Horizon 2020

Call: H2020-ICT-2015

Topic: ICT-36-2015

Type of action: COFUND-PCP

Proposal number: 688196

Proposal acronym: SELECT for Cities

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How to fill in the forms

The administrative forms must be filled in for each proposal using the templates available in the submission system. Some data fields in the administrative forms are pre-filled based on the previous steps in the submission wizard.

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

1 - General information

Topic	ICT-36-2015	Type of action	COFUND-PCP
Call identifier	H2020-ICT-2015	Acronym	SELECT for Cities

Proposal title*: SELECT for Cities (Standardized, opEn, data-driven, service-oriented user-centric pLatform Enabling large-scale Co-creation, Testing validation of IoE services for Cities)

Note that for technical reasons, the following characters are not accepted in the Proposal Title and will be removed: < > " &

Duration in months: *36*

Fixed keyword 1: *Innovative procurement* Add

Free keywords: *Smart Cities, open data, large-scale urban living labs, internet of things, internet of everything*

Abstract

Internet of Everything is recognised to be one of the dominant ways transforming the way we manage and live in our urban environments in the future. The extension of the Internet to the physical spaces and objects is a massive opportunity for new services and business for example in the areas of logistics, transport, environment, security and wellbeing.

Internet of everything is directly linked to the smart city development, but it has proceeded slower than expected. The key showstoppers are the lack of common standards, fragmented marketplace, and lack of ways to systematically test and introduce new solutions in the cities.

The common challenge of the SELECT for Cities PCP is the design, research and development of "cities as linked and large-scale Internet of Everything labs". The challenge lies in developing an open, standardized, data-driven, service-oriented and user-centric platform that enables large-scale co-creation, testing and validation of urban IoE applications and services. This approach fosters the longer-term goal of evidence-based innovation in cities.

The envisaged platform has several requirements, components & features that are currently not available in existing solutions. The platform must allow collaboration between departments and cities, and (automated) testing of IoE services. The design should be based on an open and modular approach, and support cloud-based, data-driven, service-oriented, user-centric, and co-created large-scale testing.

The joint effort of the partners procuring this pre-commercial track lies in guarding the integration capabilities of the platform with solutions that exist in the respective cities today. Particular attention will thus need to be paid to technologies and tools that allow smooth communication and integration between these existing solutions. The end goal of SELECT for Cities is taking the idea of the city as a large Internet of Everything Lab and putting it into practice.

Remaining characters 28

Has this proposal (or a very similar one) been submitted in the past 2 years in response to a call for proposals under the 7th Framework Programme, Horizon 2020 or any other EU programme(s)? ○ Yes ◉ No

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Proposal ID **688196** *Acronym* **SELECT for Cities**

Declarations

1) The coordinator declares to have the explicit consent of all applicants on their participation and on the content of this proposal.*	☒
2) The information contained in this proposal is correct and complete.	☒
3) This proposal complies with ethical principles (including the highest standards of research integrity — as set out, for instance, in the European Code of Conduct for Research Integrity — and including, in particular, avoiding fabrication, falsification, plagiarism or other research misconduct).	☒

4) The coordinator confirms:

- to have carried out the self-check of the financial capacity of the organisation on https://ec.europa.eu/research/participants/portal/desktop/en/organisations/lfv.html. Where the result was "weak" or "insufficient", the coordinator confirms being aware of the measures that may be imposed in accordance with the H2020 Grants Manual (Chapter on Financial capacity check); or	◉
- is exempt from the financial capacity check being a public body including international organisations, higher or secondary education establishment or a legal entity, whose viability is guaranteed by a Member State or associated country, as defined in the H2020 Grants Manual (Chapter on Financial capacity check); or	○
- as sole participant in the proposal is exempt from the financial capacity check.	○

5) The coordinator hereby declares that each applicant has confirmed:

- they are fully eligible in accordance with the criteria set out in the specific call for proposals; and	☒
- they have the financial and operational capacity to carry out the proposed action.	☒
6) The coordinator confirms that the self-check has been performed by minimum two partners in the project - including the lead procurer and minimum two partners in the buyers group - that they are compliant with the definition of contracting authority or contracting entity as defined in the EU public procurement directives. The coordinator confirms the willingness of the partners to provide, in case the proposal is positively evaluated, self-declarations to the EC on this point.	☒

The coordinator is only responsible for the correctness of the information relating to his/her own organisation. Each applicant remains responsible for the correctness of the information related to him and declared above. Where the proposal to be retained for EU funding, the coordinator and each beneficiary applicant will be required to present a formal declaration in this respect.

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According to Article 131 of the Financial Regulation of 25 October 2012 on the financial rules applicable to the general budget of the Union (Official Journal L 298 of 26.10.2012, p. 1) and Article 145 of its Rules of Application (Official Journal L 362, 31.12.2012, p.1) applicants found guilty of misrepresentation may be subject to administrative and financial penalties under certain conditions.

Personal data protection

Your reply to the grant application will involve the recording and processing of personal data (such as your name, address and CV), which will be processed pursuant to Regulation (EC) No 45/2001 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data. Unless indicated otherwise, your replies to the questions in this form and any personal data requested are required to assess your grant application in accordance with the specifications of the call for proposals and will be processed solely for that purpose. Details concerning the processing of your personal data are available on the privacy statement. Applicants may lodge a complaint about the processing of their personal data with the European Data Protection Supervisor at any time.

Your personal data may be registered in the Early Warning System (EWS) only or both in the EWS and Central Exclusion Database (CED) by the Accounting Officer of the Commission, should you be in one of the situations mentioned in:
-the Commission Decision 2008/969 of 16.12.2008 on the Early Warning System
(for more information see the Privacy Statement), or
-the Commission Regulation 2008/1302 of 17.12.2008 on the Central Exclusion Database
(for more information see the Privacy Statement) .

List of participants

#	Participant Legal Name	Country
1	FORUM VIRIUM HELSINKI OY	Finland
2	IMINDS VZW	Belgium
3	DIGIPOLIS CVBA	Belgium
4	STAD ANTWERPEN	Belgium
5	21C CONSULTANCY LIMITED	United Kingdom
6	INSTITUT DE CULTURA DE BARCELONA	Spain
7	INSTITUT MUNICIPAL D'INFORMATICA DE BARCELONA	Spain

2 - Administrative data of participating organisations

PIC	***Legal name***
997534324	*FORUM VIRIUM HELSINKI OY*

Short name: FV-Helsinki

Address of the organisation

Street Aleksanterinkatu 16-18

Town Helsinki

Postcode 00170

Country Finland

Webpage www.forumvirium.fi

Legal Status of your organisation

Research and Innovation legal statuses

Public body ..... no

Non-profit ..... yes

International organisation ..... no

International organisation of European interest ..... no

Secondary or Higher education establishment ..... no

Research organisation ..... no

Legal person ..... yes

Enterprise Data

SME self-declared status..... 2013 - no

SME self-assesment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

NACE Code: 93 -

Department(s) carrying out the proposed work

Department 1

Department name	PCP department
	☒ Same as organisation address
Street	Aleksanterinkatu 16-18
Town	Helsinki
Postcode	00170
Country	Finland

Dependencies with other proposal participants

Character of dependence	***Participant***	

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Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **FV-Helsinki**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Mr.

Sex: (•) Male ( ) Female

First name: **Hugo**

Last name: **Goncalves**

E-Mail: **hugo.goncalves@forumvirium.fi**

Position in org.: Project Development Manager

Department: International collaboration

☒ Same as organisation address

Street: Aleksanterinkatu 16-18

Town: Helsinki

Post code: 00170

Country: Finland

Website: www.forumvirium.fi

Phone: +358 45 1199 410

Phone 2: +xxx xxxxxxxxx

Fax: +xxx xxxxxxxxx

Other contact persons

First Name	***Last Name***	***E-mail***	***Phone***
Marianne	Dannbom	marianne.dannbom@forumvirium.fi	
Jarmo	Eskelinen	jarmo.eskelinen@forumvirium.fi	

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Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **IMINDS**

PIC	***Legal name***
999608184	*IMINDS VZW*

Short name: IMINDS

Address of the organisation

Street GASTON CROMMENLAAN 8/102

Town GENT

Postcode 9050

Country Belgium

Webpage

Legal Status of your organisation

Research and Innovation legal statuses

Public body ..... no

Non-profit ..... yes

International organisation ..... no

International organisation of European interest ..... no

Secondary or Higher education establishment ..... no

Research organisation ..... yes

Legal person ..... yes

Enterprise Data

SME self-declared status..... 2013 - no

SME self-assesment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

NACE Code: 721 -

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

Department(s) carrying out the proposed work

Department 1

Department name: Living Labs

☒ Same as organisation address

Street: GASTON CROMMENLAAN 8/102

Town: GENT

Postcode: 9050

Country: Belgium

Department 2

Department name: iMinds-SMIT

☐ Same as organisation address

Street: Pleinlaan 9

Town: Brussels

Postcode: 1050

Country: Belgium

Dependencies with other proposal participants

Character of dependence	***Participant***	

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **IMINDS**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Mr.
Sex: (•) Male ( ) Female

First name: **Koen**
Last name: **De Vos**

E-Mail: **koen.de.vos@iminds.be**

Position in org.: Operations Manager

Department: Living Labs

☒ Same as organisation address

Street: GASTON CROMMENLAAN 8/102

Town: GENT
Post code: 9050

Country: Belgium

Website: www.iminds.be

Phone: +32477793790
Phone 2: +xxx xxxxxxxxx
Fax: +xxx xxxxxxxxx

Other contact persons

First Name	*Last Name*	*E-mail*	*Phone*
Nils	Walravens	nils.walravens@vub.ac.be	
Pieter	Ballon	research.ilabo@iminds.be	
Research	iminds	research@iminds.be	

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Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **DIGIPOLIS**

PIC	***Legal name***
992274014	*DIGIPOLIS CVBA*

Short name: DIGIPOLIS

Address of the organisation

Street GENERAAL ARMSTRONGWEG 1

Town ANTWERPEN

Postcode 2020

Country Belgium

Webpage www.digipolis.be

Legal Status of your organisation

Research and Innovation legal statuses

Public body ..... no

Non-profit ..... no

International organisation ..... no

International organisation of European interest ..... no

Secondary or Higher education establishment ..... no

Research organisation ..... no

Legal person ..... yes

Enterprise Data

SME self-declared status..... 2010 - no

SME self-assesment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

NACE Code: 72 -

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

Department(s) carrying out the proposed work

Department 1

Department name: Digipolis Antwerpen

☒ Same as organisation address

Street: GENERAAL ARMSTRONGWEG 1

Town: ANTWERPEN

Postcode: 2020

Country: Belgium

Dependencies with other proposal participants

Character of dependence	***Participant***	
Is controlled by	STAD ANTWERPEN	

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Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **DIGIPOLIS**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Mr.

Sex: (•) Male ( ) Female

First name: **Paul**

Last name: **Van der Cruyssen**

E-Mail: **paul.vandercruyssen@digipolis.be**

Position in org.: Business Analyst

Department: Digipolis Antwerpen

☒ Same as organisation address

Street: GENERAAL ARMSTRONGWEG 1

Town: ANTWERPEN

Post code: 2020

Country: Belgium

Website: www.digipolis.be

Phone: +3233387611

Phone 2: +xxx xxxxxxxxx

Fax: +xxx xxxxxxxxx

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Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **STAD ANTWERPEN**

PIC	***Legal name***
984807924	*STAD ANTWERPEN*

Short name: STAD ANTWERPEN

Address of the organisation

Street GROTE MARKT 1

Town ANTWERPEN

Postcode 2000

Country Belgium

Webpage www.antwerpen.be

Legal Status of your organisation

Research and Innovation legal statuses

Public body ..... yes

Non-profit ..... yes

International organisation ..... no

International organisation of European interest ..... no

Secondary or Higher education establishment ..... no

Research organisation ..... no

Legal person ..... yes

Enterprise Data

SME self-declared status..... unknown

SME self-assesment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

NACE Code: -

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

Department(s) carrying out the proposed work

Department 1

Department name: Marketing and Strategy

☒ Same as organisation address

Street: GROTE MARKT 1

Town: ANTWERPEN

Postcode: 2000

Country: Belgium

Dependencies with other proposal participants

Character of dependence	***Participant***	

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Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **STAD ANTWERPEN**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Mrs

Sex: ○ Male ◉ Female

First name: **Kristien**

Last name: **De Wachter**

E-Mail: **kristien.dewachter@stad.antwerpen.be**

Position in org.: Digital concept

Department: Marketing and Strategy

☒ Same as organisation address

Street: GROTE MARKT 1

Town: ANTWERPEN

Post code: 2000

Country: Belgium

Website: www.antwerpen.be

Phone: +32(0)33382199

Phone 2: +xxx xxxxxxxxx

Fax: +xxx xxxxxxxxx

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **21C CONSULTANCY**

PIC	***Legal name***
998962843	*21C CONSULTANCY LIMITED*

Short name: 21C CONSULTANCY

Address of the organisation

Street THE WORK PLACE, LADBROKE GROVE 105

Town LONDON

Postcode W11 1PG

Country United Kingdom

Webpage www.21cconsultancy.com

Legal Status of your organisation

Research and Innovation legal statuses

Public body ..... no

Non-profit ..... no

International organisation ..... no

International organisation of European interest ..... no

Secondary or Higher education establishment ..... no

Research organisation ..... no

Legal person ..... yes

Enterprise Data

SME self-declared status..... 2009 - yes

SME self-assesment ..... unknown

SME validation sme..... 2009 - yes

Based on the above details of the Beneficiary Registry the organisation is an SME (small- and medium-sized enterprise) for the call.

NACE Code: -

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

Department(s) carrying out the proposed work

Department 1

Department name: European Projects

☐ Same as organisation address

Street: 136b Lancaster Road

Town: London

Postcode: W11 1QU

Country: United Kingdom

Dependencies with other proposal participants

Character of dependence	***Participant***	

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Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **21C CONSULTANCY**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Mr.

Sex: (•) Male ( ) Female

First name: **Benjamin**

Last name: **Cave**

E-Mail: **ben@21cconsultancy.com**

Position in org.: Head of Research & Projects

Department: European Projects

☐ Same as organisation address

Street: 136b Lancaster Road

Town: London

Post code: W11 1QU

Country: United Kingdom

Website: 21cconsultancy.com

Phone: +44 (0) 20 7229 7316

Phone 2: +xxx xxxxxxxxx

Fax: +xxx xxxxxxxxx

Other contact persons

First Name	*Last Name*	*E-mail*	*Phone*
Julia	Glidden	julia@21cconsultancy.com	

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Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **ICUB**

PIC	***Legal name***
986992073	*INSTITUT DE CULTURA DE BARCELONA*

Short name: ICUB

Address of the organisation

Street CL LA RAMBLA 99 PALAV LA VIRREINA

Town BARCELONA

Postcode 8002

Country Spain

Webpage barcelonacultura.bcn.cat

Legal Status of your organisation

Research and Innovation legal statuses

Public body ..... yes

Legal person ..... yes

Non-profit ..... no

International organisation ..... no

International organisation of European interest ..... no

Secondary or Higher education establishment ..... no

Research organisation ..... no

Enterprise Data

SME self-declared status..... 2012 - no

SME self-assesment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

NACE Code: -

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

Department(s) carrying out the proposed work

Department 1

Department name: Direction of Creativity and Innovation

☒ Same as organisation address

Street: CL LA RAMBLA 99 PALAV LA VIRREINA

Town: BARCELONA

Postcode: 8002

Country: Spain

Dependencies with other proposal participants

Character of dependence	***Participant***	

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Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **ICUB**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Mr.

Sex: (•) Male ( ) Female

First name: **Francisco**

Last name: **Iglesias**

E-Mail: **francisco.iglesias@iglor.es**

Position in org.: External Consultant

Department: Direction of Creativity and Innovation

☒ Same as organisation address

Street: CL LA RAMBLA 99 PALAV LA VIRREINA

Town: BARCELONA

Post code: 8002

Country: Spain

Website: barcelonacultura.bcn.cat

Phone: +34617105180

Phone 2: +xxx xxxxxxxxx

Fax: +xxx xxxxxxxxx

Other contact persons

First Name	*Last Name*	*E-mail*	*Phone*
Ines	Garriga Rodriguez	igarrigar@bcn.cat	+34660017495
Joan	Batlle Montserrat	jbatlle@bcn.cat	+34670098407

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **INSTITUT MUNICIPAL D'INFORMATICA DE**

PIC	***Legal name***
969047849	*INSTITUT MUNICIPAL D'INFORMATICA DE BARCELONA*

Short name: INSTITUT MUNICIPAL D'INFORMATICA DEBARCELONA

Address of the organisation

Street AVENIDA DIAGONAL 220/2

Town BARCELONA

Postcode 08018

Country Spain

Webpage www.bcn.cat

Legal Status of your organisation

Research and Innovation legal statuses

Public body ..... yes

Legal person ..... yes

Non-profit ..... yes

International organisation ..... no

International organisation of European interest ..... no

Secondary or Higher education establishment ..... no

Research organisation ..... no

Enterprise Data

SME self-declared status..... 2013 - no

SME self-assesment ..... unknown

SME validation sme..... unknown

Based on the above details of the Beneficiary Registry the organisation is not an SME (small- and medium-sized enterprise) for the call.

NACE Code: L -

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

Department(s) carrying out the proposed work

Department 1

Department name: Innovation Department

☐ Same as organisation address

Street: Tánger st, 98, 12th floor

Town: Barcelona

Postcode: 08018

Country: Spain

Dependencies with other proposal participants

Character of dependence	***Participant***	

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

Proposal ID **688196** *Acronym* **SELECT for Cities** *Short name* **INSTITUT MUNICIPAL D'INFORMATICA DE**

Person in charge of the proposal

The name and e-mail of contact persons are read-only in the administrative form, only additional details can be edited here. To give access rights and basic contact details of contact persons, please go back to Step 4 of the submission wizard and save the changes.

Title: Ms

Sex: ○ Male ◉ Female

First name: **Julia**

Last name: **Lopez**

E-Mail: **jlopezve@bcn.cat**

Position in org.: Smart City BCN & ICT International Office

Department: Smart City BCN & ICT International Office

☐ Same as organisation address

Street: Tánger st, 98, 12th floor

Town: Barcelona

Post code: 08018

Country: Spain

Website: www.bcn.cat/smartcity

Phone: +34932918153

Phone 2: +34616177948

Fax: +xxx xxxxxxxxx

Other contact persons

First Name	***Last Name***	***E-mail***	***Phone***
Sergi	Madonar Soria	smadonars@bcn.cat	

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Proposal ID **688196** *Acronym* **SELECT for Cities**

3 - Budget for the proposal

No	Participant	(A) Direct costs of PCP of subcontracting /€	(B) Costs for related additional coordination and networking activities				(C) Total costs/€ (=A+B)	(D) Reimbursement rate/%	(E) Maximum EU contribution/ € (=C*D)	(F) Requested total grant amount/€
			(B1) Direct personnel costs/€	(B2) other subcontracting costs/€	(B3) Other direct costs/€	(B4) Indirect costs/ € (=(B1+B3)*25%)				
1	Fv-helsinki	1460000	269500	5000	21600	72775,00	1828875,00	70	1280212,50	1280212,50
2	Iminds	0	168000	0	8000	44000,00	220000,00	70	154000,00	154000,00
3	Digipolis	1460000	280500	30000	9000	72375,00	1851875,00	70	1296312,50	1296312,50
4	Stad Antwerpen	0	152750	0	8000	40187,50	200937,50	70	140656,25	140656,25
5	21c Consultancy	0	165750	0	10500	44062,50	220312,50	70	154218,75	154218,75
6	Icub	0	79950	0	6000	21487,50	107437,50	70	75206,25	75206,25
7	Institut Municipal D'infor	1021000	148500	5000	9000	39375,00	1222875,00	70	856012,50	856012,50
	Total	3941000	1264950	40000	72100	334262,50	5652312,50	70	3956618,75	3956618,75

This proposal version was submitted by **Marianne Dannbom** on **14/04/2015 15:38:59 CET**. Issued by the Participant Portal Submission Service.

4 - Ethics issues table

1. HUMAN EMBRYOS/FOETUSES		Page
Does your research involve Human Embryonic Stem Cells (hESCs)?	○ Yes ◉ No	
Does your research involve the use of human embryos?	○ Yes ◉ No	
Does your research involve the use of human foetal tissues / cells?	○ Yes ◉ No	
2. HUMANS		**Page**
Does your research involve human participants?	○ Yes ◉ No	
Does your research involve physical interventions on the study participants?	○ Yes ◉ No	
3. HUMAN CELLS / TISSUES		**Page**
Does your research involve human cells or tissues (other than from Human Embryos/ Foetuses, i.e. section 1)?	○ Yes ◉ No	
4. PERSONAL DATA (ii)		**Page**
Does your research involve personal data collection and/or processing?	◉ Yes ○ No	22
Does it involve the collection and/or processing of sensitive personal data (e.g.: health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?	○ Yes ◉ No	
Does it involve processing of genetic information?	○ Yes ◉ No	
Does it involve tracking or observation of participants?	○ Yes ◉ No	
Does your research involve further processing of previously collected personal data (secondary use)?	○ Yes ◉ No	
5. ANIMALS (iii)		**Page**
Does your research involve animals?	○ Yes ◉ No	

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Proposal ID **688196** *Acronym* **SELECT for Cities**

6. THIRD COUNTRIES		Page
Does your research involve non-EU countries?	○ Yes ◉ No	
Do you plan to use local resources (e.g. animal and/or human tissue samples, genetic material, live animals, human remains, materials of historical value, endangered fauna or flora samples, etc.)? (v)	○ Yes ◉ No	
Do you plan to import any material from non-EU countries into the EU? *For data imports, please fill in also section 4.* *For imports concerning human cells or tissues, fill in also section 3.*	○ Yes ◉ No	
Do you plan to export any material from the EU to non-EU countries? *For data exports, please fill in also section 4.* *For exports concerning human cells or tissues, fill in also section 3.*	○ Yes ◉ No	
If your research involves low and/or lower middle income countries, are benefits-sharing measures foreseen? (vii)	○ Yes ◉ No	
Could the situation in the country put the individuals taking part in the research at risk?	○ Yes ◉ No	
7. ENVIRONMENT & HEALTH and SAFETY See legal references at the end of the section. (vi)		Page
Does your research involve the use of elements that may cause harm to the environment, to animals or plants? *For research involving animal experiments, please fill in also section 5.*	○ Yes ◉ No	
Does your research deal with endangered fauna and/or flora and/or protected areas?	○ Yes ◉ No	
Does your research involve the use of elements that may cause harm to humans, including research staff? *For research involving human participants, please fill in also section 2.*	○ Yes ◉ No	
8. DUAL USE (vii)		Page
Does your research have the potential for military applications?	○ Yes ◉ No	
9. MISUSE		Page
Does your research have the potential for malevolent/criminal/terrorist abuse?	○ Yes ◉ No	
10. OTHER ETHICS ISSUES		Page
Are there any other ethics issues that should be taken into consideration? Please specify	○ Yes ◉ No	

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I confirm that I have taken into account all ethics issues described above and that, if any ethics issues apply, I will complete the ethics self-assessment and attach the required documents. ☒

How to Complete your Ethics Self-Assessment

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5 - Call specific questions

Societal Impact Table

Does your research meet the need of society?		Page
1. Does the proposed research address documented societal security need(s) (e.g. life, liberty, health, employment, property, environment, values)?	○ Yes ◉ No	
2. Does the research output meet these needs? Will this be demonstrated? Will the level of societal acceptance be assessed?	○ Yes ◉ No	
3. Does the research address threats to society (e.g. crime, terrorism, pandemic, natural and man-made disasters etc.)?	○ Yes ◉ No	
4. Does the proposed research address in an appropriate way these threats?	○ Yes ◉ No	
Does your research benefit society?		**Page**
5. Do segment(s) of society benefit from the proposed research?	◉ Yes ○ No	22
6. Does society as a whole benefit from the proposed research?	◉ Yes ○ No	22
Does your research have negative impact on society?		**Page**
7. Are there other European societal values that are enhanced by the proposed research e.g. public accountability and transparency; strengthened community involvement; human dignity; good governance; social and territorial cohesion; sustainable development etc.?	◉ Yes ○ No	22
8. If implemented, could the research have a negative impact on the rights and values enshrined in the Treaties (e.g. freedom of association, freedom of expression, protection of personal dignity, privacy and data protection.	○ Yes ◉ No	
9. If implemented, could the research impact disproportionately upon specific groups or unduly discriminate against them?	○ Yes ◉ No	
10. Will specific measures be taken to ensure that the research outcomes comply with the European Charter of Fundamental Rights and to mitigate against any of the negative impacts described above?	○ Yes ◉ No	

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Open Research Data Pilot in Horizon 2020

If selected, all applicants will participate in the Pilot on Open Research Data in Horizon 2020[1] , which aims to improve and maximise access to and re-use of research data generated by actions. Participating in the Pilot does not necessarily mean opening up all research data. Actions participating in the Pilot will be invited to formulate a Data Management Plan in which they will determine and explain which of the research data they generate will be made open.

Applicants have the possibility to opt out of this Pilot and must indicate a reason for this choice.

Participation in this Pilot does not constitute part of the evaluation process. Proposals will not be evaluated favourably because they are part of the Pilot and will not be penalised for opting out of the Pilot.

We wish to opt out of the Pilot on Open Research Data in Horizon 2020.	○ Yes	◉ No

[1] *According to article 43.2 of Regulation (EU) No 1290/2013 of the European Parliament and of the Council, of 11 December 2013, laying down the rules for participation and dissemination in "Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)" and repealing Regulation (EC) No 1906/2006.*

Data management activities

The use of a Data Management Plan (DMP) is required for projects participating in the Open Research Data Pilot in Horizon 2020, in the form of a deliverable in the first 6 months of the project.

All other projects may deliver a DMP on a voluntary basis, if relevant for their research.

Are data management activities relevant for your proposed project?	○ Yes	◉ No

Horizon 2020, ICT-36

PCP cofund actions

Standardized, opEn, data-driven, service-oriented & user-centric pLatform Enabling large-scale Co-creation, Testing & validation of IoE services for Cities

PART B Sections 1-3

List of participants

No	Participant organisation name	Short name	Country
1	Forum Virium Helsinki Oy (coordinator)	FV-Helsinki	FI
2	iMinds VZW	iMinds	BE
3	Digipolis OV	Digipolis	BE
4	Stad Antwerpen	Stad Antwerpen	BE
5	21C Consultancy Limited	21C Consultancy	UK
6	Institut de Cultura de Barcelona	ICUB	ES
7	Institut Municipal d'Informatica de Barcelona	IMI	ES

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1. Excellence

Picture 1: City as an open and connected Internet of Everything lab (CitySDK project, 2012)

The objective of the call is "to bring radical improvements to the quality and efficiency of public services by encouraging the development and validation of breakthrough solutions through Pre-Commercial Procurement."

Although we still primarily experience cities through their physical infrastructure – the bricks and mortar that give them their unique character and charm – they are increasingly being designed, managed, and developed with the help of IT solutions. The availability and quality of digital services is playing an ever more important role in determining how well we perceive a city to be functioning. The demand for digital public services continues to grow at a time when municipal budgets are tightening. (CitySDK cookbook, Hanna Niemi-Hugaerts, FVH, 2015).

Cities have transformed from physical places consisting of people and built infrastructure to mixed reality places, where everyone is carrying a user interface to the city in their pockets. These interfaces are increasingly linking to physical objects and places in the city, both manually and automatically. The opportunities for innovation in services are practically endless in all areas of urban culture. Mobility services can be developed to be mass-customised

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and on-demand, security solutions can be designed to be self-aware and ubiquitous, wellbeing services to be present in people's lives regardless of their whereabouts.

On the other hand, the omnipresent digital tools add complexity to city services management, add risks related to cyber security, and can increase the digital divide.

The rapid speed of development in the Internet is in sharp contrast with the slow speed of classic urban development. Generations of digital services appear and die before a new neighbourhood has materialised from architect's workstation to actual buildings. Fast development also creates pressures to test and pilot many new solutions, introduced by companies or internal developers.
Technology-led experiments often fail in three areas, however (Climate Group, Information Marketplaces- The New Economics of Cities, 2012):

1) Not achieving useful outcomes for consumers and residents.
2) Slow and complex municipal procurement processes make it difficult for small technology companies to participate and limit access to new solutions.
3) Cities are unsure of the social and financial payback from the investments they are being asked to make.

The contrast between the opportunities of digitalisation and the inertia of urban development creates tensions, which are tough to manage. Cities end up spending enormous sums of money in digital solutions, which are obsolete before being even completed. Instead, they should develop the urban services in collaboration with the whole urban community, and with the larger developer community of Internet services. Reusing services and components developed elsewhere and in other domains can be a huge cost-saving factor. If a service can be used in multiple cities in more or less unmodified way, or adapted from one service domain to the other, the purchase cost for one city is a fraction of a cost of a stand-alone solution.

With ever-increasing demand for better efficiency – same or better services but with a lower cost – the cities need means to fast development, testing, validation, piloting and implementing solutions in all areas of urban services they manage. Instead of traditional slow processes of renewing services through large-scale integration projects in domain silos, the digital city backbone should support the "Bring Your Own Service" approach (Rachel Delacour, 2014). Since the urban smart services marketplace is broken, especially in Europe, these testing sandboxes should be networked. Sandboxes should

1) Support systematic development and testing of solutions and services from different service domains,
2) Support city-to-city interoperability and portability of solutions,
3) Extend into the actual cityscape, for example through living lab methods and tools, and
4) Be fully measurable, comparable and transparent in analysing their results.

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Currently, the cities participating to the SELECT for Cities track all have pieces of complex puzzles in hand when it comes to improving the quality and efficiency of public services through technology. But they are still far from offering integrated solutions that can be similarly accessed and tested at a large scale throughout Europe. SELECT for Cities will turn this idea into a reality.

The cities will achieve this by a joint pre-commercial procurement process, where they purchase the testing & validation platform in a joint process. The three cities of Antwerp, Barcelona and Helsinki and all recognised leaders in the European smart cities field, which forms a solid foundation for the truly forward-looking next generation IoE sandbox.

1.1. State of the art

1.1.1. Two Smart Cities

Cities around the world are looking for ways (methods, technology, tools) to foster open innovation in order to solve problems and create value for their citizens, becoming 'smart cities' in the process. In the Smart Cities industry, two opposing views exist: a top-down and a bottom-up one.
The top-down view can be characterised as technology-driven and puts the municipal government in the driving seat. The initial definition of Hall (2000) is a good case in point: "A city that monitors and integrates conditions of all of its critical infrastructures, including roads, bridges, tunnels, rails, subways, airports, seaports, communications, water, power, even major buildings, can better optimize its resources, plan its preventive maintenance activities, and monitor security aspects while maximizing services to its citizens." Major technology vendors have flocked to such a technologically deterministic idea of a "control room" for the city, which aims at providing an ICT-based architecture to overview urban activities as well as the tools to (automatically) interact with infrastructures and adjust parameters to predefined optima. Accordingly, IBM defined the three steps for making cities smarter as instrumentation, interconnection and intelligence (IBM, 2009).

Increasingly, these architectural, infrastructural or top-down viewpoints are juxtaposed against a more experimental, bottom-up understanding. In this perspective, the smart city is, foremost, about the smart citizens: those who live, work, and engage in all kind of activities in the city. Examples of purely bottom-up approaches can be found in citizen initiatives, also described as tactical urbanism. Tactical urbanism tends to consist of "small scale interventions [that] are characterized by their community-focus and realistic goals" (Berg, 2012) and are often short-term or temporary, cheap and aimed at increasing quality of life in a certain way or addressing a specific neighbourhood concern. Cities themselves are also exploring new ways of opening up to allow others to work with their assets, as so called Open Smart Cities. Some examples from both approaches (top-down and open) are given in the following two sections.

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ISO Smart Cities standard is a standardized indicators providing a uniform approach to what is measured, and how that measurement is to be undertaken.
Conformance with the standard does not confer a status in that regard. A city which conforms to the standard in regards to measurement of indicators for city services and quality of life may only claim compliance to that effect. These indicators can be used to track and monitor progress on city performance. The indicators are structured around themes.

1.1.2 Vertical, Top-down City Platforms

There are several vertical city services integration platforms, which were designed as the part of the "first wave of smart cities". These solutions are proprietary, and characterised by the strong technology push approach, in which the city is seen as a large corporation, and the systems designed to control especially the infrastucture (energy, transport, water, etc.) of the city. There are several solutions – here's two examples:

The PlanIT Operating System is a middleware product that claims to provide real time sensing, control, spatial analytics, data integration, security, support and provisioning of ubiquitous context relevant applications for the Internet of Everything. The PlanIT OS™ supports the infrastructure for solutions across a range of vertical markets from manufacturing through mining exploration. The PlanIT Urban Operating System™ (UOS™) is the implementation of the PlanIT OS™ for smart city and urban development markets.
The PlanIT OS™ is said to reduce the cost of providing control architectures in an urban context as well as advanced information and interaction management by using standard hardware and software components from many technology partners. It provides a unified platform for applications, sensors, and data.

IBM Intelligent Operations Centre helps government leaders manage complex city environments, incidents and emergencies with a city solution that delivers operational insights. It offers integrated data visualization, near real-time collaboration and deep analytics to help city agencies enhance the ongoing efficiency of city operations, plan for growth and coordinate and manage response efforts. IBM Intelligent Operations Centre enables cities: to monitor and manage resources, events and incidents through situational awareness; optimize city growth and operations through analysis; stay connected with citizens and address their concerns; keep citizens safer with crime risk analytics; and integrate data through a common platform.

There are many services available, from (mostly cloud-based) holistic platforms corporations like Microsoft, Cisco, and Oracle to SME's offering partial solutions, such as Socrata and CityZenith.

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1.1.3 Open Smart City Approaches

Cities have started to formulate responses to the challenges described above by:
1) Offering open data, APIs and tools to integrate, use, and customize city services and assets on one hand, by
2) Establishing or partnering with living labs to structure and bring to bear urban open innovation in the city, and by
3) Taking the first steps towards City Operating Systems that can integrate both bottom-up and top-down approaches to a certain extent.

Some current or previous examples and initiatives building interoperable smart cities and supporting the portability of services are:

CitySDK

City Service Development Kit – CitySDK – gathers tools and knowledge that help cities harness the skills of the developer community and the power of engaged citizens. It helps cities to serve developers in a similar manner as tech giants like Google or Netflix by providing set of harmonized programming interfaces for developing digital service delivery in European cities. The first phase of CitySDK was realised in 2012-14. It focused on three domains:

1) Citizen feedback– the Issue Reporting API (Application Programming Interface) is providing an easy way for citizens to report problems that need attention directly the city's feedback system. API is based on the international Open311 API, already in use in dozens of cities.
2) Linked Data – the Linked Data API is making it easier for people to get around by improving the convenience and availability of public transport data
3) Tourism – the Tourism API is enriching the visitor experience by enabling the provision of tourism-related data via a range of handy applications, participation, mobility, and tourism.

The international CitySDK network has been established. CitySDK is being implemented in the six largest Finnish cities (6Aika Strategy, ERDF). Furthermore, CitySDK is embedded in the fast growing Open and Agile Smart Cities network action, where (currently) 31 cities from 7 countries are joining forces to support the creation of truly working open smart cities marketplace.

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FIWARE

The FIWARE platform provides a rather simple yet powerful set of APIs that ease the development of Smart Applications in multiple vertical sectors. The specifications of these APIs are public and royalty-free. Besides, an open source reference implementation of each of the FIWARE components is publicly available so that multiple FIWARE providers can emerge faster in the market with a low-cost proposition.

FIWARE Lab is a non-commercial sandbox environment where innovation and experimentation based on FIWARE technologies take place. Entrepreneurs and individuals can test the technology as well as their applications on FIWARE Lab, exploiting Open Data published by cities and other organizations. FIWARE Lab is deployed over a geographically distributed network of federated nodes leveraging on a wide range of experimental infrastructures. (FIWARE, 2014).

FIWARE approach might prove to be especially suitable for smart cities. There is a quite strong movement amongst cities in Europe and elsewhere to implement FIWARE, but quite few pragmatic cases so far. There has also been criticism towards the complexity of terms and tech capabilities of FIWARE. (Peter Tieffer, EUObserver)

Open & Agile Smart Cities

31 cities from Finland, Denmark, Belgium, Portugal, Italy, Spain and Brazil have been the first to join the 'Open & Agile Smart Cities' initiative, targeted to accelerate the adoption of common standards and principles that will transform cities into engines of growth and innovation. More than 100 cities are expected to join in the coming year. Cities agree to:
- use the "driven by implementation" approach of experimenting;
- adopt open-licensed standard API (implemented in FIWARE) to gather, publish, query and subscribe context-based, real-time information;
- define standard open data models based on CitySDK;
- and build interoperable open data catalogues on CKAN. CEO Jarmo Eskelinen of FV-Helsinki is the vice-chair of the OASC initiative.

City Protocol

The City Protocol Society is a global non-profit community of cities, corporations, academic and non-profit organizations taking collaborative action to help cities face their challenges

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together and enable the development of more sustainable, efficient and innovative solutions for city initiatives. To accomplish the task, CityProtocol support an open community of experts, the City Protocol Task Force, who collaborate together in the research and development, necessary to offer curated guidance and collaborative action so that cities do not have to navigate their transformation journeys alone. Institutions and individual experts to join CityProtocol as institutional members and participants to collaborate closely with global city initiatives. The operations are lead from the City Barcelona.

1.1.4 Challenges of the State-of-the-Art: the City as a Local Innovation Platform

Whilst both views and approaches have their merits, each face substantial problems. The top-down version conforms the city to a closed model where it insufficiently caters to the needs of its innovators and creative communities. The development of markets and adoption of cities for top-down has been remarkably slow. The pure bottom-up approaches often fail at creating sustainable models in part due to their lack of ability to integrate with city infrastructure. The methods and tools to manage diverse pilots and innovations do not exist, leaving the city with a handful or two of separate apps. Different city departments can participate in very different number of cases, depending mostly on the interest of the directors.

Gradually, a more nuanced interpretation is coming to the foreground, one that combines top-down and bottom-up approaches, and establishes the Smart City as a *platform* that fosters collective (local) intelligence of all affected stakeholders. After all, cities essentially constitute shared responsibility and resources (Campkin & Ross, 2013). This means looking at the Smart City as a meeting place where the public sector, private interest and citizens can come together to generate new value, to collaborate and innovate together, an idea that has also been referred to as the triple helix (private sector, government and university actors) or even quadruple helix (including citizens, the public or the user, depending on the formulation) (Leydesdorff & Deakin, 2011; Yawson, 2009). Smart Cities can only be successful if they act as *local innovation platforms* that bring together all involved stakeholders, however difficult this may be (Shepard & Simeti, 2013, p. 10) while establishing strong links amongst themselves as well. The "government as a platform" (O'Reilly, 2005; 2011) is the intermediary, the enabler of interaction of multiple actors who have corresponding interests or needs. The delivery of public services in such a reciprocal relationship between all stakeholders, for instance, is very appealing and promising for developing truly Smart Cities (Camponeschi, 2011, p. 16). No operationalisation so far however has seen this true "city as a local innovation platform" approach truly come to fruition, let alone on a pan-European or global scale.

What is lacking in the market today then, is an integrated approach to all of this. The next step in the area of Smart Cities and the Internet of Everything will need to look at the bigger picture and offer solution that are far more integrated than ever before, operate in the cloud and are replicable in different cities, are strongly data-driven and automated, focused on the end user

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and his personalized experience, and can be deployed, tested, iterated upon and validated in a (semi-) automated way at a large scale. Solutions offered by large technology vendors certainly aspire to some of these challenges, but none relate this to large scale testing or true evidence-based, targeted innovation in cities, that goes beyond spill-over effects, but truly involves all relevant stakeholders, including startups, SMEs, large companies, civil servants, public administrations, academia and citizens.

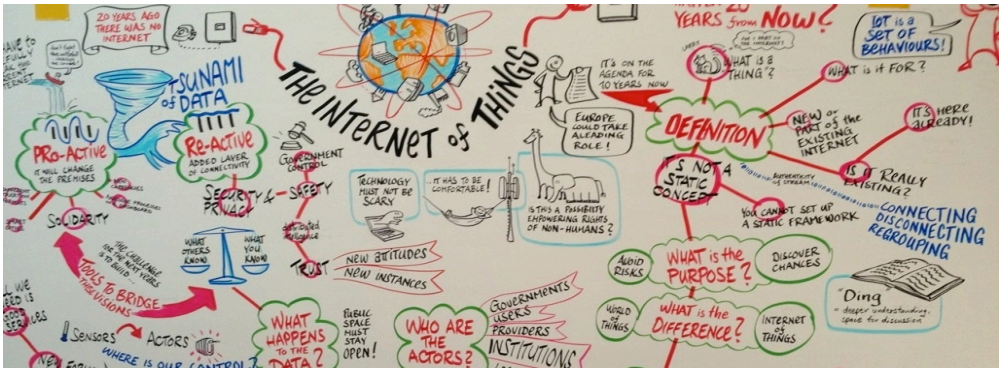
1.2 Clarity and pertinence of the objective of the PCP – the common challenge

1.2.1 The Common Challenge

The common challenge of the SELECT for Cities PCP is the design, research and development of "cities as linked and large-scale IoE labs". The challenge lies in developing an open, standardized, data-driven, service-oriented and user-centric platform for European cities that enables large-scale co-creation, testing and validation of urban IoE applications and services. This approach fosters the longer-term goal of evidence-based innovation in cities.

In the international context European cities are well managed, with educated and responsible citizens. Thus, Europe has great potential in the Smart City sector and European cities can become exemplary cases to the world. Currently, however, there is a lack of ecosystem thinking across Europe. Shared European policy making makes it possible to boost wide-scale adoption of new solutions, as the history of for example mobile phone development has proven. This top-down decision-making power should be connected to the power of active user and developer communities in the cities to create a positive feedback loop. (Eskelinen, Serra)

Smart cities are a combination of horizontal data & service platforms and vertical market sectors. The service development for smart cities should also follow the Internet model, harvesting the lateral power of the Web, utilizing wide-scale citizen participation and involvement, distributed value chains, fast prototyping and piloting, and service creation through experimentation. (Eskelinen, Serra, 2012)



Picture 2: 2nd Internet of Things meetup, notes, Barcelona

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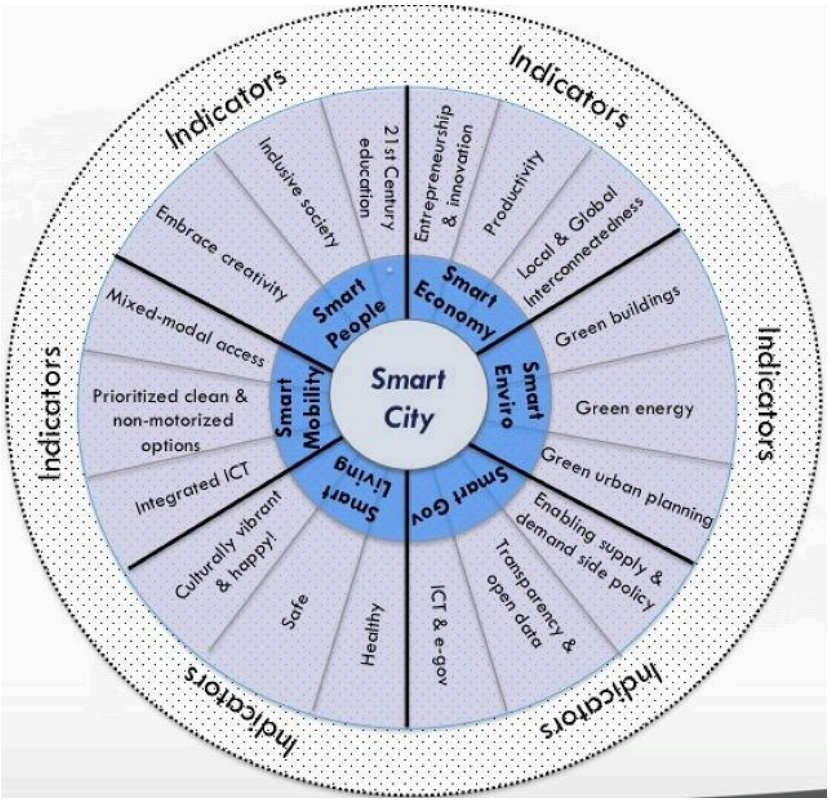

Picture 3: The Smart City wheel visualises the multi-domain approach necessary for successful smart cities. (Rudol Gittinger, Boyd Cohen)

To succeed in supporting the urban innovations landscape, cities need to introduce more systematic ways to work with external developers and evaluate new solutions. Current development and testing is mostly done in unorganised, random ways, within existing organisational silos. This practice – or the lack of it - has lots of problems:

1) Different city departments pilot solutions in an unorganised manner, mostly based on the interests of individual sub-departments or even individuals;
2) The impact of the pilots are not really measured; good solutions are not taken into use;
3) Pilots are done in isolation, without checking if other entities in the city might have already existing solutions or similar needs, or non-compatible services already in use;
4) The outcomes of pilots are not measured and followed up;
    a. Successful pilots don't lead to wider implementation, and resources are lost;
    b. Failed pilots are not analysed and communicated, which creates the danger of repeating same mistakes,
    c. Pilots and tests are not road mapped or evaluated from the technology or practice maturity point of views, which leads on one hand to the adaptation of obsolete "sunset technologies", on the other hand to disappointments when new technologies are introduced to actual services too early.

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The biggest challenge is the existing legacies (in ICT, service offering and processes). Cities have to be retrofitted to become smart. Retrofitting requires both top-down and grassroots-up approaches: on one hand, cities should collaborate to agree on smart city standards and de-facto-standards, and on the other hands, they should support open approaches to data, licenses, interfaces and participation to create robust interoperability. Standardization should not slow down the development of the market. (Eskelinen, Serra, 2012)

The overarching goal is simple: one-domain and one-city city stand-alone and proprietary platforms and solutions are too small-scale, and therefore too expensive to develop and maintain. Therefore, cities must support the creation of the properly functioning smart city marketplace by supporting maximum interoperability of service interfaces and portability of services, solutions and apps internally (across city departments, across the boundaries of private and public urban services), regionally, nationally (in national city networks) and internationally (roaming of services across borders to create the critical mass). Portability of solutions is critical to the success to smart cities and smart city service companies.

The development of urban services is exceedingly a collaboration process, in which the cities act as enablers of innovation in various ways:

1) Procuring sub-services and solutions from companies, to be integrated in the entity of urban services which the city offers
2) Opening the data and service interfaces of cities for private developers to build and run their services
3) Monitoring the field of urban innovations, and supporting the creation and usage of innovative services developed by the urban community, especially developers and SMEs
4) Reacting in an agile way to new innovations and opportunities by removing quickly the barriers of innovation created by old regulation and practices.

The envisaged platform has several requirements, components & features that are currently not available in a single solution (nor as interoperable separate components) that allows profound interaction between cities, nor (automated) testing and validation of -related services. Bidders should take into account the design and development of an open platform and its ability to support (externally developed) IoE service components that can be tested and validated in (semi-) automated ways. This translates to following characteristics for such a platform:

Cloud-based:

- Run on any existing city infrastructure anywhere in Europe and in the cloud
- Interface with existing city solutions or solution components, e.g. through standard APIs
- Adhere to standards and principles of reusability amongst cities and 3rd parties
- Leverage the deliverables of other projects such as FIWARE, CitySDK, a.o.

Data-driven:

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- Perform complex data-analytics based on divergent data sets of varying sources and quality
- Develop and deploy self-learning data mining algorithms
- Provide easy access to open data by directly tying this data into operational infrastructure of a city, allowing SMEs and startups to consume and build with real-time sensor and other data.

Service-oriented:

- Built as a (micro-)service architecture: designing platform components as suites of independently deployable integrated services
- Develop service components that further enhance the platform
- Develop services that feed the open data repositories and allow for data-driven innovation

User-centric:

- Develop user-centric applications that interface with or run on top of the platform
- Provide each individual user digital access to services and content in the most personalized and relevant way
- Enable the city to be a trusted party, providing adequate security levels and safeguarding privacy of and for its citizens

Co-created:

- Be open and community-based, preferably open source, encouraging anyone to participate
- Be a (digital) breeding ground for creatives and startups
- Provide tools and methods to support open innovation and co-creation

Large-scale testing:

- Support (semi-)automated testing and validation of IoE services and implementations
- Include or support testing / validation processes and tools; a systematic process to pilot and measure the impact of any IoE applications in any domain of the city
- Devise an Urban Labs toolbox and process approach which makes it possible to systematically test and validate IoE solutions and applications in real life use situations across all domains of the city
- Expand existing IoE and urban living lab experimentation environments with new, data-based innovative components or infrastructure
- Include tools that measure various impacts of the platform itself (economic, technical, societal), e.g. measurement against (common) KPIs

Support City2City interoperability and portability of services and solutions:

- Support the testing and integration of open APIs
- Be linkable over the cloud to the sandboxes of other cities
- Support simultaneous and parallel testing in different cities

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These characteristics do not represent individual sub-challenges, but rather illustrate the extent of the envisaged solution. Given the scale of the proposed platform, the project suggests a number of domains in which the participating cities share a common interest. This list is not restrictive by any means, but provides bidders with potential topic areas that can concretize the envisaged solution. In any case, the solutions that will be developed need to be deployable in any particular city domain and should be replicable in each of the participating cities.

Urban Labs experiments as a framework could serve to solve important challenges in the city. Below we provide some examples of such challenges:

- 1HOUR in Mobility: Gain 1 hour of commute time per day by offering users the best way to reach a destination, combining all relevant data e.g. public transport, public and private parking, city rental bikes, roadblocks and events, Park&Ride zones and providing automated, customised solutions.
- 21C in Creative Industries: Creative Industries in the 21st century. E.g. 21st century shopping experience.
- 7OUTOF10 in Environment: Sustainable resource management, pollution prevention, environmental protection as predictions are that 7 out of 10 people will be living in urban areas by 2050. E.g. initiatives in waste management, monitoring of air, water and noise quality, reduction of energy consumption, prediction of extreme weather and water levels
- ½BILLION in Tourism : Over 50% of the 1 billion international tourists visit Europe. The tourism sector is important for the economies of many cities that depend on the touristic activities to support the local economy. Accessing digital tourism services that are validated, appropriate and available in the language of the visitor remains a challenge though.
- CARE4 in Health Services. One of the challenges doctors face when treating older patients is that many find it challenging or prefer not to travel to the doctor's office as often as they should. This poses a problem as people with life threatening diseases need to be frequently monitored. Using connected devices, health related information can be sent to doctors, family members, or other caretakers so that the patient's health and wellness can be evaluated in real time. Assisted living is another area where IoE is helping our elderly. The cost of nursing homes can be too much for some people that require assistance and monitoring to get through each day. Using IoE the health and activity of the person can be monitored at own home and family and emergency care can be alerted when issues arise.
- 0CONTACT in Municipal Services - The ambition is to service citizens, businesses, students, visitors in the most time-efficient way, ultimately 'Zero Contact'. You (citizen, business, visitor, student) don't have to come to an office to sort out what you have to do, the city offers you all the certificates, subsidies, "paperwork" proactively, and will asks you to fill in the missing pieces of your personal user profile, in order to service you in the most efficient way. You will never be asked to give the same data twice, you won't have to travel.

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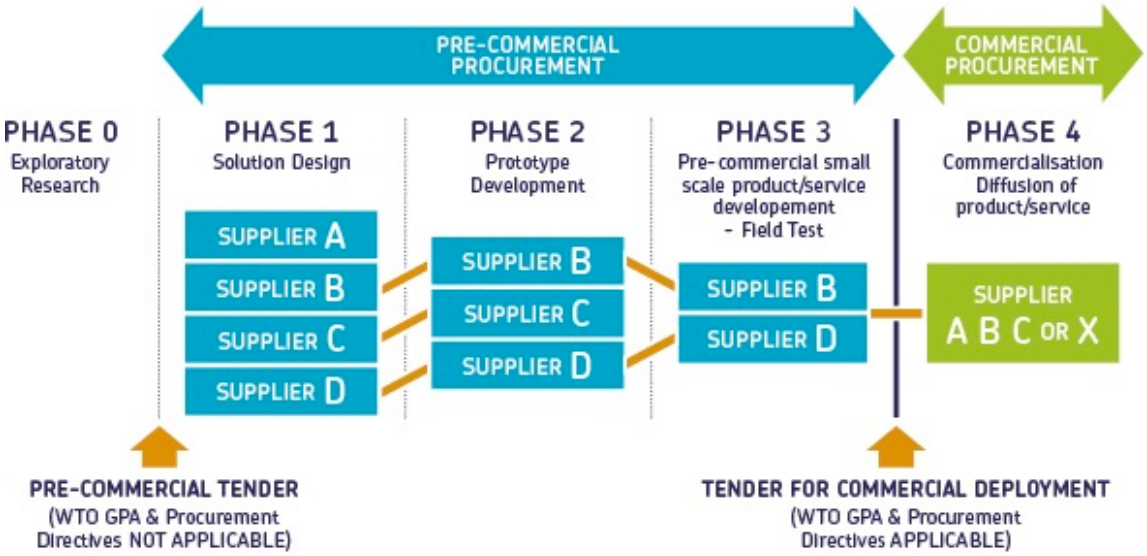
The above examples are for information purposes only. A list of domains will be chosen during the first phase of the project.

The joint effort of the partners procuring this pre-commercial track lies in guarding the integration capabilities of the platform with solutions that exist in the respective cities today. Particular attention will thus need to be paid to technologies and tools that allow smooth communication and integration between these existing solutions.

1.2.2. Why a PCP?

The SELECT for Cities project searches for new technologies to design, research and develop "cities as linked and large-scale IoE labs", with the common challenge lying in developing an open, standardized, data-driven, service-oriented and user-centric platform for European cities that enables large-scale co-creation, testing and validation of urban IoE applications and services.



Picture 4: PCP process of the SILVER project (FP7), in which Forum Virium Helsinki is a partner (TSB, Forum Virium Helsinki)

The technologies and solutions shall be acquired by using a Pre-Commercial Procurement (PCP) process, enabling the procurers to share the risks and benefits. Today, despite the agreement between industry and city administrations on the importance and economic and societal potential of Smart Cities and Internet of Everything technologies, the industry is faced with a chicken-egg problem (Open and Agile Cities, 2015). On one hand, due to the absence of proper standards, a single city is not a sufficiently large market for a provider resulting in lack of deployments. On the other hand, the lack of deployments is resulting in a lack of standards

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beyond the current state of the art, with even recently launched initiatives such as Open and Agile Cities only modestly pushing the boundaries. What we really need is a radical leap forward that build the outlines of future cities as experimentation labs that sit comfortably in the nexus of Big Data, the Internet of Everything, Smart Citizens, City Operating Systems, and Evidence-Based Innovation. The PCP instrument offers a formidable tool to achieve this because it overcomes the chicken and egg conundrum:

1. Firstly, by pooling the resources of several procurers, the scale and market potential become more interesting for smart city innovators.
2. Secondly, by sharing the inherent risk of innovation with the procurers, innovators are able to not just take the next step but to think three or four steps ahead and achieve substantial innovation and progress towards urgent challenges, all whilst under the guidance and governance of the procurers, ensuring solutions correspond with the needs.
3. Thirdly, by having the consortium of cities and their partners work together from the start, strides can be made towards creating de facto standards that can then run their further course.
4. Finally, the PCP model allows the procuring cities of the SELECT for Cities project to attract diverse SMEs and startups who are or can be closer to individual problems and solutions in the cities than larger companies can be, boding well for the quality of the procured research services as well as their combined propensity to tackle the complexity of issues, solutions, technologies, operations, and infrastructural requirements. The phased approach proposed in the PCP enables to gradually increase the size of the tasks and the required resources involved with each PCP step. This can help SMEs to grow the size of their company alongside with the PCP procurement. Moreover, the PCP allows SMEs to grow beyond their traditional role in public procurement of the subcontractor to a bigger firm.

The Pre-Commercial Procurement process shall be organized in three phases (and eventual sub-phases):

(1) Preparation stage
(2) Execution stage
(3) (Potential) Procurement stage (out of project scope)

Multiple companies developing Research and Development Services will take part in the process. As such, the PCP process is thought to be a competitive process. These stages of the PCP process are elaborated upon in section 1.4.

1.3 Progress beyond state of the art

While each of the participating cities has already developed (parts of) an own City Platform or City Operating System, the solutions that will be researched and developed within the context of this PCP will overcome the differences between the participating cities, without the need to rebuild existing solutions. As elaborately described in the challenge description, proposed

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solutions must be able to interface with existing city solutions and to run on existing city infrastructures. This combined with the requirements on openness, community-driven, standardisation and portability, means that the PCP will invest in solutions that are not only reusable in the participating cities, but in any city in the world.

It is exactly this combination of characteristics that drives the need for R&D. Every city can develop an own system that answers its own needs. Some private companies have developed platforms, usually under proprietary rights, that can be acquired by cities to partially overcome the challenge. But none of these solutions can cover the full scope of the challenge in an open and community driven way. Therefore none of these solutions seems truly generic and portable.

Another important added value will rely on working in a multi-city environment, where each city has started some City OS related projects and initiatives, where all cities has different relations with already existing European initiatives, this heterogeneity of infrastructures together with the aim to be interoperable will focus the attention in the definition of modules/solutions etc. that works with different already existing infrastructure, following as much as possible other existing recommendations, as those from City SDK, iCity, City protocol, Open and Agile Smart Cities and so on, but looking for a single challenge procurement that enables to work together, making solutions exportable to other cities.

According to the leading smart city authority **Boyd Cohen**, the next big trends in smart cities will be:

1. Visioning & measurement. The early smart cities were highlighted by pilot technology projects. Future smart cities must be more visionary about what they are doing, and create a baseline to understand how they are performing in a range of areas, and, together with citizens, develop a long term vision of where they want to be. > **SELECT for Cities** is fundamentally built on the idea of measured, replicable, systematic testing; even though the service development itself is open and agile.

2. Citizen participation in co-creation. In future citizen co-creation citizens take the lead in creating innovations that improve the quality of life in cities. > **SELECT for Cities** uses the Living Lab approach in all phases of service procurement, ensuring the integration of the citizen interface in the process.

3. Sharing cities. Collaboration has the potential to not just transform our cities, but transform the global economy. Smart cities are realising that they need to find a way to support and collaborate with sharing economy innovators. > **SELECT for Cities** opens the cities as innovation labs for collaborating communities, by combining the sandbox and living lab approaches.

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4. Direct support for civic entrepreneurs. Civic entrepreneurs aim to improve the quality of life in cities through innovative products and services – often supplementing what the city currently offers. > **SELECT for Cities** urban labs are accessible to entrepreneurs, who can launch their services in compatible urban test test environments.

5. Procurement for innovation. Cities manage big budgets and smart cities are finding ways to leverage these budgets to stimulate innovation in their cities. Rather than predetermine specifications and outcomes, cities can assign budgets to need areas, and let the private sector pitch a range of innovative solutions to address the problem or opportunity. Procurement for innovation allows cities to encourage innovation through wiser use of city budgets. > **SELECT for Cities** is a direct answer to this growing smart city trend.

6. Innovation districts. The importance of physical innovation districts is growing in cities around the globe. Innovation districts can stimulate the local economy, generate local jobs in the creative industries and revitalise neighbourhoods > **SELECT for Cities** lands in physical city environments in all cities (Antwerp City of Things, Barcelona Urban Lab, Smart Kalasatama in Helsinki). *(Cohen, 2015)*

It is important to note that at the same time results from this project should become the "sandbox" for any kind of developer and/or service providers, companies offering new modules for the already existing City Operating Systems as a place to validate their solutions in a risk free environment before moving to the "production" environment City OS.

This new proposed conceptualization and development can improve, reinforce and establish a source of value for the already existing or under development City OS, where new different processes, solutions, third party services, use cases etc. can be tested before being added to the City OS, with a more flexible and open usage terms and conditions.

The new elements to be procured will define and develop the required platform/ecosystem that helps developers to build and test applications using transparent data and infrastructure of the city, which can then be integrated in a second stage, after validation, on top of the City OS, core of the Urban Platform.

Both in the City OS concept and in general in all related IoE platforms/environments it can be observed that in spite the usage is getting higher and higher, it is still not enough related to the effort that Smart Cities stakeholders are doing to create middleware, semantic based technologies for cross-domain functionalities, opening initiatives for promoting their usage like iCity. However, one important problem remains in the access to the platforms, but not from a technical perspective but a more administrative one.

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It is obvious to say that any City OS, should be clearly service oriented, have a maximum reliability and maintain maximum granted level of security at any time, also considering that the City OS has access to critical information and city services. According to that it is not easy to request and get access to the City in a testing mode, as all users, that want to test some new services, protocols, use cases. These should be validated in advance, making the time to access to the platform a high border in terms of effort and time, usually only possible for big players that can easier grant their service quality.

21st century and the digital revolution has shown that often the disruptive innovation and key services are not only coming from big and renowned corporations but also lots of them from small talented teams spread over Europe, and the design and development of such a sandbox can be a key element on the access to this new communities to the City platforms enabling them to create new key services.

In a nutshell, the proposed City OS "Sandbox" envisaged by SELECT for Cities aims to:

1. Enable a risk free environment for developers (any individual or company around Europe) design, development and testing of new services, procedures, use cases. **Democratize the access to the City platforms.**
2. Enable a risk free environment for Cities, where developers can test their new technologies without interfering with the "production" city environment and without risking citizen's information, as this information can be threated according to different security rules. **Guarantee the consistency of the City platform, allowing experimentation.**
3. Establish a cross-border environment that gives more opportunities to monetize (bigger market) and to make visible local developers. **Environment for exportable solutions for developers.**
4. Create a unique store window for new processes, services, applications and/or use cases to be added to the production "City OS". **Talent store window for Smart Cities.**

1.4 Credibility of the proposed approach

1.4.1. Compliance with the Horizon 2020 requirements

From the outset of the project the consortium will make sure that all the necessary steps and measures will be taken to fully understand the concept of PCP and share this knowledge amongst all participants. This in order to develop a common understanding; to formulate an agreed process that fits within the legal framework of the EU and participating partners; and to generate the required documents and templates.

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The consortium agrees to implement the proposed procurement approach for the PCP in compliance with the specific requirements for Pre-Commercial Procurement (PCP) as stated in the Horizon 2020 Work Programme and in the Grant Agreement.

1.4.2 Overall Approach and Methodology

An open competition will be run to find solutions to the challenge. The challenge in the call for tender is specified to fit the scope of an R&D service.

All tenders will be evaluated using the same criteria regardless of the geographical location of company, company size or governance structure. Furthermore, the tenders that offer the best solution at an appropriate risk and cost level will be favoured (best value for money).

1.4.3 Preparation stage

The objectives of the preparation stage are two-fold. On the one hand the consortium will have to develop an overall procurement strategy and structure to conduct any further (pre-commercial) procurement activities during the execution of the project. On the other hand, this phase will be also be a crucial stage in the final definition of the PCP challenge, the fine-tuning of the buyers' requirements and the investigation of the market's response to it (phase 0).

Based on the prior analysis an open market consultation and a needs analysis of the buyers group will be conducted in the preparation phase. The preliminary surveys that are part of the market consultation will be open to a large amount of interested parties, as we expect a number of solutions to be emerging from other than well-worn paths. Companies already active in the field of big data, environmental monitoring, energy management, healthcare systems, transportation, localization of devices/people as well as companies not yet active in the expected lines of technology or services will be invited to participate in this survey and consultation phase.

Insights from this analysis will be used to review the function definition of partner cities' needs and will serve as input for further procurement strategy. With the market consultation the consortium wants to get insight into the market; the state of the art and future developments in order to prepare an adequate call for proposals with the right and a feasible scope. Market feedback will also allow to finalise the decisions regarding the number of applicants that should be admitted, the number of prototypes that can be created for testing through the final phase, and whether the estimated budget and timing is adequate.

1.4.4 Execution stage

In this major phase of the project the joint PCP procurement and implementation of the PCP contracts will be executed. The execution will take place under the supervision of the buyers

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group, ensuring execution of the R&D services by the providers according to the action plan and requirements defined in the preparation stage.

At this stage the joint PCP procurement as described in the framework agreement will be executed. Phase after phase the challenge and the requirements will be published, initially in the form of an open call (phase 1), subsequently in the form of a limited call to the applicants who succeeded in the previous phase(s).

In order to stimulate the possibility of more radical approaches being proposed and out-of-the-box thinking being used, the initial challenge description will be phrased as an open challenge. Considering the nature of the challenge at this stage there will not be a detailed specification of a sought-after product or service. Instead there will be a description of the challenge to be addressed and a desired outcome.

Phase 1 - Concept phase.

Phase 1 (concept phase) will be a feasibility study of the proposed solutions and technologies. It aims to verity the conceptual, technological, organizational and budgetary feasibility of each proposal. The expected output from participating companies is a report with a concept design, a description of the results of their feasibility studies and their conclusions for the continuation of the development activities in phase 2.

The concept phase will consist of an open call. A maximum of 12 companies will be selected and funded to develop the concepts of competing solutions. Their concepts can/should be different, but are expected to solve the same common challenge. The procuring partners and external evaluators will evaluate all the proposals using the same criteria.

Duration: 6 months. Total procurement budget for this phase: €566.000 or around €45.000 per funded concept. This budget will be used to award a maximum of 12 contracts.

Phase 2 - Prototype phase.

The objective of phase 2 (prototype phase) is to select a limited number of the most promising concepts that have been estimated to be feasible in phase 1 and to develop them into well-defined, working prototypes. The selection process for phase 2 is based on the phase 1 reports and on an application process, in which the applicant's design, roadmap and budgetary estimate will be outlined for phase 2.

The selected companies will each develop a prototype based on the results of their earlier concept and feasibility studies. The aim is to evaluate to which extent the prototype's features meet the requirements as described in the challenge.

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The selected applicants are expected to deliver prototype specifications, a lab demonstration, as well as a plan for the original development of a limited volume of first solutions, a roadmap for testing, and an updated cost/benefits evaluation including a preliminary business plan.

A maximum of 9 companies will be selected amongst the companies who participated in the concept and will be funded to realise a prototype service. The procuring partners and external evaluators will evaluate all the proposals using the same criteria.

Duration: 8 months. Estimated procurement budget: €1.450.000 euro in total or around €150.000 maximum per funded prototype. This budget will be used to award a maximum of 9 contracts.

Phase 3 – Pre-production phase.

Phase 3 (pre-production phase) aims to verify and compare the full feature set and performance of different solutions in operational conditions of the targeted service. A maximum of 6 companies who participated in the prototyping will be selected and funded to do (a series of) larger scale pilots.

To push the pilots even further, this project also foresees a validation phase that uses living lab techniques to validate the proposed solution that have been verified from a technical perspective in the pilot phase. The lab testing is undertaken at multiple sites (cfr. the procurers' locations): all solutions will be tested in every one of the participating cities to ascertain a comparison and validation of a performance across sites and across solutions.

The expected output from the participating companies includes a roadmap for consecutive testing, including field test specifications, a minimum number of field tests, a specification of the final solution and other related technical documentation, and an updated cost/benefit evaluation.

At the conclusion of the pilot phase the IPR and the prototypes will remain the property of the companies involved. The participating partners will have a well-defined access to and a right of usage with regards to the developed and tested prototypes.

Duration: 12 months. Estimated procurement budget: €1.970.000 euro in total or around €330.000 per funded pilot and living lab validation. This budget will be used to award a maximum of 6 contracts.

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Phase X - Potential procurement.

The project is focused on developing a pre-commercial procurement process. The further commercialisation of the product or service is therefore out of scope.

In phase X (procurement) the procuring partners decide to procure (or not) the solution based on the pilot. This concluding phase deals with the decision of the participating partners to decide whether or not to pursue a commercial procurement. This next stage is a normal procurement process, by means of an open call, evidently also open to the previously competing solutions.

1.4.5. Publication of the open call

In order to reach as many potential bidders as possible an open call will be organized for proposals to be submitted to. A transparent process will be organized that includes external experts to perform the reviews of the proposed solutions in the different phases of the PCP process. The details of the open call process, the identification of reviewers, the evaluation criteria (see below) and so will be developed in the preparation phase of SELECT for Cities (WP2).

1.4.6 The evaluation and monitoring of the pilots

During the different phases of the PCP, proposed solutions will be checked against both functional and non-functional criteria. The criteria will be chosen with great care, based on the results of previous phases and work packages. This aspect, combined with the fast evolution of technology and solutions in the market, leads us to the decision that final evaluation criteria and their weighting will only be defined during the preparation of each individual phase. The main elements to be taken into account are listed below.

Potential impact on the challenge (in particular in relation to its desired characteristics: cloud-based, data-driven, service-oriented, user-centric, co-created, large-scale testing)
Level of innovation proposed (impact on society, impact on quality of city life, likelihood of becoming or creating a breeding ground for other creatives and start-ups)
Technical challenge within the proposal (access to the necessary technical knowledge and/or resources)
Quality of plan to deliver the project (timing, budget etc.)
Quality of the tenderer to succeed in delivering the project (overall quality and fit for purpose)
Potential ROI from the project (likelihood to become a viable product, roadmap of the product during the PCP and beyond, business model)
General non-functional criteria such as scalability, availability, reliability, security, portability and usability

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1.4.7. Reviews, recommendations and dissemination of results

Given the importance of wide communication of the open calls and the results of the PCP, SELECT for Cities has taken the approach of including a partner with that explicit expertise: 21C Consultancy from the UK. This partner will ensure both targeted and wide communication on SELECT for Cities initiatives through its work in work package 7.

1.4.8 The contracting authorities

Digipolis will be appointed as lead procurer. They will coordinate and lead the joint PCP procurement in the name and on behalf of all procurers in the buyers group and will be awarding all contracts. Digipolis will draft the legal framework for this PCP process, with respect to EU and relevant national legislation, in close collaboration with the consortium partners and more specifically the buyer's group. Moreover, during the project the lead procurer will be closely monitoring the procurement procedures conducted in all three procuring cities. This eventually will ensure a consolidated approach and a focused procurement process.

In the project the group of procurers equals the buyer's group, consisting of all three of the procuring cities and its technically supporting partners: Forum Virium Helsinki, Stad Antwerpen, Digipolis, Institut de Cultura de Barcelona and Institut Municipal d'Informatica de Barcelona.

1.4.9. The framework agreement and tender documents

The procuring partners will sign a framework agreement and a specific contract for each phase. The framework agreement sets out the joint PCP procurement strategy and the conditions (rights and obligations) between contracting authority and contractors for the entire duration of the PCP covering phase 1, 2 and 3. The framework agreement remains binding for as long as (for the duration of all those phases for which) contractors remain in the competition.

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2. Impact

2.1 Expected impacts

2.1.1 Target outcomes and their expected impact

(> SEE ALSO 1.3, Progress beyond the State-of-the-Art)

This section outlines the expected impacts from the SELECT for Cities PCP.

The targeted outcomes are successful pilots, validated in a living lab setting, that answer to the participating cities' and procurers' challenge defined in Section 1.2. Their potential impact is very high given the large scale of the challenge and the integrated scope it strives for.

1) Risk free, low barrier innovation environment for Cities. In SELECT for Cities developers can test their new technologies and solutions in real urban settings without interfering with the production environment, lowering the risk of both the companies and participating city departments. This will create as a value gate for both the city units and the urban service developers (innovators, developers, SMEs and other companies) interested in introducing their services in cities, and lead to significant increase in interest to develop and such solutions. Open data movement has already shown, that on those areas where there is unified access to urban data and interfaces, new business is growing rapidly (success stories like EMPOWER energy interface (US), Citymapper transport app (UK), etc).

> Potential impact: *SELECT aims to grow the number of* ***service pilots*** *in the participating cities* ***with 200%*** *from the current levels, with the minimum of 30 pilots each year, some of them in several cities.*

2) Visioning and measurement of urban service pilots, together with the citizens. A major outcome of SELECT for Cities is a systematic way to develop, pilot and validate new IoE innovations in European cities, instead of current practices of random, overlapping and poorly documented piloting.

> Potential impact: *SELECT provides* ***validated outcomes*** *from* ***all pilots****, aiming to collect and publish the outcomes of all activities of the platform. This will lead to significant increase in pilots leading to production use and procurement, and the complete disappearance of practices in which no pilots lead to production. The* ***urban solutions repository*** *is freely available for cities, companies and citizens across Europe, lowering the risk of reinvennting the wheel, so common in urban services.*

3) Sharing cities – across borders. SELECT cross-border environment gives more opportunities to monetize (bigger market) and to make visible local developers. The presence

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of the leading smart cities of Europe, which are active in global city networks such as Open & Agile Smart Cities, City Protocol and EnoLL European Network of Living Labs, combined with effective dissemination and community activities ensures the outreach to not only European, but global innovators, combined with the strong interest from other cities.

> Potential impact: *SELECT will reach* ***at least 10 000 developers, innovators and SMEs,*** *and a* ***at least 200 cities,*** *creating concrete validated pilots and the adoption of the SELECT approach in several cities.*

2.2 Contributions to the expected impacts listed in the Work Programme

Expected Impact	Generated Impact	KPIs
Reduced fragmentation of demand for innovative solutions by enabling public procurers to collectively implement PCPs in areas, which due to their nature are better addressed jointly, or which they would not have been able to tackle independently.	While each city – including the participating ones – is different, urban areas across Europe face similar challenges that can increasingly be at least partially tackled through technology. Increasing the connectivity of objects, while gathering and processing large quantities of data from them are a part of this trend, captured in the Internet of Everything concept. The three location involved in SELECT for Cities have all taken initial steps towards making technology a tool in tackling similar goals such as mobility, sustainability, access to services and so on. These challenges typically demand a centralized, or at least integrated approach to technology, but also to organization and the actual testing of the proposed solutions in real-life conditions. Despite the strong European initiatives in this respect so far (e.g. FIWARE and CitySDK), cities' approaches often remain fragmented. SELECT for Cities then will explicitly focus on the joint challenges of these cities in making their current platform-based initiatives not only interoperable and linked, but also far more integrated into the daily processes of each city moving towards and Internet of Everything. Tackling such a vast challenge independently and without relying on the existing expertise in these three cities, would not be efficient or "smart".	The piloting of technological solutions that reach the specific goals of the participating cities in the third year of the project.

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Increased opportunities for wide market uptake and economies of scale for the supply side through the use of joint specifications, wide publication of results and where relevant contribution to standardisation, regulation or certification to remove barriers for introduction of PCP innovations into the market.	The joint approach taken by SELECT for Cities will offer suppliers access to some of the most advanced cities in Europe when it comes to the innovative use of technology in an urban context. Interoperability with the cities existing solutions, as well as across cities and city domains will be a focal point of the project. Particularly the inclusion of a living lab trajectory within the PCP pre-production phase provides suppliers with a way of gathering end user feedback, going beyond a mere pilot test. This lowers potential barriers for the introduction of some of the proposed solutions to the market, should the buyers groups decide to procure them.	Successful Living Lab validation in the participating cities of at least 3 proposed solutions by the end of the project.
Realising more forward-looking procurement approaches aiming at ambitious quality and efficiency improvements in the area of public interest concerned	Given the scale and the required level of integration of the envisaged platform layer that comprises the challenge the SELECT for Cities PCP, the target of testing these types of solutions out in a real life setting, through automated processes where possible, is highly ambitious. The goal of the project is to generate a high impact here, by pushing forward the state of the art significantly and aiming for strong and measurable efficiency improvements in the respective cities, as well as overall. Again, the inclusion of a living lab validation phase illustrates the quality that is strived for should be high enough to enable real life testing (beyond piloting).	Successfully run living lab trials that measure and evaluate the impacts of the proposed solutions by the end of the project.
Reducing fragmentation of demand for innovative solutions by implementing more concerted procurement approaches and	The strong experience of the participating cities in relevant European projects (e.g. CitySDK, the FI-PPP projects FI-SPACE, SPECIFI, CONCORD and the related accelerator projects CREATIFI, FIC3, FINISH and FABULOUS) show the consortium understands the importance of pan-European approaches and cooperation to reach critical mass. From these and other projects also	Wide distribution of the SELECT for Cities PCP and procedures through the partners' networks and beyond during the

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increased cooperation across boundaries among a critical mass of procurers with similar procurement needs that can trigger wide implementation of the innovative solutions.	come close contacts with the European start-up and SME scene that can be leveraged in widely distributing the procurement calls. The role of the project partners in several expert networks (European Network of Living Labs) further emphasizes this and allows for both broad and targeted communication at the European level.	course of the project.
Improving the competitiveness and growth of companies by developing innovations meeting the needs of European and global procurement markets	One of SELECT for Cities' goals is to create a (digital) breeding ground for creative, start-ups and SMEs. The project will not only invest in start-ups and SME's that directly participate in the PCP, but it will also benefit a larger group of stakeholders who will be able build their services and applications on the platform solutions designed and trialled in SELECT for Cities. By tackling this common challenge in a joint approach, a common ground is created for broader cooperation and sharing between cities on the one hand and between cities and the market on the other.	Setting up and accessing strong channels of communication that reach beyond the targeted suppliers throughout the project's course.

2.3 Synergies with existing initiatives: Current city initiatives and advancement of the state of the art

This section gives a brief overview of the state of the art in the participating cities with respect to the SELECT for Cities challenges and shows the expected impacts are from each city's perspective.

2.3.1 State of the Art Antwerp/Digipolis:

Driven by the need to better adapt the city communication and services to the needs, interests and behaviour of its users (citizens, visitors, civil servants, businesses and other organisations) the City of Antwerp stated an ambition in 2013: each user should have easy digital access to the city, in the most personalized and relevant way - to get informed, to apply for services, to get inspired or to get in conversation - where, when and how he/she wants. The user counts on a qualitative digital experience in line with international standards and trends. The city should

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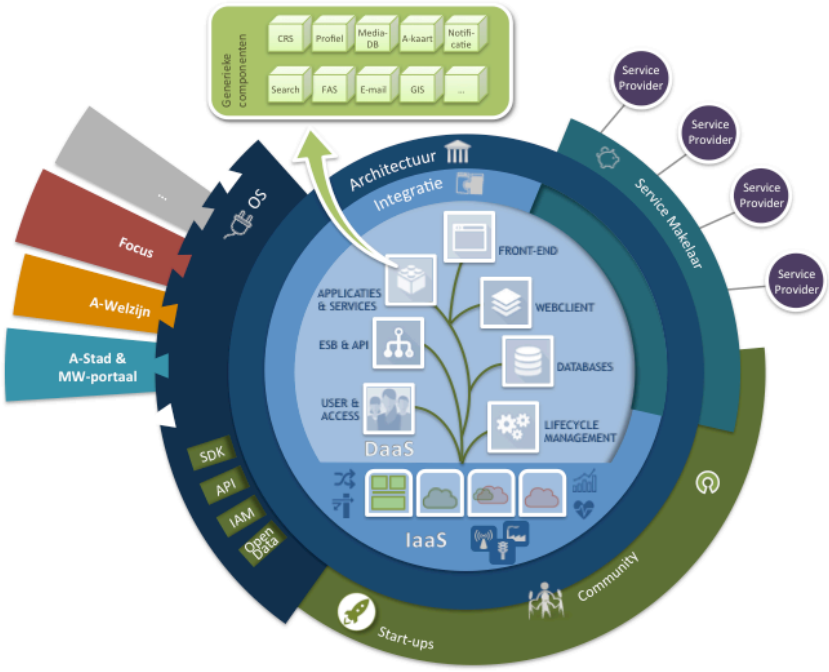
be able to give him that. Therefore the user profile has become a central component of the CityOS. It is the users' digital identity, his/her personal key to the full functionality of the platform. And in order to allow for every citizen of Antwerp to benefit from this evolution, the city makes additional efforts in the domain of e-inclusion.

At present the City of Antwerp has realised a first version of this CityOS. On a functional level it is user centric, with a strong personalisation, centralising all contact with the user into one place, shifting the city communication (one-sided) to conversation (two-sided) and aiming at transparency, trust and continuous improvement.



Picture 5: Representation of the urban OS

On a technical level it is built with modern and open source technology, it has a responsive design and a modular and open architecture. In addition to the extensive number of datasets already offered by the City of Antwerp as open data, the CityOS will allow to offer open services in the form of open API's, some of which have already been developed. As part of these efforts, the City of Antwerp has been organising the Apps for Antwerp challenge where developers compete to develop apps using city-provided open data, and as of recently, open services.

Concrete advancement for the City of Antwerp:

For the City of Antwerp this project will bring complementary building blocks to the current first version of its City Operating System (see 1.1). In its ultimate form the CityOS will

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become an intelligent platform not only providing easy access to open data provided by the city's sensor networks and other intelligence, but taking a radical leap forward. Instead of letting people create siloed tools next to each other, the platform facilitates developers to build applications on top of it. Reusable services, an open SDK (Software Development Kit) and APIs (Application Programming Interface) accelerate the development, maximize integration, and reduce the time to market. The platform extends these traditional capabilities by providing each individual user digital access and content in the most personalised and relevant way through his or her digital personal profile. Thus the platform will have an open architecture, modular and layered allowing optimal integration in existing environments and scaling for performance. Both the CityOS and it's underlying platform will adhere to a set of fundamental principles : Cloud First, Mobile First, Open Source First, AAAA[1], Open Data.

Through open data open API's and an API-first approach the solutions that will be researched and developed in the context of this PCP, are expected to interface and connect with the CityOS of Antwerp. The solutions that are subject of the PCP will leverage the user profile of the CityOS, which is accessible through open API's, to provide each user access and content in a highly personalised way. Through the newly developed solutions, the CityOS will be enriched with additional data and be able to interact with the user in a much broader context and in a much more interactive way than ever before. Service components built on top of the new platform can be valuable to the CityOS and the other way around. Because of the open API's, both can integrate each others components and applications offering better solutions to their users. We are highly confident that the proposed approach would be an enrichment of the CityOS and the PCP solutions.

2.3.2 State of the Art Barcelona

Barcelona is committed to a model of the city based on renewable energy, sustainable transport and new technologies. The final goal is the achievement of the idea of a city for the people. This idea has led to the development of Smart City Vision driven through new technologies for: regenerating the city (districts), "mobilize" the city, "innovation" and improvement people's lives through universal access to services, the rationalization and fostering participation.

To meet this Smart City vision, Barcelona has established the following strategies in the use of information technologies:

• Provide Barcelona a structure of technological platforms that enable the management and operation of various city projects in a single way, reusable, safe and efficient.

[1] Anytime, Anywhere, Anyone, Any Device

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• Allow the knowledge management of various city services in a horizontal (between services) and vertical (up to a global monitoring centre).
• Building structures on open technologies that meet market standards and ensure its scalability.
• The technology architecture should enable the integration of services and platforms currently productive.
• Must ensure data integrity, through the construction of a distributed, heterogeneous, secure and consistent system: Big Data Barcelona.
• The data structure should provide the basis for future information systems in the city.
The object is to provide a City Operating System to Barcelona City Council called City OS that enables the integration and correlation fast, efficient and reliable:
• Different sensing elements across the city.
• Different databases of municipal information systems.
• Messaging services in connection with the upgrade of municipal information systems.
• Repositories of information from other sources and multiple heterogeneous formats.
• The communication elements from different social networks that affect the knowledge, services and the image of the Barcelona City Council.

All this information must be handled and stored so that the platform can relate the events received. In addition, should allow to predict and anticipate any problems in the city, including emergencies, to help coordinate resources more quickly and efficiently, should help in the decision making time real processes incorporating intelligence business intelligence applied to the city, and predictive analytics, and must incorporate inference engine capable of managing information and experience increase.

All this knowledge, information and data platform should be available to the various Smart City solutions that can be developed on the same form of access services and interoperation, maintaining privacy and the anonymity of the data when necessary.
These requirements have been conceptualized in the Urban Platform, for three years, Barcelona is developing:

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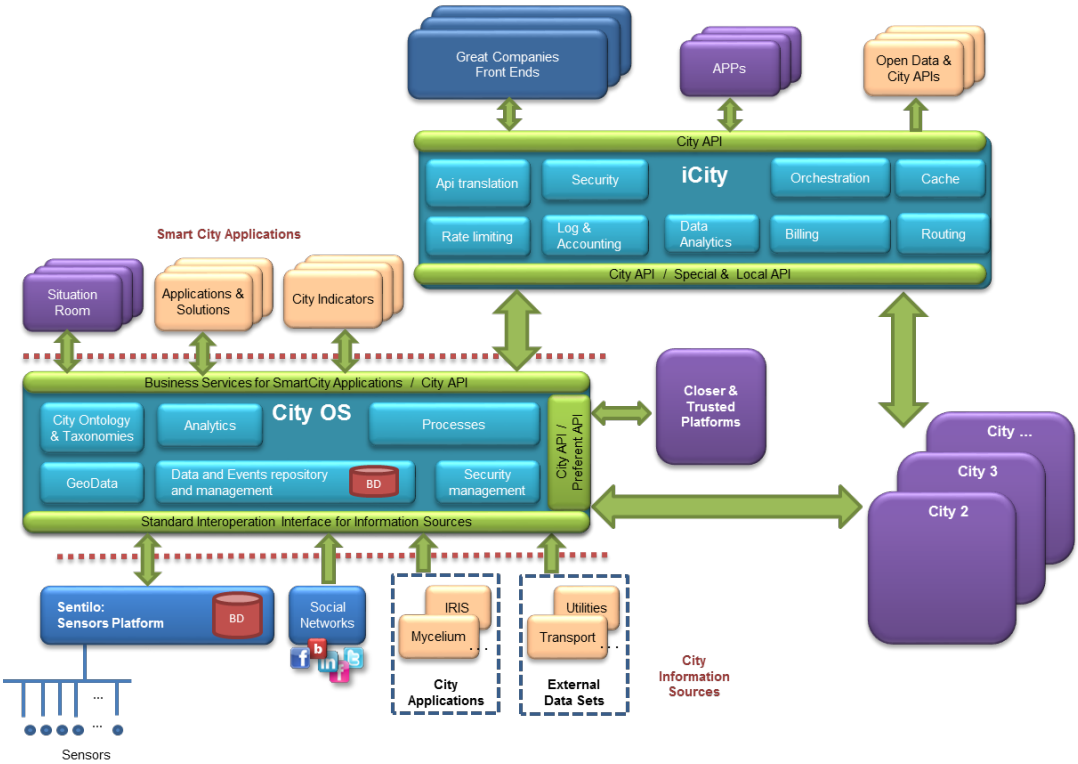

Picture 6: Representation of City OS and iCity

This first approach, still under development phase, is now working by using intermediary platforms as between others Sentilo, Open Data portal and iCity, and their combination together with other knowledge and initiatives around the city have resulted in a number of projects, services and applications mainly targeted at citizens, of which some examples are given here:

- **Mobile ID** - The mobileID digital identity system allows citizens to identify themselves remotely and securely by means of a digital ID in their mobile phone. It is based on a Register of Mobile Digital Identities that makes it possible to associate a mobile phone number with any citizen who wishes to have this new form of digital accreditation. Any user who has a smartphone connected to the Internet (via a data line or WiFi) will be able to request and use their mobileID digital ID through an application available for iPhone and Android.
- **Radars project** -A sensitive and respectful approach to improving elderly people's quality of life. This initiative was created to enable people aged over of 75, who live alone or with other elderly people, to continue living in their own homes, but with the support from local community members to ensure their social welfare. It is not always technology in Smart Cities that improves people's lives, as can be seen from other projects such as School Pathways. It is often local residents working alongside the Public Authorities who take joint responsibility for and watch over the welfare of their fellow local residents. In this case, "radars" refer not to sophisticated devices, but to a network of local residents, retailers, volunteers and professionals from associations and services linked to neighbourhood life, combined with the information of the city. They all work together for the common goal of building a more humane and caring

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neighbourhood and reducing the effects of solitude and the risks of isolation and social exclusion among the elderly.

- **Telecare Service -** The quickest emergency response service for people who are elderly, with disabilities or dependent on others. Barcelona City Council currently provides this service for free to more than 70,000 citizens. It is a domestic care service that helps to improve the quality of life and independence of people who are elderly, with disabilities and/or dependent on others, who live or spend many hours alone at home.
- **Sustainable Map -** A map of our natural and social heritable. It's an interactive, virtual map, as well as a social network, which introduces the city's initiatives and places of interest with environmental and social value. A participatory tool that is aimed at gathering initiatives, resources and experiences which may be useful to the public. This information can be of use for consulting, for example, the situation of sustainable shops, services and businesses, environmental facilities, fauna and flora wildlife refuges in the city etc. All these initiatives, whether public or private, which add a green-economy value and help to improve the urban environment, in building a fairer and more inclusive social structure and enriching the community and local-neighbourhood fabric.
- **Marquesines -** The interactive bus stop. This is the new smart and sustainable bus stop, equipped with cutting-edge technology to improve user experiences. The design was proposed by SmartCitiesLAB, an ideas laboratory set up by a group of large corporations. It has a WiFi connection, a municipal applications downloading point via Barcelona Contactless (QR and NFC technology), a touchscreen with utility apps for enabling users to travel around the city and get to know it, as well as another screen offering dynamic digital advertising… The digital display that gives information on bus-arrival waiting times is also included in the smartquesina infrastructure. Other benefits available to you include free WiFi hotspots, courtesy of the Barcelona WiFi service, and even the possibility of charging your mobile by using any of its USB ports, which you will find integrated into the side of the screen.
- **Citizen Science projects –** City allergies map, an interactive map that shows the combination of information from scientific pollination information, city open data from the type and location of threes in the city, and the information gathered from other persons with allergies, to create and find the better, not the shortest, mobility itinerary around the city.

Concrete advancement for the City of Barcelona:

For Barcelona this project is viewed as an integral conceptualization and development described above (1.1) as an Urban Platform, and the advantage that the data sources are integrated into the platform, to provide a "Sand Box" for City OS development and testing of different processes, solutions and use cases that must be integrated with the platform. These solutions must take the form of services to citizens, both end services as services for third-party solutions.

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The new platform will help developers build and test applications using transparent data and infrastructure of the city, which can then be integrated on top of the City OS, core of the Urban Platform, through semantics developed by the city. Even within a layered architecture, open standards-based communications.

We believe that the proposed project will be an enrichment for the City OS and the Urban Platform globally.

2.3.4 State of the Art Helsinki

City of Helsinki is one of the top leading Smart Cities in the world (ranking in Top 6 in the European Parliament "Mapping European Smart Cities" study, 2014), taking part in numerous projects and promoting research in the field.

Helsinki is one of the leading cities in Europe in accessibility of services through digital channels. The City of Helsinki strategy outlines ambititious targets for further digitalisation; the strategy was initiated in 2012, and in 2015 may of the targets are already met.

The key principle is that ICT serves the whole urban community (city residents, different organisations and companies) and the urban development of the city at large, spanning to all sectors of the city. Digital services improve the availability of the services and are available 24/7. Digitalisation is a major booster of productivity of the City. Large-scale automation of services is the central target of ICT development.

The City develops and maintains its jointly used ICT infrastructure and services centrally to ensure further, holistic development of operations. City IT division manages the ICT strategy as well as information management of all different administrative sectors, so that joint IT tasks are managed centrally in the central administration.

However, Helsinki is also an enabler of innovation. In all operations Helsinki emphasizes citizen engagement and empowerment. The City develops service processes and technical interfaces based on the principles of openness, availability, interoperability and compatibility, activating the whole urban community (developers, SMEs, civic hackers) to participate in creating new solutions and services. Forum Virium works as the bridge builder between the city community and the city organisation, supporting the city in the development of digital services, external services and ICT ecosystems involving diverse stakeholders.

Helsinki is especially well-known for being the leading city in Open Governance. Helsinki Region Infoshare (HRI) open data clearing house, established between 2010 – 2013 and

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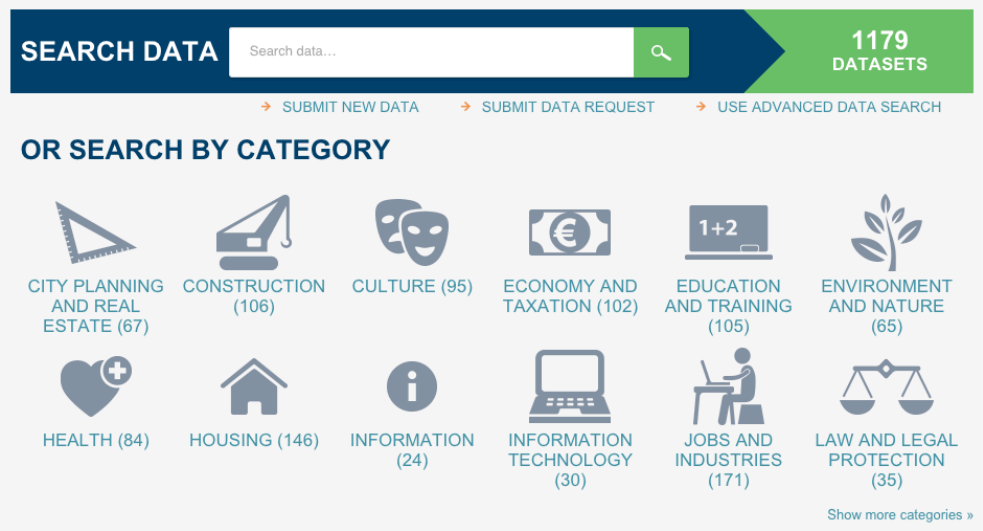
currently running as a permanent city operation, hosts almost 1200 data sets, free to use, re-use and distribute (the largest number of all cities in Europe). HRI was awarded by the European Commission with the European Prize for Innovation in Public Administration in 2012.

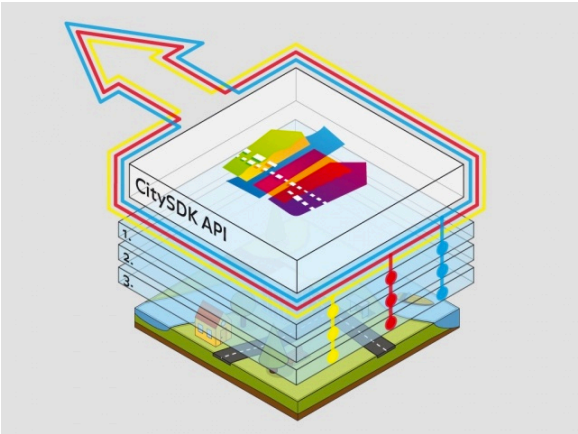


Picture 7: Helsinki Region Infoshare service

Open Data is seen as a way to empower and engage citizens. Many individuals, groups, developers and educational institutions have found multitude of purposes to utilize the data sets. Open data is used for data journalism, education, crowdsourcing fixing of errands in public spaces, visualizations and application development.
A well-known data set is the Helsinki Open Ahjo, public access to all of the City's decision making documentation (over a million documents per year). Open Ahjo enables dialogue between the civil servants, politicians and the citizens.

The renowned CitySDK (City Service Development Kit) project has been listed in the first set of "Inspiring Initiatives" within the EU Digital Agenda by the European Commission. The project gathered tools and knowledge that help cities harness the skills of the developer community and the power of engaged citizens. It helped several European cities to serve developers in a similar manner to tech giants like Google or NetFlix by providing a set of

harmonized programming interfaces for developing digital services. Helsinki runs the CitySDK interfaces as access points to the city ICT back end.



Picture 8: CitySDK linked data API

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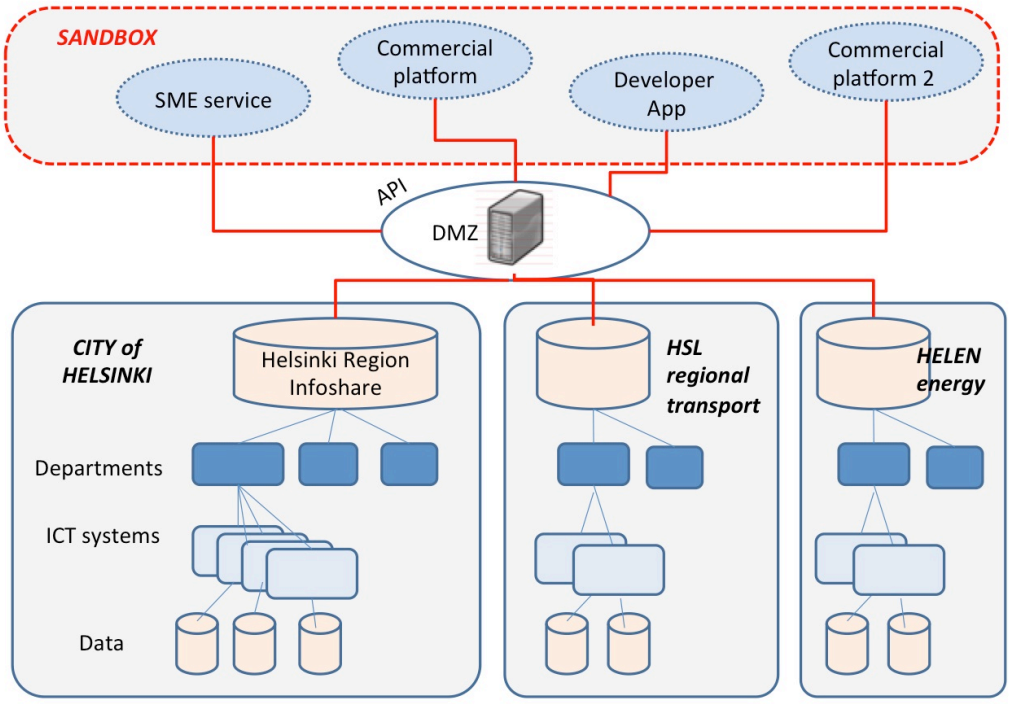
The smart city development across domains under development, however. In the Finnish system, the city manages a really wide portfolio of responsibilities, for example most basic healthcare and education. Cross-domain smart city solutions do not yet cover all of these areas.

Concrete advancement for the City of Helsinki:

The City of Helsinki wishes to become even smarter, aiming at being more sustainable, liveable and participatory.



Picture 9: the proposed Smart Helsinki Sandbox

The Smart Helsinki Sandbox is a proposed environment for testing, validating and piloting urban digital services from the whole urban community, linking to any city domain or business sector. The Smart Helsinki Sandbox brings the City data and service APIs in the "demilitarized zone", where service innovators can work with them just like in a real service provision situation.

The Sandbox expands beyond the digital testing domain into real city and real citizens. Helsinki Living Lab offers a platform for citizen and other stakeholder engagement in co-creating and testing new kind of solutions and services for smart living, and it is hardwired to the Sandbox operations. Helsinki Living Lab facilitates developer and SME participation and citizen engagement across the whole range of urban solutions.

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The Smart Kalasatama area will be a model district for the use of the Sandbox, utilizing public and open data and developing smart services for improving smart living, energy, mobility, education, services for children and elderly, and for health and social services.

"Mobility as a service" focusing on seamless mobility services for citizens is first tested in Kalasatama in Helsinki. It is realized via proactive transport management with real-time follow-up of transport and creating new service infrastructure for citizen mobility. To increase energy efficiency and living comfort, new smart services for city logistics and maintenance are also addressed.

2.4 Synergies with existing initiatives:

This section indicates where links and synergies to other initiatives are identified and where the SELECT for Cities PCP may build on or access existing networks.

2.4.1 FIWARE

The FIWARE platform provides a rather simple yet powerful set of APIs that ease the development of Smart Applications in multiple vertical sectors. The specifications of these APIs are public and royalty-free. Besides, an open source reference implementation of each of the FIWARE components is publicly available so that multiple FIWARE providers can emerge faster in the market with a low-cost proposition.

FIWARE Lab is a non-commercial sandbox environment where innovation and experimentation based on FIWARE technologies take place. Entrepreneurs and individuals can test the technology as well as their applications on FIWARE Lab, exploiting Open Data published by cities and other organizations. FIWARE Lab is deployed over a geographically distributed network of federated nodes leveraging on a wide range of experimental infrastructures. (FIWARE, 2014).

FIWARE approach might prove to be especially suitable for smart cities. There is a quite strong movement amongst cities in Europe and elsewhere to implement FIWARE, but quite few pragmatic cases so far.

2.4.2 Open and Agile Cities

31 cities from Finland, Denmark, Belgium, Portugal, Italy, Spain and Brazil have been the first to join the 'Open & Agile Smart Cities' initiative, targeted to accelerate the adoption of common standards and principles that will transform cities into engines of growth and innovation. More than 100 cities are expected to join in the coming year. Cities agree to:

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- use the “driven by implementation” approach of experimenting;
- adopt open-licensed standard API (implemented in FIWARE) to gather, publish, query and subscribe context-based, real-time information;
- define standard open data models based on CitySDK;
- and build interoperable open data catalogues on CKAN. CEO Jarmo Eskelinen of FV-Helsinki is the vice-chair of the OASC initiative.

2.4.3 City of Things

iMinds is managing the creation and development of City of Things, an urban living lab in Antwerp relying on an Internet of Everything infrastructure and a large user base of more than 200.000 users throughout Flanders. City of Things, a strategic partnership between iMinds, the City of Antwerp, and Mobile Vikings, serves as a service innovation and experimentation support infrastructure for start-ups, SMEs, cities, and researchers in retail technology and other domains. City of Things is conceived as a service layer on top of existing and emerging start-up incubation and acceleration initiatives in Antwerp such as Start-up Village, iMinds iStart, Start-it KBC, and FI-WARE. At the core of City of Things is the merging of collective intelligence and peer production on one hand, and Big Data and sensor infrastructures on the other, with the goal of supporting bottom-up mobile service innovation processes in urban environments. City of Things will play a crucial part in the Living Lab validation phases of SELECT for Cities.

2.4.4 CitySDK

City Service Development Kit – CitySDK – gathers tools and knowledge that help cities harness the skills of the developer community and the power of engaged citizens. It helps cities to serve developers in a similar manner as tech giants like Google or Netflix by providing set of harmonized programming interfaces for developing digital service delivery in European cities. The international CitySDK network has been established. CitySDK is being implemented in the six largest Finnish cities (6Aika Strategy, ERDF). Furthermore, CitySDK is embedded in the fast growing Open and Agile Smart Cities network action, where (currently) 31 cities from 7 countries are joining forces to support the creation of truly working open smart cities marketplace

City Protocol Society
The City Protocol Society is a global non-profit community of cities, corporations, academic and non-profit organizations taking collaborative action to help cities face their challenges together and enable the development of more sustainable, efficient and innovative solutions for city initiatives. To accomplish the task, CityProtocol support an open community of experts, the City Protocol Task Force, who collaborate together in the research and development, necessary to offer curated guidance and collaborative action so that cities do not have to

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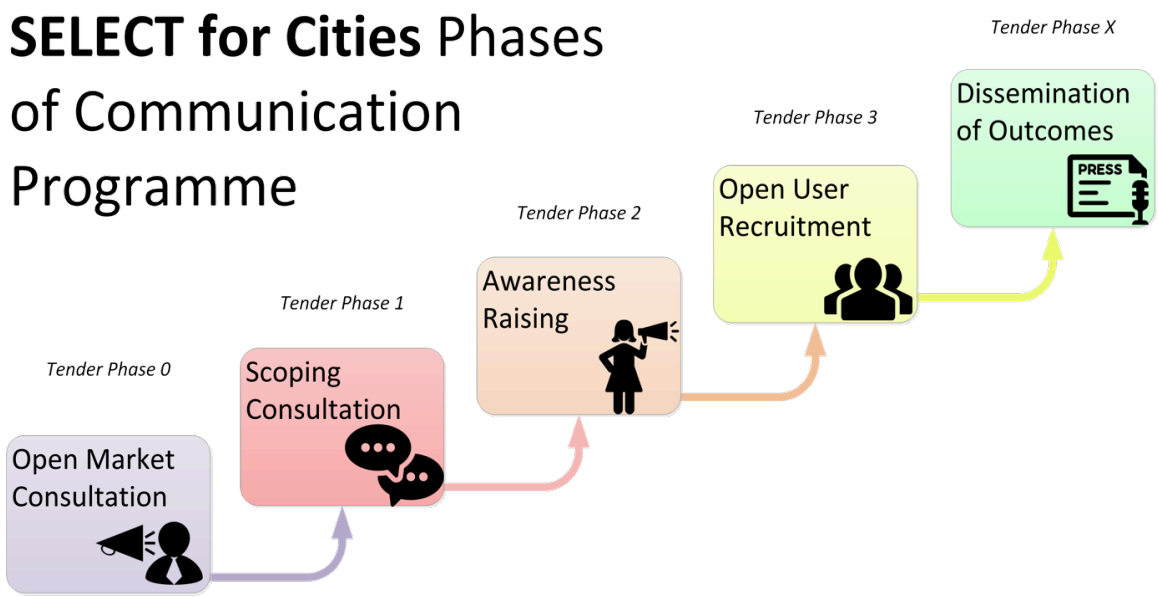
navigate their transformation journeys alone. Institutions and individual experts can join CityProtocol as institutional members and participants to collaborate closely with global city initiatives.

2.5 Measures to maximise impact

In support of the PCP tender process, communication for SELECT for Cities will be framed around three central objectives: 1) Refine the scope of the SELECT for Cities tender specification to match the latest market insights and vendor sentiments 2) Recruit participants for the open pilots 3) Promote the results of the SELECT for Cities tender process to the policy community and other adopter cities. To achieve these objectives, SELECT for Cities communication is split into 5 phases, each supporting a stage of the tender process:



Picture 10: SELECT for Cities Communications Approach

The full details of the project communication strategy will be elaborated in D X.1 SELECT for Cities Communication Strategy to be delivered in M3 of the project (see section 3 for details). However, the communications team believe that effective delivery of a PCP project requires careful advanced planning and for this reason we have already structured and elaborated the strategy below.

The following section explains in greater detail the objectives of each phase together in addition to the tactics that will be used to deliver results:

Phase 0 – Open Market Consultation

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Objectives - During this phase, communications will focus on an open consultation with industry & solution providers to refine the scope of the SELECT for Cities tender. The objectives of the consultation will be the following:

- To identify state-of-the-art solution providers and vendors capable of submitting responses to SELECT for Cities
- To consult with vendors on the draft tender specification and gather feedback on the feasibility of response
- To identify the most suitable 'target domains' for deployment of demonstrator services on top of the IoE infrastructure (e.g. transport or energy)
- To map an ecosystem of prospective vendors to promote tender specifications

Strategy - The Open Market Consultation will seek to build a network of contacts within the vendor ecosystem for European IT providers with a focus on those who already specialise in IoE technologies and system architectures. Using our network of contacts, the Communications Team will promote an open consultation on the proposed tender to gather the direct feedback of leading industry figures to refine and reposition the tender specifications.

Target Audience – During phase 0, the communication team will focus on identifying potential vendors starting from major clusters and industry groups in the IoE sector. Using these groups as a baseline, the communications team will use desktop research & recommendations to identify further vendors from the professional networks of these companies. Examples of baseline groups include:

Picture 11: Example Audiences - Phase 0

Tactics - To execute this strategy, SELECT for Cities will use a range of tactics to engage potential vendors including:

- **Desktop Research** – Use of snowballing, network analysis and industry membership rolls to identify & contact prospective vendors
- **Social Media Outreach** – Targeted direct outreach campaigns through social media to connect with potential vendors & promote draft specifications

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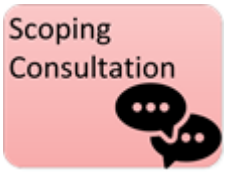
- **Open Consultation Form** – Promote web-based consultation form to gather feedback from potential respondents
- **Trade/Industry Event Attendance** – In-person attendance of selected trade events to conduct stakeholder interviews with prospective vendors.

Phase 1 – Scoping Consultation



Objectives - During this phase, communications will focus on in-depth consultation with the 15 vendors selected to develop their concept solutions within the process. The scoping has the following objectives:

To refine the scope and expectations of the city partners in line with solution feasibility feedback from vendors

To provide further adjustments to the assessment metrics for tenders in Phase 2-3

Strategy - The Scoping Consultation will use conventional stakeholder consultation tactics to engage with the selected vendors. The strategy will be to elicit targeted feasibility feedback from the selected vendors on the feasibility, risks and technical opportunities presented by the tender specification in order to refine the expectations of the city buyers group. Consultations will be conducted according to a modified DELPHI study (see tactics for details) in short-timeframe cycles, each one building in the responses of the previous round. All responses will be anonymised to protect vendor neutrality and encourage frank assessment.

Target Audience – During phase 1, the target audience will be limited to the 15 or so companies selected to develop their concept proposals after the initial tender specification.

Tactics – During phase 1, the communications team will use a shortened version of the DELPHI study - classic stakeholder consultation tactic - to gather responses from the vendors:

- **DELPHI Study** – Participants will each be asked a series of questions based on the tender specifications. All answers will be collected anonymously, summarised by a rapporteur and provided to all vendors. The next round of questions will be based on the previous round of answers to allow the vendors to get a common picture of the landscape. The output of the tactic will be a final report that shapes the expectation of both vendors and procurers.

Phase 2 – External Awareness Raising

Objectives - During this phase, and while the 6 selected companies are developing prototype solutions, the communication team will focus on

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awareness-raising about the development potential for new IoE solutions on the wider supply-side community and informing prospective non-consortium procurers from the demand-side who wish to piggy-back procurement results. The objectives of this phase will be the following:

- To create an awareness among European cities and the policy community of the SELECT for Cities intentions and projected impacts
- To generate support and engagement from cities in the outcomes of the SELECT for Cities
- To engage any prospective 'piggy-backer' cities who wish to follow the SELECT for Cities and invest in the outcomes for their own deployment

Strategy - While selected vendors prototype their technological solutions, the goal of communication will be to generate awareness of and interest in the prospective SELECT for Cities solution amongst all key stakeholders on both supply and demand side. The team will do this by creating two targeted communication campaigns, one focusing on the business potential of the SELECT for Cities solution for IoE service developers and the other focusing on the potential benefits to cities of the SELECT for Cities solution. Each campaign will be targeted to the relevant community through a combination of online and offline promotion.

Target Audience – During phase 2, the communication team will focus on using pre-existing communication networks to reach out quickly & effectively to the right audiences. By leveraging the pre-existing trust in communications from these networks, SELECT for Cities promotions will gain credibility and, ultimately, become viral through independent promotion. Selected networks include:

Picture 12: Example Audiences - Phase 2

Tactics - The External Awareness Raising will use a full range of conventional and advanced marketing tactics to deliver messages to the audience including the following:

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- **Influencer Network Analysis** – Identify and map key influencers within target communities by using desktop research in key forums to highlight most active contributors.
- **Teaser Marketing Campaign** – Produce and promote through online & offline channels a teaser campaign highlighting the forthcoming SELECT for Cities and the potential benefits to cities
- **Incentivised Social Sign-Up** – Tweet key @handles with invitations to register on mailing lists and offer early-adopter rewards such as advanced access to SELECT for Cities APIs or free-trial periods for the final SELECT for Cities solution.
- **In-Person Elevator Pitches** – Attend meetings and client sites to provide short presentation on the benefits of following the SELECT for Cities buyers group to potential piggy-backer authorities

Phase 3 – Open User Recruitment

Objectives - During this phase, the communication team will work with the 3 companies selected to pilot their solutions, alongside the administrations of the SELECT for Cities buyers group, to recruit users for the pilot deployments. These users will be drawn from the pool of developers and citizens both within the cities and broadly across Europe. The phase has the following specific objectives:

1. To deliver an active community of contributors and developers to each pilot deployment to create and test robust IoE applications
2. To generate active use of IoE solutions among ordinary residents in the pilot period to allow for evaluation & testing of the architecture
3. To manage promotion of the pilot deployments together with the administrations of the SELECT for Cities buyers group

Strategy – During Phase 3, the communications team will focus on driving participants toward the pilots. The strategy will focus on growing the local user base for the pilot SELECT for Cities solutions to test their performance and provide concrete SELECT for Cities evidence for final evaluation of the vendor offers. The team will focus on recruiting developers to offer services through the platform and, where applicable within the testing environment, to recruit end-users to test the delivery of IoE services.

Target Audience – During phase 3, the communication team will work with each of the buyer cities inside the SELECT for Cities consortium to identify the most relevant developer groups and companies to offer services through the SELECT for Cities pilot platforms. In addition, working with the community departments of each buyer authority, the communications team

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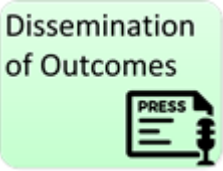
will develop a list of community groups, living lab participants and social innovation centres whose members can be recruited as testers for the pilot solutions where required.

Tactics - The Open User Recruitment phase will use primarily viral marketing tactics & joint-promotion with buyers group comms. departments including the following:

- **eWOM Viral Campaigns** – electronic Word of Mouth campaigns will be used to promote use of the SELECT for Cities pilot solutions on channel-specific social media including traditional campaigns such as Twitter handles and Facebook re-shares for ordinary citizens and specialised engagement on sub-Reddits and Github threads for local developers.
- **Opinion Leader Endorsements** – The promotional team will seek the endorsements of opinion formers from the business and political community for use of the pilot solution
- **Pre-constituted User Group Recruitment** – The team, working the Buyers group of procuring cities, will identify existing groups to test the solution en masse such as local developer meet-ups, community interest groups and chambers of commerce.

Phase X – Dissemination of SELECT for Cities **Outcomes**



Objectives - During this phase, the successful solution will be promoted together with the insights of the SELECT for Cities process. The results will target policy communities, city procurement officers and the research community. The phase has the following objectives:

1. To influence policy around procurement of IoE services by updating procurement practices to reflect the lessons of the SELECT for Cities process
2. To encourage other cities to adopt the test environment in their own deployments following the piggy-backer authority model
3. To encourage the research community to utilise the IoE test environment as a basis of further development of services

Strategy – During Phase X, the communications team will execute a strategy to promote the outcomes and lessons of the SELECT for Cities tender process back to the policy & IoE community. The team will concentrate on identifying forums and policy consultations where SELECT for Cities can contribute meaningful input to shape the future choices of cities and policymakers surrounding the procurement of IoE test platform.

NB: *The communications team will not be responsible for the promotion of the selected* SELECT for Cities *platform within buyer authorities. This task is outside the scope of the PCP proposal and will be conducted on a case-by-case basis by the communication departments of the relevant cities.*

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Target Audience – During phase 3, the communication team will target European-level policy consultations, national & international symposia, conferences and forums and direct contact with senior decision makers involved in procurement policy or IT strategy. The following representative *types* of event and consultation are foreseen:

Picture 13: Example Audiences - Phase X

Tactics - The External Awareness Raising will use a full range of conventional marketing tactics and policy process interventions including:

- **Policy Paper Publication** – Identify and contribute to key policy forums and journals with the results of the SELECT for Cities process
- **Promotion of** SELECT for Cities **Lessons Learned** – Full-scale marketing campaign to promote SELECT for Cities lessons learned to city leaders
- **Targeted Press Campaign –** Deploy a press features campaign targeting special interest technology media and policy publications at the national level for each buyer city (in local language)
- **Endorsement Plan –** Create a series of high-profile endorsements for the SELECT for Cities solution from senior city leaders, c-level IT executives and policymakers

3. Implementation

3.1. Project plan

This section provides an overview of the workplan for the SELECT for Cities PCP. The structure has been kept deliberately lean and straightforward to ensure the focus lies on the pre-commercial procurement track of the project, reducing project overhead to a minimum. The structure and timing of the work packages has also been aligned with the different phases in the PCP process, with the goal of targeting clear deliverables and milestones that tie directly into the work plan.

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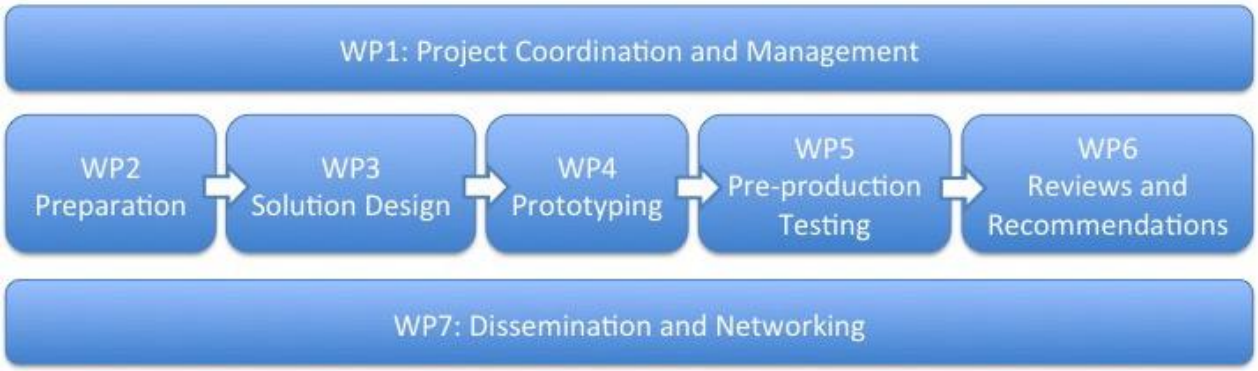
3.1.1. Brief presentation of the overall structure of the work plan

The following figure gives a brief overall view on the work plan. The approach is simply and structured along the lines of the PCP process to ensure each phase is followed up on by the WP leader.



Picture 14: Work plan structure

WP1 Project coordination and management (lead procurer: FV-Helsinki) M01-M36
- T1.1. Project Planning & Collaboration (FV-Helsinki) M1 – M36
- T1.2 Governance and decision-making arrangements (FV-Helsinki) M1–M36
- T1.3 Project Management Reporting (FV-Helsinki) M1 – M36
- T1.4 Project coordination with external partners (FV-Helsinki) M1-36

WP2 Preparation (Digipolis) (Phase 0) M01-M06
- T2.1 PCP process set-up and definition of evaluation criteria (Digipolis) M01-M03
- T2.2 Open Market Consultation (Digipolis) M03-M06

WP3 Solution design (Phase 1) (Stad Antwerpen) M06-M12
- T3.1 Open Call for Solution Design (PCP phase 1) (Stad Antwerpen) M06-M10
- T3.2 Evaluation Solution Design (PCP phase 1) (FV-Helsinki) M10-M12

WP4 Prototyping (Phase 2) (IMI) M12-M20
- T4.1 Prototyping (IMI) M12-M18
- T4.2 Evaluation prototyping (Digipolis) M18-M20
- T4.3 Living Lab Validation Phase 2 (iMinds) M18-M20

WP5 Pre-production testing (Phase 3)(iMinds) M20-32
- T5.1 Pilots (iMinds) M20-26
- T5.2 Living Lab Validation Phase 3 (iMinds) M24-M32

WP6 Reviews and Recommendations (ICUB) M32-M36
- T6.1 Exploitation strategy (ICUB)

WP7 Dissemination & Networking (21C Consultancy) M01-M36
T7.1 Planning of Communication & Engagement Strategy (21C Consultancy)

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T7.2 Realisation of Multimedia & eLearning Contents (21C Consultancy)
T7.3 Phased Communications Campaign (21C Consultancy)
T7.4 Communications Management (21C Consultancy)

3.1.2. Timing of the different work packages and their components (Gantt chart)

Gantt Chart		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
WP1	**Project coordination and management M01-M36**																																				
T1.1	Project Planning & Collaboration	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T1.2	Governance and decision-making arrangements	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T1.3	Project Management Reporting	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T1.4	Project coordination with external partners	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
WP2	**Preparation (Phase 0) M01-M06**																																				
T2.1	PCP process set-up and definition of evaluation criteria	■	■	■																																	
T2.2	Open Market Consultation			■	■	■	■																														
WP3	**Solution design (Phase 1) M06-M12**																																				
T3.1	Open Call for Solution Design						■	■	■	■	■																										
T3.2	Evaluation Solution Design										■	■	■																								
WP4	**Prototyping (Phase 2) M12-M20**																																				
T4.1	Prototyping												■	■	■	■	■	■	■																		
T4.2	Evaluation prototyping																		■	■	■																
T4.3	Living Lab validation Phase 2																		■	■	■																
WP5	**Pre-production testing (Phase 3) M20-32**																																				
T5.1	Pilots																				■	■	■	■	■	■	■										
T5.2	Living Lab validation																								■	■	■	■	■	■	■	■	■				
WP6	**Reviews and Recommendations M32-M36**																																				
T6.1	Exploitation strategy																																■	■	■	■	■
WP7	**Dissemination & Networking M01-M36**																																				
T7.1	Planning of Communication & Engagement Strategy	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T7.2	Realisation of Multimedia & eLearning Contents	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T7.3	Phased Communications Campaign	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
T7.4	Communications Management	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Deliverables and Milestones		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
D1.1	Consortium Agreement	⊙																																			
D1.2	Project handbook		⊙																																		
D1.3	Periodic report						⊙																														
D1.4	Final progress report																																				⊙
D2.1	Coordination document and joint procurement agreement			⊙																																	
D2.2	Acceptance Criteria and Procedures			⊙																																	
D2.3	Tender Documents			⊙																																	
D2.4	Roadmap for the market consultation				⊙																																
D2.5	Completed questionnaire(s) for market consultation				⊙																																
D2.6	Published results of the market consultation						⊙																														
M1	PCP-process designed			◆																																	
M2	Market consultation results published						◆																														
D3.1	Specific call documents, Phase 1								⊙																												
D3.2	Selection Report, Phase 1										⊙																										
D3.3	Evaluation Report, Phase 1												⊙																								
M3	PCP Phase 1 completed												◆																								
D4.1	Selection Report, Phase 2 (M13)													⊙																							
D4.2	Report on prototyping phase																				⊙																
D4.3	Evaluation criteria and metrics, Phase 2																⊙																				
D4.4	Evaluation Report Phase 2																				⊙																
D4.5	Report on Living Lab validation																				⊙																
M4	PCP Phase 2 completed																				◆																
D5.1	Selection Report Phase 3																					⊙															
D5.2	Report on Piloting phase																										⊙										
D5.3	Report on Living Lab phase																																		⊙		
M5	PCP Phase 3 completed																																◆				
D6.1	Internal assessment report																																				⊙
D6.2	PCP process review report																																				⊙
M6	Final review and recommendations published																																				◆
D7.1	Communications Plan			⊙																																	
D7.2	Communication Materials						⊙																														
D7.3	Communications Phase Transition Reports						⊙						⊙								⊙												⊙				⊙
D7.3	Communication Materials												⊙																								
D7.4	Communication Materials																		⊙																		
D7.5	Communication Materials																																⊙				

Table 15: GANTT chart

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3.1.3. Detailed work description

Table 3.1.a: Work packages description

Work package number	1	**Start/End Date**	M01-M36
Work package title	**Project Coordination and Management**		
Work package leader	FV-Helsinki		

Participant number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Short name of participant	**FV-Helsinki**	**iMinds**	**Digipolis**	**Stad Antwerpen**	**21C Consultancy**	**ICUB**	**IMI**
Person/months per participant:	**17**	1.5	1.5	1.5	1.5	1.5	1.5

Objectives
The aim of this work package is to ensure the quality levels of the project's results through the continuous monitoring of the project activities and their proper execution, the coordination of the work plan, and the optimum coordination of the partners. More specifically, the objectives of this WP are the following: A. To define, describe and implement a project management structure that will be agreed between all partners, facilitating the coordination of work from the various working teams and through various work activities. B. To arrange a series of online and offline face-to-face project meetings that will bring together the consortium members, fostering collaboration and cooperation towards reaching the common goals of the project. C. To regularly report to the EC the progress of the project's implementation taking into consideration the special PCP reporting provisions, as well as details regarding the financial support of the project.

Description of work
T1.1. Project Planning & Collaboration, M1 – M36 (Task leader: FV-Helsinki) The aim of the task is to define project management procedures and supporting material for the consortium members to undertake SELECT for Cities project. The result will be a tool that will contain the information (Partner data, planning procedures, control procedures, quality assurance and risk plan etc.) necessary to run the project on a day to day basis, as well as the possibility to plan and reschedule project tasks according to the actual execution state of the different deliverables. Also included are all the relevant templates to be used in documentation and reporting. Roles: FV-Helsinki will lead this task, with the support of all partners. Outcomes: Consortium agreement (D1.1) and project handbook (D1.2).

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T1.2 Governance and decision-making arrangements, M1–M36 (Task leader: FV-Helsinki)

This Work Package will be responsible for the proper implementation of the governance and decision making arrangements of the SELECT for Cities project, in line with the project's Consortium Agreement. This includes making the necessary arrangements for meetings of the various governing bodies, taking and circulating meeting minutes. This task also includes the relevant activities of the Project Coordinator as Chair of the General Assembly, and the activities of the Project Manager acting in an advisory capacity to the project's governing bodies with respect to financial, contractual, legal and EU matters.

Roles: FV-Helsinki will lead this task, with the support of all partners.

Outcomes: Smooth governance

T1.3 Project Management Reporting, M1 – M36 (Task leader: FV-Helsinki)

This work item aims at regularly reporting the results from the physical and financial implementation of SELECT for Cities project. It will address issues such as:

- Elaboration and submission of periodic progress reports and cost statements;
- Preparation of annual review reports and review presentations;
- Overall co-ordination and reporting to the EC representatives, including the submission of all project documentation requested by these representatives;
- Submission to the EC of peer reviews deliverables.

Roles: FV-Helsinki will lead this task, with the support of all partners.

Outcomes: Timely project reporting.

T1.4 Project coordination with external partners, M1-36 (Task leader: FV-Helsinki)

The project coordinator will maintain the relationship with the external partners (other actions, cities and municipalities, et al.), and will be in charge of linking with other European networks and the European Commission. The project co-ordinator will also maintain a continuous integration of the information sources. Coordination activities will include the continuous monitoring of Horizon 2020 programme evolution, and the coordination of the dissemination task force.

Roles: FV-Helsinki will lead this task, with the support of all partners.

Outcomes: International exposure of the SELECT for Cities project.

Deliverables (brief description and month of delivery)
D1.1 Consortium Agreement (M1): based on DESCA-2020 **D1.2** Project handbook (M2): describing project practices, contacts, and instructions for Project Partners' organisations and personnel working on the project. It includes Communication, Conflict Management and Risk Management Plan. It includes instructions for the on-line project management tools for WP and Task Leaders.

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D1.3 Periodic Progress Report (M6, when the preparation phase has been completed): progress reports precede the project general assembly **D1.4** Final Progress Report (M36)

Work package number	2	**Start/End Date**	M01-M06
Work package title	**Preparation**		
Work package leader	Digipolis		

Participant number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Short name of participant	**FV-Helsinki**	**iMinds**	**Digipolis**	**Stad Antwerpen**	**21C Consultancy**	**ICUB**	**IMI**
Person/months per participant:	5	2,5	10	3	1	1	5

Objectives
Work Package 2 aims to : A. Finetune the common PCP challenge and finalise the procuring partners' requirements; B. Investigate of the market's response to this challenge; C. Develop an overall and adequate procurement strategy and structure to conduct the procurement activities during the execution of the project. In Work Package 2 there will be a final common challenge definition and fine-tuning phase in which a further description of the key business requirements will be conducted. This phase is essential to inform fully both the internal and external stakeholders about the scope, objectives, requirements and constraints of the SELECT project, as well as on the pursued procurement strategy and procedures. In the consecutive market consultation the following goals are being pursued: ● to give the stakeholders the opportunity to respond and give feedback to the ambitions and the planned approach of the SELECT project; ● to gain a broad insight in all relevant and available users, stakeholders, technologies and possible solutions in the market place. Estimated duration: 6 months

Description of work

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T2.1 - PCP process set-up and definition of evaluation criteria (Task leader: Digipolis) - M01-M03

This task addresses the requirements, both from a content and procedural view, of the pre-commercial procurement (PCP) procedure in the project. As to the definition of the PCP challenge the project partners will make sure the joint challenge scope, target audience, awarding and assessment criteria (functional, technical, technological) will be defined and consolidated at this stage.

With regards to the PCP procurement process specifically, the following items will be addressed and committed: the appropriate procurement model, the pre-commercial procurement agreement, the PCP procurement process with its phased approach and the awarding criteria, and the relevant PCP documentation. These findings and decisions will published to all relevant stakeholders.

Roles: Digipolis will lead this task, with the support of all partners.

Outcomes:

- Completed tender documents based on the Horizon 2020 PCP model contract documents, using common functional/performance based specifications and common evaluation criteria;
- Signed joint procurement agreement between all participants confirming the final collaboration modus, including the financial commitment of the buyers group to pool resources for the PCP; and
- Final confirmation of the lead procurer.

T2.2 - Open Market Consultation (Task leader: Digipolis) - M03-M06

The goal of this task is getting a holistic view on solutions relevant to the project that exist in the market today and how they relate to the challenge defined in this PCP. The task will provide a market evaluation report that gathers input from the participating cities, the solutions they already have in place, as well as a consultation round with important technology companies and vendors in this area. The goal of this consultation and the involvement of external stakeholders is honing in on the challenge envisaged by this PCP and relating existing solutions to it. This will lead to a more clear definition of where gaps and challenges remain and where R&D is still required.

Roles: Digipolis will lead this task and gather input from all project partners regarding existing solutions in the market. iMinds will support this task.

Outcomes: Market evaluation report.

Deliverables (brief description and month of delivery)
D2.1 (M03) Coordination document and joint procurement agreement for the SELECT

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PCP procurement D2.2 (M03) Acceptance Criteria and Procedures for the SELECT PCP procurement D2.3 (M03) Tender Documents for the SELECT PCP procurement D2.4 (M04) Roadmap for the SELECT market consultation round D2.5 (M04) Completed questionnaire(s) to conduct the SELECT market consultation and survey(s) D2.6 (M06) Published results of the SELECT market consultation

Work package number	3	**Start/End Date**	M06-M12
Work package title	**Solution Design (Phase 1)**		
Work package leader	**Stad Antwerpen**		

Participant number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Short name of participant	**FV-Helsinki**	**iMinds**	**Digipolis**	**Stad Antwerpen**	**21C Consultancy**	**ICUB**	**IMI**
Person/months per participant:	2,5	0	6	7	0	1	2,5

Objectives
Work Package 3 aims at the execution of PCP phase 1 - Solution Design Phase 1 (concept phase) will be a feasibility study of the proposed solutions and technologies. It aims to verify the conceptual, technological, organizational and budgetary feasibility of each proposal. The concept phase will consist of an open call. A maximum of 12 companies will be selected and funded to develop the concepts of competing solutions. Their concepts can/should be different, but are expected to solve the same common challenge. More precisely, the main goals are to: ● Publish the phase 1 (open) call and all relevant tendering documents ● Select and award the applying companies/participants for phase 1 (max. 12) ● Evaluate the conceptual design of their solutions (max. 12) ● Determine the feasibility of the proposed solutions and technologies

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The expected output from the participating companies is a report with a concept design, a description of the results of their feasibility studies and their conclusions for the continuation of the development activities in phase 2.

Description of work (where appropriate, broken down into tasks), lead partner and role of participants

T3.1 - Open Call for Solution Design (PCP phase 1) (Task leader: Stad Antwerpen) - M06-M10

An open call for tender will be issued, consisting of the following chapters:

- Challenge brief: a detailed description of the scope of the PCP tender and the challenge to be tackled (object of the tender). Key user, functional requirements and technical specifications, such as possible design and architectural constraints, will be included.
- Assessment and awarding criteria
- Invitation to tender: the administrative, procedural and legal conditions of the PCP process

Selection of the companies following the applying award criteria set out in the tender specifications (cfr. Deliverable 3.2 Selection Report, SELECT Phase 1)

Signing of the framework agreement by max 12 participants.

Roles**:** Stad Antwerpen will lead this task, closely monitoring challenges and development opportunities arising in all three participating cities. This will eventually lead to a themed approach and a focused briefing document.

Antwerp will design an assessment workflow and scorecard for the evaluation.

Antwerp will draft a legal framework for this PCP process, with respect to EU and relevant national legislation, in close collaboration with the lead procurer.

Outcomes**:**

- a maximum of 12 applicants appointed for the execution of PCP phase 1 - Solution design
- a signed single framework agreement, including a chapter on the IPR (usage rights, call-back etc.)

T3.2 - Evaluation Solution Design (PCP phase 1)(Task leader: FV-Helsinki) - M10-M12

Evaluation of the applicants and their solutions.

Validation and comparison of the competing solutions against the jointly defined criteria by the buyers group

Roles: Forum Virium Helsinki will lead this task, with the support of all partners.

Outcomes: An evaluation report on the proposed solution designs by the participants, including a the final ranking list of the selected projects, final scores and qualitative assessment per evaluation criterion (cfr. Deliverable 3.3 Evaluation Report, SELECT Phase 1).

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Deliverables (brief description and month of delivery)
D3.1 Specific call documents, SELECT Phase 1 (M08) D3.2 Selection Report, SELECT Phase 1 (M10) D3.3 Evaluation Report, SELECT Phase 1 (M12)

Work package number	4	**Start/End Date**	M12-M20
Work package title	**Prototyping**		
Work package leader	**IMI**		

Participant number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Short name of participant	**FV-Helsinki**	**iMinds**	**Digipolis**	**Stad Antwerpen**	**21C Consultancy**	**ICUB**	**IMI**
Person/months per participant:	5	5	6,5	5	0	3,5	**9**

Objectives
Work Package 4 aims at the execution of PCP phase 2 - Prototyping The main objective of phase 2 (prototyping phase) is to transform those 9 companies' innovative solutions presented in phase 1 into validated prototypes. The selection process for phase 2 is based on the phase 1 reports (cfr. D3.3) and on an application process, in which the applicants design, roadmap and budgetary estimate will be outlined for phase 2 (cfr. Deliverable D4.1 Selection Report, SELECT Phase 2). All selected companies will have the chance to verify the viability of the prototype's main features and performance, to validate if it fits with the challenges requirements. More precisely, the main goals of phase 2 are: • Transform the most promising ideas presented in phase 1, into well-defined and functional prototypes. • Verify if prototype's main features match with the requirements of the proposed challenge. • Validate the prototypes into a demonstration Lab (Living Lab validation) with real users. • Validate the prototype following the well-defined metrics and rules proposed in T.4.2 • To deliver a detailed development plan for phase 3 (Pre-production Testing)

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- And updated cost/benefits evaluation, including the updates into the business plan according to the first validations.

The expected output from the participating companies is a prototype specifications report, a Lab demonstration of the solution, a report on the Living Lab validation, an updated cost/benefit evaluation and the description of the results, their conclusions and the development plan for the continuation of the development activities in phase 3.

Description of work (where appropriate, broken down into tasks), lead partner and role of participants
T4.1 **Prototyping** M12-M18 (Task Leader: IMI) Max. 9 companies amongst the companies, which were successful in the concept phase, are selected and funded to develop a prototype service, transforming their innovative solutions into working prototypes to be validated in a demonstration Lab. Main specific goal of T.4.1 is to help and track the whole prototyping and demonstration Lab validation into real environments with the cities. Roles: IMI will lead this task with input from the other procuring partners Outcomes: • Evaluation criteria and metrics, based on the lessons learned from phase 1 • A number of validated prototypes and their associated demonstration Labs, including the required outcomes for Living Lab Validation (T.4.3) • Report on prototypes' main features and how they match with challenges requirements T4.2 **Evaluation prototyping** M18-M20 (Task Leader: Digipolis) The procuring partners and external evaluators will evaluate all the proposals using the same criteria. Validation and comparison of the competing solutions against the jointly defined criteria by the buyers group . Roles: Digipolis will lead this task, with the support of all partners. Outcomes: 1. An evaluation report on the proposed solution designs by the participants, including a the final ranking list of the selected projects, final scores and qualitative assessment per evaluation criterion T4.3 **Living Lab Validation Phase 2** M18-M20 (Task Leader: iMinds) This task validates the prototypes that were run in T4.1, in a smaller scale living lab setting including all B2B stakeholders relevant to the proposed solution. Whereas the goal of the pilot evaluation is to ensure that the proposed technologies are functional and

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satisfy the criteria, the goal of the living lab validation performed is to provide tangible input for the next stage of development by exposing the solution more broadly. Roles: iMinds will lead this task, with support of all partners Outcomes: User feedback report

Deliverables (brief description and month of delivery)
D4.1 Selection Report, SELECT Phase 2 (M13) D4.2 Report on prototyping phase (M20) D4.3 Evaluation criteria and metrics, SELECT Phase 2 (M16) D4.4 Evaluation Report, SELECT Phase 2 (M20) D.4.5 Report on User Living Lab validation (M20)

Work package number	5	**Start/End Date**	M20-32
Work package title	**Pre-production testing**		
Work package leader	iMinds		

Participant number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Short name of participant	**FV-Helsinki**	**iMinds**	**Digipolis**	**Stad Antwerpen**	**21C Consultancy**	**ICUB**	**IMI**
Person/months per participant:	7	14	7	7	0	2	7

Objectives
The objective of WP5 is to validate the proposed solutions in real life conditions. SELECT for Cities takes the standard PCP approach of running pilots a step further by inserting a two-phased work package that includes living lab testing. This approach will give the buyers group better insight into the quality of the proposed solutions, making a more informed decision possible.

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Description of work
T5.1 **Pilots** M20-M26 (Task leader: iMinds) Phase 3 (pre-production phase) aims to verify and compare the full feature set and performance of different solutions in operational conditions of the targeted service. Max. 6 companies from the prototype companies are selected and funded to do larger scale pilots to test the technical feasibility of their solutions (cfr. Deliverable 5.1 Selection Report, SELECT Phase 3). The main goal of this task is creating stable pilot environments that can be scaled and tested in a living lab environment. The focus in this task is thus on technical integration and functionality rather than user experience and feedback. The pilots are evaluated by the procurers using the same metrics for all proposals, but with an explicit focus on technical operations. The potential of integration with existing local systems in each of the cities will be a particular point of attention. Roles: iMinds will lead this task with the support of all procuring partners regarding technical aspects of local implementations. Outcomes: The outcome of T5.1 should be stable pilots that work on a technical level and can be tested in real life settings with end users. T5.2 **Living Lab Validation** M24-M32 (Task leader: iMinds) This task validates the pilots that were run in T5.1, in a large-scale living lab setting including all stakeholders relevant to the proposed solution. Whereas the goal of the pilots is to ensure that the proposed technologies are appropriate and integrate well with existing systems, the goal of the living lab validation performed in this task is to take this one step further and validate the proposed solutions in a real-life setting and on a large scale. This means the technologies tested in the pilots need to be further developed to ensure citizens, civil servants, tourists, SMEs, startups, companies and other actors relevant to a specific solution are able to understand and adopt the into their daily practices, while generating added value. The living lab approach goes beyond piloting in its scale, the number and nature of involved stakeholders, the identification of true business potential as well as its iterative character. In this sense, it offers an added value to the PCP process and provides the buyer group with additional information towards the actual procurement of one (or more) of the proposed solutions. Roles: iMinds will lead this task and be local contact for living lab experiments in Antwerp. All procuring partners will support this task and run local living labs when deemed relevant by the buyers group. Outcomes: Validation and comparison of the competing solutions against the jointly defined criteria by the buyers group, in real-life operational conditions to verify fitness for purpose in

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view of potential conversion into permanent service of the solutions.

Deliverables (brief description and month of delivery)
D5.1 (M21): Selection Report, SELECT Phase 3 D5.2 (M26): Report on Piloting phase (including detailed description, evaluation and assessment of tenderers by buyers group with a focus on technical evaluation) D5.3 (M34): Report on Living Lab phase (including detailed description, evaluation and assessment of tenderers by buyers group with a focus on integration, usability, business potential and end user appreciation)

Work package number	6	**Start/End Date**	M32-M36
Work package title	**Reviews and Recommendations**		
Work package leader	ICUB		

Participant number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Short name of participant	**FV-Helsinki**	**iMinds**	**Digipolis**	**Stad Antwerpen**	**21C Consultancy**	**ICUB**	**IMI**
Person/months per participant:	1	1	1	0	0	**4**	1

Objectives
The main objective of WP6 is to provide a review of the PCP process and a report on the assessment and validation of the innovative solutions resulting from the project.

Description of work
T6.1 **Exploitation strategy** M32-M36 (Task leader: ICUB) The goal of this task is to gauge whether the project partners show interest in procuring one or more of the solutions developed in SELECT for Cities (which would then need to be part of a normal procurement process, open to other bidders that did not participate to one of SELECT for Cities' phases). However taking measure of such potential interest through a project-internal consultation will provide a first indication of the PCP process' success. In second instance, this task will review the PCP process of SELECT for Cities as a whole in a

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"lessons learned" report linking the process to the experiences of the partners, the market and the cities. It will provide recommendations towards future PCP initiatives. Roles: ICUB will lead this task with input from the other partners. Outcomes: Internal assessment report and PCP process as a whole review with recommendations.

Deliverables (brief description and month of delivery)
D6.1 (M36): Internal assessment and validation report D6.2 (M36): PCP process review report

Work package number	7	**Start/End Date**	M01-M36
Work package title	**Dissemination and Networking**		
Work package leader	21C		

Participant number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Short name of participant	**FV-Helsinki**	**iMinds**	**Digipolis**	**Stad Antwerpen**	**21C Consultancy**	**ICUB**	**IMI**
Person/months per participant:	1	0	1	0	23	0	1

Objectives
Work Package 7 aims at securing the success of the SELECT for Cities tender process in the long-term and to ensure that the results of the PCP contribute substantially to the positive and lasting impact of the SELECT for Cities platform on IoE service deployment in cities. To this end, effective dissemination and communication actions will be planned, validated and executed during each phase of the Project lifecycle. More precisely, the main goals of the Work Package may be summarised as follows: ● Engage vendors and other key stakeholders to refine the scope of the SELECT for Cities tender specification to match the latest market insights and vendor sentiments

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- Recruit technical and user communities in each pilot site as participants for the SELECT for Cities open pilots
- Promote the results of the SELECT for Cities tender process to the policy community and other adopter cities
- Curate SELECT for Cities brand identity and boost its visibility and recognition

Description of work (where appropriate, broken down into tasks), lead partner and role of participants

Task 7.1 – Planning of Communication & Engagement Strategy (Lead: 21C)

The Task will deal with the creation of a comprehensive dissemination and communication strategy to promote SELECT for Cities to key stakeholders (see section 2.2). The Task will focus on engaging relevant audiences through the 5 phases of the PCP tender process to support and deliver the best possible outcomes. . The 5 phases of communications, detailed in section 2.2 of this proposal (Open Market Consultation, Scoping Consultation, Awareness Raising, Open User Recruitment, and Dissemination of Outcomes), will form the foundation for a Communications Plan (D5.1), which will outline for each phase the strategy, the target audiences and articulate specific messages for addressing their needs. The plan will set out the varying methods and engagement tactics, along with activity schedules for the target audience and stakeholder groups, as well as the project's Internal Communication strategy.

Task 7.2 – Realisation of Multimedia & eLearning Contents (Lead: 21C)

The task will oversee the creation of materials to support the communication strategies outlined in the projects Communication Plan (D7.1). The types of communication collateral to be developed include: creating an interactive project information website (separate to the SELECT for Cities platform) specific materials (brochures, web banners, give-aways) for interacting with each different stakeholder demographic, appropriate website and news channel feeds along with specialised handles, hashtags and themes, e-mailing announcements, utilising social networking groups, eWOMs, Snowball marketing and cascading techniques and crowd-sourcing tools, issuing press releases to newspapers and magazines, DELPHI materials, speaking at European Conferences, submitting papers to electronic and academic journals and specialised press, and organising special initiatives for vendors, developers and cities. The most appropriate tactics for each stakeholder group will be identified during this task. In addition, the Communications Plan (D5.1) will list key success criteria for measuring the effect of the SELECT for Cities Communication Strategy.

Task 7.3 – Phased Communications Campaign (Lead: 21C)

This Task will involve the execution of the communications campaign developed by T7.1 in sync with the 5 phases of the SELECT for Cities PCP tender process. At each phase, the appropriate strategy will be implemented by the communications team and will operate for

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the duration of the tender phase in close parallel. At the end of each phase of the tender process, the project management, together with the communications team, will evaluate the status and success of the communications strategy and will approve the transition to the next phase. Each sub-section of this task deals with a different phase of the communication strategy:

Task 7.3.1 – Open Market Consultation (Lead: 21C)

This Sub-Task will oversee phase 0 of the communication strategy: Open Market Consultation. During this task, communications will focus on an open consultation with industry & solution providers to refine the scope of the SELECT for Cities tender. The task will build a network of vendor contacts with a focus on those who already specialise in IoE technologies and system architectures and use this network to promote an open consultation on the proposed tender to gather the direct feedback of leading industry figures to refine and reposition the tender specifications.

Task 7.3.2 – Scoping Consultation (Lead: 21c)

This Sub-Task will oversee phase 1 of the communication strategy: Scoping Consultation. During this task, communications will focus on in-depth consultation with the 15 vendors selected to develop their concept solutions within the process. The task will use conventional stakeholder consultation tactics to engage with the selected vendors and elicit targeted feasibility feedback on the feasibility, risks and technical opportunities presented by the tender specification in order to refine the expectations of the city buyers group. Consultations within the task will be conducted according to a modified DELPHI study (see Section 2.2 for details).

Task 7.3.3 – Awareness Raising (Lead: 21c)

This Sub-Task will oversee phase 2 of the communication strategy: Awareness Raising. During this task, the communication team will focus on raising awareness of the development potential for new IoE solutions in the wider supply-side community and informing prospective non-consortium procurers from the demand-side who wish to piggy-back procurement results. The task will create two targeted communication campaigns, one focusing on the business potential of the SELECT for Cities solution for IoE service developers and the other focusing on the potential benefits to cities of the SELECT for Cities solution. Each campaign will be targeted to the relevant community through a combination of online and offline promotion.

Task 7.3.4 – Open User Recruitment (Lead: 21c)

This Sub-Task will oversee phase 3 of the communication strategy: Open User Recruitment. During this task, the communication team will work with the 3 companies selected to pilot their solutions, alongside the administrations of the SELECT for Cities buyers group, to recruit users for the pilot deployments from the pool of developers and citizens both within

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the cities and broadly across Europe.

Task 7.3.5 – Dissemination of Outcomes (Lead: 21c)

This Sub-Task will oversee phase X of the communication strategy: Dissemination of Outcomes. During this task, the SELECT for Cities solution will be promoted together with the insights of the PCP tender process. The task will promote the outcomes and lessons of the SELECT for Cities tender process back to the policy & IoE community contributing to forums and policy consultations where SELECT for Cities can provide meaningful input to shape the future choices of cities and policymakers surrounding the procurement of IoE test platform.

Task 7.4 – Communications Management (Lead: 21C)

This Task will involve the leadership of the SELECT for Cities buyers group, together with the communications leadership, in periodic assessment of the communication strategy. At the conclusion of each phase of the strategy (T5.3.1-5.3.5), the task will convene an assessment meeting where the team will evaluate the success of communications, approve transition to the next phase and, where necessary, refine the communications approach to match developing circumstances. The task will create a short report at the conclusion of each phase describing the main activities, the evaluation results and any recommendations for the next phase.

Deliverables
D7.1 – Communications Plan. M3 *Comprehensive plan outlining communication strategy, planning, activities, incentives and measurement criteria.* D7.2 – Communication Materials. M6 *Production of all material finalized and project website up and running.* D7.3 – Communications Phase Transition Reports. M06, M12, M20, M32, M36 *Reporting on end-of-phase review for all communication activities.*

- **List of work packages (Table 3.1b)**

WP No	**Work Package Title**	**Lead Part. No**	**Lead Part. Short Name**	**Person-Months**	**Start Month**	**End month**

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1	Project Coordination and Management	1	FV-Helsinki	26	1	36
2	Preparation	3	Digipolis	27,5	1	6
3	Solution Design (Phase 1)	4	Stad Antwerpen	19	6	12
4	Prototyping	7	IMI	34	12	20
5	Pre-production testing	2	iMinds	44	20	32
6	Reviews and Recommendations	7	IMI	8	32	36
7	Dissemination and Networking	5	21C Consultancy	26	1	36
			Total Person-Months	184,5		

- **List of major deliverables (Table 3.1c)**

Deliv. No	Deliverable name	WP No	Lead Part. Short Name	Type	Dissemination level	Delivery date
1.1	Consortium Agreement	1	FV-Helsinki	R	CO	M1
1.2	Project handbook	1	FV-Helsinki	R	CO	M2
2.1	Coordination document and joint procurement agreement	2	Digipolis	R	CO	M3
2.2	Acceptance Criteria and Procedures	2	Digipolis	R	PU	M3
2.3	Tender Documents	2	Digipolis	R	PU	M3
7.1	Communications Plan	7	21C Consultancy	R	CO	M3
2.4	Roadmap for the	2	Digipolis	R	CO	M4

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	market consultation					
2.5	Completed questionnaire(s) to conduct the market consultation and survey(s)	2	Digipolis	R	PU	M4
2.6	Published results of the market consultation	2	Digipolis	R	PU	M6
1.3	Periodic report	1	FV-Helsinki	R	CO	M6
7.2	Communication Materials	7	21C Consultancy	DEC	PU	M6
7.3	Communications Phase Transition Reports	7	21C Consultancy	R	PU	M6
3.1	Specific call documents, Phase 1	3	Stad Antwerpen	R	PU	M8
3.2	Selection Report, Phase 1	3	Digipolis	R	PU	M10
3.3	Evaluation Report, Phase 1	3	Digipolis	R	PU	M12
7.3	Communication Materials	7	21C Consultancy	R	PU	M12
4.1	Selection Report, Phase 2 (M13)	4	IMI	R	PU	M13
4.3	Evaluation criteria and metrics, Phase 2	4	Digipolis	R	PU	M16
7.4	Communication Materials	7	21C Consultancy	R	PU	M18
4.2	Report on prototyping phase	4	IMI	R	PU	M20
4.4	Evaluation Report Phase 2	4	Digipolis	R	PU	M20

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4.5	Report on Living Lab validation	4	iMinds	R	PU	M20
5.1	Selection Report Phase 3	5	Digipolis	R	PU	M21
5.2	Report on Piloting phase	5	iMinds	R	PU	M26
5.3	Report on Living Lab phase	5	iMinds	R	PU	M34
7.5	Communication Materials	7	21C Consultancy	R	PU	M32
6.1	Internal assessment report	6	ICUB	R	PU	M36
6.2	PCP process review report	6	ICUB	R	PU	M36
1.4	Final progress report	1	FV-Helsinki	R	CO	M36

List of milestones (Table 3.2a)

Milestone No	Milestone name	Related Work Package(s)	Estimated date	Means of verification
M1	PCP-process designed	WP2	M03	A clearly designed and understandable PCP process ready to be communicated
M2	Market consultation results published	WP2	M06	Publication of the market consultation
M3	PCP Phase 1 completed	WP3	M12	Funding of selected concepts
M4	PCP Phase 2 completed	WP4	M20	Funding of selected prototypes
M5	PCP Phase 3 completed	WP5	M32	Funding of selected pilots and living labs
M6	Final review and recommendations published	WP6	M36	Publication of final recommendations

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3.2 Management structure and decision making procedures

3.2.1 Organisational structure

An effective project management system is crucial for the successful implementation of a multinational project such as SELECT for Cities. The proposed management system provides for effective decision-making, clear external communication and consultation with the project officer, operational internal communication, and effective administrative and technical control of the project. Experience (from respective FP7 projects coordinated before by the members of the consortium) has shown that the most suitable organisational structure for effective and efficient management of PCP cofund projects is the one shown in the next figure.

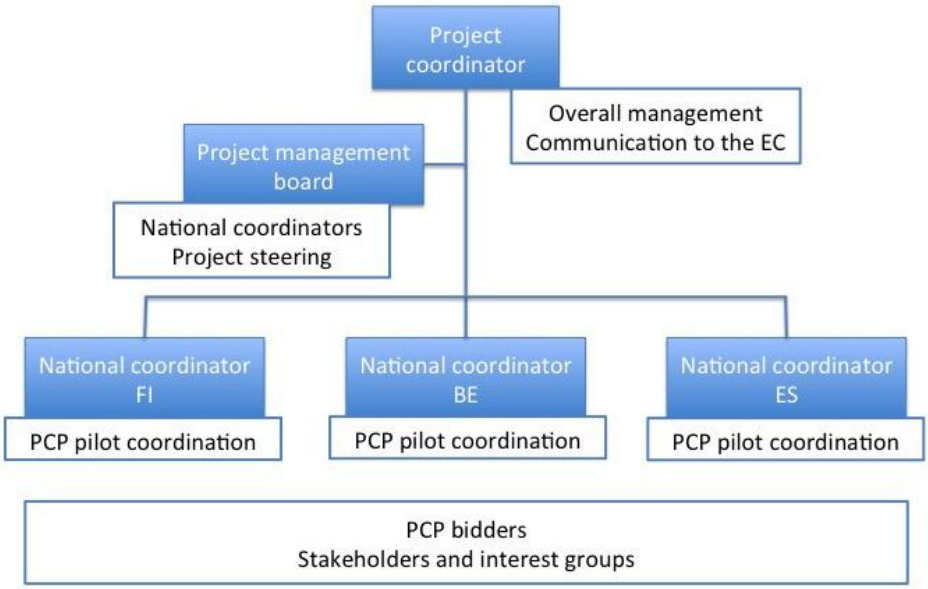

Figure 8 Organisational structure SELECT for Cities

The project will be managed by the Coordination Unit (FV-Helsinki) who will have the overall responsibility for the technical, financial, and administrative and dissemination aspects of the project. The day-to-day work will be led by the Work-Package Leaders.

The project's management and administration will be provided by the following roles and bodies:

Project Manager: The project will be co-ordinated by Forum Virium Helsinki (FV-Helsinki), which will also supply administrative management. FV-Helsinki will provide a Project Manager with relevant experience in managing projects, and will act as the sole point of contact between the Commission and the partners for normal purposes. The Project Manager will be responsible for: (a) overall co-ordination of the project execution and inter-partner co-operation, (b) supervision of deliverables preparation and submission, (c) organisation of project meetings and reviews, (d) distribution of notes, meeting agendas and minutes, (e)

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liaison among the Co-ordinator and Partners as well as the liaison between the Consortium and the EC representatives for any contractual matter.

In stage 1, Project Manager is also responsible for financial reporting and monitoring. The Project Manager will support the partners in the preparation of their financial statements and audit certificates (where applicable), check each partner's financial statement and detect possible excess of the budget and prepare the consolidated project financial statements.

Work-package Leaders: They will be responsible for the technical co-ordination and supervision of their work-packages, planning and control of necessary activities and preparation of deliverables, collecting contributions from other partners participating in the task. A work-package leader has been appointed for each work-package.

Deliverable Leaders: a leading partner will be appointed for the production of each deliverable. A Deliverable Leader is responsible for the development of a significant part of a deliverable (output, report, other) as well as the synthesis and quality control of inputs (if applicable) provided by other involved partners for a given deliverable. At the early stage of the project, the responsible person of each Deliverable Leader will be named per deliverable.

National coordinators: In order to simplify the basic structure of the project, we will have a core team comprised of a National Coordinator / Work Package leader for each of the participating countries. This core team will be responsible for the management of the project as a whole, tracking progress and resolving issues as necessary.

Lead procurer: Digipolis (Belgium) will be the lead procurer in SELECT for Cities. In the Research and Development Pilots, procurers will be the decision-makers. This means that all decisions concerning the R&D pilots - such as deciding: a) the specific challenge in the invitation to tender documents, b) which criteria and method to use for evaluating tenders, and c) which companies to awarding contracts and which companies to move into phase 2 and 3 etc. will be taken by the procurers in the consortia.
Each procurer will have an equal vote.

Non-procuring partners will have observing and consulting roles in the R&D pilots. They may participate and discuss in meetings on decision points in the pilots, but will not vote.
In addition, since this project will run a pan-European PCP call, it is highly likely that successful tenderers to the PCP call will come from countries which are not amongst the participants of this project. As a result careful consideration will be needed to determine how best to manage and track the development contracts that will need to be issued to those winning tenderers.

3.2.2 Decision making mechanism

There are two levels of decision-making relevant to this project:

Strategic decision-making: strategic decisions related to the project's contract, budget or significant changes in the work plan will be taken by the Management Committee (MC). The

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MC shall have the authority to: decide upon any reallocation of the project budget between partners or WPs, decide on any amendments in the Grant Agreement or Consortium Agreement, recommend to the EC the accession of a new partner or exclusion of a partner where deemed necessary for realisation of the project objectives, decide on procedures for external communication and visibility. All of the above-mentioned subjects require decisions to be taken unanimously (in which all partners are present or represented). If unanimity is not achieved, then the Project Manager has the power to bring the relevant issue again to a MC Meeting within a defined period and have a decision with the majority of 75 % of votes by all the parties present or represented. If urgent decisions are to be taken, so that it is not possible to convene a face-to-face MC meeting, decisions may be taken as follows: (i) meetings via teleconference or other telecommunications means (in that case decisions must be confirmed always), or (ii) written consent setting forth the decision to be taken, is signed and sent scanned or faxed to the Project Manager.

Non-strategic decision-making: non-strategic decisions that fall within the scope of the project's work-packages shall be taken by the designated Work Package Leader in consultation with the Project Manager and the partners represented in the given Work Package. On a day-to-day basis, the work of the project will be carried out within the defined work-packages. It is the responsibility of each Work-package leader to determine appropriate action plans for implementing the tasks foreseen in his/her work-package and taking relevant decisions (i.e. on the allocation of work, setting internal deadlines etc.), following consultation with the Project Manager where necessary. Work-package specific action plans will be developed at every plenary project meeting, as well as during appropriate intervals between meetings.

The frequency of these meetings will vary during the course of the project depending on the level of activity required at the time. For example, during the definition of the PCP call there is likely to be a high degree of coordination and agreement needed so the frequency of meetings will need to be high (weekly). At other points, for example whilst the call is open for tenders, there is a lower level of activity required and the frequency of plenary meetings will be reduced.

Conflict Resolution Procedures: The Project Manager will closely monitor potential conflicts among partners. Based on the Project Coordinator's experience, two main areas of conflict are likely: (a) diverging views on contractual and financial administrative procedures and (b) diverging views regarding project implementation and quality assurance.
Project partners, with the intervention of the Project Manager if necessary, shall try to settle conflicts at a daily management level. If no consensus is achieved the conflict will be resolved by the Management Committee. Pragmatic negotiation will be base of the conflict resolution approach. If consensus cannot be achieved, the Project Manager shall try to develop a compromised solution, which shall be open to vote to the Management Committee. Should an agreement prove impossible, the Project Manager will appoint an independent referee accepted by all partners whose judgment will be considered conclusive.

Quality Assurance & Control: the project's quality assurance and control mechanisms and procedures allow maximum flexibility while maintaining a clear distinction of roles and responsibilities of all partners involved. The process for Quality Assurance and Control of the project will be based on the following model: (a) control of data that are collected and analysis

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of each phase's requirements, (b) control of the required resources (materials, tools, software, human resources) and (c) control of the results in order to assess if the needs were met. Moreover, strict quality control procedures will apply in the development of deliverables, which are the 'concrete' outputs of the project. Based on the Project Co-ordinator's experience in previous projects, the following process is proven to be effective: the Deliverable Leader is responsible for proposing the general structure of the deliverables and assigning tasks to contributing partners (if applicable). The input from all contributors is gathered by the Deliverable Leader who is also responsible for ensuring the high quality of the deliverable. All deliverables will be **peer-reviewed internally** before being submitted to the EC. To this end, at the outset of the project, the Project Manager will develop a review plan for all deliverables (named reviewer from qualified project partner, per deliverable). The review process will be documented within the deliverables. Finally, all deliverables shall be approved and controlled by the Project Manager prior to their submission.

Reallocation of budgets and changes in partners: Should the need to reallocate budgets or modify the partners within the project arise, the process will be similar to that of conflict resolution. Firstly, the Project Manager will determine the course of action to take. This agreement will be presented to the Management Committee for approval. Should an agreement prove impossible, the Project Manager will appoint an independent referee accepted by all partners whose judgment will be considered conclusive. If the reallocation of budgets is significant, approval will be sought from the European Commission. Changes in partners will need approval by the Commission at all times.

Communication procedures: Since project partners are distributed across different countries, the communication, co-ordination and co-operation of the project team members will be supported by a collaboration platform. This platform will provide a digital work space to support the virtual communication and cooperation between project team members. Through this platform, users will have access to a wide range of tools and features necessary for the successful coordination of the team, such as e-mail, on-line forums, multimedia chat, calendar, message board, dynamic news board, document management etc. The platform will support the team to share project files, exchange and co-create files, share information, organise discussions and track tasks across members of the consortium.

Handling of IPR within the public purchasers: All the public purchasers who are active partners within the project, will have equal rights to the IPR developed within this project. These rights will be defined in detail within the contract that will be drawn up with R&D pilot companies.

Evaluation of PCP tenders: For the purposes of evaluating the PCP call tenders, independent experts will be hired as sub-contractors to ensure both an unbiased review and sufficient domain knowledge for the specific technology areas that are being proposed. These independent evaluators will be supplemented by the skills of the both the purchasers and the technology experts within the consortium. Decisions on the tenders will be taken by the procurers in the consortia, as described earlier.

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3.2.3 Appropriateness of organisational structure and decision mechanism to the complexity and scale of the project

The Consortium has identified a number of possible risks that may delay or prevent successful or timely achievement of the project objectives. The Consortium has the required capacity and experience to effectively mitigate these risks, which will be recorded and regularly monitored by the Project Manager. At this stage, the following **critical** risks are identified:

Critical risks for implementation (Table 3.2.b)

Description of risk	Risk-probability	Potential impact	Proposed risk-mitigation measures
Challenge			
Poor challenge – too narrow or too broad (few/none acceptable tenders)	Low	High	Sufficient time will be allowed for refining the challenge. The process will include industry consultation which will allow for adaptation if necessary to set the scope at a level where tender will come in.
Solutions already exist to chosen challenge	Low	High	Market scanning is included in the process in order to help inform the choice of challenge.
Different needs at purchasing organisations due to dissimilar development stage	Mid	Mid	The purchasers will be driving the choice in discussion amongst all of them. In this way it is expected that a suitable challenge for all parties can be specified. Should it not be possible to identify a single challenge it may be possible to run two smaller parallel challenges and/or seek other purchasers to join in funding.
No consensus on challenge description	Low	Mid	The purchasers will be driving the choice in discussion amongst all of them. In this way it is expected that a suitable challenge for all parties can be specified. Should it not be possible to identify a single challenge it may be possible to run two smaller parallel challenges and/or seek other purchasers to join in funding.
PCP process			
Failure to interest purchasing	Mid	Mid	Networking and dissemination activities are planned throughout the project.

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organisations outside of the consortia			
No consensus on which projects to finance	Low	Mid	A mechanism of scoring will be defined as part of the process definition. All partner purchasers, since they will be active in defining this mechanism, are expected to sign up to accept it.
Participating companies change priorities	Low	Low	Contracts will be created to include disincentives for termination and IPR clauses. If companies still pull out then alternative contractors may be sought.
Sever delays in the phases (too long time needed to develop solutions)	Mid	Mid	Contract payments are tied to delivery during the project. With portfolio approach then unlikely that all contracts will delay.
Poor results after phases	Mid	Mid	During development, procurers will take role of lead customer and so guide projects to deliver good results. If poor results are likely then contract can be terminated.
Complaints from tenderers related to PCP process	Mid	High	Evaluation criteria are clear and understandable, applied in transparent process. Appropriate legal support in the project.
Poor management of tenderers business information, secrecy	Low	Low	The invitation to tender will give clear information on how sensitive business information will be handled and the limits of secrecy legislation.
R&D Pilots & Resulting Solutions			
Poor quality assurance	Low	Mid	Verification and test series are included in the project. Contract management will include a need for companies to show their quality assurance methods. If poor Quality Assurance is still found then companies will be required to adapt or face contract termination
Differing national standards makes it	Mid	Mid	Test strategy covers input from procurers of each country and testing in local situation.

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hard to develop transnational solutions			Tailored solutions for different regions may be accepted
Change in industry and/ or market conditions makes resulting solutions redundant	Mid	Mid	Continue market review to monitor changing industry and market. If solutions are potentially becoming redundant then allow companies to adapt their offering or terminate.
Costs for new solutions too low ROI for purchasing organisations	Low	Low	Selection criteria will also include pay-back from delivery of projects, and continuous monitoring during R&D pilots.
Companies unable to scale-up and function as supplier	Mid	Mid	Commercialisation plans will be one criteria for evaluating tendering companies IPR agreement will include rights for the purchasers to require licensing of the IPR under fair terms.
Schedule			
Inaccurate estimates	Mid	Mid	Firm project management. Partners share viewpoints based on their experience. Schedule to be regularly reviewed and corrective actions taken as necessary.
Consortium			
Lack of commitment	Low	High	The partners demonstrate a long record of cooperation and commitment.
Conflicts among stakeholders	Low	Mid	The partners demonstrate a long record of cooperation and partners have decided how conflicts will be settled.
Partners pulling out (e.g. due to organisational change in partner)	Low	Mid	Consortium agreement will be signed before commencing the project. Should some partners choose to leave replacements will be sought
Resources			
Staff unavailability	Mid	Mid	Project plan will include schedule and effort plans for participating organisations. Should identified staff become unavailable then alternatives will be sought.

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Project manager cannot fulfil engagement	Low	Low	More than one person involved from coordinator organisation. Alternative will be sought if necessary.
Lack of vital know-how leads to acceptance of poor tenders	Low	High	Practical PCP know-how exists within the partners. Technological know-how will be connected to the evaluation process. Expert advice will be sought if necessary
Management			
Insufficient planning	Low	Mid	The project plan gives some flexibility. Project will be managed on a near time intensive approach so that the next phase is planned in detail.
No risk management	Low	Mid	Emerging risks will be continuously reviewed. Risk mitigation plans will be created.
Poor change management	Mid	Mid	Defined governance structure to make decisions.
Lack of communication	Low	High	The project approach include constant communication. Project governance has been defined to support country and international coordination.

3.3. Consortium as a whole

The consortium comprises a balanced combination of multidisciplinary partners that are able to collectively fulfil the ambitious objectives of SELECT for Cities. The consortium brings together 7 partners from 4 European countries: Finland, Spain, Belgium and the UK.

The consortium includes 3 large European cities, an expert communication company, together with research centres specialized in technology transfer towards the industry. This makes for a lean consortium that can react quickly to changes in the market, a critical aspect in the context of a PCP. The joint partners are complementary in their experience with European innovation trajectories and face a common challenge that needs to be addressed.

The consortium has been designed to match the skills and the effort required by the project, while enabling an efficient use of resources. Each partner has been chosen for its specific expertise. The tasks and work packages have been distributed in order to enable a jointly carried effort, while keeping attention to overall coordination and consistency. The operational

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objectives and tasks have been distributed among the partners in line with their specific expertise.

A further asset of the consortium towards exploitation of results is the experience and track record in living lab activities, including partners having years of experience by participating and taking roles in European living lab projects and networks (including the foundation of the European Network of Living Labs by iMinds and FV-Helsinki for example).

The consortium is overall **coordinated** by FV-Helsinki, which has a notable track record in coordinating numerous large European projects.

FV-Helsinki is a non-profit enterprise owned by the City of Helsinki and founded in 2006. As part of the City of Helsinki Group, FV-Helsinki is an innovation unit playing a key role in developing and implementing the Smart City and Open City strategies of the City of Helsinki. Helsinki has been recognised as one of the top six smart cities in the Europe in the 2014 European Parliament study "Mapping the European Smart Cities". FV-Helsinki implements the Helsinki smart city strategy in the new urban development projects, coordinating the development of the Kalasatama Smart City District and other initiatives.

ICUB is the Culture Institute of Barcelona established by the City Council of Barcelona in 1996, as the self-contained organism dedicated to carry out the municipal politics in culture, acting as a catalyst for culture in the city. More than 450 professionals work to lead the cultural project of the city. Since 2006 ICUB is a Public Business Entity Local (EPEL), a form of public authority provided by law that confers full legal capacity and self-management.

IMI is the Municipal Institute of Information Technology for the city of Barcelona. With the aim of improving public services for local citizens while boosting business competiveness, innovation and job creation, the Barcelona City Council is deploying smart city projects promoting public-private partnerships in fields such as transport, shopping, street lighting and environmental monitoring. The city has become a true urban lab for pilot services and real projects that translate into tangible benefits in the everyday life of citizens, making Barcelona more open, efficient and friendly.

Digipolis Antwerp has been the ICT-partner for the City of Antwerp for ten years collaborating on various ICT projects. Digipolis Antwerp is a governmental, but strictly non-commercial ICT organisation founded in 2003 to drive ICT solutions for the City of Antwerp, its Public Centre of Social Welfare, the local police, and other subsidiaries, all in all serving over 12,000 employees.

Stad Antwerpen is a thriving city situated in the North of Belgium and the biggest city in the Flemish region of Belgium, with a population of 512,000 (as of 1 January 2013) which represents around 8% of the total Flemish population. Before 2030, Antwerp expects a growth of ca. 100,000 more inhabitants. With regard to the management of European funded projects, Antwerp has extensive experience as project partner. Driven by the need to better adapt its communication and services to the needs, interests and behaviour of its users, the city of

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Antwerp aims to become one of the most innovative cities in Europe. The city administration should be a facilitating platform for city users (start-ups, SME's, citizens and visitors) to build on top of.

iMinds is the largest research centre on ICT in Belgium and is directly involved in smart city projects. It can bring a large-scale testing and experimentation environment in Antwerp to test and validate some of the developed solutions in this project with real end-users in a living lab setting: the City of Things Lab.

21c Consultancy is a specialist SME with an established track record in designing, delivering and promoting successful ICT innovation initiatives that generate multi-stakeholder engagement (business, public sector and academia) across multiple communication channels. The team has a long history of delivering a unique blend of deep domain expertise, academic writing experience, analytic skills and specialist PR/Marketing expertise to ensure successful communication of European projects in the technology domain to the full range of stakeholder audiences.

Several of these partners have experience working together in the context of European research projects already and are aligned with the common objectives regarding this call. With the presence of the three city administrations in the consortium, combined with the research and open call expertise present in FV-Helsinki and iMinds, complemented by the strong experience in communication on a pan-European level of 21c, this consortium can ensure broad communication about this PCP challenges, while offering the opportunity to test and validate the proposed solution in a living lab context, with real-life end users. This makes the bridge to an actual procurement trajectory much shorter and ensures cities end up with solutions that work and serve all their needs in very concrete ways.

3.4. Resources to be committed

Participant Number/ Short Name	Country	(a) Contribution from participant's own resources to the part of the PCP subcontracting costs cofunded by Horizon 2020 [€] (min d*30%)	(b) EU Contribution from Horizon 2020 [€] (max d*70%)	(c) Indicative possible additional Contribution cofunded by ESIF (including contribution from participant's own resources to the part of the PCP subcontracting costs cofunded by ESIF) (optional) [€]	(d) Minimum total jointly committed budget for payment of the PCP subcontracts = Maximum amount of subcontracting costs that can be eligible for co-funding by Horizon 2020 [€] (a + b)	(e) Maximum total jointly committed budget for payment of the PCP subcontracts [€] (a + b + c)
1/FV-Helsinki	FI	438000	1022000	0	1460000	1460000

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2/iMinds	BE	0	0	0	0	0
3/Digipolis	BE	438000	1022000	0	1460000	1460000
4/Stad Antwerpen	BE	0	0	0	0	0
5/21C Consultancy	UK	0	0	0	0	0
6/ICUB	ES	0	0	0	0	0
7/IMI	ES	306300	714700	0	1021000	1021000

Table 3.4b: Summary of staff effort of related additional coordination and networking activities

Participant Number/ Short Name	**WP1**	**WP2**	**WP3**	**WP4**	**WP5**	**WP6**	**WP7**	**Total Person-Months per participant**
1/FV-Helsinki	**17**	5	2.5	5	7	1	1	38.5
2/iMinds	1.5	2.5	0	5	**14**	1	0	24
3/Digipolis	1.5	**10**	6.5	7	6	1	1	33
4/Stad Antwerpen	1.5	3	**7**	5	7	0	0	23.5
5/21C Consultancy	1.5	1	0	0	0	0	**23**	25.5
6/ICUB	1.5	1	1	3.5	2	**4**	0	13
7/IMI	1.5	5	2.5	**9**	7	1	1	27
Total Person-Months per WP	26	27.5	19	34	44	8	26	**184.5**

Table 3.4c: Direct costs of 'subcontracting of related additional coordination and networking activities'

Participant Number/Short Name 1/FV-Helsinki	**Cost (€)**	**Justification**
Subcontracting of coordination and networking activity 1	2000	Legal expenses to assess the local PCP regulations

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Subcontracting of coordination and networking activity 2	3000	Audit for CFS
Total	2000	

Participant Number/Short Name 3/Digipolis	**Cost (€)**	**Justification**
Subcontracting of coordination and networking activity 1	2000	Legal expenses to assess the local PCP regulations
Subcontracting of coordination and networking activity 2	20000	Legal expenses to review the contracts
Subcontracting of coordination and networking activity 3	5000	External evaluators
Subcontracting of coordination and networking activity 4	3000	Audit for CFS
Total	30000	

Participant Number/Short Name 7/IMI	**Cost (€)**	**Justification**
Subcontracting of coordination and networking activity 1	2000	Legal expenses to assess the local PCP regulations
Subcontracting of coordination and networking activity 2	3000	Audit for CFS
Total	5000	

Table 3.4d: 'Other direct cost' items (travel, equipment, large research infrastructure, goods and services) of related additional coordination and networking activities

Participant	**Cost (€)**	**Justification**
Participant Number/Short Name 1/FV-Helsinki		
Travel	21600	
Equipment		
Other goods and services		
Total	21600	

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Participant Number/Short Name 2/iMinds		
Travel	8000	
Equipment		
Other goods and services		
Total	8000	
Participant Number/Short Name 3/Digipolis		
Travel	8000	
Equipment		
Other goods and services		
Total	8000	
Participant Number/Short Name 4/Stad Antwerpen		
Travel	8000	
Equipment		
Other goods and services		
Total	8000	
Participant Number/Short Name 5/21C Consulting		
Travel	10500	
Equipment		
Other goods and services		
Total	10500	
Participant Number/Short Name 6/ICUB		
Travel	6000	
Equipment		
Other goods and services		
Total	6000	
Participant Number/Short Name 7/IMI		
Travel	9000	
Equipment		
Other goods and services		
Total	9000	

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Horizon 2020, ICT-36

PCP cofund actions

SELECT for Cities

Standardized, opEn, data-driven, service-oriented & user-centric pLatform Enabling large-scale Co-creation, Testing & validation of IoE services for Cities

PART B Sections 4-5

List of participants

No	Participant organisation name	Short name	Country
1	Forum Virium Helsinki Oy (coordinator)	FV-Helsinki	FI
2	iMinds VZW	iMinds	BE
3	Digipolis OV	Digipolis	BE
4	Stad Antwerpen	Stad Antwerpen	BE
5	21C Consultancy Limited	21C Consultancy	UK
6	Institut de Cultura de Barcelona	ICUB	ES
7	Institut Municipal d'Informatica de Barcelona	IMI	ES

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4. Members of the consortium

4.1 Participants (applicants)

Partner Full Name	Forum Virium Helsinki Oy	Official Logo	FORUM VIRIUM HELSINKI

General description
Forum Virium Helsinki (FV-Helsinki) is a non-profit enterprise owned by the City of Helsinki and founded in 2006. As part of the City of Helsinki Group, FV-Helsinki is an innovation unit playing a key role in developing and implementing the Smart City and Open City strategies of the City of Helsinki. Helsinki has been recognised as one of the top six smart cities in the Europe in the 2014 European Parliament study "Mapping the European Smart Cities". Helsinki is among the ten fastest growing metropolitan areas in Europe. FV-Helsinki implements the Helsinki smart city strategy in the new urban development projects, coordinating the development of the Kalasatama Smart City District and other initiatives. FV-Helsinki is a contracting authority as defined in the public procurement directive for public authorities (2004/18/EC), representing and coordinating the various procuring departments and other organisations of the City of Helsinki Group (such as HELEN, Helsinki Energy Ltd.) in Smart City topics. This coordination action is important since the Smart City procuring activities are distributed among the various departments of the city organisation. FV-Helsinki is strongly involved in the European smart city development, advocating the open approach as the winning method to achieve the single European market place for smart city solutions. Forum Virium drives three commitments in the EIP Smart Cities and Communities: CitySDK; 6Aika Six City Strategy - Open And Smart Services; and Smart Kalasatama. FV-Helsinki has a long track record in European projects. It is the coordinator of the 6Aika – Open and Smart Services strategy of the six largest cities of Finland (ERDF, 110 MIO), business model WP leader in FINEST (H2020 Widespread), partner in EMPOWER (smart mobility, H2020), WP leader in SILVER (FP7 PCP), CreateFI (FI PPP accelerator) and D-CENT (FP7) projects. It has coordinated the CitySDK (ICT PSP) with excellent reviews. FV-Helsinki is the founding member of ENoLL - European Network of Living Labs, founding member of the Connected Smart Cities network and Open & Agile Smart Cities initiative, member of the EIT ICT Labs, and member of the EBN (European Business Network). FV-Helsinki also has a great connections European smart city SME's, built through the open calls of CreatiFi, ACE (FP7) and GET (FP7) projects, Apps4Europe competition (FP7) and FV Growth Coaching, which has since 2006 boosted international growth of 30 - 50 companies each year.
Key personnel
Mr. Jarmo Eskelinen (male) is the CEO and founder of Forum Virium Helsinki. His background is in architecture (Helsinki University of Technology) and he has an eMBA degree (Aalto University). Mr Eskelinen has over 19 years of experience in leadership positions in areas of smart cities, RDI in digital services, user-driven innovation, media and creative industries. He is the President of the European

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Network of Living Labs (ENoLL) and vice-chair of the Open and Agile Smart Cities initiative, and is involved in numerous EU projects, such as: 6Aika Open and Smart Services strategy of the six largest Finnish cities (ERDF, 110 M€; initiator, proposal coordinator and current board member); FINEST Helsinki – Estonia Smart City Centre of Excellence (H2020); SILVER (FP7 PCP); CitySDK (CIP) and SEiSMiC (FP7, advisory group). Previously Mr. Eskelinen was the director of Media Centre Lume of the Aalto University, managing the RDI and procurement activities of the centre.

Sari Luostarinen (female) (MA, University of Tampere, Administrative Sciences) is leading the 6Aika – Open and Smart Services strategy for the six largest Finnish cities, with special emphasis on open innovation environments and strategic procurement. She is an expert in pre-commercial procurement and strategic procurement with ten years of experience from the field: she has worked as the Director of Public Procurement of Innovations in Talent Vectia consultancy, as a consultant in Ramboll consulting, and as the development manager of strategic procurement in the City of Tampere. She has coordinated the FV-Helsinki activities in the SILVER project (FP7), which is one of the first European PCP projects.

Veera Mustonen (female) (MA, Cognitive Science, University of Helsinki; doctoral student, Aalto University) is Head of Smart Kalasatama program in Helsinki, in charge of the large-scale smart city project portfolio and the Helsinki Living Lab activities. She has worked for Forum Virium since 2013. Ms. Mustonen has 18 years work background in various expert and leadership roles of which 15 years in the ICT industry. Particularly well she knows telecom industry and mobility having worked 10 years in Nokia, latest as a senior manager of the smartphones portfolio planning. Ms. Mustonen has also worked as eLearning Manager for SanomaWSOY, senior researcher for National Consumer Research centre and in many research and user experience related manager roles.

Mr. Roope Ritvos (male) holds a MA in New Media and IDBM (International Design Business Management) degrees from the University of Art & Design (currently Aalto University). He is Forum Virium Helsinki's Development Director of strategic project development. Previously he was the Program Director of the Ubiquitous Computing Centre of Expertise in Culminatum Innovation Ltd, responsible for the smart city and mobile health areas. His prior work experiences include a COO position of a game design company and Director of IT Administration of UIAH. He has certifications for Prince2 project management, ISO 9000 lead auditing and ISO 20000 internal auditing.

Relevant publications and/ or products, services or other achievements

City Service Development Kit (CitySDK) is a smart city toolbox consisting of open and replicable interfaces and standardised data models for citizen feedback, point of interest information and linked urban data. It was developed in a joint project between the cities of Helsinki, Amsterdam, Barcelona, Istanbul, Lamia, Lisbon and Manchester, and is currently being implemented in Finland across several cities. The first version of CitySDK was developed in a European CIP project. (http://www.citysdk.eu/)

Helsinki Region Infoshare (HRI) is an Open Data Clearing House platform & process, granting developers access to open data of the Greater Helsinki region. Over 1200 datasets are available in HRI. FV-Helsinki was the initiator and coordinator of the project in 2010 – 2013, and in 2014 HRI became a permanent service of the Helsinki Region. HRI Clearing house specifications have been published in public domain (open data, open source), and it is currently being used also in the open data activities of the cities of Tampere, Turku and Oulu. (http://www.hri.fi/2years/)

Open and Agile Smart Cities

31 cities from Finland, Denmark, Belgium, Portugal, Italy, Spain and Brazil have been the first to join the 'Open & Agile Smart Cities' initiative, targeted to accelerate the adoption of common standards and principles that will transform cities into engines of growth and innovation. More than 100 cities are expected to join in the coming year. Cities adopt open-licensed standard API (implemented in FIWARE) to

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gather, publish, query and subscribe context-based, real-time information; define standard open data models based on CitySDK; and build interoperable open data catalogues on CKAN. CEO Jarmo Eskelinen of FV-Helsinki is the vice-chair of the OASC initiative.

Membership and roles of relevance:

European Business Incubator Network EBN

EBN is a network of around 150 quality-certified EU|BICs (business and innovation centres) and 100 other organisations that support the development and growth of innovative entrepreneurs, start-ups and SMEs. EBN is also a community of professionals whose day-to-day work helps these businesses to grow in the most effective, efficient and sustainable way. FVH is an associate member of EBN, participating in networking activities, joint events and joint projects. These network will provide a optimal platform to engage Smart City service providers in the development of the Smart City procurement targets.

European Network of Living Labs ENoLL

FVH is a founding member of ENoLL, the international federation of benchmarked Living Labs in Europe and worldwide. FVH CEO Jarmo Eskelinen is the current President of the network. Living Labs are real-life test and experimentation environments, where users and producers co-create innovations. Living Labs can be used in all stages of the innovation process, from ideation to testing the final product. Founded in November 2006, ENoLL network has grown in seven 'waves' into an International community of over 370 Living Labs. ENoLL network is a great too to reach out to developers and SME's working with cities.

Previous projects

SILVER (Supporting Independent LiVing for the Elderly through Robotics, EU FP7) searches for new technologies to assist elderly people in their everyday lives. The new technologies and solutions are sought by using a Pre-Commercial Procurement (PCP) process. As one of the first European PCP projects, one of the aims of this project is to demonstrate the effectiveness of PCP to address societal and governmental needs. Forum Virium Helsinki is responsible for the national coordination in Finland, European dissemination activities, and the development of the generic PCP process. The project is currently on-going, 2012-2016 (www.silverpcp.eu).

FinEst Twins (Helsinki – Estonia Smart City Centre of Excellence, H2020 Widespread) will be the first cross border Smart City solutions and demo lab in the world, located in Tallinn but operating in Helsinki metropolitan region and the whole of Estonia. It will develop scalable innovative urban services, attracting international expertise and investments. As a hub, FinEst CoE will be capable of combining scientific knowledge, innovation capacity and entrepreneurship of all relevant actors on both sides of the Finnish Gulf. In the first phase, which is currently under preparation, FinEst CoE focuses on three main areas of Smart Cities: Smart Living, Smart Mobility and Smart Energy.

Kalasatama Smart City, Helsinki's smart city district, is being built into a world-class model district of smart urban development and services. The area grows through agile piloting and the use of open data. Smart Kalasatama grows from the collaboration between the city, companies and residents. The aim is to inspire residential participation and create new business and innovations. Forum Virium is responsible for the development and integration of public eServices. The planned scale of the smart city program is in the range of 25 M€ (http://fiksukalasatama.fi).

6Aika Six City Strategy - Open and smart services is a strategy for sustainable urban development carried out by the six largest cities in Finland: Helsinki, Espoo, Vantaa, Tampere, Turku and Oulu, and initiated and coordinated by Forum Virium Helsinki. The objective of the 7-year strategy is to improve urban services and competitiveness by activating the whole urban community as a partner in urban development. Three forus areas are open innovation platforms, open data and interfaces, and open participation. The cities are seen platforms, which allow active participation of companies and urban communities in service development and delivery. 6Aika Six City Strategy is part of the Finland's structural fund programme for sustainable growth and jobs 2014–2020, and operates with the budget of 110 M€.

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CreatiFI (FI PPP, FP7) leverages the Future Internet for the Creative Industries by addressing key challenges for ICT creative entrepreneurs in Europe. Four hubs in Brussels, Barcelona, Helsinki, and Trento will provide business and technical guidance to SMEs and entrepreneurs. CreatiFI offers dissemination and networking based on the ICT and Creative Industry ecosystems, and innovation support for Future Internet technology enablers. Forum Virium is responsible for the SME engagement, Living Lab validation, entrepreneurial support, and dissemination. CreatiFi is currently on-going, until 2016.

Smart Urban Spaces, a joint European project involving nine cities from Finland, France and Spain, created new mobile services that aim to make urban living easier. Pilot projects in the Helsinki Metropolitan area ranged over three different thematic areas: traffic, tourism and events and kindergartens. Embedding NFC enabled services in the urban environment was tested for both tourists' and city inhabitants' services. FV-Helsinki was responsible for the Helsinki pilots (www.smarturbanspaces.org).

Infrastructure

Helsinki Living Lab, operated by Forum Virium Helsinki, is one of the first living labs in Europe, and a founding member of ENoLL (The European Network of Living Labs). A living lab is a real-life open innovation environment bringing together all relevant stakeholders: companies, researchers, the public sector and citizens. Helsinki Living Lab is currently focusing on developing the living lab operations of the Smart Kalasatama district. Helsinki Living Lab process integrates user-centred research and open innovation, following the classic living lab path from co-creation (technology push and application pull) to exploration (user community engagement), experimentation (urban labs) and evaluation (measuring the outcomes and disseminating the results).

FV-HELSINKI database and **alumni communication network** online environment holds currently with 230 member organisations. Through this network FV-HELSINKI disseminates current information and trends on open data, design, interfaces and innovation. It also organises events, and activates companies and other stakeholders for various type of pilot activities.

Partner Full Name	**iMinds VZW**	**Official Logo**	iMinds

General description

iMinds is an independent research institute founded by the Flemish government to stimulate ICT innovation. The institute brings together companies, authorities, and non-profit organizations to join forces on research projects. iMinds unites more than 1000 researchers from numerous Flemish universities and knowledge centres.

iMinds-iLab.o is Europe's leading Living Lab with more than 40.000 users and more than 15 full-time staff members. We are involved in numerous European research projects such as Apollon, BEMES, Concord, EPIC, Citadel, SPECIFI, etc. Our core competence is on the operational side of living labs and innovation management. Over the years, we have developed a track record in successfully managing innovations in business networks on a variety of levels: living lab deployment, user research, business modelling, value network analysis, and knowledge-based collaborative innovation. iMinds iLab.o's expertise spans a number of domains or verticals: smart cities, health, manufacturing, media, and the broader Future Internet. We also house the secretariat of the European Network of Living Labs (ENoLL), providing a gateway to Europe for our extended partner network.

iMinds-SMIT (Studies on Media, Information and Telecommunications) was founded at the department of Communication Sciences in 1990 and currently consists of over 75 researchers, of which more than 10 are

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PhD students. Since its start, iMinds-SMIT has delivered over 20 PhDs, over 750 scientific publications and has an annual turnover of €4,5 million. SMIT has built up an extensive track record in the development of value networks, business model scenarios, market impact assessment and open innovation in a wide range of sectors (such as digital media, health, cities, cultures & arts and so on). The group has published widely on these topics and recently the concept of Smart Cities and IoT have included in the Strategic Research Agenda of the group.

iMinds is managing the creation and development of City of Things, an urban living lab in Antwerp relying on an Internet of Things infrastructure and a large user base of more than 200.000 users throughout Flanders. City of Things, a strategic partnership between iMinds, the City of Antwerp, and Mobile Vikings, serves as a service innovation and experimentation support infrastructure for start-ups, SMEs, cities, and researchers in retail technology and other domains. City of Things is conceived as a service layer on top of existing and emerging startup incubation and acceleration initiatives in Antwerp such as Startup Village, iMinds iStart, Start-it KBC, and FI-WARE. At the core of City of Things is the merging of collective intelligence and peer production on one hand, and Big Data and sensor infrastructures on the other, with the goal of supporting bottom-up mobile service innovation processes in urban environments.

Key personnel

Nils Walravens (male) Nils started working as a researcher for iMinds-SMIT in August of 2007. iMinds-SMIT is the Centre for Studies on Media, Information and Telecommunication at the Vrije Universiteit Brussel and a member of iMinds. Nils' main expertise is in the field of business modelling research in both the mobile and media industries and he has been involved in short-running consultancy assignments, national iMinds-projects and European-level FP6 and FP7 Integrated Projects. He has experience in the mobile services domain, on high definition television and digital television business aspects, digital news and e-reading, and *platformisation* in the media and mobile industry. In 2014, Nils finished a 4-year Prospective Research for Brussels project, funded by Innoviris and the Brussels Capital Region. The aim of the project was to define policy recommendations related to business models and platformisation of Smart Cities mobile city services, in the context of the ever-evolving mobile sector. As one of the practical results of this research, Nils is now involved in setting up the City of Things Lab in Antwerp, the largest urban experimentation and IoT living lab infrastructure in Europe.

Davor Meersman (male) Davor heads the City of Things lab at iMinds, Flanders' ICT research institute that groups 850+ researchers from all 5 Flemish universities. He is currently involved in Service Science and Internet of Things initiatives with a focus on (mobile) service and platform innovation in the context of Smart Cities and Creative Industries. He is an Ambassador of the International Society of Service Innovation Professionals (http://www.issip.org), founding member of IFIP Working Group 12.7 on Social Network Semantics and Collective Intelligence, and steering and programme committee member of various conferences such as HSSE, ACIS, IESS and ODBASE.

Prof. Pieter Ballon (male) Pieter is director of iMinds iLab.o, the lab and expert centre for open innovation in ICT, based in Flanders, Belgium. He is also leader of the Media, Market and Innovation research group at IMINDS-SMIT, Vrije Universiteit Brussel. Formerly, he was senior consultant and team leader at TNO (the Netherlands). Pieter holds a PhD in Communication Sciences and an MA in History. He specialises in business modelling, open and user-centric innovation, and the mobile telecommunications industry. He has been involved in numerous national and international R&D projects in this field, and has published widely on these topics.

Relevant publications and/ or products, services or other achievements

iMinds-iLab.o has developed Panelkit, a Software as a Service platform for managing and supporting Living Labs and the projects therein. The platform allows its users to create and manage one or more Living Labs, within which one or more projects can be managed. Within these projects Living Labs

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personnel can interact with panels of test-users. Data about these interactions is harvested, aggregated and made available via elaborate and user-friendly querying functionalities.

A selection of relevant or high-impact publications in the areas of smart city platform business models and urban mobile app strategies is listed here:

Walravens, N. (2015) "Mobile City Applications for Brussels Citizens: Smart City Trends, Challenges and a Reality Check", Telematics & Informatics, 32, 2, pp. 282-299, ISBN-ISSN: 0736-5853.

Walravens, N., Breuer, J. & P. Ballon (2014) "Open Data as a Catalyst For The Smart City as a Local Innovation Platform", Communications and Strategies, Special Issue: Smart City, N°96, ISBN-ISSN: 1157-8637.

Walravens, N. (2014) "The Smart City as a Service Platform: Identification and Validation of City Platform Roles in Mobile Service Provision", in: Wei, J. (ed.) Mobile Electronic Commerce: Foundations, Development and Applications, Taylor & Francis, pp. 417-450, ISBN: 978-1-466-59090-8

Walravens, N. & P. Ballon (2013) "Platform Business Models for Smart Cities: From Control and Value to Governance and Public Value", IEEE Communications Magazine, 51, 6, June, pp. 2-9, ISBN-ISSN: 0163-6804, Impact factor: 3.661.

Walravens, N. (2012) "Mobile Business and the Smart City: Developing a Business Model Framework to Include Public Design Parameters for Mobile City Services", Journal of Theoretical and Applied Electronic Commerce Research: Special Issue on Smart Applications for Smart Cities – New Approaches to Innovation, 7, 3 (December), Universidad de Talca, pp. 121-135, ISBN-ISSN: 0718-1876.

Previous projects

Over the years, iMinds has systematized a lot of the operations of living labs. Part of this effort comprises of the development of a Software-as-a-Service platform for managing and supporting Living Labs. The platform allows its users to create and manage one or more Living Labs, within which one or more projects can be managed. At the core of the platform are test user and feedback management functionalities. The panel management and Living Lab supporting software has been validated in numerous national and European research projects and proven its very practical use.

The iMinds-SMIT research group, which is part if iMinds and based at the Free University of Brussels has been recognized in (inter)national research projects for its work on business model research.

Project name	Project type	How is the project related/different
EPIC	CIP	The EPIC project built a European platform for smart cities. It involved intensive living lab testing in a technology-heavy and data- rich urban setting.
SPECIFI	CIP	Trialing of Future Internet technologies for boosting the creative industries in cities in Europe. Underpins the Creative Ring and the CreatiFI FIWARE Accelerator.
CreatiFI	FI-PPP	FIWARE Accelerator project of which the SMEs will be introduced to the COMBUST platform via CityOfThings. iLab.o = Project Coordinator
FInish	FI-PPP	FIWARE Accelerator project of which the SMEs will be introduced to the COMBUST platform via CityOfThings iLab.o = Open Call Coordinator
FI-C3	FI-PPP	FIWARE Accelerator project of which the SMEs will be introduced to the COMBUST platform via CityOfThings iLab.o = Open Call Coordinator

Infrastructure

City of Things is a flagship initiative for iLab.o and iMinds that will provide startups and SMEs in Flanders with easily accessible data-driven innovation and experimentation support, contributing to the

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lowering of innovation failure rates and mitigating innovation risks. City of Things will be Europe's Largest Urban Infrastructure for Data-Driven Mobile Service Experimentation and Innovation:

- Largest: 200k users, no such numbers elsewhere. From lean co-creation to representative samples, and both.
- Urban: city as nexus of innovation offering both people and infrastructure density
- Infrastructure: physical sensor, data processing, and work infrastructure in Antwerp
- Data-Driven: combining large-scale sensor data and user data for high-impact innovation that drastically reduces uncertainty: "Making Data+Users Transform Innovation in the same way Evidence has Transformed Medicine"
- Mobile Services: clear scope of services that can be consumed using mobile devices and technologies
- Experimentation: Sandbox and data infra for start-ups and researchers to test new ideas
- Innovation: Methodological, practical, and financial support and advice on new products, services, and business models.

This initiative is part of a strategic co-operation agreement between iMinds, MVNO Mobile Vikings and the City of Antwerp. Test users for any type of new mobile or location-based service or product can be selected from the Mobile Vikings community (208.000 members). From past projects we know that response rates on user surveys surpass 30%, which is exceptional in these types of Living Lab tests. Test panel and online focus groups can be selected based on the profile of the users and the objectives of the project. Participants can a.o. be rewarded in the form of Viking points or other community rewards.

Partner Full Name	**Digipolis**	**Official Logo**	

General description
Digipolis is the joint IT-organisation of the cities of Antwerp and Ghent (BE). It was founded as a public organization (inter municipal cooperation) in 2003, by the two city councils, together with the social welfare centers of the cities: the IT-departments of the four organizations were joined into one legal entity. In later years, a number of subsidiary organizations of the founding members also joined Digipolis: in Antwerp the care organization, the municipal education organization, the child care organization and the urban development organization in Ghent the urban development organization. The activities of Digipolis cover a broad domain of ICT: acquisition and exploitation of the cities' ICT-infrastructure (networks, servers, storage, telephony, workstations, mobile devices, printing,…), acquisition and development of user applications, business analysis, training, end user support, … The total Digipolis-budget for 2015 is approximately 110 M€. The Antwerp-share is 75 M€. Digipolis counts 439 internal employees, from which 300 are commissioned by the municipal organizations in Antwerp (status 28 Feb 2015). In order to attract specific expertises, and to be an organisation with high flexibility, Digipolis also frequently appeals to external collaborators. The ratio external-internal is about 1-3. Digipolis has a comprehensive track record in innovation through European projects: participation in 30+ international projects, from which several times in the role of co-ordinating partner. Digipolis has won prestigious international challenges in the IT-domain, such as the worldwide Global Bangemann

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Challenge.

Digipolis works closely together with IT-organisations of national, regional and local public authorities in Belgium: the IT-organisations of the federal government (FEDICT), the Flemish region government (AIV), the IT-departments of the main cities in the Flanders, the association of IT-professionals of local authorities (V-ICT-OR), the association of Flemish cities and municipalities (VVSG).

Digipolis, as the IT-representative of the city of Antwerp, was co-founder of Telecities (now known as the Knowledge Society Forum of the Eurocities-association).

Key personnel

Greet Brosens , female

Greet Brosens is Business Analyst & Solution Architect for Digipolis. With a broad IT background and several years of commercial experience, she combines technical understanding with the ability to communicate and think in the language of the client. She has an intermediary and advisory role between the City of Antwerp, Digipolis and the technology market. During the last 2 years she worked from that perspective on requirement analysis, solution design, architecture, business cases, future visions and procurement trajectories at Digipolis. She has been working in the IT sector since 2005, taking up different IT-consultancy and commercial roles for two major private companies, Sogeti and HP.

Greet is a Master in Sociology (K.U.Leuven, Belgium) and worked as a researcher for the same university in the research group Sociology for Social Policy, before she switched her career to IT.

Nicolas Uzelac, male

Nico(las) is as Team Leader and high-level Solution Architect at Digipolis Antwerp.

He started in IT back in 1994 as a Software Engineer, but quickly moved into the systems management discipline. At IBM, he worked for many years at customer premises, as an IT Specialist, evolving over the years into an IT Architect role. In 2003, he got Open Group Certified as an IT Architect and moved into a pre sales role. He got appointed as Technical Team Leader which gave him the opportunity to coach a team and share his customer experiences, relying on a pragmatic style, using open honest communication and straight talk. In 2009, he became manager of a pre sales team at IBM Software Group. In 2011, he started at Hitachi Data System, leveraging his pre sales, managerial and architectural skills. And, in 2013 he joined Digipolis. Nico(las) has a master's degree in Electronics Engineering (option System Design).

Ann Fournier, female

Ann Fournier is employed bij Digipolis since 2005. She is Procurement Officer since then with a broad and wide knowledge of the Public Procurement Rules. Before 2005 Ann build up a purchasing experience within Siemens of 5 years. Purchasing of a wide product-range of telecom-components and establishing Strategic Procurement in Belgium was one of her achievements.

From 1999 she was Proces Engineer at Siemens Atea- Herentals.

Has a master's degree in Electromechanical Engineering.

Karin Goedheid, female

Karin Goedheid is employed by Digipolis since 1998. Previously working as a business analyst and as a competence manager. Currently working in the procurement department as the start-up coordinator and as the business and education liaison.

Has a master's degree in Linguistics and Literature and in Business Administration (Vrije Universiteit Brussel).

Paul Van der Cruyssen, male

° 1954

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Doctor in applied mathematics
1979 - 1983: Researcher at Antwerp University
1983 - 1988: IT-Project leader
1988 - 1995: Leader of software-development department (30 developers)
1995 - present:
Coordinator for regional, national and European co-operation and partnerships
Co-responsible for overall functional enterprise architecture
Co-author of IT-strategy documents

Relevant publications and/ or products

Digipolis manages the complete IT-platform of the city of Antwerp (wired and wireless networks, servers, storage, workstations, mobile devices, applications, mail servers, websites, databases, middleware such as an enterprise service bus, etc…), including services such as helpdesk, problem solving, project management, etc… Digipolis has the ability to facilitate and support end-to-end IT-solutions for the city.

Previous projects

A-Stad (= Dutch for A-City, which phonetically means also 'Your City')
Driven by the need to better adapt its communication and services to the needs, interests and behaviour of its users, the City of Antwerp and Digipolis stated a brave ambition in 2013: each user should have easy digital access to the city, in the most personalized and relevant way - to get informed, to apply for services, to get inspired or to get in conversation - where, when and how he/she wants. The user can count on a qualitative digital experience in line with international standards and trends. A central component of the platform is the user profile. This is the users digital identity, his/her personal key to the full functionality of the platform. And in order to allow for every citizen of Antwerp to benefit from this evolution, the city makes additional efforts in the domain of e-inclusion.

The first version of this platform has been realised successfully and is in operation. On a functional level it is user centric, with a strong personalisation, centralising all contact with the user into one place, shifting the city communication (one-sided) to conversation (two-sided) and aiming at transparency, trust and continuous improvement. On a technical level it is built with modern and open source technology, it has a responsive design and a modular and open architecture. In addition to the extensive number of datasets already offered by the City of Antwerp as open data, the platform will allow to offer open services in the form of open API's, some of which have already been developed.

Infrastructure

Digipolis manages the complete IT infrastructure of the City of Antwerp. Some examples (Antwerp only):
> 10.000 work places (with desktop/laptop and telephone solution)
> 2.500 mobile devices
> 20.000 mailboxes
2 datacenters with over 650 servers
Fibre network throughout the city of over 75 km
> 2.500 WiFi access points
Through the strategic partnership between the city of Antwerp, iMinds and the telecom company Mobile Vikings, this internal IT-infrastructure for the city is complemented by the mobile devices of 200.00 inhabitants of the city.

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Partner Full Name	Stad Antwerpen	Official Logo	

General description
City of Antwerp (local government – public/not-for-profit organization) is a thriving city situated in the North of Belgium. It is the biggest city in the Flemish region of Belgium, with a population of 512,000 (as of 1 January 2013) which represents around 8% of the total Flemish population. Before 2030, Antwerp expects a growth of ca. 100,000 more inhabitants. With regard to the management of European funded projects, Antwerp has an extensive experience as project partner. On top of that Antwerp has successfully coordinated an Interreg 2 Seas project in the previous programming period. Powered by creative minds: Thanks to its young and highly educated population, Antwerp is an ideal breeding ground for start-ups and spin-offs, with IT, design, fashion, advertising and architecture as its largest creative sectors. What's more, the city council offers every innovative and creative business idea all the support it needs. The result: In 2011, Antwerp boasted nearly 8,000 creative companies — that's about one in six of the city's total number of companies! — employing no fewer than 17,000 people in 2013.
Key personnel
Evert Bulcke, male Project manager Startup City. Building a startup ecosystem at City of Antwerp by focusing on activating potential entrepreneurs (students and professionals), forging partnerships with private incubators, facilitating in housing, offering free digital components, and providing a business network to startups. Responsible for activating startups to work on SELECT for Cities. A background in marketing, advertising, project management and digital transformation. Has a master's degree in Communication and Media studies (KU Leuven BE) and a CPA in Business (Columbia University NY). **Kristien De Wachter**, female Works for the digital concept team. Building a bridge between the technical team that builds aOS (Digipolis) and the employees of City of Antwerp. Making sure that everyone has the same vision and works for the same goal, concerning Antwerp digital. A background in design, project management, marketing, advertising. Master's degree in Product Development
Relevant publications and/ or products
City of Antwerp has a strong believe in open data, open SDK's, and has set this as a standard for all the digital developments still to come, confirmed by an city board decision in 2013. City of Antwerp has been organizing "Apps for Antwerp" , a yearly event to enhance SME's, start-ups, students to develop apps for the city, build on open data, open SDK's , API's provided by the city.
Previous projects
A-Stad (= Dutch for A-City, which phonetically means also 'Your City') (for the description of the project, see the Digipolis-sheet)

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Infrastructure
The IT-infrastructure of the City of Antwerp is managed by Digipolis. See the Digipolis-sheet for more details.

Partner Full Name	*21C Consultancy Limited*	Official Logo	21c consultancy

General description
21c is an SME with an established track record in designing, delivering and promoting successful ICT innovation initiatives that generate multi-stakeholder engagement (business, public sector and academia) across multiple communication channels. The team advises institutions and governments around the world – including the United Nations and the European Commission – on the way in which technology can be communicated and used to improve public services, enhance citizen engagement and deliver more efficient and effective government. 21c specialises in providing every functional aspect of user requirement and stakeholder engagement consultancy. We regularly work on a collaborative model with subject matter experts from throughout the ICT innovation world to create and deploy user friendly ICT solutions. Blending ICT and communications expertise, our team draft White Papers and Policy Briefings, organise workshops, conferences and exhibits and promote ICT projects, initiatives and publications. Few other firms combines 21c's unique blend of depict domain expertise, academic writing credentials, analytic skills and specialist PR/Marketing expertise. 21 Consultancy will leverage its international public relations, networking and marketing skills together with its extensive experience in European projects to coordinate and fuel the intense communication and dissemination effort that COLLISION will put in place in order to valorise the project knowledge and its technological assets. In addition, 21C will play a crucial role in helping turning research outputs into easily understandable and intuitive publications suitable for the general public as well as in the production of testimonial videos. 21C will act as COLLISION interface with international press and media agencies.
Key personnel
Dr. Julia Glidden (Female): Dr Julia Glidden is an internationally recognised expert on public sector innovation and a former Senior Vice President at Fleishman Hillard, one of the world's largest communications firms. Julia completed her D.Phil. in International Relations at Oxford University, and has extensive experience helping public sector organisations, European Commission funded projects and Fortune 500 companies promote and market themselves. Throughout her career, she has trained and coached numerous senior executives and leaders for high profile media appearances on programmes ranging from CNBC's Power Lunch through to BBC News 24 and Bloomberg News. Julia has successfully generated positive news coverage for clients in outlets ranging from The Financial Times and USA Today through to the South China Morning Post. She is an expert advisor on the United Nations on its 2104 eGoverment Readiness Index and member of the Horizon2020 Advisory Group for Societal Challenge 6 'Europe in a Changing World – Inclusive, Innovative and Reflective Societies.' Julia is regularly asked to speak on public sector innovation at forums around the world. **Susie Ruston (Female):** Susie is a founding partner of 21c consultancy. With over twelve years' experience in the creation and delivery of ICT Innovation projects, Susie began her career during the

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dotcom era with Election.Com where she helped to make history through the delivery of the world's first legally binding online public elections. A qualified Prince2 and MSP practioneer, Susie has helped to develop, write, win and deliver multi-million Euro ICT initiatives throughout the UK and Europe. Her most recent wins include helping Tata Consultancy secure a framework contract under Europe's largest ICT procurement and the United Arab Emirates secure its strongest showing ever in the United Nations Public Service Awards. Susie has studied and assessed a wide variety of government programmes and policies across Europe, and has written and edited specialist papers and journals for organisations ranging from the European Commission and Council of Europe through to CLG, BECTA and Yorkshire Forward.

Relevant publications and/ or products

Benjamin Cave, Jonathan Cave, Julia Glidden, et. al. *Optimising ICT: Putting the IC into 'Policy'. Strategic analysis for optimising the role of ICT in EU policy delivery* (2013)

Julia Glidden, Susie Ruston et.al. 'Puzzled by Policy: Helping You be part of the EU' 5th International conference on eParticipation, 17-19 September 2013 Koblenz, Germany

Julia Glidden, Susie Ruston et.al. 'Citadel on the Move: Open Data...Unlocking Cross Border Innovation,' One Conference in Prague, April 2013

Ballon, Pieter, Glidden, Julia, Kranas, Pavlos, Menychtas, Andreas, Ruston, Susie, Van Der Graaf, Shenja. (2011) 'Is there a Need for a Cloud Platform for European Smart Cities?', eChallenges e-2011 Conference.

Burt, Alastair, Oldfield, Stuart and Ruston, Susie (2007) 'From Customer Relationship Management to Citizen Interaction Platform,' White Paper: www.carmenproject.org

Previous projects

ECIM: Cloud of Public Services – Cloud Marketplace for Smart City Mobility Mervices

OpenTransportNet: Open Data Experimentation and Innovation – Geospatial Data Hubs for the Transport Sector

Citadel on the Move: Open Innovation for Internet-Enabled Services in 'Smart cities' – Opening government data to enable citizen-generated mobile apps

EPIC: Smart Cities - Smart City Platform Combining Cloud Computing and the Internet of Things – using the cloud to deliver citizen-generated services across Europe

OurSpace: eParticipation – online engagement platform for youth debate across Europe

Infrastructure

Partner Full Name	***Institut de Cultura de Barcelona***	**Official Logo**	Ajuntament de Barcelona

General description

The City Council of Barcelona established, in 1996 the Culture Institute of Barcelona known as ICUB, as the selfcontent organism dedicated to carry out the municipal politics in culture, acting as a catalyst for culture in the city. More than 450 professionals work to lead the cultural project of the city. Since 2006 ICUB is a Public Business Entity Local (EPEL), a form of public authority provided by law that confers full legal capacity and self-management.

From July 2011 ICUB has created new directions, including the Direction of Creativity and Innovation to promote policies that support the scientific, technological culture and digital culture. To promote activities in the different areas of culture, that work in creative content, in order to strengthen the creative industries

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as an engine of economic and social progress. Support and promote the creation of the city clusters in sectors related to cultural industries. To promote lines of support for the creation of cultural enterprises and entrepreneurs. To take advantage of the opportunity that Barcelona will have in the next years, as the Mobile World Capital driving new innovation and creative entrepreneurship in the city. To promote technological innovation to the different cultural equipments as well as information management systems and culture, to improve the quality and accessibility. This Direction is set with the aim to coordinate and promote the community of artists, researchers, scientists, technologists, entrepreneurs and citizens interested in innovation and entrepreneurship related with culture and ICT.

During 2012, one of main project from the Direction of Creativity and innovation, BarcelonaLab, has been recognized by the European Network of Living Lab, as a Living Lab. BarcelonaLab initiative with more than 150 stakeholders from universities, research centres, public institutions, companies and associations, has as its main goal to create an open-innovation ecosystem for co-creation combining traditional arts, science and technology with impact in the whole city.

Key personnel

Inés Garriga, (female) is the Director of Creativity and Innovation at the Institute of Culture of Barcelona. She is also professor and tutor of graduate Innovation audiovisual content creation at the Open University of Catalonia. From mid 2008 to mid 2011 was co-director of Talent Factory of Barcelona and director of the Foundation's Digital Private development of innovation projects in business convergence between ICT and content sector, audiovisual sector, creative and leisure sector. She has worked in the centre of research in computational linguistics named CLIC in the Science Park of the University of Barcelona coordinating innovative projects in the area of Computational Linguistics in the publishing industry and others. She has worked for the Foundation CIREM in the coordination of work cultures dialogue within the Forum Barcelona 2004. From 2004 until June 2008 he assumed the coordination cluster Foundation i2Cat broadcasting, Internet and Digital Innovation in Catalonia, where he coordinated all audiovisual and cultural innovation projects on Internet 2, experimental networks and other advanced technologies. She was also founder, actress and head of production of different theatre groups and audiovisual content.

Joan Batlle (male) is assistant director at the Directorate of Creativity and Innovation of the Institute of Culture of Barcelona. With the responsibility of launching Barcelona Lab. He is also Member of the City Innovation Commission and Member of the Smart City board in the Barcelona City Council.
Member of the Smart Cities and Communities Stakeholders Platform and member of the DG-Connect Internet of Things Experts Group. Deputy Chair of the Portfolio of the Smart City Projects (DG-Connect) and Deputy Chair of the Connected Smart Cities Network. He is the contact point and LEAR for the European Commission co-funded projects on R+D+i in the City Council of Barcelona and has been Project Coordinator of HOPS (FP6) and iCITY (CIP).

For more than 15 years, he has been the Head of International Cooperation on e-Government and Innovation of the Barcelona City Council. He has a degree on Physical Sciences from Barcelona University (UB), Postgraduate Diploma on Information Technology Auditory, Master Degree on Management of the Information Technologies, Master Degree on Digital Content and Currently working in a PhD in Advanced Public Services in Smart Cities in Barcelona University. For near 15 years, Mr.Batlle has been the responsible for the City Council involvement in international networks related with ICT, e-Government and Smart City. He chaired de eGovernment Work-Group and co-chaired the Smart City Work-Group of the EUROCITES network. During last years Mr.Batlle managed the “European Local e-Government Bench-learning” survey and, the “Key success factors on eServices adoption” report. He is co-author of the “e-Government City Models: cases from European Cities” book and published several papers related with e-Government and ICT innovation in public administrations. He also has an outstanding track record in managing and participating in a significant number of successful European projects targeted towards R&D and innovation in e-Government and associated fields.

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Previous projects
Barcelona Lab (http://www.barcelonalab.cat/ca/) Barcelona Lab is the flagship project to execute the innovation and creativity policies. Barcelona Lab, created in early 2012, aims at being at the centre of the urban innovation ecosystem helping the creation of an open space for co-creation combining traditional arts, science and technology. Barcelona Lab is a Living Lab of second generation, recognized by the European Network of Living Lab that groups more than 150 stakeholders from universities, research centres, public institutions, companies and associations. It acts at city level and impacts the whole city maximizing the use of cultural equipments and culture festivals, as well as city data, infrastructures and information systems. It constitutes a real urban innovation hub for Barcelona connecting communities of artists, researchers, scientists, technologists, entrepreneurs and citizens, and using the city assets as enablers of urban and social innovation to co-create new art productions, new public services and cultural works. In last two years, Barcelona Lab has promote several projects created from its communities at the same time that has established the needed ecosystem for co-creation between the stakeholders of the quadruple helix. **Apps & Cultura (http://appscultura.hackathome.com)** Apps & Cultura is a competition, promoted by the Direction of Creativity and Innovation of the Municipality of Barcelona, that propose the utilization of mobile applications for giving a new push to the culture of the city in all its aspects: Traditional arts, but also scientific and technologist cultures. Apps & Cultura gives the proper tools for creating an application that makes easier the access to the culture and gives support to the artistic talent of the City of Barcelona. **Participation in the SPECIFI project (http://specifi.eu)** Trialing of Future Internet technologies for boosting the creative industries in cities in Europe. Underpins the Creative Ring and the CreatiFI FIWARE Accelerator. **Participation in the CreatiFI FIWARE Accelerator Project.** FI-WARE accelerator project dedicated specifically to foster the use of IT in the Creative Industries, where ICUB has the role to coordinate the Barcelona CreatiFI Hub engaging and supporting the development of their projects. **Support some of the projects/initiatives of the City that promotes creativity and innovation through arts, science and technology:** Main projects and/or initiatives, that has been promoted by the Direction of Creativity and Innovation in order to catalyse and increase the community related to the innovation ecosystem are, between others: Big Data Week (http://bigdataweek.com) P2P Conference Barcelona (http://p2pfoundation.net/Sharing_Commons_Spring_Barcelona_March_2013) Cosmonauta (http://www.elcosmonauta.es/blog/?p=1242) Biz Barcelona (http://www.bizbarcelona.com) Minimiba (http://www.mibamuseum.com/en/minimiba) Co-Working Spain Conference (http://www.coworkingspain.es/magazine/noticias/nota-de-prensa-coworking-spain-conference-2013) Cult Hunting Day (http://www.culthunting.com) E-Sports Barcelona (http://electronicsports.es/previa-final-cup-5-en-bo2/) IMAGINE Silicon Valley (http://siliconvalley.imagine.cc/2013/) Music Hack Day (http://new.musichackday.org) Mobile World Congress (http://www.mobileworldcongress.com)

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BCN Robotics meeting (http://www.fundacioneducabot.org)
World Space Week (http://www.worldspaceweek.org/wsw/index.php)
Barcelona Design Week (http://www.barcelonadesignweek.com/ca/page.asp?id=495)

Infrastructure

Barcelona Lab is the flagship project to execute the innovation and creativity policies. It was created in early 2012. It aims at being at the centre of the urban innovation ecosystem helping the creation of an open space for co-creation combining traditional arts, science and technology. Barcelona Lab is a Living Lab of second generation, recognized by the European Network of Living Lab that groups more than 150 stakeholders from universities, research centres, public institutions, companies and associations. It acts at city level and impacts the whole city maximizing the use of cultural equipments and culture festivals, as well as city data, infrastructures and information systems. It constitutes a real urban innovation hub for Barcelona connecting communities of artists, researchers, scientists, technologists, entrepreneurs and citizens, and using the city assets as enablers of urban and social innovation to co-create new art productions, new public services and cultural works.

Partner Full Name	**Municipal Institute of Information Technology**	**Official Logo**	Ajuntament de Barcelona

General description

Barcelona, with more than 1.600.000 inhabitants, is the largest business city on the Mediterranean coast and the core of a metropolitan area that leads one of the longest industrial traditions in continental Europe. The city is among the top positions in the most prestigious international rankings that, in the recent years, have located it within the first five cities in such different areas as quality of life, commercial attractiveness, social and cultural dimension, urban development, fashion, tourism destination... Moreover, Barcelona has been awarded by numerous titles such as the European Capital of Volunteering, or the European Capital of Innovation, in 2014.

With its 9 highly prestigious universities (4 of them positioned as International campus of excellence) and 2 of the best European business schools (ranking 2013), Barcelona enjoys a well-trained human capital that promotes innovation and creativity in domains such as information and communication technology (ICT), media, biotechnology and life sciences, energy, design, sustainable mobility, aeronautics and agro-food. The Barcelona City Council encourages strategic initiatives that generate international collaboration and promote a global and forward-looking vision to businesses and public bodies, as well as scientific and technological facilities and centres. In this sense, Barcelona, that leads European rankings of Smart phone penetration among mobile phone users, currently hosts the annual Mobile World Congress, an appointment that has stimulated numerous public and private initiatives for mobile technology development and has turned Barcelona into a real Mobile World Hub.

Barcelona, city of culture, knowledge, creativity, innovation and wellbeing, is a pioneer in the global quest of becoming a Smart city reference. With the aim of improving public services for local citizens while boosting business competiveness, innovation and job creation, the Barcelona City Council is deploying smart city projects promoting public-private partnerships in fields such as transport, shopping, street lighting and environmental monitoring. The city has become a true urban lab for pilot services and real projects that translate into tangible benefits in the everyday life of citizens, making Barcelona more open, efficient and friendly.

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Key personnel
Mr. Pere Comas Guerri (male) is the IT Architect of Institut Municipal d'informàtica. He is in charge of the management and design of the different computing standards and architecture rules to improve the internal computing systems of Barcelona City Council. He has been responsible of the conceptualization of the Smart Cities ICT Architecture of Barcelona. He is now mainly involved in the projects CITY OS and Smart Viewerproject that are part of this architecture. **Ms. Júlia López Ventura** (female) is coordinator of Smart City strategies in the Barcelona City Council since October 2012. She holds an MSc in Telecom engineering and is pursuing a Master's degree in Sociology. Her personal interests are focused on studying how the application of new technologies can affect the life in the city, especially following the evolution of Intelligent and Smart City projects all around the world, and applying this knowledge to the coordination of Smart City projects in the city of Barcelona. Since September 2008 she served as European projects manager, having a wide international experience in managing tech-enabled pan-European projects, especially in funding identification, proposal preparation and project development. During this period she also participated and organised several networking activities at national and international level, such as EUROCITIES Knowledge Society Forum and Major Cities of Europe.
Relevant publications and/ or products
NA.
Previous projects
CitySDK (CIP, 2012-2014, leaded by Radio- ja televisiotekniikan tutkimus RTT OY, 23 partners). Transfer of Smart City applications from one city to another city is challenging. There is a lack of unified backend technologies, lack of innovative end-user services, and no unified markets beyond single cities. CitySDK works to overcome these obstacles. It aims to create a Smart City Application Ecosystem through large-scale demand-driven CityPilots that package and align key smart city application areas to an open source service developer toolkit. **DC4CITIES (FP7, 2013-2016, leaded by Freemind Consulting, 10 partners).** DC4Cities will find the adequate actions to run a data centre so as to adapt to external energy constraints and consume the minimal energy, targeting the 80% usage of renewable energy sources. The goal of DC4Cities is to make existing and new data centres energy adaptive, without requiring any modification to the logistics, and without impacting the quality of the services provided to their users. Finally new energy metrics, benchmarks, and measurement methodologies will be developed and proposed for the definition of new related standards. DC4Cities will promote the data centres role as an "eco-friendly" key player in the Smart Cities energy policies, and will foster the integration of a network of local renewable energy providers (also interconnected with local Smart Grids and Micro Grids) to support the pursued increase of renewable energy share. **iCity (FP7, 2012-2014, leaded by IMI, 9 partners).** The iCity project aims at making a step forward in the co-creation of services of public interest by third parties (developers, small and medium enterprises,...) that are pushing for their space as service providers in the urban spaces of Smart Cities. The project intends to develop and deploy an approach to allow these interested parties to create, deploy, operate and exploit services based in the use of available public information, digital assets and infrastructures in cities. This represents a shift in the governance of cities and the concept upon which traditional public service delivery has been based. **Cloudopting(CIP, 2014-2017, leaded by IMI, 11 partners).** Ownership and maintenance of a single platform is in these days an important cost, which not all the cities are now in a position to make the proper investment and consequently the increase of their debt. The current economic situation has led us to propose a brand new cross-national and cross-region way of thinking about service information and provision. The main objective of the project is to provide the regions and public authorities with the right

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tools to migrate their services to the cloud no matter how big or little they are. In this case we propose to have two different physical cloud nodes in Barcelona (Spain) and Turin in Piedmont region (Italy), with other two different logical deployment in Corby (UK) and Molise (Italy) regions. The regions and municipalities will provide the infrastructure as a Service (IaaS) and the Platform as a Service (PaaS) which can be transferred to other regions/ countries, to support Public authorities adopt the new Platform and Infrastructure to leverage Cloud computing services. **OpenDai (CIP, 2012-2014, leaded by CSI Piemonte, 11 partners).** Presently it is difficult to use (or re-use) the extensive wealth of information stored in the Public Administration data bases, even though it is widely recognized that such information can be helpful to face a wide range of social needs and promote innovation and business opportunities. Current information systems of PA's are based on monolithic architecture models that include all the application software levels (silos). This approach does not ensure any flexibility when new needs rise; in particular when the existing applications could be converted into basic services to mash up information, implementing new different applications. The Open-DAI project deals with the following main issues: the opening of the huge amount of data stored in PA databases to the wide audience of potential users; the evolution toward an open architecture model for the PA information systems in order to overcome the monolithic and closed architecture models (silos); to facilitate software maintenance of existing silos, enabling PA to pace the evolution of legacy systems with Open Data initiatives. Assessing the business benefits for both PA and private organizations by developing new third-party added value services, the project focuses on the following topics: transport and mobility, localization and geographic information, environment and pollution.
Infrastructure
The Barcelona's Smart City program began over thirty years ago when the city first installed fibre optic lines to connect two municipal buildings. Since that time the city has continued to develop its fibre optic network until now that Barcelona has more than 500 kilometres of fibre optic network. It was upon this initial network that current smart city efforts were established and in 2011 Barcelona started seeking to provide efficiently city services at multiple levels to all citizens based on the use of internet and telecommunications technology. Currently the model identifies twelve city areas under which smart city projects are initiated. Since three years ago the city has put extensive effort into developing an overall coordinated strategy and approach towards these main twelve city areas: Environmental; ITC; Mobility; Water; Energy; Matter (waste); Nature; Built Domain; Public Space; Open Government; Information Flows, and Services. Currently the city has 22 major programs that fit into one or more of these twelve areas

4.2. Third parties involved in the project (including use of third party resources)

No third parties involved.

5. Ethics and Security

Ethics

The main point pertaining to ethics is related to the pilot and living lab stages of this PCP project. Solution providers will need to take the following aspects pertaining to data and privacy protection into explicit account in their proposals. The project supports a privacy-by-design philosophy and

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will prevent any unwanted collection or use of personal data. No other ethical issues have been identified.

General principles and strategy to protect personal data protection

By default, the project will avoid and prevent any unnecessary collection and use of personal data.

According to article 2 of the Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, *"'personal data' shall mean any information relating to an identified or identifiable natural person ('data subject'); an identifiable person is one who can be identified, directly or indirectly, in particular by reference to an identification number or to one or more factors specific to his physical, physiological, mental, economic, cultural or social identity;"*

In case personal data would be nevertheless accessed, the project will strictly and fully comply with the European standards for personal data protections, including Directive 95/46/EC *on the protection of individuals with the regard to the processing of personal data and on the free movement of such data* (the "Directive"). Other provisions from the European regulation and practice will be taken into account, *where relevant*, for the proper achievement of the project's aims (like, *inter-alia*, the provisions of the European Directive 2002/58/*EC* ***concerning the processing of personal data and the protection of privacy in the electronic communications sector*** (the "ePrivacy Directive"). In addition, other essential guidelines affecting project's approach and/or realization are also to be considered like, the right to the protection of personal data as explicitly stated in Article 16 of the Treaty on the Functioning of the European Union (*this has given the EU new responsibilities to protect personal data in all areas of EU law, including police and judicial cooperation, and is to be considered by the project's approach as well*).

The proposed solutions will need to be designed and developed with a **"privacy by design" approach**. The privacy and personal data protection are parts of the platform requirements and impact the technologies used.

The project will comply with the principle of **data minimisation**, by limiting the collection and/or storage of sensitive data to the extent that it is necessary, and will not store data for a longer period than needed.

Data will be parsed and anonymized and personal identifiers will be either hashed or randomly generated. References to personal information will be deleted.

The project will abide to the **"Prior informed consent"** principle by providing clear and transparent information and by letting the users choose what information they want to provide for what purpose. The website will be fully transparent regarding the data processor and data controller. Participating end-users will be duly informed ahead of their acceptance to participate, on the personal data protection policy of the project. This information will be provided in a layered, readable and user friendly mode, and will be accessible at any time from the website. Proactive actions will be undertaken to guarantee that the users fully understand and give their consent to the data protection policy of the project. Users will be granted the right to opt-out from the project at any time, in a simple and effective way.

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Territoriality and normative scope

The project is to take place mainly in EU-member states and/or in associated countries with equivalent level of privacy protection. The data will be stored in secured servers in Europe and no personal data will be transferred abroad or stored in non-European based cloud infrastructure.

Moreover, the European personal data protection norms and the ethical standards and guidelines of Horizon2020 will be rigorously applied, regardless of the country in which are located the users. The project will voluntary and universally apply and respect the European norms and standards regardless of the territorial location of the users. The project will abide by all applicable and any future EU and national legislations, as well as by the relevant international guidelines and will be conducted in accordance with the Declaration of Helsinki.

Duration of data retention

All data collected by the platform will be collected on the principle of the prior informed consent. The project will differentiate four categories of data:

Non-personal data with no relation to any physical person. In the absence of any risk for personal data protection, such data can be stored as long as relevant for the research project and scientific audits.

Anonymized data are data voluntarily provided by users and processed into anonymized data, with no means (once anonymized) to identify the person behind such data. Such data will be considered as non-sensitive data moving out of the scope of "personal data" as defined by the directive Directive 95/46/EC *on the protection of individuals with the regard to the processing of personal data and on the free movement of such data*. In the absence of any risk for personal data protection, such data can be stored as long as relevant for the research project and scientific audits.

Data related to the users, such as identifier, password and optional email addresses will be stored as long as the user wants to use the application. The user will have the possibility at any time to delete or change his/her account.

Server logs collected for statistics and security reasons will be kept for 3 full years following the year of collection.

Specific provisions for minors of age

By default, the project will avoid any participation of children and minors of age.

The Project recognizes the vulnerability of children *[European Commission, "Ethics in Research and International Cooperation" Preamble. Ethical review in FP7. EC RDG September. 2009.]*, their special place in EU external actions *[Commission to the Council, et al., A Special Place for Children in EU External Action. Communication. (COM(2008) 55 final) 2008.]*, and the EU commitment to respect under international and European Treaties the UN Convention on the Rights of the Child (CRC) *[United Nations, Convention on the Rights of the Child (available at http://www2.ohchr.org/english/law/crc.htm) 1990]*.

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In case minor of age would be relevant for the research, strict provision would apply. Minor of age will only be included in the study and subject to the related actions if it is subject to the informed consent of the participant, and/or his guardian. In view of the possibility of such situations, the project will in particular consider Article 12 of the CRC when designing consent forms and seeking consent from participants who are children, and their parents, guardians or legal representatives. Beneficiaries shall assure to each participating child who is capable of forming her/his own view the right to express those views freely in all matters affecting her/him, and her/his views shall be given due weight in accordance with the age and maturity of the child.

The project recognizes that informed consent of parents or "legal representative" (the definition of "legal representative" is defined in accordance with the legislation of the host country) must be obtained, but also that when the child is able to give assent such assent should additionally be obtained. Moreover, in compliance with Article 12 of the CRC, a child's refusal to participate or to continue to participate will be acted upon and the child, if already in the study, will be immediately withdrawn and all data related to this child destroyed.

Copies of examples of Informed Consent Forms and Information Sheets will be delivered to EU. These must be in language and terms understandable to the participants. Participants must have, inter-alia, the right:

- To know that participation is voluntary;
- To ask questions and receive understandable answers before making a decision;
- To know the degree of risk and burden involved in participation;
- To know who will benefit from participation;
- To know the procedures that will be implemented in the case of incidental findings;
- To receive assurances that appropriate insurance cover is in place;
- To know how their data will be collected, protected during the project and either destroyed or reused at the end of the research; minors will be re-asked for their consent as soon as their reach legal majority
- To withdraw themselves and their data from the project at any time;
- To know of any potential commercial exploitation of the research;
- To know to which other countries personal data might be transferred.

Security

No particular issues pertaining to security are foreseen.

- activities or results raising security issues: (YES/**NO**)
- 'EU-classified information' as background or results: (YES/**NO**)

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European Commission

RESEARCH AND INNOVATION PARTICIPANT PORTAL E-RECEIPT

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