JRC SCIENCE FOR POLICY REPORT

Citizen Engagement in Science and Policy-Making

Reflections and recommendations across the European Commission

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Citizen Engagement in Science and Policy-Making
Citizen engagement in science and policy-making is present at different levels in the European Commission, ranging from public consultation to stakeholder involvement, to citizen science and Do-It-Yourself practices. The Joint Research Centre together with other DGs and agencies is developing a network of practice on the topic.

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Executive summary

Citizen engagement (CE) in science and policy-making, ranging from civic engagement and public participation, to citizen science and Do-It-Yourself (DIY) practices, offers an effective way to connect citizens, experts and policy makers. The Joint Research Centre (JRC) together with 12 services of the European Commission (RTD, CNECT, DIGIT, COMM, ENV, GROW, EEAS, ESTAT, REA, SCIC, SG), is developing a network of practice on CE. Through two Interservice Workshops (December 2014 and January 2016) and ongoing discussions and projects across services, the shared objectives are:

- to have an update of the ongoing activities conducted by the various services;
- to clarify the diversity of understandings and agendas for CE in science and CE in policy-making as well as to identify similarities, differences and links across them with a view to strengthening cooperation across initiatives and improving external communications;
- and to identify joint practical actions to promote CE in the work of the European Commission.

Policy context

With the Better Regulation Package adopted on 19 May 2015, new opportunities for CE throughout the full legislative cycle emerged. The European Commission has committed to maintaining and further developing interactive tools for more consultative policy-making and to providing a systematic follow up to all stakeholders including citizens. In order to seize the opportunities and manage the challenges posed by CE in relevant policy-making, the European Commission can build on its previous and ongoing diverse experiences, as well as future research funding.

Key conclusions

1) What citizen engagement in science and policy-making means for the European Commission?

- A boost in democratic legitimacy, accountability and transparent governance can be one of the main positive outcomes, especially for an institution such as the European Commission often seen as not being close to citizens.

- Improvements for trust building among citizens and institutions as well as ownership of policy outcomes come from involving the final beneficiaries, that is, the citizens for whom policies are designed for. Recent trends are moving away from mere "info-giving" and towards more deliberation practices at each stage of the policy-making process.

- Citizens' inputs can offer a unique understanding of societal concerns, desires and needs, and thus, a better definition and targeting of European Commission's services. Reliability and validity of policies can greatly improve as fit-for-purpose responses to real demands and expectations.

- Citizens in certain instances can provide evidence for policy-making and evaluation of policy decisions, while also generating ideas for new policies or services.

2) What should the European Commission do (more) in citizen engagement and what are the main challenges?

- Better feedback mechanisms for citizens need to be promoted. This may range from e-discussions forums at EU level to "safe spaces" within the European Commission to experiment with new mechanisms for CE beyond what is currently previewed. At the same time, citizens' views and data need to be channelled and integrated more systematically into science and policy-making.

- The predominant paradigm for policy-making is based on expert inputs (evidence based) in detriment of non-expert or lay knowledge coming from other parts of society. The Commission should through fostering more inclusive practices, help with changing stereotypes about the usefulness and validity of non-traditional inputs coming from citizens, communities or other groups, is a priority.

- CE requires adequate resources and competences to address inevitable challenges of data quality, reliability, curation, privacy, intellectual property or ownership, or the obstacles in analysing feedback in multilingual context. Transparency about the use and influence of citizens' feedback is a *conditio sine qua non*, in order to avoid concerns about potential conflict of interests or biased collection of inputs.

- The purpose, objectives and policy relevance for putting in place CE needs to be better defined for the purposes of EU institutions. Gathered input needs to go through a clear and structured analysis in order to extract the best insights. How to integrate the different outputs and data coming from CE initiatives and projects can also be an issue.

- Identifying who are the relevant citizens in each case, segmenting when needed according to specific criteria, or simply understanding who is a regular citizen by going beyond "usual suspects", are essential questions for any CE initiative.

Main recommendations

Focusing particularly on the European Commission's initiatives on CE, a number of concrete issues have emerged for further action.

- Change of institutional culture is needed starting with the definition of what is CE and its added value for science and policy-making. The skills needed to run meaningful and successful CE processes are to be addressed by building in-house capacity, concerning for example tools, guidance and complementary training.

- Corporate communication, in terms of accessibility, outreach or multilingual inclusion, is to be improved. The scope and the target audiences are seen as too restricted at most instances. More participatory consultations involving "real people" in face-to-face processes, such as open round tables, or engaging younger generations, are called for.

- More coordination between funded projects and tools, and more coherence within and between the European Commission's services when funding CE activities and distributing planned tasks, is also needed.

- More knowledge sharing and learning, in terms of who does what, with which tools and methods, is crucial to learn from previous experiences, to spread best practices and to tackle roadblocks in a collaborative and efficient way. An alignment of terminology and actions is needed, leading to a common vision.

- Concerted coordination across services could be achieved through the appointment of suitable governance structure at a horizontal level, for instance with the creation of a Taskforce dedicated to CE. A set of actions to be undertaken include for instance: creation of knowledge sharing groups; organization of thematic workshops dedicated to specific and targeted issues; or identification of a few pilot projects or "proof of concepts" per DG.

- A clear message is the need for concrete joint actions across services to move CE forward, taking into consideration not only previous initiatives and in-house experience, but also the existing community within the European Commission ready to help each other and reinvent science and policy-making.

Related and future JRC work

There is a set of ongoing initiatives but also prospective actions in the JRC that feed into CE narrative, including but not limited to:

- creating pilot projects as demonstrators with an adequate scale and strong connection to policy priorities and 'real' policy making cases, in close cooperation with DGs to design and implement such pilots (such as the Environmental Knowledge Community - EKC work on Citizen Science, under the lead of JRC B.6);
- developing physical spaces and ways of working to develop and test collaborative, hands-on and experiential approaches with citizens, under a 'lab setting' approach pursued for instance through the EU Policy Lab (running within JRC I.2) as a public sector innovation lab, and through the series of workshops and a planned makerspace (within JRC I.1) in partnership with network of museums, makerspaces, living labs and other innovation spaces;
- strengthening in-house interdisciplinary collaboration in cross-cutting issues, with a clear integration of social sciences and other disciplines (e.g. design, art, …) in order to build social robustness in all processes of co-production of knowledge;
- making CE a natural step of JRC projects and initiatives where science is a relevant input for policy making;
- contributing to capacity building inside the European Commission by providing trainings on specific CE tools and techniques for science and policy-making.

1 Introduction

Citizen engagement (CE), ranging from civic engagement and public participation, to citizen science and Do-It-Yourself practices, offers an effective way to connect citizens, experts and policy makers. With the Better Regulation Package adopted by the European Commission on 19 May 2015, **new opportunities for CE throughout the full legislative cycle** emerged. The European Commission has committed to maintaining and further developing interactive tools for more consultative policy-making and to providing a systematic follow up to all stakeholders including citizens.

In order to seize the opportunities and manage the challenges posed by CE in relevant policy making, the European Commission can build on its previous and on-going diverse experiences. The Joint Research Centre (JRC) together with other services of the European Commission is developing a network of practice on CE. Activities so far include ongoing discussions and projects across services through internal communication channels, and two Interservice Workshops.

Focusing on the latter, on **9 December 2014** a **first Interservice Workshop on Citizen Engagement in Science and Policy-Making** took place. With more than 30 initiatives identified and over 10 services involved, the workshop was an important step in raising awareness and initiating a network of practice on CE within the European Commission. Mapping the on-going efforts showed the richness of the initiatives. At the same time it revealed the diversity in the understanding of the meaning and purpose of CE across the European Commission's services.

The main conclusions indicated that, in order to strengthen collaboration, increase synergies and project a coherent external communication, it would be important to develop a shared understanding of the similarities and differences between engagement of citizens in science, and engagement of citizens in EU policy making. This would also help us to explore opportunities for integrating engagement approaches in the Better Regulation Package, which provides a new emphasis on consultation of stakeholders and citizens.

Under this overall aim, the **second Interservice Workshop on Citizen Engagement in Science and Policy Making** was jointly organized by DG JRC, DG CNECT and DG RTD on the **29 January 2016**. The objectives were:

- to provide an update of the ongoing activities conducted by the various services;
- to clarify the diversity of understandings and agendas for CE in science and CE in policy-making as well as to identify similarities, differences and links across them with a view to strengthening cooperation across initiatives and improving external communications;
- and to identify joint practical actions to promote CE in the work of the European Commission.

The Workshop was attended by 35 colleagues from 12 services of the European Commission (COMM, CNECT, DIGIT, ENV, GROW, JRC, RTD, EEAS, ESTAT, REA, SCIC, SG). Through short presentations and structured group discussions, a number of opportunities and challenges for CE were clearly identified. Moreover, the opportunity to gather colleagues across the services strengthened a community of practice with potential synergies and follow-up actions. Still, overall coordination, communication and sharing of information, plus a focus on concrete topics were identified as crucial missing elements.

Based on the whole of the activities, this report offers a backbone for a set of main directions and recommendations for pursuing CE in science and policy-making within the context of the European Commission.

2 Narratives and Open Questions for Citizen Engagement

In a world where complexity and uncertainty are increasingly made visible, issues can no longer be framed in single dimensions. Instead, they need to be addressed by a close attention to the interdependencies with different values, norms and interests. Our pressing challenges need to be tackled by a **dialogue across co-existing worldviews and knowledge production spaces in science, society and policy**.

Attempts to characterise this state of affairs have been offered through alternative framings coming from the scientific community. Post-normal science is a concept which suggest a methodology of inquiry that is appropriate for cases where "facts are uncertain, values in dispute, stakes high and decisions urgent" (Funtowicz and Ravetz 1992). Mode 2 Science (Gibbons et al. 1994) refers to scientific knowledge production that is context-driven, problem-focused and interdisciplinary.

Such models of co-production of knowledge propose alternative dialogues amongst different bodies of knowledge which do not rely in rigid or exclusive separations. **Co-production of knowledge is linked to the motivations and justifications for the ways in which citizens, policy makers and scientists hold, develop, represent, communicate or express, and deploy knowledge**. For instance, scientific knowledge is not independent of political contexts but co-produced by scientists and the society within which they are embedded (Jasanoff 1996). However, also growing bodies of knowledge are accessible to growing number of individuals with added agency that enables them to intervene in the world (Beck 1992). Several authors have anticipated this state of deeper involvement of non-experts in scientific dimensions of societal matters, not only because of a dissatisfaction with existing representative and deliberative democratic arrangements, but also due to a perceived need for spaces to express arguments referring to values, preferences, cultural traditions, and local interests.

Since science became a privileged input into the evidence base for policy making, more space are needed for European citizens to get engaged with the matters science tries to tackle and provide knowledge that is relevant to address those matters (in all forms, from data, experience, values, questions to be addressed either by science or other bodies of knowledge, etc.). Key moments for new dialogues, led by the research community in particular in Europe, were the publication of the House of Lords report on Science and Society in 2000, followed a year later by the European Commission's Science and Society Action Plan, as well as the EU 5th Framework research programme's "Raising Awareness of Science and Technology" activity of the late 1990s.

These initiatives acknowledged the need for **alternative models for the relationship of science and policy** described in the literature as "public dialogue and participation model" (Callon et al. 2001) and as "model of extended participation" (Funtowicz 2006). One of the most emblematic experiences in this respect is the now reformed Danish Board of Technology (DBT), which works at the interface between public challenges, technology, knowledge, values and actions to be taken. Overall, there has been a great deal of initiatives that aimed at wider participation of the publics in many science and policy areas via both physical and electronic means.

However, CE is a broad term and encompasses different degrees of influence and agency of citizens in the knowledge production process. That is, the public are involved to varying degrees and control over the several steps, such as defining the questions, developing explanations/hypotheses, collecting data, interpreting data or drawing conclusions. Projects are often classified on a ladder that includes contributory projects (mostly data collection); collaborative projects (data collection and refining project design, analysing data, disseminating results); and co-created projects (designed together by scientists and public where the public shares most or all the steps in a scientific project/process) (Bonney et al. 2009).

Categories are not to be seen as mutually exclusive, although it can be argued if what can be said to be CE is mostly in collaborative and co-created projects. The same discussion is at the core, for instance, of different categories of citizen-generated content (Craglia and Shanley 2015), which is on the rise due a massive diffusion of the Internet, mobile technologies and social media:

- **data mining** - reuse of data generated by the public often unintentionally or for other purposes, e.g. social media, mobile phones traces, photo-sharing sites, etc). This category is more difficult to be seen as part of CE, and can be even exploitative if using personal data for commercial gain, misinformation or manipulation.
- **crowdsourcing** - contributions are solicited from a large group of unknown individuals (the crowd) or a restricted group of trusted individuals or experts. In most present cases, the methodology for data collection and analysis is centrally designed by researchers.
- **citizen science** - the public is openly collaborating in the knowledge production process in strong interaction with the academic community (although not always), with greater or lesser extent of engagement of the public from only data collection to analysis and co-creation.

One hidden assumption in most approaches is that scientists are leading the project, even when co-created. However, initiatives with a reverse relationship where the public leads the process, with less or no help from professional scientists, are also on the rise. What can be called DIY science (Nascimento, Guimarães Pereira and Ghezzi 2014) includes non-specialists, hobbyists and amateurs who are doing research outside university or lab settings, and instead in Makerspaces, FabLabs, Hackerspaces, Techshops, innovation and community-based labs, or even in their homes, garages or schools. A practitioner of DIY science is tinkering, hacking and conducting their own experimentations, which often can challenge conventional guidelines, certifications or mechanisms of quality while introducing out-of-the-box thinking, creativity and reciprocal learning (when in collaboration with scientists).

In short, innovative processes for engaging citizens in science and/or policy-making, are placing citizens in all steps of the co-production of knowledge, when it's relevant and adequate. Deeper extents of engagement, seen for instance in collaborative, co-created and DIY approaches, offer major opportunities to narrow the gap between science, society policy and make their interconnections more transparent and participated. They pose however also several opportunities and challenges, as explored in the following sections.

A set of open questions to be addressed include for instance (but not limited to):

- What are the opportunities and limits of the European Commission in engaging directly in collaborative and co-created projects with citizens? How do we sustain them, manage expectations, deliver on what we promise (or are perceived to promise), and maintain the momentum?
- How can CE be moved up to the very outset or anticipatory stages of the EU policy cycle in an effective and realistic way? How can the key issues and timing of engagement be identified? Can the length of the policy making and/or legislative processes be adapted for citizens to make a valuable contribution?
- How can we bring citizens' contributions at various governance levels – European, national, regional and local? For instance, bearing in mind that most active participation tend to address local issues, how do we interface with subsidiarity and the role of those organisations that have a mandate to address local community concerns?
- What is the role and potential of new models of CE for evidence informed policy making? Are we moving toward more spaces of open dialogue where citizens are bring their input and express their preferences, even if they are at odds with the mainstream narratives of science and policy?

3 Overview of Citizen Engagement across the European Commission

In this section an overview of the main initiatives of CE across the European Commission are briefly presented. At the moment of registration for the second Interservice Workshop, from the 25 received answers, 21 participants claim to be working on CE in policy-making, 7 in both citizen science and CE in science, and 6 did not describe their work with the options provided. Many have used more than one category to describe their scope, including CE in dialogues about policy relevant science and others not currently engaging in the topic.

Pre-workshop answers to ongoing initiatives, projects or programmes enabled a broader categorisation of CE within the European Commission, as shown in the figure bellow:

- Policy initiatives
- Management of CE research projects
- Actual practice
- Research on CE governance
- Methods and training

The following figure is a partial map of the DGs that are active on the issues of CE in science and policy-making, according to the same categories.

Figure 1. Broader categories of citizen engagement and examples in the European Commission
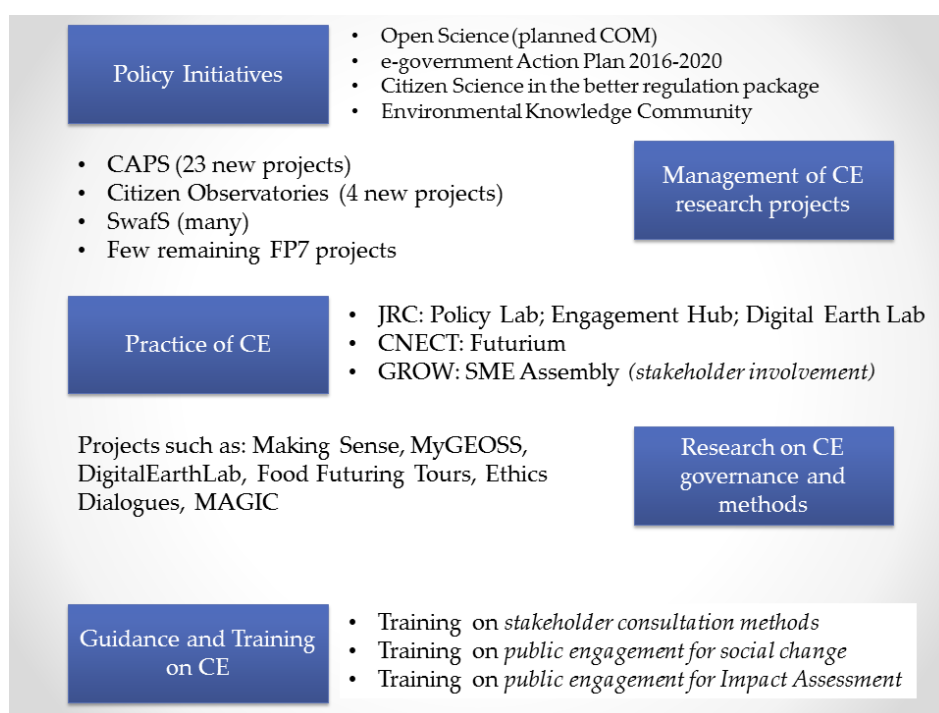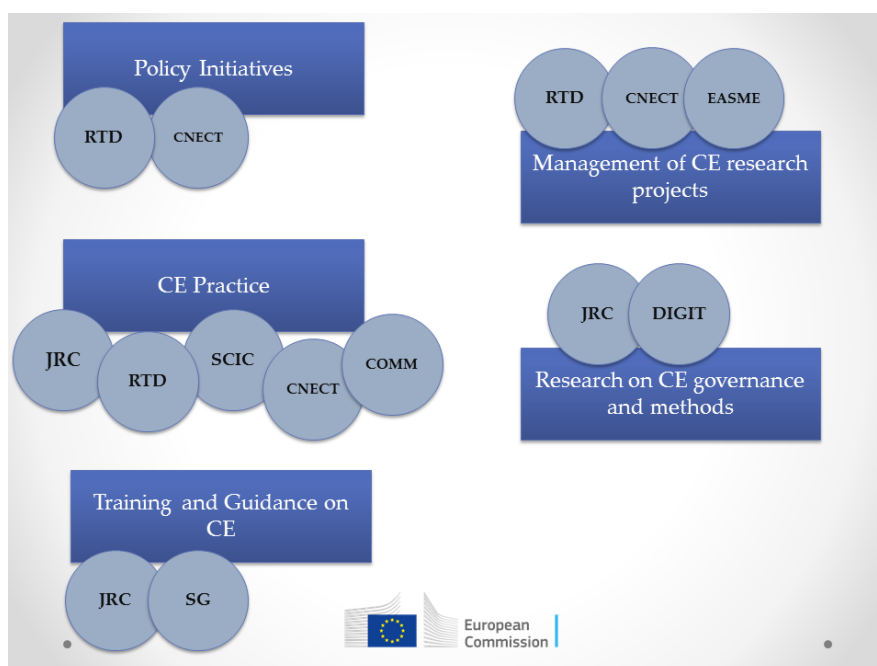
Figure 2. Main involved DGs

3.1 Policy Initiatives

Policy initiatives are here defined as **policy umbrellas that foster CE in policy and policy relevant science**. Examples across the European Commission include:

Better Regulation Package (SG)

Web link: http://ec.europa.eu/info/law/contribute-law-making_en

The Better Regulation agenda offers more opportunities to contribute to the EU law-making process, from the preparation phase to proposals for new laws and evaluations of how existing laws are performing ('fitness checks'). For instance, the platform Your Voice in Europe is being used for public consultations on EU policies. Through open public consultations (open for a minimum of 12 weeks), citizens can express their views on initial ideas for new laws, draft texts, roadmaps, programmes or impact assessments, before the European Commission finalizes its proposals. Once the European Commission has agreed on a legislative proposal and put it forward for adoption by the European Parliament and Council, citizens can give their feedback on it, and on the published impact assessment report. The European Commission then collects their views and presents them to the Parliament and Council. At any time, citizens can send their views on existing laws to simplify EU laws and reduce regulatory burden, which may be submitted to the REFIT platform. It is open to representatives from business, civil society, social partners, the Economic and Social Committee, the Committee of Regions and Member States. Also the European Commission can ask for consultation on other types of documents, such as green papers, which are launched to stimulate discussion on given topics at European level.

Eurobarometer

Web link: http://ec.europa.eu/COMMFrontOffice/publicopinion/index.cfm

Eurobarometer is the Public Opinion Analysis sector of the European Commission. Since 1973, the European Commission has been monitoring the evolution of public opinion in the Member States, thus helping the preparation of texts, decision-making and the evaluation of its work. Surveys and studies address major topics concerning European citizenship: enlargement, social situation, health, culture, information technology, environment, the Euro, defence, etc. The Standard Eurobarometer was established in 1974, and each survey consists of approximately 1000 face-to-face interviews per country. Reports are published twice yearly.

Citizens' Dialogues

Web link: http://ec.europa.eu/citizens-dialogues/

In January 2015, the European Commission launched a new series of Citizen's Dialogues, giving people across Europe a chance to talk directly with members of the European Commission. This is part of a clear commitment to better communication with citizens. In the Mission Letters sent to all Commissioners in September 2014, President Juncker called on the College to be "politically active in the Member States and in dialogues with citizens. It builds on the model of "town hall meetings" or local fora, during which politicians listen to and debate with citizens about policies and decisions being taken. Between 2012 and 2014, the European Commission organised 51 Citizens' Dialogues in all Member States.

Open Science (DG RTD)

Web link: http://ec.europa.eu/research/openscience/index.cfm

In May 2016, the European Open Science Agenda was presented and adopted by the Council. It was recognised that the exponential growth of data, the availability of increasingly powerful digital technologies, the globalisation of the scientific community, as well as the increasing demand from society to address the societal challenges of our times, are the bases of an on-going transformation and opening up of science and research, referred to as "open science" affecting the modus operandi of doing research and organising science. It was further acknowledged that open science has the potential to increase the quality, impact and benefits of science and to accelerate advancement of knowledge by making it more reliable, more efficient and accurate, better understandable by society and responsive to societal challenges. Also it has the potential to enable growth and innovation through reuse of scientific results by all stakeholders at all levels of society, and ultimately contribute to growth and competitiveness of Europe. The Open Science Policy Platform was established to support the further development of the European Open Science policy and promoting the uptake by stakeholders of best practices, including issues such as adapting reward and evaluation systems, alternative models for open access publishing and management of research data (including archiving), altmetrics, guiding principles for optimal reuse of research data, development and use of standards, and other aspects of open science such as fostering research integrity and developing citizen science.

E-government Action Plan 2016-2020 (DG CNECT)

Web link: https://ec.europa.eu/digital-single-market/en/european-egovernment-action-plan-2016-2020

The digital transformation of government is a key element to the success of the Single Market, helping to remove existing digital barriers and preventing further fragmentation arising in the context of the modernization of public administrations. The new eGovernment Action Plan 2016-2020 aims to modernize public administration, to achieve the digital internal market, and to engage more with citizens and businesses to deliver

high quality services. The Action Plan will support the coordination and collaboration at EU level. Through the joint efforts between Member States and the European Commission, the availability and take-up of eGovernment services can be increased, resulting in faster, cheaper and more user-oriented digital public services. In order to achieve its vision, the eGovernment Action Plan identifies three policy priorities: 1) modernizing public administrations using Key Digital Enablers (for example technical building blocks such as CEF DSIs like eID, eSignature, eDelivery, etc.), 2) enabling mobility of citizens and businesses by cross-border interoperability, and 3) facilitating digital interaction between administrations and citizens/businesses for high-quality public services.

Science with and for Society Programme (DG RTD)

Web link: http://ec.europa.eu/research/swafs/index.cfm?pg=home

The Science with and for Society Programme's specific objective is to build effective cooperation between science and society, to recruit new talent for science and to pair scientific excellence with social awareness and responsibility. It will be instrumental in addressing the European societal challenges tackled by Horizon 2020, building capacities and developing innovative ways of connecting science to society. It is intended to make science more attractive (notably to young people), increase society's appetite for innovation, and open up further research and innovation activities. It is closely related to the RRI (Responsible Research and Innovation) approach as described below.

RRI - Responsible Research and Innovation (DG RTD)

Web link: https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation

The RRI approach requires all societal actors (researchers, citizens, policy makers, business, third sector organisations etc.) to work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of European society. In general terms, RRI implies anticipating and assessing potential implications and societal expectations with regard to research and innovation. In practice, RRI consists of designing and implementing R&I policy that will: engage society more broadly in its research and innovation activities; increase access to scientific results; ensure gender equality, in both the research process and research content; take into account the ethical dimension; and promote formal and informal science education.

Environmental Knowledge Community (multiple DGs)

The Environmental Knowledge Community (EKC) is a partnership between DG Environment, DG Joint Research Centre, DG Eurostat, DG Research and Innovation, DG Climate Action and the European Environment Agency. Under the lead of JRC B.6, the EKC has initiated investigations on citizen science and its possible relation to environmental policy making. These investigations particularly address the relationship between people and data/information – not only to monitor the state and trends of the environment and relations to human health, but also to help assess the impact and effects of the implementation of environmental related policy across the EU. In January 2016, colleagues from the above mentioned entities started to develop a demonstrator of the expected impacts, and to identify the steps to be taken in order to operationalise processes in real conditions. These investigations included hands-on experiences in the development of data gathering applications related to nature protection and the analysis of use scenarios for European policy making. In parallel, they collected central open questions on related technical, organisation and political issues.

3.2 Management of Citizen Engagement Research Projects

Management of CE research projects, are here defined as **research projects that research or foster CE practice**. In this sense, many H2020 calls and projects are listed that deal with CE.

CAPS - Collective Awareness Platforms for Sustainability and Social Innovation (DG CNECT)

Web link: https://ec.europa.eu/digital-agenda/en/collective-awareness-platforms-sustainability-and-social-innovation

The Collective Awareness Platforms for Sustainability and Social Innovation (CAPS) initiative intends to create awareness of the role that each and every one of us can play to ease sustainability problems. The CAPS initiative aims at designing and piloting online platforms to create awareness on sustainability problems. It offers collaborative solutions based on networks (of people, of ideas, of sensors), enabling new forms of digital social innovation. CAPS are expected to support environmentally aware, grassroots processes and practices enabling citizens to: share knowledge, make better informed decisions as consumers, nudge collective environmentally-savvy behavioural changes, and set up more participatory democratic processes. Concrete examples of emerging areas include:

- Open Democracy: enabling citizens' participation in democratic processes by developing and applying new tools (e.g. voting, online consultation)
- Open Policy Making: better decision making based on open data
- Collaborative Economy: lending, exchange, swapping made to operate at scale
- Collaborative Making: developing new ways of manufacturing
- Collaborative Consumption: rethinking consumerism
- Environmental action: collectively acting to save the planet
- New Collaborative approaches to inclusion, agriculture, health, disaster management

22 new CAPS projects have started on 1 January 2016 (to complement the 12 that are already ongoing):

- Asset: Boosting sustainable consumerism via personalized product information;
- Capsella: Data-driven project on agro-biodiversity and agri-food;
- Captor: Combining citizen science and collaborative learning to understand reasons and consequences of air pollution;
- ChainReact: Encouraging transparent, reactive and responsible corporate networks;
- Comrades: Collective platform for community resilience and social innovation;
- Crowd4Roads: Crowd sensing and trip sharing for road sustainability;
- DSI4EU: Digital Social Innovation;
- Empatia: Collaborative Platform for the management of Multi-channel Participatory Budgeting processes, adaptable to different social and institutional contexts;
- HackAIR: Open platform for air pollution monitoring;
- Make-IT: Maker movement - design globally, manufacture locally;
- MakingSense: Engaging citizens in science & change;
- MAZI: A DIY networking toolkit for location-based collective awareness;
- netCommons: studying, supporting and promoting community-based networking;
- Nextleap: Next-generation decentralized, secure, privacy-enhanced protocols based on rights;
- Open4Citizens: using open data to design new citizens' services;
- Opencare: A global community working together to make open, collaborative health and social care solutions;
- POWER: A socio-technical approach to mobilise local water action;
- PROFIT: Promoting Financial Awareness and Stability;

- Saving Food 2.0: Tackling food waste through collaboration and online networks;
- ShakerMaker: bringing together makers and traditional manufacturers to create new forms of collaboration, problem solving, and innovation;
- Socratic: Social Creative Intelligence Platform for achieving Global Sustainability Goals;
- Stars4All: A Collective Awareness Platform for Promoting Dark Skies in Europe.

Citizens' Observatories (DG RTD)

Web link: http://www.citizen-obs.eu/

Citizens' Observatories started with 4 FP7 projects which aimed at developing novel technologies and applications in the domain of Earth Observation, trying to exploit the capabilities offered by portable devices (smartphones, tablets, etc.), to enable an effective participation by citizens in environmental stewardship based on broad stakeholder and user involvement in support of both community and policy priorities. These 'citizens' observatories' included community-based environmental monitoring, data collection, interpretation and information delivery systems. This required the development of highly innovative monitoring technologies, like low-cost micro sensors that can be embedded in smartphones. Citizens were then able to collect environmental data on a range of parameters, automatically transmit this data to suitable data repositories and exchange their knowledge and experience within a Citizens' Observatory framework which enables citizenship co-participation in community decision making and cooperative planning.

Each project included suitable pilot case studies to test, demonstrate and validate the concept of citizens' observatories – the infrastructure, the technology and the methodologies coming from the research undertaken under these projects, the direct transfer of environmental knowledge for policy, industries, research and societal use and the possibilities for a comprehensive implementation and application of the technology.

Under H2020, 4 projects were approved. These new in-situ 'citizens' observatories' based on citizens' own devices (e.g. smart phones, tablets, laptops, and other social media) used together with innovative technologies, are expected to strengthen environmental monitoring capabilities, have the potential to generate new and original applications to reduce investment and running costs of in-situ observations and monitoring applications and solutions, and involve novel partnerships between the private sector, public bodies, NGOs and citizens. However, achieving this depends on further development and testing in real conditions, wider deployment and commercialisation by the private sector and greater user acceptance. This requires leveraging emerging technologies, data and information sharing, developing services and actively engaging in governance at all levels and scales in the domain of environment. It also calls for innovative approaches and tools to handle complexity, interactions and interfaces and to facilitate knowledge transfer, assessment, valuation, uptake and exploitation of data and results for policy, industry and society at large. The new projects are:

- LANDSENSE: A Citizen Observatory and Innovation Marketplace for Land Use and Land Cover Monitoring (from 2016-09-01 to 2020-08-31)
- SCENT: Smart Toolbox for Engaging Citizens into a People-Centric Observation Web (From 2016-09-01 to 2019-08-31)
- Ground Truth 2.0 (Environmental knowledge discovery of human sensed data (From 2016-09-01 to 2019-08-31)
- GROW Observatory (From 2016-11-01 to 2019-10-31)

Few remaining FP7 projects together with many H2020 projects:

CASI project (FP7)

Web link: http://www.casi2020.eu/

Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation

The CASI project represents an EU-wide cross-sectoral partnership on innovation-related challenges and considers not only the impacts of social and technological innovation, but also the types of actors involved and their inherent interests. It thus effectively integrates the perspectives of civil society, SMEs, industry, policy stakeholders, and leading academics. This collaboration investigates the scope of sustainable innovation as a societal phenomenon and enables the elaboration of an assessment framework of sustainable innovation practices, whose application can be successfully integrated into public policy developments. CASI includes a rich and intensive set of activities carried out across the EU. Based on a carefully designed methodology, CASI will identify and describe sustainable innovation cases through a collaborative analytical process (mapping). Key players and stakeholders will also be identified through this process, as well as how they are affected by (or are affecting) policy-making. Based on the combination of the different analytic approaches, CASI will develop a Common Framework for Assessment and Management of Sustainable Innovation (CASI-F), and will test its application on issues of sustainability through cases of social and technological innovation, and additional in-depth qualitative research of relevant actors, policy and business models, and societal responses.

Cimulact project (H2020)

Web link: http://www.cimulact.eu/

Engaging all of Europe in shaping a desirable and sustainable future

CIMULACT stands for 'Citizen and Multi-Actor Consultation on Horizon 2020'. The project engages more than 1000 citizens in 30 countries in Europe, along with a variety of other actors, in shaping a desirable sustainable future. In a highly participatory process, the project will provide a unique contribution to European research and innovation policies and topics, create dialogue and shared understanding among the actors, and build strong capacities in CE, thereby enhancing responsible research and innovation (RRI) in the EU. In short, CIMULACT will:

- Involve citizens in the actual formulation of the EU research and innovation agendas.
- Provide concrete and unique input to the identification of the future European research agenda by eliciting concerns about, wishes for and visions of desirable sustainable futures from 1000 citizens in 30 countries in Europe.
- Make the European research and innovation agenda relevant and accountable to society by engaging citizens, stakeholders and experts in co-creating research agendas based on real, validated and shared visions, needs and demands.
- Contribute to responsible research and innovation (RRI) in the EU by promoting the engagement and inclusion of the public in the identification of desirable sustainable futures.
- Set a new standard for public participation through the development, testing, training and assessment of methods for citizen and stakeholder engagement…
- Make the building of the future more accessible. It is no longer only a question discussed by policy makers and experts; it is a wider public conversation for a greater democracy.

NUCLEUS project (H2020)

Web link: http://www.nucleus-project.eu/

New Understanding of Communication, Learning and Engagement in Universities and Scientific Institutions

NUCLEUS develops, supports and implements inclusive and sustainable approaches to Responsible Research and Innovation within the governance and culture of research organisations in Europe. A major goal of the transdisciplinary project will be to stimulate research and innovation which continuously reflects and responds to societal needs. In order to achieve a multifaceted and cross-cultural New Understanding of Communication, Learning and Engagement in Universities and Scientific Institutions, 26 renowned institutions from 15 countries, among them leading representatives of 14 universities, will collaboratively identify, develop, implement and support inclusive and sustainable approaches to RRI. For a mutual learning and exchange process, the project will reach out beyond the European Research Area by including renowned scientific institutions in China, Russia and South Africa.

Within a 4-year timeframe NUCLEUS will systematically uncover and analyse structural and cultural obstacles to RRI in scientific institutions. The partners will collaboratively develop innovative approaches to overcome these barriers. The project is expected to lead to an applicable 'RRI DNA', providing practical guidelines for higher education institutions and funding agencies across Europe and beyond. This 'DNA' will form the basis for the 'NUCLEUS Living Network', an alliance to ensure sustainability of the approach beyond the project timeline. By offering new academic insights and practical recommendations derived from 30 'RRI test beds', NUCLEUS will contribute to the debate on science policies both on a national and European level, including the future design of HORIZON 2020 and the European Research Area (ERA).

3.3 Practice of Citizen Engagement

Practice of CE is here defined as **individuals and teams carrying out actual CE within the European Commission**.

EU Policy Lab (JRC)

Web link: http://blogs.ec.europa.eu/eupolicylab/

Since June 2014, the JRC's Foresight, Behavioural Insights and Design for Policy Unit is running the EU Policy Lab. It is a collaborative and experimental hub for innovative policy-making that operates as both a physical space and a way of working to envision, connect and explore solutions for better policies. To bring innovation in EU policy making, the EU Policy Lab provides three complementary types of policy support services: 1) making sense of emerging trends and envisaging alternative futures; 2) better understanding individuals and group behaviours; 3) design for policy by engaging, co-creating, prototyping and testing new solutions. Through the unique combination of future oriented, behavioural and design services, the EU Policy Lab is building a new empirical approach and a co-creation attitude to find concrete solutions to policy problems. Co-creation tools and methods are used and experimented to develop policies with those who are directly involved with the issue (citizens, civil society organisations, industry, research organisations, universities, government administration, among others). Policies and tools are developed through short cycles based on rapid problem analysis, development of solutions, prototyping and testing. The engagement of stakeholders in the problem analysis as well as in the design of solutions is a key feature of the process.

Digital Earth Lab (JRC)

Web link: http://digitalearthlab.jrc.ec.europa.eu/

With the Digital Earth Lab, JRC.B.6 aims to advance the understanding of the ongoing digital transformation of society. The lab particularly investigates movements that are emerging from the constantly increasing availability of data that are generated and contributed by citizen, including volunteered contributions but also information that is automatically collected by the private sector. It identifies challenges that are, for example, related to the heterogeneity of data collected by the Internet of Things (IoT), and provides solutions for integrating selected data sources. It examines the integration of Public Sector Information (which is increasingly available thanks to Open Data policies) with dynamic data streams from novel sources, such as sensors, civil society, and the commercial sector. It develops methodologies and demonstrates their combined use for selected European policies, and reflects on the implications for established information flows and processes with existing stakeholders. These demonstrator-driven reflections contribute to the free flow of data initiative. The demonstrators will first contribute to the Environmental Knowledge Community (EKC), and will be extended to other policy areas depending on our findings and policy interests. For data collected from citizens, we take our investigations one step further by providing an information platform for Citizen Science and by demonstrating its value for European policymaking at the intersection of the Better Regulation and Open Science agendas. This platform will be gradually extended in order to support re-use across the JRC as a support facility for thematic applications that include contributions from citizens as part of their research.

MAGIC project (JRC)

Web link: http://www.magic-project.eu/

It is a H2020 project coordinated by the Institute of Environmental Science and Technology (ICTA) of the Autonomous University of Barcelona (UAB) in collaboration with partners in the EU. The objective is to open the path towards a new way of managing the Nexus in which researchers and decision makers work together in the search for development strategies that can contribute to the smart, sustainable and inclusive economic growth required by the EU 2020 Strategy, while maintaining a leading and informed participation in international discussions about global issues, like climate change or food security. MAGIC deploys a set of novel, cutting-edge and system-oriented approaches that originates from system ecology, bio-economics and Science and Technology Studies. Their combination allows MAGIC to highlights if a certain mix of EU policies results in undesirable or unforeseen outcomes. Climate, water, land energy, and food modeling are integrated into a socio- and bio-economics framework using an iterative and participatory method. Significant care is taken to embed these ideas and approaches within the advisory and decision making functions of the European Commission. JRC I.1 is in charge of conceptualizing, implementing and managing a Nexus Dialogue Space. This (virtual and physical) space will develop science input to policy using a rich spectrum of actors and competences. Specific objectives are: (i) the formation of mixed teams covering transdisciplinary scientific expertise and European staff working in different offices - DGs, Eurostat, Offices of the European Parliament – this will be done with other WPs of MAGIC; (ii) the formation of a platform of interaction with EU institutions in relation to the activities of MAGIC (broadcasting of briefs, handling feed-back, help-line); (iii) extend the number and the type of social actors involved in knowledge sharing and in quality check of the social robustness of the narratives behind the framing of the nexus; (iv) coordination of the material prepared and the activities taking place around a Knowledge Hub.

Engagement Hub (JRC)

JRC I.1 is implementing a Hub in-house with wide external partners to deploy and study public engagement as "extended peer review" (quality). This entails its conceptual organization and its virtual and physical implementation. It will deploy current trends on public engagement, intersections of arts, science and politics in close collaboration with JRC I.2, B.6 and former H.7. Through installations and platforms, this Hub will organize citizen participation in debates about techno-science innovation of social, ethical, cultural and political nature.

Developing a Makerspace (JRC)

JRC I.1 is implementing a makerspace for the JRC: Thinkers 'n' Tinkers. A Makerspace is a physical open space oriented towards community engagement. It is a space where people can gather and share their experience and expertise as well as work on their projects, developing critical thinking about what they develop. Makerspaces are specifically designed to promote active participation, knowledge sharing, citizenship and collaboration of its users through experimentation and exploration. The concept shall target at least two sites of the JRC, Ispra and Petten. To start with a first development will be Ispra. This will be done in straight collaboration with two other units at the JRC E.4 and B.6 but it shall be completely open to ALL units of the JRC. Specifically, Unit E.4 is developing an IoT security and trust testing framework, within project ARMOUR for DG CNECT, which needs to build a testing space to define a compliance test suite to ensure interoperability between IoT systems and connected Plug'n'Play smart objects. This testing space is conceived in the form of makerspace; hence, Thinkers 'n' Tinkers will be implemented in straight collaboration with Unit B.6 that is developing a Citizen Science Platform, i.e. the information platform providing access to citizen science data, tools and apps at the JRC, which is developed with the partnering DGs and agency of the Environmental Knowledge Community (EKC). I.1 will collaborate with JRC B.6 in different projects with a material and deliberative counterpart of this platform using the makerspace "Thinkers 'n' Tinkers". I.1 will use the makerspace as a space for material and deliberative CE, opening it up to the community outside the JRC. A number of case studies are already planned for 2017 with Units B.6, E.4, F.1. and F.2.

Science and Technology Studies (JRC)

Web link: https://ec.europa.eu/jrc/en/research-topic/science-and-technology-studies

This project is integral part of the Competence Centre on Modelling. Consolidation of a strong competence on critical thinking using Science and Technology Studies (STS) across the JRC, through raising awareness, capacity building on specific methods, establishment of interdisciplinary spaces of collaboration within existing projects, and in general contributing to develop a culture of reflexivity and quality assurance that a boundary institution such as the JRC ought to preserve. It puts a strong emphasis on implementing CE about science and technology that is relevant for policy making as well as an interdisciplinary space where natural and social sciences, as well as the humanities and the arts meet to examine a policy relevant scientific issue with the aim of exploring and assuring social robustness of policy relevant science. Deepening the interface with other ways of knowing is understood here as a matter of quality assurance of policy making by the relevant extended peer communities. Methodologies from the STS field will be applied to different policy files where science is relevant. A series of invited seminars (contro<-corrente STS talks) with renowned scholars and practitioners of science and technology studies will be organized, aiming at raising awareness of science and technology studies and how these types of reflexive activities can help with scientific practice at the JRC. At least four seminars per year (2017 and 2018) will be organized. The set of talks will be eventually published as a book available to all staff.

Futurium (DG CNECT)

Web link: https://ec.europa.eu/futurium/en

The Futurium platform was initially developed with the primary purpose of hosting and curating visions and policy ideas generated by Digital Futures, a foresight project launched in July 2011 by DG CONNECT's Director General Robert Madelin following a prior DG CONNECT exercise called Digital Science. However, it has turned into a platform on which to experiment with new policy-makingmodels based on scientific evidence and stakeholder participation. As a result, Futurium developed visions and conversations on aspirational futures by involving a wide range of external stakeholders including for example students. The project developed a two-step strategy in order to engage with the public by on the one hand hosting conversations and dialogues with stakeholders through participatory brainstorming exercises, webinars, conferences, etc. and on the other hand, capturing content generated into an open online platform, namely Futurium. The platform allows for co-creation, voting, forecasting, back casting and mapping, creating visions for the future, but also for the collection of collective intelligence through data-mining, gaming, and fact-finding. The platform continues to be used as a gateway for the European Commission to gather inputs from stakeholders on policy initiatives.

SME Assembly (DG GROW)

Web link: http://ec.europa.eu/growth/smes/business-friendly-environment/small-business-act/sme-assembly_en

The SME Assembly is the most significant event for small and medium-sized enterprises (SMEs) in Europe. The conference takes place once a year during the European SME Week. Together with the network of SME Envoys, the assembly creates the governance structure of the Small Business Act. keynote speeches from high-level politicians and dignitaries, interactive sessions where participants get an opportunity to drive the policy agenda, practical masterclasses and bootcamps, and an interactive expo to promote start-ups and scale-ups and those that support them. We will also run a Scale-up Lab as part of the Ideas from Europe programme.

3.4 Research on Citizen Engagement Governance and Methods

Research on governance and methods is here defined as the **development of CE methods and governance of CE science and policy-making**. Projects where workshop participants actually work are listed below (many other projects are doing this but participants are not directly involved).

Stakeholder consultation (SG and JRC)

JRC I.2 is working in close collaboration with SG C.4, the unit in charge of consultation policies, on the implementation of the new stakeholder consultation policies of the Better Regulation Package (BRP). Several innovations have been introduced by the BRP, and mainstreaming these changes across the European Commission presents important challenges, ranging from the uptake of new procedures to a change of culture towards the integration of consultation as a key element of policy development and implementation. Service design methods are used to identify the main problems experienced by DGs in implementing the new policies, and to co-design enhanced support services that the SG could deploy to address them. In addition to the concrete support in the implementation of consultation policies, this will provide evidence on the suitability of design for policy methods for enhancing the implementation of the BRP; if successful, this test could open possible applications in other BRP policy areas. Several

DGs will be engaged in the co-design process, which will also contribute to expanding their capacities and skills in using design for policy methods and tools.

The Future of Governance (DG CNECT and JRC)

JRC I.2 is working in close collaboration with DG CNECT on the topic of change in public governance systems in the context of open government policies and digital transformation. The objective of this activity will be to investigate the ongoing transformation in the relationship between the various parts of the society (political parties, governments, citizens, private entities, etc.) and the emergence of new actors and forms of interactions. To help EU policy makers to decode this "transforming relationship" and co-design adequate policy measures, a series of case studies will be developed combining design and foresight methods. Cases will range from adaptive (such as alternative public service design and delivery) to macro transformative changes (blockchain architectures, direct democracy systems, etc.).

Making Sense Project (JRC)

Web link: http://making-sense.eu/

Funded within H2020 call ICT-10-2015 (Collective Awareness Platforms for Social Innovation and Sustainability - CAPS), the project will demonstrate how open source software and hardware, digital maker practices and open design can be effectively used by local communities to adapt environmental monitoring tools, make sense of their local territories and address pressing environmental problems in air, water, soil and sound pollution. A Making Sense Toolkit, based on the Smart Citizen platform, will be developed and tested in pilots in Amsterdam, Barcelona and Pristina. Based on the pilots, the project will develop a conceptual and methodological framework for participatory environmental practices.

Open Science 2.0. (JRC)

Former JRC J.3 (now B.4) carried out research on alternative funding mechanisms for scientific research such as crowd-funding and inducement prizes (e.g. X-prizes and Grand challenges) with the aim of addressing how such alternative funding mechanisms work from the researchers', institutes' and funders' point of view and whether they bring about an increasing number of actors, but also new types of actors, to the field of science. The research also aimed at working on a new type of taxonomy to understand and evaluate the impact of scientific research on society through reputation building mechanisms for scholars, focusing on scientific reputation arising out of non-traditional academia. Currently it is being explored how such a framework can help investigating citizen's engagement in 'opening up education' initiatives, such as the opening up of Higher Education institutions (e.g. monitoring "alternative" reputation) and lifelong learning (e.g. earning badges from citizen science projects, teaching MOOCs, etc.)

ICT-enabled public sector innovation and Policy-Making 2.0. (JRC)

Former JRC J.3 (now B.4) has conducted research on the future of eGovernment since its foundation, being also a pioneer in analysing the impact and implications of Social Computing (Web2.0) on public services (Ala-Mutka et al. 2009, Huijboom et al. 2009). Since 2009, it has explored how European governance models are changing thanks to ICTs. It has also conducted research to better understand the role collaborative ICTs and modelling can play to enhance governance processes and policy making mechanisms. This included in particular a participatory foresight exercise to envision scenarios for 'Digital Europe 2030', as well as a roadmapping process to suggest concrete actions and

research and policy recommendations to help shaping such future visions. This strand of research made emerge some interesting insight into the topic of what has been defined 'Policy-Making 2.0', which refers to a set of methodologies and technological solutions aimed at enabling better, more timely and more participative decision-making. In continuation of this line of research, JRC B.4 is permanently exploring how ICT-enabled innovation contributes to public sector innovation and changing governance and policy-making and it is interested in contributing actively to the JRC Public Sector Innovation Lab initiative.

Ethics dialogues about techno-scientific developments on technological innovation (JRC)

JRC I.1 conducted research on ethics dialogues applied to specific techno-scientific developments, e.g. drones, wearable sensors for medical applications, geoengineering, IoT (Boucher et al. 2014). Ethics dialogues create a space where discussions of values and norms about research and innovation can be interrogated, problematized and deliberated. They also provide the opportunity to experience ethics or understanding the ethics in innovations, e.g. through the design and use of objects.

Food Futuring Tours (JRC)

Web link: http://foodfuturingtours.irea.cnr.it/en/

Food Futuring Tours is a participatory experience which aims at re-imagining food in the XXI century, collecting ideas, visions and imaginaries about the future of food and food of the future, and the possible social – inclusive of ethical and cultural aspects – and environmental impacts of them coming from the great Universal Exposition 2015 in Milan, entirely dedicated to the theme. For six months hundreds of countries around the world showcased in Expo technologies, innovation, culture, traditions, around the theme of food. Food Futuring Tours consisted of 5 semi-guided walking tours with experts of the Italian National Research Council (CNR) and of the Joint Research (JRC) of the European Commission, through the halls of EXPO2015, during which participants photographing (using smart phones or digital cameras) or drawing or with any other visual means of recording told what captured their attention with regards to the issues of the participatory workshop. The focus of the "futuring" deliberation was defined by the participants at the end of each workshop. The Food Futuring Tours as an activity of public engagement based on an "experiential" mode of engaging, noticing and anticipating the future first explored By Cynthia Selin, Sarah Davies, Gretchen Gano and Ângela Guimarães Pereira in Lisbon through a project called Finding Futures (Davies et al. 2013). This project explored innovative ways of deliberating the future of cities through an emphasis on embodied spatio-visual engagement with urban landscapes. The project has since evolved in other directions, namely The Futurescape City Tours and it has been mainly centred on cities. In this context the mode explored was on the topic of food. The workshop also used participative methodologies for introducing the debate on science and technology widely explored by CNR research group.

MyGeoss (JRC)

Web link: http://digitalearthlab.jrc.ec.europa.eu/mygeoss/index.cfm

In this 2015 and 2016 project for DG RTD, JRC B.6 focuses on the reuse of open data, for innovative ideas and applications on local environmental issue. Key purpose is to exploit the potential of open environmental data, and particularly the one made available by the Global Earth Observation System of System. The project envisaged the development of 30-40 apps over 2 years of which the vast majority through 3 open calls for innovative ideas, and a few developed in-house. All results, including the source code of the

developed prototypes will be released as open source and recommendations on the potentials and pitfalls of Open Data will be derived.

Citizen Science Platform (JRC)

The Citizen Science Platform is a JRC B.6 institutional work package (re-named from Big Data for environment in the WP 2015). It investigates legal, organizational and technical barriers in data re-use to enhance the relation between society and environmental science. The project particularly examines the combined re-use of commercial data (mobile phone data, content of social media platforms), citizen-generated content (e.g. via low-cost sensors) and public sector information (incl. INSPIRE and Open Data from other sources). As of 2016, the future development includes the support to the Environmental Knowledge Community (EKC) – a partnership between DG ENV, RTD, ESTAT, JRC, CLIMA and the EEA with possible contributions from CNECT (see also above). Hands-on citizen science demonstrators are under development for both, nature protection (Natura2000) and the monitoring of Invasive Alien Species of European Union concern. The gained experiences will be generalised into a scientific and technical platform that can be used in order to complement the classical gathering of scientific evidence with citizens' contributions (targeted and synchronised with upcoming policy needs).

3.5 Training and Guidance on Citizen Engagement

Training and guidance on CE is here defined as **training courses or modules designed for the services of the European Commission and for Member States**.

Training on public engagement methodologies (JRC).

JRC I.1 has been engaged on training about public engagement methodologies for the past 20 years, focusing on dialogical and material deliberation practices. Research on the meaning and implications of engagement today (e.g. DIY science, etc.): thematic workshops are being organised around the practical, political, social and ethical issues arising from the emerging des-institutionalisation of knowledge production loci. A yearly training on public engagement methodologies is thus based on in-house developed methods such as "ethical dialogues" and experiential (as opposed to discursive) methods. This includes science outreach and public engagement methods. Training material will be produced.

Training on knowledge assessment methodologies (JRC).

A training on knowledge assessment methodologies within JRC I.1 will be provided in 2017. This includes science outreach and public engagement. Training material will be produced.

4   Definitions and Challenges of Citizen Engagement

4.1 Workshop Flow and Discussions

The second Interservice Workshop on Citizen Engagement in Science and Policy Making on the 29 January 2016 started with a **welcome session** together with a set of **flash presentations**:

- Welcome and introduction, Xavier Troussard, JRC - EU Policy Lab (DDG.02)

Flash presentations:

- Highlights from 1st workshop, Emanuele Cuccillato, JRC - EU Policy Lab
- Stakeholder Consultation in the Better Regulation Package, Anette Pielke, SENGEN – C.4, Work Programme and Stakeholder Consultation
- Open Science and citizen engagement, Silvia Luber, DG RTD – A.6, Science policy, foresight and data
- Update on CE activities across the European Commission, Sven Schade, JRC – B.6, Digital Economy
- Upcoming events, John Magan, DG CNECT - C.3, Digital Science

Participants were divided into **parallel working groups** (five to six participants) with one facilitator from the EU Policy Lab per table. Groups were previously composed in order to ensure a diversity of DGs in each group. The main objective was to map explicitly the diversity of views on concepts, agendas of DGs around CE, and opportunities for CE to help achieve European Commission's policy objectives. Also the underlying goal was to provide the opportunity for quality interaction in small groups to reflect on the diversity and complementarities of definitions/views/agendas.

The parallel working groups started by each participant writing individually their answers to:

- What CE on science and policy making means for you and why is it important for the European Commission?
- What are we doing in relation to CE? Main initiatives? What are the main policy areas and groups involved? What should we do (more)?
- What are the main challenges?

Then participants shared their answers and discussed with the group, with the main purpose of exploring diversity/convergence of views, and identify new ideas. Statements on cards were refined following the discussion, while still reflecting the diversity of opinions (i.e. they were individual views and not necessarily what everybody agreed upon).

A **plenary session** followed with the objective of taking stock and making sense of the various understandings within the European Commission on CE. The relationships among the different views were discussed, together with a first identification of similarities, differences and possible synergies among the activities. During the plenary session, the EU Policy Lab team captured what emerged from the discussion with meta-post-its.

The workshop ended with a "**marketplace" for follow-up joint actions**. A few "champions" were identified beforehand to do a short pitch inviting colleagues to join them to develop an action. However, building on the previous sessions, all participants had the opportunity to "pitch" in one minute a proposal for a follow-up action. This opened up a "marketplace" where colleagues gathered around the proposal that they were interested in. The discussion within the small groups was then followed by a short plenary.

Figure 3. Parallel working group

Figure 4. Answering initial questions

Figure 5. Mapping the group's views

Figure 6. Mapping the group's views

Figure 7. Group 1 map

Figure 8. Group 2 map

Figure 9. Group 3 map

Figure 10. Group 4 map

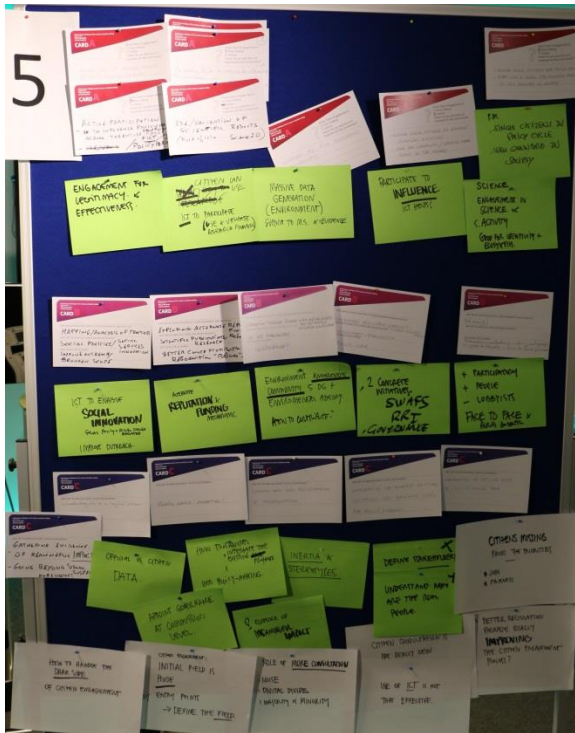**Figure 11.** Group 5 map

Figure 12. Detail of mapping exercise

Figure 13. Plenary discussion

Figure 14. Group maps side by side

Figure 15. Marketplace for follow-up actions

Figure 16. Marketplace for follow-up actions

Figure 17. Plenary on the follow-up actions

Figure 18. Plenary on the follow-up actions

4.2 What Citizen Engagement in Science and Policy-Making Means for the European Commission?

A boost in **democratic legitimacy, accountability and transparent governance** can be one of the main positive outcomes of CE. For an institution such as the European Commission often seen as not being close to citizens, it can be a major added value. Here the purpose would be to change the European Commission's image of "an outside top-down legislator" (workshop participant) to an institution fully integrated in society and attentive to its needs and expectations.

On a first level of engagement, citizens can be better informed about the European Commission's activities and policies, leading potentially to a better understanding and public support by the electorate. An efficient communication with citizens with the goal of regaining their trust and strengthening science and policy-making are overall goals.

However, on a deeper level of engagement, citizens can be empowered to carry out scientific activities and get more directly involved in policy-making. Recent trends are moving away from mere "info-giving" and towards more deliberation practices.

The improvements for **trust building** with citizens and their **ownership of the outcomes** come from listening to the final beneficiaries, that is, the citizens for whom we make policies are designed for. It can be also viewed from the viewpoint of democratic participation - **"from interests to rights"** (workshop participant). Involving citizens at each stage of the decision-making process, including final adoption, stem from simply stating that "citizens are the ones who pay for the EC activities – they are the public good" (workshop participant). The current agenda around Policy-Making 2.0 includes active participation from a wide number of actors to influence policy-making across the policy cycle. Bottom-up approaches coming from different trends such as participative democracy, co-creation and co-design of policies, citizen science initiatives or DIY practices, place citizens and communities at the center of co-production of knowledge and policies.

Involving citizens can make science and policy-making more efficient, considering that "policy designed with involvement of the 'users' will always produce better outcomes" (workshop participant). Citizens' inputs can offer a unique **understanding of what society wants and needs**, and through this process, a **better definition and targeting** of European Commission's services to its main "clients". Reliability and validity of policies can greatly improve as **fit-for-purpose responses to real demands and expectations**.

Also citizens in certain instances can **provide complementary evidence for policy-making and evaluation** of policy decisions, while also **generating ideas for new policies or services**. CE in policy-making is a way to ensure European Commission's policies are within public interest and add value, together with more resilient and better tested options. It is also a way forward to improve the quality of policy from a social perspective, when they are well-grounded in society and enable finding the right questions to our challenges.

When it comes to science, it is also a matter of **tailoring research to citizen needs and concerns**. For instance, the research agenda can be shaped based on citizens' view in order to focus on research topics that really matter for society and are closer to real needs. Here it is an issue of bringing explicitly societal values to the debate, and in the end, to reconcile expertise with democratic rights. Also citizens can engage in the actual knowledge production, when involved in the definition, collection, use and validation of scientific results. Not only they can support the gathering of massive amounts of data, for example in supporting environmental reporting requirements, but also they bring forward their unique insights and creative ideas, for example in building, re-purposing or using their own DIY environmental sensors in their local surroundings.

CE also means creating the **right environment and framework** to enable meaningful contributions. Potential trade-offs in terms of resources and time horizon need to be

addressed, considering how intensive and time consuming CE processes usually take. Using the **appropriate tools and language** is essential. Understand that **conflicting viewpoints and underlying uncertainty** are inevitable elements in any process of CE. One of the core ideas is to achieve a **better balance of stakeholder interests** other than the "usual suspects", that is, broadening participation to wider groups of actors.

4.3 What Should the European Commission do (more) in Citizen Engagement and What are the Main Challenges?

There is a wide range of current bottlenecks and challenges for further using CE in science and policy-making within the European Commission. It is commonly shared that **better feedback mechanisms** for citizens and stakeholders need to be promoted. This may range from **e-discussions forums at EU level to "safe spaces" within the European Commission** to experiment with new mechanisms for CE beyond what is previewed in COMM and/or the Better Regulation package. These efforts can result in a better alignment of CE needs with the current and future work of different European Commission services.

Nevertheless, involving citizens is not worthwhile if their feedback is not channeled more systematically into each stage of the policy cycle. Their views and/or data are to be used and integrated in policy-making and implementation, thus **"making sure citizens' input is taken into account"** (workshop participant).

Resistance from authorities, researchers, policy-makers, among others, in acknowledging citizens' valuable input is often an obstacle. In the specific case of researchers or experts, there is a lack of acknowledgement from their own institutions and from the academic establishment in general about CE when assessing career progression or selecting indicators for scientific activities. Alternative reputation and funding mechanisms are being developed by several academic movements to address this issue. Still, "fighting inertia and stereotypes" (workshop participant) about the usefulness and validity of non-traditional inputs coming from citizens, communities or other groups, is a real issue when it comes to CE in science and policy-making. In this regard, the predominant paradigm for policy-making is based on expert inputs (evidence based), in detriment of non-expert or lay knowledge coming from other parts of society. Still the awareness about the need to **change institutional and organizational culture**, usually "not too keen on involving citizens" (workshop participant), is on the rise within the European Commission staff. A shift of mindset from civil servants, policy makers, politicians, researchers but also from citizens, civil society, among others, is on the horizon.

Engaging all relevant stakeholders, with special attention to citizens, comes with its own set of concerns to be carefully discussed. For instance, the **issue of representativeness** needs to be preserved through a mix of tools and methods that ensures a good variety of viewpoints. This can be reinforced by more **transparency about the use and influence of citizens' feedback**, thus avoiding concerns about potential conflict of interests or biased collection of inputs.

Also in practical terms, CE requires considerable attention to its own set of **technical and legal questions**. Take for instance the issues of data quality, reliability, curation, privacy, intellectual property or ownership, or the potential obstacles in analyzing feedback in multilingual context. The ethics of re-using citizens' data, or the overall protection of the individual citizen in relation to government, private organizations or business, need to be considered. **Technical and human resources** to address such questions should not be underestimated if the credibility of such CE initiatives is not to be undermined. The question arises here: "will we be able to be serious about citizen engagement?" (workshop participant)

When it comes to the **European Commission's initiatives on CE**, a number of concrete issues were raised. More coordination between funded activities, projects and tools, and more coherence within and between the European Commission's services when funding these activities and distributing planned tasks, were pointed out. In this context, **knowledge sharing and learning** within the European Commission, in terms of who does what, with which tools and methods, are seen as crucial to learn from previous experiences, to **spread best practices** and to tackle roadblocks in a collaborative and efficient way.

An **alignment of terminology and actions** is needed which could evolve into a common vision, as explicitly called for by several workshop participants. An explicit and clear inclusion of CE related activities in the work programmes was suggested. This inclusion could help to put forward a proportional and strategic approach to CE initiatives with the right allocation of resources (time, staff, and knowledge, among others).

In particular, the set of skills needed to run meaningful and successful CE processes is to be addressed by **building in-house capacity**, when it comes for example to experience with tools, guidance and complementary training.

The format and type of CE initiatives within the European Commission is another topic. **Corporate communication, in terms of accessibility, outreach or multilingual inclusion**, is to be improved. The scope and the target audiences are seen as too restricted at most instances. More participatory consultations involving "real people" (as opposed to lobbyists) in face-to-face processes, such as open round tables, or engaging younger generations or millennials, are called for. The use of **appropriate language and terminology** for diverse audiences is to be improved. It relates not only with avoiding jargon and expressing as clear as possible complex questions, but also clarifying often overlapping and/or similar terms (e.g. citizen science taking place under different labels).

The best **balance between legitimacy and effectiveness** of CE was also raised. This may arise then considering the timing or the moment in the policy cycle CE makes sense or can be better used. Also CE initiatives are to be adapted to the specific needs at hand, that is, "no one measure fits all (subjects, topics, policy areas)" (workshop participant).

The **quality of CE processes, documents, inputs and outputs**, are a common concern in several aspects. The purpose, objectives and policy relevance for putting in place CE needs to be better defined from the very start. Also the gathered input needs to go through a structured validation and analysis in order to extract the best insights - "too much information kills information" (workshop participant). Collecting the success stories or the best demonstrations is needed, when it comes to "gathering evidence of meaningful impact" (workshop participant).

How to integrate the outputs coming from CE initiatives and projects can also be an issue. For instance, citizen science data often follows different processes and standards (see, for example, (Schade and Tsinaraki 2016)) which make it difficult to integrate it with official data. Integrating already existing data into something useful for policy purposes can also be an obstacle to using such data. It might be one way ahead if **governments' data needs are clearly formulated and communicated,** so that, for example, citizen science projects can be designed in a way that allows data reuse. Trainings and tools might also be provided.

The quality of participation in terms of engaged audiences is another point of discussion. Identifying **who are the citizens**, segmenting when needed according to specific criteria, "reaching the right citizens" (workshop participant), or simply understanding what is a "regular" citizen by "going beyond usual suspects" (workshop participant), are essential questions for any CE initiative. For instance, in most CE projects it's still visible a distance from citizens' daily life, which may hinder participation and continued engagement. A suggestion would be to "go to where they are and live!" (workshop participant), such as social networks or other ICT enabled channels of communication.

Here, it should be considered that we will not deal with "the (prototypical) citizen" but that different people act differently and follow diverse motivations.

The overall and usually shared goal of attracting more citizens' inputs is not without risks, such as having uninvited or irrelevant contributions, short-term engagements with low motivation from citizens, or inadequate management of citizens' expectations. For instance, such inadequate management of expectations can arise from an unclear purpose or policy impact of a CE initiative from the start, which will likely create frustration and misunderstandings from the involved parties.

In the end, an overall need to embed citizen engagement in the workings of public institutions was expressed by many workshop participants, not only at EU level but also in a complementary way at national, regional and local levels. A final suggestion is to enforce appropriate legislation at the Member States level which can better integrate public consultation with CE activities. An appropriate delegation of the European Commission to national, regional or local actors could be foreseen in certain instances.

5 Outlook and Recommendations

The discussions (and feedback) at the Second Interservice Workshop on Citizen Engagement in Science and Policy Making, together with previous and ongoing collaborations between different units of the JRC, allows some reflections that can be translated as an outlook and draft recommendations for CE to be legitimately conducted and implemented throughout the European Commission.

From "asking the citizens" to "co-creating with citizens"

Tensions between traditional consultation and more ambitious intentions to bring citizens to the forefront of science and policy-making are still evident. The **calls for more accountability, openness and transparency** in producing and integrating citizens' knowledge have many different meanings, depending on the stated objectives of CE initiatives. Often it is framed as a way of **regaining citizens' trust or appealing to the public acceptance** of certain scientific and policy choices. Other times CE is pursued with a clear goal of empowering citizens in co-shaping and co-defining scientific and policy processes.

Citizens as catalysers of innovation in science and policy-making.

It's becoming clear that **citizens can be catalysers of innovation**, that is, their inputs can lead to better informed, accountable and robust outcomes in policy and science. A better use and integration of citizens' inputs can potentially expand the evidence or expert-based paradigm towards a citizen-based policy-making. This implies that not only more types of knowledge are needed at the table, but also the recognition that CE is a matter of democratic rights to be differentiated from pure interests.

Changing institutional culture and communication.

The internal challenges for a supranational and complex institution such as the European Commission are manifold. In order to run well-integrated and successful CE initiatives, one main element to improve is the institutional culture, that is, **the definition of what is CE and its added value for science and policy-making**. Even a change of language - to avoid "they", the citizens - would already be a positive sign. **Capacity building** inside the European Commission to run CE initiatives is essential, coupled with better internal coordination in order to **avoid overlaps** and to **extract learnings and good practices** across services. Assessing the impact of previous CE projects and develop specific metrics for the European Commission's context could be another way forward.

Concrete steps and actions for CE within European Commission.

Concerted coordination and communication across services could be achieved through the **appointment of suitable governance structure at a horizontal level**, for instance with the creation of a Taskforce dedicated to CE. Such horizontal body would take on a leadership role when it comes to CE in order to clarify internal objectives, to coordinate CE initiatives, and eventually to build a shared terminology or lexicon. A set of possible actions to be undertaken include for instance: creation of knowledge sharing groups; organization of thematic workshops dedicated to specific and targeted issues; or identification of a few pilot projects or "proof of concepts" per DG (not too risky and with clear goals). A clear message is the **need for concrete joint actions to move CE forward**, taking into consideration not only previous initiatives and in-house experience, but also the existing community within the European Commission ready to help each other and reinvent science and policy-making.

Promising contributions and strategies for the JRC.

In the specific case of the JRC, there is a set of ongoing initiatives but also prospective actions that feed into CE narrative, including but not limited to:

- creating **pilot projects as demonstrators** with an adequate scale and strong connection to policy priorities and 'real' policy making cases, in close cooperation with DGs to design and implement such pilots (such as the Environmental Knowledge Community - EKC work on citizen science, under the lead of JRC.B.6);
- developing **physical spaces and ways of working** to develop and test **collaborative, hands-on and experiential approaches with citizens**, under a 'lab setting' approach pursued for instance through the EU Policy Lab (running within JRC I.2) as a public sector innovation lab, and through the series of workshops and a planned makerspace (within JRC I.1) in partnership with network of museums, makerspaces, living labs and other innovation spaces;
- strengthening **interdisciplinary collaboration** in cross-cutting issues, with a clear integration of social sciences and other disciplines (e.g. design, art, …) in order to build social robustness in all processes of co-production of knowledge;
- contributing to capacity building inside the European Commission by providing **trainings on specific CE tools and techniques** for science and policy-making.

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List of figures

Annex

Annex 1. List of participants

2nd Interservice Workshop on Citizen Engagement in Science and Policy-Making, 29/01/2016

Name	Surname	Service	Unit
Manuela	Alfe	REA	
Loretta	Anania	DG CONNECT	E3 Next Generation Internet
Ian	Andersen	SCIC	Adviser to the DG
Jaime	Andreu Romeo	DG COMM	Adviser Directorate C Communication with Citizens
Giuseppe	Borsalino	DG RTD	B7 Science with and for Society
Jeroen	Casaer	SG	C4 Work Programme and Stakeholder Consultation
Emanuele	Cuccillato	DG JRC	I.2 Foresight, Behavioural Insights and Design for Policy - EU Policy Lab
Jim	Dratwa	DG RTD	DDG01.01 Ethics and Research Integrity
Karen	Fabbri	DG RTD	F3 Agri-Food Chain
Marco	Fichera	DG DIGIT	B4 Corporate Financial Procurement & Policy Solutions
Izabela	Freytag	DG RTD	B2 Open Science and ERA policy
Philippe	Galiay	DG RTD	B7 Science with and for Society
Francisco	Garcia Moran	DG DIGIT	HCA
Ângela	Guimarães Pereira	DG JRC	I.1 Modelling, Indicators and Impact Evaluation
Vessela	Karloukovska	DG CONNECT	D2 Policy Implementation and Planning
Sine	Kristensen	DG GROW	H1 COSME Programme, SME Envoys and Relations with EASME
Michael	Latsch	SG	C4 Work Programme and Stakeholder Consultation
Marion	Le Louarn	CNECT	D2 Policy Implementation and Planning
Silvia	Luber	DG RTD	A6 Data, Open Access and Foresight

John	Magan	DG CONNECT	C3 Digital Science
Gianluca	Misuraca	DG JRC	B4 Human Capital and Employment (former J.3)
Elena	Montani	DG ENV	A3 Environmental Knowledge, Eco-Innovation and SMEs
Susana	Nascimento	DG JRC	I.2 Foresight, Behavioural Insights and Design for Policy - EU Policy Lab
Serge	Novaretti	DG CONNECT	H4 eGovernment and Trust
Anette	Pielke	SG	C4 Work Programme and Stakeholder Consultation
Mariana	Popova	ESTAT	E2 Environmental statistics and accounts; sustainable development
Alessandro	Rancati	DG JRC	I.2 Foresight, Behavioural Insights and Design for Policy - EU Policy Lab
Jose Miguel	Rubio Iglesias	DG RTD	I4 Climate Action and Earth Observation
Antonio	Scarafino	REA	B5 Spreading Excellence, Widening Participation, Science with and for Society
Sven	Schade	DG JRC	B.6 Digital Economy (former H.06 Digital Earth and Reference Data)
Didier	Schmitt	EEAS	Space Task Force
Hilde	Schroeder	SG	C4 Work Programme and Stakeholder Consultation
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