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ABSTRACT

This report lists all activities regarding dissemination and standardisation the CPaaS.io project has undertaken in the first year of the project. The project work resulted in 7 peer-reviewed scientific publications, 4 publications targeted towards the general public, 2 webinars, 4 demos at events, and several more project presentations to specific interest groups including city officials. An initial press release led to many press reports about the project. The project's public web site, a project flyer and an associated twitter account are other means through which information about the project is shared. Standardisation activities are currently low key, but are planned to be intensified in the upcoming years.

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1 Dissemination Strategy

From a dissemination point of view, year 1 of the CPaaS.io project was mainly about getting the project known to many potentially interested parties, with the goal of establishing possibilities for cooperation and as a door-opener when talking to cities. Or more generally speaking, to provide the ground work that will lead to concrete exploitation opportunities in the upcoming years. This was done through the project's website, an associated Twitter channel, an initial press release, several public talks and exhibitions, as well as publications targeting a wider than just the scientific audience.

Most of the project's work in year 1 was however not about dissemination, but about the technical development of the platform, its functional architecture, and the concrete implementation architectures. Such technical results are what the project is about and what gives content for future dissemination activities that are also of interest to others. A number of scientific papers have resulted from this work already.

Table 1 summarizes the number of concrete disseminations done in year 1 compared to the target numbers as stated in the Description of Action (DoA).

Table 1: Dissemination targets according to DoA and numbers to date.

| Type of measurable communication activity | Target number (whole project) | Number reached by June 2017 |
|---|-------------------------------|-----------------------------|
| Journal publications | 6 | 0 |
| Conference and workshop publications | 14 | 7 |
| Tutorials and sessions in winter/summer schools | 4 | 0 |
| White papers | 2 | 0 |
| Deliverables (public deliverables) | 35 | 9 |
| LinkedIn discussion groups | 1 | 0 |
| Co-creation workshops | 2 | 1 |
| Demos at exhibitions | 5 | 4 |
| Demos in cities | 3 | 1 |

| | | |
|----------------------------|--|------|
| Contributions to standards | 2 major contributions, 4 support. contributions | 0 |
| Press reports | 8 | > 13 |
| Webinars ¹ | 0 | 2 |

2 Dissemination Activities

2.1 Public Website

The CPaaS.io website (<http://www.cpaas.io/>) was designed as a single-page, responsive website that also displays well on mobile devices. It is available in English and Japanese (see Figure 1). Project updates are regularly reported in the News section. In addition, feeds from the associated Twitter channel (@cpaas.io) are displayed as a sidebar of news items (Figure 2).



Figure 1: Website in Japanese.



Figure 2: Twitter feed.

2.2 Events

Even in year one the CPaaS.io project has already made active contributions in several events, as shown in Table 2. The most important ones are certainly the participation at the TRON Symposium and at CeBIT. Below follows a short description of the CPaaS.io contributions at these events, in chronological order.

¹ Webinars had not been planned in the DoA

An exhibition **Fragments of Wisdom** was held at the Hongo Campus of the University of Tokyo (UoT) in Tokyo, Japan, 11th-28th October. The exhibition featured photos of the Hongo Campus taken by female photographer Michiko Sato. The exhibition was augmented by services based on the CPaaS.io architecture. Concretely this included a projection mapping service as well as a guide service.

Microsoft Japan (MSJ) and Yokosuka Telecom Research Park (YRP) made a presentation at **Resilient City Summit Toyama** in Toyama Japan, 2nd-3rd November, introducing the Sapporo use case of CPaaS.io.

YRP, MSJ, ACCESS (ACC), Ubiquitous Computing Technology (UCT), and UoT have promoted CPaaS.io at **TRON Symposium 2016** in Tokyo Japan, 14-16th December. At this symposium, the planned use cases were presented in the context of the whole objective of the CPaaS.io project, followed by a panel discussion about the merits of CPaaS.io as a common platform to realize such use cases.

AGT has promoted CPaaS.io at **CeBIT 2017** in Hannover Germany, 21-24th March. AGT participated with a point of demonstration (POD) as part of the Smart City Forum² booth. AGT demonstrated their video-based emotion detection solution as well as other analytics solutions for Smart Cities and Event Management that is used in CPaaS.io as part of the event management and user experience use case. The POD also demonstrated solutions from VaVel³ and GrowSmarter⁴, two other H2020 Smart City projects in which AGT is participating. As concrete events and scenarios developed in CPaaS.io both a European event, the Color Run, and the Open Data initiative in Sapporo were presented. CPaaS.io flyers in English and Japanese were distributed and as a result we engaged a larger number of individuals representing companies, municipalities, academia in the whole world. For 22 individuals we have received contact details. In addition we engaged with all the other companies, cities and project at the Smart City forum and participated at the 15th Expert Talk Seminar of the Smart City Forum.

NEC included CPaaS.io in their Smart City demonstration called CityMagnifier. Data from Murcia (delivered by the CPaaS.io partner Odin) was received and stored in a FIWARE server following the CPaaS.io architecture. The data were semantically analysed, mapped into the ontology of the FIESTA-IoT project and visualized in the CityMagnifier application. More than 100 visitors were seeing the demonstration live.

From a scientific perspective finally, Odin Solutions (OdinS) and the Bern University of Applied Sciences organized a workshop at the Global IoT Summit in Geneva on user-centric security, privacy and data governance in smart cities, USP4SC⁵, a topic important for reaching the objective of empowering the citizen to her data. In total, 7 peer-reviewed papers were presented on June 9.

² <https://smart-city-forum.de>

³ <http://www.vavel-project.eu>

⁴ <http://www.grow-smarter.eu>

⁵ <http://globaliotsummit.org/workshop-usp4sc>



Figure 3: Emotion detection demo showing CPaaS.io project team members at CeBIT.

From left to right: Gurkan Solmaz (NEC), Martin Strohbach (AGT), Stefan Gessler (NEC)

Table 2: Events with CPaaS.io contributions.

| Event | Place | Date | Contribution | Partners |
|------------------------------|----------|-------------------|--|-------------------------|
| Fragments of Wisdom | Tokyo | Oct. 11-28, 2016 | Augmented services for photo exhibition based on CPaaS.io architecture | UoT |
| Resilient City Summit Toyama | Toyama | Nov 2-3, 2016 | Presentation of Sapporo Use Case | MSJ, YRP |
| 2016 TRON Symposium | Tokyo | Dec. 14-16, 2016 | Several sessions and panel discussion | YRP, MSJ, ACC, UCT, UoT |
| 2017 CeBIT | Hannover | March 21-24, 2017 | CPaaS representation at NEC both and Smart City Forum by AGT | AGT, NEC |
| 2017 Global IoT Summit | Geneva | June 6-9, 2017 | Workshop on user-centric security, privacy and data governancen in smart cities (USP4SC) | OdinS, BFH |

2.3 Scientific papers

As shown in Table 3, the scientific work resulted in 7 peer-reviewed publications in year 1, with one additional paper currently being in review.

Table 3: Scientific publications in year 1.

| Authors | Paper Title | Conference | Conference Date | Location |
|-------------------|--|--|------------------|--------------------|
| T. Yamakami (ACC) | A 4-stage Mental Model of Conversion: An Approach to Capture Transition of Customer Mind | 19th IEEE International Conference on Advanced Communications Technology (ICACT) | Feb. 19-22, 2017 | PyeongChang, Korea |

| Authors | Paper Title | Conference | Conference Date | Location |
|---|---|--|-------------------|------------------------|
| V. Beltran, J. A. Martinez (OdinS), A. F. Skarmeta (OdinS) | User-Centric Access Control for Efficient Security in Smart Cities | 2nd Workshop on User centric security, privacy and data governance in smart cities (USP4SC) | June 9, 2017 | Geneva, Switzerland |
| J. Frecè (BFH) | The Challenge of OwnData Service Features | 2nd Workshop on User centric security, privacy and data governance in smart cities (USP4SC) | June 9, 2017 | Geneva, Switzerland |
| T. Yamakami (ACC) | A Dimensional Framework to Evaluate Coverage of IoT Services in City Platform as a Service | 14th International Conference on Service Systems and Service Management (ICSSSM) | June 16-18, 2017 | Dalian, China |
| T. Yamakami (ACC) | A Gap Analysis Framework of IoT-empowered City Platform as a Service | 14th International Conference on Service Systems and Service Management (ICSSSM) | June 16-18, 2017 | Dalian, China |
| T. Yamakami (ACC) | Horizontal Requirement Engineering in Integration of Multiple IoT Use Cases of City Platform as a Service | IEEE International Workshop on Secure and Resource-Efficient Edge Computing 2017 (SecureEdge 2017) | Aug. 21-23, 2017 | Helsinki, Finland |
| M. Fraefel (BFH), S. Haller (BFH), A. Gschwend (BFH) | Big Data in the Public sector. Linking Cities to Sensors | 16th IFIP Electronic Government (EGOV) and 9th Electronic Participation (ePart) Conference 2017 | Sept. 4-7, 2017 | St. Petersburg, Russia |
| S. Haller (BFH), A. Neuron (BFH), M. Fraefel (BFH), K. Sakamura (YRP) | Perspectives on Strategies: A Smart City Strategy Framework based on Morphological Analysis (<i>acceptance pending</i>) | Hawaii International Conference on System Sciences (HICSS-51) | January 3-6, 2018 | Waikaloa Village, USA |

2.4 Co-Creation Events

NEC participated in the co-creation event "Düsseldorf 2020 – Creating a Smart City" in Düsseldorf, 13.-14. June 2017. They presented a Hackathon challenge using the combination of public, enterprise, and private data. The response to the challenge was accepted by members from NEC; DIEHL Metering, digihub and E.ON.



Figure 4: Impressions from the co-creation event in Düsseldorf

2.5 Other publications

In April 2017, the scientific online journal of the BFH Centre Digital Society, SocietyByte, had as its featured topic "smart city". Three project-related articles by CPaaS.io partners were included:

- AGT: Martin Strohbach, Manuel Görtz and Markus Schlattmann, *IoT Data Analytics – A key enabler for the Growth of Smart Cities*, <https://www.societybyte.swiss/2017/04/21/iot-data-analytics-a-key-enabler-for-the-growth-of-smart-cities/>.
- BFH: Stephan Haller, Konrad Walser: Governance einer erfolgreichen Smart City – Ein Multi-Stakeholder-Ansatz ist entscheidend, <https://www.societybyte.swiss/2017/04/01/governance-einer-erfolgreichen-smart-city-ein-multi-stakeholder-ansatz-ist-entscheidend/>.
- TTN: Rishabh Chauhan: Building a decentralized Global Network for the Internet of Things, <https://www.societybyte.swiss/2017/04/01/building-a-decentralized-global-network-for-the-internet-of-things/>

In addition, in October 2016 another article was published in the same online journal, giving a project overview:

- Stephan Haller: Daten als Innovationstreiber der intelligenten Stadt, <https://www.societybyte.swiss/2016/10/01/daten-als-innovationstreiber-der-intelligenten-stadt/>.

2.6 Talks, direct meetings etc.

The project has also been presented in various talks and direct meetings with city officials, as shown in Table 4. In addition, specific exploitation-oriented meetings have taken place as well; these are listed in deliverable D7.4.

Table 4: Talks and direct meetings

| Date | Presenters | Title | Event | Location |
|---------------|--------------------------|--|---|----------------|
| June 24, 2016 | Alexander Overtoom (TTN) | Waterproof Amsterdam & CPaaS.io | Amsterdam Economic Board presentation, led by mayor of Amsterdam | Amsterdam |
| Oct. 6, 2016 | K. Shindo (YRP) | CPaaS.io:City Platform as a Service – Integrated and Open | 6th Japan – EU Symposium on ICT Research and Innovation | Tokyo |
| Oct. 28, 2016 | Alexander Overtoom (TTN) | Waterproof Amsterdam & CPaaS.io | Meeting with Municipality of Amsterdam - smart city representatives | Amsterdam |
| Nov. 28, 2016 | S. Haller (BFH) | CPaaS.io – Ein Horizon 2020 Projekt zur Entwicklung einer städtischen Innovationsplattform | Steering Group Meeting of Smart Capital Region Switzerland | Bern |
| Dec. 20, 2016 | Alexander Overtoom (TTN) | TTN webinar - what can you do with LoRaWAN | Online Webinar | Online Webinar |
| Jan. 10, 2017 | M. Strohbach (AGT) | CPaaS.io:City Platform as a Service – Integrated and Open | VaVeL consortium plenary meeting | Darmstadt |

| Date | Presenters | Title | Event | Location |
|----------------|---|---|--|----------------|
| April 11, 2017 | S. Haller (BFH), M. Strohbach (AGT), C. Ishikawa (YRP) | What role does an open city platform play in creating smart city innovation? | Webinar series by the EU-Japan Centre for Industrial Collaboration | Online Webinar |
| May 2, 2017 | S. Haller (BFH) | CPaaS.io – Ein Horizon 2020 Projekt zur Entwicklung einer städtischen Innovationsplattform | 12. Workshop of IG Smart Cities Schweiz | Bern |
| June 13&14 | E. Kovacs, S. Gessler (NEC) | Umweltbewusstes Handeln... ... wie können Apps und Stadtdaten unser Verhalten ändern und die Ökobilanz der Stadt verbessern. | Düsseldorf 2020 – Creating a Smart City http://www.digihub.de/smartcity/ | Düsseldorf |
| June 28, 2017 | S. Haller (BFH) | Wann ist eine City „smart“? | 3rd OGD Round Table, Swiss Federal Archives | Bern |

2.7 Press releases

As the European coordinator, the BFH issued a press release in English and German shortly after the project had started (see Figure 5). We received quite a good response from media, resulting in a number of reports, as shown in section 4.



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Press Release

24. August 2016

An open platform for the Smart City

The E-Government Institute of the Bern University of Applied Sciences has won an important EU-funded project. Together with partners in Europe and Japan a platform is being developed, on which open government data combined with the Internet of Things is provided to a variety of users.

The digital society is bringing about many changes, especially in the urban environment. To address these challenges and shape them in a positive way, the research project CPaaS.io (City Platform-as-a-Service - integrated and open) has started this July. This collaborative project between Europe and Japan aims to provide cities a cloud-based urban data infrastructure, which is an important foundation for the development towards a smart city. The platform links technologies like the Internet of Things, Big Data, and Cloud with Open Government Data (OGD) and Linked Open Data in order to enable a multitude of different applications. Therefore novel services can be provided either by the city itself or by third parties to the public as well as to businesses. This allows for example managing large events better: In which direction are visitors streaming? How can public transportation dynamically be adapted to respond to the current situation? How can authorities react to hazardous situations, accidents, sudden weather changes etc.? The practical relevance of the platform will be validated with cities that have already experience in the Open Data area. In Europe these are Amsterdam, Murcia and Zurich, and in Japan Sapporo, Tokyo and Yokosuka.

The project will be running for 2.5 years and is being coordinated by the Bern University of Applied Sciences in Europe, and by the YRP Ubiquitous Networking Laboratory in Japan. The European coordinator, Stephan Haller, faculty of economics of the Bern University of Applied Sciences, sees several benefits of such a platform: „It contributes strongly to urban innovation and strengthens the attractiveness and competitiveness of the city. By providing open data, it possibly attracts additional businesses. And the platform empowers the individual citizen to gain control about his or her data and to define, who is allowed to use which data how.“

Additional partners in the project are in Europe AGT, NEC, Odin Solutions, The Things Network and the University of Surrey, and in Japan ACCESS Co., Microsoft Japan, Ubiquitous Computing Technology Corporation and the University of Tokyo.

More information is available at: <http://www.cpaas.io>

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Figure 5: First CPaaS.io Press Release.

3 Standardisation Activities

NEC is chairing the ETSI Industrial Specification group on "Context Information Management" (ETSI ISG CIM). This group is defining the next version of the FIWARE NGSI API. This API is a core API also used by CPaaS.io. Experiences from the project will be included into the specification work. Furthermore, ETSI ISG CIM will be defining a Smart City data model, another area in which CPaaS.io will contribute. A first collaboration with ETSI ISG CIM is targeted for the July 19th, 2017 in Berlin during their public consultation of EU research projects.

As part of CeBit 2017 Smart City Forum AGT participated at the 15th Expert Talk Seminar of the Smart City Forum in which the DIN SPEC 91357 Reference Architecture Model "Open Urban Platform" (OUP) was presented by Bernhard Kempen from DIN. The work is related to the H2020 project Espresso⁶ and highly relevant for CPaaS.io.

4 Mentions in the Press

Table 5 shows all press listings of CPaaS.io that we are aware of. Reports about the project have been published in regional and local newspapers, technical journals, as well as online ICT news portals. The Japanese TRONWARE magazine published a 12-page special feature about CPaaS.io, including project description as well as a talk between the two project coordinators, Prof. Ken Sakamura and Prof. Stephan Haller (Figure 6).

Table 5: CPaaS.io in the press.

| Date | Magazine/Paper/... | Lang. | Article Title and URL |
|------------|----------------------------|-------|--|
| 24.08.2016 | Inside-it.ch | DE | Fachhochschule Bern baut die "City-Platform-as-a-Service" http://www.inside-it.ch/articles/44780 |
| 25.08.2016 | CE today | DE | Berner Fachhochschule kooperiert für Smart-City-Projekt http://www.cetoday.ch/de-CH/News/2016/08/25/Berner-Fachhochschule-kooperiert-fuer-Smart-City-Projekt.aspx |
| 01.09.2016 | Smart Mobility Summit Blog | EN | Who will be responsible for leading and co-ordinating future smart city projects? http://www.smartmobilitysummit.com/blog/who-will-be-responsible-for-leading-and-co-ordinating-future-smart-city-projects?utm_source=newsletter%201st%20september%202016&utm_medium=email&utm_content=Who%20will%20be%20responsible%20for%20leading%20and%20co-ordinating%20future%20smart%20city%20projects? |
| 27.09.2016 | JDN - Journal du Net | FR | L'Europe et le Japon créent une plateforme open data pour la smart city http://www.journaldunet.com/economie/services/1185199-l-europe-et-le-japon-creent-une-plateforme-open-data-pour-la-smart-city/ |

⁶ <http://espresso-project.eu/>

| Date | Magazine/Paper/... | Lang. | Article Title and URL |
|------------|------------------------|-------|---|
| 25.08.2016 | C36daily ICT News | DE | Schweiz: Fachhochschule Bern baut die «City-Platform-as-a-Service» https://twitter.com/C36daily |
| 25.08.2016 | Der Bund | DE | Mit EU-Projekt den urbanen Raum besser planen |
| 25.08.2016 | IT Markt Online | DE | Berner Fachhochschule kooperiert für Smart-City-Projekt http://www.it-markt.ch/news/2016-08-25/berner-fachhochschule-kooperiert-fuer-smart-city-projekt |
| 25.08.2016 | Kommunalmagazin Online | DE | Berner Fachhochschule baut Plattform für die Smart City http://www.kommunalmagazin.ch/berner-fachhochschule-baut-plattform-fuer-die-smart-city |
| 25.08.2016 | Netzwoche Online | DE | Berner Fachhochschule kooperiert für Smart-City-Projekt http://www.netzwoche.ch/news/2016-08-25/berner-fachhochschule-kooperiert-fuer-smart-city-projekt |
| 05.10.2016 | TRONWARE | JP | CPaaS.io プロジェクト (Special Feature about CPaaS.io) http://www.tron.org/ja/2016/10/post-2169/ |
| 05.12.2016 | Murcia Economia | ES | la-murciana-odins-participa-en-una-plataforma-euro-japonesa http://murciaeconomia.com/not/47471/la-murciana-odins-participa-en-una-plataforma-euro-japonesa |
| 30.09.2016 | Cities Today | EN | Europe and Japan collaborate on smart cities https://cities-today.com/europe-japan-collaborate-smart-cities |
| 09.09.2016 | ITUblog | EN | Europe and Japan collaborate on smart cities with cloud-based 'CPaaS.io' https://itu4u.wordpress.com/2016/09/09/europe-and-japan-collaborate-on-smart-cities-with-cloud-based-cpaas-io/ |



Figure 6: Excerpt from TRONWARE report about CPaaS.io (Source: TRONWARE magazine)

5 Future Plans

No significant changes are required in the general dissemination strategy. We will continue to publish scientific papers at relevant conferences, to talk to city officials and other interested parties and interest groups, and to regularly update the project web site.

Some activities will however be intensified: Firstly, the project intends to more closely cooperate with other ongoing projects and activities, in particular the Open and Agile Smart Cities initiative (OASC⁷) and

⁷ <http://www.oascities.org/>

related projects, as they share many objectives with CPaaS.io. Synergies will have to be identified and the strengths of the different initiatives will have to be merged.

Secondly, active event participation will increase as the project will have already more results to demonstrate. At the 2017 TRON Symposium in Tokyo in December, we plan to hold a city stakeholder workshop. Other potential targets for event participation are CeBIT 2018 as well as the IoT Week 2018.

And finally, more needs to happen regarding standardisation. The project will be trying through its NEC representatives to bring its work on data models and ontologies to the ETSI ISG CIM. Another target is the ITU-T Study Group 20 "Internet of things (IoT) and smart cities and communities (SC&C)".