training programs and having them use the interactive flow diagram will be good points of communication during the project. Regarding the use of the expert pool, ActivAge would most likely find use for expertise on business modelling and the adoption of new technology among seniors.

Assimilation of LSP results

Information regarding how those who are most vulnerable in society can benefit from the adoption of IoT technology will be used to further improve the tools and methods already employed by U4IoT and the LSPs. The number of scenarios here is vast and the types of related stakeholders are limited yet distinct so the identified and analysed use cases in the LSPs will be especially useful.

SECTION: LSP COOPERATION STRATEGY

INITIAL ENGAGEMENT

At the beginning of the project, the leaders of Work Packages 1 and 2, ENoLL and SD respectively, sent the LSPs a questionnaire regarding their individual projects and, also, they're expectations for support from U4IoT. Here are their responses:

Autopilot

"Project coordinator: Carlos Holguin

Number of partners: 44

Use cases: 6 test sites (Portugal, France, Italy, The Netherlands, Finland, S. Korea), services include: Urban areas and highways, Automated valet parking, Platooning, Links with other devices in the IoT ecosystem (e.g. traffic lights, roadworks, etc.), City chauffeur services for tourists, Automated route estimation, Car sharing and Driverless car rebalancing.

WP entry point: Specific WP for cross-LSP coordination, which could serve as the entry point.

K-O Meeting: K-O: Open day for LSP coordinators and CSAs on February 6th, in Versailles (more details are at: http://bit.ly/2jHHoaj).

Initial support questions: Early need for the privacy handbook - should be before M6. Webinars will be set-up (by AS/MI Lucio Scudiero) to discuss the issues.

Automated driving is expected to increase safety, provide more comfort, and create many new business opportunities for mobility services. The market size is expected to grow gradually reaching 50% of the market in 2035.

IoT is about enabling connections between objects or things - it's about connecting anything, anytime, anywhere, using any service over any network. There is little doubt that these vehicles will be part of the IoT revolution. Indeed, connectivity and IoT have the capacity for disruptive impacts on highly and fully automated driving along all value chains towards a global vision of Smart Anything Everywhere.

In order to stay competitive, the European automotive industry is investing in connected and automated driving with cars becoming moving "objects" in an IoT ecosystem eventually participating in BigData for Mobility. Autopilot brings IoT into the automotive world to transform connected vehicles into highly and fully automated vehicles.

The well-balanced Autopilot consortium represents all relevant areas of the IoT eco-system. An IoT open vehicle platform and an IoT architecture will be developed based on the existing and forthcoming standards as well as open source and vendor solutions. Thanks to Autopilot, the IoT eco-system will involve vehicles, road infrastructure and surrounding objects in the IoT, with particular attention to safety-critical aspects of automated driving. Autopilot will develop new services on top of IoT

to involve autonomous driving vehicles, like autonomous car-sharing, automated parking, or enhanced digital dynamic maps to allow fully autonomous driving.

Autopilot IoT enabled autonomous driving cars will be tested, in real conditions, at four permanent large scale pilot sites in Finland, France, Netherlands and Italy, whose test results will allow multi-criteria evaluations (Technical, user, business, legal) of the IoT impact on pushing the level of autonomous driving."

MONICA

"Project Representative: Marco Jahn

Number of LSP partners: 28

Use cases: The focus is on large-scale cultural events in 6 cities (11 events): Tivoli Copenhagen, Hamburger Dom, Rhein im Flammen, Fete des Lumieres, etc.

WP entry point: MONICA has requirements from U4IoT in terms of user-engagement. The project has a specific Task (T11.1) on citizen awareness, engagement and co-creation.

K-O Meeting: 23rd January 2017

Initial support questions: How to motivate citizens; distribute wearables; bring wearables back; analyse data.

Initial description of action: The SoundCity Project MONICA aims to provide a large-scale demonstration of multiple existing and new IoT technologies for Smarter Living. The solution will be deployed in six major cities in Europe.

MONICA demonstrates a large-scale IoT ecosystem that uses innovative wearable and portable IoT sensors and actuators with closed-loop back-end services integrated into an interoperable, cloud-based platform capable of offering a multitude of simultaneous, targeted applications. All ecosystems will be demonstrated in the scope of large-scale city events, but have general applicability for dynamically deploying Smart City applications in many fixed locations such as airports, main traffic arterials, and construction sites. Moreover, it is inherent in the MONICA approach to identify the official standardisation potential areas in all stages of the project.

MONICA will demonstrate an IoT platform in massive-scale operating conditions; capable of handling at least 10.000 simultaneous real end-users with wearable and portable sensors using existing and emerging technologies (TRL 5-6) and based upon open standards and architectures. It will design, develop and deploy a platform capable of integrating large amounts of heterogeneous, interoperable IoT enabled sensors with different data capabilities (video, audio, data), resource constraints (wearables, Smartphones, Smartwatches), bandwidth (UWB, M2M), costs (professional, consumer), and deployment (wearable, mobile, fixed, airborne) as well as actuators (lights, LED, cameras, alarms, drones, loudspeakers).

It will demonstrate end-to-end, closed-loop solutions covering everything from devices and middleware with semantic annotations through a multitude of wireless

communication channels to cloud-based applications and back to actuation networks. Humans-in-the-Loop is demonstrated through integrating Situational Awareness and Decision Support tools for organisers, security staff and sound engineers' situation rooms."

IoF2020

"Project coordinator: STICHTING WAGENINGEN RESEARCH, NL

Number of partners: 70

Use cases: 5 trials: Grain, dairy, fruit, vegetable and meat. (3 or 4 use cases in each one). 19 use cases in total.

Open Call: Open Call (€4-5m).

K-O Meeting: 21st - 22nd February in Amsterdam, passenger terminal.

Initial support questions:

- Privacy of farmers and legal side of the interface.

- Identify problems that are interesting and scalable.

- Elicit the needs of end-consumers at the end of the supply chain.

- Analysis on the impact of certain food problems in the real world.

- Improve the intuition and usability of the technology.

Summary description of action: The IoF2020 project is dedicated to accelerate the adoption of IoT for securing sufficient, safe and healthy food and to strengthen the competitiveness of farming and food chains in Europe. It will consolidate Europe's leading position in the global IoT industry by fostering a symbiotic ecosystem of farmers, food industry, technology providers and research institutes. The IoF2020 consortium of 73 partners, led by Wageningen UR and other core partners of previous key projects such as FIWARE and IoT-A, will leverage the ecosystem and architecture that was established in those projects. The heart of the project is formed by 19 use cases grouped in 5 trials with end users from the Arable, Dairy, Fruits, Vegetables and Meat verticals and IoT integrators that will demonstrate the business case of innovative IoT solutions for a large number of application areas. A lean multi-actor approach focusing on user acceptability, stakeholder-engagement and sustainable business models will boost technology and market readiness levels and bring end-user adoption to the next stage. This development will be enhanced by an open IoT architecture and infrastructure of reusable components based on existing standards and a security and privacy framework. Anticipating vast technological developments and emerging challenges for farming and food, the 4-year project stays agile through dynamic budgeting and adaptive decision-making by an implementation board of representatives from key user organisations. A €6 million mid-term Open Call will allow for testing intermediate results and extending the project with technical solutions and test sites. A coherent dissemination strategy for use case products and project learnings supported by leading user organisations will ensure a high market visibility and an increased learning curve. Thus IoF2020 will pave the way for data-driven

farming, autonomous operations, virtual food chains and personalised nutrition for European citizens."

SynchroniCity

"Project coordinator: AARHUS UNIVERSITET, DK

Number of partners: 34

Use cases: 11 cities are involved, in: Mexico, US, S. Korea + 8 in Europe

Open Call: There will be an Open Call for second wave of pilots

K-O Meeting: 8th - 9th January 2017, Brussels

Summary description of action: SynchroniCity represents the first attempt to deliver a Single Digital City Market for Europe by piloting its foundations at scale in 11 reference zones - 8 European cities & 3 more cities worldwide - connecting 34 partners from 11 countries over 4 continents. Building upon a mature European knowledge base derived from initiatives such as OASC, FIWARE, FIRE, EIP-SCC, and including partners with leading roles in standardisation bodies, e.g. ITU, ETSI, IEEE, OMA, IETF, SynchroniCity will deliver a harmonised ecosystem for IoT-enabled smart city solutions where IoT device manufacturers, system integrators and solution providers can innovate and openly compete. With an already emerging foundation, SynchroniCity will establish a reference architecture for the envisioned IoT-enabled city market place with identified interoperability points and interfaces and data models for different verticals. This will include tools for co-creation; integration of legacy platforms; IoT devices for urban services and enablers for data discovery, access and licensing lowering the barriers for participation in the market.

SynchroniCity will pilot these foundations in the reference zones together with a set of citizen-centred services in three high-impact areas, showing the value to cities, businesses and citizens involved, linked directly to the global market. With a running start, SynchroniCity will serve as a lighthouse initiative to inspire others to join the established ecosystem and contribute to the emerging marketplace. SynchroniCity takes an inclusive approach to grow the ecosystem by inviting businesses and cities to join through an Open Call, allowing them to participate on the pioneering market place enabling a second wave of successful pilots. They will strengthen the ecosystem by creating a positive ripple effect throughout Europe, and globally, to establish a momentum and critical mass for a strong European presence in a global digital single market of IoT-enabled solutions."

ActivAge

"Initial support questions: ActivAge is a European Multi-Centric Large-Scale Pilot on Smart Living Environments. The main objective is to build the first European IoT ecosystem across 9 Deployment Sites (DS) in seven European countries, reusing and scaling up underlying open and proprietary IoT platforms, technologies and standards, and integrating new interfaces needed to provide interoperability across these heterogeneous platforms, which will enable the large-scale deployment and operation of Active & Healthy Ageing (AHA) IoT-based solutions and services, supporting and extending the independent living of older adults in their living

environments, and responding to real needs of caregivers, service providers and public authorities.

The project will deliver the ActivAge IoT Ecosystem Suite (AIOTES), a set of Techniques, Tools and Methodologies for interoperability at different layers between heterogeneous IoT Platforms and an Open Framework for providing Semantic Interoperability of IoT Platforms for AHA, addressing trustworthiness, privacy, data protection and security. User-demand driven interoperable IoT-enabled AHA solutions will be deployed on top of the AIOTES in every DS, enhancing and scaling up existing services, for the promotion of independent living, the mitigation of frailty, and preservation of quality of life and autonomy.

ActivAge will assess the socio-economic impact, the benefits of IoT-based smart living environments in the quality of life and autonomy, and in the sustainability of the health and social care systems, demonstrating the seamless capacity of integration and interoperability of the IoT ecosystem, and validating new business, financial and organisational models for care delivery, ensuring the sustainability after the project's end, and disseminating these results to a worldwide audience. The consortium comprises industries, research centres, SMEs, service providers, and public authorities encompassing the whole value chain in every Deployment Site."

ACTIVITY GROUPS

The principal form of communication with the LSPs and CREATE-IoT will be through the Activity Groups/horizontal activities. There are seven such groups, however, U4IoT's primary source of engagement with the other projects will come through just three of them:

- Communication, Collaboration Strategy, and Liaisons

This Activity Group is dedicated to ensuring that the communication strategies of the LSPs and CSAs are coordinated and allow effective communication throughout the IoT European Large-Scale Pilot Programme and that core programme objectives are met. This includes making sure that public authorities, regional and national representatives, and the public understand what the programme does and can follow its progress.

- Trusted IoT, privacy, security, and legal frameworks

The IoT-LSP Programme takes initiative to establish standards for IoT devices and other devices and networks that follow on from that. This applies to both regional and global standards that will be set in place as the technology moves forward. Concepts that the consortia considers highly important in this task is the ability to address issues of privacy and efficiency in the face of upcoming regulations e.g. the release of information by smart vehicles or the risk of profiling citizens through Big Data analysis.

- IoT Open Environments

This Activity Group exists to confront the challenges created by facing dynamic and evolving environments that generate high levels of highly complex and information of

variable quality. Examples include the increase of user mobility and the existence of unreliable sensors and actuators.

U4IoT will participate in and organise horizontal activities such as cluster meetings. We will focus on privacy and end-user engagement which will include imparting knowledge on how to run Open Call processes as well as providing guidelines and recommendations. U4IoT will also plan and organise interim technical review meetings with the LSPs. The mechanics of how the meetings will be organised and who will organise them is still undecided at the time of writing this deliverable.

CREATE-IOT

CREATE-IoT has been created to stimulate collaboration between IoT initiatives, foster the take-up of IoT in Europe, and support the development and growth of IoT ecosystems based on open technologies and platforms.

They will work to promote and facilitate cross-fertilisation between the LSPs and generate new market segments and use cases leading to increased take-up and integration of IoT ecosystems in Europe.

CREATE-IoT is a much larger CSA than U4IoT and, therefore, has a much larger scope in terms of what it will do for the LSPs. However, U4IoT will have a more significant part in coordination and communication between the different projects. For example, while CREATE-IoT focusses on standards, best practices, and innovation, U4IoT will tackle the more practical aspects such as developing the web portal and working with end-users. Similarly, while CREATE-IoT works on a complete legal framework for IoT technology, U4IoT will put together ethical guidelines for citizens' and other stakeholders' privacy considerations. The two CSAs cover highly complementary areas and must foster effective communication. These will be done primarily through three different channels:

- The horizontal activities listed in the previous section

- Collaboration between CREATE-IoT's WP7 and U4IoT's WP4 (Communication and dissemination)

- Collaboration between CREATE-IoT's WP5 and U4IoT's WP3 (Privacy and legal frameworks)

In addition, CREATE-IoT is running a co-creative strategy led by FutureEverything and Andy Stratford. There is significant potential for cross-over work there in addition to these other channels.

FACE-TO-FACE

IoT Week 2017

Following the kick-off meetings in Brussels, Belgium in January 2017, the next major meeting between the LSPs and the CSAs was at the IoT Week held in Geneva, Switzerland in June 2017, organised by one of U4IoT's partners - Mandat International.

On the 6th and 8th June, U4IoT ran its first demonstrations of the co-creative workshop methodology for members of the LSPs. Each workshop consisted of two groups with more or less five participants. Four solutions were co-created for the topics Smart Health, Smart Cities, Smart Agriculture and Smart Entertainment.

Summary of the session: End-user Engagement: Multi-stakeholder Co-creation for IoT Contexts (Tuesday June 6th Part I&II)

During this 4-hour workshop, U4IoT provided a hands-on introduction on Multi-Stakeholder Co-Creative Workshops, a methodology designed to support Large Scale Pilots (LSPs) to engage end-users in their projects.

The workshop was facilitated around the topics *Smart Cities* and *Smart Health*. Enabled by the Co-Creative Toolkit, the attendees of the workshop experienced a co-creative cycle of four phases. In these phases, they co-analysed, co-designed, co-evaluated and co-implemented two solutions informing the future design and development phases of the LSP projects *SynchroniCity* and *ActivAge*.

For the topic *Smart Cities,* a solution for the following design challenge was co-created: "*How can delivery systems of small packages be optimised in order to reduce traffic and pollution in the city centre during rush hours?*"; at the same time, the *Smart Health* group co-created a service based on smart locks granting caregivers access to the homes of the elderly at prearranged times of day or in case of emergency.

The workshop was closed with a discussion exploring the possibilities on how U4IoT could support these two LSPs to implement the Co-Creative Workshop methodology into their projects and provide LSP partners with training to autonomously organise and facilitate Co-Creative Workshops.

Summary of the session: End-user Engagement: Multi-stakeholder Co-creation for IoT Contexts (Thursday June 8th Part I&II)

During this 4-hour workshop, U4IoT provided a hands-on introduction on Multi-Stakeholder Co-Creative Workshops, a methodology designed to support Large Scale Pilots (LSPs) to engage end-users in their projects.

The workshop was facilitated around the topics *Smart Entertainment* and *Smart Agriculture*. Enabled by the Co-Creative Toolkit, the attendees of the workshop experienced a co-creative cycle of four phases. In these phases, they co-analysed, co-designed, co-evaluated and co-implemented two solutions informing the future design and development phases of the LSP projects *MONICA* and *IoF2020*.

For the topic *Smart Entertainment,* a solution for the following design challenge was co-created: "*How to create a safe environment for festivals organised in the city centre by means of IoT*"; at the same time, the *Smart Agriculture* group co-created a peer-to-peer supermarket platform enabling consumers to review high-end products from local farmers and recommend products to their peers.

The workshop was closed with a discussion exploring the possibilities on how U4IoT could support these two LSPs to implement the Co-Creative Workshop methodology into their projects and provide LSP partners with training to autonomously organise and facilitate Co-Creative Workshops.

Figure 1: Photos of the U4IoT co-creative workshops at IoT Week 2017 in Geneva

IoT Week stand

U4IoT also ran a stand featuring an example of a video tutorial prepared specially for IoT Week 2017 as well as sample materials from the Privacy Game - from Archimede Solutions - due to be published in Month 18 (June 2018). Visitors to the stand were not only provided with information about how U4IoT plans to assist the LSPs, but also offered the chance to try the Privacy Game and give feedback on its current status. This feedback was compiled and will be used to further improve the game prior to release. Given the setting, a significant number of visitors to the stand were partners in at least one of the five LSPs.

Future Events

Meetings with the LSPs and CREATE-IoT are scheduled to take place every 6 months meaning that we expect the next meeting, at time of writing, to take place in January 2018 at a yet-to-be-decided venue. Each face-to-face meeting should be used as an opportunity to demonstrate to the partners of the other projects the U4IoT toolkit, especially the co-creative workshop methodology as this is best explained when in use.

In the coming 6 months and over the course of next year, workshop-training will be coordinated with the five LSP projects. The exact planning of these training sessions depends on the LSP project processes, pilot sites and needs. U4IoT has discussed providing each LSP project with one facilitated training session and one guided training session. The facilitated training session will be organised by U4IoT partners; the guided training session will be organised by a partner from the respective LSP project. U4IoT expects to invite end-users and stakeholders to participate in the workshops - this

would mean we would have two workshop training sessions with each LSP project, ideally (to reduce travel time) in one visit. A more detailed plan greatly depends on the LSP processes, their needs, and how we can coordinate the sessions with them.

In addition, at time of writing, LTU and ENoLL will attend a meeting of Open Living Lab Days in Krakow, Poland from the 28th August to 1st September 2017.

ONLINE

Website

The online platform was developed by U4IoT but houses content from, not just U4IoT, but also CREATE-IoT and the LSPs. This is the primary gateway to finding information about any of the LSPs or CSAs. U4IoT content at time of writing provides an overview, factsheet, timeline of deliverables, and the initial release of the end-user engagement toolkit. It will go on to include detailed contact information for U4IoT (as soon as possible) as well as links to all our online training materials including videos (on-going), articles (on-going), e-courses (M12), knowledge base (M9), and the interactive flow diagram for identifying optimal end-user engagement methods (M12).

For validation purposes, LSPs will be asked to provide feedback on all this content and, not only will this go towards improving the tools and services U4IoT provides, but also allow us to satisfy the KPIs for the relevant parts of the project. It will also provide a record of all our dissemination activities as well as those for CREATE-IoT and the LSPs.

The website's content will provide a jumping-off point for all other forms of outreach and dissemination including those aimed at the general public.

Community Engagement

At the beginning of the project, U4IoT is primarily focussed on engaging with the LSPs and forging strong communication channels with them. In addition to the website and direct communication (email, telcos, etc.) U4IoT has also established a Twitter account (@U4IoT), a Facebook account (facebook.com/u4iot), and is part of a combined YouTube channel with the other projects (youtube.com -> Channel: IoT European Large-Scale Pilots Programme).

At the time of writing this deliverable, the sole video on the joint channel is an introduction to U4IoT produced by U4IoT. This was made to explain concisely to the LSPs what U4IoT's role is and we expect more videos in this vain and from other projects to join it soon. By forming links in this way with CREATE-IoT and the LSPs, through YouTube, Twitter, and other platforms, we can foster close community links with the LSPs at the beginning of the project and then ultimately present a united information centre regarding the work of the LSPs when we start engaging directly with the general public around the end of Year Two/beginning of Year Three.

Open Calls

IoF2020, ActivAge, and SynchroniCity have all stated the intention to host Open Calls in their initial questionnaire responses and U4IoT will work to support them in those as well as the other LSPs if and when they launch their own Open Calls. This will require

close cooperation with both the LSP in question and CREATE-IoT and judicious promotion of the U4IoT online toolkit when the Open Calls go out.

We currently do know exactly when the Open Calls will happen so using our robust communication channels and keeping the U4IoT end-user engagement toolkit and the expertise of our partners, not to mention our specialisation in privacy ethics and personal data protection, is vital to making sure the LSPs get the support they need.

Privacy Support

On the 19th April and 10th May, Lucio Scudiero from Archimede Solutions provided webinars to partners of the LSPs to help them learn about the privacy considerations that would have to know in order to fulfil their commitments to the Horizon 2020 program. In one webinar, the General Data Protection Regulation (GDPR) was focused on - this is a very important regulation introduced by the European Commission that outlines the guidelines by which organisations can gather data from individuals. The other webinar looked at the individual needs of each LSP, what the most significant data protection issues are and how best to deal with them.

Additional webinars may be added depending on the needs and wishes of the LSPs.

EXPERT POOL

U4IoT will put together a list of experts on end-user engagement, privacy, outreach, business, etc. and make that available to the LSPs via our website. This will provide the LSPs with continuous and high-level support for any purpose they should need in engaging end-users.

The first step will involve compiling a list of topics that the LSPs are likely to need help with. This will primarily be focussed on end-user engagement and privacy ethics but may also include topics such as business modelling or more general IoT topics. Secondly, a draft list of potential experts must be made - U4IoT will elicit help from the LSPs and CREATE-IoT for this as this is one area in which cross-communication between the projects will be particularly useful.

Next, a standard procedure of invitation to the expert pool must be drafted and approved by the partners of U4IoT and will be tailored to the topic for which the invitee will be an expert. This will be headed by Stembert Design. Experts that agree to take part will be asked for a short biography and links to their work. As with the other tools, the performance of the Expert Pool will be monitored and evaluated.

MATRIX OF PRIORITIES PER LSP

	Autopilot	MONICA	Synchroni City	IOF2020	ActivAge
Co-creation activities	Hi	Mid	Hi	Lo	Hi
Privacy	Mid	Hi	Hi	Mid	Hi
IoT Adoption	Mid	Lo	Hi	Hi	Hi
Crowd sourcing	Lo	Hi	Mid	Mid	Mid
Living Labs	Hi	Hi	Hi	Hi	Hi

INTERNAL DOCUMENTS

U4IoT will maintain internal documents that will provide up-to-date information on dissemination activities such as:

- conferences, workshops, and webinars

- publications in journals and the press

- social media posts

- meet-ups;

as well as contact information and established communication channels with the LSPs and CREATE-IoT. All of this information is available to partners of the other projects upon request.

COLLABORATION WITH OTHER ORGANISATIONS

IoT Ecosystem and IoT Forum

U4IoT will coordinate closely with the IoT Ecosystem and with IoT Forum (chaired by MI), as well as the AIOTI, the IERC, the ITU, and IEEE. This will provide a central method for engaging with the IoT research community.

At the end of the project, IoT Forum while host and maintain the knowledge base and online platform that U4IoT will build up over the life of the project covering topics such as lessons learned, solutions, and user feedback.

USEMP

USEMP (User Empowerment for Enhanced Online Presence Management), is an FP7 project aimed at developing tools for raising citizens' awareness of their digital footprint in social media and give them control of their personal data thereon. It is based on Living Labs methodologies that can be leveraged for U4IoT.

IoT Lab

IoT Lab was an FP7 project exploring the potential of crowdsourcing to extend IoT testbed infrastructure for multidisciplinary experiments with more end-user interactions.

OrganiCity

OrganiCity is an H2020 project aimed at making sure that, as the city enters the future, the place of the citizen is given equal consideration to that of the technology. There is room for significant cooperation and participation for collaborative city experiments developed with and originating from citizen groups, organisations, authorities, and companies.

Privacy Flag

Privacy Flag is developing a set of user-friendly tools that will help citizens protect their personal data on smartphone applications, websites, and with the Internet of Things. They're building a global knowledge database of identified privacy risks and a set of online services designed to help companies and stakeholders to become more privacy-friendly.

Smart Buy

Smart Buy provides a technological infrastructure for small and medium-sized retailers such that people can shop in-store will simultaneously be able to compare prices, providers, reviews, and specifications. Living Labs methodologies enable end-user engagement.

VERTIGO

VERTIGO has been designed to get artists more heavily involved in ICT research activities and to promote synergies between the creative arts, businesses, research organisations, and the general public. It is built on the premise that the arts can enhance business development and act as a catalyser for innovations in Science, Technology, Engineering, and Mathematics projects and is tied into the new Art-Innovation Forum announced in September 2015.

U4IoT will coordinate with VERTIGO in association with CREATE-IoT through ARTSHARE - a company focussed on innovation through research and development of new techonologies, applications, and services by methodological means of artistic practices and expressions and partner in CREATE-IoT. This project has particular potential for collaboration with the co-creative workshop methodologies.

CONCLUSIONS

U4IoT's cooperation strategy with the LSPs starts with the development of the end-user engagement tools that the LSPs will ultimately use to conduct their own end-user engagement. The majority of these tools will be available by Month 12 and, by Month 18, the online toolkit will be complete. Each time a tool is published, the next steps will be the promotion of the tool to the LSPs via our communication channels.

The communication channels can be direct, as in the contacts identified in the chapter on LSP cooperation, or more indirect via the website, social media channels, or the Activity Groups/horizontal activities. In addition to the online toolkit, U4IoT will supply the LSPs with direct support for Open Calls and for Privacy Considerations.

Cooperation also comes in face-to-face form where U4IoT will organise cluster meetings and also have a presence to important IoT events where partners from the LSPs are likely to be, for example, IoT Week. This will give us the opportunity to demonstrate the most up-to-date versions of our materials such as the co-creative workshops methodologies, privacy-considerate crowdsourcing smartphone application, and privacy game.

In return, U4IoT will elicit feedback from the LSPs, especially from the leaders of tasks concerned with end-user engagement and dissemination, which will allow U4IoT to improve its tools and also attain its KPIs.

Close cooperation between U4IoT and CREATE-IoT - the other CSA - will also be maintained, not only through the Activity Groups, but also through collaboration between CREATE-IoT WP7 and U4IoT WP4, and CREATE-IoT WP5 and U4IoT WP3, not to mention developing synergies between the co-creative work happening in both projects.

Next steps will be ensuring seamless communication between the communication elements of each LSP and CSA and developing our own promotional work for the tools currently in development.

REFERENCES

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3. artshare_09-01-17_CREATE-IoT.pdf (SINTEF e-Room)

4. CREATE-IoT Work Plan

5. U4IoT Work Plan