OPEN & AGILE SMART CITIES

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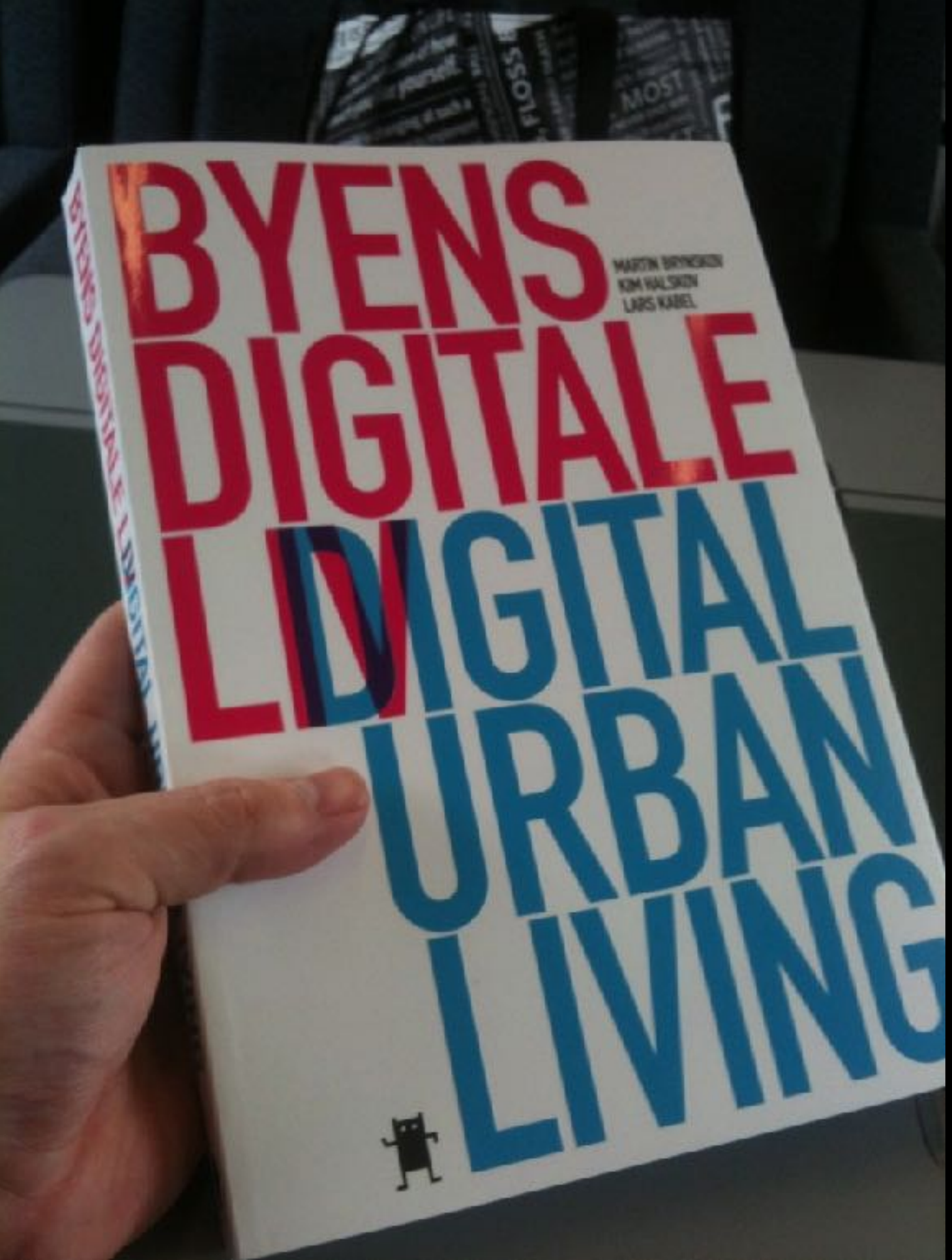
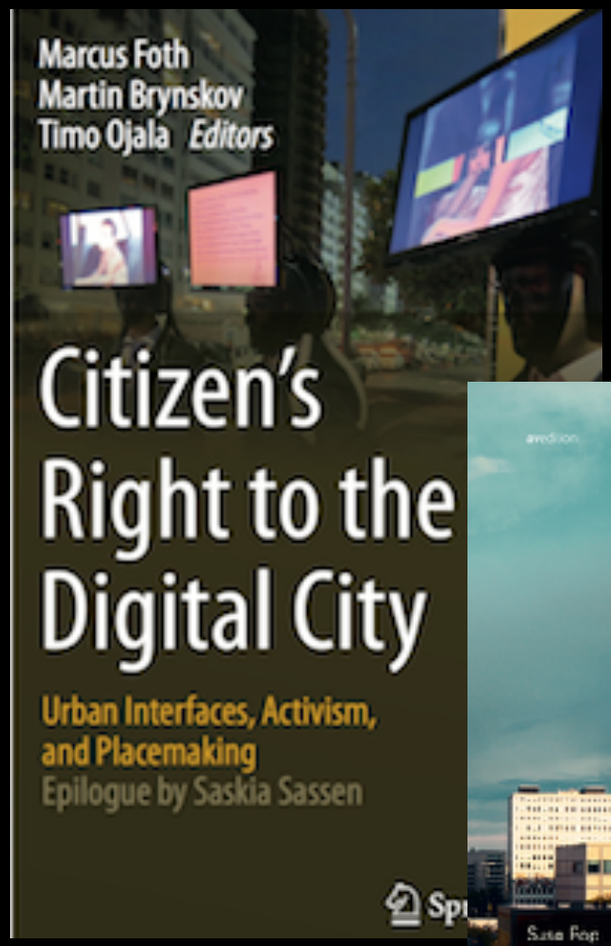
Vice-Chair, ITU-T FG-DPM IoT & Smart Cities
Founder, Danish Smart Cities Network

DILEMMAS OF DIGITAL TRANSITION


BYENS
MARTIN BRYNSKOV
KIM HALSKOV
LARS KAREL
DIGITALE
URBAN
LIVING


Marcus Foth
Martin Brynskov
Timo Ojala Editors
Citizen's Right to the Digital City
Urban Interfaces, Activism, and Placemaking
Epilogue by Saskia Sassen

WHAT WHY
URBAN WHEN
MEDIA WHERE
ART &HOW
CAN
DO

CIVIC
MEDIA
CIVIC MEDIA
TECHNOLOGY | DESIGN | PRACTICE
edited by
ERIC GORDON and PAUL MIHAILIDIS

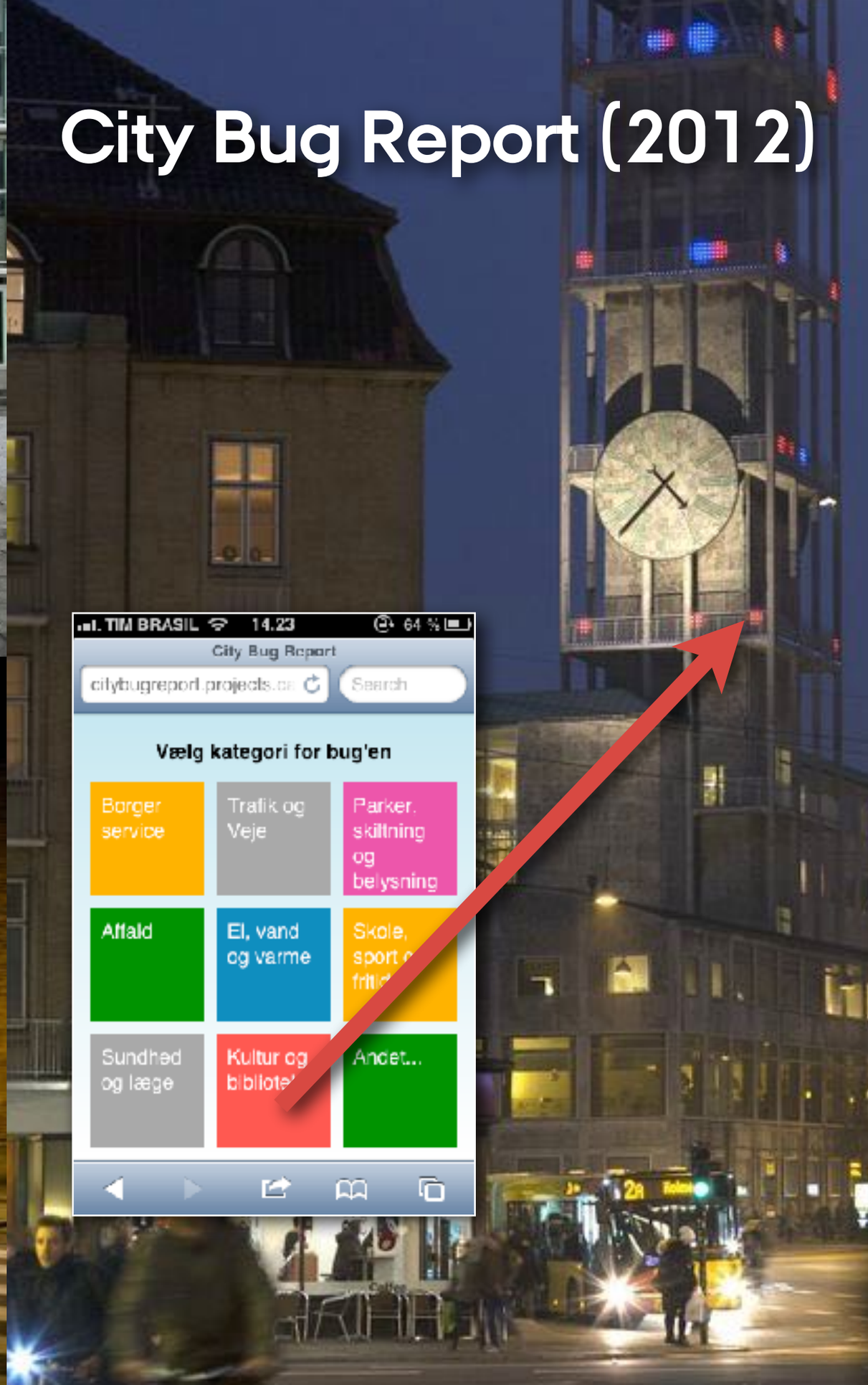
AARHUS
AARHUS UNIVERSITY
OPEN & AGILE SMART CITIES
BRUSSELS
Iceland
Reykjavík
Sverige
Sweden
Suomi
Finland
Norge
Norway
Bergen
Oslo
Stockholm
Helsinki
Tallinn
Sankt-Peterburg
(Санкт-Петербург)
Eesti
Estonia
Göteborg
Latvija
Latvia
Rīga
København
Danmark
Denmark
Lietuva
Lithuania
Vilnius
Gdańsk
Minsk
Беларусь
Belarus
Moskva
(Москва)
Nizhniy
Novgorod
(Нижний
Новгород)
Kazan'
(Казань)
Samara
(Самара)
Glasgow
Edinburgh
Belfast
United
Kingdom
Liverpool
Leeds
Manchester
Birmingham
Ireland
Dublin
Cardiff
London
Hamburg
Szczecin
Nederland
Netherlands
Bremen
Berlin
Poznań
Polska
Poland
Warszawa
Homyel
Київ
Kharkov
Belgie
Belgique
Deutschland
Germany
Wrocław
Kraków
Lviv
Le Havre
Paris
Reims
Frankfurt
am Main
Česká Rep
Czech Rep
Ostrava
Україна
Ukraine
Luganisk
Volgograd
(Волгоград)
Rennes
Strasbourg
München
Wien
Slovensko
Slovakia
Zaporizhzhia
Mariupol
Nantes
France
Bern
Zürich
Österreich
Austria
Magyarország
Hungary
Moldova
Chişinău
Odesa
Lyon
Milano
Zagreb
Romania
Bordeaux
Torino
Bologna
Hrvatska
Croatia
Beograd
București
Montpellier
Genova
Srbija
Serbia
Toulouse
Marseille
Italia
Italy
Crna Gora
България
Bulgaria
Zaragoza
Porto
Roma
Bari
Tirana
Georgia
Madrid
Barcelona
Napoli
Thessaloniki
(Θεσσαλονίκη)
Istanbul
Samsun
Portugal
España
Spain
Valencia
Ελλάς
Greece
Bursa
Ankara
Erzurum
Azerbaijan
Yerevan
Lisboa
Sevilla
Murcia
Palermo
İzmir
Türkiye
Turkey
Konya
Diyarbakir
Van
Tabriz
El-Jazair
Tunis
Athina
(Αθήνα)
Antalya
Adana
Gaziantep
Halab
Cádiz
Málaga
Oran
Tehran

Aarhus by Light (2008)

Climate on the Wall (2009)

PIT AARHUS UNIVERSITY

City Bug Report (2012)



Australia

Belgium

Bosnia and Herzegovina

Brazil

Croatia

Denmark

England

France

Finland

Ireland

Italy

Netherlands

Portugal

Scotland

Spain

Austria

Slovenia

Mexico

Poland

Hungary

Norway

Greece

Germany

Schwitzerland

OPEN & AGILE SMART CITIES

—

117 cities

24 countries

Europe, Latin America,
Asia-Pacific

—

www.oascities.org

info@oascities.org

LINKED PARTNERS & ACTIONS

OPEN & AGILE SMART CITIES

EUROCITIES

European Network of Living Labs

EUROPEAN UNION
Committee of the Regions

European Commission

EIP-SCC
European Innovation Partnership on Smart Cities and Communities

ORGANICITY

SYNCHRONICITY

tmforum

IoT

GLOBAL SMART CITY & COMMUNITY COALITION

AIOTI

ITU

ETSI

FIWARE FOUNDATION

SELECT for Cities

eit

smart city expo WORLD CONGRESS

CITY PROTOCOL SOCIETY

OISPG

BDV BIG DATA VALUE ASSOCIATION

The Foundation For Public Code

Creative Ring

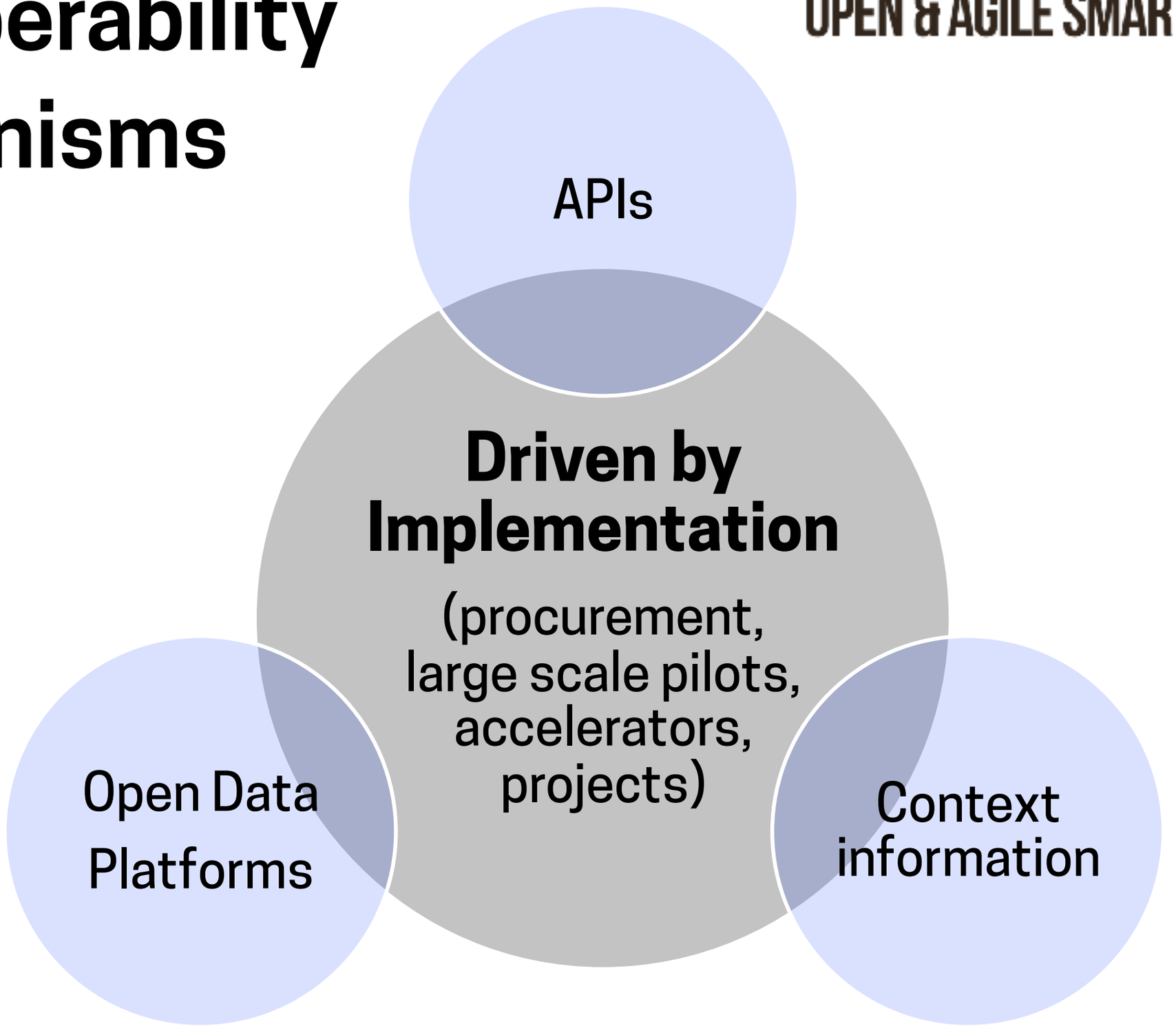
서울디지털재단 Seoul Digital Foundation

CATAPULT Future Cities

METROLAB NETWORK

Minimal Interoperability Mechanisms (MIMs)

OPEN & AGILE SMART CITIES



SOLUTIONS

DILEMMAS

SMART CITY **DILEMMAS**

1. Flexibility, precision, productivity—for whom?
2. We don’t experience the same city
3. Resilient or vulnerable?
4. Democratic proximity—or buzz?
5. No-one left behind?
6. Overview—or surveillance?
7. New public spaces without government?
8. Is it possible to plan at all?
9. Public organization and competences
10. Public service 2.0

Source: The think tank ”Future digital cities – for and with people”

HOW TO PLAN AND PREDICT...

Peter Hesseldal

OPEN & AGILE SMART CITIES

Open & Agile Smart Cities (OASC) is a
city-driven initative to create a global
mart city market based on simple and
n de facto standard mechanisms

ies from 15 countries in Europe,
erica and Asia-Pacific
d already

strategic network support for
c, social and technical developmen

.ORG
@OASCITIES.ORG

HEALTHY CITIES
JOBS

DIGNITY
JOBS

WHY CITIES?

Cities are a catalyst for the holistically connected society.

They combine vertical and horizontal logics.

It’s a massive meta-market.

Address the gaps most intensely.

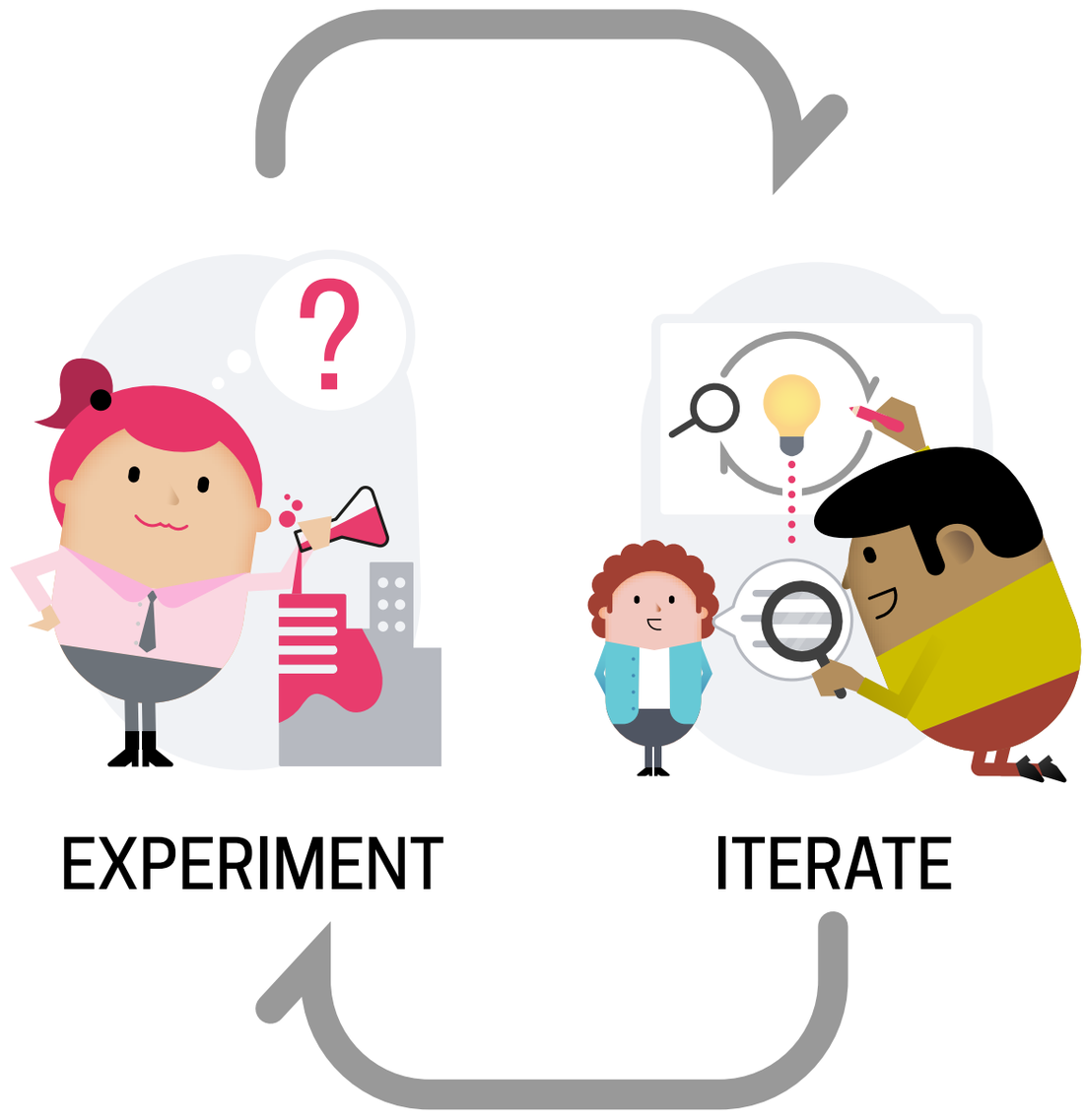
ORGANICITY

CO-CREATING SMART CITIES OF THE FUTURE

15 partners · 7.2m€

London, Aarhus, Santander + more

EXPERIMENTATION PROCESS



ORGANICITY

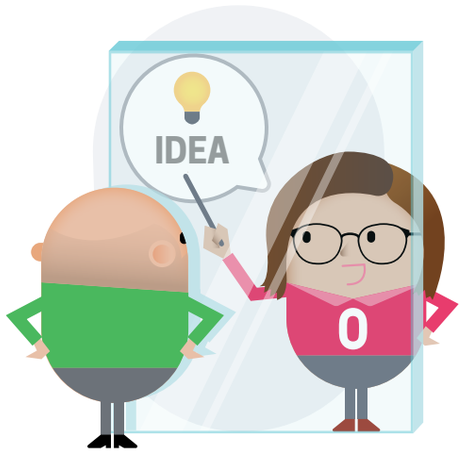
EXPERIMENTATION PROCESS & VALUES

CO-CREATE

INCLUSIVE

EXPERIMENT

ITERATE

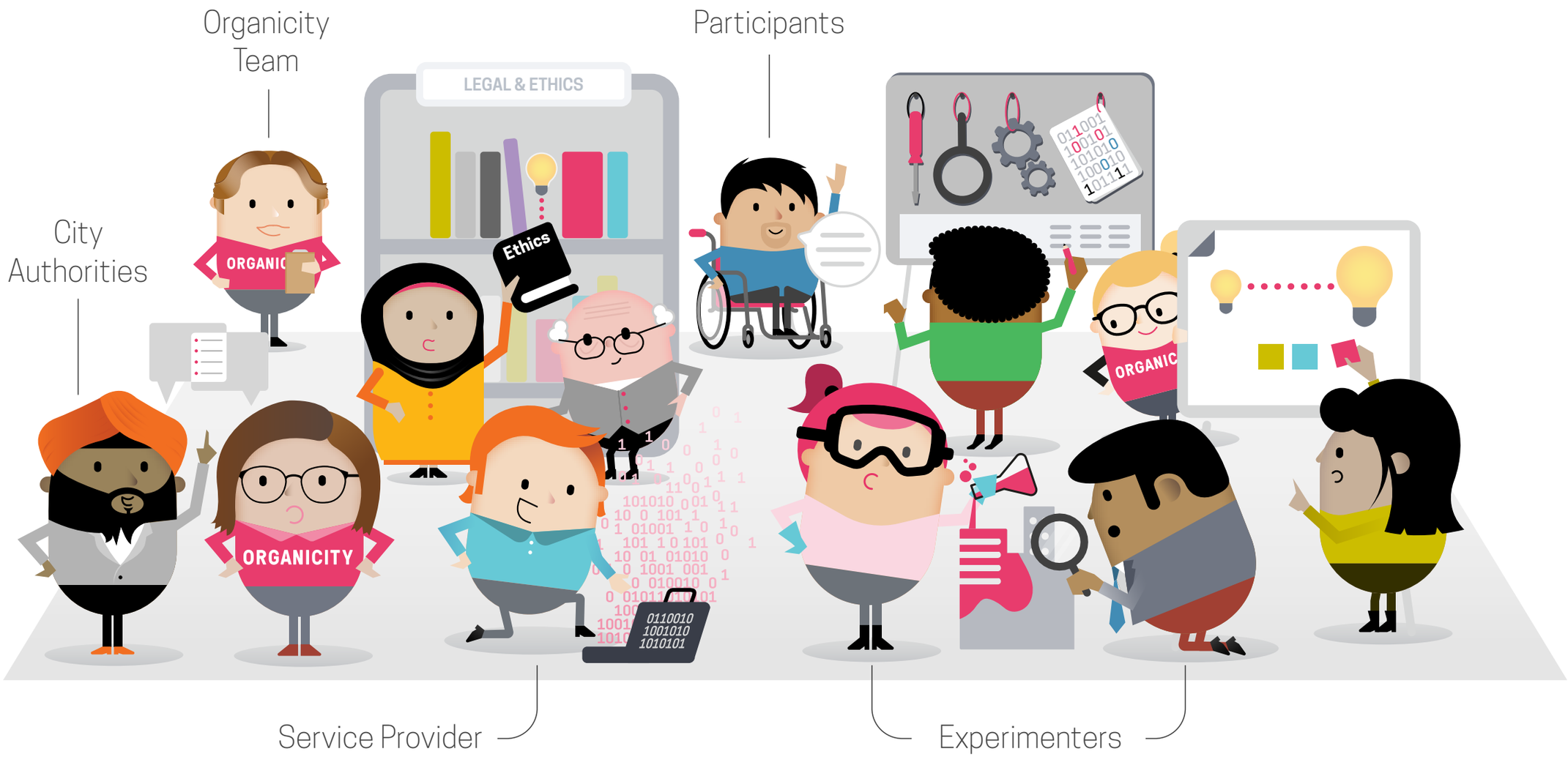


ACCOUNTABLE

SAFE

ORGANICITY

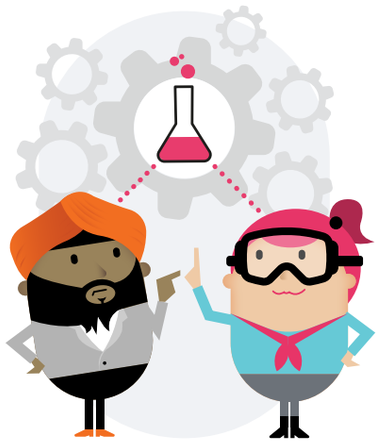
WHAT IS ORGANICITY?



OrganiCity is a service for experimentation that explores how citizens, businesses and city authorities can work together to create digital solutions to urban challenges.

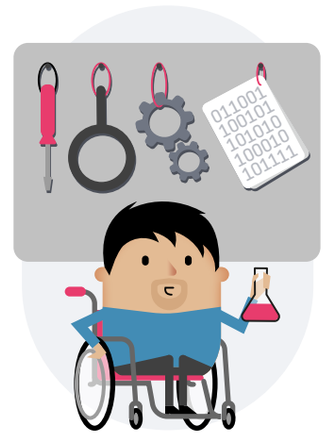
ORGANICITY

ORGANICITY EXPERIMENTATION AS A SERVICE

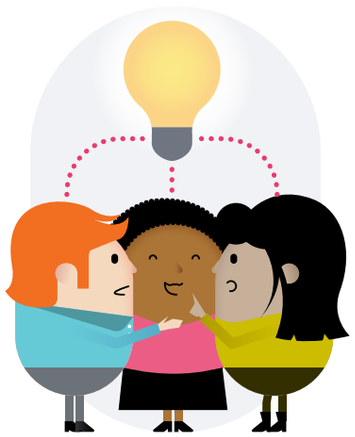


Experimentation management

Urban data discovery



Technical environment



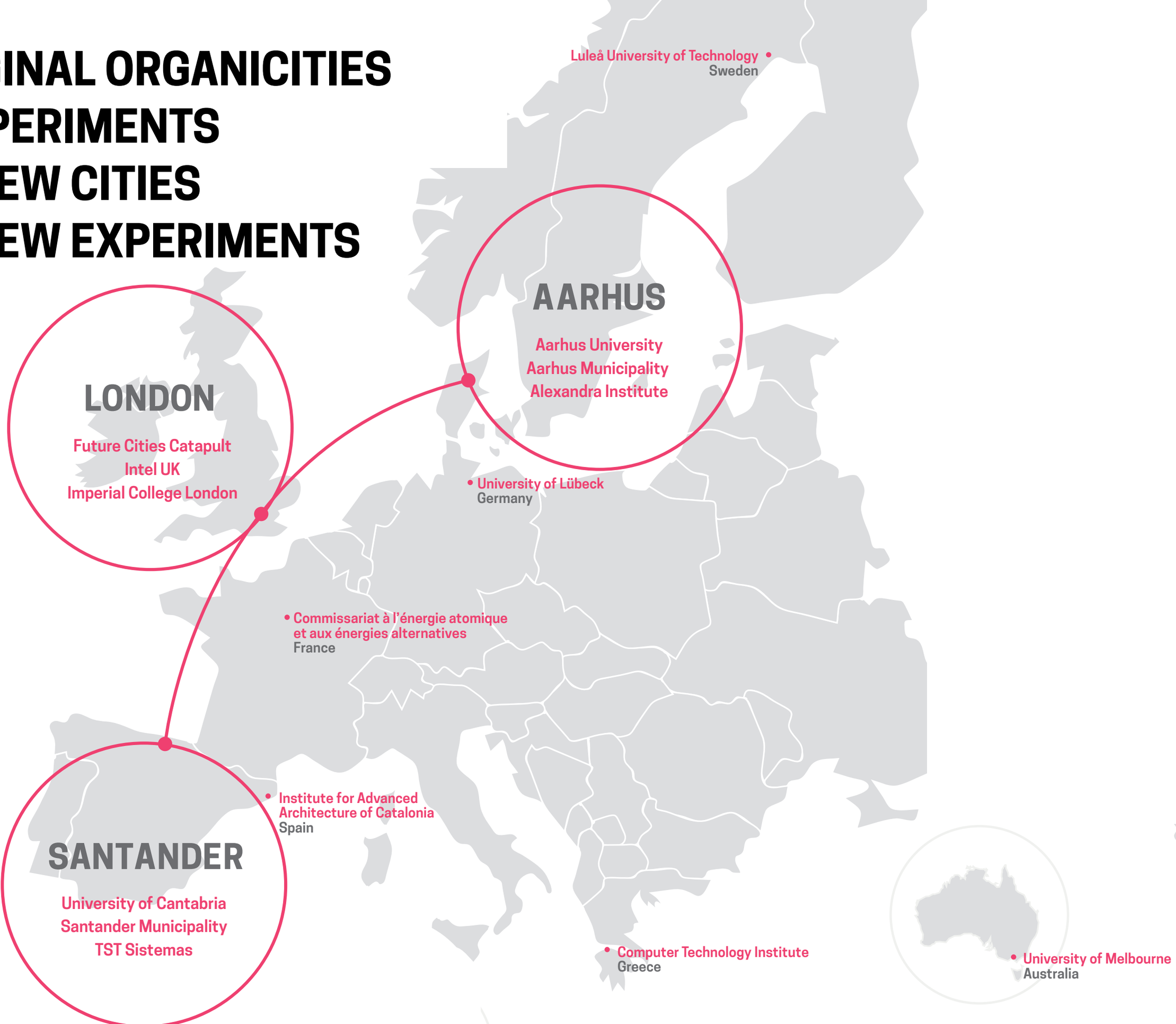
Inclusive co-creation

Engagement principles

Trustworthy legal & ethics

ORGANICITY

3 ORIGINAL ORGANICITIES
24 EXPERIMENTS
+ 10 NEW CITIES
+ 17 NEW EXPERIMENTS



ORGANICITY

ORGANICITY

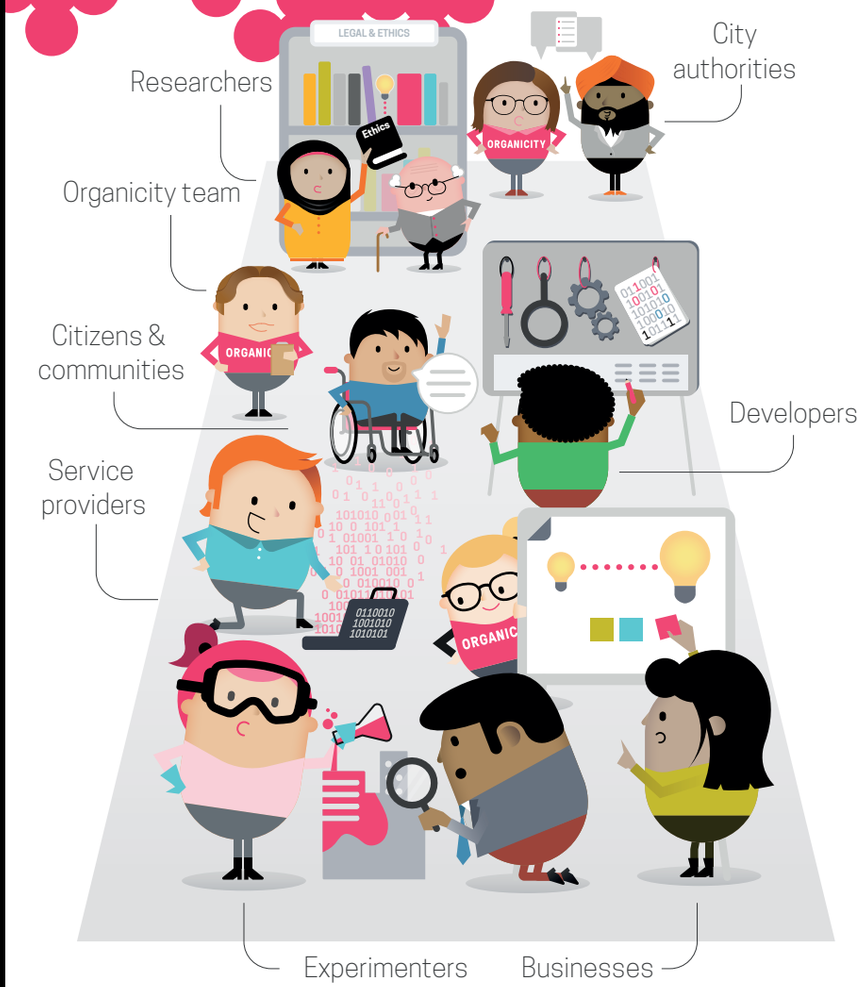
Key innovations

- Easy experimentation
- Co-creation tools
- Federated privacy
- IPR in co-creation

ORGANICITY

EXPERIMENTATION AS A SERVICE

Exploring how citizens, businesses
and city authorities can work together
to create digital solutions to urban challenges.



Open Framework for Systematic Experimentation

SYNCHRONICITY

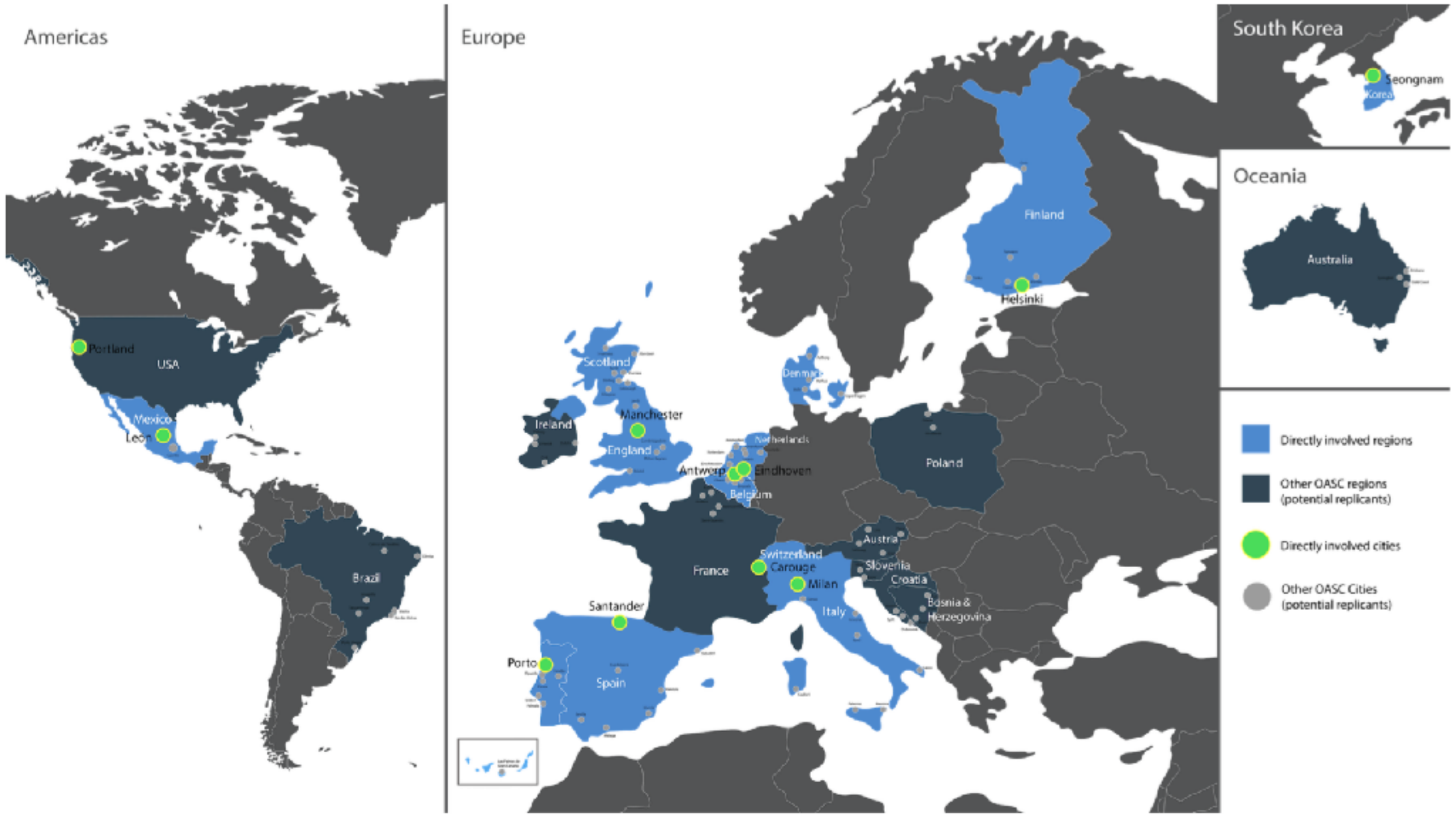
IoT Large Scale Pilot for Smart Cities

20m€ · 8 core cites + global partners

OPEN & AGILE SMART CITIES

SYNCHRONICITY

A Global Market for IoT-enabled Urban Services



8 cities in Europe + 3 global + OASC (114)

SYNCHRONICITY Partners

AARHUS UNIVERSITY

ALEXANDRA INSTITUTTET

FORUM VIRIUM HELSINKI

Aalto University

MANCHESTER CITY COUNCIL

OPEN & AGILE SMART CITIES

Atos

ENGINEERING

EINDHOVEN

Milano Comune di Milano

bronze

PHILIPS

European Network of Living Labs

Manchester Metropolitan University

ROMBIT

Porto.

AYUNTAMIENTO DE SANTANDER

CATAPULT Future Cities

bop

imec

UC UNIVERSIDAD DE CANTABRIA

CATAPULT Digital

UDG UNIVERSAL DEVICE GATEWAY

TST

heijmans

León

VILLE DE CAROUGE Le bon côté de la ville

MANDAT INTERNATIONAL

ubiwhere SUITING THE FUTURE

KETI 전자부품연구원 Korea Electronics Technology Institute

amio Smart Places Development

Tecnológico de Monterrey

BORDEAUX

NEC

snip

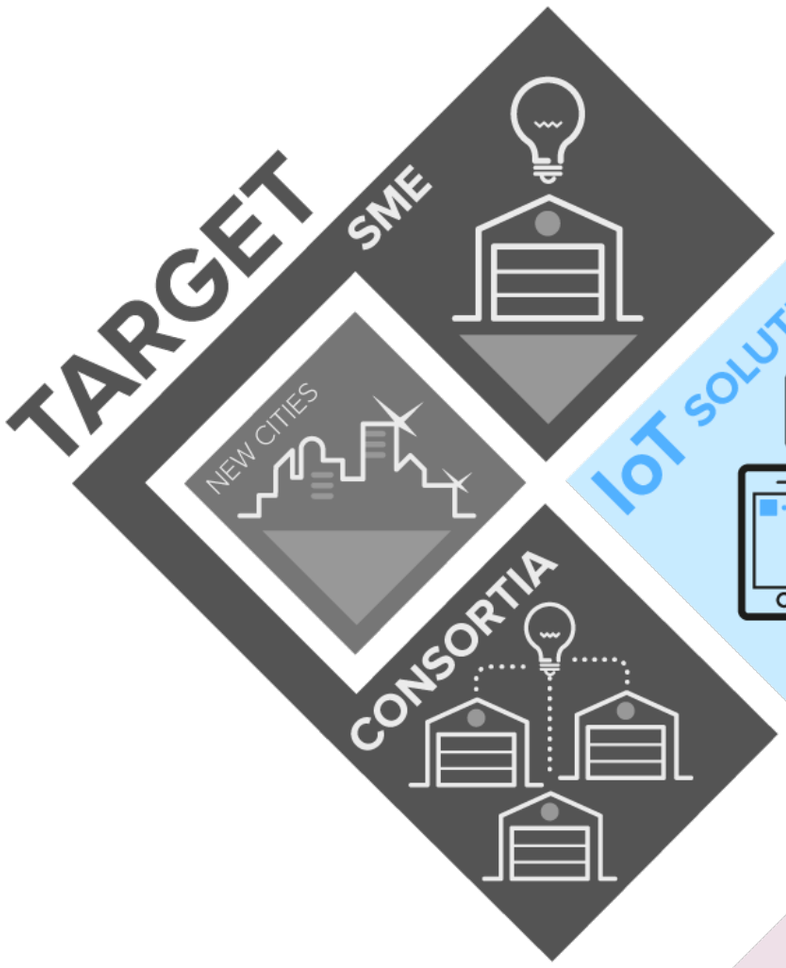
SYNCHRONICITY

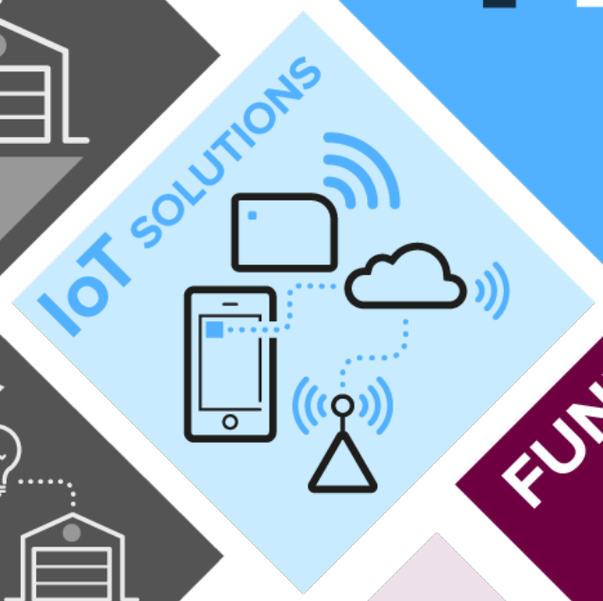
1. INITIAL IoT APPLICATIONS
- Human-centric traffic management
- Multi-modal transportation
- Community Policy Suite

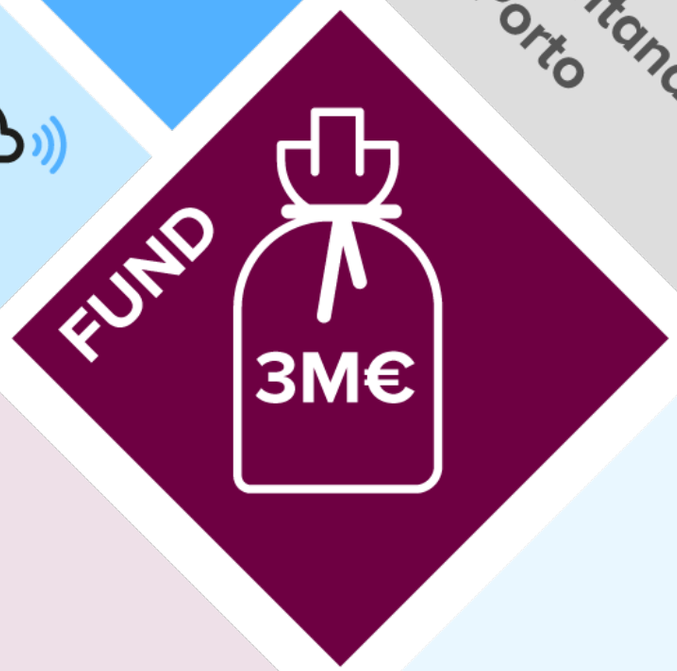
2. ECOSYSTEM ENRICHMENT (€3m)
- New services/apps
- SME focus

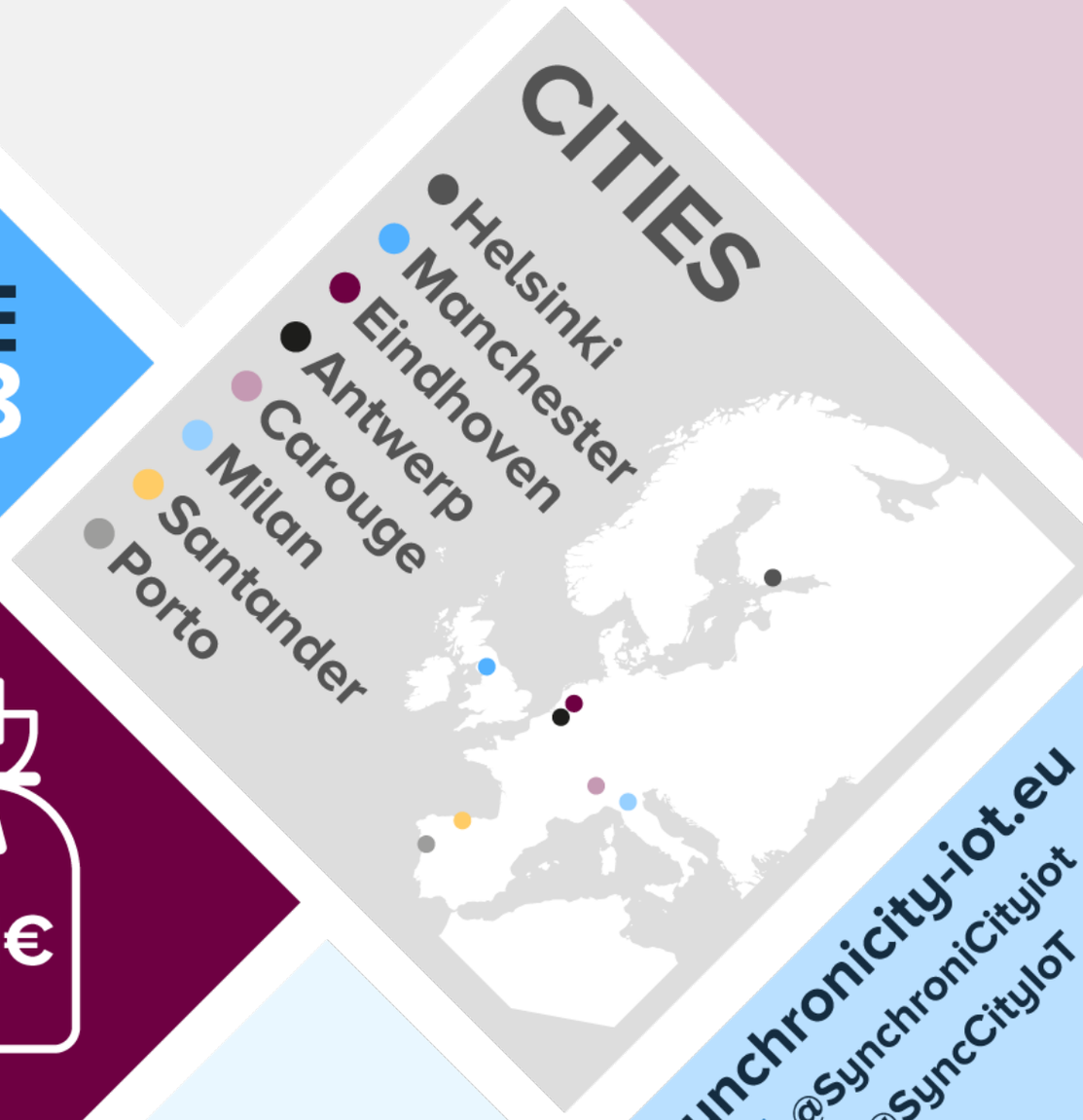
SYNCHRONICITY

Synchronicity opens up a global IoT market where cities and businesses develop shared digital services to improve the lives of citizens and grow local economies.





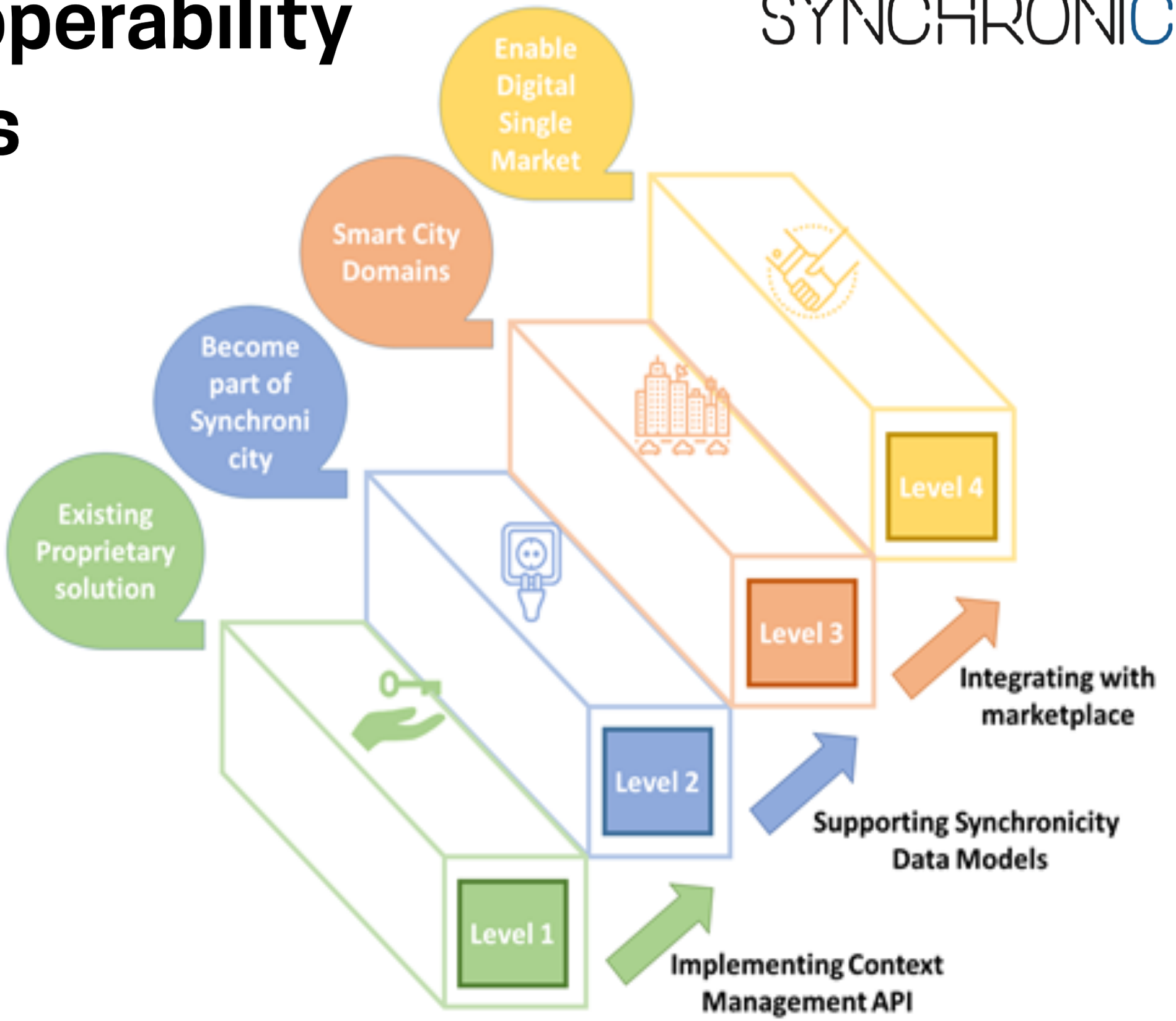




synchronicity-iot.eu
@SynchroniCityiot
@SyncCityIoT

Interoperability Points

SYNCHRONICITY



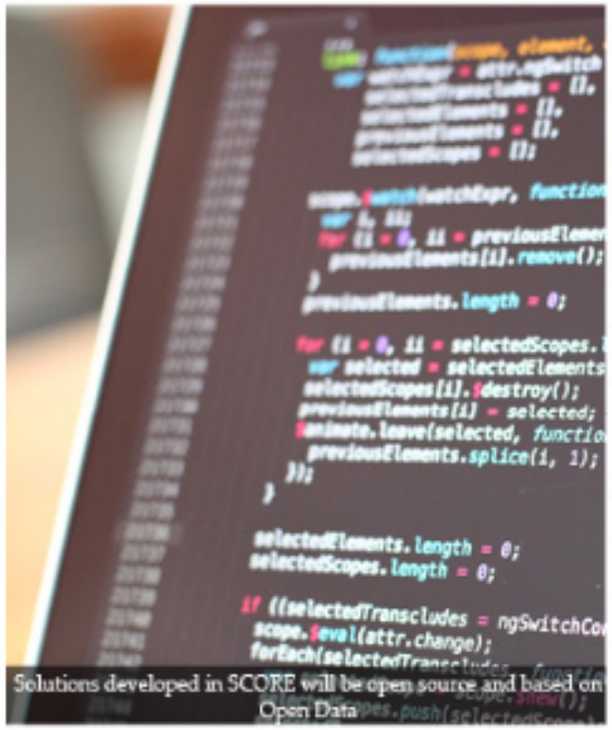
OASC and **SynchroniCity** support the Declaration of IoT for Sustainable Development

1. **Promoting the development and adoption of IoT technologies for the benefit of humanity, the environment and sustainable development.** This includes promoting the research and the use of IoT technologies to address the 17 Sustainable Development Goals adopted by the United Nations and the international community. Governments and policy-makers from developed and developing countries should be encouraged to examine the future challenges and benefits to their economies and accelerate global competitiveness of their economy, region, continent and people by establishing plans and strategies to leverage IoT for SDGs.

2. **Supporting the implementation of the IoT in urban and rural context to foster the application of ICTs in providing services to build smarter and more sustainable cities and communities.** This will allow urban and community stakeholders to take advantage of technological advances and offer new opportunities for quality of life for different strata of society, by promoting accessibility to amenities, technologies and services (including social infrastructure, energy, water and healthcare), and by suppor-

SCORE Smart Cities and Open data REuse

Programme	NSR
Duration	4 years
Project partners	14
Budget	€5,7M
EC-contribution	€2,8M
Coordinator	City of Amsterdam


Solutions developed in SCORE will be open source and based on Open Data

Water level sensors can inform early flood warning systems

Real-time information about free parking spaces can reduce CO2 emission by decreasing traffic by up to 30%

Public transit frequency can be adjusted based on live user data

Waste collection can be improved by intelligent routing

Streetlight sensors can be used to measure traffic flows and improve traffic management

Background

Cities aim to improve the delivery of public services based on innovative software solutions and data sharing.

However, Data has not and will not automatically lead to better public service delivery.

To capture that potential, value from data needs to be unlocked by making it inter-operable between departments and organisations.

The shared challenge is how to generate innovative solutions that address common city needs.

Aim

SCORE aims to increase the efficiency and quality of public service delivery of cities in the sectors of Environment, Waste & Water, Parking & Traffic, and Sustainable Mobility by developing innovative open source solutions that use urban data. Ie. Contributing to Interreg NSR's objective by stimulating "the public sector to generate innovation demand and innovative solutions for improving public service delivery".

The solutions will be free to use by other cities, adhere to EU standards, and replicable.

Approach

9 cities from 7 countries in the NSR will be grouped according to their shared challenges. The cities will formulate 6 public service challenges based on their in-depth understanding of the city's operations (business case), the available data (feasibility) and knowledge of their existing programmes and initiatives (funding).

Each challenge will form a group that will develop 2 open source solutions using urban data. The solutions will be tested in Urban Living Labs. All cities will collaborate throughout the development process to ensure relevance and compatibility. In fact, solutions will be replicated transnationally at least twice within the SCORE project period.

Results

By implementing the innovative open source solutions, SCORE will:

- Reduce by 10% service provision costs of public authorities in the sectors of urban sustainability using open data and open source solutions.
- Improve by 20% the quality of public service provision as valued/assessed by citizens.
- Reduce by 30% the software development time in cities.

Impact

SCORE will solve public service delivery challenges common to partner cities through innovation. This community will contribute to the open-source movement and deliver solutions that are free to use by other NSR cities and beyond.

The partnership will create an ecosystem with cities, research institutions and network organizations for smart public service delivery innovation. Organisations learn from each other while building solutions, eg in agile software development, transitioning towards being more data-driven.

Interreg North Sea Region
SCORE
European Regional Development Fund

EUROPEAN UNION

SAVE THE DATE

WORKSHOP

INTERNET OF THINGS FOR SMART CITIES & COMMUNITIES

BILBAO, SPAIN, 6-7 JUNE 2018

IoT Week.org

OPEN & AGILE SMART CITIES

#IOT4SCC

The workshop is co-organized by

OPEN & AGILE SMART CITIES · ITU · IoT Lab · IoT Forum · EURO CITIES · SYNCHRONICITY · OGC · ORGANICITY · MANDAT INTERNATIONAL

CONNECTED SMART CITIES CONFERENCE 2018

“Cities Driving the Digital Transition”

January, 2019, Brussels

Sign up!

OPEN & AGILE SMART CITIES

piloted in the framework of SynchroniCity

OPEN & AGILE SMART CITIES

2017

tmforum

BARRIERS

- **Technology isn’t the main problem.** Making it relevant for 21st century society at large is a big problem.
- **Nobody knows** how to formulate requirements, neither demand or supply.
- **Professional career paths** are unstable.
- **Lack of collaboration**, both on demand and supply side. Tunnel vision.
- **Lack of non-technical competences.**
- **No (positive) political attention.**

OPEN & AGILE SMART CITIES

WHAT CAN MOVE US FORWARD?

- **Large-Scale Pilots**
- Relevant, horizontal, holistic specifications
  - **fora, processes for pre-standard initiatives**
    —> standards/certification, professional development
- **Simple** interoperability (APIs & semantics)
- **Strong demand-side voice**. Letting cities provide core input on acceptance (security, ethics & privacy)
- **Usability** and usefulness (easy experimentation)
- **Competences** beyond the technical crowd (dissemination isn't enough)

OPEN & AGILE SMART CITIES

TRANSITION

IDENTITY

TRAJECTORY

IoT SDOs and Alliances Landscape
(Vertical and Horizontal Domains)

Home/Building

Manufacturing/ Industry Automation

Vehicular/ Transportation

Healthcare

Energy

Cities

Wearables

Farming/ Agrifood

Horizontal/Telecommunication

Source: AIOTI WG3 (IoT Standardisation) – Release 2.7

OPEN & AGILE SMART CITIES

Minimal Interoperability Mechanisms.
Driven by cities and communities.
Global market.

Way forward

- CIVIC
  Driven by public needs, backed by industry
- COMMON
  Specifications & standards (~GSM, Wi-Fi, Visa)
- CONCRETE
  Linking instruments (projects, policy, financing)

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