

# CITI-SENSE

Development of sensor-based  
citizens' observatory community for  
improving quality of life in cities

24<sup>th</sup> October, 2013,  
CDMA Building - Rue du Champ de Mars, 21, Brussels.

**Citizens' Observatories Project Coordination Meeting**

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CITI-SENSE consortium**



# Presentation Outline

- **General info of the CITI-SENSE**
  - Basic data
  - Objectives
  - CO implementation
- **Summary of the work carried out so far**
  - Progress to date
  - Barriers encountered/current challenges
- **Next steps**
- **Main dissemination**
- **Cooperation with other CO projects**

# Basic data

**Starting date:** 01/10/2012

**Duration:** 48 months

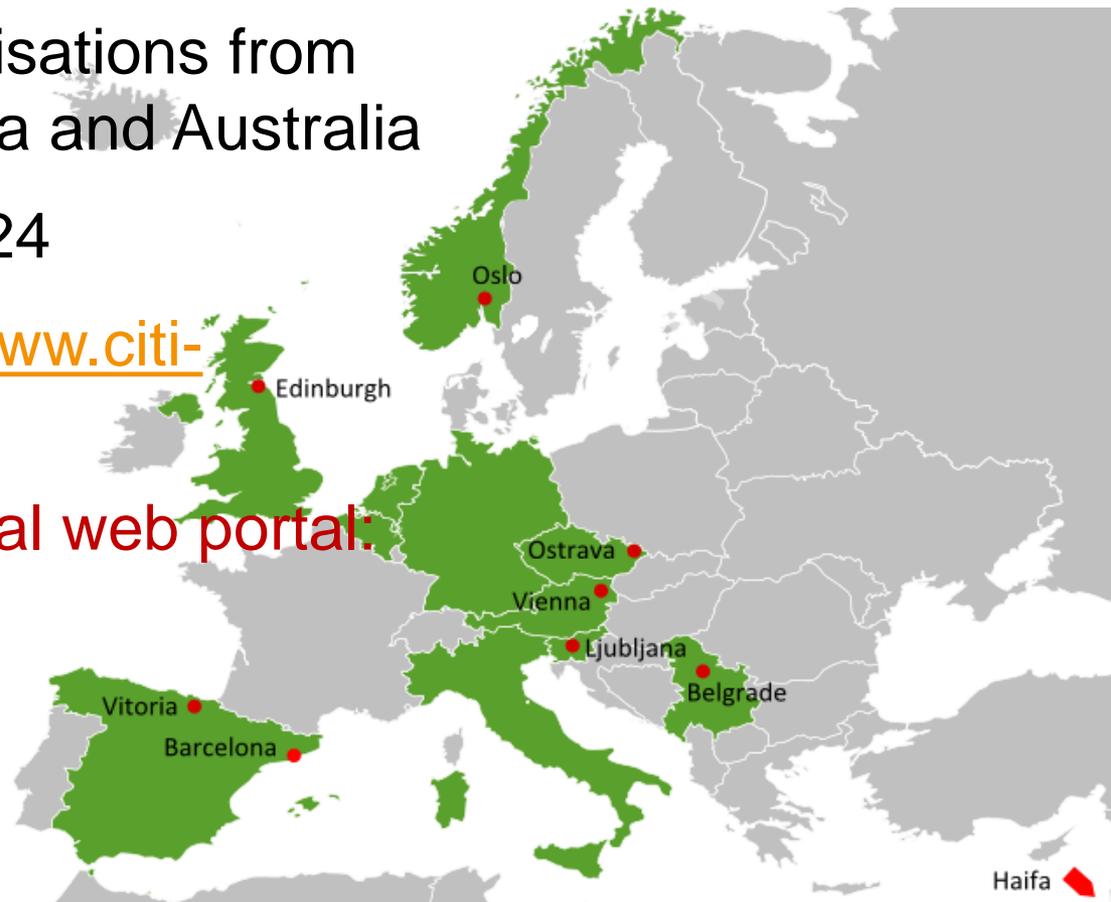
**Budget:** 12M€

**Partners:** 28 partner organisations from Europe, Israel, South Korea and Australia

**Grant agreement n<sup>o</sup>:** 308524

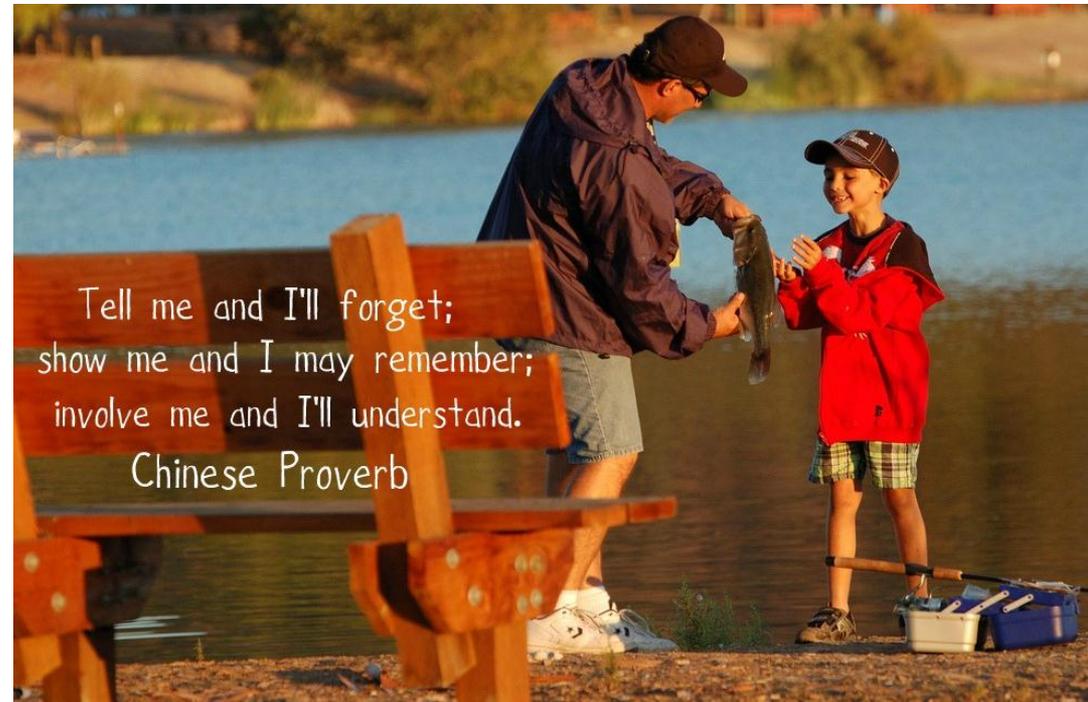
**Project web portal:** <http://www.citi-sense.eu>

**Citizens' observatory central web portal:** <http://co.citi-sense.eu>



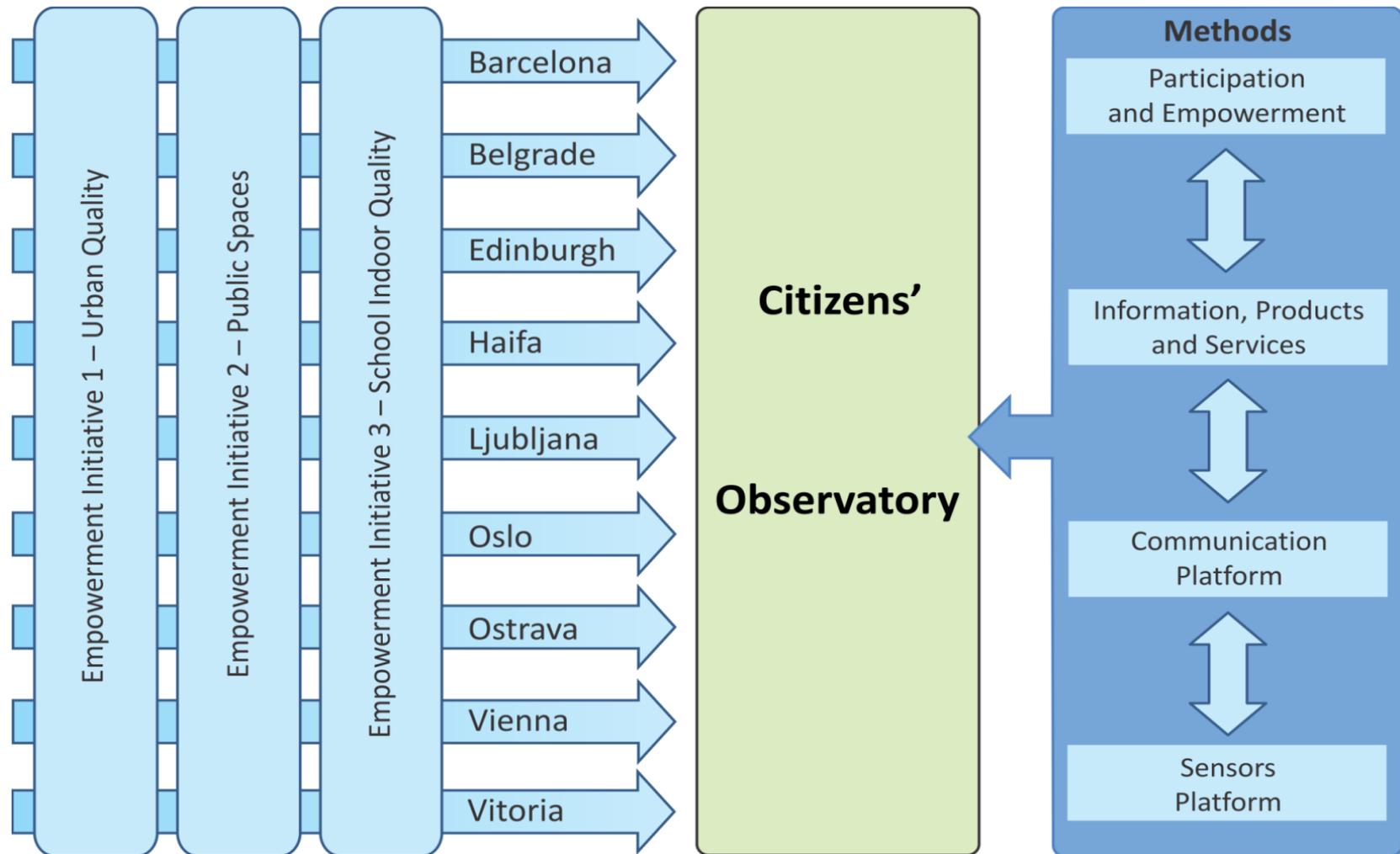
# Objective

- **To develop Citizens' Observatories to empower citizens to**
  - Contribute to and participate in environmental governance
  - Support and influence community and policy priorities and associated decision making
  - Contribute to Global Earth Observation System of Systems (GEOSS)



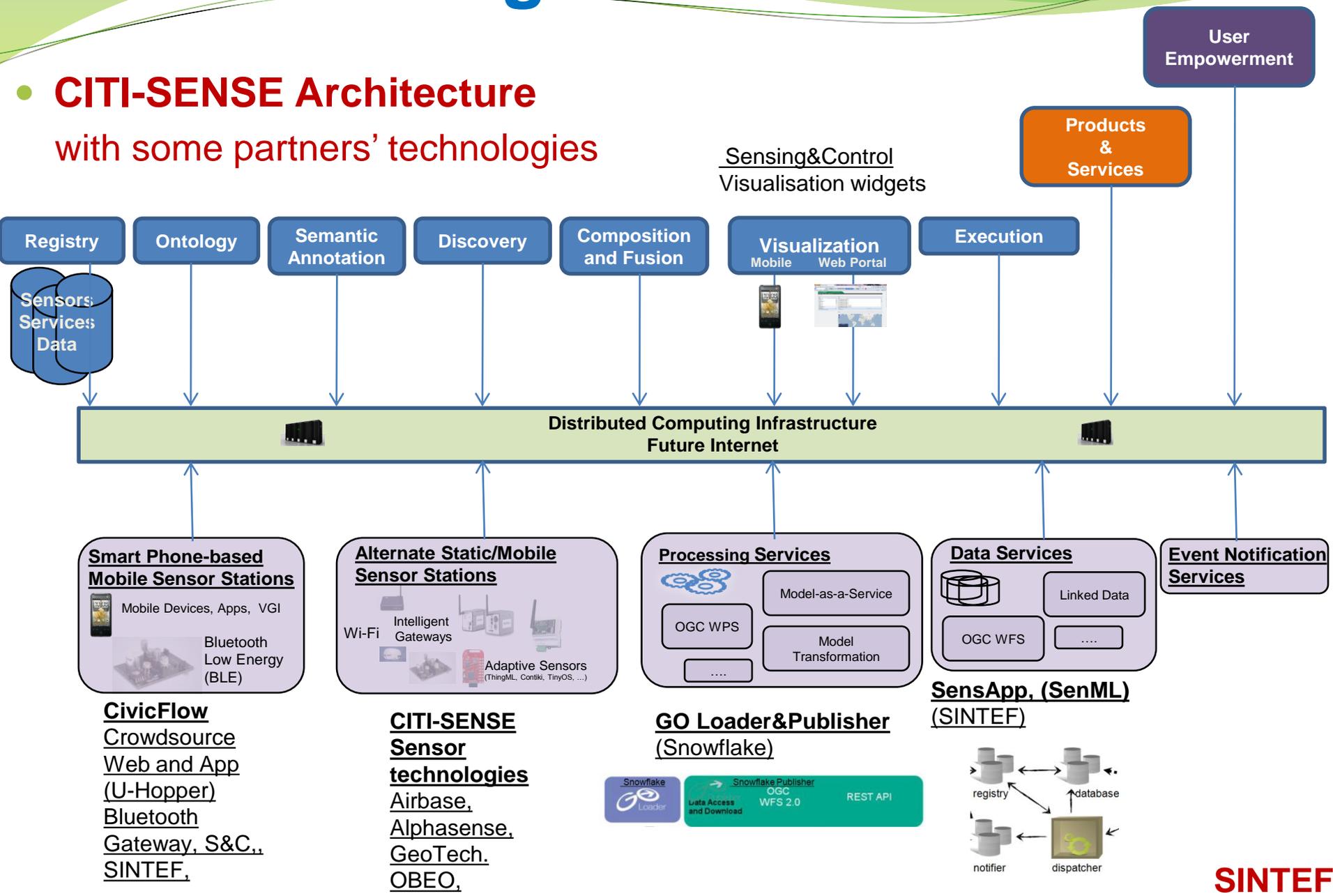
Tell me and I'll forget;  
show me and I may remember;  
involve me and I'll understand.  
Chinese Proverb

# Citizens' Observatory Implementation



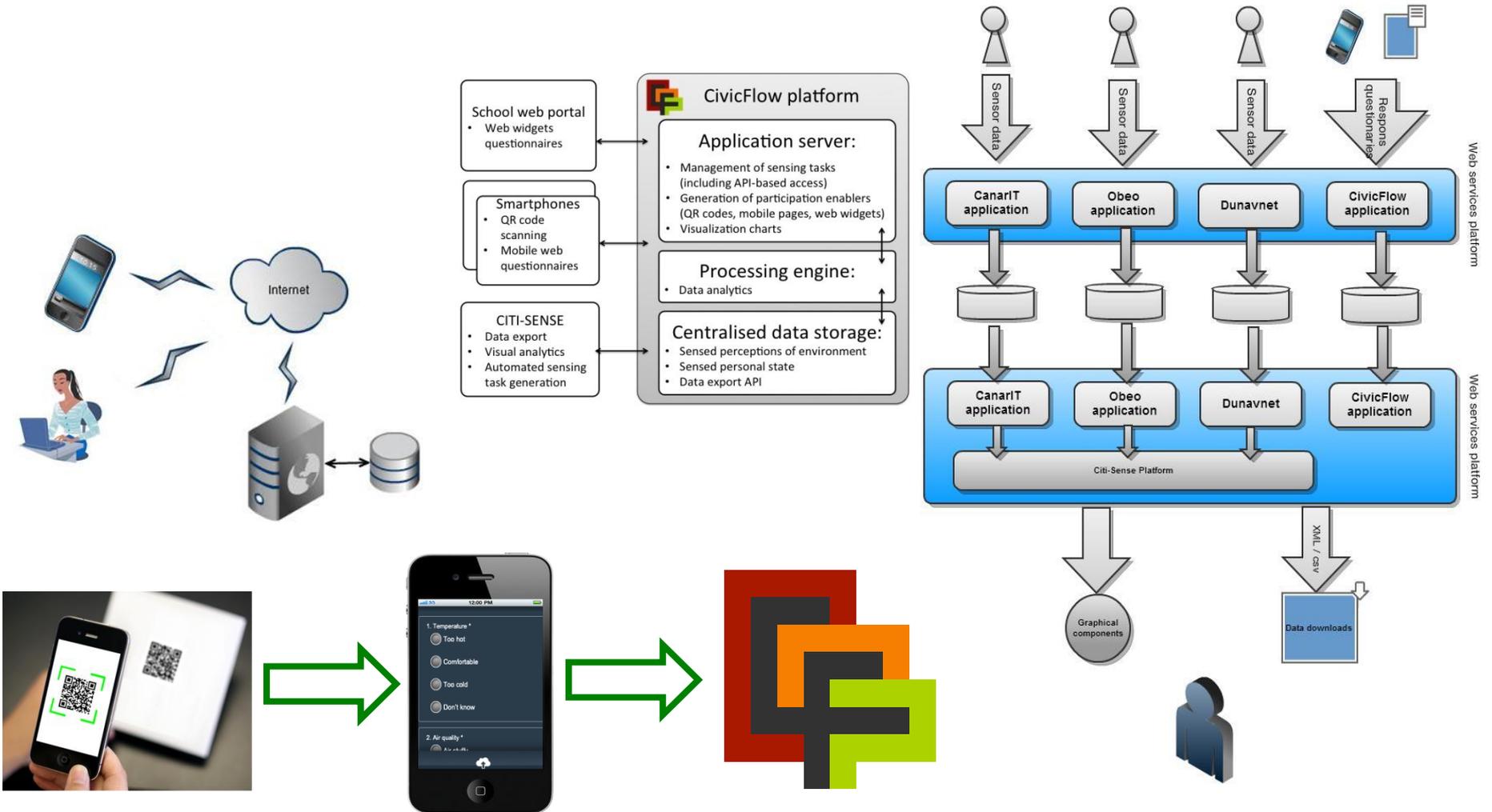
# Progress to date

- CITI-SENSE Architecture**  
with some partners' technologies



# Progress to date

- CITI-SENSE E2E pilot implementation prototype –IAQ in school**



# Progress to date

- **El Urban Quality (empowerment initiative)**



Barcelona (Spain)

Belgrade (Serbia)

Edinburgh (UK)

Haifa (Israel)

Ljubljana (Slovenia)

Oslo (Norway)

Ostrava (Czech Republic)

Vienna (Austria)

Vitoria-Gasteiz (Spain)

# Progress to date

- **CO Portal, gateway to the various COs**

## Phase I: current ideas for the CO

- Main page
- Access to various COs
- Examples of potential user involvement
- Internal review and discussion
  - ✓ Schools WP3b
  - ✓ Urban Air Quality WP2
  - ✓ Pubic spaces WP3a

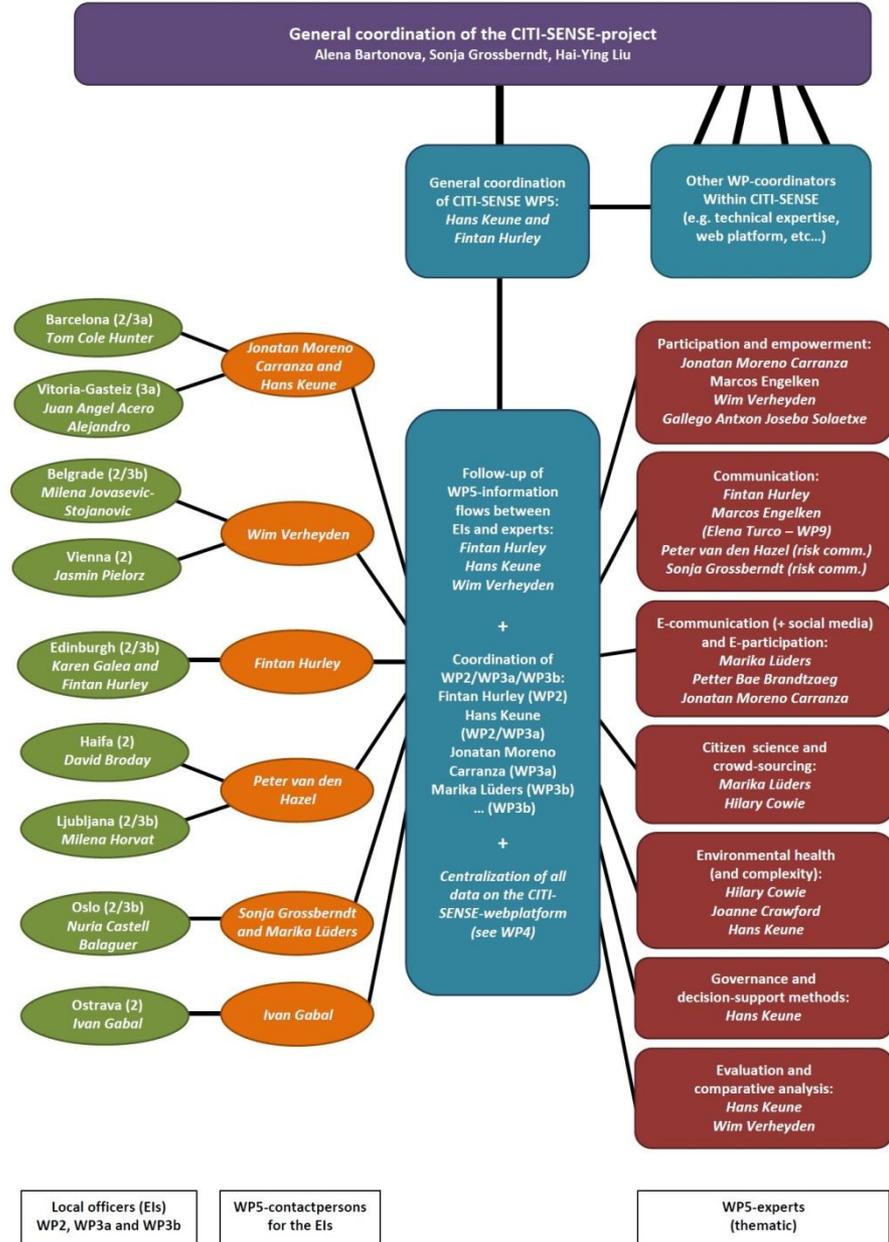
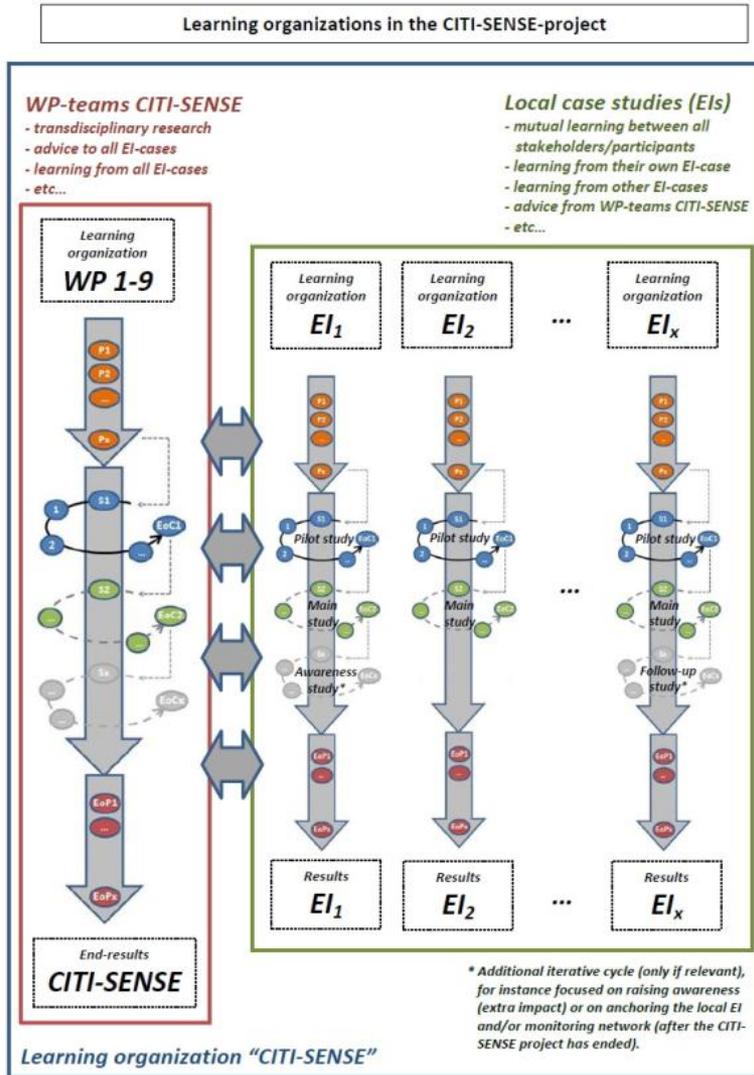
## PHASE II: GEOSS Integration Future ideas for the Citizens Observatory

- Access all project sensor data in one interface
- Open API enables GEOSS functional integration into CO portal

The screenshot shows the CITI-SENSE public portal. At the top left is the CITI-SENSE logo. To the right is a quote: "Tell me and I will forget. Show me and I will remember. Involve me and I will understand. Ancient Chinese proverb". Below the quote is a navigation bar with links: HOME, ABOUT US, COMMUNITY, EMPOWERMENT INITIATIVES, CONTACT US. The main content area features a large image of many hands holding mobile phones, with the text "Make a contribution". Below this is a paragraph: "The CITI-SENSE public portal is designed to enable citizens to not only have access to real-time environmental information provided by a wealth of sensors, including personal sensors, mobile sensors and static stations, but also to provide a forum for discussion, debate and sharing of YOUR own personal observations on the environment, and how it affects and impacts you in your daily life. Your contributions are important and the Citizens' Observatory is yours!". Below this is a search bar and a search results section. The search results show several entries for "special charts UPPER AIR, pressure level 850 hPa" and "analysis". At the bottom of the page, there are four featured sections: "Indoor Air Quality in Schools" (with an image of children in a classroom), "City Air Quality" (with an image of a city street), "Public Spaces" (with an image of a public square), and "Decision Making" (with an image of a group of people). The footer contains the copyright notice "Copyright 2013 by Citi-Sense | Privacy Policy" and a user profile for "Mike Kobernus" with a "Logout" button.

# Progress to date

## Collaborative participation



# Progress to date

## • Sensor and sensor platforms

Sensor and sensor platform provider	Sensor platform type(s)	Basic descriptions and specs (for pilot)	Photos of the platform	End users in the project	Qty	Delivery to end users
<b>GEOTECH</b>	Static, battery powered 'pod'	NO (ppb) NO2 (ppb) O3 (ppb) CO (ppb) SO2 (ppb) Pressure (mB) Temperature (° C) Relative Humidity (%)		WP2, OAQ, Barcelona WP2, OAQ, Edinburgh WP2, OAQ, Haifa WP2, OAQ, Oslo WP2, OAQ, Ljubljana WP2, OAQ, Vienna WP2, OAQ, Edinburgh WP3a, PS, Vitoria	5 5 6 5 5 5 5 1	End Oct 2013 End Oct 2013
<b>AIRBASE</b>	Static sensors for school indoor/Outdoor & city outdoor networks	CO2/O3, No2, VOC, TSP, Noise, Temp and humidity The device sends every 20 seconds packet of measurements to the server		WP2, OAQ, Haifa WP3b, IAQ, Oslo WP3b, IAQ, Edinburgh WP3b, IAQ, Ljubljana WP3b, OAQ, Oslo WP3b, OAQ, Edinburgh WP3b, OAQ, Ljubljana	5 3 3 3 1 1 1	Mid Oct 2013 End Nov 2013 End Nov 2013 End Nov 2013 End Nov 2013 End Nov 2013 End Nov 2013
<b>OBEO</b>	Indoor radon sensor with GSM (type MMR)	Quad band GSM/GPRS capabilities and built-in antenna		WP3b, IAQ, Oslo WP3b, IAQ, Edinburgh WP3b, IAQ, Belgrad WP3b, IAQ, Ljubljana	3 3 3 3	Mid Nov 2013 End Dec 2013 End Dec 2013 End Dec 2013
<b>DNET</b>	---	---	---	---	---	---
<b>CVUT</b>	---	---	---	---	---	---
<b>JSI</b>	---	---	---	---	---	---
<b>CRIC</b>	---	---	---	---	---	---

# Current Challenges

- **Common understanding**

- Multidisciplinary
- Terminologies
- Development of Ontologies

- **Citizens participation and empowerment**

- Building the bridge between what the user wants and what we can provide
- Need to manage the dialogue well

- **Sensor and sensor platform**

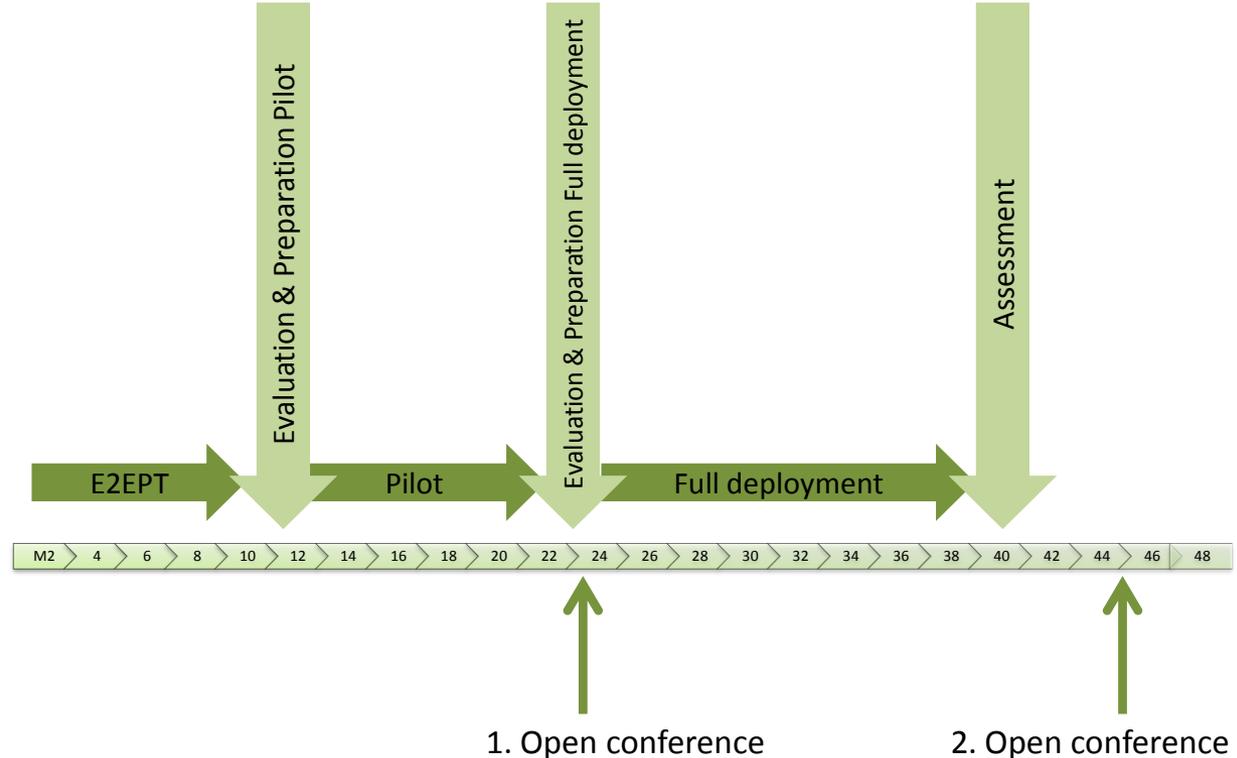
- Sensor provision
  - to whom
  - for which specific environmental parameters
- We can measure
  - NO<sub>2</sub> + O<sub>3</sub>, NO, CO, H<sub>2</sub>S, SO<sub>2</sub>, VOCs (not specific), PM<sub>10</sub> and PM<sub>2.5</sub>
- But we also what to measure
  - NO<sub>2</sub>, O<sub>3</sub> separately; PAH's (e.g., Ostrava); Formaldehyde (IAQ); Ultrafines; Oxidative stress of PMs; Pollen; biophages; Benzene; separate from BTEX.

# Barriers encountered

- Concept of Citizen's Observatories – common understanding
- Integration of citizens into the project
- Multidisciplinarity: keeping the project together
- Internal information flow
- Budget: detailed planning - technologies «fit for purpose»

# Next steps

- M1-18: E2E prototypes and pilot phase for selected sensors at selected locations
- M18-24: Interim period – pilot evaluation
- M24-36: Full implementation for all sensors at all locations
- M36-48: Finalization



# Main dissemination

- Elena

# Cooperation with other CO projects

- **Tentative ideas**

- CO Infrastructure and architecture sharing
- Approach to integrate citizens
- CO article across the five CO clustering projects
  - Example idea: “Experiences in developing CO in five EU FP7 Projects”
- CO book across five CO clustering projects
  - Example title: “Citizen Observatories: Cross domain collaboration in the EU”
- Other: coordinated social CO media platforms, e.g., CO business page within facebook, CO group on LinkedIn and Flickr, etc
- <https://www.facebook.com/int.cit.obs>

# Thank you for your attention!

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