



Towards Open Urban Platforms for Smart Cities and Communities

Memorandum of Understanding

1. Outline of this Memorandum

- 1.1. The market for current Urban Platform(s) is fragmented and uncertain on the demand-side and lacking interoperability and common standards in the supply-side.
- 1.2. Big, small and diverse industry organisations have come together recognising that the Urban Platform market is a critical enabler for the Smart Cities market.
- 1.3. The signatories to this MoU have agreed to take a city and community needs led approach to address the fragmented market. The key challenges facing this market include:
 - Interoperability and common open standards – so that cities can mix and match offerings from a range of different vendors;
 - To date the market has been supply-led – with the norm being proprietary and custom-built offerings;
 - Many cities have reservations about Urban Platform(s) – including limited understanding of their costs & benefits.
- 1.4. The ambition of the signatories to this MoU is to enrol cities, infra-structure and service companies, tele-communications and utilities to:
 - Work with the partners of this Memorandum of Understanding
 - by 2018, create a strong EU city market for Urban Platforms
 - by 2025, ensure that the market of 300m residents of EU cities use Urban Platform(s) to manage their business with a city and that the city in turn drives efficiencies, insight and local innovation through the platform(s)

To meet the above challenges and to deliver on these ambitions the Memorandum of Understanding Group (in the following: MOU Group), whose names and signatures appear at Annex two of this document, have agreed on the following:

2. Background

- 2.1. The European Innovation Partnership on Smart Cities and Communities (EIP SCC) is a stakeholder driven initiative stimulated and supported by the European Commission. The EIP SCC has defined key priority areas which will be addressed through six Action Clusters including “Integrated Infrastructures & Open Data”. A general observation has been that



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open urban platforms are a pre-requisite to support fast take-up of smart solutions in cities to allow many stakeholders of a city to participate and for different vendor solutions to be easily integrated. This has stimulated this Memorandum of Understanding and our goal is to gain broader industry, city and other support, and to move forward as a commitment within the EIP.

3. Objectives

- 3.1. Accelerate the opening up of the Smart Cities Market (see emerging road map attached at annex two of this document),
- 3.2. Ensure suitable industry input, and an open dialogue with cities and communities in order to take into account their needs and concerns
- 3.3. Develop the Urban Platform open market by creating competition for supply side and confidence for demand side.

4. Definition of Urban Platform

- 4.1. What does the MOU Group mean by 'an **Urban Platform**'? ...,
 - ... the implemented realisation of a logical architecture/content/design that brings together (integrates) data flows within and across city systems
 - ... and exploits modern technologies (sensors, cloud services, mobile devices, analytics, social media etc)
 - ... providing the building blocks that enable cities to rapidly shift from fragmented operations to include predictive effective operations, and novel ways of engaging and serving city stakeholders
 - ... in order to transform, in a way that is tangible and measurable, outcomes at local level (e.g. increase energy efficiency, reduce traffic congestion and emissions, create (digital) innovation ecosystems)

5. Proposed areas of co-operation

5.1. The MOU Group agree with the following goals of this Memorandum of Understanding

- 5.1.1. Develop a set of principles and a joint reference architecture framework to enable interoperability, scalability and open interfaces to integrate different solutions (see 5.2)



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- 5.1.2. Develop a joint data and service ontology to be used by individual Smart cities commercial products and solutions (see 5.3)
- 5.1.3. Accelerate the adoption of the developed framework by standardisation bodies
- 5.1.4. Comply with any joint standards (as developed from 5.4) and framework when developing individual Smart Cities commercial products and solutions
- 5.1.5. Work with cities to develop tailored operational frameworks (both for installation and servicing phases) based on different business models (e.g., own city infrastructure, cloud-based solution, etc.)

5.2. Joint reference architecture;

- 5.2.1. To enable providers to develop solutions that allow openness, interoperability and integration a common reference framework on the business and technical architecture is needed. Such a reference architecture would enable:
 - 5.2.1.1. The interoperability between urban infrastructures within the cities
 - 5.2.1.2. The replicability of the solutions/platforms from city to city
 - 5.2.1.3. The scalability of the solutions without technical constraints and excessive cost consequences
 - 5.2.1.4. An open common interface (APIs) and corresponding tools (SDK) that facilitate the development of applications on top of the platform by any third party
 - 5.2.1.5. A set of functional capabilities and corresponding technical modules that are based on city needs and supported by city use cases
 - 5.2.1.6. The MOU Group intends to develop a framework along these lines that defines a reference architecture stack developing the concept on multiple layers, e.g.,:
 - Infrastructure
 - Data management, including semantics/ontology
 - Open interface layer
 - Analytics
 - Service creation and provisioning
 - Security and privacy
 - General management services
 - Testware



5.3. Joint data and service ontology

5.3.1. The rapid deployment of ICT technology in urban infrastructures and the growth of the Internet of Things will lead to new service portfolios, especially using real-time information. Urban data provided by cities and infrastructure providers will enable new business models and service portfolios.

5.3.2. A common data and service ontology will ensure a seamless commercialization of these new service portfolios across Europe and around the world, as recently promoted by the Digital Single Market.

- The group intends to develop such an ontology including but not limited to urban data from city administrations and city public services such as infrastructure data from public transport, from energy nets and from road authorities

5.4. Adoption standards and frameworks by the standardisation bodies

5.4.1. The group is committed to support the effort of the related standardisation bodies by supporting technical specifications, reference implementations, and conformance and interoperability tests.

5.4.2. The intent of the Memorandum of Understanding is to ensure that in-between the endorsement of the standards and now cities will be provided with a clear vendor driven commitment of openness, interoperability and integration avoiding investments to be dead end.

5.5. Work with Cities

5.5.1. The group is fully committed to work openly with cities, communities, and their related associations on defining the scope of the framework and reference architecture leveraging the Strategic Implementation Plan of the EIP SCC and the related recommendations of the Operational Implementation Plan.

5.5.2. Hereby, special emphasis is given to explore new business and service models and thus related financial models to allow for;

- Fast take-up of so called quick-win solutions such as smart integrated lighting (cf. to commitment #6670 "Humble Lamppost") which calls for multi-infrastructure operator models,
- Systems of systems solutions providing fast integration especially with legacy systems of deployed infrastructures,
- Integration of innovative, small, but fast scaling solutions as being provided by the growing community of start-up and small/medium enterprises as part of a Smart City eco system, for example through accelerator programs.



5.6. Dedicated resources

5.6.1. All partners commit to dedicate required resources, expertise and associated budget to support the creation of jointly defined deliverables, e.g., in form of white papers, templates and more detailed technical specifications. The associated documents will be openly published to be used by city stakeholders as well as solution providers to shape their solutions to enable interoperability and easy integration via open interfaces.



Annex One: Road Map for the Urban Platform

Key date	Action	Who
21 May 2015	Announce MoU at Berlin	EIP
tbd	Develop reference architecture	MoU partners
tbd	Set up CSrg - Consumer Stakeholder reference group (cities, research, utilities)	MoU partners
tbd	Audit early movers Platforms and Standards	MoU partners
tbd	Set up ISrg - Industry Stakeholders reference group (infrastructure, service providers)	MoU partners
tbd	Test and publish reference architecture	MoU partners
tbd	Provide open interfaces, formats and ontology	MoU partners
tbd	Publish map of standards	MoU partners or ISrg
tbd	Identify Demonstrator Urban Platforms	EIP
tbd	Create 4-5 showcases of existing assets	EIP
tbd	Pilots	EIP
tbd	Templates	ISrg
tbd	Provide testware to assure conformance, interoperability and security of urban platforms	Tbd
2018	Market success/evaluation	EIP?
	Exploitation and new case studies from cities	ISrg
2025	300m residents of EU cities use Urban Platform(s)	



Annex Two: The Memorandum signatories

	Organisation	Name, Role
1.	HERE	Mr Michael Bültmann Managing Director HERE Deutschland GmbH
2.	Alliander N.V.	Mr Peter Molengraaf Chief Executive Officer Alliander N.V. and High Level Group Member
3.	SAP SE	Mr Luka Mucic Board Member SAP AG
4.	Microsoft Corporation	Dr Marianne Janik Senior Director Public Sector Microsoft Deutschland GmbH
5.	Continental AG	Mr Helmut Matschi Member of the Executive Board Continental AG Division Interior
6.	Fraunhofer FOKUS	Prof. Dr-Ing. Ina Schieferdecker Director Fraunhofer Institute for Open Communication Systems FOKUS
7.	Urban Software Institute GmbH & Co. KG	Dr Lutz Heuser Chief Technology Officer Urban Software Institute GmbH & Co. KG
8.	UrbanDNA LLP	Mr Graham Colclough Partner UrbanDNA LLP
9.	HyperCat Consortium	Lord Erroll Chairman HyperCat Consortium
10.	Software AG	Dr Harald Schöning Vice President Research Software AG
11.	EnBW Energie Baden-Württemberg AG	Mr Michael Gutjahr Regional-Director EnBW AG
12.	Flexeye Ltd	Mr Justin Anderson Chairman & CEO Flexeye Ltd
13.	Greater London Authority	Mr Matthew Pencharz The Mayor's Smart Cities and Environment Adviser Greater London Authority
14.	Deutsche Telekom AG	Mr Heinrich Arnold Senior Vice President Innovation & Laboratories, Deutsche Telekom AG