ESCOLA SUPERIOR DE COMUNICAÇÃO SOCIAL

# Citizen Observatories

## Concept, opportunities and communication with citizens in the first EU experiences

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# The concept
# Citizen Observatories 101

+ Citizen Observatories (COs) are essentially citizen-enabled observatories of the environment and natural resources through the use of information and communication technologies (ICT);

+ It implies:

  - i) the existence of a somehow open and shared information system, for the collection of data on the environment and natural resources, using ICT;
  - ii) the volunteer participation and involvement of individuals in data collection.

+ EU adopted a more specific concept, relating it directly to earth observation systems (the Copernicus satellite program, in the European case).

# The concept
## Some background and related concepts

+ Community-Based Environmental Monitoring (CBM), developing around 2000;

+ Later, with Volunteered Geographic information (VGI), allowing private individuals to participate directly in the collection of geographic information, using equipment and sensors (as opposed to a task carried exclusively by public agencies).

# The concept
# Meaning

+ But this means…

# The concept
## *Personae*

# The concept
# EU rationale

+ Copernicus satellite program

+ In situ components

+ “in-situ monitoring systems are very costly and Citizens Observatories have the potential of providing complementary information by thousands of mobile sensors at a much lower cost” (European Commission, 2014: 11).

European Commission (2014). *Citizens’ Observatories: Empowering European Society Conference Report Version 1.0*, http://citizen-obs.eu/Portals/25/Downloads/Citizens%20Observatories%20Conference%20Reportv1%200.pdf (Retrieved August 25th, 2016).

# First EU experiences
# Pilot projects, 2012 - 2016

+ 4 EU pilot projects, held between 2012 and 2016:

  - Citclops (Citizens' Observatory for Coast and Ocean Optical Monitoring), led by the Barcelona Digital Technology Centre;
  - Omniscientis (Odour MoNitoring and Information System based on CItizEN and Technology Innovative Sensors), led by Spacebel;
  - CITI-SENSE (dedicated to outdoor air quality monitoring), led by NILU - The Norwegian Institute for Air Research;
  - WeSenseIt (dedicated to water level and flood monitoring), led by The University of Sheffield;
  - COBWEB (Citizen OBservatory WEB), led by EDINA (University of Edinburgh).

# First experiences
# Communication and information flows

| | Objective evaluation | Subjective evaluation | Collection of information (input) | | | Dissemination of information (output) | | |
|---|---|---|---|---|---|---|---|---|
| | | | Website | Android app | IOS app | Website | Android app | IOS app |
| Citclops (Natural waters monitoring) | Yes (Water colour: Automatic FU index) | Yes (Water colour: Subjective FU index) | - | Yes EyeOnWater | Yes EyeOnWater | Yes (Colour: subjective and objective. Transparency: dataset of past observations) | - | - |
| OMNISCIENTIS (Odour monitoring) | - (Centralized: "electronic noses" in selected facilities) | Yes | Yes | Yes (FR) OdoMap | - | Yes, limited (Registered users only, history of own subjective observations) | Yes, limited OdoMap (Registered users only, history of own subjective observations) | - |
| CITI-SENSE (Air quality monitoring) | Yes (Personal Air Monitoring Toolkit - PAMT) | Yes i) Online air quality perception questionnaire ii) CityAir app | Yes Online air quality perception questionnaire ("Extensive" questionnaire) | Yes (Subjective: CityAir, with "flash" surveys; Objective: PAMT, through sensor pairing) | Yes (Subjective: CityAir, "flash" surveys) | Yes (Objective and and subjective) | Yes (Subjective: CityAir) | Yes (Subjective: CityAir) |
| WeSenseIt (Flood risk management) | Yes (Sensor observations and human observations) | - | - | Yes WeSenseIt Italia and WeSenseIt UK ("Share information about" options on menu) | - | - | Yes WeSenseIt Italia and WeSenseIt UK ("Get information about" and "Sensors" options, on menu) | - |
| COBWEB (Platform for citizen science surveys) | Depending on survey | Depending on survey | - | Yes | - | - | Depending on survey | - |

**Table 1.** Objective and subjective evaluation, collection and dissemination of information in European COs, 2012-2016

# First experiences
# Some insights

+ As we can confirm through the table, all COs imply the observation of objective variables by citizens (with the exception of OMNISCIENTIS, dedicated to odour nuisance, where objective measurements are managed centrally)…

+ … and all COs dedicated to monitoring activities (Citclops, OMNISCIENTIS and CITI-SENSE) involve evaluation of perceptions by users.

# First experiences
# Some insights

+ All-inclusive communication strategies *vs* more focused communication strategies

+ WeSenseIt adopts a rather specialized and focused strategy, heavily based on mobile apps, since no CO information is collected or shared through the website: the only way to collect and disseminate information is through a mobile app (Android, in this case);

+ CITI-SENSE, has a rather all-inclusive strategy, using the website, Android and IOS apps, both to collect and disseminate information.

# First experiences
# Citizen envolvement

| | Android app | Facebook | Twitter | | YouTube | | LinkedIn | Google+ | Slideshare |
|---|---|---|---|---|---|---|---|---|---|
| | (Downloads) | (Page likes) | (Followers) | (Likes) | (Videos) | (Average visualizations) | (Members) | (Followers) | (Followers) |
| Citclops | 500 or + | 79 | 195 | 67 | - | - | - | 28 | - |
| OMNISCIENTIS | 10 or + | - | - | - | - | - | - | - | - |
| CITI-SENSE | 500 or + | 344 | 92 | 56 | 5 | 163,6 | 69 | - | - |
| CITI-SENSE (Barcelona) | - | 100 | 454 | 966 | - | - | - | - | - |
| CITI-SENSE (Belgrad) | - | 40 | - | - | - | - | - | - | - |
| CITI-SENSE (Ljubljana) | - | 116 | - | - | - | - | - | - | - |
| CITI-SENSE (Oslo) | - | 152 | - | - | - | - | - | - | - |
| CITI-SENSE (Ostrava) | - | 52 | - | - | - | - | - | - | - |
| WeSenseIt | UK: 50 or + IT: 100 or + | 72 | 264 | 6 | - | - | - | - | - |
| COBWEB | NA | - | 373 | 403 | 6 | 184,8 | - | 4 | 2 |

Values as of July 30, 2016. No publicly available information on IOS apps number of downloads was found.
NA: not available (download exclusively through website).

**Table 2.** Android app downloads and SNS usage by European COs, 2012-2016

# First experiences
# Citizen envolvement

+ Although 4 of the 5 projects made extensive use of SNS, it cannot yet be considered that COs reach a vast number of citizens;
+ Considering these are multi-annual projects with large consortiums and multi-million budgets, aiming to demonstrate the concept and contributing to its dissemination, these numbers still show a very limited impact;
+ One possible reason for this might be that these first generation projects were still very concerned with technical challenges;
+ But societal challenges will probably assume a more relevant role in the following stages.

# First experiences
# Assessment

+ We propose to consider three dimensions, when discussing the potential drivers for reach and citizen engagement in CO projects:

  - The return the project offers to its potential users. An air quality monitoring CO, for instance, will probably offer a more relevant return to a citizen suffering from allergies, asthma or other breathing problems, than to a citizen with no breathing problems;
  - Relevance of barriers to engagement;
  - Public awareness of the project.

# Next generation of EU experiences

+ The next generation of COs to be developed between 2016 and 2020 with European funding represents an opportunity to tackle these issues.

+ The 4 new COs will represent a total investment of around 20 million euros, and have already been announced: GROW, coordinated by the University of Dundee (UK); LANDSENSE, coordinated by IIASA, the International Institute for Applied Systems Analysis (Austria); SCENT, coordinated by the National Technical University of Athens (Greece) and Ground Truth 2.0, coordinated by UNESCO-IHE Institute for Water Education (Netherlands).

# Seizing the opportunities

+ Taking advantage of the opportunities arising from the development of Citizen Observatories can be done in several ways:

  - Take advantage of the first European funded COs;
  - Follow the implementation of the next generation of EU funded COs, in the 2016-2020 period;
  - Get in touch with the vast community of experiences that relate to this area (including CBM and MCS);
  - Following or contacting directly the European Commission Executive Agency managing CO projects: EASME - Executive Agency for Small and Medium-sized Enterprise.

## Seizing the opportunities

+ In a few years from now we can look at citizen observatories and contemplate a flourishing area…

+ … Or we can see it as an obsolete concept, as so many others in ICT, and look back at our efforts to develop and demonstrate the concept as rather naïve.

+ We believe this depends largely on the way we are able to involve, besides the European Commission and the academic community (already working in the concept demonstration), also government and public administrations, as well as citizens, grassroot movements, associations and NGOs.

# Thank you!

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