European Commission

Open Data and Indicators of Well-Being

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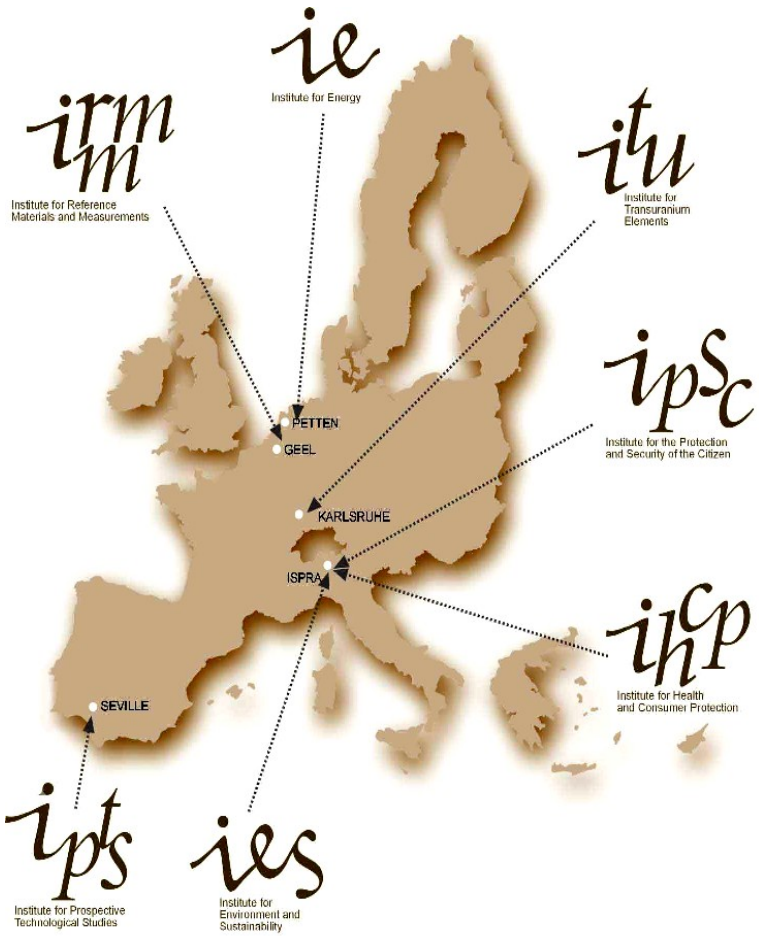
Serving society
Stimulating innovation
Supporting legislation

Joint Research Centre

About us

- The Joint Research Centre is the European Commission's in-house science service. We provide EU policies with independent, evidence-based scientific and technical support.
- We are organised in 7 research institutes in 5 countries, Ispra, Italy, being the main site with over 2000 scientists.



JRC is Technical Coordinator of INSPIRE

"Infrastructure for Spatial Information in the European Community"

Institutional framework	Technical standards
Fundamental data sets	Data Services

Distributed infrastructure

28 countries,
23 languages

General rules for establishment

Environment

34 Spatial Data Themes

Entry into force 15/5/2007

Set of European and national Legal Acts and their coordinated implementation

INSPIRE is a legal framework

- The INSPIRE Directive lays down general rules to establish an **Infrastructure for Spatial Information in Europe** for environmental policies and policies which may affect the environment
- INSPIRE is built on the SDIs established and operated by the Member States
- Implementing Rules (i.e. legislation)
  1. Metadata
  2. Interoperability of spatial data sets and services
  3. Services (discovery, view, download, transform, invoke)
  4. Data and Service sharing (policy)
  5. Monitoring & reporting

INSPIRE thematic scope

Annex I

1. Coordinate reference systems
2. Geographical grid systems
3. Geographical names
4. Administrative units
5. Addresses
6. Cadastral parcels
7. Transport networks
8. Hydrography
9. Protected sites

Annex II

1. Elevation
2. Land cover
3. Ortho-imagery
4. Geology

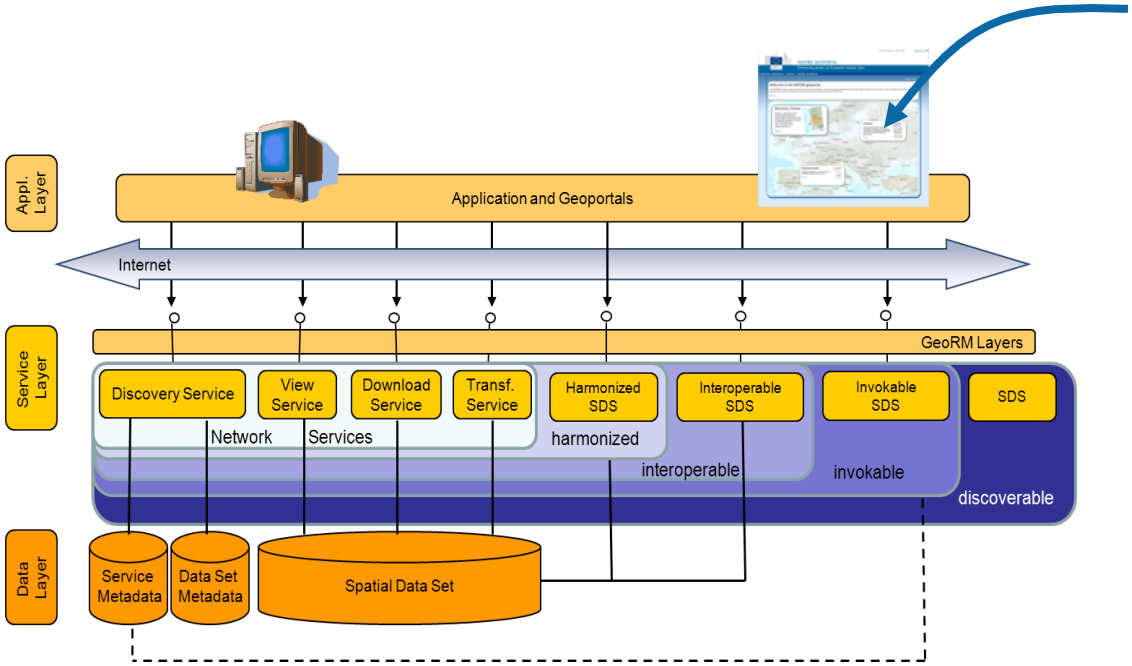
Annex III

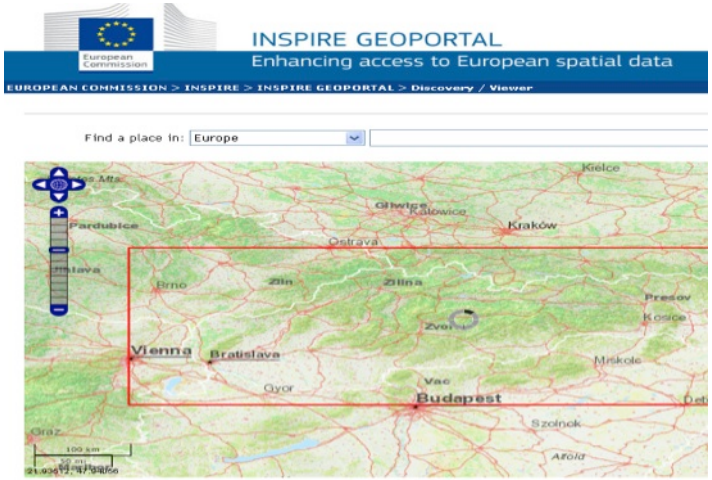
1. Statistical units
2. Buildings
3. Soil
4. Land use
5. Human health and safety
6. Utility and governmental services
7. Environmental monitoring facilities
8. Production and industrial facilities
9. Agricultural and aquaculture facilities
10. Population distribution – demography
11. Area management/ restriction/regulation zones & reporting units
12. Natural risk zones
13. Atmospheric conditions
14. Meteorological geographical features
15. Oceanographic geographical features
16. Sea regions
17. Bio-geographical regions
18. Habitats and biotopes
19. Species distribution
20. Energy Resources
21. Mineral resources

INSPIRE Geoportal

Central access point to the INSPIRE infrastructure and resources (>300.000)

→ **"The face" of INSPIRE**





- Connection to all MS network services

→ **cross-border data discovery and visualisation**

→ **support to European policy making**

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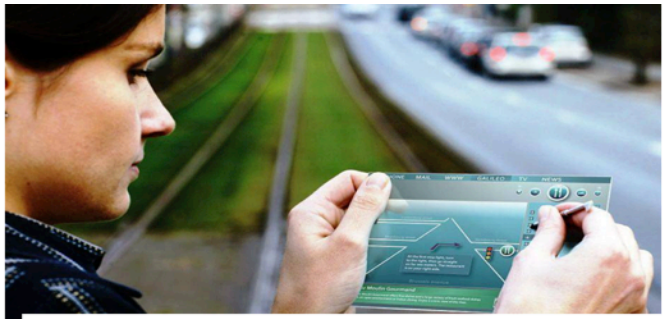
Extending INSPIRE to other policies



EU-wide Multi-Modal Travel Information

EU-wide Real-Time Traffic information

Free safety-related minimum Traffic Info

Interoperable EU-wide eCall

Information & Reservation systems for Truck Parking

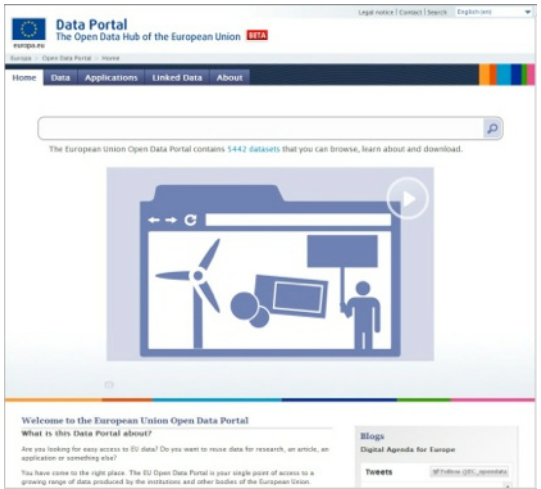
SOURCE: European Commission

INSPIRE meets Open Data (PSI)

Open Data initiatives around the world

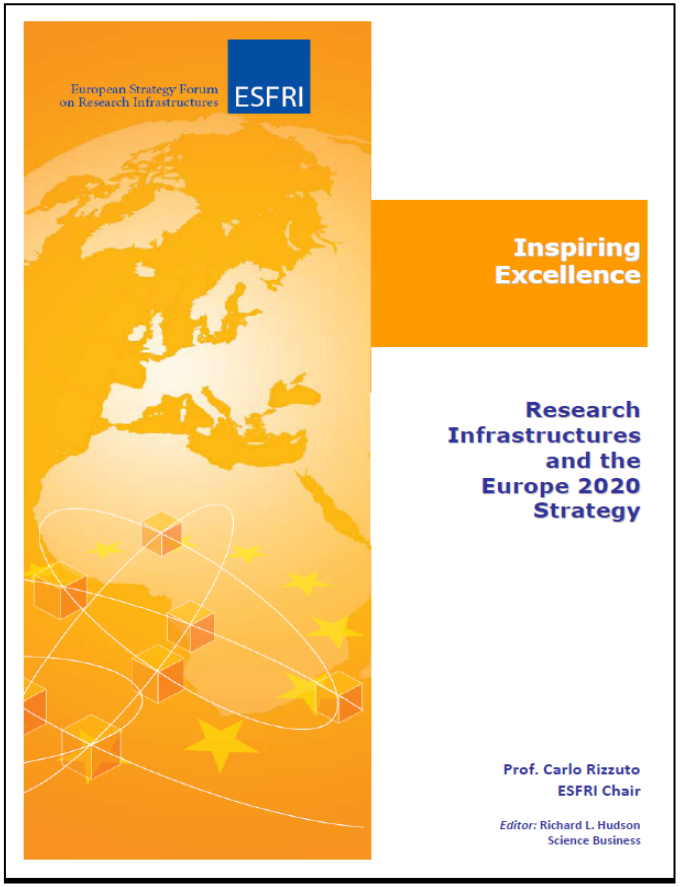
In EU, Open Data Strategy

- Communication on Open Data (COM(2011)882)
- A revision of the Decision governing the re-use of Commission's own information (2011/833/EU)
- Revision of the Directive on the re-use of public sector information (2013/37/EU)
- Open data-portals
- EU Open Data portal
- pan-European portal



Open Research Data

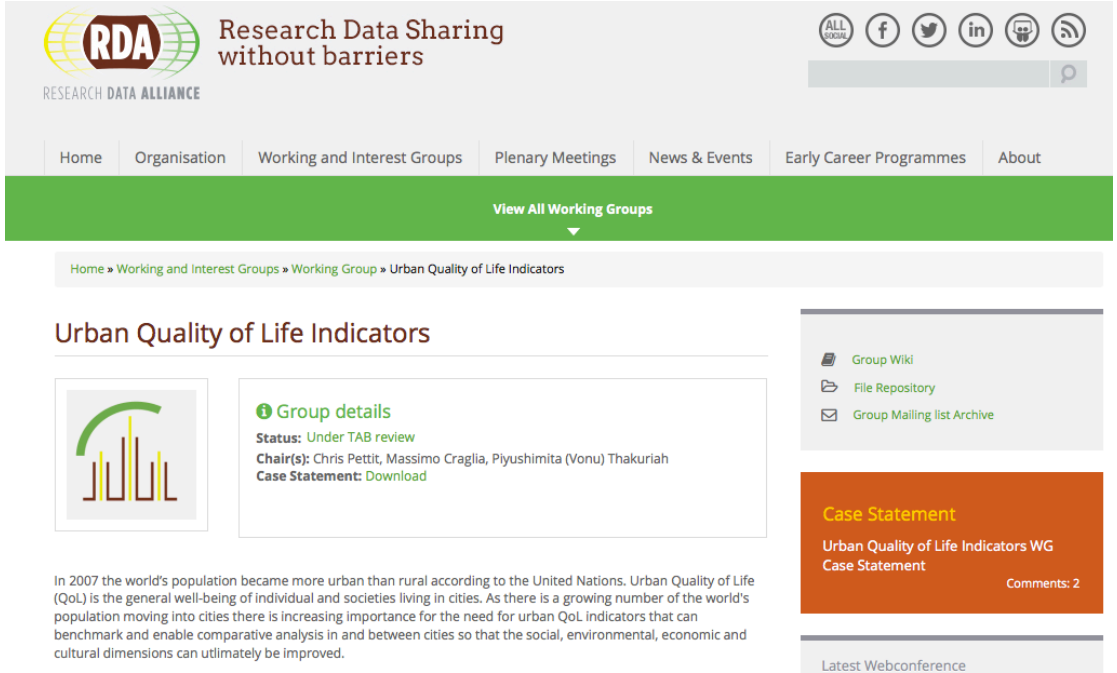
- Open Access put forward by the Commission for scientific publications/ data within Horizon 2020
  - For a subset of thematic areas, funded projects shall include data management plans and ensure open access
- JRC has proposed a strategy for online dissemination of JRC research activities and scientific results



Research Data Alliance

- Aims to be for data what the IETF is for the Internet
- Bottom up interest and working groups, peer reviewed, building solutions in 18 months.
- New group on Urban Quality of life indicators

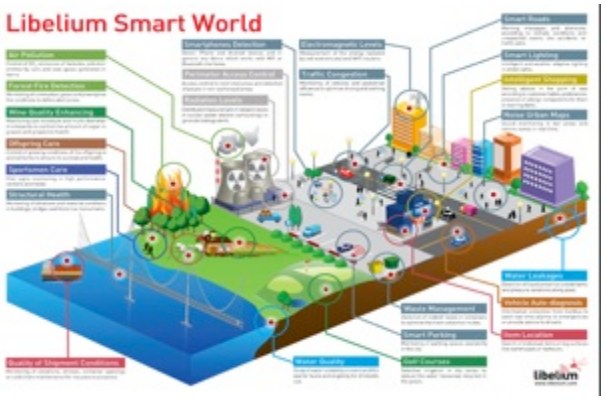
https://www.rd-alliance.org/group/urban-quality-life-indicators.html



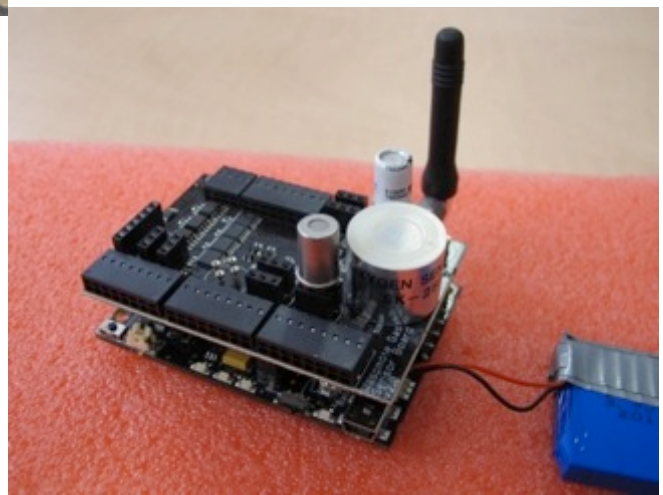
New Data Sources = Volume and Variety

- 8 Terabytes per day once in operations
- Raises issues of where and how to store the data, how to provide easy and rapid access, how to process and analysis, and maintain over time.

Massive diffusion of cheap sensors provides new opportunities and challenges



Publiclaboratory.com



- Mobile phones sensing better in some fields than others (e.g. noise)
- Drones some limitations relating to regulatory framework
- Waspmotes need programming and issues of calibration and response time but opportunities high..

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Combining Remote Sensing with Social Sensing

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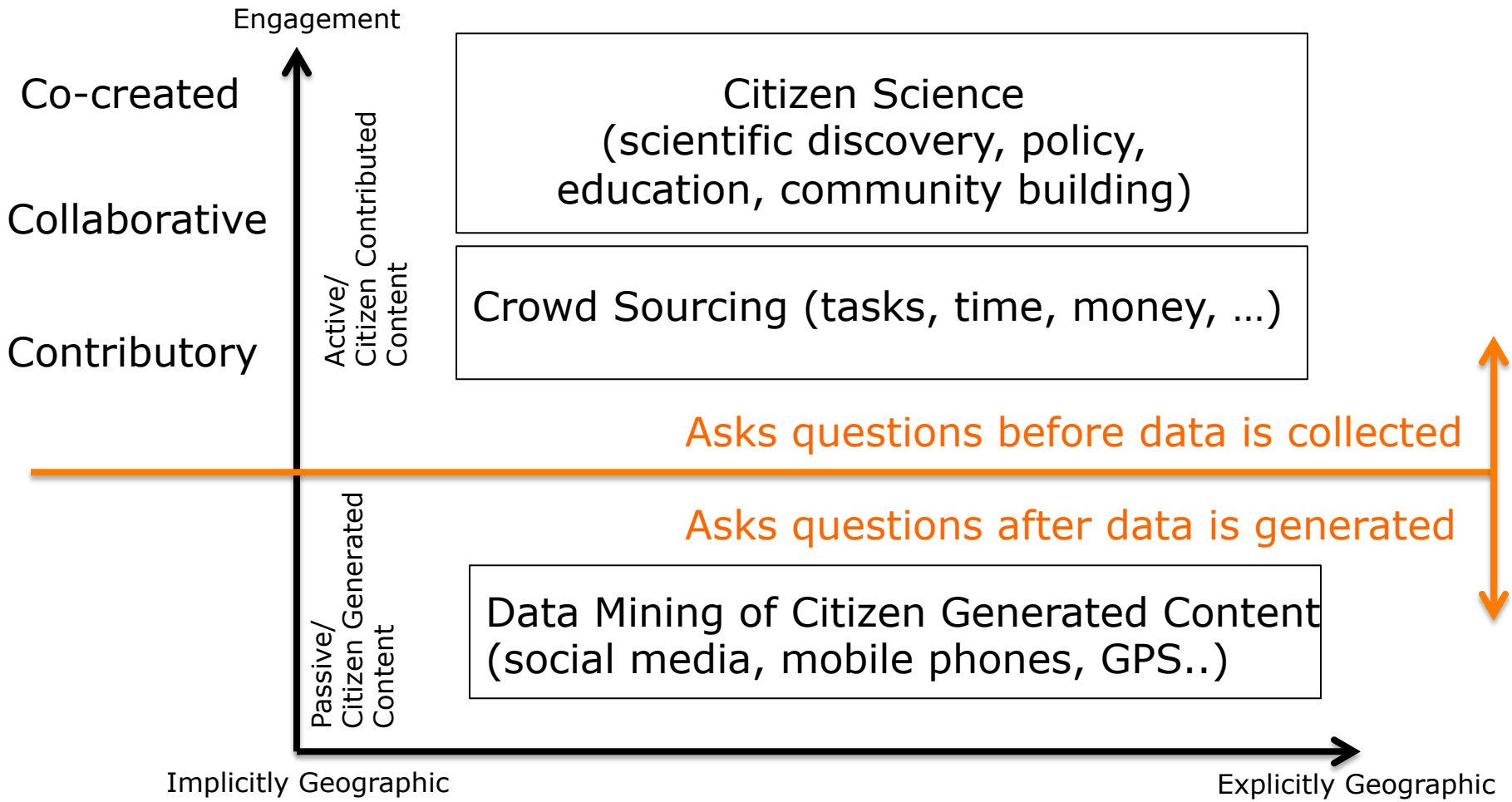
Typology of Citizen-generated/contributed content



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Official Statistics and Big Data

- Action plan and roadmap to prepare the ESS in integrating Big Data for official statistics
- Supports ESS vision to become more efficient and improve timeliness, agility, and flexibility
- ESS Task Force set up in Jan 2014 with 9 NSI, OECD, UNECE, JRC, DG CONCT, and academic experts
- Define long term action (beyond 2020), medium term (2020) and short term (2016)
- Pilots to be set up using different sources of data

22nd Meeting of the
European Statistical System Committee

Riga (Latvia),

26 September 2014

Item 8 of the agenda

ESS Big Data Action Plan and Roadmap 1.0
Work Programme Objective 11.1

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No.	Data source	Data type	Statistical Domains
1	Mobile communi-cation	Mobile phone data	Tourism statistics, Population statistics
2	WWW	Web searches	Labour statistics Migration statistics
		e-commerce websites	Price statistics
		Businesses' websites	Information society statistics
		Businesses' websites	Business Registers
		Job advertisment websites	Employment statistics
		Real estate websites	Price statistics (Real estate
		Social Media	Consumer confidence; GDP and beyond; Information society statistics
3	Sensors	Traffic loops	Traffic / Transport statistics
		Smart meters	Energy statistics
		Satellite images	Land use statistics, Agricultural statistics, environment statistics
		Automatic vessel identification	Transport and emission statistics
4	Transactions of process generated data	Flight movements	Transport and air emission statistics
		Supermarket scanner and sales data	Price statistics Household consumption statistics
		Financial transaction data	Household consumption statistics
5	Crowd sourcing	Volunteered geographic information (VGI) websites (OpenStreetMap, Wikimapia, Geowiki)	Land use
		Community pictures collection (Flickr, Instagram, Panoramio)	-

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JRC Contribution

- Leading JRC Open Research Data policy and infrastructure (including data, services, models, and publications)
- On-going project identifying opportunities and pitfalls in using data from social media and web for urban quality of life indicators (mobility and active citizenship being addressed at the moment)
- Developing framework for interoperability of data from sensors and citizen-based projects based on INSPIRE (based on the Sensor Web Enablement suite of standards)
- Launching an internal Big Data for the Environment pilot 2015-18 based on remote sensing and social sensing data
- Initiating study on potential access and use of mobile phone data for public policy

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Communicating and Engaging in Science

- Open data and Big data have the potential to offer many new opportunities (and pitfalls), which need to be verified and tested.
- Working together across public sector agencies, international organisations, NGOs, and community-led projects is essential
- Opening access to data is positive but we need also transparency about **how** the data is then used to produce **what,** and **for whom.**
- From **Open Data to Open Models** and processing
- Transparency crucial to developing and maintaining **TRUST**

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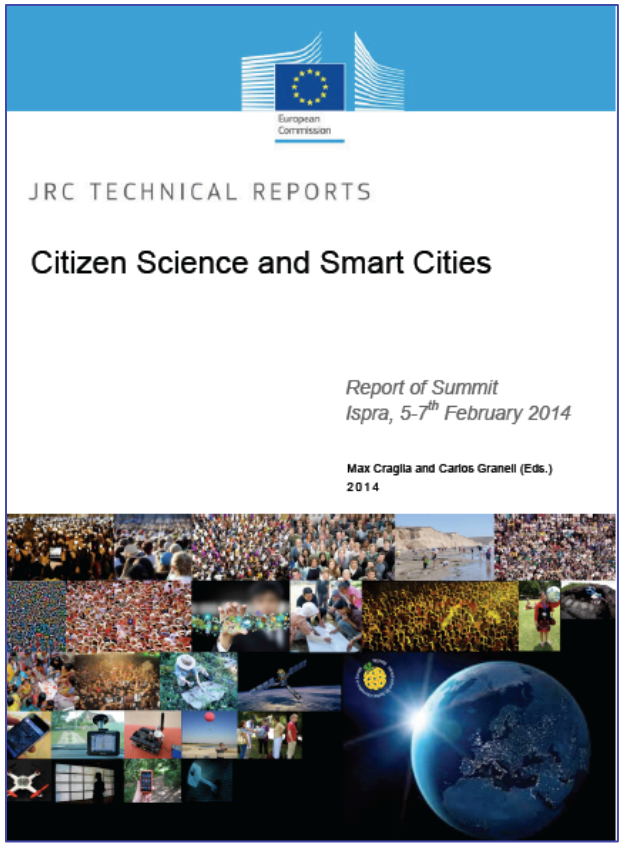

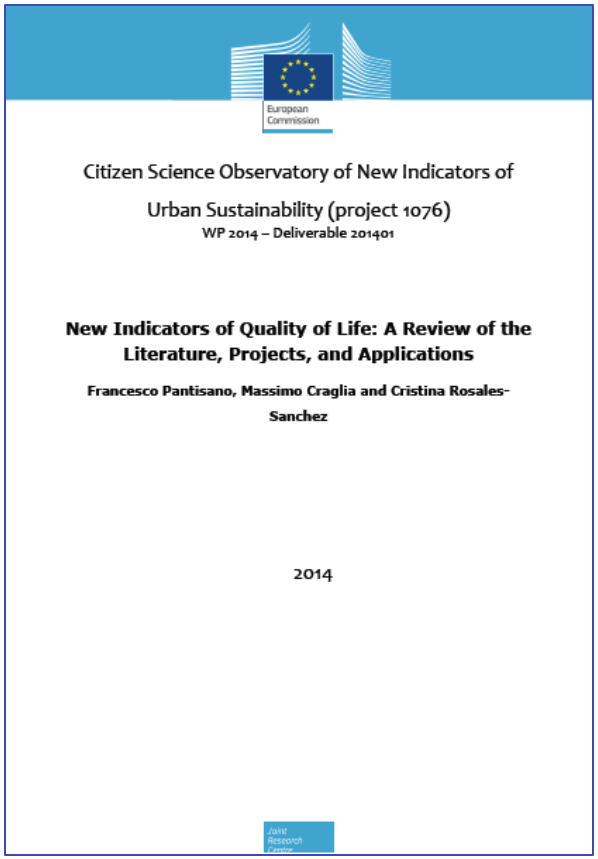

http://digitalearthlab.eu/Citizen_Science_and_Smart_Cities_Full_Report.pdf

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Thank you for your kind attention

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