



## 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 open urban platforms are a prerequisite 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)
- 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 Update Action Plan

Updated following Governance Call (new items marked in orange)

10/09/2017

Urban Platform Roadmap	Resource Source			Timing / Notes
	AC	Mplace	GAP	
1. Re-mobilise Gov'ce Group	Y	Y		Monthly Calls being set up; plus Sector Team Calls
2. Test Ldrshp Guide in cities with politicians	pt		X	
3. Run Mgmt F'work workshops to ready cities (exploiting networks like DE SC Forum; E'cities; etc)	pt		X	Sharing Cities to demonstrate – Sept; then propose to SCC01s. GLA to explore with Boroughs.
4. Improvement of MF'work – adding also 'operation and governance guide'			X	Sept activity – resource issue?!
5. Consider how best to incl GDPR Privacy Impact Assessment Process in MF'work	Y			ShCities has progressed on this and can contribute
6. Manage end June BXL Standards Workshop	Y			A success (minute shared). Next key mtng 15 Nov ISO conf in BCN
7. Produce 6-page Data/Ref Arch Intro Guide for City Officers / Industry Mgrs				Bart – in process. Sept target (?) within ESPRESSO scope
8. Mobilise across SCC01s, and collect examples of success stories, and UP justifications	pt	pt		Andrew to re-engage Demand-Side on this and other items. INEA prompting all SCC01s on Lol/MoU sign up
9. Produce UP Initiative 'Brochure' jointly between Supply/Demand/Standards	Y		?	Holger to ask Antonio to set up a <u>joint</u> action. Target to deliver for Oct 12 <sup>th</sup> GA
10. Cost, benefits, value case development	pt		X	As above
11. Develop further templates / tools			X	Ongoing
12. Apply for financial assistance under INTERREG Europe for capability creation				
13. Ready EC / Initiative for ISO Nov conference	pt		X	
14. Ongoing comms	pt	Y		
15. Pavilion Event needed?		?	X	
16. Seek new Directives that EC can use to promote UP work and 'enforce'	Y			Example of GDPR (#5). Svet to discuss with Eddy. Are there others?
17. Explore opp'ty for EC DG/DDG to join BCN Congress panel with 3 SDO CEOs/Mayors	Y			Graham to action with ISO and advise Svet / EC. August
18. Urban Agenda: "Digital Transition Partnership": strengthen alignment, thus market impact				Svet to advise contact points (Estonia/ Sofia/Oulu). Andrew to contact. Aug



## Annex Two: The Memorandum Signatories

No.	Organisation	Name and Role of the signee	Date signed
1	HERE Deutschland GmbH	Mr Michael Bültmann, Managing Director, HERE Deutschland GmbH	21/05/2015
2	Alliander N.V.	Mr Peter Molengraaf, Chief Executive Officer, Alliander N.V. and High Level Group Member	21/05/2015
3	SAP SE	Mr Luka Mucic, Board Member, SAP AG	13/05/2015
4	Microsoft Corporation	Dr Marianne Janik, Senior Director Public Sector, Microsoft Deutschland GmbH	21/05/2015
5	Continental AG	Mr Helmut Matschi, Member of the Executive Board, Continental AG Division Interior	20/05/2015
6	Fraunhofer FOKUS	Prof. Dr-Ing. Ina Schieferdecker, Director, Fraunhofer Institute for Open Communication Systems FOKUS	19/05/2015
7	Urban Software Institute GmbH & Co. KG	Dr Lutz Heuser, Chief Technology Officer, Urban Software Institute GmbH & Co. KG	21/05/2015
8	UrbanDNA LLP	Mr Graham Colclough, Partner, UrbanDNA LLP	21/05/2015
9	HyperCat Consortium	Lord Erroll, Chairman, HyperCat Consortium	20/05/2015
10	EnBW Energie Baden-Württemberg AG	Mr Michael Gutjahr, Regional-Director, EnBW AG	20/05/2015
11	Flexeye Ltd	Mr Justin Anderson, Chairman & CEO, Flexeye Ltd	20/05/2015
12	Greater London Authority	Mr Matthew Pencharz, The Mayor's Smart Cities and Environment Adviser, Greater London Authority	20/05/2015



No.	Organisation	Name and Role of the signee	Date signed
13	Deutsche Telekom AG	Mr Heinrich Arnold, Senior Vice President, Innovation & Laboratories, Deutsche Telekom AG	20/05/2015
14	Device Gateway SA	Ana Maria Pacheco Huamani, Direction	27/05/2015
15	Mandat International	Sébastien Ziegler, Director	27/05/2015
16	Grupo Etra	José Antonio Fernández, CEO	22/05/2015
17	Maps S.p.A.	Maurizio Pontremoli, Managing Director	08/06/2015
18	Eandis	Donald Vanbeveren, Director Regulation & Strategy	26/06/2015
19	Software AG	D. Harald Schöning, Vice President Research, Software AG	16/06/2015
20	Konica Minolta	Dennis Curry, Director, Business Innovation Centre, Europe, Konica Minolta	06/07/2015
21	Indra Sistemas, S.A.	Santiago Roura Lama, Executive Vice President Strategy and Innovation	08/07/2015
22	EDSO for Smart Grids	Ana Aguado; Secretary General	27/07/2015
23	Centro Técnico SEAT S.A.	Christoph Wäller, Head of Innovation and E-Mobility Strategy Carlos Gonzalez-Tröger, Manager of Finance CTS	28/07/2015
24	Etna Hitech S.C.p.A	Eng. Emanuele Spampinato, Chairman of the Board	17/09/2015
25	TICE.PT (the Portuguese National Cluster for ICT)	Vasco Lagarto, Chief Executive Officer Pedro Roseiro, Executive Committee Member	12/11/2015
26	Ubiwhere, Lda.	Rui A. Costa, Chief Executive Officer	17/11/2015
27	InterDigital Europe Ltd	Alan Carlton, Vice President	21/12/2015





## European Innovation Partnership on Smart Cities and Communities

No.	Organisation	Name and Role of the signee	Date signed
28	General Electric Intelligent Cities	Rick Freeman, General Manager	15/01/2016
29	Clicks and Links Ltd	Vin Sumner, Chief Executive Officer	28/01/2016
30	Urban Tide	Pippa Gardner, Chief Executive Officer	17/03/2016
31	ZTE Corporation	Xu Ming, VP of ZTE Corporation	21/03/2016
32	Zeetta Networks	Dr Vassilis Seferidis, CEO	13/04/2016
33	Vertical M2M	Mr Robert Vivanco, Responsible for Marketing	14/04/2016
34	D'Appolonia	Mr Stefano Carosio, Research and Innovation Manager	14/04/2016
35	Tecnalia	Mr Joseba Laka Mugartza	18/04/2016
36	Mondragon Corporation	Mr Eduardo Beltrán de Nanclares	20/04/2016
37	Effective Knowledge S.r.l.	Mr Nicola Mitolo, Legal Representative	26/04/2016
38	Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)	Prof. Karsten Lemmer, Director, Institute of Transportation Systems, DLR Prof. Frank Köster, Head of Department Automotive	09/05/2016
39	IrRADIARE, Lda	Mr Rui Pedro Henriques, Development Director, Mrs Elsa Nunes, Managing Partner	16/05/2016
40	GOLEM Integrated Microelectronics Solutions GmbH	Mr Serguei Golovanov, General Manager	17/05/2016
41	ASIDEES - Association for Sustainable Innovative Development in Economics, Environment and Society	Mrs Elena Petrova, Manager	17/05/2016



No.	Organisation	Name and Role of the signee	Date signed
42	TNO - Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek	Mr Kees d'Huy, Director Smart Cities	25/07/2016
43	University of Florence, DISIT Lab	Mr Nicola Mitolo, Promotor	26/08/2016
44	Ernst & Young GmbH	Mr Markus Heinen, Chief Innovation Officer	09/09/2016
45	Paradigm Mtuity Inc	Sridhar Gadhi, CEO	20/09/2016
46	CS Digital Media B.V.	Mr Radjen van Wilsem, CEO	12/10/2016
47	University of Malaga	Mr Juan Teodomiro López Navarrete, Vice-Rector for Research and Transfer	29/11/2016
48	UniverCities	Mrs Irena Itova, Owner & Co-Founder	14/12/2016
49	TERCERA FASE SOFTWARE S.L.	Mr Santiago Sánchez, project Manager	05/12/2016
50	AC Transform Ltd	Mr Chris Parker	25/04/2017
51	Route Monkey	Dr. Sarah Bee, Projects Director	14/08/2017
52	Lyse AS	Per Fjeld, Advisor Research and Innovation dept	16/08/2017
53	jofemar corporation	Miquel Angel Carrero Espinosa, general Manager	10/08/2017
54	ACEDE-H-ENEA Living Lab	Mr. Xabier Gorritxategi, Coordinator	23/08/2017
55	Brno university of Technology	Prof RND Ing Petr Stepanek, CSc. Rector	16/08/2017
56	Compania del Tranvia de san sebastian , SAU (DBUS)	Javier Vallejo, Deputy General Manager	17/08/2017
57	Technomar GmbH	Zsolt Kremer, Managing Director	10/08/2017
58	IKUSI S.L.	Manubens Wienreich, Hector-Smart City Director	01/09/2017



No.	Organisation	Name and Role of the signee	Date signed
59	LEYCOLAN S.A.L. ZUMARTEGI INDUSTRIALDEA	Juan Bautista Genua, Managing Director	10/08/2017
60	University Politehnica of Bucharest, Romania	Mihnea Costoiu, Rector	01/08/2017
61	FOREUM VIRIUM HELSINKI	Mika Malin, managing director	29/08/2017
62	Cluster Construcion Sostenible (CCS) C/Santiago, Spain	Mr. Diego Broock Hajar General Manager	16/08/2017
63	Ricerca sul sistema energetico , RSE spa	Stefano Besseghini	10/08/2017
64	Tartu Regional Energy Agency, Estonia	Martin Kkas, Member of Board	10/08/2017
65	Poliedra - Centro di servizio e consulenza del Politecnico di Milano su pianificazione ambientale e territoriale, Milano	Alberto Colorni, President	01/09/2017
66	Esoterix Systems, Future Space, Bristol	Mr. Xabier Gorritxategi , Coordinator	23/08/2017
67	Energon Energy Efficiency Ltd, Istanbul	H. Burak Ozturk /Mech. Eng.	22/08/2017
68	Energy HIVE, Alexandroupoli	Dr. Paraskevi Giourka, President	25/08/2017
69	ETIC-Embedded Technologies Innovation Center, Spain	Natividad Herrasti, Manager	21/08/2017
70	Eindhoven University of Technology (TUE)	Prof. Bauke de Vries	10/08/2017
71	MCCTELECOM S.COOP., Spain	Josu Rollon, chief Innovation Officer	17/08/2017
72	K-veloce I+D+i, Valencia	Victoria Ibars Guerrero, CEO	16/08/2017
73	Teicos UE Srl, Milano	Cecilia Hugony, CEO	18/08/2017
74	Nasuvinsa, Pamplona Navarra	Idoia Madariaga Lopez, Innovation Area Manager	10/08/2017



## European Innovation Partnership on Smart Cities and Communities

No.	Organisation	Name and Role of the signee	Date signed
75	WiTraC Comunicaciones Inteligentes, Valencia	Jordi Lario, COO	10/08/2017
76	university of Stavanger, Norway	Øystein Lund BØ, Dean, Faculty of Science and Technology	25/08/2017
77	Kiunsys S.r.l, Campochiaro	Paolo Lanari, CEO	29/08/2017
78	Enermix Oy, Finland	Janne Heinonen, CEO	12/08/2017
79	Mastodon C, London	Francine Bennett, Director	14/08/2017
80	NHP srl, Napoli, Italy	Valerio Siniscaldo, CEO	14/08/2017
81	SPES Consulting srl, Genoa	Mr. Adriano Pessina, President	11/08/2017
82	Bettervest GmbH	Patrick Mijns, CEO	14/08/2017
83	CARTIF Technology Centre, Spain	Mr José Ramon Peran Gonzalez, CEO	05/09/2017
84	Fourdeg Ltd	Markku Makkonen, CEO	05/09/2017
85	Estudio GIS, Spain	Alvaro Arroyo Diaz, Managing Director	06/09/2017