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Themenklausur "Stadtregionen – Metropolen der Zukunft"

Dusseldorf, June 15, 2016







SERVICES @ THE SPEED OF THOUGHT

Physical world

Things

Processes

People

Industrial Internet

Smart Grids

Smart Mobility

Smart Cities

Smart Data

VERNETZUNG"

Data and information

Communication networks

"DIGITALE

Service platforms

Business processes

Applications and services

Identities

Analyses

Digital world

WHAT MAKES A CITY SMARTER?

Environment

Cities that produce almost no CO₂-emissions and are highly energy-efficient.

Quality of life

Cities that provide the best quality of life for all residents.

Government

Cities that **open** up their public **administration** data and processes.

Resilience

Cities that are able to mitigate the effects of climate change and terrorism.

The Smarter City intelligently interlinks all its potentials and city systems

Climate Change

Cities that can easily adapt to the effects of climate change.

Resources

Cities that are profoundly resource-efficient.

Society

Cities that allow for political participation of all their inhabitants.

opladnings stationer til elektriske biler.

E-Mobility

Cities that foster the change towards electro mobility.



ALMOST 2000 SMART CITY DEFINITIONS, BUT ALL BASED ON DIGITAL NETWORKING

Study Mapping Smart Cities in the EU,

DG Internal Policies 2014:

A city seeking to address public issues via ICT based solutions on the basis of a multi-stakeholder, municipality-based partnership.



ICT as Enabler and Integrator for Smart Solutions

- National Platform City of the Future: Research and Innovation Agenda 2015
- acatech Integrating ICT for the City of the Future, 2014
- Morgenstadt City Insights Reports, 2013
- FOKUS Smart Cities Portal, Sept. 2011
- Münchener Kreis Smart Cities Conference in Berlin, Juli 2010



THE "SENSIBLE" CITY

Information on City Services, Mobility Services, etc.

Real-Time Support for Finding a Place to Live and Work

Real-Time Support for the Selection of a Travel Route

> A priori Analysis of Emergency Situations

Environmental Monitoring and Footprints

Communication between People and Urban Infrastructures

Intelligent
Lighting of Streets
and Public Places



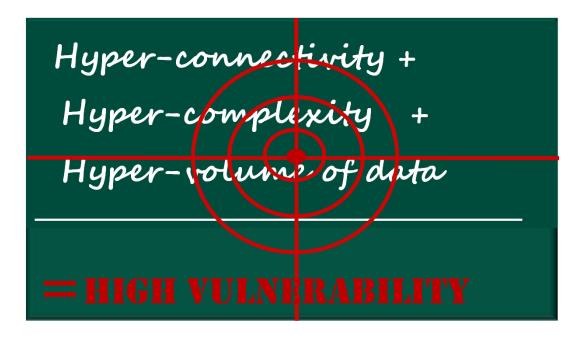
URBAN ICT AS CRITICAL INFRASTRUCTURE

Smart cities imply ...

- High complexity of the ICT systems
- Highly interconnected components
- High volume of data generated

- ... and need to be designed with...
- Cyber security
- Privacy
- Integrity
- Compliance
- Reliability
- Resilience

...in mind.





ANOTHER PERSPECTIVE

Cities develop

from solution providers to

platform providers!



EUROPEAN INNOVATION PARTNERSHIP ON SMART CITIES AND COMMUNITIES

Memorandum of Understanding "Towards Open Urban Platforms for Smart Cities and Communities"

- by 2018, create a strong EU city market for Urban Platforms
- by 2025, ensure that the market of 300m residents of EU cities use Urban Platform(s) to manage their business with a city and
- that the city in turn drives efficiencies, insight and local innovation through the platform(s)



ELECIPEAN INNOVATION PARTNERS UP ON SMART CITIES AND COMMUNITIES

Towards Open Urban Platforms for Smart Cities and Communities

Memorandum of Understanding

1. Outline of this Memorandum

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

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

2. Background

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

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EC EIP on Smart Cities and Communities, Mai 2015







EXAMPLES



Monitoring, Control, Optimization



Smart urban apps, Open innovation, Digital ecosystems



Crowdsourcing, Digital Engagement



Integration, Analysis and Collaboration Tools





Open Interfaces and Open Standards







Urban Data and Service Platforms





Public IT Infrastructures





NEW URBAN AGENDA

"We will implement the creation, promotion, and enhancement of participatory data platforms using technological and social tools available to transfer and share knowledge among national, sub-national, and local governments and other stakeholders, including non-state actors and people to enhance effective urban planning and management, efficiency, and transparency through e-governance, ICT- assisted approaches, and open data." (Habitat III Zero Draft, p 20)



HABITAT III
ZERO DRAFT OF THE NEW URBAN AGENDA

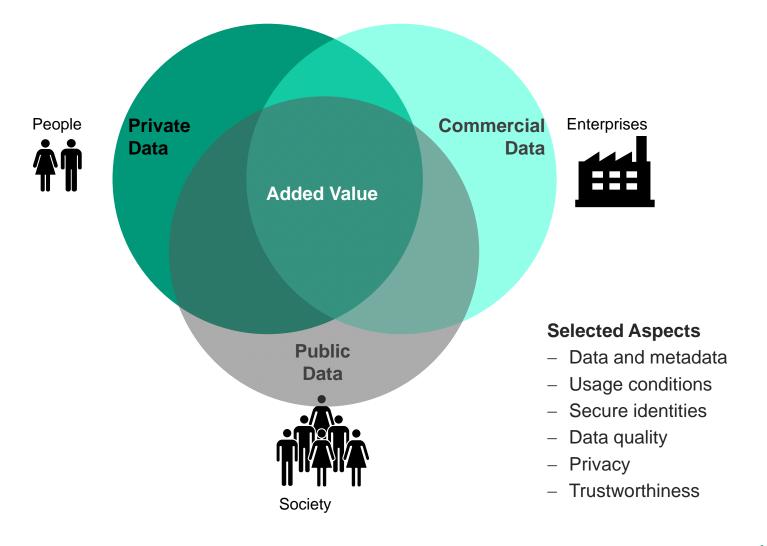
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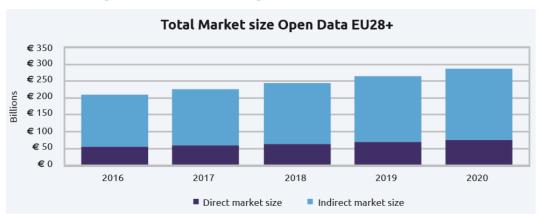


DATA SPACES



OPEN DATA MARKET

Creating Value through Open Data, Nov. 2015



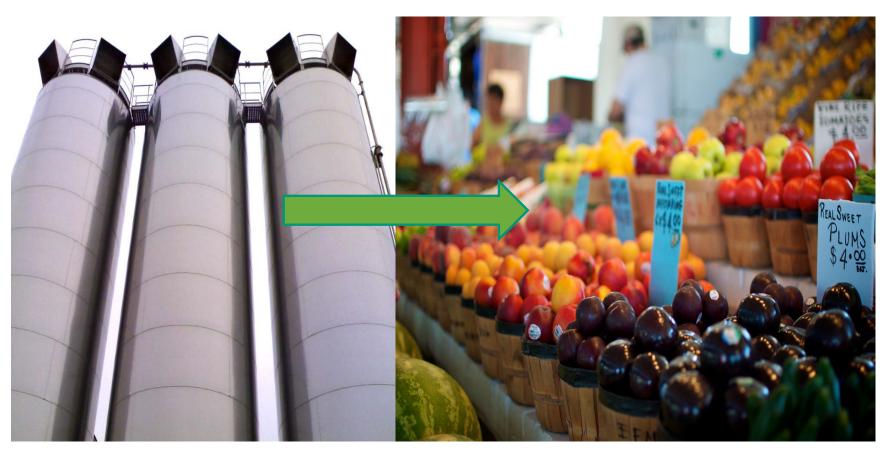
Share PSI Analytical Report: Digital Transformation and Open Data, Dez. 2015

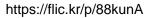
LICENSING **ADVERTISING** Example: Most weather forecast services rely Example: (Leg)Cyte functions like a "Google on data from observation stations operated Docs" for drafting legislation, and comes or sponsored by the national Weather equipped with sophisticated open data Services(NWS), and gain revenue through analytics tools for Congressional staffers, geographically targeted advertising. lobbyists and policy works SUBSCRIPTION MODELS **CONSULTING FEES** Example: OpenGov.com offers a **REVENUE SOURCES** Example: Data-driven firms like subscription service to state and **Booz Allen and McKinsey FOR OPEN DATA** local governments to access the analyze both open and company's web-based program, COMPANIES proprietary data to advise their which can effectively manage, corporate clients on business analyze, and visualize financial opportunities. data **LEAD GENERATION ANALYTICS FEES** Example: BuildZoom collects and Example: Panjiva created a sophisticated search engine for global commerceanalyzes data on the construction industry, including publicly available including shipping information and reports for licensed government customer lists-using customs datasets and contractors. Users are able to request other forms of government data. project bids from contractors.



OPEN URBAN DATA FOR INTEGRATED/SMART PLANNING

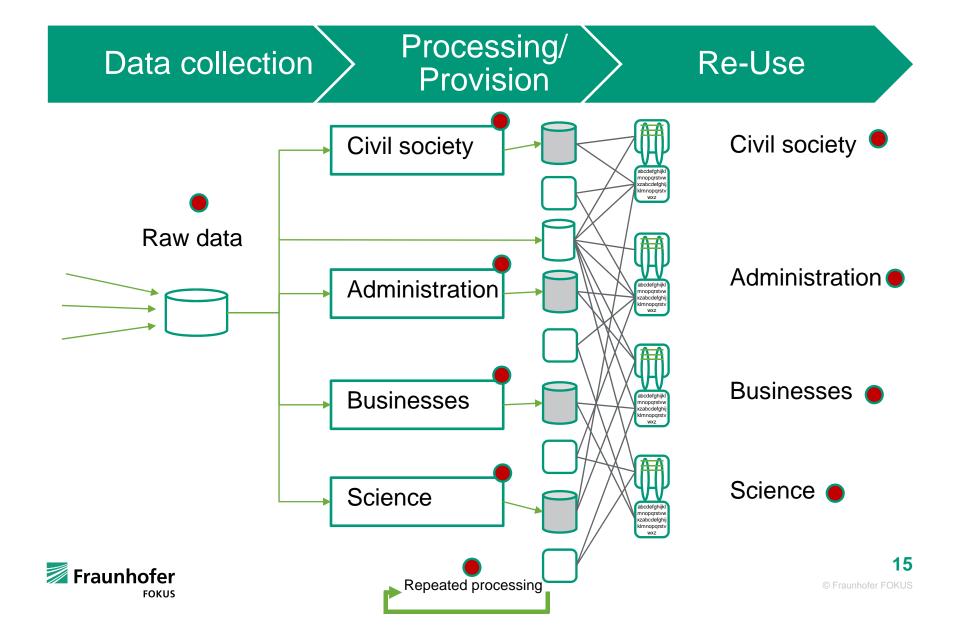
From data silos to accessible and ready to use data



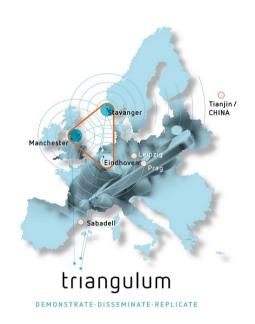




SUPPORTING AN URBAN DATA ECOSYSTEM



TRIANGULUM: SMARTER CITIES REFERENCE ARCHITECTURE



In the context of the EU's Horizon 2020 initiative, Triangulum will lead the way towards a smart and sustainable development in European cities.

Scientists of the Fraunhofer FOKUS SQC (System Quality Center)
Competence Center develop a reference architecture according to the cities' requirements which will capture all ICT components to be integrated. Thus, an abstract model of smart city modules emerges. The model approach allows other cities to integrate existing concepts or modules into their own infrastructure.



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GOVDATA.DE: OPEN DATA PORTAL FOR GERMANY



Developed in collaboration with the Federal Ministry of the Interior.

The Pilot/Prototype was officially online since the 9th of February 2013 until it shifted to official production wise operation in 2015: http://www.govdata.de.

Fraunhofer FOKUS was responsible for the development and improvement of the prototype, the operation and maintenance of the underlying infrastructure, as well as for the data harvesting from various data repositories across Germany.



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EUROPEAN DATA PORTAL: OPEN DATA FROM 39 COUNTRIES



The European Data portal will bring together Open Public Data from numerous European countries and improves the discoverability and the ability to re-use open public data. With the Data Portal, the European Commission intends to unlock the economic potential of public data that is estimated of possible gains exceeding 40 billion Euros per year.

Fraunhofer FOKUS is one of the key technical partners in this ambitious Open Data project, responsible for developing the data repository and harvesting datasets from existing open data sources. The data repository bundles all different data entries based on their metadata while the harvesting-tools allow to collect data sets from various sources across all the EU countries.



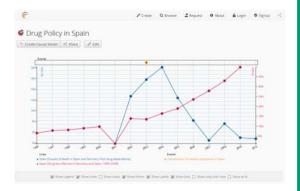
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POLICY COMPASS: DEBATES ON POLICY ISSUES





Reference Solution 5:

Since April 2016: The pilot/prototype-Portal http://www.policycompass.eu is an easy-to-use, highly visual and intuitive tool, enabling citizens and public officials to summarize and visualize debates on policy issues of interest (e.g. on smart urban development) with the help of argument maps and assess policy propositions based on interactive KPI graphs and charts.

Concepts and realization by Fraunhofer FOKUS



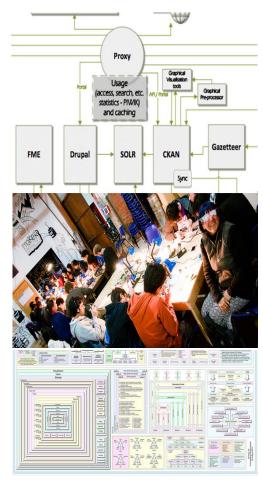
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STRATEGIC ASPECTS OF URBAN DATA PLATFORMS

- Next to the technical provision of data:
 - Sustainability of data provision,
 - Cooperation with civic and other stakeholders
 - Willingness to learn from civic and other stakeholders
 - Inclusion of urban data infrastructure in themes and strategies of public bodies



https://flic.kr/p/fQYRPb https://flic.kr/p/dZ2f8b



STATUS OF SMARTER CITIES IN GERMANY

Cities and Communities

- Several Digital Agenda and/or Smarter City/Community Roadmaps
- Large amount of domain-specific pilots (some solutions transferred into normal operation),
 but often not cross-domain or platform-driven
- Often scattered responsibilites in different administrations and lack of know and expertise in digitization
- Various studies, metrics and rankings

Research and Development

- ICT for Smarter Cities Center at Fraunhofer FOKUS since 2011; eGovernment and Digital Public Services since 2003
- Fraunhofer Initiative Morgenstadt since 2012
- Acatech Initiative City of Tomorrow, 2012-2014
- National Platform City of the Future, 2013-2014
- Year in Science on City of the Future 2015
- European Innovation Platform Smart Cities and Communities since 2014



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