

The Smart City as a Local Innovation Platform



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WinVorm
24.10.2017, Kortrijk

2008 was a turning point

- More mobile than fixed broadband subscriptions
- More “things” than people connected to the internet
- More than 50% of the global population lives in urban areas

<http://www.telecompetitor.com/itu-finds-two-times-more-mobile-than-fixed-broadband-subscribers/>
<http://blogs.cisco.com/diversity/the-internet-of-things-infographic/>
<http://www.unfpa.org/pds/urbanization.htm>

FILE

Ring
Namur-Namen
Centre-Centrum
Communauté Européenne
Europese Gemeenschap

FILE



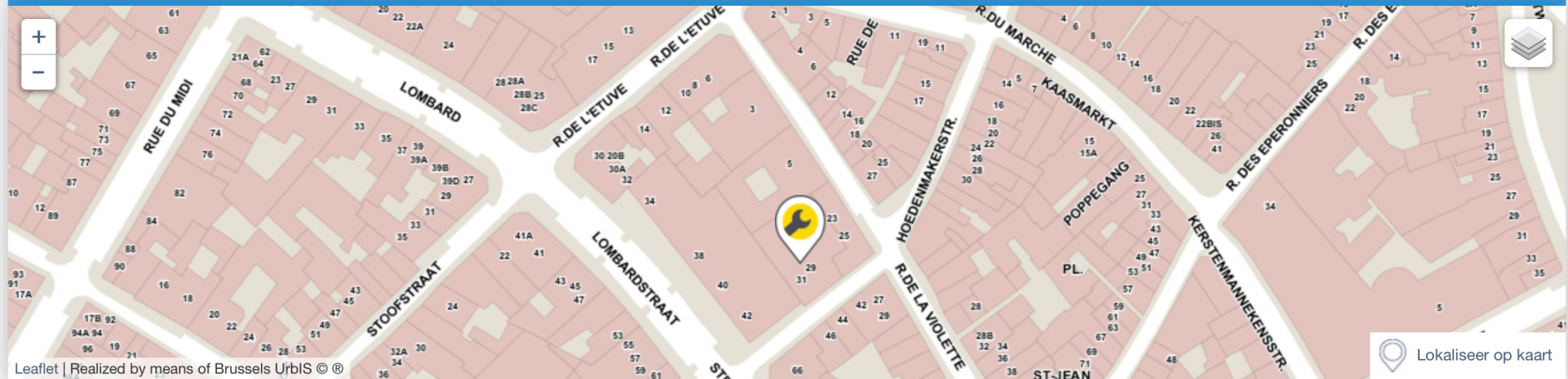
Een probleem melden

Alle meldingen bekijken



1 PLAATS — 2 BESCHRIJVING — 3 CONTACTGEGEVENS

! Is er een veiligheidsprobleem?



Lokaliseer op kaart

DE VOORBIJE 30 DAGEN



36
GEMELDE PROBLEMEN




302
PROBLEMEN IN BEHANDELING




176
AFGESLOTEN MELDINGEN

N° van de melding...

 N°023769
Rue Colonel Bourg, 115 à 1140 Evere
Rijweg / Wegdek : Beschadigd wegdek




 N°023768
Rue Colonel Bourg, 118B à 1140 Evere
Rijweg / Wegdek : Beschadigd wegdek



 N°023240
Balladegaarde, 14 à 1140 Evere
Rijweg / Wegdek : Put



 N°017022
Rogierlaan, 29 à 1030 Schaarbeek
Stoep / Wegdek : Verzakking



The Smart City?

“A city that *monitors and integrates* conditions of all of its critical infrastructures [...] can better *optimize* its resources, *plan* its preventive maintenance activities, and *monitor security* aspects while *maximizing services* to its citizens.”

(Hall, 2000)

“The *bias* lurking behind every large-scale smart city is a belief that *bottom-up complexity* can be bottled and put to use for top-down ends — that a *central* agency, with the right computer program, could one day *manage* and even *dictate* the *complex needs* of an actual city.”

(Lindsay, 2011)

The Smart City?

<p align="center">SMART ECONOMY (Competitiveness)</p>	<p align="center">SMART PEOPLE (Social and Human Capital)</p>	<p align="center">SMART GOVERNANCE (Participation)</p>
<ul style="list-style-type: none"> - Innovative spirit - Entrepreneurship - Economic image and trademarks - Productivity - Flexibility of labour market - International embeddedness - Ability to transform 	<ul style="list-style-type: none"> - Level of qualification - Affinity to life long learning - Social and ethnic plurality - Flexibility - Creativity - Cosmopolitanism/Open mindedness - Participation in public life 	<ul style="list-style-type: none"> - Participation in decision making - Public and local services - Transparent governance - Political strategies and perspectives
<p align="center">SMART MOBILITY (Transport and ICT)</p>	<p align="center">SMART ENVIRONMENT (Natural Resources)</p>	<p align="center">SMART LIVING (Quality of Life)</p>
<ul style="list-style-type: none"> - Local accessibility - <u>(Inter)national</u> accessibility - Availability of ICT-infrastructure - Sustainable, innovative and safe transport systems 	<ul style="list-style-type: none"> - Attractiveness of natural conditions - Pollution - Environmental protection - Sustainable resource management 	<ul style="list-style-type: none"> - Cultural facilities - Health conditions - Individual safety - Housing quality - Education facilities - Touristic attractiveness - Social cohesion

(Giffinger et al., 2007)

The Smart City?

*“We believe a city to be smart when **investments in human and social capital** and traditional (transport) and modern (ICT) communication **infrastructure** fuel sustainable **economic growth** and a **high quality of life**, with a wise management of natural **resources**, through participatory governance.”*

(Caragliu et al., 2009, p. 6)

The Smart City?

“a smart city is a well defined geographical area, in which high technologies such as ICT, logistic, energy production, and so on, cooperate to create benefits for citizens in terms of well being, inclusion and participation, environmental quality, intelligent development; it is governed by a well defined pool of subjects, able to state the rules and policy for the city government and development”

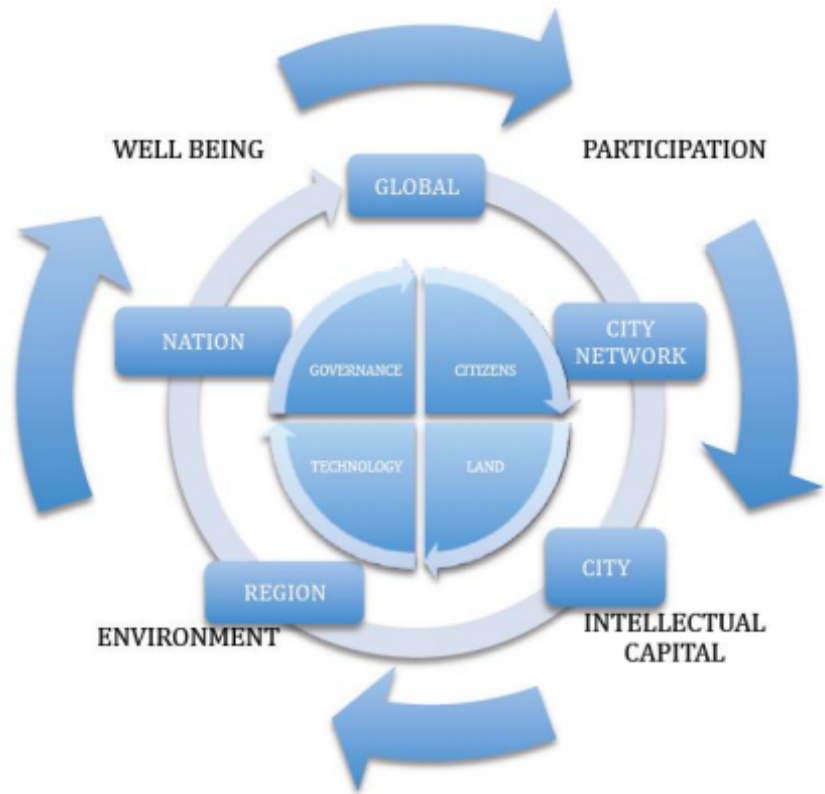


Fig 3: Smart city comprehensive schema

(Dameri, 2013)

The “Smart” Angle

- **tele-** (1980s)
 - Telecommunications, PCs
 - The death of distance between 2 physical points
- **e-** (1990s)
 - Web platforms
 - Moving from physical to virtual collective space
- **i-** (2000s)
 - Mobile technologies
 - Personalizing virtual space
- **smart-** (2010s)
 - IoT, wearables, cloud computing
 - Internet becomes contextual
 - Merging of virtual and physical space





What is going on?

What is going on?

2 general approaches

How do we meet in the middle?

What do we need?

The Control-Room



Top-down

- Important for Policy, Regulation, Governance and Business
 - Provides a level playing field, setting rules of the game
 - Strives for efficiency gains: sustainability
 - Heightens security & safety
 - + Economic potential

“I sleep better thanks to it. The worst thing is not having the information, to not have the tools to act. But we do now.”

Eduardo Paes, Mayor of Rio

Top-down

- Technological determinism
 - What is measured, and what is not?
 - Everything safe, but nothing private?
- Dictated by commercial interests
 - Interurban competition
 - Commodification of public space

Control may hinder or even diminish the potential for (scalable) innovation, inherent to cities

Bottom-up

- Smart Citizens
- Cities smart by nature
- Local innovation potential
- Improvement comes from the people who use it
 - Tactical Urbanism
- Or from those frustrated by it
 - Even turning it into profitable businesses

“The smartest cities are the ones that embrace openness, randomness, serendipity-everything that makes a city great.”

(Lindsay, 2011)



Brussels Bike Lanes Inc.

September 28

La police de la Ville de Bruxelles, connue pour son comportement exemplaire.
— with Els Ampe.

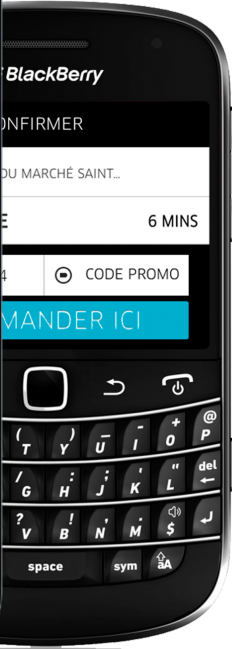
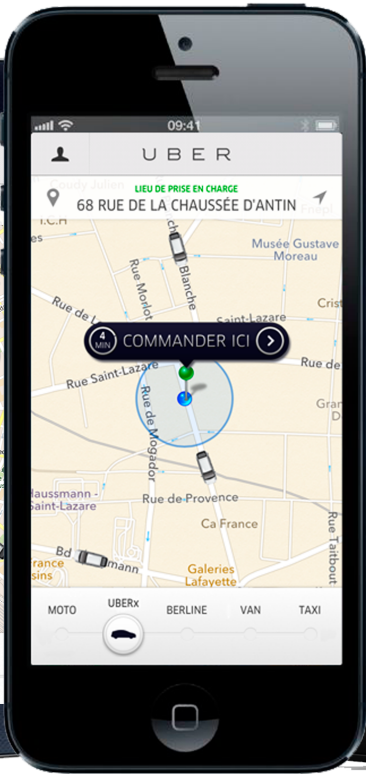
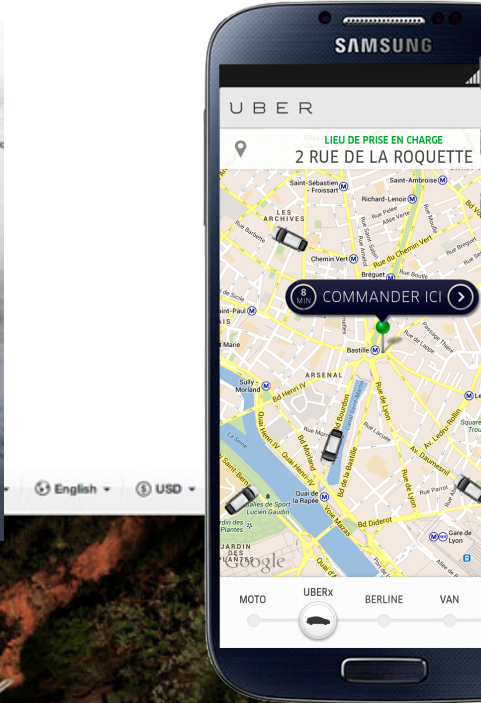


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↪ 2 Shares

👍 23 people like this.

Top Comments ▾



U B E R

Bottom-up

- Chaotic
 - Well-being of citizens depends on infrastructures as well as regulation, governance
 - Incompatible with/disruptive to global economy
- Lack of central vision, illegal

This approach entails issues on scalability, long-term vision and barriers and incentives to entry

Smart City as a Local Innovation Platform

“Change seldom arises from purely top-down or bottom-up systems and processes.” (Shepard & Simeti, 2013)



Local Innovation Platform

- Cities are shared resource & responsibility
- An enabling environment for all involved stakeholders
 - Collaboration
 - Local intelligence
 - Creativity of citizens, experts, civil society, academia, politicians, big and small businesses...
- Quadruple helix
- Technology as the **enabler**

Local Innovation Platform

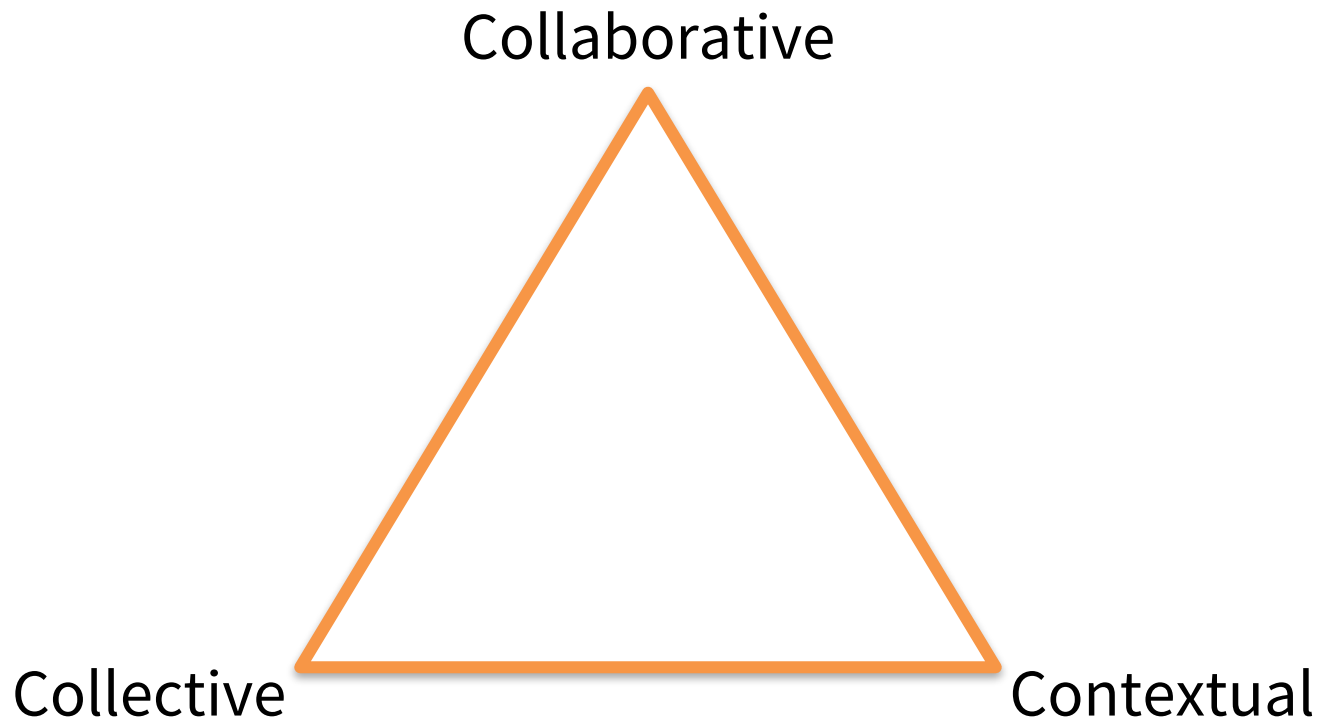
“No one has so far found a way to intelligently bring together the big technology platforms offered by global corporations, with local technology projects and the interests of citizens.”

(Shepard & Simeti, 2013)

- Open Data
- Open Innovation
- Co-Design
- Living Labs



Smart City as a Local Innovation Platform

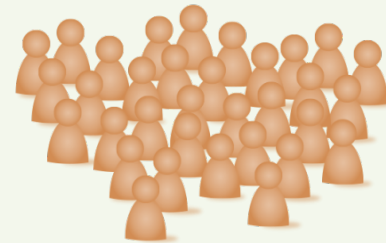


The imec.livinglabs definition

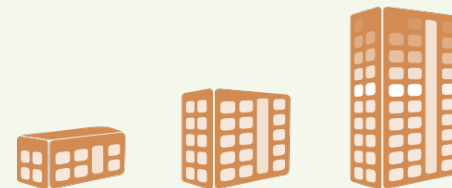
a **real-life** test and experimentation environment



where users and producers **co-create** innovations



in a trusted, open ecosystem that enables **business innovation**

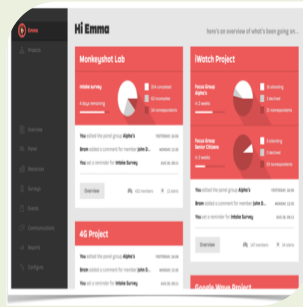


The imec.livinglabs enablers



Panel Management

We'll find and motivate your test-users



Living Lab Back-Office

We provide the right back-office tools for a living lab project – e.g. LLADA



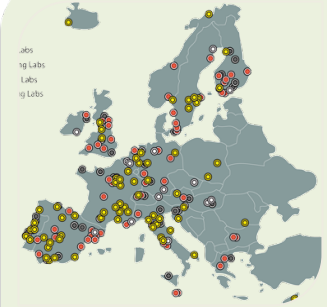
Prototyping & testing

We'll model a rough idea into a usable app for daily life and test it through



Simulate Your Business

Co-design of collaborative business model on the fly



European Network of Living Labs

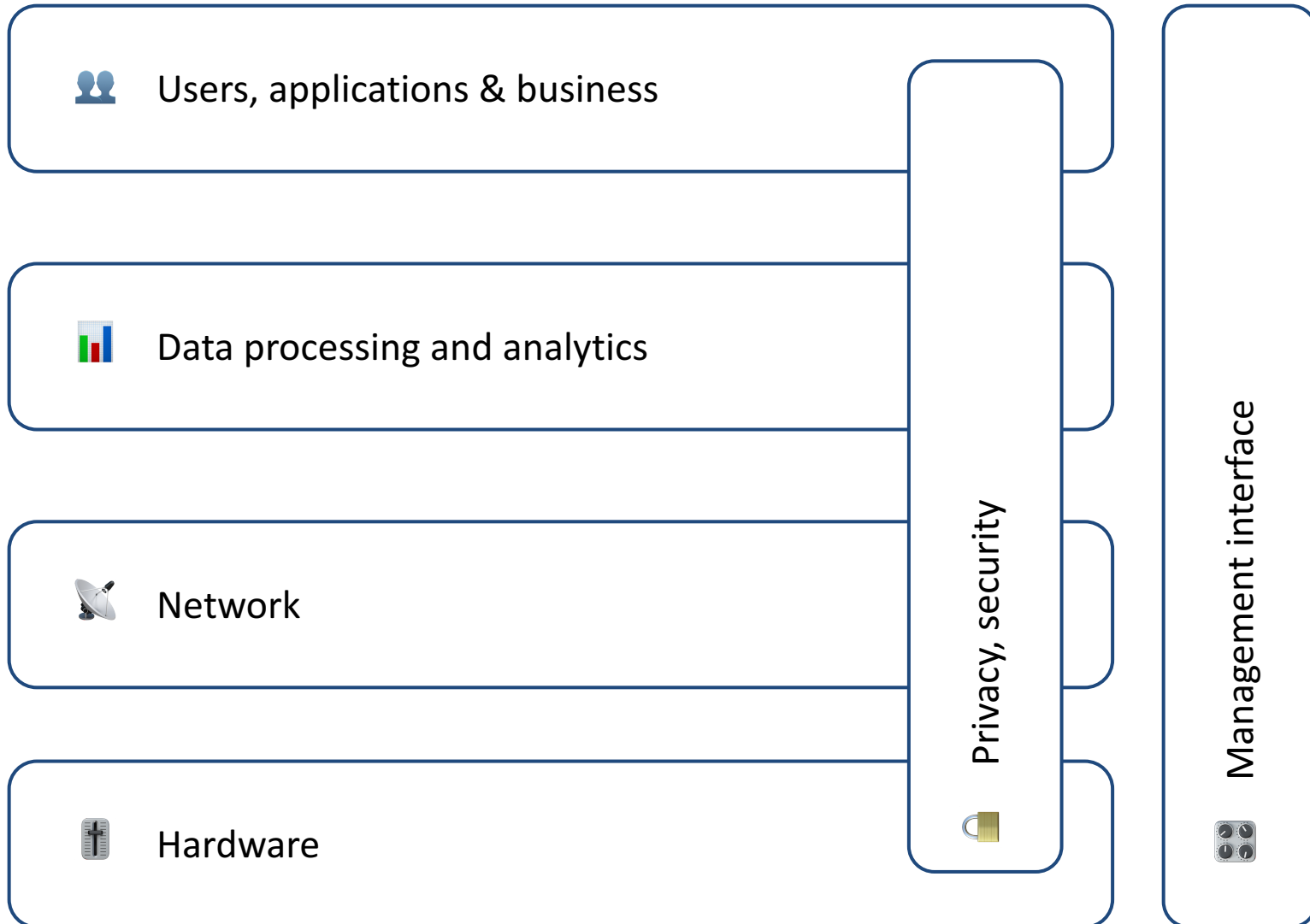
Gateway to 300+ Living Labs

Importance of validated toolbox!

Example: Zwerm



City of Things overview



CoT Unique Selling Proposition

 +  +  Multi-technology

 +  Leveraging existing strengths

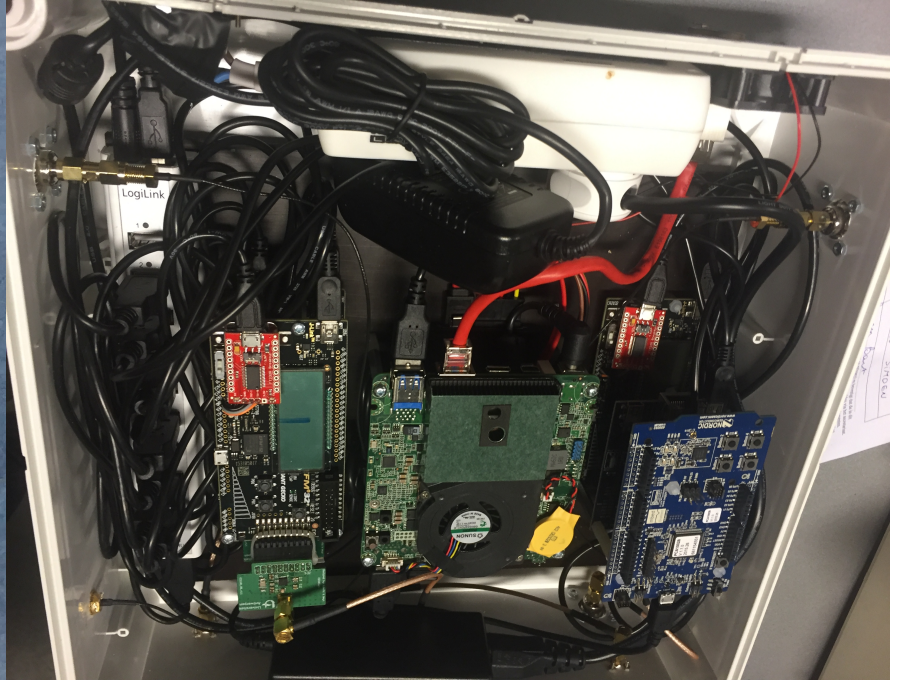
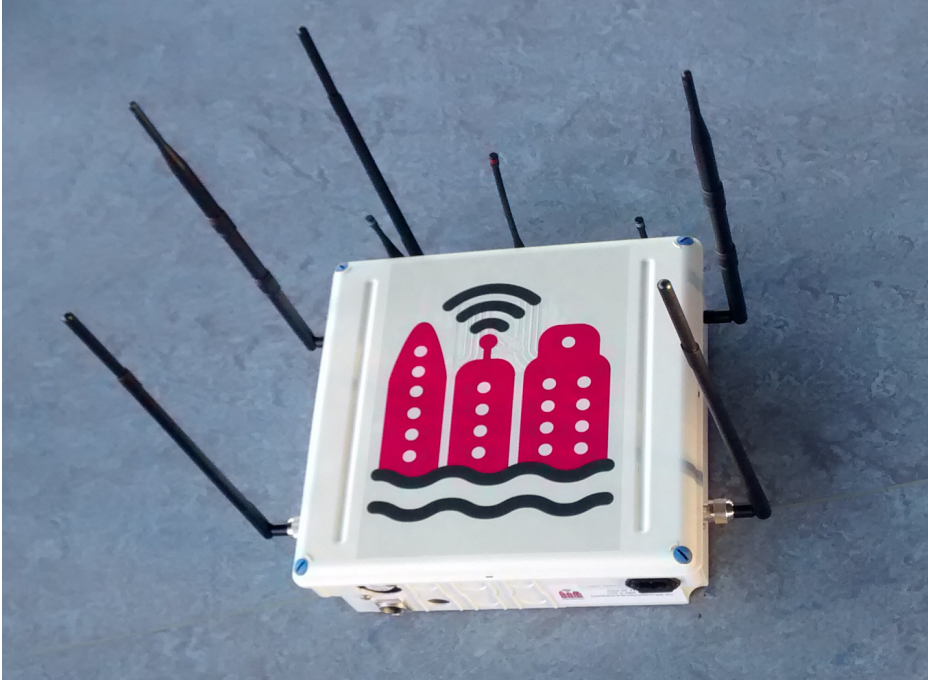
 +  +  +  Open testbed

 +  +  Integrated approach



City of Things

- IoT reference **living lab** and **technology lab** in Europe
- for international and local stakeholders
- to create, test and validate IoT services, applications and technologies
- in a large scale, real life and real time smart city environment





bpost



bpost

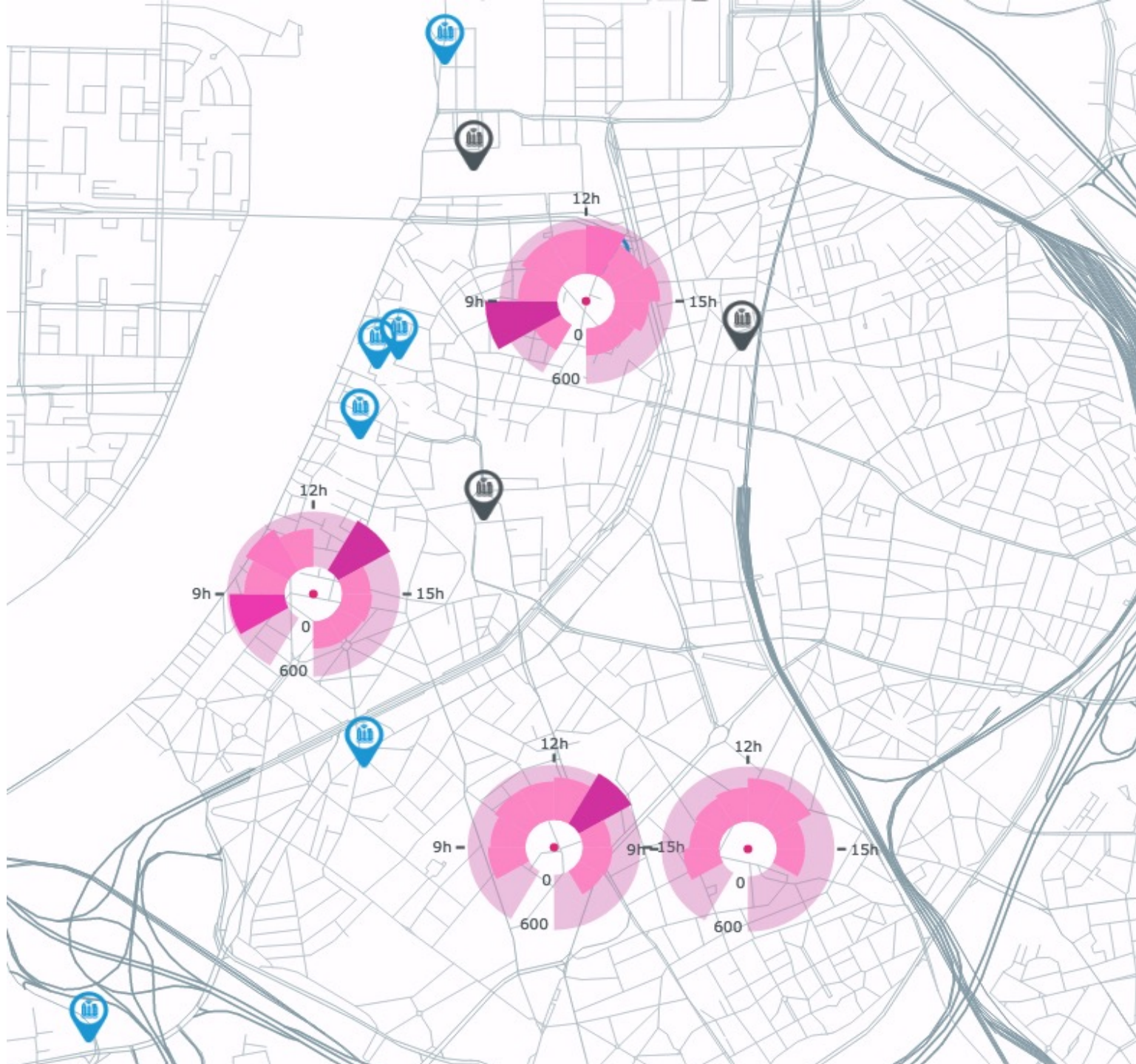


bpost



022 012345

www.bpost.be



Really cool!

But,...

Really cool!

But,... what about the data?

Smart Flanders

- Which **urban challenges** can we start tackling in a better way today, by bringing together data in smarter ways and making them available for reuse? (**linked & open**)?
- Based on this exercise, which **new opportunities** do we identify for more innovative, different or other ways of collecting, processing and opening data?
- <https://smart.flanders.be>

SMART
FLANDERS



Vlaanderen
is sterke steden

Smart Flanders Principles

Support programme, communications channel, knowledge and interaction platform

Focus on real-time open data and shared reference architectures

Cooperation *between cities and* actors from the quadruple helix

Implementation-driven

Internationally networked

Lighthouse model for smaller cities (13 centre cities and VGC Brussels)

→ Open Data Charter

→ First datapilot on real time parking availability data

Smart Flanders Offer

Practices and tools for **cost efficient data publication**

Support in defining and setting up **data pilots** with societal impact

Stimulating data reuse with innovation as the goal

Working towards better **inter- and intragovernmental** data sharing

Support in avoiding **vendor lock-in**

SMART
FLANDERS

Smart Flanders Offer

Building bridges to **existing initiatives**

Building on **available solutions** and technologies

Gathering and translating **international insights**

Support participation in **(inter)national projects**, pilots and so on






Support **matchmaking with the market** where possible

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
Vlaanderen
is sterke steden









Smart Flanders Data Pilot

-  Kortrijk
-  Gent
-  Leuven
-  Sint-Niklaas
-  Nederland

parkings

belgium netherlands

 Kortrijk

PARKING	VACANT	TREND
p-houtmarkt	168	
p-budabrug	230	
p-veemarkt	575	
p-schouwburg	395	
p-broeltorens	320	
p-haven	250	
p-p+r expo	448	
p-station	214	

[Proof of concept
https://smartflanders-poc.netlify.com/#/parkings](https://smartflanders-poc.netlify.com/#/parkings)

[Informatiepagina
https://datapiloten.be/parking](https://datapiloten.be/parking)



P Houtmarkt

TOTAL SPOTS

168

TREND



Visualize historic data

CHART

scatter

block

TIMEFRAME

1h

1d

1w

1m

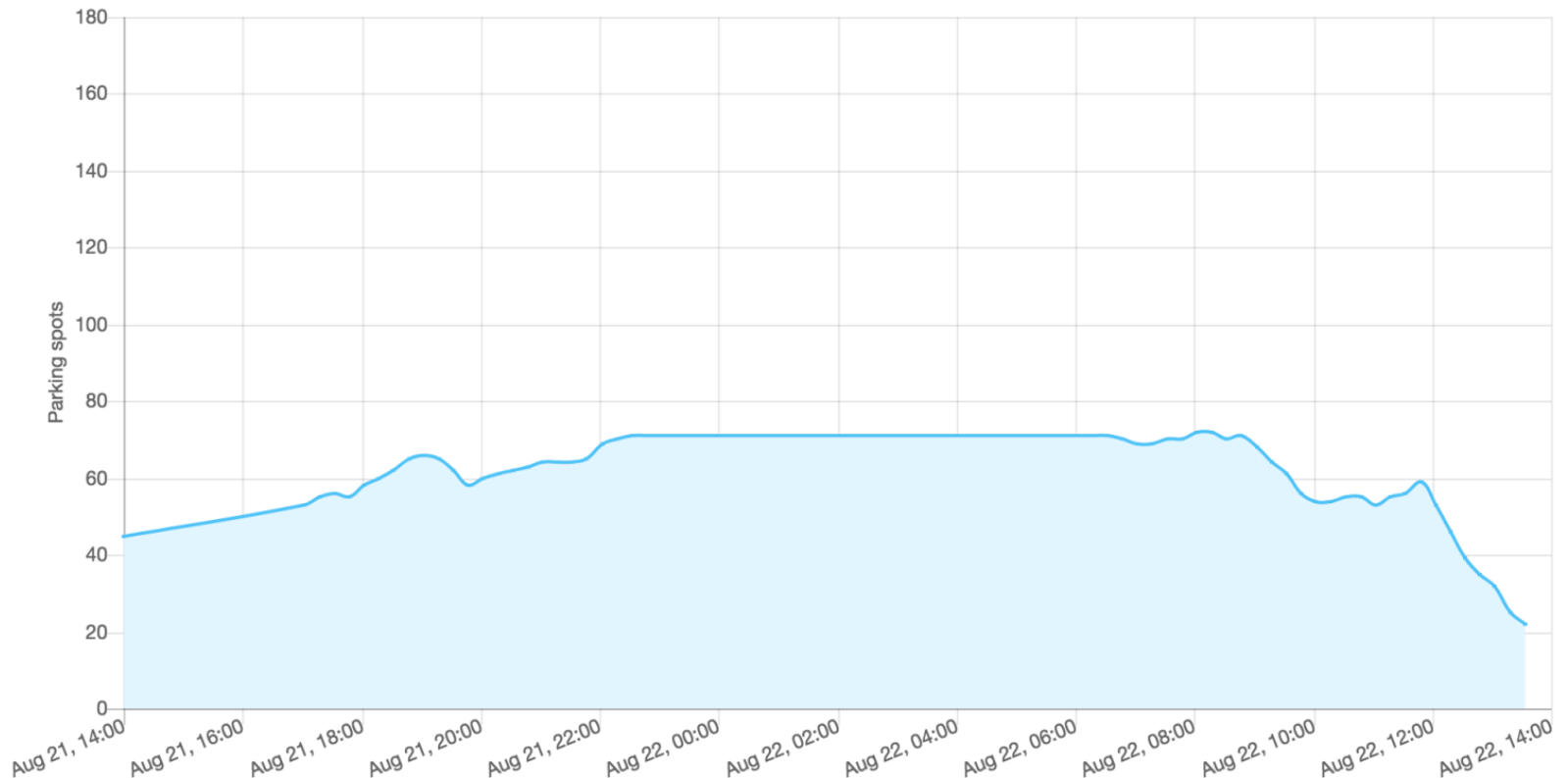
1y

custom

DATA

vacant

taken



CHART

scatter

block

TIMEFRAME

1h

1d

1w

1m

1y

custom

DATA

vacant

taken

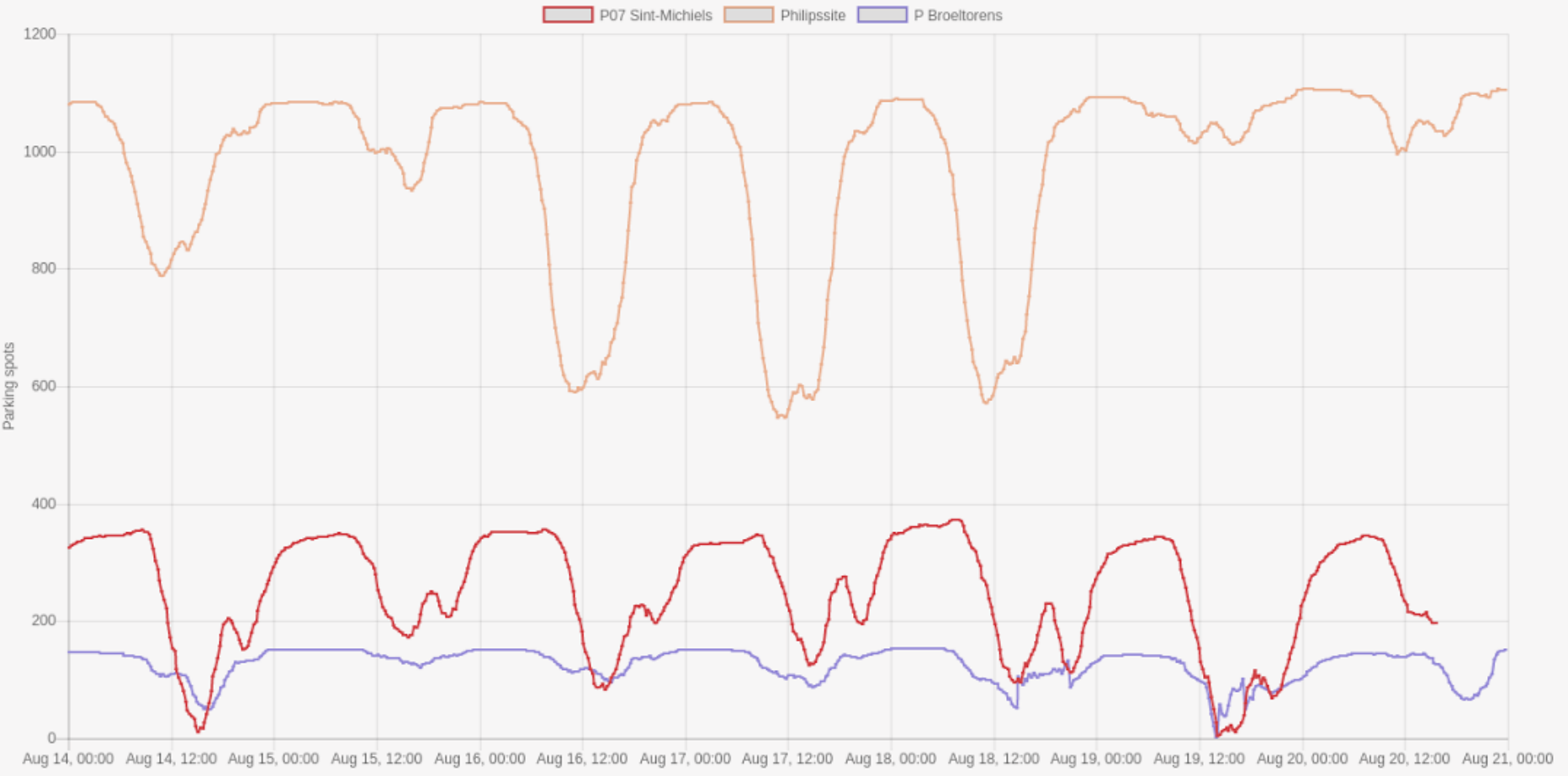
Start date

Aug 14, 2017, 12:00:00 AM

End date

Aug 20, 2017, 11:55:00 PM

APPLY



Importance of this approach to data publishing

Not this visualisation, however:

- Automation
- Reuse (already by two startups and researchers, more needed for larger players)
- Scalability and cost for cities
- Data-based policy (internal reuse)
- Transparency

SMART
FLANDERS

Also really cool!

But,...



The ownership question

- Who will own the infrastructure?
- Who will own the data?
- Who will own the platforms?

The value question

- Public & private?
- Direct & indirect?

Some recommendations I

- Develop a vision, personify it
- Set (some) ambitious and measurable goals
- Break barriers hindering cooperation
- Tackle fragmentation in (open) data policies
- Link up to existing expertise

Some recommendations II

- Identify the potential return of open data
- Engage citizens through active outreach
- Join international standards
- Consider infrastructure
- Try innovative funding schemes

What makes a city smart?

- The **wrong** way
 - Use case-driven
 - Vendor lock-in
 - Fragmentation
 - Top-down vs bottom-up
 - Technocratic
 - Alone
- The **right** way
 - Problem-driven
 - Open data, systems
 - Shared standards
 - The city as a platform
 - Democratic
 - Together

**PLEASE BE CAREFUL WHEN
SHARING PHOTOS ON SOCIAL
MEDIA. THEY CAN LEAD POACHERS
TO OUR RHINO**

**TURN OFF GEOTAG FUNCTION
AND DO NOT DISCLOSE WHERE THE
PHOTO WAS TAKEN**

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