IoT eXperience for the Future

Lisbon, 27/02/2019

U4IoT Tools & Support Services

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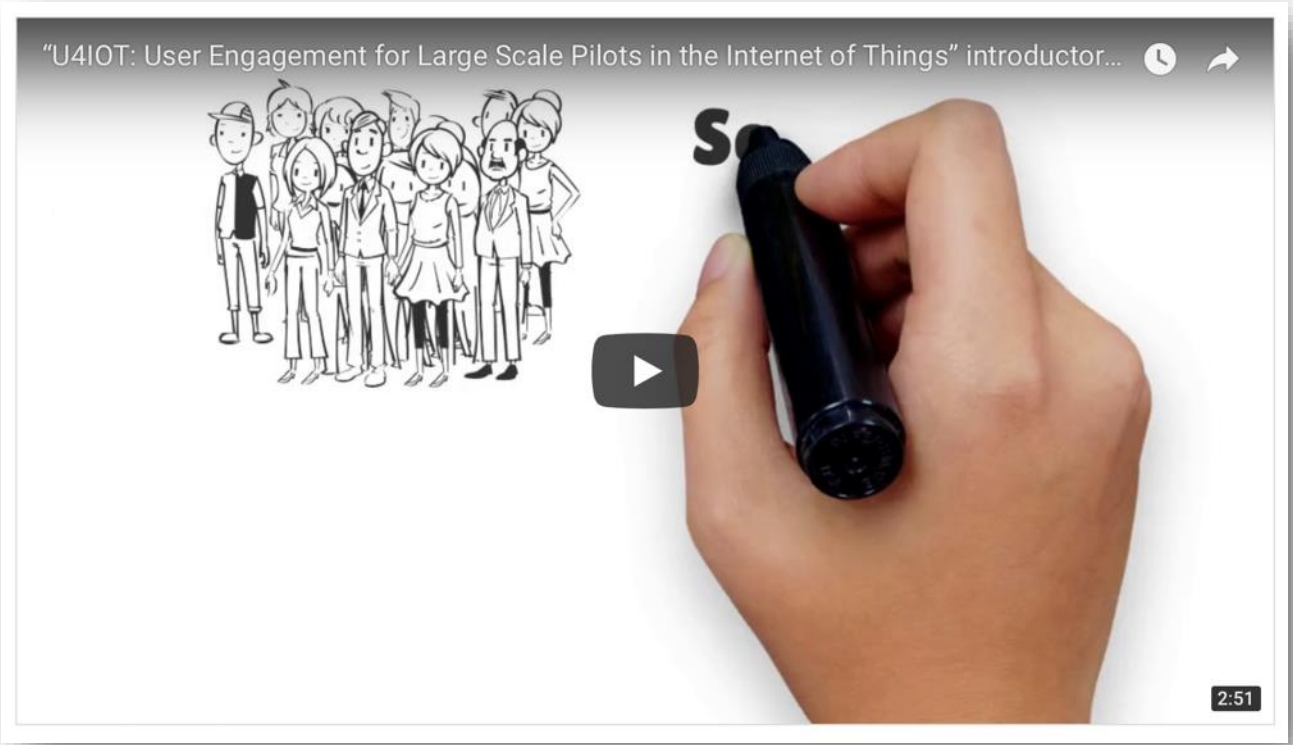
Stembert Design, ENoLL, DunavNET, Mandat International, Martel Innovate, LTU

WWW.U4IOT.EU

U4IoT project



U4IoT project

- User Engagement for Large Scale Pilots in the Internet of Things – U4IoT
- 8 partners from 5 European countries
- **Objective: develop toolkit for LSPs end-user engagement and adoption**
  - online resources, privacy-compliant crowdsourcing tools, guidelines and an innovative privacy game for personal data protection risk assessment and awareness, online training modules
- **Objective: provide direct support to mobilize end-user engagement**
  - co-creative workshops and meetups, trainings, Living Labs support, and an online pool of experts
- **Objective: analyses societal, ethical and ecological (SEE) issues and adoption barriers related to the pilots with end-users and make recommendations for tackling IoT adoption barriers**
  - educational needs and sustainability models for LSPs and future IoT pilots deployment in Europe
- **Objective: supporting communication, knowledge sharing and dissemination**
  - online portal and interactive knowledge base gathering the lessons learned, FAQ, tools, solutions and end-user feedbacks

U4IoT partners

LSP Projects & Partner CSA

ACTIVAGE PROJECT

IOF 2020 INTERNET OF FOOD & FARM

SYNCHRONICITY

MONICA

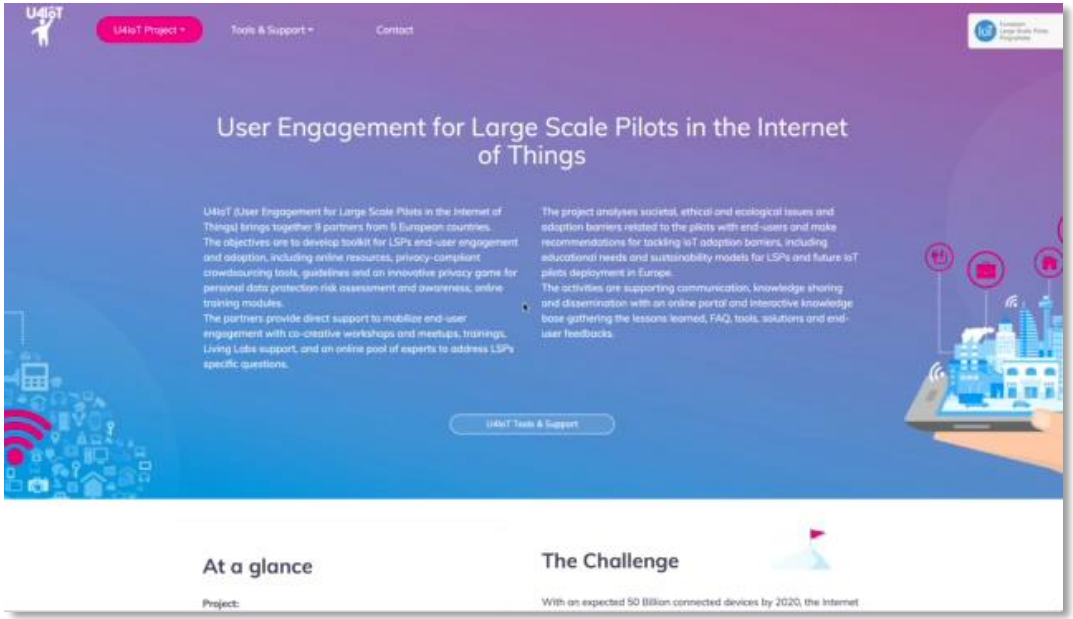
AUTOPILOT

CREATE-IoT

U4IoT website [WWW.U4IOT.EU]

Project:

- Summary
- Background / challenge
- Objectives
- Concept
- Approach and methodology
- Target groups and needs
- Partners



Survey & Crowdsourcing Tool

Co-Creative Workshop Methodology

Living Lab support

48

Privacy Guidelines and Game

Sensors, mobile phones, wearable objects, radio-frequency identification (RFID) tags, cameras, middle-ware components, have a common feature: they are all points of entrance of data, which can include...
Read more

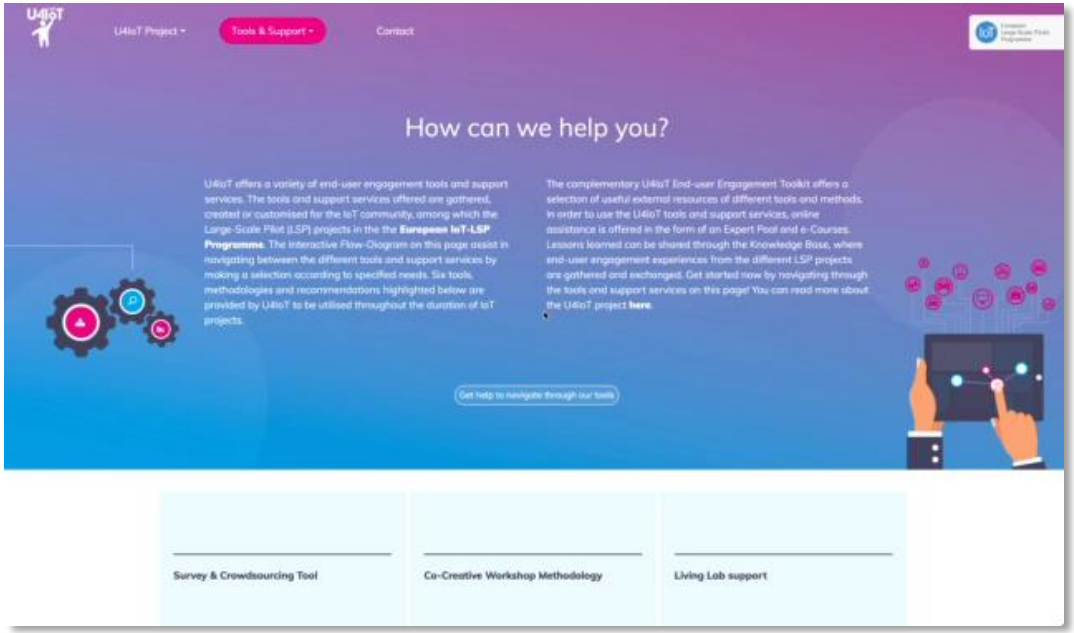
IoT Adoption Barriers

Participatory Sustainability Models

END-USER ENGAGEMENT TOOLS AND METHODS

Tools & methods

- End-user engagement toolkit
- Crowdsourcing & survey tools
- Privacy game & guidelines
- Co-creative workshops
- Living Lab support
- IoT adoption barriers
- Participatory sustainability models



End-user engagement toolkit

- A selection of around 50 end-user engagement tools & methods useful for the Large-Scale Pilots
- Clustered in three phases with several iterations per phase
- Two sets of filters to facilitate selection of suitable tools

Ines Vaittinen

Katariina Malmberg

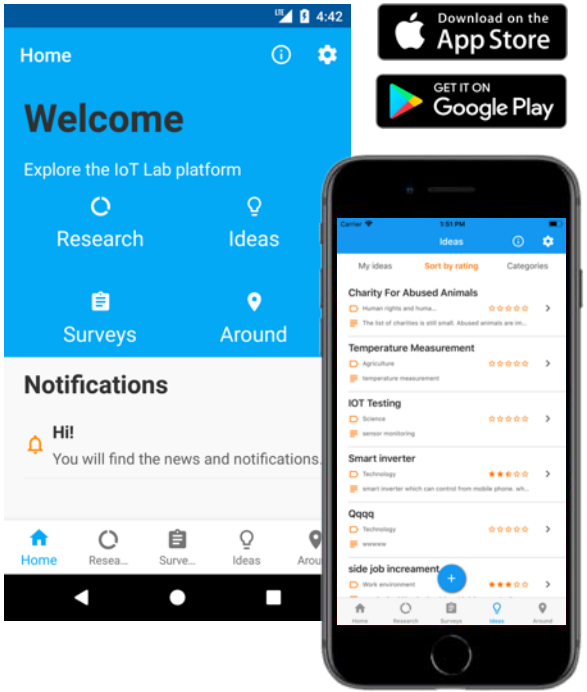
Crowdsourcing & Survey tools

Composed of:

1. a mobile application with a strong focus on crowdsourcing and crowd-sensing;
2. a website permitting interactions between users and IoT devices (users' smartphones and the IoT testbeds' sensors and actuators);
3. a survey tool.

Features:

- Gather ideas and data about a certain topic through crowdsourcing;
- Set-out surveys to gather information for your project;
- Participate in research and related experiments;
- Share of data generated by the smartphone's sensors;
- Allows users to participate in surveys linked to research;
- Propose new ideas and suggestions;
- Rate ideas proposed by other users.



For more information, visit www.iotlab.eu and download IoT Lab on the App Store and Google Play

Privacy Game & Guidelines

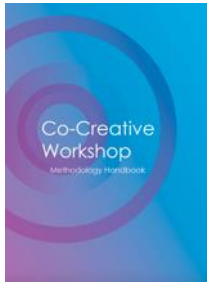
- To educate the LSPs stakeholders on data protection;
- To raise awareness on the main risks related to data protection with IoT deployments;
- To translate complex legal norms into clear and easily understandable principles;
- To reduce the risks of non-compliance with the Data Protection Obligation in the five LSPs;

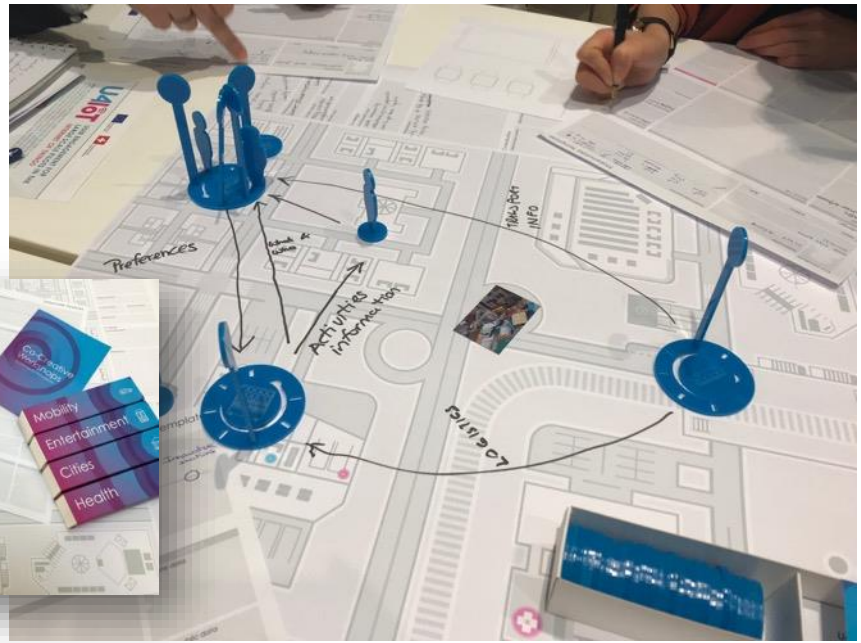
Related material: Guidelines for Personal Data Protection in LSPs and related e-course (U4IoT website)

Cesco Reale

Co-Creative Workshop Methodology

- Co-create IoT solutions with end-users by means of a customised toolkit with tangibles and templates
- Four phases: Co-analysis, design, evaluation and implementation
- Guiding handbook and e-Course





Nathalie Stembert

Living Lab Methodology Support

- Living Lab Methodology handbook (also available online)
- Living Lab support eCourse with animated introductory video and completing lessons on business aspects and Living Lab field tests

Chapter 2

Living Lab Methodology in IoT Context

"A Living Lab is a multi-stakeholder organization set-up to carry out innovation projects that follow the principles of open and user innovation and focus on real-life experimentation."

Dimitri Schuurman, imec.livinglabs

Formit Methodology in IoT Context

Anna Ståhlbröst (Botnia Living Lab)

To support a Living Lab approach in IoT innovation projects, it is not only important to go through the different phases of exploration, experimentation and evaluation as mentioned above. It is also important to make progress in these phases to ensure that the level of maturity for the IoT innovation increases. While the former section focused on explaining the different phases in the innovation process related to the actions being taken in the process, this section focuses on describing the innovation process based on the progress of the innovation moving from being a concept to become a mature innovation.

To support the description of this progress, we use the the FormIT methodology as an example (Ståhlbröst, 2008). FormIT has been developed in Botnia Living Lab (BLL) through practical experimentation and experiences from applying it into all digital innovation processes carried out at BLL. Today, FormIT has been applied in more than 100 user engagement processes spanning from early need-finding to real-world tests of market ready innovations. FormIT is a human-centred approach to develop digital innovations. It aims to facilitate the development of innovative solutions that are based on a holistic understanding of

Ines Vaittinen

Katariina Malmberg

Anna Ståhlbröst

Abdolrasoul Habibipour

IoT adoption barriers

- Identify issues from theory and expert interviews
- Triangulation by means of focus group sessions with the LSPs
- Formulating recommendations

Ethical	Societal	Ecological
Privacy protection	Security of physical and digital assets	High power/energy consumption
Secretly videotaping or capturing	Physical threats	Battery life and heating
Secondary use of data	Data threats (information content/leakage)	Using recyclable material
Collecting unnecessary data	Integrity (e.g. validity and reliability of data)	Limited communication range
Personal data threats (information content/leakage)	Overreliance on the technology	Software reusability
Security of physical and digital assets		
Physical threats		
Data threats (information content/leakage)		
Integrity (e.g. validity and reliability of data)		
IPR issues		

Anna Ståhlbröst

Abdolrasoul Habibipour

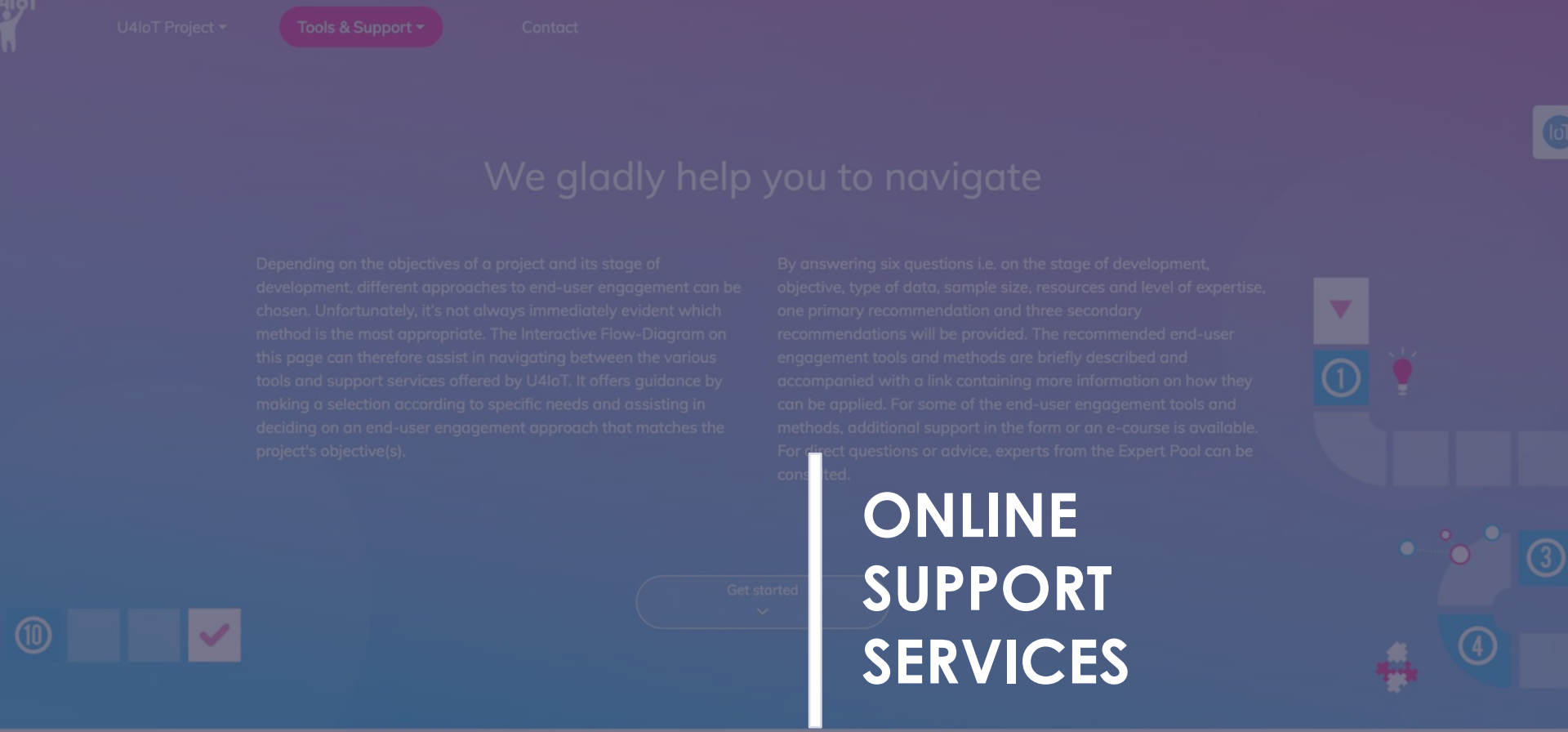
Aya Rizk

Participatory Sustainability Models

- Workshop to identify value propositions
- A workshop with the MONICA project was held at meeting at Fraunhofer, Bonn, 30/01/2018, 9.00 – 12.00.

CUSTOMER SEGMENT				
CURRENT PRACTICES				
NEEDS				
VALUE PROPOSITION				
SOLUTION				
BARRIERS				
VALUE CAPTURE				
KEY PARTNERS				

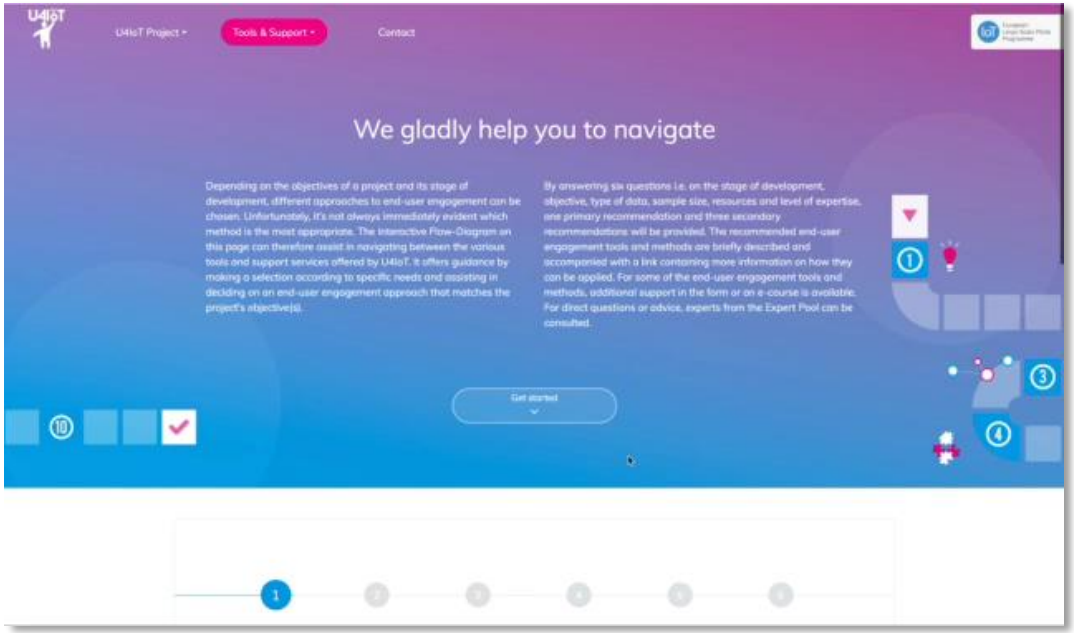
Wim Vanobberghen



ONLINE SUPPORT SERVICES

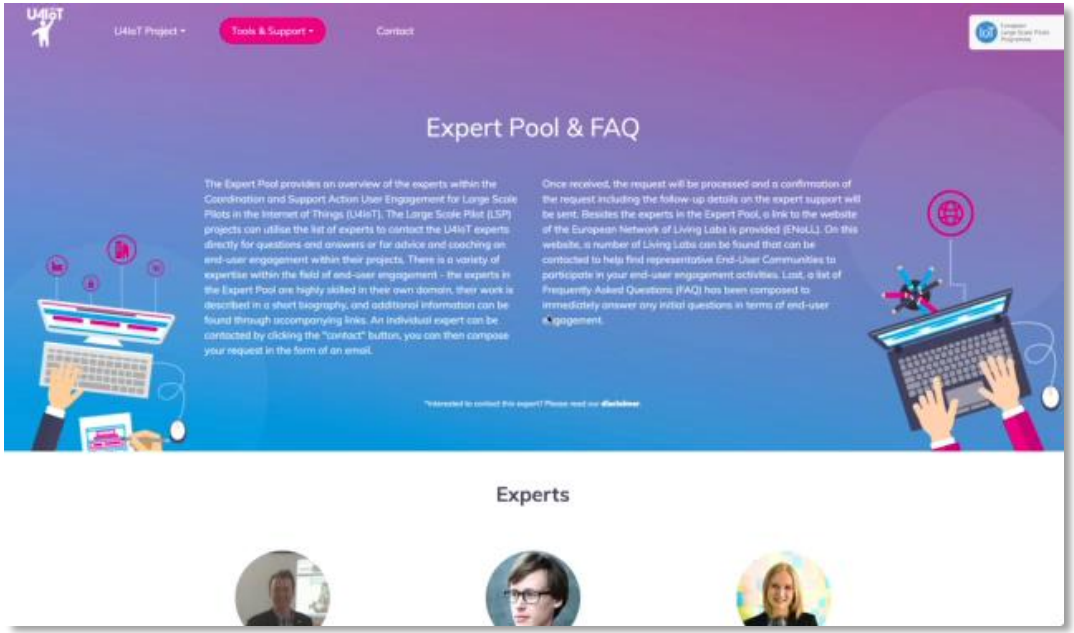
Interactive Flow-Diagram

- Six questions:
  - on the **stage of development**, **objective, type of data, sample size, resources** and **level of expertise**
- Helps you to navigate through the end-user engagement toolkit
- **One** primary and **three** secondary recommendations



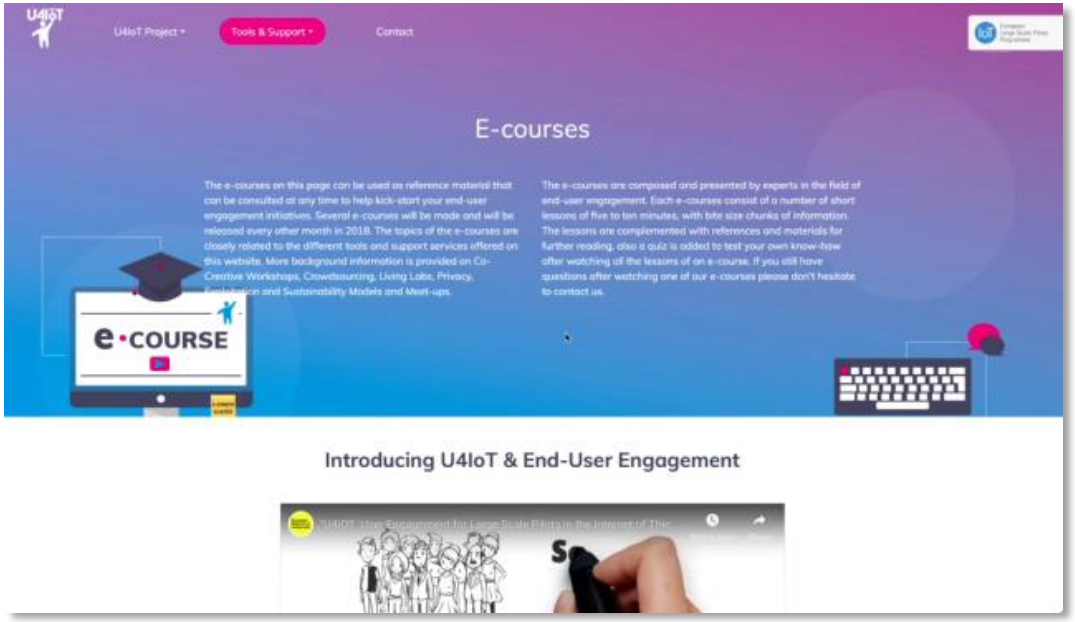
Expert Pool & FAQ

- Expert pool with U4IoT experts for LSPs to consult
- End-user engagement (Living Lab) communities from ENoLL
- Frequently asked questions concerning end-user engagement



E-Courses & Webinars

- Introduction video U4IoT
- Variety of e-Courses with lessons on the tools offered by U4IoT
- Follow the lessons in your own pace and dive deeper in the matter by means of the related materials

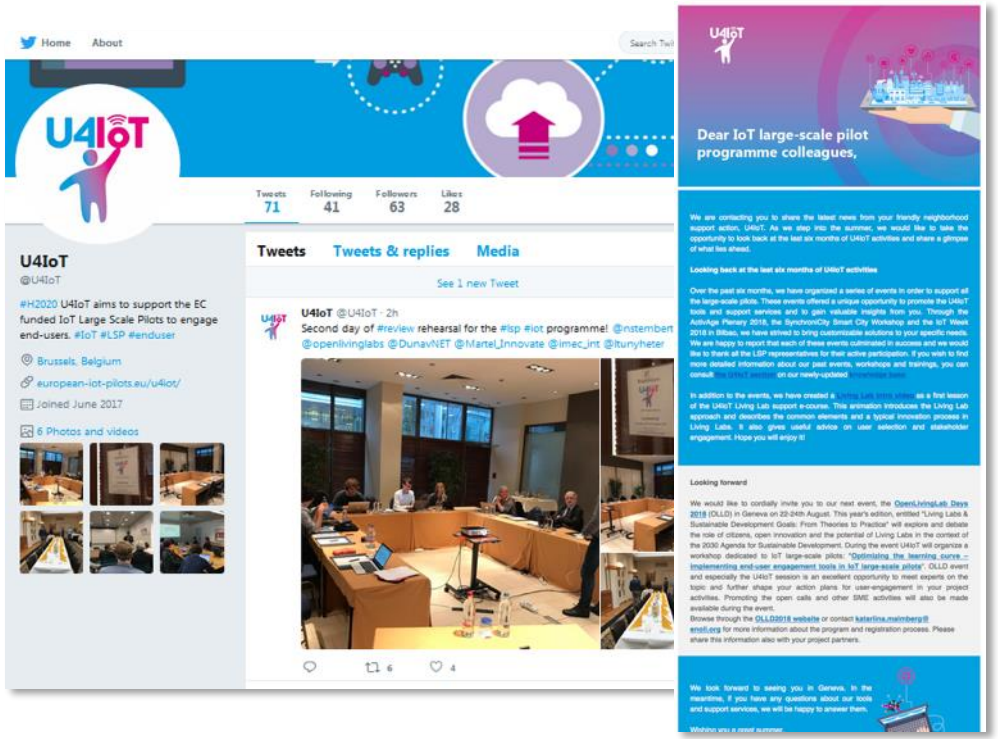


Knowledge Base

- A “wiki-alike” online encyclopedia of articles on vital topics related to EU LSP pilots, conclusions, lessons learned, solutions and User feedbacks
- Enables the community to share and mutualise lessons learned and to capitalise the acquired experience in order to support and accelerate the progress on the learning curve.

Newsletters & Social Media

- Regular updates are send via newsletters and on several social media accounts, LinkedIn and Twitter
- Subscribe to the newsletter on the U4IoT website and join us on social media



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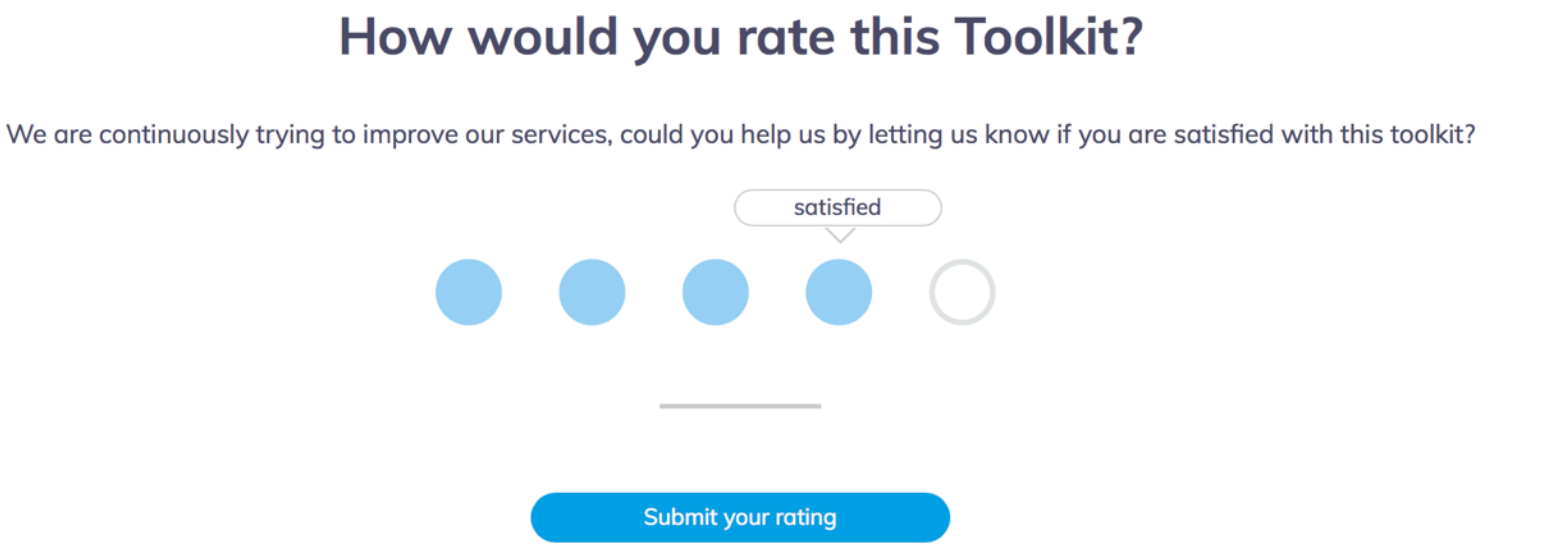
Please provide us with your feedback

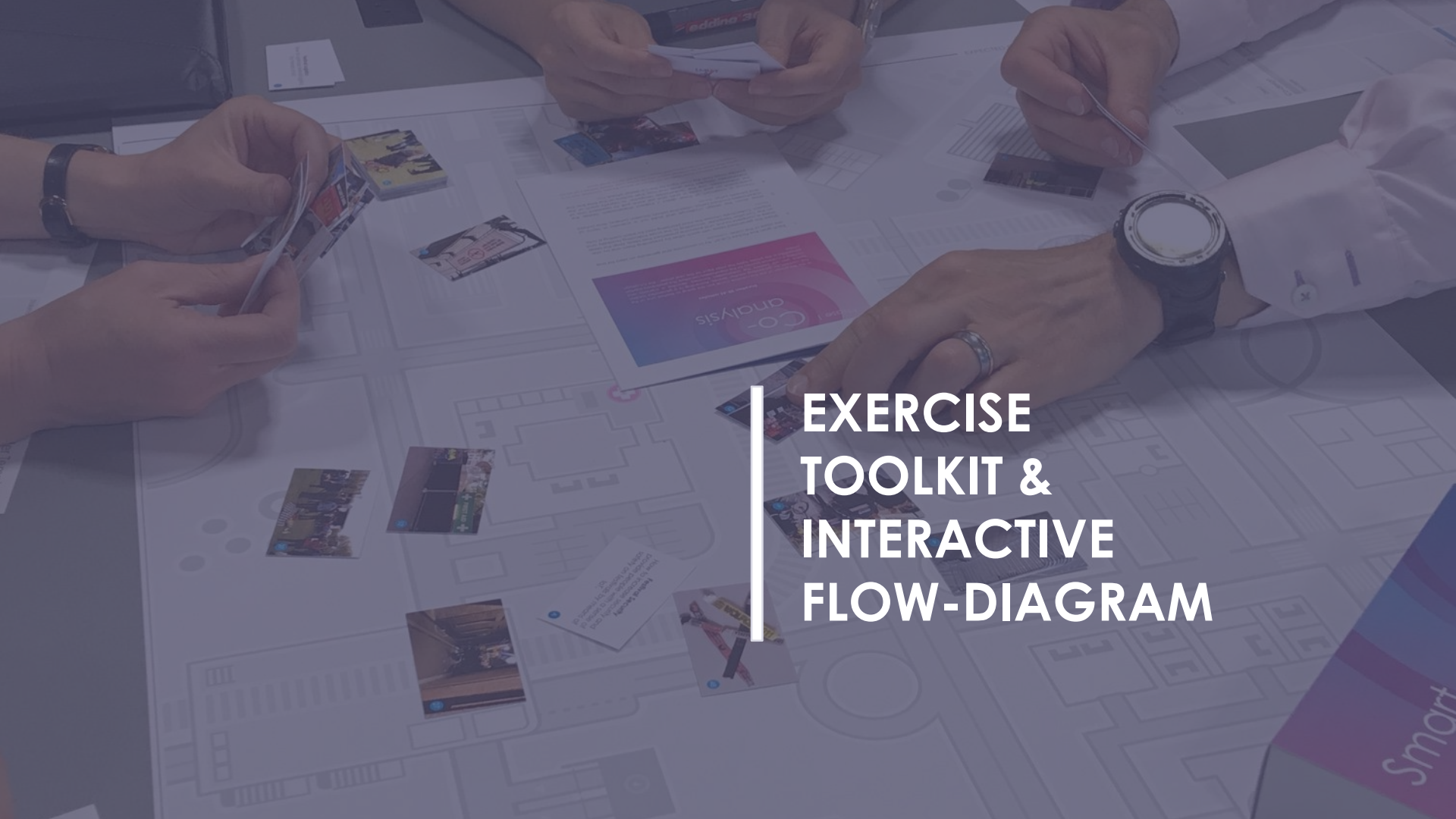


RECOMMENDED U4IOT TOOLS & SUPPORT SERVICES

LSP Recommendations

Support per LSP

	Support	End-user engagement Toolkit			Survey & Crowdsourcing Tools			Co-Creative Workshop Methodology			Living Lab support			Privacy Guidelines and Game			IoT Adoption Barriers			Participatory Sustainability Models		
LSP	Main contact	1th	2nd	3rd	1th	2nd	3rd	1th	2nd	3rd	1th	2nd	3rd	1th	2nd	3rd	1th	2nd	3rd	1th	2nd	3rd
SynchroniCity	ENoLL	x				x			x			x			x			x			x	
MONICA	MI	x			x				x				x			x		x			x	
ActivAge	AS			x			x		x		x			x				x			x	
AutoPilot	SD			x		x		x					x		x			x			x	
IoF2020	Imec	x				x			x			x			x		x			x		



EXERCISE TOOLKIT & INTERACTIVE FLOW-DIAGRAM

Online Toolkit & Flow-Diagram

- Navigate through the different phases and iterations of the End-User Engagement Toolkit : https://u4iot.eu/end-user-engagement-toolkit.html
- Pick one of your pilot sites, make use of Interactive Flow-Diagram to find best fitting methods/tools for the selected pilot site: https://u4iot.eu/interactive-flow-diagram.html
- Discuss and analyse the results, if you agree with the suggestion, or if you would suggest some other methods/tools to be used
- Present the results of the experiment

Thank you for your attention!

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