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D2.3: Online training programme and expert pool first report

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Abstract	This report, Online training programme and experts pool first report (D2.3) documents the progress that has been made during the first



	year of the U4IoT project according to the initial end-user engagement support strategy. Moreover, it provides recommendations for further development and implementation of the online support services. Alongside this report, support resources are made available on the U4IoT website.
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EXECUTIVE SUMMARY

Coordination and Support Action (CSA), User Engagement for Large Scale Pilot Projects in the Internet of Things (U4IoT) strives to provide the Large-Scale Pilot (LSP) Projects - AutoPilot (Smart Mobility), MONICA (Smart Entertainment), IoF2020 (Smart Agriculture), SynchroniCity (Smart Cities), and ActivAge (Smart Health) - in the IoT-LSP Programme with support for engaging end-users in current and future projects.

U4IoT provides the IoT-LSPs with support that enables them to implement and utilise Co-Creative Workshops in their projects. It also helps IoT-LSPs to apply Living Lab methodologies and develop open and user-driven innovation ecosystems based on the experience of the European Network of Living Labs. Moreover, an online training programme that consists of an Interactive Flow-Diagram, Expert Pool and e-courses will be provided among the support services.

This report describes the progress made in terms of the End-User Engagement Support during the first year of U4IoT. Initially the needs of the IoT-LSPs were studied by means of a questionnaire and unstructured interviews. Based on this research, the support services as described above were customised according to the needs of the IoT-LSPs. Two handbooks were delivered: one on the Co-Creative Workshop Methodology and another on Living Lab Methodologies. Three Co-Creative Workshops were facilitated and the support services of the Online Training Programme were designed, developed and partially implemented.

An updated support strategy and operational support plan has been formulated with a special focus on the needs of the target group. The strategy moreover includes the collaboration with co-CSA CREATE-IoT and the interaction with the Action Groups. Concrete recommendations are provided to further improve the end-user engagement support services. The recommendations covered with this report included putting in place a more consolidated support strategy and specifying the target group. Whilst other recommendations that will be taken into account in future work concern, among others, overcoming language barriers, KPI ambitions and evaluation of the support services. In addition to the actions that will be taken in regards to these recommendations, the frequency and scope of the communication and the dissemination of the support services will also be increased and broadened.

A second questionnaire and interviews are planned to be conducted in June and July 2018 to monitor and evaluate the support services and upgrade the services according to the needs of the IoT-LSPs. Updating the KPIs is, however, a necessity for more specific performance measurements of the support services in terms of the effective interaction with the IoT-LSPs and the quality of the interaction. New directions for the KPIs will therefore be described and proposed to the U4IoT consortium. Once instituted, the KPIs will be the basis for the evaluation of future support activities. Performance of the support services will be further monitored and evaluated by means of this updated list of KPIs.





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ABBREVIATIONS

AG	Activity Group
CSA	Coordination and Support Action
D	Deliverable
DOA	Description of Action
ΙοΤ	Internet of Things
LSP	Large Scale Pilot
Μ	Month
т	Task
UC	Use Case
WP	Work Package

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SECTION 1 - INTRODUCTION

Coordination and Support Action (CSA), User Engagement for Large Scale Pilot Projects in the Internet of Things (U4IoT) strives to provide the Large-Scale Pilot (LSP) Projects - AutoPilot (Smart mobility), MONICA (Smart entertainment), IoF2020 (Smart agriculture), SynchroniCity (Smart cities), and ActivAge (Smart health) - in the IoT-LSP Programme with support for engaging end-users in current and future projects. It also aims to make end-user engagement an integral and continuous part of large-scale technical projects, eventually resulting in more sustainable and accepted solutions.

Work Package two (WP2) - End-User Engagement Support - consists of three tasks:

Task 2.1 helps the IoT-LSPs build their familiarity with the Co-Creative Workshop Methodology so that the partners may implement and utilise Co-Creative Workshops in their projects. The Co-Creative Workshop toolkit helps the partners from the IoT-LSPs to interact directly with stakeholders and end-users in their projects, ideally increasing empathy and leading to more meaningful IoT-related solutions.

Task 2.2 supports the IoT-LSPs with building their familiarity with the Living Lab Methodology. The Living Lab Methodology support guidelines and webinars provide online support with applying Living Lab methodologies and developing open and user-driven innovation ecosystems for LSPs based on the experience of the European Network of Living Labs.

In Task 2.3 a pool of online experts and coaches is developed. This online support service consists of experts who can advise and guide the LSPs in engaging end-users. In addition to the Expert Pool, the online platform is envisioned to contain a set of tools, i.e. an interactive flow-diagram and e-courses accompanied by a set of examples.

The support services provided in WP2 are customised based on the needs of the IoT-LSPs. In order to derive requirements for customisation, a number of unstructured interviews were held and a questionnaire was sent out in collaboration with WP1. The findings of this questionnaire and the unstructured interviews can be found in Appendix A – Interview & Questionnaire Results – slide 1-22.

This report, Online training programme and experts pool first report (D2.3), documents the progress that has been made during the first year of the U4IoT project according to the end-user engagement support strategy (end-user engagement support strategy and work plan addressing the specific selected LSPs (MS5)). Moreover, it provides recommendations for further design, development and implementation of the online support services.

Alongside this report, the first support resources are made available on the U4IoT website, are accessible to the IoT-LSPs and other stakeholders, and conform to milestone MS6: End-user engagement support resources should be available online.





SECTION 2 – CO-CREATIVE WORKSHOPS SUPPORT (T2.1)

Support is offered to enable IoT-LSP partners to implement and utilise co-creative workshops into their projects. Materials to support the IoT-LSPs consist of a concise handbook containing guidelines and a toolkit that enables co-creation. The support offered follows a hands-on approach in which IoT-LSP partners are learning by doing. Simultaneously, workshops result in concrete requirements for the design and development phases of the IoT-LSPs.

2.1 HANDBOOK

Deliverable D2.1 - Co-Creative Workshops Methodology Handbook, describes the cocreative workshop methodology and provides guidelines and tools. This deliverable was presented to and validated by the board in M6 and is presented on the U4IoT website¹ as an official deliverable. After the review by the European Committee, the report was upgraded to a designed version. This digital and hard-copy version of the handbook will be distributed to the U4IoT network. In addition to the report, a concise booklet with guidelines for participants was made to be used during the workshop.

In order to define the requirements for the Co-Creative Methodology Handbook, research took place from M1 until M4. Simultaneously, work was done on the handbook, toolkit and report. Experiences from previous Co-Creative Workshops were evaluated, similar methodologies and tools on the market were analysed, and the activities of the IoT-LSPs were studied. The handbook, guidelines for participants, and toolkit were finalised in M5 so that they could be deployed during the IoT Week in Geneva².

From the interviews and questionnaire (Appendix A – Interview & Questionnaire Results – slide 1-22), it was concluded that not all IoT-LSPs have the same experience in utilising end-user engagement tools and methods in their processes. The handbook was therefore written in a concise and easily readable format. It provides the IoT-LSPs with basic information on the preparation, facilitation, analysis and documentation of a Co-Creative Workshop. The five IoT-LSPs are in different maturity phases, in which, for example, AutoPilot and SynchroniCity are further defining their use cases while IoF2020 are already developing Minimal Viable Products (MVPs) to test at the beginning of 2018. The workshop process described in the handbook was customised according to the processes of the five IoT-LSPs. The methodology was separated into four phases: Co-analysis, Co-design, Co-evaluation and Co-implementation phases. Each phase is based on established literature and the phases can be used in conjunction or



¹ U4IoT website – Deliverables page - <u>http://www.u4iot.eu/deliverables</u>

² IoT Week 2017 website – <u>http://www.iot-week.eu/iot-week-2017</u>



autonomously from one another. After a brief introduction and a checklist with the required resources, the guidelines of an individual phase are described. The guidelines are followed by tips for facilitation and a practical example that is based on one of the co-creative cycles completed during the IoT Week in Geneva. In addition to the four phases the handbook contains, there is also a number of templates and a letter of consent that can be used by the IoT-LSPs to prepare and facilitate the workshops. *Deliverable D2.1 - Co-Creative Workshops Methodology Handbook* and the upgraded version of the handbook are displayed in figure 1.



Figure 1: Deliverable D2.1 - Co-Creative Workshops Methodology Handbook and the designed version of the handbook.

2.2 TOOLKIT

The Co-Creative Workshop Methodology Handbook is accompanied by the Co-Creative Workshop Toolkit. Also, this toolkit is customised according to the needs of the IoT-LSPs. The toolkit consists of a general workshop package (with actors, sensors and sensor rings) and contextual workshop packages (with Picture Cards and Objects). One package for each of the five IoT-LSP contexts: Smart Mobility, Smart Entertainment, Smart Agriculture, Smart Cities, Smart Health. The design of the Location Template is also based on the IoT-LSPs and visualises locations for each of the five contexts. In addition to the Location Template, a Stakeholder Template has also been developed to empathise with stakeholders and end-users. The Device Template enables participants to draw their own interfaces during the workshop. The complete Co-Creative Workshop Toolkit is displayed in figure 2.







Figure 2: Complete overview of the Co-Creative Workshop Toolkit.

In 2017, several Co-Creative Workshops were facilitated. During the IoT Week in Geneva, two workshops of four hours were held. These workshops provided the IoT-LSPs present with a hands-on introduction on Multi-Stakeholder Co-Creative Workshops. During the Open Living Lab Days (OLLD), two additional workshops, a World Café session and a Co-Creative Workshop focusing on Stakeholder profiles to support IoT-LSP SynchroniCity were also held.

IoT Week 2017 in Geneva – Hands on Introduction

The first workshop held on June 6th 2017 was centred around the topics of 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 IoT-LSP projects SynchroniCity and ActivAge. For the topic of Smart Cities, a solution for the following design challenge was cocreated: "How can delivery systems of small packages be optimised in order to reduce traffic and pollution in the city centre during rush hours?". Simultaneously the Smart Health group co-created a service based on smart locks granting caregivers access to the homes of the elderly at predetermined times of day or in the case of an emergency.

The second workshop held on June 8th 2017 was centred around the topics of Smart Entertainment and Smart Agriculture, informing the future design and development phases of the IoT-LSP projects MONICA and IoF2020. For the topic of Smart Entertainment, a solution for the following design challenge was co-created: "How to create a safe environment on festivals organised in the city centre by means of IoT".





Simultaneously, 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. Both workshops were closed with a discussion exploring the possibilities on how U4IoT could support these two IoT-LSPs to implement the Co-Creative Workshop Methodology within their projects and provide LSP partners with training to autonomously organise and facilitate Co-Creative Workshops.

After the IoT Week, the insights gained during the Co-Creative Workshops were gathered and documented in *Deliverable D2.1 - Co-Creative Workshops Methodology Handbook* and in the form of an unofficial report³. This report contains four concrete use-cases, solutions and requirements and was disseminated to all participants of the workshops, including the IoT-LSP partners. Pictures of the workshop and the cover of the report are displayed in figure 3.



Figure 3: Co-Creative Workshops - IoT Week 2017 Geneva - Participating LSPs: SynchroniCity, ActivAge, MONICA, IoF2020.

Open Living Lab Days 2017 in Krakow – World Café and Stakeholder Profiles

On August 31st 2017, a World Café session was held to enable IoT-LSPs to exchange information on the topic of end-user engagement. Moreover, it provided an opportunity to gather relevant insights into the context of the different IoT-LSPs. The insights from the SynchroniCity table were gathered and utilised to introduce the workshop on Stakeholder Profiles held on September 1st 2017. It also informed the use cases that were created during this same workshop. Figure 4 displays pictures of the World Café session and pictures of the workshop on Stakeholder Profiles are displayed in figure 5.



³ IoT week and OLLD report – In the U4IoT Knowledge Base – <u>http://www.knowledge-base.u4iot.eu/</u>





Figure 4: LSP World Cafe – **Open Living Lab Days 2017 Krakow** - Participating LSPs: SynchroniCity, ActivAge, AutoPilot, IoF2020.

In the workshop "Smart City Ecosystem Innovation by means of Stakeholder Profiles & Business Model Canvasses", concise training on Stakeholder Profiles was provided. The Stakeholder Templates of the Co-Creative Workshop Methodology were utilised to explore Smart City solutions from a stakeholder and end-user perspective. The stakeholder profiles were co-created in four phases: Co-analysis, Co-design, Co-evaluation and Co-implementation phases. In these phases, the profiles were generated and role-played by the participants of the workshop. Based on the generated profiles, empathy was engendered in order to enable SynchroniCity partners to identify with the needs of the respective stakeholders and end-users of the solutions to create business models informing a Smart City IoT Ecosystem.



Figure 5: Co-Creative Workshops – **Open Living Lab Days 2017 Krakow** - Participating LSP: SynchroniCity specific workshop.

Insights generated during the workshop were beneficial for IoT-LSP partners from the SynchroniCity project as well as the city representatives of Eindhoven that attended the workshop. Two relevant use cases were developed. The question the first use case addressed was: "Can smart solutions get students save to their destinations?". In the second use case, the question was: "Can IoT/big data be used to make the city centre more accessible?". One of the use cases turned out to also be relevant in the context of other cities, providing a great opportunity to be used in Smart City Ecosystem development.





Both the findings of the World Café session and the workshop on Stakeholder Profiles were documented in the OLLD Workshop Debrief and were communicated to the participants of both workshops and disseminated within the U4IoT network.

2.3 WEBSITE

A description of the Co-Creative Workshop Methodology is included on the U4IoT website⁴ (figure 6). Alongside this description, the handbook and templates are provided and made available to be downloaded by the IoT-LSPs by clicking on a URL that will be added below the description of the methodology. Moreover, the Co-Creative Workshop Methodology is included in the End-User Engagement Toolkit (WP1, T1.1) and the Interactive Flow-Diagram (WP2, T2.3).

		Co-Creative Workshop Methodology
Co-Creative Workshop	Recommend this method to others? 💙 35	Living Lab support
Methodology		Privacy Guidelines and Game
co-creation, advanced		IoT Adoption Barriers
The Co-Creative Workshop Methodology enables you to engage end-users and stakeholders within your projects and co-create lar Salutions in only a couple of hours. The Co-Create Workshop Handbook provides you with guidelines for the organisation, facilitation, analysis and decumentation of Co-Creative Workshops. The methodology consists of a four phase co-creative cycle, with guidelines for Co- analysis, Co-deging, Co-evolution and Co- implementation. The complementary Co-Creative Workshop Tooline Contains materials for organisang workshops around five topics - Smart Mobility, Smart Entertainment, Smart Agnoluture, Sant Claes and	Smart Health, Empowered by the toolkit end-users can communicate on an expert level, whilst experts are enabled to explosise with the needs of end- users. The insights elicited through a Co-Creative Workshop are ideal to indem your design- and development processes. U4IIoT supports LSP partners in the European LSP Programmet to implement the Co-Creative Workshop Methodology into their projects by providing hands- and training sessions. These training sessions enable LSP partners to autoenomosity organise, facilitate, analyse and Societate.	Participatory Sustainability Modes
Related Material		
Co-Creative Workshop Methodology Handbook Guidelines for Participants Location Template Stakeholder Template Device Template		
Stembert Design		

Figure 6: Description of the Co-Creative Workshop Methodology on the U4IoT website.

2.4 NEXT STEPS & RECOMMENDATIONS

With the Co-Creative Workshop Methodology handbook and toolkit available, more workshops and trainings will be scheduled. In 2017, the need for Co-Creative Workshops has been inventoried and a targeted selection of IoT-LSP contacts and use cases was made. In coordination with these contacts, Co-Creative Workshops and training will be facilitated in 2018. In addition to these workshops, other workshops during joint events in which all projects of the IoT-Programme attend will be facilitated



⁴ U4IoT Website – U4IoT Tools & Support Page - <u>http://www.u4iot.eu/u4iot-tools</u>



by U4IoT. Additionally, an e-course will be made in order to support the IoT-LSPs on the organisation and preparation of a Co-Creative Workshop.

UPDATED SUPPORT STRATEGY

The support strategy described in MS5 was updated according to new insights gained through interactions with the IoT-LSPs and adapted according to the recommendations. Within the Co-Creative Workshops both the IoT-LSPs and their stakeholders come in contact with the methodology, yet the five IoT-LSP partners as organisers of the workshops are the main target group on which will be focussed. The updated support strategy for the Co-Creative Workshop Methodology is therefore described below in terms of the IoT-LSP needs, operational support plan and a roadmap.

NEEDS OF THE IOT-LSPS

The interviews and questionnaire results indicated that the IoT-LSPs have different maturity stages and are coordinating several sites leading to different types of support questions at different times. The main end-user engagement contacts of the IoT-LSPs discussed how a Co-Creative Workshop could be most beneficial for their IoT-LSP project. In consultation, a preliminary selection of a project phase, use case and target group was made. These preliminary selections are described per IoT-LSP and will be the basis for the coordination of the Co-Creative Workshops. With some of the IoT-LSPS, further discussion has to take place to make a definitive selection.

AutoPilot

Discussions were held with the main contacts at TNO and FIA from IoT-LSP Autopilot. AutoPilot is in the exploration phase and is defining their use cases and target groups. The Co-Creative Workshops could be beneficial for engaging with end-users in the Brainport use case – Real-time Car-Sharing, with the objective being to demonstrate the added value of the Internet of Things for Automated Driving. In this case, the target groups are, among others, students from the Technical University Eindhoven. Training in the Co-Creative Workshops be facilitated by U4IoT. The exact coordination in terms of the scale and timing of the workshops has to be further discussed. A follow-up will take place in January 2018.

MONICA

Among the attendees of the IoT Week 2017 workshops were two contacts from Future Cities and In-Jet - organisations within the IoT-LSP MONICA. MONICA is further along in the project and already has concrete use cases and MVPs ready. First applications will be released in April/May 2018. A 2018 objective is therefore the evaluation of these applications together with stakeholders (e.g. municipalities, festival organisers, neighbours) and end-uses (e.g. festival-goers). No concrete festival site in one of the six cities has been chosen yet that would benefit most from a co-evaluation workshop. A follow-up will take place in





January 2018 to further discuss the coordination of a possible workshop and the need for training.

IOF2020

Multiple discussions have taken place with Wageningen University Research, the main contact of IoT-LSP IoF2020. IoF2020 is, just as MONICA is, further along in terms of maturity. MVPs are ready, tested and further developed by means of an iterative cycle. A large-scale workshop will be organised by IoF2020 in February during their stakeholder gathering in Almería. U4IoT is requested to support IoF2020 in the facilitation of parts of this workshop. The focus will lie on end-consumer information and purchase behaviour and the objective of the co-creative workshop will be to develop tools and applications that present information from the farm to the end-consumer on the point of purchase. The target groups are therefore end-consumers, innovative start-ups, supermarkets and the IoF2020-interested use cases. Use cases that best fit this objective are UC5.1 - Pig meat and UC3.3 - Automated Olive Chain on Olive Oil (Trial 2 on dairy products). Similar to AutoPilot, workshop training is not seen as a priority and the support focus will lie on the facilitation and the outcome of the workshop itself.

ActivAge

MySphera is the end-user engagement lead of IoT-LSP ActivAge. ActivAge started with an extensive user research phase to elicit the needs of a broad target group. In this phase, co-creative activities were already conducted and based on these activities, solutions were developed. There is another (open) co-creation cycle planned in which there is a need for, among others, co-evaluation of these solutions. Around March 2018, a workshop will therefore be organised to co-evaluate the solutions created in the UC1 - Daily Activity Monitoring and UC3 – Outside Monitoring, with Valencia as the deployment site. The objective of the workshop is to co-evaluate if the solutions effectively involve informal carers in knowing information about daily behaviours of the elderly at home and outside. In addition to the workshop facilitation and outcome, MySphera is interested in the Co-Creative Workshop training, which will therefore be part of the support services.

SynchroniCity

IoT-LSP SynchroniCity already attended three U4IoT Co-Creative Workshops. Coordination of these workshops took place with SynchroniCity partners IMEC and Atos. SynchroniCity is just like AutoPilot in that it is in an earlier project phase, between the exploration and ideation phases. Co-creation of more concrete use cases is done in collaboration with the eleven reference zones. A workshop is to be organised in the reference zone of Carouge, Switzerland in May 2018 and this is currently under discussion. The main objectives of implementing co-creation approaches for Carouge are quite broad and, amongst other things, involves identifying stakeholder needs and the creation of new services and products. Training in the Co-Creative Workshop Methodology is especially interesting for the municipalities participating in SynchroniCity. The reference zone of Carouge works





closely together with Geneva Lab and has expressed an interest in the Co-Creative Workshop training.

OPERATIONAL SUPPORT PLAN

The Co-Creative Workshop Methodology handbook has been prepared and was reviewed in M6. The design of the publicly available version of the handbook was finalised in M11, when the promotion plan for the two handbooks (from tasks 2.1 and 2.2) was also prepared.

U4IoT has initiated a monthly email for the LSP contacts to share news about recent developments in U4IoT that will support the piloting activities. The first monthly email was sent out in November 2017 and the second email, sent in December 2017, includes the information about two handbooks: the Co-Creative Workshop Methodology and Living Lab Methodology handbooks (T2.2).

During the second year of the U4IoT project, the Co-Creative Workshops will continue. As described above, workshops will be facilitated in coordination with the IoT-LSPs and optional training will be available. Additional workshops will be coordinated with the organisers of IoT Week 2018 and OLLD 2018. If the Co-Creative Workshops fit the programme of these conferences, the workshop during the IoT Week will be focussed on the exchange of Co-Creative Workshop results, while the workshop held during the OLLD will have an evaluative character. If there are enough registrations, the Co-Creative Workshop Methodology will also be part of the IoT Masters Programme, a new IoT Masters provided by the Université de Genève.

An e-course with more advanced information about the preparation of a Co-Creative Workshop will be made available amongst the online support services. A similar approach will be taken regarding the promotion of this e-course. The plans for the e-courses are described in more detail in Section 4.3 of this deliverable.

ROADMAP

Table 1 displays the planned Co-Creative Workshop Methodology support between M13 and M24.

IoT-LSPs	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24
AutoPilot						L.T.						
MONICA						Week WS						
loF2020	Follow - up plann	ws				2018		OLLD WS				
ActivAge	ed		WS			ediate evalu		2016				
SynchroniCity					WS + IoT MSc	ation						

Table 1: Roadmap Co-Creative Workshops 2018.





LSP-PROGRAMME COORDINATION COLLABORATION CREATE-IOT

The services offered by co-CSA CREATE-IoT in terms of co-creation are of a different nature to that of the Co-Creative Workshop Methodology provided by U4IoT. CREATE-IoT focusses on co-creation with artists and user-acceptance, while U4IoT aims to enable IoT-LSPs to engage end-users in their projects to define requirements for their design and development processes. The support services are therefore not of a competitive but complementary nature. Moreover, there has been a close collaboration with CREATE-IoT partner Artshare. Artshare offers an approach to question the question behind a problem (critical design), whilst the nature of the U4IoT workshops are solution-focussed (design thinking). Artshare will, in collaboration with the U4IoT partner Stembert Design, build an augmented layer on top of the Co-Creative Workshop Methodology in order to strengthen the co-creative support of both CSAs. The augmented critical design layer can be used in conjunction with the Co-Creative Workshop Methodology making it possible to co-facilitate workshops with a broader orientation.

ACTIVITY GROUP

The updated activity group (AG5), serving as a placeholder for end-user engagement activities, will be utilised to inventory needs of the IoT-LSPs in terms of Co-Creative Workshop support and coordinate the workshops with the IoT-LSPs. Moreover, it allows the exchange of Co-Creative Workshop Methodology, best practises, results and knowledge among the IoT-LSPs.

RECOMMENDATIONS

The recommendations directed at the Co-Creative Workshop Methodology address a consolidated support strategy, language barriers, KPI ambition and evaluation.

The support strategy described in MS5 - End-user engagement support strategy and work plan addressing the specific selected LSPs, has been updated in this deliverable (D2.3) and has been specified in terms of the Co-Creative Workshop Methodology Support that will be provided during the project's second year. Towards the end of the second year, the support strategy for the third year will be planned in coordination with the IoT-LSPs.

The e-course on the preparation of a Co-Creative Workshop will provide guidelines that show how to address cultural and language issues in the preparation and organisation of co-creative workshops. For the workshops offered to the IoT-LSPs, U4IoT has an interpreter available who can assist in overcoming interlingual barriers. The language used in the e-course will be kept non-technical just as the use of language in deliverables 2.1 and 2.2.

The aim of KPI 2 - Number of participants in Co-Creative Workshops >100, is to reach over one hundred participants who participated in Co-Creative Workshops at the end of the third year of U4IoT. Sixty-one participants participated already during the first year. This is a great result, yet this also means the KPI can be updated to raise its ambition; this will be further discussed in Section 5 – Evaluation & Conclusions.





After each Co-Creative Workshop, its support is evaluated through feedback discussions with the participants in the workshop. As recommended, a second questionnaire to be executed in M17 will also be sent out to evaluate the quality of the Co-Creative Workshops' support.





SECTION 3 – LIVING LAB METHODOLOGY SUPPORT (T2.2)

The Living Lab Methodology support guidelines and webinars provide online support in applying Living Lab Methodologies and developing open and user-driven innovation ecosystems for LSPs based on the experience of the European Network of Living Labs. As a starting point, the guidance is delivered in a format of a Living Lab Methodology handbook which consists of background research, practical insights and lessons learnt from real-life cases as well as resources and tools. As a second phase, dedicated on-demand advice for LSPs in Living Lab topics will be provided in the format of online material (e-courses/webinars), customised based on the needs of the LSPs.

3.1 HANDBOOK

Deliverable D2.2 describes the *Living Lab Methodology Handbook* (figure 7) that has been reviewed in the first review of the U4IoT project in M10. The handbook provides guidance in applying Living Lab Methodologies in IoT pilots and is presented among the online support services. The guidance consists of resources and tools, practical insights and lessons learnt.



Figure 7: Deliverable D2.2 – Living Lab Methodology Handbook and the designed version of the handbook.

At the beginning of the project, in spring 2017, a questionnaire was conducted among the IoT-LSPs. Based on that, all projects showed an interest in Living lab support, going from intermediate to high levels of interest. However, their level of knowledge about the end-user engagement topics seemed to vary, which was taken into account in the planning of the tools and support. Due to this, it was decided to initiate the Living Lab support with basic background material (handbook) and then complete the support from this with the online material.

The aim of the Living Lab Methodology Handbook is to introduce research background and serve as a practical guide for researchers and practitioners on Living Lab Methodologies, co-creation and user-engagement. It also aims to inspire the





reader with the lessons learned from thorough research together with real-life cases. To benefit the IoT-LSP project, the handbook is specifically focusing on the topical area of the Internet of Things and it explains how the Living Lab approach can greatly support the research and innovation activities in that area.

To best serve the people looking for guidance on the implementation of activities following the Living Lab approach, the handbook is linked to a recently developed toolkit comprising end-user engagement methods and tools organised according to the phases throughout the innovation process: exploration, experimentation and evaluation; these are explained in detail in this handbook. Linking the two outcomes brings extra value for the LSPs by introducing them to a set of tools to use but also explaining them within context and providing examples on the usage of the tools.

3.2 WEBSITE

Living Lab support is described on the U4IoT website⁵ (figure 8), including the Living Lab Methodology Handbook, which is also downloadable as a pdf version from the website. In a later stage, the rest of the Living Lab support will be made available on the website and will be linked to in this section, including the online learning material (e-courses/webinars). Moreover, the Living Lab Methodology Handbook is included in the End-User Engagement Toolkit (WP1, T1.1) and in the Interactive Flow-Diagram (WP2, T2.3).

		Co-Creative Workshop Methodology
		Living Lab support
Living Lab support	Recommend this method to others?	Privacy Guidelines and Game
The Living Lab support for the European IoT-LSP programme introduces an approach that guides the planning, execution and evolution of the projects in a user -centered and co-creative manner. Top separstin Ib/Ung Lab research and practice have contributed to the Living Lab Methodology Handbook by sharing their knowledge on the most recent findings on the topic. This handbook introduces research background and serves as a practical guidance for researchers and practitioners on Living Lab methodologies, co-creation and user engagement. It also aims to inspire the reader with the lessons learner from through research together	with practical experiences from real-life cases. The handback is specifically focusing on the topical anea of Internet of Things, and explains tow the Living Lab approach care greatly support the research and development activities in that care. In addition to this Living Lab Methodology Handback, the Living Lab support provided by UAIG includes and the sources in the format of e-courses/webinars on Living Lab topics, cacess to Living, Lab begrets via an outlying Lab topics. The source of the annual Living Lab summit, the OpenLivingLab days.	io I Adoption Barners
Related Material Living Lab Methodology Handbook ENOLL		

Figure 8: Living Lab support introduced on the U4IoT website

⁵ U4IoT Website – U4IoT Tools & Support Page – <u>http://www.u4iot.eu/u4iot-tools</u>



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3.3 NEXT STEPS & RECOMMENDATIONS

In addition to the already available Living Lab Methodology handbook, the LSP projects will be provided with advice and support through specialised Webinars or ecourses. The exact form of support will be decided based on the consultation with the IoT-LSPs to allow flexibility in order to respond to their exact needs. The plan is to first share the Living Lab Methodology handbook to provide them with basic information about the topic. After this, further interactions will take place to specify the format of the further support. The plans for the e-courses are described more in detail in Section 4.3 of this deliverable.

UPDATED SUPPORT STRATEGY

The support strategy made in MS5 was updated according to new insights gained through interactions with the IoT-LSPs and adapted according to the recommendations. The updated support strategy for the Living Lab Methodologies is described below in terms of the IoT-LSP needs, operational support plan and a roadmap.

NEEDS OF THE IOT-LSPS

The first attempt to gather the needs of IoT-LSPs was the questionnaire conducted in spring 2017. Based on it the Living Lab support was decided to be targeting all IoT-LSPs, no further customization of the support services was seen relevant at the beginning, but the attempt has been to start with the introduction of the basic elements of the Living Lab approach. As a next step, a survey will be conducted to elicit further needs, and the further support will be planned accordingly.

The main contacts from each LSP are identified (same as for T2.1), however, in the case of Living Lab support the targeted stakeholder groups with this support are with much broader range – through the handbook and online support it is possible to reach not only the main contacts of end-user engagement in IoT-LSPs, but also the different stakeholders working in use cases, trial sites and city reference zones. In addition, the SMEs joining 3 of the IoT-LSPs through open calls will be an important target group, for which the online support has to be specifically planned, considering the nature of this group (highly focused, easily approachable material, highlighting the cost-efficiency of the approach).

Due to the scarcity of resources for this task (covering the duration of the whole project), existing material on Living Lab topics will be also exploited and customised to specific e-courses based on the needs of IoT-LSPs. Consultancy on Living Lab approach will be made available through webinars/online contact form in connection to the e-courses as well as the expert pool. In addition, the envisioned Activity Group including end-user engagement topic will allow further response to ad-hoc support and consultation on this topic, in order to response directly to the needs of IoT-LSPs.





OPERATIONAL SUPPORT PLAN

The Living Lab Methodology Handbook has been prepared and was reviewed in M10. The design of the publicly available version of the handbook was finalised in M11, when the promotion plan for the two handbooks (from tasks 2.1 and 2.2) was also prepared.

The project has initiated a monthly email for the LSP contacts to share news about recent developments in U4IoT that will support their piloting activities. The first monthly email was sent out in November 2017 and the second email, sent in December 2017, includes the information about two handbooks: the Co-Creative Workshop Methodology and Living Lab Methodology Handbooks.

When it comes to external promotion, the project relies on the extensive networks of the partners. Specifically, the European Network of Living Labs has a monthly newsletter with a wide coverage. The November 2017 issue of that newsletter features an article about the Living Lab Methodology Handbook, this article and the handbook will be further promoted via both U4IoT and partners' social media channels (including Twitter and Facebook). Moreover, the Living Lab Methodology Handbook will be published via ENoLL's Scribd account for even wider coverage.

A similar approach will be taken regarding the promotion of the upcoming online support including e-courses/webinars and other online material.

ROADMAP

The following table illustrates the roadmap of Living Lab support towards the IoT-LSPs, available also to larger public via U4IoT website.

Living Lab support activity	Schedule
Living Lab Methodology handbook reviewed	M10
Living Lab Methodology handbook design finalised	M11
Handbook promotion planned and initiated	M11
Handbook promotion continues	M12
First e-course provided on Living Lab topics	Spring 2018
Feedback gathered (discussions / survey)	Spring 2018
Further support planned according to the feedback	Summer 2018 onward

Table 2: Roadmap Living Lab support 2018.





LSP-PROGRAMME COORDINATION COLLABORATION CREATE-IOT

Regarding the Living Lab Methodology support, the aim is to keep our co-CSA, CREATE-IoT, fully aware of the services provided. In addition, communication support from CREATE-IoT will be valuable in terms of promotion of the U4IoT outcomes to IoT-LSPs and beyond. However, their activities are not directly related to these tasks and no further coordination needs are foreseen.

ACTIVITY GROUP

The updated activity group (AG5) serving as a placeholder for end-user engagement activities, will be a highly relevant group for this task in terms of sharing the outcomes, gaining knowledge about the needs of IoT-LSPs, and getting further feedback to develop and decide on the format of support. This activity group also allows the LSP projects to exchange knowledge and best practices on Living Lab topics among themselves.

RECOMMENDATIONS

The recommendations with regard to Living Lab Methodology support are related to the more general recommendations concerning all support services. In these, a more specific plan targeting each LSP is being asked for. According to the first questionnaire, all five IoT-LSP projects show intermediate-to-high levels of interest in Living Lab Methodology support. Future plans are further described in section 5 of this document and include, for example, a second survey to be distributed in M17 designed to gather the IoT-LSPs' needs after the basic information is provided in the format of the Living Lab Methodology handbook and first e-course.

As response to the review comments, the broader audience will be taken into account with the Living Lab support. The material is downloadable online, starting with the basic information included in the handbook, and later with more specific support through e-courses/webinars, based on the needs from the LSPs. The different stakeholders among IoT-LSPs are considered (including SMEs via open calls), as described earlier in this chapter, in the section concerning the needs of LSPs.

Furthermore, the request to avoid technical language is considered in all the outcomes of this task. Already when planning the handbook, the varying level of knowledge of the audience was considered, and connected to that, it was decided to apply user-friendly language, as had been the case also with the earlier deliverables D1.1 and D1.2.





SECTION 4 – ONLINE TRAINING PROGRAMME (T2.3)

This task provides an online platform with experts and a training programme that can be consulted by LSPs and is beneficial for increasing end-user engagement in the IoT-LSPs. The training programme is envisioned to contain a set of tools, e.g. an interactive flow-diagram, several e-courses accompanied by example materials and an expert pool. The online training programme will be hosted on the U4IoT website.

Based on the interviews and questionnaire results, the support services were customised according to the needs of the IoT-LSPs. The support services were listed and a profound plan was made to offer the IoT-LSPs and other stakeholders a user-friendly online training programme. The support services described in the following paragraphs are part of this online training programme and are each designed in the form of wireframes. The wireframes serve as a blueprint for development. Based on these blueprints, the third iteration of the Interactive Flow-Diagram and the first iteration of the Expert Pool were incorporated into the U4IoT website in December 2017, an e-course will be made available online every other month in 2018.

4.1 INTERACTIVE FLOW-DIAGRAM

The Interactive Flow-Diagram is an online tool that provides IoT-LSPs with guidance on deciding on an approach to end-user engagement, e.g. workshops, Living Labs, crowdsourcing, that matches the project's objective(s).

Newly introduced to the field of end-user engagement, the enormous amount of different end-user engagement tools and methods can be quite overwhelming. When announcing the Interactive Flow-Diagram, the tool was thus perceived as an especially useful tool by IoT-LSPs with less knowledge on end-user engagement. The Interactive Flow-Diagram has to be easily graspable in terms of the number of questions and answers, but also in terms of the language used, which should be of a non-technical nature. Connecting the questions and answers one-to-one to the IoT-LSP processes can make answering these questions quick and straightforward. The outcome of the tool should serve as a navigational instrument linking relevant resources, e.g. handbooks, e-course(s), or experts, associated with the selected end-user engagement method.

The Interactive Flow-Diagram has been developed iteratively according to the requirements described above. Work started in M3 by mapping the support provided by the partners of U4IoT and selecting relevant parameters. Initially, a static version of the Interactive Flow-Diagram was put together and cross-referenced by several U4IoT partners. This version was incorporated in an interactive iteration of the Interactive Flow-Diagram and tested. This second iteration of the Interactive Flow-Diagram has been published online and performance will be measured. Adjustments will be made according to the feedback and findings will be documented in D2.4 - End-user engagement support report.





The Interactive Flow-Diagram consists of six questions. Users are asked to answer these questions: the stage of development, objective, type of data, sample size, resources, and level of expertise, keeping their project objectives in mind. In order not to raise confusion, the phases and experience levels are kept in line with the filters used in the End-User Engagement Toolkit (T1.1). The questions and answers are displayed in Table 3.

Questions	Answers (*Multiple	Answers (*Multiple answers possible per question)						
For what project phase are you searching an end- user engagement method?	Beginning	Middle	Towards the end					
What is your main objective?	User research	Brainstorming	Co-Creation	Prototyping & Testing	Implementation			
How many participants do you want to involve?	<50	50-100	100-500	500-1000				
What type of data do you want to collect?	Qualitative	Quantitative						
How many resources can you allocate?	<1 PM	1-6 PMs	6-12 PMs	>12 PMs				
How much experience do you have with end-user engagement?	Beginner	Intermediate	Advanced					

Table 3: Questions and answers Interactive Flow-Diagram.

The six tools, methods and recommendations specifically provided by U4IoT, i.e. Crowdsourcing and Survey tools, Privacy Game, Co-Creative Workshop Methodology, Living Lab Methodology, Participatory Sustainability Models and IoT Adoption Barriers, and the tools and methods included in the End-user Engagement Toolkit, are incorporated in the Interactive Flow-Diagram. In the programmed logic behind the Interactive Flow-Diagram, connections are made for each of the questions, between the tools, methods and recommendations and the possible answers. The tool, method or recommendation with the most corresponding answers will come forward as primary match. Since some of the tools and methods are closely related, three secondary matches will be provided as well making interrelations between certain tools, methods and recommendations visible and providing choice.

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Figure 9: Wireframe design Interactive Flow-Diagram (left: question wizard, right: primary and secondary matches).

A button linking to the Interactive Flow-Diagram is located at the top of the U4IoT tools and support page⁶ in order to be easily found. As can be seen in figure 9, the Interactive Flow-Diagram is introduced shortly thereafter, in which the user is presented with a wizard. The wizard contains the six questions mentioned above; after answering the last question, the user receives the outcome by clicking the 'see result' button. The wireframes are developed into a working version of the Interactive Flow-Diagram⁷ (figure 9) and tested within the consortium, continuous tests will take place in 2018.

4.2 EXPERT POOL

The work on the Expert Pool started in month six and continued throughout the second half year of the project. Plans were discussed with all WP2 partners and a list of experts with their expertise fields was composed, also the designs for the Expert Pool were made and the contents was gathered. IoT-LSPs can use the list of experts to contact experts for specific questions or for custom advice and coaching on end-user engagement in relation to their projects. The list consists of experts from the U4IoT consortium with PMs available for this support service and covers a variety of fields within the end-user engagement spectrum.



⁶ U4IoT Website – General Tools & Support Page – <u>http://u4iot.eu/tools-and-support</u>

⁷ U4IoT Website – Interactive Flow-Diagram Page – <u>http://u4iot.eu/interactive-flow-diagram</u>



The Expert Pool is included on the tools and support page⁸ of the U4loT website in the form of a carousel feature (figure 10). The carrousel contains pictures of the experts accompanied by a name and expertise field caption. When clicking on an expert's picture, you will be directed to the Expert Pool page⁹. Where the personal information, field(s) of expertise, a short biography and one or more URLs to the expert's work are shown in a modal panel.



Figure 10: Wireframe design Expert Pool (left: Expert Pool carrousel overview, right: modal panel with individual expert information).

IoT-LSPs can get in contact with the experts by clicking the 'contact' button, upon which they are directed to the U4IoT email address¹⁰ to formulate their request. The request will be processed by the U4IoT consortium and an answer will be sent to further discuss the details of the request.

The Expert Pool is accompanied by a disclaimer, limiting U4IoT's liability, in case an IoT-LSP contacts experts from the expert pool outside of the LSP's scope or for extensive consultancy moving beyond the initial scope of U4IoT.

According to the needs of the IoT-LSPs, the expert list can be extended with a list of end-user communities for open calls and a list of FAQs.

4.3 E-COURSES

The e-courses and example material serve as an online placeholder to capture additional information provided by U4IoT. The e-courses and examples can be used



⁸ U4IoT Website – General Tools & Support Page – <u>http://u4iot.eu/tools-and-support</u>

⁹ U4IoT Website - Expert Pool Page - http://u4iot.eu/expert-pool

¹⁰ U4IoT email address - <u>contact@u4iot.eu</u>



as reference material that can be consulted at any time to help kick-start their enduser engagement initiatives.

Research on e-support was performed by studying currently available e-support approaches. From these approaches, a selection was made and combined into an approach fitting the U4IoT e-courses. The results from the questionnaire and interviews indicate that the e-courses would ideally be tailor-made for the IoT-LSPs to fit their needs. The e-courses will not only be crafted around the tools, methods and recommendations provided by U4IoT, but will also address more specific end-user engagement issues related to the IoT-LSP projects.

In M5, a video introducing U4IoT was made (Figure 11). The e-courses have a similar tone of voice as used in this video. Each e-course contains multiple lessons and each lesson has a similar intro and outro to guarantee consistency.



Figure 11: U4IoT promotion video¹¹, introducing the CSA.

Inspiration was taken from the current approaches to e-support, to put together a coherent overview of e-courses and lessons that are constructed as bite-sized chunks of information. The e-courses are just like the Interactive Flow-Diagram and the Expert Pool displayed on the U4IoT tools and support page¹². Once an e-course is released, it



¹¹ U4IoT Promotion video - <u>https://youtu.be/sYP7AysfY_k</u>

¹² U4IoT Website - General Tools & Support Page - <u>http://u4iot.eu/tools-and-support</u>



will be added to the e-course carrousel feature. When clicking on an e-course, an introduction to the course is displayed. Underneath the introduction, the characteristics of the course and the individual lessons can be found. The lessons are also accompanied by a short introduction and the duration of the lesson is indicated. The wireframe design of the e-courses is displayed in figure 12.



Figure 12: Wireframe design e-course (left: introduction and characteristics, right: Lessons and video modal panel of an individual lesson).

Currently six e-courses are planned to be made and released every other month in 2018. Underneath, a general description of these e-courses is provided. The exact contents of the e-courses will be generated based on additional research into the needs of the IoT-LSPs and other stakeholders.

E-course 1: Co-Creative Workshops

The first e-course on the topic of Co-Creative Workshop preparation will be created by Stembert Design with expertise in the field of Human Centered Design. It will be specifically targeted at the IoT-LSP partners who are leading the WPs on end-user engagement (as identified in Section 2). The objective of this e-course is to provide additional and more in-depth information on top of the Co-Creative Workshop Methodology Handbook in terms of the organisation of a workshop. The e-course will contain roughly five lessons, each lasting about ten minutes. Subjects such as the selection and priming of participants will be covered as well as possible language barriers, defining the workshop objective, and setting up a workshop room. The facilitation tips described in the Co-Creative Workshop Methodology Handbook will also be explained further.

E-course 2: Crowdsourcing

The second e-course on the crowdsourcing and surveys smartphone application will be made by Mandat International with expertise in the fields of surveying technology





and IoT. This e-course will concentrate on how to most effectively use the application and how to best interpret the results gathered from it.

E-course 3: Living Lab Methodology

The objective of this third e-course on Living Lab Methodologies is to complete the background information on Living Lab approach and introduction to the topic provided in the Living Lab methodology handbook. It will be created by ENoLL, supported by its Living Lab members. The scope of the Living Lab approach is wide, the activities cover variety of end-user engagement topics, and therefore it can be seen relevant for all IoT-LSPs partners working in the end-user engagement in use cases, trial sites, city reference zones, to provide them with the mind-set of Living Lab approach and the basic principles behind. This first e-course will contain around three lessons with each a duration of around ten minutes. At a later stage, more lessons will be provided on specific topics covering the needs of IoT-LSPs, e.g. in terms of supporting the SMEs participating through the Open Calls.

E-course 4: Privacy

The e-course on privacy and data protection will be created by Pasquale Annicchino (AS), expert in this domain. It will be mainly addressed to the LSP stakeholders in order to provide them with knowledge about the new European regulation on privacy and data protection (GDPR). Both general topics and IoT specific topics will be covered, particularly in the domains of the five IoT-LSPs. The e-course will contain about five lessons of ten minutes each.

E-course 5: Participatory Sustainability Models

E-course five on Exploitation and Sustainability Models for Large Scale Pilots will be created by imec with expertise in user-centric business modelling in complex multistakeholder contexts. It will be specifically targeted at IoT-LSP partners and stakeholders that are working on the exploitation and economic sustainability of largescale IoT pilots and related aspects. Main objectives are, first, to provide support and guidelines from an expert, outsider perspective and, second, to foster and harvest knowledge build-up and sharing between all involved. The e-course will contain more or less five general lessons each with a duration of fifteen minutes, in which information is provided on aspects that may affect, or be interesting for all IoT-LSPs: introduction to IoT-typical business models and ecosystems; tools and methods that can help in terms of sustainability; KPIs; data marketplaces and standardisation; open calls. These general aspects will be complimented by a series of five additional lessons each focussing on one IoT-LSP and sector-specific considerations.

E-course 6: Meetups

The e-course on Meetups will be created by DNET with expertise in fields of organizing meetups and training meetups: IoT meetup Novi Sad – IoT community, with 200





members¹³. It will be specifically targeted at IoT-LSP partners, with the objective to provide direct support to mobilize end users with meetups and support end-user engagement. The meetups will enable the validation of IoT technologies in their context of usage. The e-course will contain few lessons with each a duration of ten minutes, in which information is provided with focus on providing necessary skills for guidance and coaching of meetups.

4.4 NEXT STEPS & RECOMMENDATIONS

UPDATED SUPPORT STRATEGY

The support strategy made for MS5 was updated according to new insights gained through interactions with the IoT-LSPs and adapted according to the recommendations. The updated support strategy for the Interactive Flow-Diagram, Expert Pool and e-courses is described below in terms of the IoT-LSP needs, operational support plan and a roadmap.

NEEDS OF THE IOT-LSP

The previously-described, performed research indicated that the Interactive Flow-Diagram is of use especially for ActivAge and MONICA. It can, however, also be used by SMEs participating in the Open Calls of IoF2020, ActivAge and SynchroniCity. Also, for the municipalities of the reference zones in SynchroniCity, the Interactive Flow-Diagram can be of guidance in choosing a suitable end-user engagement method.

The Expert Pool is specifically targeted at IoT-LSP partners in the WPs related to end-user engagement and is meant for very specific questions and individual advice. The end-user engagement contacts in the U4IoT contact list will be directly approached when offering them support though the Expert Pool.

As indicated, the e-courses offer more in-depth information on the tools and methods provided by U4IoT. The IoT-LSP partners from ActivAge and AutoPilot are predominantly interested in the e-courses on end-user engagement. Partners from IoF2020 and MONICA have stated that the courses are only beneficial to their partners if they are specific to the project and not just providing general information. The e-courses are of less interest for partners within SynchroniCity, although SMEs in the Open Calls and Municipalities in the reference zones could benefit from the e-courses.

Underneath the Interactive Flow-Diagram, Expert Pool and e-courses, a feedback feature (figure 13) has been added that requests a quick evaluation of the tool



¹³ IoT Meetup Novi Sad - <u>http://www.meetup.com/This-group-is-part-of-the-sociotal-eu-project/</u>



by its users. With this feedback feature, the online performance of the support services can be monitored and adjusted according to the feedback received.

How would you rate this e-Course?
We are continuously trying to improve our services, could you help us by tetting us know if you are satisfied with this e-Course?
Submit your rating

Figure 13: Example of the feedback feature below an e-course, similar to the feedback feature underneath the Interactive Flow-Diagram and Expert Pool.

A more extensive evaluation of the Interactive Flow-Diagram, Expert Pool and ecourses will be performed through the previously-mentioned questionnaire and through interviews with the IoT-LSP partners which will take place in M17-M18. This evaluation enables intermediate adjustments of the support services according to the needs of the IoT-LSPs and other stakeholders.

OPERATIONAL SUPPORT PLAN

The support services within this task are of an online nature and together target all the IoT-LSPs and their stakeholders. The online release of the different support services will be promoted through the U4IoT dissemination channels on either a narrower or broader scale, depending on the target audience.

As stated above the Interactive Flow-Diagram has a broad target audience, promotion of this service will take place by means of the U4IoT Social Media Channels (LinkedIn and Twitter), the U4IoT newsletter, through the IoT-Programme dissemination channel and through direct communication in shared events.

The Expert Pool is a tool specifically targeting the IoT-LSP partners in the WPs related to end-user engagement; these are similar to the partners listed in Section 2 – Co-Creative Workshop Methodology. Dissemination of this support service will therefore happen via direct emails to the list of the U4IoT contact list.

The e-courses again have a broader audience and will be promoted in a similar way to the Interactive Flow-Diagram. With the difference being that the Interactive Flow-Diagram is disseminated once, whilst multiple new e-courses will be released and disseminated during the full length of 2018.

ROADMAP

In table 4, a roadmap is provided. Promotion of the Interactive Flow-Diagram and the Expert Pool will start at the end of January 2018. Every other month, a new ecourse will be produced and promoted.



Table 4: Roadmap Interactive Flow-Diagram, Expert Pool and e-courses 2018.

Support	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24
Interactive Flow-Diagram	Promot ion					Interm						
E-course	1		2		3	ediate evalua	4		5		6	
Expert pool	Promot ion					tion						

LSP-PROGRAMME COORDINATION

COLLABORATION CREATE-IOT

The co-CSA, CREATE-IoT, is aware of the online support services provided in this task in order to make sure that the CSA activities are not overlapping or competing with each other. A need for coordination has been foreseen in terms of the communication and dissemination activities and Activity Group Activities in order to not target the same IoT-LSP partners, spread resources and reach a broader target audience. Primary collaboration will be with WPs 3 and 7 of CREATE-IoT, respectively the packages responsible for artistic collaboration and communication. Work on this has already begun and plans have already been drawn. Coordination will happen in collaboration with U4IoT WP4.

ACTIVITY GROUP

Activity group (AG5) will be updated to serve as a placeholder for end-user engagement activities and will also be a relevant group for this task. The group will be used to provide further explanation of the support services if necessary, will serve as a platform to foster discussion on the content of the e-courses, and will answer possible questions raised.

RECOMMENDATIONS

The recommendations for the online support have a similar effect as the recommendations described earlier for the Co-Creative Workshop Methodology and Living Lab Methodologies. The reviewers suggested a consolidated support strategy, specification of the target groups, the use of non-technical language, a plan for evaluation, and better integration of the support services on the website of the IoT-LSP programme.

The support strategy described in MS5 - End-user engagement support strategy and work plan addressing the specific selected LSPs, has been updated in this deliverable (D2.3) and has been specified in terms of the online support strategy, target groups





and evaluation. The language used in the Interactive Flow-Diagram and e-courses, both targeted at a broader audience, will be kept non-technical.

Whilst 2017 was a year in which the needs of the IoT-LSPs were researched and integrated into the design and the development of the support services, 2018 will be focussed on 'giving back' to the IoT-LSPs through the dissemination of the work done. New support services will be frequently announced through the U4IoT monthly newsletter.

In collaboration with U4IoT WP4 and the IoT-Programme communication lead, better integration of the online support services with the IoT-LSP Programme website will be attempted.



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SECTION 5 - EVALUATION & CONCLUSIONS

5.1 EVALUATION

In the U4IoT DOA, four KPIs are described to measure the performance of the Co-Creative Workshop Methodology support (T2.1), Living Lab Methodology support (T2.2), and the support through the Online Training Programme (T2.3), consisting of an Interactive Flow-Diagram, Expert Pool and e-courses. Table 5 displays the KPIs and provides an update on the current status of each KPI.

Table 5: KPIs and status update.

KPI	Status
KPI 1 - Number of requests for support >100	NA
KPI 2 - Number of participants in co-creative workshops >100	61
KPI 3 - Percentage of LSPs requesting support services 100%	100%
KPI 4 - Percentage of satisfied users with support service >85%	NA

Until M12, the online support services have not yet been available, therefore, the KPIs concerning the requests for support (KPI 1) and satisfaction with the support (KPI 4) can't be evaluated properly yet. Nevertheless, interest in the support services has been expressed by partners from all the IoT-LSPs via the questionnaire, interviews and following the workshops, and evaluation of the so-far-provided support services has been positive. Moreover, a total of sixty-one participants, including partners from each of the IoT-LSPs, participated in the Co-Creative Workshops that were facilitated during 2017, with very positive feedback overall. The tips received for improving the Co-Creative Workshop support will, of course, be taken into account for future workshop-related activities, as will the recommendations concerning the support services as described earlier for each of the WP2 tasks.

Besides the fact that the online services haven't been available yet, the KPIs described in the U4IoT Description of Action (DOA) are quite general. Recommendations therefore indicated that updating the KPIs is a necessity for more specific performance measurement of the support services in terms of the effective interaction with the IoT-LSPs and the quality of the interaction. New directions for the KPIs will therefore be described and proposed to the U4IoT consortium to be included in an amendment. Once implemented, the KPIs will be the basis for the evaluation of future support activities.





5.2 FUTURE WORK

In 2018, continued support using the Co-Creative Workshop Methodology and Living Labs Methodology will be provided. The performance of the Interactive Flow-Diagram and Expert Pool will be measured and evaluated. Materials for the e-courses will be assembled and made available online every other month.

Based on the updated KPIs, the usage of the available support resources will be monitored and evaluated and adjustments will be made where needed. In M17, a second questionnaire will be sent to the IoT-LSPs to keep up with their needs and to perform a general evaluation. Additionally, interviews with the IoT-LSP partners shall be held in M18 during the IoT Week 2018 in order to evaluate the U4IoT services in more depth. At the end of year two, the End-user engagement support resources should have been used by all LSPs (MS7).

The overall findings of WP2 will be documented in D2.4 an End-user engagement support report. This final report will be delivered in December 2019 and, with this deliverable, the End-user engagement support activities are to be completed and all deliverables are to be delivered (MS8).

5.3 CONCLUSION

This report describes the progress made in WP2 – *End-User Engagement Support*, during the first year of U4IoT. The needs of the IoT-LSPs were studied and, based on this research, the support services were designed, developed and partially implemented. The report moreover provides an updated support strategy for 2018. This strategy includes the collaboration with co-CSA CREATE-IoT and the interaction with the modified AG5. Concrete recommendations were provided for each task to further improve the WP2 support services. In collaboration with WP4, the frequency and scope of the communication and dissemination of the support services will be increased and broadened. Performance of the support services will be further monitored and evaluated by means of an updated list of KPIs.



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APPENDIX A: INTERVIEW & QUESTIONNAIRE RESULTS



Strategy & LSP Selection

Based on:

- DOA's of the LSP projects
- Questionnaire results
- Unstructured interviews (IoF2020, SynchroniCity, AutoPilot)

LSP Current Phase (M6)



LSP Entry Points



LSP Estimated experience



Experience in LSPs on Methods

AutoPilot	loF2020	Monica	ActivAge	SynchroniCity
FESTA – user acceptance testing	Participatory research & development	Scenario workshops	Focus Groups	Co-Creation methodologies
eSafety Challenge Mobility Challenge UDRIVE	Advisory boards	Stakeholder & requirement workshops	Mock-up evaluations	Workshops
	Steering groups	Evaluation workshops	Interviews	F2F meetings
		Online questionnaires & surveys interviews	Usablity testing	Weblnars
			User experience evaluations	Etc.
			Technology assessment	

LSP Type of end-users & stakeholders

AutoPilot (6 pilot sites- towards the end of the project to test solutions)	IoF2020 (19 trials - Involved throughout the whole project)	Monica (6 pilots- involved throughout the whole project)	ActivAge (9 deployment sites - involved throughout the whole project)	SynchroniCity (11 reference zones - Involved throughout the whole project]
Vehicle users and owners	Farmers	citizens (neighbours to events, event participants)	Elderly	11 Reference zones
Mobility service users (car/ride sharing)	Food processing companies	cultural & sport organisers (open-air concerts, festivals, sport events)	Informal caregivers	Potential new cities
Public authorities,	Logistic companies	public authorities	Formal caregivers	Companies
Reet managers, Infrastructure operators	Farm input suppliers	technology providers entrepreneurs & innovators	Care providers (secondary)	
Telecommunication providers	Inspection services	city administrations	Service providers (secondary)	
Mobility service providers	Etc.	researchers regulators (secondary)	Solution providers (secondary)	

LSP Planned end-user involvement







LSP end-user engagement toolkit

- ActivAge "Very useful if provided in short time to complement the already drafted UCD methodology" (Q).
- Monica "we have selected the method but will be interested in process and planning" (Q).



LSP Privacy handbook & game

- AutoPilot "Control of user data, including informed consent and privacy, perception of security and vulnerability of access to user data will be assessed" (Q).
- SynchroniCity "Privacy handbook & game is very interesting since M5 will deliver a document on privacy guidelines" (Q).
- ActivAge "Privacy handbook is crucial as the use cases deal in most cases with personal sensitive data..., It would be very helpful to have the tools as soon as possible (during 2018)" (Q).
- 2018)" (Q). Monica "to support the MONICA goal of user acceptance by emphasising the focus on privacy and data protection. Interest in adding the game to the website and social media channels early in the project. adding



LSP Living Lab Methodologies

- SynchroniCity "LL methodologies will be used as one of the tools to implement the co-creation strategies" (0). SynchroniCity "Some sites have experience in LL methodogies and pian to use it, others not, having the possibility of the Living Lab handbook will allow us to provide common guidelines for all sites (end of June)" (0).
- Monica "Possibly suitable for the MONICA incubator services for entrepreneurs and start-ups during year 2" (Q).



LSP e-Courses



LSP Crowdsourcing & Survey tools

- AutoPilot "Survey management methodological support will be very useful (Q).
- (Q). ActivAge "Survey and crowdsourcing tools can be very helpful when defining the evaluation methodology and the tools needed to collect evaluation data related to user acceptance (early 2018)"(Q). .
- . Monica - " To support evaluation activities in MONICA at the latter part of the project" Q



LSP Co-Creative Workshops

- AutoPilat "Workshop management methodological support will be very useful... Different appects of user acceptance will be assessed..." (Q). IoF2020 "First the facus lies on 828, later we are planning experiments with end-consumers" (Q/I)
- .
- ActivAge Co-creative workshops can be applied in iterative cycles that are foreseen to improve solutions owned by the deployment sites (end of 2017, 2017, during 2018 and first quarter of 2019)"(Q).
- SynchroniCity "Co-creation activities are the mai aim of our project, to provide reference zones with tools to collaborate with citizens to develop IoT services" (Q/I). .
- Monica "Help engage citizens in co-creation activities through the establised CAPs (Collective awareness platforms) established half way into the project" (Q).



LSP Interactive Flow Diagram

- ActivAge "Very useful if provided in short time to complement the already drafted UCD methodology" (Q). Monica "Good to be able to see what works well when and for what" (Q).



LSP Expert Pool

- IoF2020 "At the moment we have not enough experience in our team, it would be good to have a second opinion on end-use engagement by reviewing our use cases by a third party" (Q). "Design experience is locking (I)".
- ActivAge "I don't know yet". Monica – "Engagement through social media and collective awareness platforms. Aligning expectations. Process and planning of activities" (Q). .





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LSP IoT Adoption Barriers

- SynchroniCity "We will also develop recommendation for loT adoption barriers, hence collaboration on this would be helpful" (3).
 AutoPilot "...Percaived usefulness, case of use, usability, use frequency and situations, ethical aspects and liability in case of maturaction will be tested..." (3).
- Monica "Support evaluation activities at the end of the project" (Q).



LSP Sustainability models

- .
- Io72020 "experiment more with business models to dishibute costs/benefits/risis fairly over involved parties" (Q) AutoPilot "speceived commercial proposition including the willingness to pay, needs for standards, and the market environment will be assessed" (Q). Monica "Support the creation of business models and subainability of the pilots during the latter part of the project" (Q). .



LSP Knowledge Base

- IoF2020 "We need to make maximum experience elsewhere" (C)
 ActivAge "We will be willing to share and interested to receive information such as user needs and requirements, methodologies and RPI definition for evaluation and assessment as well as lessons learned on scaling-up, user engagement, ethical concerns, large scale deployment..." (O).
 Maniga "Bat practicate to learn from



Conclusions

- Results give insight in which LSP project(s) to target (mainly) for each of . the tools and support services.
- No insight in the Monica project yet, not via the DOA, nor via the questionnaire or interviews.
- Open calls not included in the questionnaire, information needs to be elicited via the DOAs and elsewhere. .
- F2F discussion concerning end-user engagement needed during IoTWeek (workshops).
- Results will be incorporated in D1.4 and D2.3.
- The responses from most projects are from only one representative and may not represent the view of all the use cases/cities etc. (e.g. with regard to the interest towards certain tools / methods / channels / etc.) www.u4IOT.EU

AutoPilot – "The different communication channels can be of interest depending on our needs, which still need to be further defined in view of the objectives of the project" (Q).

LSP Communication channels

- loF2020 "I don't know" (Q). .
- IoF2020 "I don't know" (Q). SynchroniCity "Workshops can be helpful for the reference zones" (Q). ActivAge "Webinars are a very effective way to introduce methods and tools to a wider audience...Workshops are more expensive but allow a deeper understanding and practice of the proposed approach and tools ..." (Q). Monica "They can be beneficial to partners if they are specific to the project and not just providing general information. The training must be based on project needs" (Q).





