



Citizen Science

Improving science-society-policy bridge

A perspective

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**The views expressed are those of the speaker and do not necessarily reflect the official opinion of the European Commission*

Introduction to Citizen Science (*)

- **There is an established tradition in environmental science of engaging volunteers to collect environmental monitoring data.**
- **The term "Citizen Science" is however quite new.**
- **Citizen Science encompasses many different ways in which citizens are involved in science. Therefore it remains difficult to find a common definition and a categorisation:**
 - **Different interpretations**
 - **Several criteria for classification:**
 - **Project goals (educational, awareness raising, inform policy)**
 - **Degree of citizen engagement (contributory, collaborative, co-created)**

Introduction to Citizen Science

- **New technologies have given rise to a number of citizen science projects and initiatives ("citizen cyberscience").**
- **Opportunities for massive participation presented by ICT tools (social media platforms, smartphones, on-line gaming) and other emerging technologies, providing general access to science.**
- **The collaborative power of ICT networks can help create a collective intelligence that:**
 - **Influences environmental policy making**
 - **Informs formal, individual and collective decision-making processes**
 - **Helps raise awareness about environmental issues**
 - **Leads to more sustainable individual and collective behaviours and lifestyles.**

Introduction to Citizen Science

But a number of challenges still have to be addressed:

- Engagement of broader spectrum of society
- Recognition of scientific value
- Guarantees for action on findings
- Quality of data
- Security concerns (privacy)
- Incorporation of local knowledge
- Citizen as a sensor vs co-design
- Acknowledgement of citizen ownership
- Feedback and reward mechanisms

Self-criticism: are always ICT-enabled solutions the most appropriate for citizen science? How to reconcile new technologies with more traditional forms of citizen science?

Some policy background

Aarhus Convention (1998)

"(...) in the field of the environment, improved access to information and public participation in decision-making enhance the quality and the implementation of decisions, contribute to public awareness of environmental issues, give the public the opportunity to express its concerns and enable public authorities to take due account of such concerns."

Directive 2003/35/EC on Public Participation regarding the Environment giving European citizens the right to participate in environmental decision making

"(...) Effective public participation in the taking of decisions enables the public to express, and the decision-maker to take account of, opinions and concerns which may be relevant to those decisions, thereby increasing the accountability and transparency of the decision-making process and contributing to public awareness of environmental issues and support for the decision taken ."

Some policy background

SEIS Implementation Outlook Staff Working Document (2013)

"Citizens are not only recipients of information, but also important providers. The public should be given the means to aggregate, combine and generally re-use information according to their various needs (...)"

"(...) The development of communication technologies through the internet creates highly valuable opportunities for citizen science and crowd sourcing, offering enhanced levels of participation in assessing (...) the success of EU environment policies. Crowds of citizens are often well-placed to monitor the state of the environment on the ground at any one time"

7th Environment Action Programme 2014-2020

Priority Objective 5 – To improve the knowledge and evidence based for Union environment policy.

"Union environment policy is based on environmental monitoring, data, indicators (...), as well as formal scientific research and 'citizen science' initiatives"

"Steps should be taken at Union and international level to further strengthen and improve the science-policy interface and citizen engagement (...)"

Citizen Science and EU policy perspectives

Different policy perspectives to citizen science:

- Responsible Research and Innovation

All societal actors must work together during the whole R&I process, to align R&I with needs and expectations of society

- Digital Science

ICT enabled transformation of science, including new research methods, big data, open research collaboration, open access, citizen engagement in research and scientific debate, for a new, more efficient, higher impact, better science.

- Global Systems Science

Combining advanced ICT and citizens dialogues to understand and shape global systems. The GSS produces evidence, concepts and doubts needed for effective and responsible policies dealing with global systems.

Citizens Observatories

Definition(*):

- **Communities of citizens sharing:**
 - 1) **Technological solutions (e.g. sensors, mobile apps)**
 - 2) **Community participatory governance methods aided by social media streams**
- **With the objective of:**
 - 1) **Complementing environmental observation systems**
 - 2) **Improving local decision-making**

It is a win-win approach because:

- **Empower communities.**
- **Enhance our in-situ monitoring capability while limiting the charge on the public purse!**

But official baseline in-situ observation networks are vital

Support for Citizens' Observatories in FP7- Environment Theme

Five projects were funded, starting in late 2012:

1. **CITI-SENSE** "Development of Sensor-based Citizens' Observatory Community for Improving Quality of Life in Cities",
<http://citi-sense.nilu.no/>
2. **WeSenseIt**: "Citizen Observatory of Water"
<http://www.wesenseit.eu/>
3. **COBWEB**: "Citizen (Biosphere) Observatory Web"
<http://cobwebproject.eu/>
4. **Citclops**: "Citizens' Observatory for Coast and Ocean Optical Monitoring" <http://www.citclops.eu/>
5. **OMNISCIENTIS**: "Odour Monitoring and Information System based on Citizen and Technology Innovative Sensors",
<http://www.omniscientis.eu/> **ALREADY FINISHED!**

Citizens' Observatories: Empowering European Society

REGISTER before 30th November on:
<http://ec.europa.eu/eusurvey/runner/CitObsEES2014>

Date: 4th December 2014

Venue: Management Centre Europe,
118 Rue de l'Aqueduc / Waterleidingsstraat,
1050 Ixelles / Elsene, Belgium.

Citizens engagement in Horizon 2020

*"(...) With the aim of **deepening the relationship between science and society** and reinforcing public confidence in science, Horizon 2020 should **foster the informed engagement of citizens and civil society in research and innovation matters** by:*

- Promoting **science education**,*
- Making scientific knowledge **more accessible**,*
- Developing **responsible research and innovation** agendas that meet citizens' and civil society's concerns and expectations*
- **Facilitating their participation** in Horizon 2020 activities*

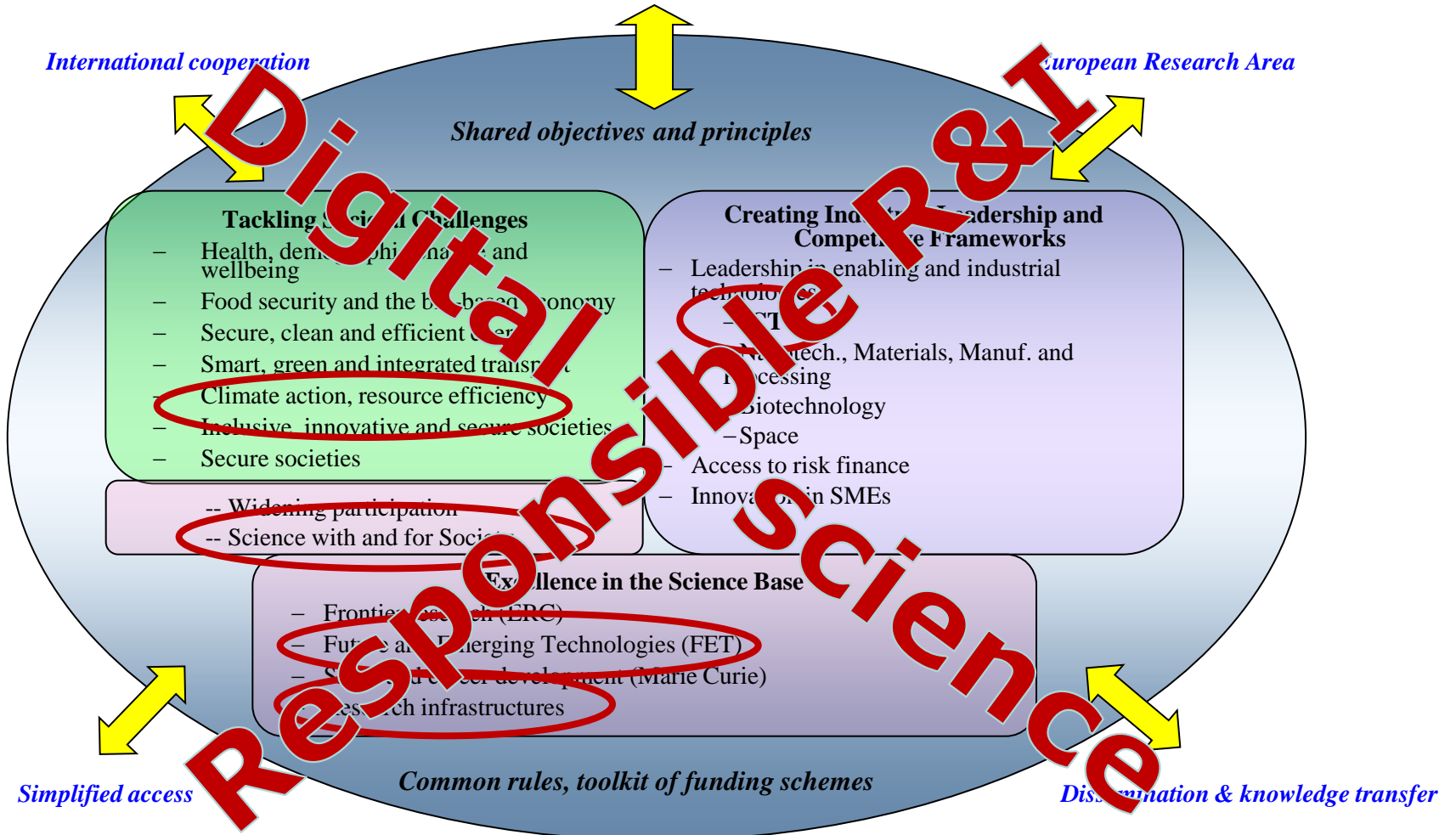
The engagement of citizens and civil society should be coupled with public outreach activities to generate and sustain public support for Horizon 2020 (...)".



European Commission

Citizens engagement in Horizon 2020

Europe 2020 priorities



Support for Citizens Observatories in H2020

- **Topic in SC5 Work Programme 2014-2015:
SC5-17-2015: Demonstrating the concept of 'Citizens' Observatories'**
- **It calls for further development and testing in real conditions, wider deployment and commercialisation by the private sector and greater user acceptance.**
- **Focus on the domain of land cover/land use management (rural and urban areas), complementing existing systems (Copernicus) and national surveys.**
- **Strong involvement of citizens and citizens' associations and SMEs.**
- **One or more Innovation Actions (suggested size: 3-5M€, total budget ~20M€)**
- **Call open on 10th December, call deadline (1st stage) on **21st April 2015!****

Other Citizen-Science related topics in H2020

- **Topic in ICT Work Programme 2014-2015: ICT 10 – 2015: Collective Awareness Platforms for Sustainability and Social Innovation**
- **Challenge:** to harness the collaborative power of ICT networks to create collective and individual awareness about the multiple sustainability threats faced by our society.
- **Results:** Better informed decision-making processes and empower citizens to adopt more sustainable individual and collective lifestyles.
- **It includes the deployment at larger scales of digital social platforms for multi-disciplinary groups developing innovative solutions for society.**
- **R&I Actions, CSAs and small contribution R&I Actions are expected (Four subtopics, total budget ~36M€)**
- **Call open on 15th October, call deadline on 14 April 2015**

Issues for discussion – Policy perspective

- **Level of maturity of these solutions to be taken on board by the authorities, possible pilot management areas.**
- **Ways for citizens to influence environmental policy making and how this approach is perceived by the public administration.**
- **Citizens engagement not only a good practice but a key element to comply with environmental regulations? Reconcile different avenues of data.**
- **Uptake by enlarged spectrum of society, creation of new jobs and market opportunities**
- **Instruments needed for a better coordination among these activities at EU, national and local level.**

Issues for discussion – Scientific perspective

- **Strategies for conflation of authoritative data with citizens data**
- **How to plug these systems in platforms such as the GEOSS, what is the data management and role of the European Commission, GEO, etc.**
- **Privacy, security and data protection concerns, ownership of data provided by citizens**
- **Engagement strategies, how to keep a community alive between occurrences of the main driver for engagement**
- **Co-design strategies, how to get citizens involved from the start**
- **Viability and sustainability of these initiatives**

Conclusions

- **There is a need for narrowing the gap between European citizens, scientists and policy-makers –innovative processes needed for engaging citizens.**
- **Citizen Science, specially thanks to ICT-enabled collaboration, has an enormous potential as a new form of interaction between science and society.**
- **To succeed, there should be a truly participative process, where citizens are heard and actively involved in decision-making.**
- **Should the increased interest in citizen science result in new, future policy actions? Which instruments are needed for a better coordination of activities at EU, national and local levels?**



Thank you!

Find out more:

http://ec.europa.eu/research/environment/index_en.cfm