IoT4CPS – Trustworthy IoT for CPS

FFG - ICT of the Future
Project No. 863129

Deliverable D9.2.2
Annual updates on the dissemination plan, incl. reporting

The IoT4CPS Consortium:

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AVL – AVL List GmbH

DUK – Donau-Universität Krems

IFAT – Infineon Technologies Austria AG

JKU – JK Universität Linz / Institute for Pervasive Computing

JR – Joanneum Research Forschungsgesellschaft mbH

NOKIA – Nokia Solutions and Networks Österreich GmbH

NXP – NXP Semiconductors Austria GmbH

SBA – SBA Research GmbH

SRFG – Salzburg Research Forschungsgesellschaft

SCCH – Software Competence Center Hagenberg GmbH

SAGÖ – Siemens AG Österreich

TTTech – TTTech Computertechnik AG

IAIK – TU Graz / Institute for Applied Information Processing and Communications

ITI – TU Graz / Institute for Technical Informatics

TUW – TU Wien / Institute of Computer Engineering

XNET – X-Net Services GmbH

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Document Control

Title:	Initial Dissemination & Website
Type:	Public
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Doc ID:	D9.2.1

Amendment History

Version	Date	Author	Description/Comments
V0.9	01.12.2018	J. Pammer	Initial version prepared
v1.0	12.12.2018	K. Krombolz	Added
V1.1	17.01.2019	A. Martin, M. Drobics	Updates and formatting
V1.2	06.03.2019	M. Drobics	Final formating

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1   Communication and Online Presence

1.1 Marketing Tools

Several marketing tools have been developed over the past year of the project. All materials are being used to illustrate the project's ambitions and findings. Different graphical editing provides the opportunity to approach various target groups.
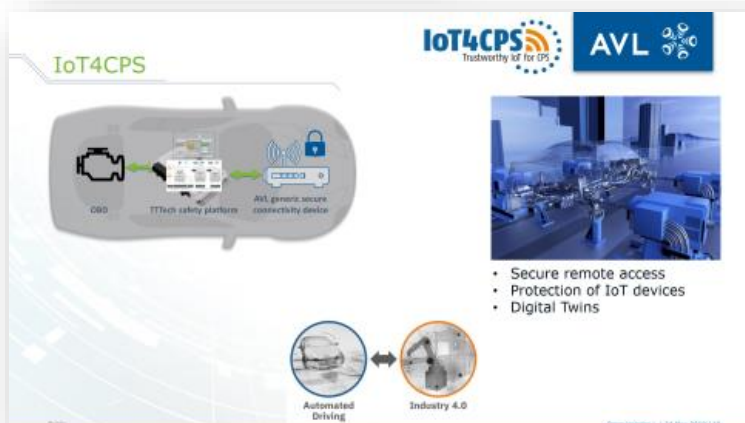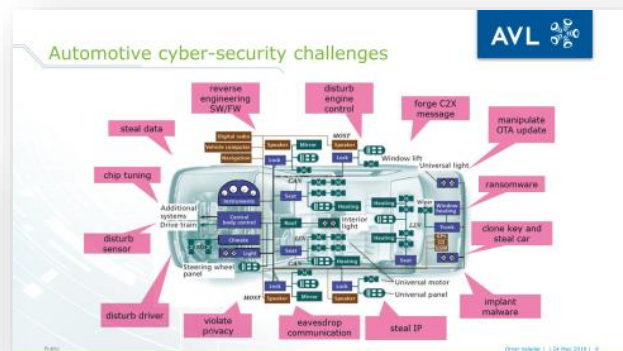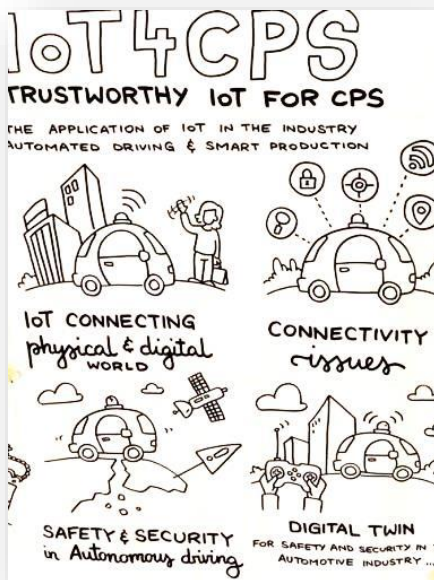
1.2 Venues and Target Groups

The IoT4CPS project has been introduced at numerous national and international venues. National plaforms were particularily used for community outreach and networking activities. International venues helped distribute scientific findings and establish contacts in the international scientific field.

Venues Austria
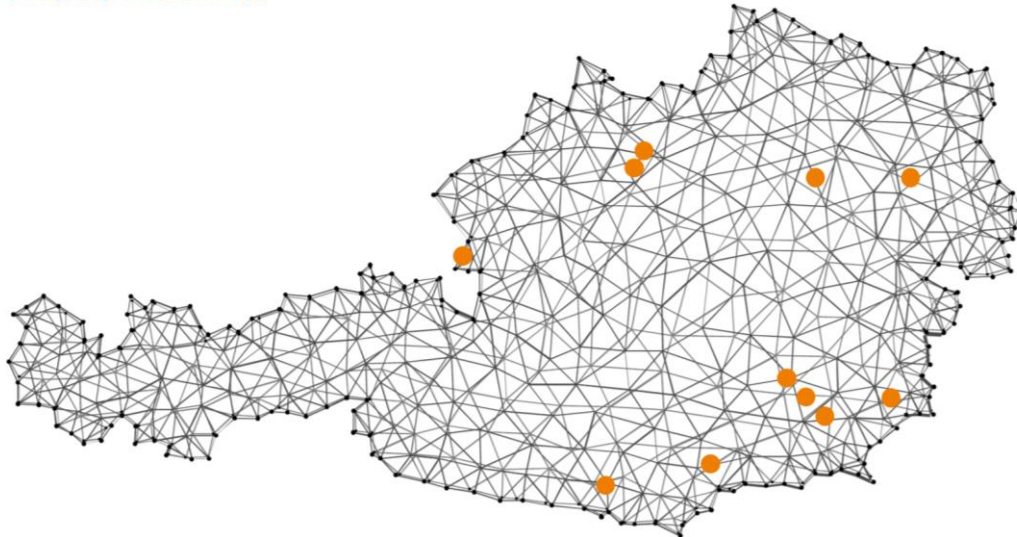
Venues International

1.3 Project Website, Newsletter & Social Media

IoT4CPS online appearance in numbers

35 News Posts
Quaterly Newsletters

Press Reports
Numerous Reports & Articles by Partners
Interviews

31 Posts
+800 Connections

183   Tweets
+600 Followers

LinkedIn https://www.linkedin.com/in/iot4cps-project-a8a037155/
Project Website https://iot4cps.at/aktuelle-news/
Twitter https://twitter.com/IoT4CPS

1.3.1   Project Website

The project website informs about the project and its intentions, ongoing processes and workflows as well as milestones and gives insights into public appearances. It also provides access to public deliverables and publications. All relevant information about current processes can be found in the news section, furthermore, it is sent out to all newsletter subscribers on a regular basis. The website moreover provides a printable version of the project flyer and informs about all partners involved in the project. The pictures at hand are supposed to provide an idea of the website´s composition and graphic preparation.

Extracts from the IoT4CPS news section

The news section is being updated on a regular basis. It contains all sort of information about public appearance and introductions of the project as well as ongoing processes and news referring to one of the project partners. All information shared is being spread by project partners via their own channels (partner websites, social media channels, newsletters) in order to increase reach and impact.

10 SEP 2019 **Workshop on Industrial Security and IoT – disseminating Results of IoT4CPS @ ARES 2019**

In order to support dissemination activities in the IoT4CPS project, the AIT and SBA Research have organized the first Workshop on Industrial Security and IoT (WISI 2019). The workshop was hosted as part of the 14th edition of the ARES & CD-MAKE conference which took place in Canterbury, UK.

The first session started with a keynote speech by AIT cyber security expert Christoph Schmittner, who provided an overview on methods for ensuring security during the entire life cycle. He also provided insights into the current progress in security and safety standardization activities, with the specific specific regar... ...t IoT4CPS ...t... ...field ...t...bility...t... ...t...tion. The ...t... ...t... ...t...ded with an open discussion amon...

The first official paper was a c... different methods to leverage... use to detect irregularities in s... signals, the authors propose t... communication paths in the n...

An application-oriented surve... about the applicability of diffe... in Industry 4.0 / IIoT" triggere... achieving standard complianc...

Two additional papers provide... Recommendations for IoT/IIoT... dealt with evaluating and imp... from Salzburg Research, a par... Cloud Platform Ecosystems"

21 AUG 2019 **Mario Drobics conducts Cyber Security Session at Digitization Workshop**

Mario Drobics conducted a session on Cyber Security at the "Digitization in Austria – a matter of trust" workshop hosted by the AIT on August 19.

Cyber Security is crucial to a successful digitization strategy. Especially small enterprises are facing challenges with regard to high complexity and a constant change of requirements. Numerous initiatives one of being IoT4CPS strive to provide qualification profiles and recommendations.

Read more

26 JUN 2019 **Denise Ratasich presents Paper at 13th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2019), Umeå, Sweden**
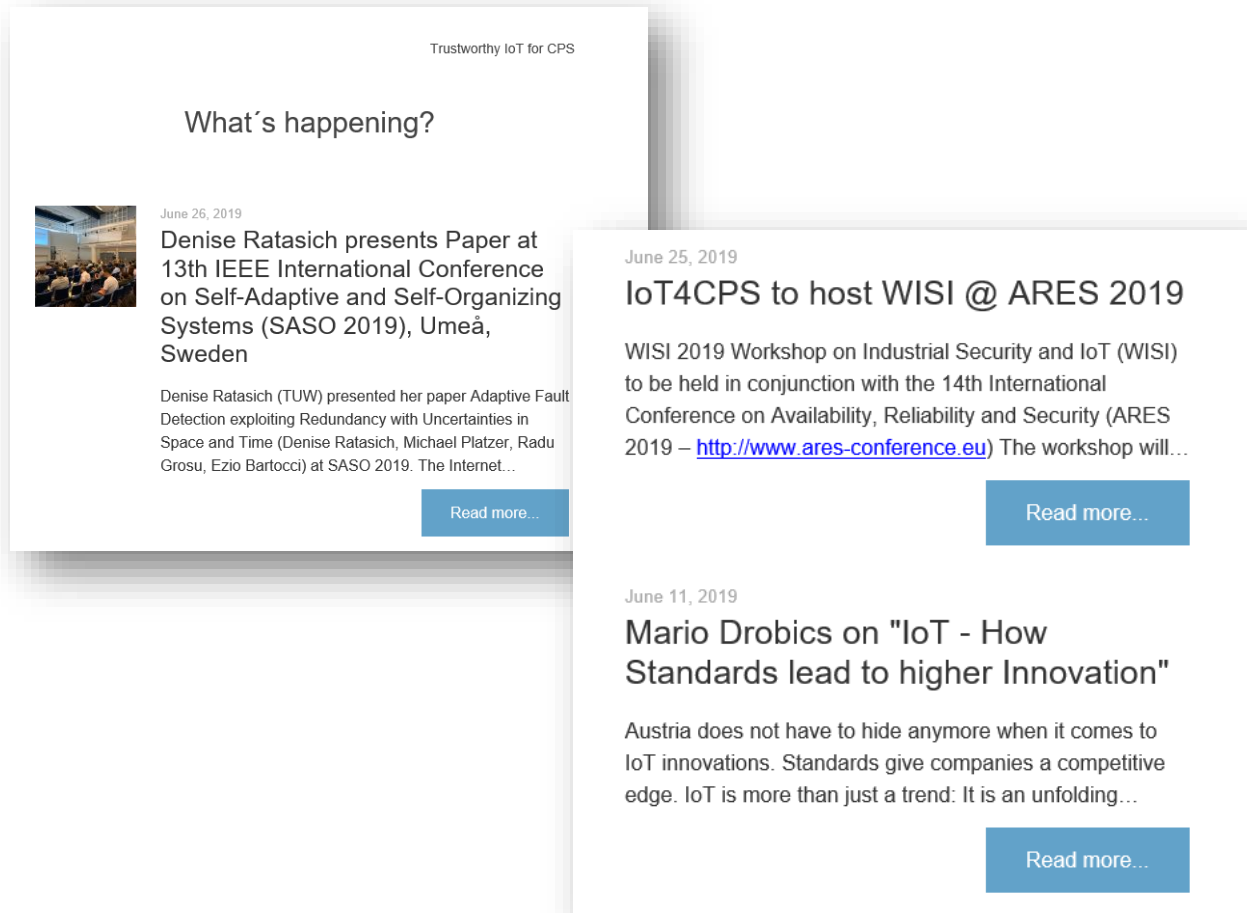
Denise Ratasich (TUW) presented her paper Adaptive Fault Detection exploiting Redundancy with Uncertainties in Space and Time (Denise Ratasich, Michael Platzer, Radu Grosu, Ezio Bartocci) at SASO 2019.

The Internet of Things (IoT) connects millions of devices of different cyber-physical systems (CPSs) providing the CPSs additional (implicit) redundancy during runtime. However, the increasing level of dynamicity, heterogeneity, and complexity adds to the system's vulnerability, and challenges its ability to react to faults. Self-healing is an increasingly popular approach for ensuring resilience, that is, a proper monitoring and recovery, in CPSs. This work encodes and searches an adaptive knowledge base in Prolog/ProbLog that models relations among system variables given that certain implicit redundancy exists in the system. We exploit the redundancy represented in our knowledge base to generate adaptive runtime monitors which compare related signals by considering uncertainties in space and time. This enables the comparison of uncertain, asynchronous, multi-rate and delayed measurements. The monitor is used to trigger the recovery process of a self-healing mechanism. We demonstrate our approach by deploying it in a real-world CPS prototype of a rover whose sensors are susceptible to failure.

1.3.2   Newsletter

The IoT4CPS newsletter is being sent out on a regular basis. It features upcoming and past events as well as scientific findings and summaries of deliverables. Interested individuals can sign up for the newsletter on the project website. In order to maximize visibility all partners also disseminate the latest news on their websites and social media channels.

Trustworthy IoT for CPS

What´s happening?

June 26, 2019

Denise Ratasich presents Paper at 13th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO 2019), Umeå, Sweden

Denise Ratasich (TUW) presented her paper Adaptive Fault Detection exploiting Redundancy with Uncertainties in Space and Time (Denise Ratasich, Michael Platzer, Radu Grosu, Ezio Bartocci) at SASO 2019. The Internet…

Read more…

June 25, 2019

IoT4CPS to host WISI @ ARES 2019

WISI 2019 Workshop on Industrial Security and IoT (WISI) to be held in conjunction with the 14th International Conference on Availability, Reliability and Security (ARES 2019 – http://www.ares-conference.eu) The workshop will…

Read more…

June 11, 2019

Mario Drobics on "IoT - How Standards lead to higher Innovation"

Austria does not have to hide anymore when it comes to IoT innovations. Standards give companies a competitive edge. IoT is more than just a trend: It is an unfolding…

Read more…

1.4 Social Media

1.4.1   Twitter

The IoT4CPS Twitter Account currently counts almost 500 followers. The community of followers mainly consists of individuals showing interest in IoT related topics. That connectedness with individuals allows the project to gain visibility not only in the professional area but also among the public. The list moreover counts a large number of company and public accounts.

The following pictures illustrate how the IoT4CPS account aside form sharing information about ongoing work, milestones, scientific publications and public appearances functions as an IoT information hub.

1.4.2   LinkedIn

The IoT4CPS LinkedIn account functions as a point of contact with professionals working in project related fields. It also works as a communication tool for announcements of events as well as updates on milestones, current work and public appearances.
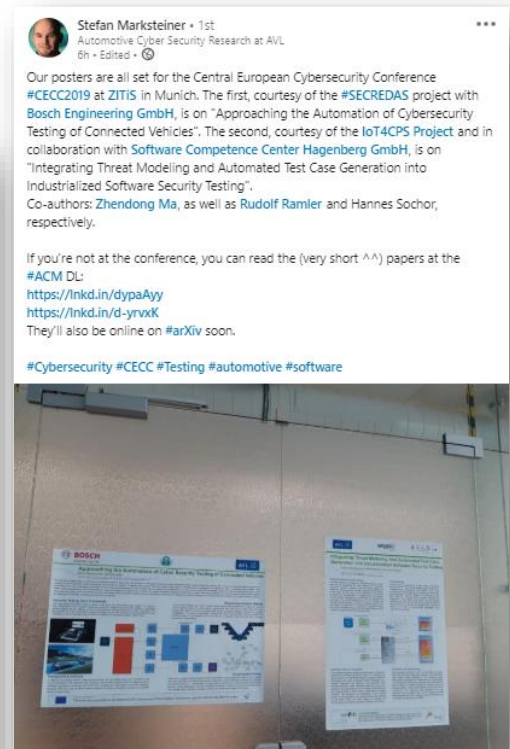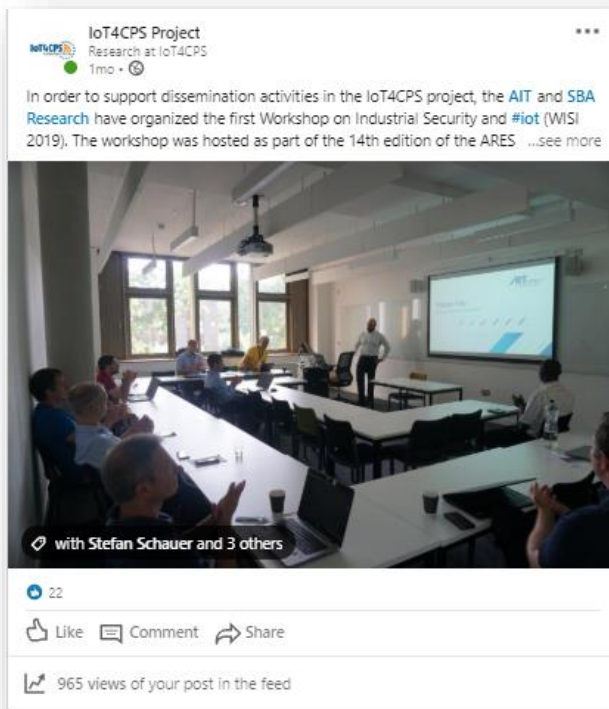
Workshop Organisation & Non Scientific Dissemination

The IoT4CPS consortium executed numerous community outreach activities over the past year. Various approaches (e.g. lightning talks, networking sessions, panel discussions) enabled us to target most diverse peers.
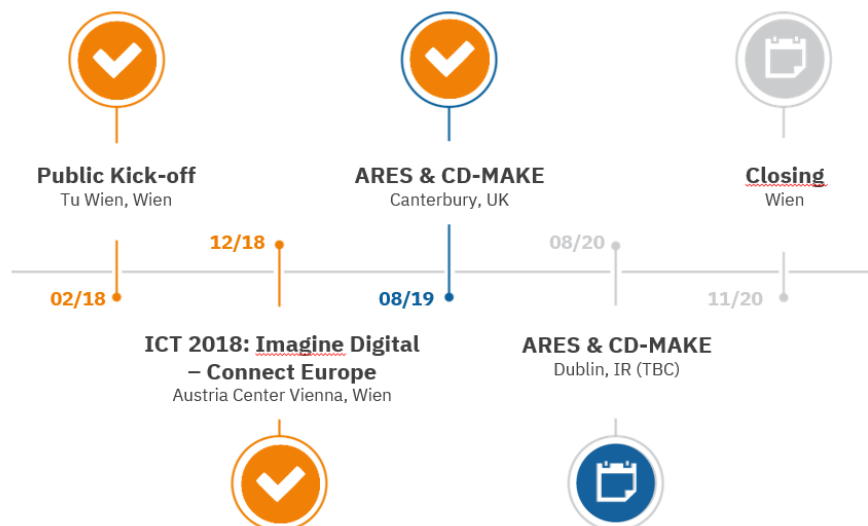
The following selection representatively provides insights into the event organization and community outreach activities within the IoT4CPS project.

1.5 Community & Networking Sessions at the ICT 2018: Imagine Digital – Connect Europe

ICT 2018: Imagine Digital – Connect Europe took place from December 4-6, 2018. The 20-year

Anniversary brought the ICT back to Vienna where it premiered in 1998. With a confirmed number of over 6000 participants, the 2018 edition broke all previous records. In addition to a successful community session and the contribution of several networking sessions, IoT4CPS also hosted an interactive booth in the Austrian Village along with fellow FFG lighthouse projects. Numerous partners encouraged participants to join the discussion on "IoT – Connecting Physical and Digital World", "Connectivity Issues", "Safety and Security in Automated Driving" and "Digital Twin for Safety and Security in the Automated Industry" in the course of the "3 in 1 Community Session" hosted by the FFG.

1.6 Break out Session at the Vienna Cyber Security Week

The IoT4CPS consortium provided insights on the progress within the project at the 2019 Vienna Cyber Security Week. The session, "IoT in Industry" mainly targeted the areas of Digital Twin and Automotive.

1.7 WISI Workshop at the ARES & CD-MAKE Conference 2019

We organized the first workshop at the ARES conference (International Conference on Availability, Reliability and Security), a very respectable and long-standing conference in the field of IT-Security and related aspects, to present the project's results to a wide audience in the information security community. The first iteration of this workshop was conducted as part of the 14th edition of the conference in Canterbury, UK. A collaboration with the ARES conference will continue through the project lifetime and will provide ample opportunity for

extending the partner network of the project consortium with international partners, academic, was well as industrial.

Scientific Dissemination

1.8 Scientific Publications

In the period between December 2018 and November 2019, numerous publications were accepted at international conferences.

Automotive meets ICT – enabling the shift of value creation supported by European R&D
Eric Armengaud, Bernhard Peischl, Peter Priller, Omar Veledar; SIA CESA 2018, Versailles, France

Automatically Determining a Network Reconnaissance Scope Using Passive Scanning Techniques
Stefan Marksteiner, Bernhard Jandl-Scherf, Harald Lernbeiß; Fourth International Congress on Information and Communication Technology 2019 London, UK.

Adaptive Fault Detection exploiting Redundancy with Unvertainties in Space and Time
Denise Ratasich, Michael Platzer, Radu Grosu, Ezio Bartocci; SASO 2019, Umea, Sweden

Digital Twins for Dependability Improvement of Autonomous Driving
Omar Veledar, Violeta Damjanovic-Behrendt, Georg Macher; 26th EuroSPI Conference; EuroAsiaSPI 2019, 18.-20.9.2019, Edinburgh, Scotland
Requirements and Recommendations for IoT/IIoT Models to automate Security Assurance Through Threat Modelling, Security Analysis and Penetration Testing
Ralph Ankele, Stefan Marksteiner, Kai Nahrgang and Heribert Vallant; ARES & CD-MAKE 2019, Canterbury, UK.

Safety and Security of IoT-based Solutions for Autonomous Driving: Architectural Perspective
Omar Veledar, Georg Macher, Violeta Damjanovic-Behrendt, Stefan Jaksic, Christos Thomos,

Christoph Schmittner, Konrad Diwold, Leo Happ Botler, Eva Maria Holzer, Eric Armengaud, Kay Roemer, Mario Drobics, IMBSA 2019, Thessaloniki, Greece.

Feistels Structures for MPC, and More
Martin R. Albrecht and Lorenzo Grassi and Léo Perrin and Sebastian Ramacher and Christian Rechberger and Dragos Rotaru and Arnab Roy and Markus Schofnegger, ESORICS 2019, Luxembourg, Luxembourg.

Integrating Threat Modeling and Automated Test Case Generation into Industrialized Software Security Testing
Stefan Marksteiner and Rudolf Ramler and Hannes Sochor, CECC 2019, Munich, Germany.

We've got the power: Overcoming the distance enlargement fraud with wireless power transfer
Leo Botler, Konrad Diwold and Kay Römer, WPTC 2019, London, UK.

**E-SALDAT: Efficient Single-Anchor Localization of Dual-Antenna Tags**
Leo Botler, Konrad Diwold and Kay Römer; WPNC 2019, Bremen, Germany.

CPSDebug: An Automatic Failure Explanation in CPS Models
Ezio Bartocci, Niveditha Manjunath, Leonardo Mariani, Cristinel Mateis, Dejan Nickovic, Special Issue for the International Journal on Software Tools for Technology Transfer, Springer.

Public Deliverables

All public deliverables have been shared via Social Media and newsletter. They can also be found on the project website.
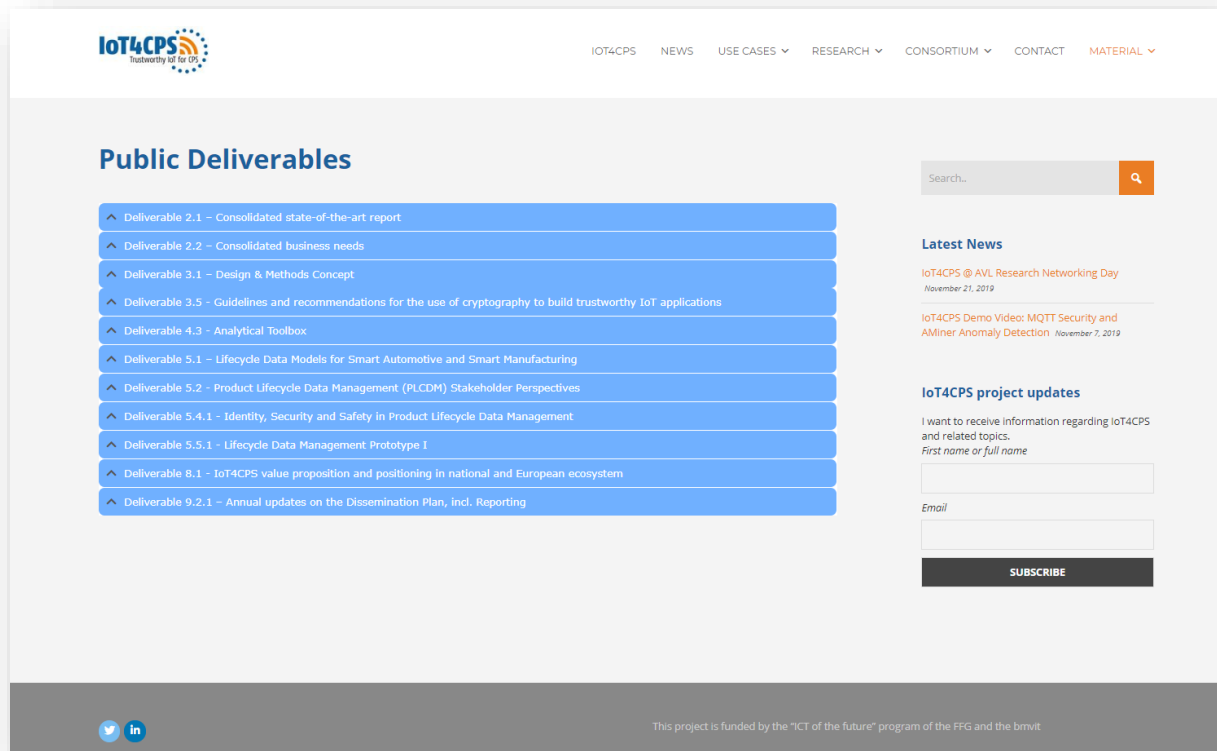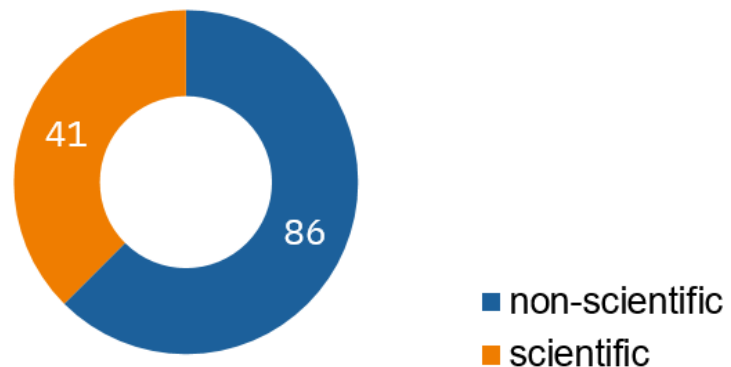

Public Deliverables https://iot4cps.at/deliverables-and-publications/

5 Summary and Outlook

5.1   Summary

Overall Number of Dissemination Activities

Community Outreach, Project Introduction & Dissemination of First Results

- non-scientific
- scientific

5.2   Outlook

The IoT4CPS consortium has executed numerous scientific and non-scientific dissemination activities over the past two project years.

While the focus was put on introducing the project to a wide audience and thereby increasing its visibility in the first phase of the project, it has now started to shift towards the dissemination of results. In order to provide the public with insights into progress and findings we are currently working on several whitepapers. Those whitepapers will comprise a summary of the achievements of each work package. We have also enforced a close collaboration and exchange between work package 8 and 9 in order to maximize the impact created by the project.