PE2020

Public Engagement Innovations
for Horizon 2020

Final Workshop and Summary Report D5.3

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The PE2020 Project

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Project consortium:

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Executive summary

PE2020 identified, analysed and refined innovative public engagement (PE) tools and instruments for dynamic governance in the field of Science in Society (SiS). PE2020 continued the work began in the MASIS project (2010-2012) by going deeper in analysing the dynamics of PE innovations and contributing to the potential and transferability of new governance innovations. The vision guiding the work of this consortium was that more effective and socially acceptable decisions on science, technology and innovation (STI) are needed to solve the looming problems related to the grand societal challenges of the Horizon 2020, and, that public engagement has an untapped potential in addressing such challenges, and making research governance more dynamic and responsible. The work of this research project was, therefore, focused on tools and instruments for public and societal engagement that are necessary to boost the quality, capacity and legitimacy of European STI governance.

Reflecting this vision, the PE2020 project set two ambitious objectives. First, PE2020 aimed to create new knowledge of the status quo and trends in the field of public engagement in science. Following actions were carried out to reach this objective:

- an updated inventory of current and prospective European PE innovations was created (WP1)
- the dynamics of PE innovation was modelled through a sophisticated conceptual model emphasizing a systemic and contextual perspective (WP2)
- the feasibility of new PE tools and instruments was studied through pilot cases in the context of the grand societal challenges (WP3).

Second, PE2020 aimed to refine innovative PE tools and instruments and propose new ones. Following actions were carried out to reach this objective:

- seven innovative PE processes, collectively relating to the seven grand societal challenges of the Horizon 2020, were designed and tested in real-life contexts (WP3)
- an easily accessible web-based toolkit supporting the design of PE practices was created for the help of research managers, science policy actors and other interested users (WP4)
- dissemination activities were carried out extensively, in order to support the transfer innovative PE practices among European countries and research and innovation actors (WP4).

Thus, PE2020 stood on two legs, one in academic research, the other in the practice public engagement. All the objectives of the PE2020 were met during the three year research process. Some of the key results include the catalogue of 38 innovative PE cases (D1.2), a conceptual model of public engagement in dynamic and responsible governance of research and innovation (D2.2), lessons from seven real-life PE pilots that were carried out in collaboration with international research programmes and analysed in a related report (D3.2), development of a webtool on public engagement in science (http://toolkit.pe2020.eu/), and organisation of a high level policy conference, where the key results of the PE2020 project were discussed with researchers, policy makers and other users of knowledge, and published in a Policy brief (https://pe2020.eu/wp-content/uploads/2014/02/Policy-brief-3_FINAL.pdf).

The PE2020 project

PE2020 project identified, analysed and refined innovative public engagement (PE) tools and instruments for dynamic governance in the field of Science in Society (SiS). PE2020 analysed the PE tools and instruments through a systemic and contextual perspective, and contributed to the potential and transferability of new governance innovations. PE2020 created new knowledge of the status quo and trends in the field of public engagement in science, refined innovative PE tools and instruments and proposed new ones.

The project did this by (1) further developing a conceptual model that provides a systemic perspective of the dynamics of public and stakeholder engagement; (2) creating an updated inventory of current and prospective European PE innovations; (3) context-tailoring and piloting best practice PE processes related to the grand challenges of the Horizon 2020 and (4) developing an accessible net-based PE design toolkit that helps identify, evaluate and successfully transfer innovative PE practices among European countries.

New tools and instruments for public and societal engagement are necessary to boost the quality, capacity and legitimacy of European STI governance, and to address the looming problems related to the grand societal challenges of European societies and the Horizon 2020. In order to ensure practical relevance, the project worked through intensive co-operation between researchers and science policy actors. PE2020 aimed at expanding the capacity of European and national science policy actors to integrate better societal engagement by providing an easy access to new PE tools and instruments, to be included in the requirements and implementation of research in Horizon 2020 and beyond.

Acknowledgements

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The PE2020 project consortium wants to express a warm thank to all of the managers and administrators of the innovative PE cases (presented and analysed in work packages 1 and 2), who graciously presented their projects. The project consortium expresses their thanks to the University of Aarhus for their work in collecting this database. We also like to express our gratitude to the partners of the pilot initiatives in Bonus, Future Earth Finland, JPI MYBL-programme, Academy of Finland, Agorà Scienza, Italian National Agency for New Technologies, Energy and Sustainable Economic Development and IDIS Città della Scienza. We thank the members of the scientific advisory board members Edward Andersson, Simon Burall, Suzanne de Cheveigné, Martin Hynes and Markku Mattila for their committed participation in the project. In addition, we thank the external evaluator, Göran Melin, for his valuable suggestions to strengthen the project. We thank also the sister projects Engage2020 and CASI for a very fruitful cooperation. Finally, we would also like to thank our project officers, who helped us during different stages of the project, including Ms. Dionysia Lagiou, Ms. Karen Fabbri, Mr. Giuseppe Borsalino and Ms. Katharina Haller. Our thanks goes also to dozens if not hundreds of other collaborators and stakeholders, who have been pondering or developing pilots with us during the three year life cycle of this project.

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Abbreviations:

PE	public engagement
PE2020	Public Engagement Innovations for Horizon 2020 -project
RRI	responsible research and innovation
STI	science, technology and innovation
WP	work package

1. Introduction

Mikko Rask and Kaisa Matschoss

While entering this project, the consortium had a clear idea of the key challenge underlying the project: new tools and instruments for public and societal engagement are necessary to boost the quality, capacity and legitimacy of European STI governance. Our vision was that more effective and socially acceptable decisions on STI are needed to solve the looming problems related to the grand societal challenges of the Horizon 2020, and, that public engagement (PE) has an untapped potential in addressing such challenges, and making research governance more dynamic and responsible.

Reflecting this vision, the PE2020 project set two ambitious objectives. **First, PE2020 aimed to create new knowledge of the status quo and trends in the field of public engagement in science**. Following actions were defined as the means of reaching this objective:

- creating an updated inventory of current and prospective European PE innovations (WP1)
- analysing the dynamics of PE innovation through a sophisticated conceptual model emphasizing a systemic and contextual perspective, and (WP2)
- studying the feasibility of new PE tools and instruments through pilot case studies in the context of the grand societal challenges (WP3).

Second, PE2020 aimed to refine innovative PE tools and instruments and propose new ones. Following actions were defined as the means of reaching this objective:

- context-tailoring and piloting at least six best practice PE processes that collectively relate to all seven grand societal challenges of the Horizon 2020 (WP3),
- developing an accessible web-based PE design toolkit for science policy actors (WP4), and
- helping to identify, evaluate and successfully transfer innovative PE practices among European countries (WP4 & WP5).

Thus, PE2020 had two legs, one in academic research, the other in practical development and testing of theoretical wisdom in real life contexts. As the main context of the project was research and innovation policy at the European and national levels, we organized a final policy conference to discuss, further refine and disseminate new ideas emerging from the project. The final policy conference culminated our efforts, as nearly two hundred participants – EU and national level policy makers, academic researchers, PE practitioners, NGOs, industrial representatives and other stakeholders – participated in this event that took place, on 16-17 November 2016, in the premises of the European Committee of the Regions, in Brussels.

We are happy to see that the mission is now accomplished, and all our objectives have been reached during the intensive research process. In this summary report we will summarize the main findings resulting from each separate work package. We also provide an overview of the discussions that took place in the policy conference. Finally, we reflect emerging opportunities for the European Commission, national research and innovation policy actors, and other stakeholders, on how to better address societal challenges through innovative public engagement.

This summary report is organized as follows. Section 2 describes the main empirical data that was collected and preliminarily analyzed in WP1. Section 3 highlights the key theoretical insights emerging from the analysis of the empirical PE cases combined with theoretical reflection (WP2). Section 4 explains how the webtool that makes the core results of this project available, was created, and how the toolkit helps planners of PE develop their own PE practices in the future (WP4). Section 5 presents the work that we did to co-design, co-create and co-disseminate our work with and for national and EU level actors (WPs 5&6). Section 6, finally, discusses activities that resulted, at least partly, from the interactions of the PE2020 with other actors interested in developing better PE practices. We also reflect opportunities for further development of the field of PE: how it could practically contribute to a more dynamic and responsible governance of research and innovation, which is necessary to ensure its high quality, capacity to address societal challenges and maintain legitimacy of research among European publics. This publication summarizes the main substantive results and efforts to disseminate to the users of knowledge. For this reason, an account of WP6, management of the PE2020, will be excluded from this summary report but included in a separate final progress report to the European Commission.

The PE2020 project has been an eventful, and in many ways instructive journey, not only to the partners but also some of our collaborators, who have started to apply PE more actively in the research processes. As we found it through our global scan of innovative PE practices, the field of public engagement is currently a highly active state, and it provides inspiring examples of doing things differently: strengthening bottom up approaches, mixing actors in more creative ways, and shaking traditional framings of technoscientific problems. The authors once more thank all our collaborators and followers. We wish that the readers of this report will find the synthetic views expressed in this publication as orienting toward new ways of thinking and doing more dynamic and responsible research and innovation activity in practice.

2. Exploring Public Engagement Innovations in Europe and beyond (WP1)

Kaisa Matschoss

2.1 Objectives of Work Package 1

This chapter presents the main results of the work executed in the first work package of the PE2020 project. The main objective of this work package has been to explore the landscape of current and prospective public engagement (PE) innovations in Europe and beyond. During the last decades, it has been increasingly acknowledged that addressing existing and emerging societal challenges as well as scientific and technological advances require novel ways of engaging the public, such as new initiatives, platforms and opportunities. New democratic public engagement innovations for including various kinds of societal stakeholders have been developed, implemented and specified in different national and institutional contexts. The discussion has focused on the benefits and possible impacts of engagement and increasing attention has been paid on dialogue-based approaches that encompass deliberation processes, such as citizens juries, consensus conferences or deliberative polls, which are discussed in the literature under the umbrella term of *mini-publics* (Abelson et al. 2003; Goodin and Dryzek 2006; Stilgoe et al. 2014).

Although public engagement activities have generated increased attention in general, not least with the fairly recent promotion of 'responsible research and innovation' (RRI) by the European Commission, which aims to "engage society more broadly in its research and innovation activities" (ec.europa.eu), there are enduring and forthcoming challenges of reinforcing inclusive and deliberative PE performances. 'Deficit-like assumptions' still mark dialogue (Stilgoe et al. 2014:5), in many cases, the assessments and evaluations of possible impacts remain unexplored and unaccounted for (Burchell et al. 2009; Rowe and Frewer 2005) and the prospects for developing alternative models of scientific governance in terms of 'a culture of experimentation' have not yet been exhausted (Irwin 2014:74). Furthermore, SiS practitioners and experts within the field point to public engagement activities as often being outdated, discouraging and performed as a 'tick-box exercise' rather than being an integrated part of public services (Andersson 2014:2).

The work in this work package focusing on data collection was composed of following main elements. First, it designed and implemented with the PE2020 consortium members a collection of existing examples of public engagement activities in Europe and beyond and classified these into an inventory. Second, the researchers of the PE2020 project jointly designed the criteria for the selection of innovative cases from the inventory for further analyses. The consortium collected detailed data on these cases by means of survey methodology, and presented the case descriptions in a catalogue of innovative PE activities. The results of the empirical investigations was shared with a forum of PE experts in order to discuss and enrich the work in international PSCT conference in 2014, in Salvador, Brasil.

Thus, the two main work package outputs include an up-to-date inventory of 256 prospective European public engagement innovations that encompasses 76 mechanisms and 256 initiatives (D1.1), and a catalogue of 38 innovative cases (D1.2) that sets out to explore some of these innovative and cutting edge practices in depth and across different engagement categories and objectives to explore the breath of PE formats and their different relations to the Horizon 2020 societal challenges. In addition, the work package produced a report on the participation on the conference (D1.3) and a summary report of the work package (D1.4). In the following sections, the two main contributions of the work package will be discussed in more detail.

2.2 Inventory of PE mechanisms and initiatives

The main objective of the first task of the data collection was twofold; to construct a systematically ordered inventory of public engagement innovations in Europe and beyond, and to crystallize an analytical approach that is able to capture variation in PE objectives and formats as well as their particular degrees of orientation towards the societal challenges identified in Horizon 2020. The inventory (D1.1) functions as an independent output that illustrates the scope and heterogeneity of both national and cross-national PE activities organised in Europe and further afield in a growing universe of PE initiatives worldwide. The construction of the inventory has relied on a multilevel approach that has been applied in the data collection process; a desk research including a literature review have been performed, survey results have been applied as well as innovative PE mechanisms and initiatives in Europe and further afield have been identified with the assistance of the international members of the advisory panel and PE2020 coordinators.

As an empirical starting point were 37 national country reports of a previous European project *Monitoring Policy and Research Activities on Science in Society in Europe* (MASIS, 2010-12), but a significant and a more up-to-date input was reached through a co-operation with the simultaneously organised, yet shorter, *Engaging Society in Horizon 2020* -project (Engage2020, 2013-2015). The Engage2020 project, a sister project to PE2020, conducted a survey among international scholars in the field of research and innovation in order to map the use of methods for societal engagement in activities related to research and innovation. The PE2020 inventory adds in these survey results where supplementary mechanisms and specific initiatives are located. A third data source consists of 50 SiS case studies conducted by the *Technopolis group* (1st version, May 2012) as a part of the mid-term SiS programme evaluation. Relevant examples of PE mechanisms/initiatives among these 50 case studies, which include cross-national PE activities have been reviewed and added to the PE inventory. Other relevant current or completed EU SIS projects have also been reviewed, although less systematically, and incorporated into the PE database.

Furthermore, a literature review was conducted comprising of both academic journals as well as 'empirical' reports addressing PE activities. The academic journals *Public Understanding of Science*, *Science Communication*, *Science, Technology, and Human Values*, and *Science and Public Policy* were examined for recent articles concerning 'public engagement', since these journals represent primary outlets for academic analysis of PE activities. This systematic procedure included recent articles published from 2008 onwards. External sources such as internet sources (e.g. homepages of institutions, organisations, centres etc. engaged with public engagement activities) supplemented data collection. Additional cases suggested by project partners and international advisory board members were also added to the inventory.

The up-to-date inventory of current and prospective European public engagement innovations encompasses 76 mechanisms and 256 initiatives. The inventory is presented under the five headlines specified in the section below; public communication, public activism, public consultation, public deliberation and public participation, which for a typology of PE mechanisms or initiatives. The inventory furthermore applies a simple, dual classification scheme distinguishing between PE mechanisms (which are generic ways of enacting public engagement) and PE initiatives (which are the concrete examples of specific engagement activities). This basic classification scheme primarily functions as a means for arranging the empirical cases in an accessible and informative way, and it is meant to reduce complexity in a highly complex database.

- **Public communication –** *the aim is to inform and/or educate citizens*. The flow of information constitutes one-way communication from sponsors to public representatives, and no specific

mechanisms exist to handle public feedback (examples include public hearings, public meetings and awareness raising activities).

- **Public activism –** *the aim is to inform decision-makers and create awareness in order to influence decision-making processes.* The information flow is conveyed in one-way communication from citizens to sponsors but not on the initiative of the sponsors as characterizes the 'public consultation' category (examples include demonstrations and protests).

- **Public consultation –** *the aim is to inform decision-makers of public opinions on certain topics.* These opinions are sought from the sponsors of the PE initiative and no prescribed dialogue is implemented. Thus, in this case, the one-way communication is conveyed from citizens to sponsors (examples include citizens' panels, planning for real and focus groups).

- **Public deliberation –** *the aim is to facilitate group deliberation on policy issues of where the outcome may impact decision-making.* Information is exchanged between sponsors and public representatives and a certain degree of dialogue is facilitated. The flow of information constitutes two-way communication (examples include 'mini publics' such as consensus conferences, citizen juries, deliberative opinion polling).

Public participation – *the aim is to assign partly or full decision-making-power to citizens on policy issues.* Information is exchanged between sponsors and public representatives and a certain degree of dialogue is facilitated. The flow of information constitutes two-way communication (examples include co-governance and direct democracy mechanisms such as participatory budgeting, youth councils and binding referendums)

2.3 Catalogue of public engagement innovations

The second task of the work package aimed to identify a number of initiatives for in-depth exploration in terms of innovative characteristics, orientation towards societal challenges, advantages and obstacles etc., in order to for a catalogue of the most innovative public engagement initiatives and mechanisms. The main purpose of the catalogue was to further explore and understand innovative PE practices, and provide a platform for international inspiration and learning within a PE setting constantly in a state of flux. The second objective of the identification of the most innovative cases was to gather a data source for subsequent work in the other work packages of the PE2020 project. The data served as a foundation for further conceptual analysis in terms of dynamic governance of the PE (WP2) as well as the pilot selection (WP3) and the toolkit construction (WP4).

As a basis for selecting the case studies included in the catalogue, a nomination procedure was implemented, that included the full consortium and the international advisory board (10 nominators in total). Each nominator was invited to select and rank 10 innovative initiatives each using a specific tailored template. Nominations were to take into account six sets of criteria of innovativeness delineated below, and nominators were requested to qualify each nominated initiative by providing a reflection on the initiative on the backdrop of the selection criteria. If supplementary criteria were used for nomination, each nominator was kindly asked to state these as well.

The following six pre-constructed criteria of innovativeness were applied for process and case qualification (please see for more details D1.2):

- Hybrid combinations
- Methodological novelty
- Inclusive new ways of representation
- Potential impact
- Bearing on societal challenges
- Societal challenges
- Feasibility

The criteria put forth were based on prior theoretical and empirical knowledge of the field, and in agreement with the explorative approach, they remained fairly open, inclusive and broad in order to reach a more comprehensive assessment of innovativeness and to deepen and complement our evolving understanding of the notion of innovativeness in public engagement. On the basis of the nomination process, a total of 62 nominations were obtained. Subsequently, case coordinators were identified as informants for the survey. Based on a common contact-protocol, each consortium partner personally contacted a number of case coordinators with information on the project and the objectives of the survey. Upon these personal contacts between the consortium partners and the informants, 56 questionnaires were dispatched in three instances. Following a procedure of reminders and follow-up contacts with targeted informants, a total of 38 case descriptions was collected.

The catalogue of PE innovations is a collection of detailed case descriptions and reflections provided by individual case coordinators with particular expertise with the initiative in question. The approach of including expert descriptions allowed for in-depth and first-hand reflections, experiences and information at a level of detail, which would have been difficult to access otherwise. Each coordinator completed an open-ended survey exploring key features of the initiative, including the innovative dimensions of the particular PE case; outcomes and impacts; case relations to policy decision-making processes; the advantages and challenges associated with the case and according to the Horizon 2020 societal challenges. The common survey structure allowed for horizontal comparisons of PE innovations while the open and qualitative approach simultaneously enables a more inductive and nuanced examination of the concept and features of innovative practices. Each case was classified according to the following main categories:

- **PE category**: Public communication, Public activism, Public consultation, Public deliberation, public participation
- **Mechanism**: Generic ways of enacting public engagement, e.g. consensus conference, participatory budgeting etc.
- **Main purpose of initiative**: Awareness raising, education and capacity building, protest, community building, consultation, dialogue/deliberation, knowledge co-production; co-governance.
- **Geographical scale**: Global, European, National, Regional, Local/urban, and institutional.
- **Organizing entity**: National governmental body, local governmental body, academic institution, NGO, community based organisation, non-profit organisation, science museum/centre, industry and business.
- **Target groups**: Lay publics, researchers, stakeholder organisations/groups, experts, public officials
- **H2020 Societal Grand Challenge(s)**: Health, demographic change and wellbeing; Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy; Secure, clean and efficient energy; Smart, green and integrated transport; Climate action, environment, resource efficiency and raw materials; Europe in a changing world - inclusive,

innovative and reflective societies; Secure societies - protecting freedom and security of Europe and its citizens.

It has been stressed that 'innovations are more than ideas and theories; they are ideas in action' and that 'good innovations depend on ideas that can be implemented successfully' (Newton 2012:5). The initiatives included in the catalogue cover a wide field; from small scale experiments to large scale innovations, from local settings to transnational co-operations, from grass-root activities to national institutionalized mechanisms and from awareness raising activities to direct power sharing exercises, among others. Common to all of them is their successful implementation and achievements of objectives and actions stated.

2.4 Key observations

In our view, the case collections carried out in WP1 have been especially valuable in the following ways:

- The cases provide illustration, examples, and inspiration for programme coordinators who either hesitate in starting to invest in more inclusive governance practices or who are convinced that it should be done, but lack examples of how to do it practically,
- Knowledge of the experience (of success and failure) from these cases, has helped in refining or 'context tailoring' the pilot PE initiatives –toward more successful activities than would have otherwise be possible.
- Collaborating with pilot PE processes has helped to recognize that the study of contextual factors is challenging. Research programmes are in many ways rooted in their local and international contexts, in ways far more complex than what can be accounted in the relatively short (c. 5-10 pages) case descriptions in D1.2.
- A particular outcome of the analysis of the PE cases collected in WP1 has been delivered under WP2 through to the development of a conceptual model for the dynamic governance of PE.
- The catalogue of innovative PE cases has also provided the basis for selecting seven PE pilot initiatives that were organized and evaluated under WP3. Feasibility and flexibility have provide to be important criteria that help transferring and adopting PE processes to new contexts.
- The innovative PE cases were an important element in the building of the PE2020 toolkit that help RDI policy designers to identify and develop PE practices for their own purposes in WP4 of the PE2020 project.

Publications:

Please refer to the following documents for more information on the work executed under this work package:

Mejlgaard, N. and Ravn, T. (2014). Presentations at an international workshop D.1.3. PE2020 deliverable. Available at https://pe2020.eu/wp-content/uploads/2014/02/FINAL-D1-3.pdf.

Mejlgaard, N. and Ravn, T. (Eds.) (2015). Public Engagement Innovations – Catalogue of PE initiatives, D1.2. (Eds.) PE2020 deliverable. Available at https://pe2020.eu/wp-content/uploads/2014/02/Public_Engagement_Innovations_H2020-2.pdf.

Mejlgaard, N., Ravn, T., Rask, M., Mačiukaitė-Žvinienė, S. and Tauginienė, L. (2015.) Summary report on European PE innovations, D1.4. PE2020 deliverable. Available at https://pe2020.eu/wp-content/uploads/2014/02/FINAL-D1-4.pdf.

Ravn, T., Mejlgaard, N. and Rask, M. (2014). Inventory of PE mechanisms and initiatives D1.1. PE2020 deliverable. Available at https://pe2020.eu/wp-content/uploads/2014/02/PE2020-FINAL-D.1.1-report.pdf.

3. Innovative Public Engagement – Conceptualising PE's role in Dynamic and Responsible Governance of Research and Innovation (WP2)

Saulė Mačiukaitė-Žvinienė and Mikko Rask

3.1 Objectives of the Work Package 2

The objective of WP2 was to refine a conceptual model that 1) informs data collection in WP1, 2) provides conceptual categories that are relevant in identifying contextual factors related to the tailoring of best PE practices (WP3), and 3) helps to draw generalizable lessons of PE case studies to be used in the development of the PE design toolkit (WP4).

The objectives were further detailed in the context of the following deliverables: D2.1 A refined typology of PE tools and instruments, D.2.2 A Conceptual Model of Public Engagement in Dynamic and Responsible Governance of Research and Innovation, D.2.3 Summary report, and a Literature review (not a formal deliverable of the project).

D2.1 had the following three objectives:

- to contribute to a better understanding of 'innovativeness' of PE
- to validate the pre-categorization used in the classification of PE practices.
- to contribute toward a deeper analysis of the 50 most promising and innovative PE practices

D2.2 aimed at elaborating a conceptual framework of PE, where innovativeness, participatory performance and dynamic governance remain the key concerns. This deliverable focused on the following research questions:

- What are the characteristics of innovative PE in a sample of 38 innovative PE processes?
- What are the different participatory performance functions of PE in the sample?
- How can we define and characterise the success of PE?
- What are the obstacles for successful PE?

D2.3 is a summary of the main findings of D2.1 and D2.3. The additional literature review complemented the findings by reviewing some key discussions and conceptualizations around dynamic governance, innovative tools of public engagement, and factors enhancing and hindering public engagement.

The results of these reports are next summarized and key observations indicated at the end of the section.

3.2 New methodological issues and approaches

Resulting from the collaboration of WP1 and WP2, we built a new categorisation of PE methods in five main methodological clusters: public communication, public consultation, public deliberation, public participation and public activism (Figure 1). The categorisation is based on a fusion of two classic models, Arnstein's (1969) 'ladder of participation', which pays attention to the levels that political power assigned to the participants, and Rowe and Frewer's (2005) model, which pays attention to the directions of information flows between

sponsors and participants. Both formal (e.g. organised deliberation process) and non-formal (e.g. public activism) PE processes can be included in these categories.

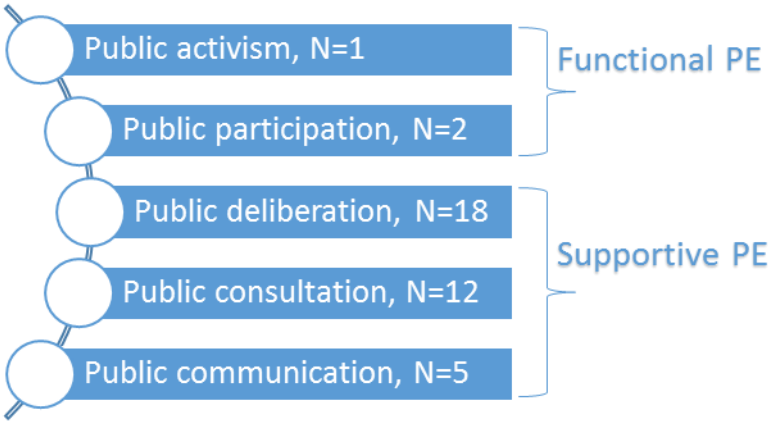


Figure 1 *PE cases by main methodological category*

We found this categorisation to be useful in acknowledging different supportive and functional roles of PE processes in contributing to R&I activities (Figure 1). At the same time, however, we found these five categories to 'leak' in two ways. First, per definition, public communication and public consultation are 'one-way' approaches, while at the same time we found most of the innovative PE processes to be essentially 'two-way' processes. Second, many individual cases were difficult to allocate under one category only. For example, a highly exploratory PE case 'Breaking and Entering' was classified under 'public communication', even though we recognised that this endeavour tried to go beyond the limits of traditional science communication. In future mapping of PE processes, there clearly is room for further conceptual elaboration.

In order to study the characteristics and trends of innovative PE, and build a conceptual model of PE, we elaborated a new 'footprinting' methodological approach to study the inputs and outputs of PE. The footprinting resulted in 'cognitive maps' that describe the most essential features of each PE case. An example is provided in Figure 2.

As PE processes are often heterogeneous processes and therefore difficult to capture and compare, we found the footprinting method to be a useful approach combining both bottom-up and top-down approaches in the analysis. We recommend the footprinting approach to be used in occasions, where there is a need for comparing and analysing highly diffuse processes such as PE activities.

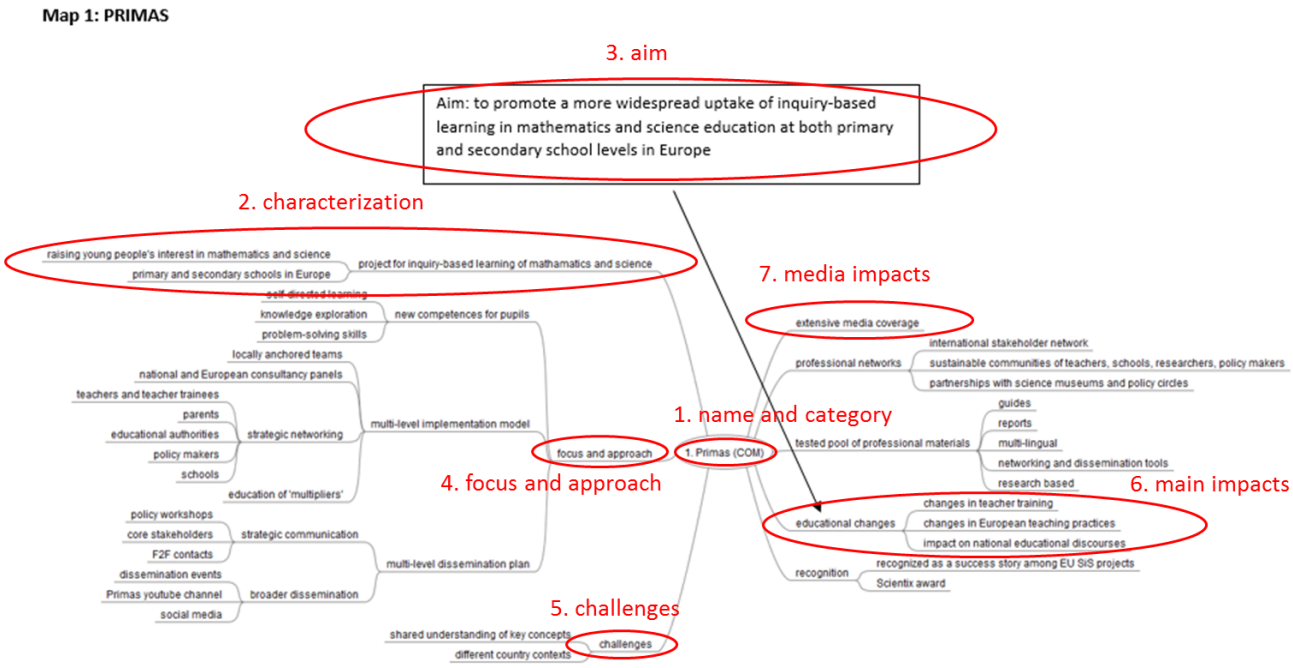


Figure 2 *An exemplary cognitive map*

3.3 Reflection on the categories of PE

In D2.1 we qualified and critically discussed the categories used in WP1 analysis of the case studies (see Fig. 1).

Most literature suggested that **public communication** or spread of information is not effective anymore, but remains an important basis for PE activities (Marks, 2013). We suggested that it is important pay attention to the different ways in which information is shared, including the following channels:

- *Online communication* refers to reading, writing and communication via computers, for example, e-newsletter, blogs, emails, Skype.
- *Social networking* refers to a structure or platform made up of a set of individuals or organisations, for example, Facebook, Twitter, charity organisations.
- *Engagement transfers* refer to technologies or other mechanisms which enables public to become engaged and involved, for example, Apps.
- *Non-ICT-based communication* refers to non-computer based communication (events, traditional media-based communication, etc.).
- *Science education* refers to delivery of PE activities in two-way-flow of information and it relates specifically to higher education institutions, focuses on issues like productive learning and quality. It is tied to formal educational system. First, engaging students in science learning and improving their ability to communicate science to wider audience, and, second, supporting and encouraging researchers to participate in such kind of engagement, for example, science communication subject in a study course.

Most of literature described **public consultation** as a process that elicits 'raw' opinions from the public. A general limitation of public consultation is the lack of political impact. A critical distinction is whether public consultation is *targeted or non-targeted* in regard to specific societal groups, which is often related to the topic of the consultation.

Considering **public deliberation** as one approach can also be questioned on the basis that there can be different sub-types of public deliberation. We found following instances of public deliberation that might be used in a more nuanced classification of PE processes (Embedding Impact Analysis in Research, 2013):

- *Deliberative research* is built on market research mechanisms, for example, citizens' surveys.
- *Deliberative dialogue* is built on communication mechanisms, enabling experts and non-experts to work together, for example, citizens' agenda.
- *Deliberative decision making* is built on partnership mechanisms, enabling public and decision-makers to decide jointly on programme priorities; for example, EC green papers.

Public participation was defined among the strongest ways of public engagement, where the aim is to assign partly or full decision-making power to citizens. We found the following examples of potentially relevant categories of public participation:

- *Multiple-engagement* refers to PE at different times with varying degrees and forms of participation to achieve desired goals, i.e. different segments of population will respond differently to different strategies. In some cases, it might mean Facebook, in other cases, face-to-face communication.
- *Multiple-partnership* is built on partnership with various organisations or states in order to enable them to develop skills for engaging with each other which enables them to work effectively for the same goal, for example partnership between university and museum, cooperation between two or more countries.
- *Multiple-funding* refers to a variety of funding, i.e. co-funding, for example, a programme financed by national foundation and EU programme.

Public activism, can be characterised as a category, where self-determination for PE is emotionally interlinked to individual values and emotions provoking a sense of urgency. For this reason, *public sensitiveness* is an important aspect of public activism.

We conclude that there has been a shift of PE from traditional models of public communication and consultation, where dialogue between decision makers and the public is narrow and restricted, to public deliberation where such dialogue is intensive and influential and that PE is the major element for successful implementation of responsible research and innovation policy.

3.4 Understanding dynamic governance

Dynamic governance refers to the ability of policy making to handle issues in a rapidly changing environment requiring continuous adjustment of policies and programmes. In this framework, dynamic governance involves dynamic interactions between scholars, citizens, industry and government as an exploratory, inductive approach in setting performance standards for responsible research and innovation. Following Neo and Chen (2007), we included **anticipation, reflexivity** and **transdisciplinary mobilisation of resources** among the key capacities that help policy makers to manage complex issues dynamically in modern research and innovation policy systems. We also included **continuation** as an additional key capacity for dynamic governance. Continuity is needed to balance accelerated change caused by increasingly dynamic governance actions.

In D2.2 we also tracked activities that contributed to the **four capacities of dynamic governance: anticipation, reflection, transdisciplinarity and continuity.** We also tracked other activities and capacities, and analysed whether they were substantively, practically or normatively oriented. Table 1 summarises this analysis and gives an extensive list of example of how in practice innovative PE can contribute to such capacities that can contribute to more **dynamic and responsible governance of research and innovation**.

Table 1 *Participatory performance functions of innovative PE (blue colour indicates the most densely populated cells)*

	Anticipa-tion	**reflection**	**Transdisciplina-rity**	**continuity**	**awareness raising**	**competence building**	**action initiation**
Substan-tive	exploring impacts of societal change	identifying sustainable consumption choices	conducting transdisciplinary research projects		understanding public opinion	educating democracy	piloting
practical	co-designing new products and services	publicly debating R&I issues	designing trans-disciplinarily educational programmes	expanding PE processes internationally	increasing public awareness of science	developing new competences for students	mobilising citizens to clean their living environments
		increasing visibility of science in media	mobilising societal and financial resources	creating enduring professional networks	increasing public awareness of environmental problems	developing new competences for researchers	introducing new 'science municipal' activities
		articulating public concerns on S&T	testing new models of public-private partnerships		increasing awareness of gender issues in science	developing civic capacities	building consensus and managing conflicts
		developing new methods for public reflection				expanding possibilities for science education in municipalities empowering youth	
normative	developing future visions and plans	publicly debating regulatory issues	aligning research activities with stakeholders	institutionalising deliberative democracy			improving visibility and perception of women in science
	identifying future research needs	developing government accountability		establishing the use of PE processes in R&I governance			embedding citizens' values in local systems of innovation
	upstream engagement						revitalising democracy
							influencing political processes

3.5 Policy cycle

A tradition view of policy cycle is based on the notion that changes in research policy are usually a response to a societal problem or set of problems in different sectors: energy, security, economy, culture, etc. starting with a monitoring and appreciation of these sectors and their contexts. An expectation is that topical societal issues of different political areas are likely to affect the agenda setting and decision making and even implementation processes of research policy.

However, we observed that the process of policy making is more complicated than presumed by the traditional view of policy cycle. The substance, pace and scope of the policy cycle is no longer dependant only on the leaders of the organisations or from dynamics fully internal to the organisation. Instead, policy making

implies networking among different stakeholders. In particular, while **introducing participatory mechanisms into the policy cycle further involves and sustains dynamism in governance activities**. Therefore, a more realistic representation of a policy cycle under the condition of dynamic governance is that of a **chaotic and confusing network** (Figure 3).

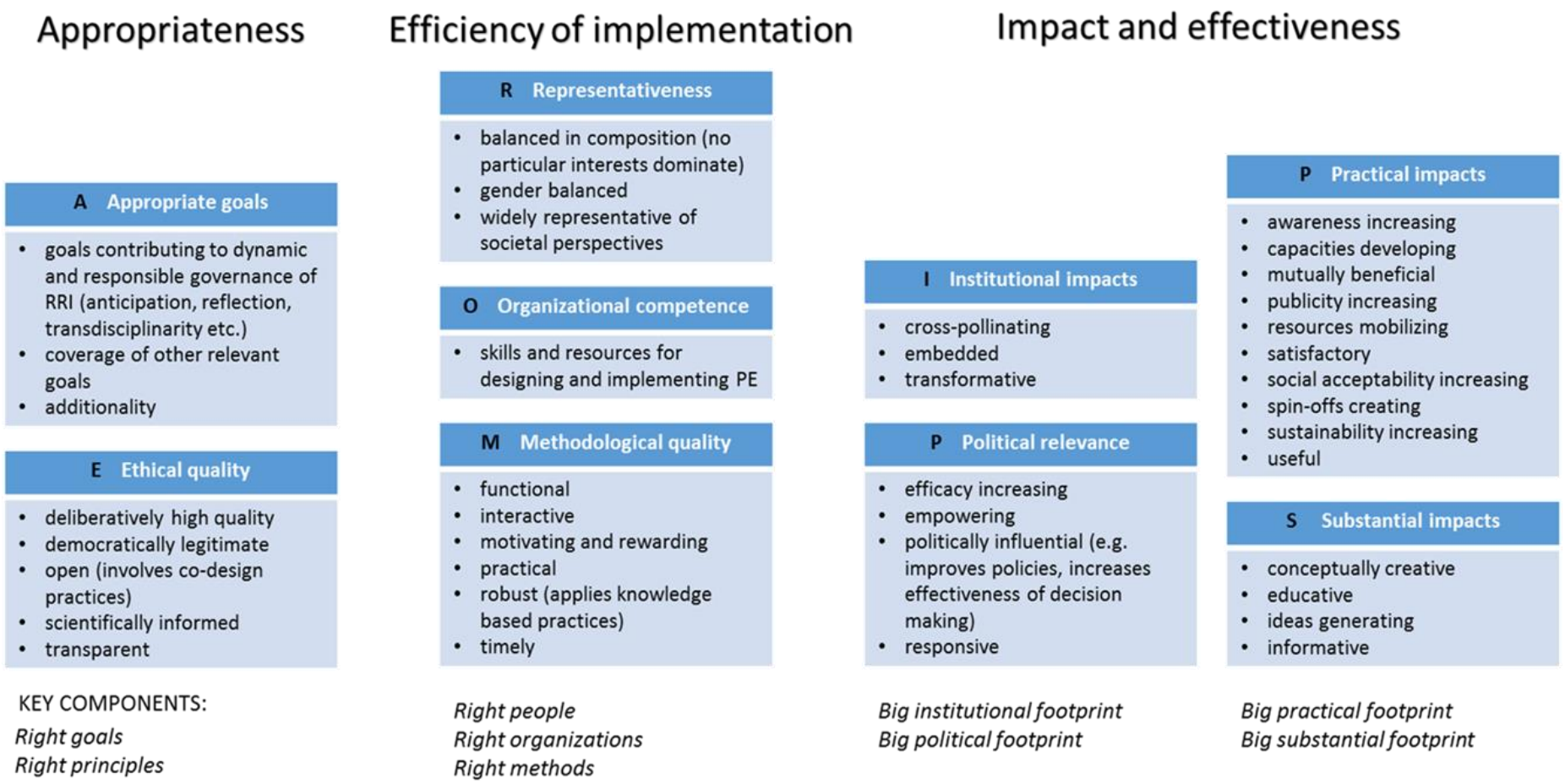
Figure 3. *Engagement Networks in Policy Cycle (Angeli D, 2014; Welcome Trust)*

3.6 Evaluating the success of PE

An important task of WP2 was to understand the characteristics of successful PE, and propose how success could be evaluated. This process resulted in several evaluation criteria (Table 2) as well as a general definition of successful PE: *Successful PE involves relevant people with appropriate methods and goals, while leaving a big 'footprint' on research, innovation and society.*

Considering that both the definition and the synthetic model of PE evaluation are both based on a systematic study and reflection of different success criteria, they can provide a more solid and holistic basis for future evaluations of PE processes.

Table 2 *A synthetic model of PE evaluation*



3.7 Innovativeness

We defined innovative PE can be defined as new participatory tools and methods that have the potential to contribute to a more dynamic and responsible governance of R&I.

We distinguished two types of drivers for the changing practice of PE:

- Necessity to find more effective responses to the societal challenges and other problems of governance, such as decreased trust toward decision makers or societal acceptance of technological solutions.
- Emerging opportunities provided by new information and communication technologies that provide new tools for the practice of governance, for example, crowd-sourcing for the formulation of public policies, or citizen science for providing evidence of new phenomena and research issues that are important for the public at large or some local groups of citizens.

We found out innovative PE processes as reflecting following characteristics: 1) institutional hybridity; 2) methodological solutions; 3) levels of representation; 4) impact; 5) responsiveness to societal challenges; 6) groups' involvement; 7) cultural dimension; 8) policy relevance; and 9) communication flows. In addition, we evidenced that 'upstream engagement' (e.g., Joly and Kaufmann, 2008) is an increasingly supported approach among innovative PE processes. Further, we observed that innovative PE has contributed to new capacities that help research actors to address societal challenges and complex governance problems better. In particular, we found innovative PE to be effective in conducting international science diplomacy, creating collaborative efforts and enduring networks that can foster and spread new SiS practices in EU partner countries and beyond**.** Finally, we found that Innovative PE seems to have truly versatile impacts, not only on research and innovation but also on the environment, society, politics – and individuals. Innovative PE only limitedly contributed to new scientific knowledge.

3.8 A model of participatory performance

'Participatory performance' refers to the functions of PE, and to the scope and intensity of such activities. To study and understand participatory performance we elaborated two conceptual frameworks. First, we created an analytical model that focused the analysis of the 38 innovative PE cases. Second, synthetising the main findings of the analysis, we created a 'composite model of participatory performance' (Figure 5) that put PE in the perspective of dynamic and responsible governance of research and innovation. We analysed participatory performance by tracking such activities that contributed to the capacities of dynamic governance, including anticipation, reflection, transdisciplinarity and continuity. The 'composite model of participatory performance' explains how functions and capacities of PE contribute to dynamic and responsible governance of R&I and integrates the various elements and aspects discussed: capacities, linkages between capacities, able people, agile processes and dynamic and responsible R&I policy, as well as policy culture (including not only the EU's strategic priorities related to openness, but also the five thematic pillars underlying the EU's RRI policy – PE, open access, gender, ethics, science education).

Considering that the 'Composite model of participatory performance' is based on an original yet systematic analysis of most innovative PE processes globally, this conceptualisation could provide substantiated theoretical perspective on how PE can contribute to better governance of R&I within and beyond the activities of the European Commission and its RRI and PE policies.

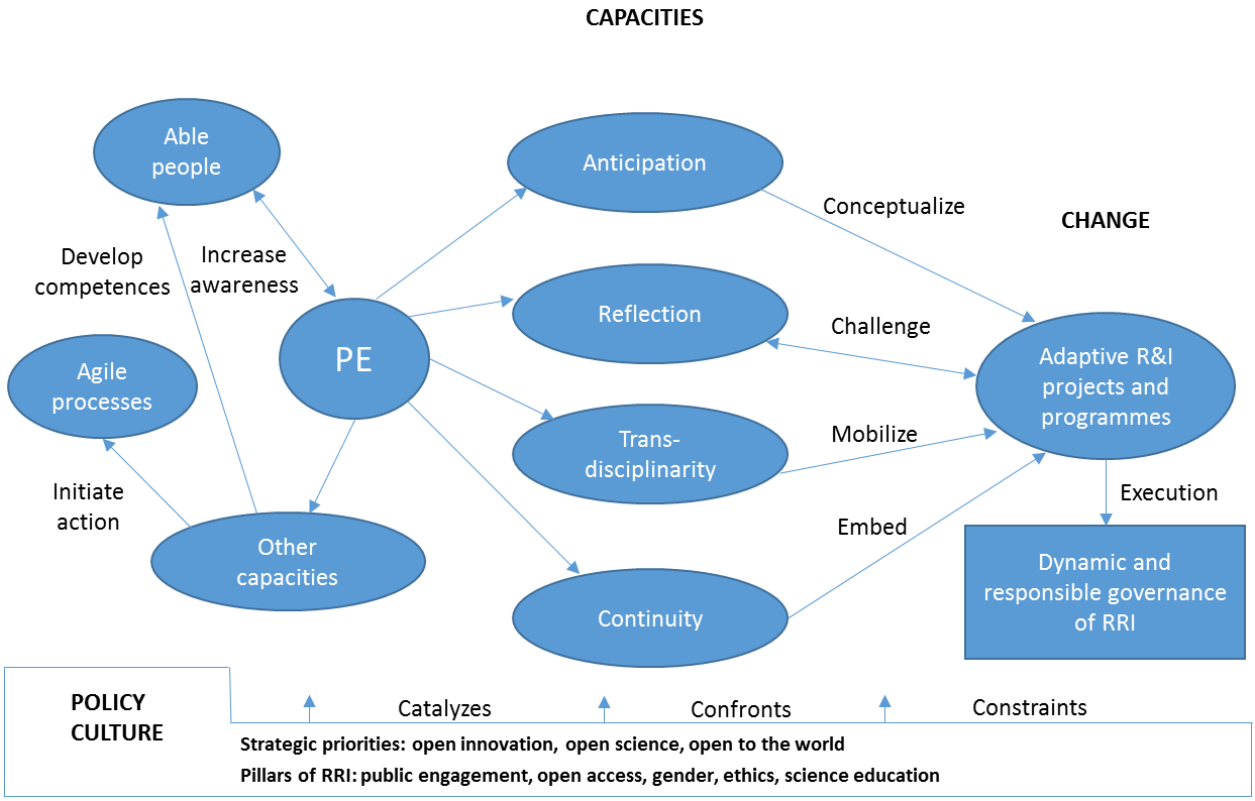


Figure 4 *A composite model of participatory performance*

3.9 A positive vision of PE – and its obstacles

In D2.2 defined our 'vision of PE benefitting European R&I activities' as follows:

> **Better involvement of actors occurs when the 'right people' are gathered together to address the 'right issues' through the 'right PE tools and methods', which can contribute to a better quality of research and R&I governance**.

This is not a simple fact to happen along with careful use of even the best PE tools and instruments, as there are several obstacles that make this process challenging in many ways. The key obstacles identified included (in a decreasing order of influence): 1) capacity-based obstacles, 2) motivational obstacles, 3) technical obstacles, 4) low impact, 5) Financial and resource based obstacles, 6) cultural obstacles, 7) external or environmental obstacles, and finally 8) 'deficit based' obstacles that didn't play a remarkable role.

3.10 Key observations

- There has been a shift of PE from traditional models of public communication and consultation, where dialogue between decision makers and the public is narrow and restricted, to public deliberation where such dialogue is intensive and influential.

- PE is a major element for successful implementation of responsible research and innovation policy. In particular, innovative PE tend to cause truly versatile impacts, not only on research and innovation activities but also on the environment, society, politics – and individuals.
- Compared to the high expectations, however, PE is currently too weak to redeem its promises of increased societal relevance and high impact of R&I. An inadequate capacity of the organisers of PE to manage complexities involved is the main challenge.
- Studied PE processes were highly limited in their contribution to the production of scientific knowledge. At the same time we acknowledge that citizen science and science shop activities have been highly successful in this area, and that they will most likely expand in the near future.
- For successful PE it is crucial to engage different groups of public, which should be equipped with skills required for each level of policy cycle. In particular, we found that three quarters of the PE cases studied involved the 'fourth sector' by including e.g. randomly selected citizens, individual philanthropist or hybrid networks.
- We evidenced that 'upstream engagement' is an increasingly supported approach among innovative PE processes, especially in anticipatory projects.

Creation of continuity should be acknowledged as an important capacity that is needed both to balance dynamic governance, help structuralize PE, and sustain dynamism in the long run.

Publications:

Please refer to the following documents for more information on the work executed under this work package:

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Mačiukaitė-Žvinienė, S., Tauginienė, L. and Rask, M. (2016). Summary report on conceptual model of public engagement and factors of participatory performance D2.3. PE2020 deliverable. Available at https://pe2020.eu/wp-content/uploads/2014/02/D2-3-FINAL.pdf.

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Rask, M., Mačiukaitė-Žvinienė, S., Tauginienė, L., Dikčius, V., Matschoss, K., Aarrevaara, T., & d'Andrea, L. (2016). Innovative public engagement. A Conceptual Model of Public Engagement in Dynamic and Responsible Governance of Research and Innovation. PE2020 deliverable D2.2. Available at https://pe2020.eu/wp-content/uploads/2016/05/Innovative-Public-Engagement-FINAL.pdf.

4. Context-tailoring and piloting of best practice PE processes (WP3)

Timo Aarrevaara, Kirsi Pulkkinen, Luciano d'Andrea, Ian R. Dobson, Maria Pietilä and Janne Wikström

4.1 Objectives of Work Package 3

In the PE2020 framework, the overall aims of Work Package Three (WP3) were

- to test and refine novel public engagement (PE) tools and processes in the context of research programmes closely linked to the Horizon 2020 challenges
- to evaluate the feasibility of using the tools and to test them in the pilot initiatives (for other countries and for other societal challenges)
- to gain understanding of the relevance of contextual factors in designing PE processes and provide input for the toolkit which will be developed in Work Package Four (WP4).

WP3 had as its specific objective to design and implement six pilot projects based on innovative PE processes. After all, seven projects (or 'pilot initiatives') were organised in the context of on-going research programmes in Finland and Italy.

WP3 was carried out in phases that marked a participatory and dynamic process. The work began with dialogues with the major science policy actors in Finland and Italy, aimed at preparing the ground for co-designing the pilot initiatives. Such actors provided access to similar bodies abroad and useful information for the design of the pilot initiatives. In the second phase, the task was to identify potentially transferable practices (task 3.2) by scanning the most innovative and suitable PE practices from among those identified in Work Package One (WP1). This was done in co-operation within the contexts of the pilot initiatives, and the main criterion was to emphasise feasibility and innovativeness. WP3 also supported the overall mission of the PE2020 project: to identify, analyse and refine innovative public engagement (PE) tools and instruments for dynamic governance in the field of Science in Society (SiS).

Organising seven pilot initiatives

The pilot initiatives of WP3 represent different types of cases, with a mix of bottom-up and top-down led cases, as well as others with up-stream and down-stream dimensions. Overall, the organisation of the pilot initiatives was considered to be 'product development', during which on-going PE practices would be boosted with the knowledge gained from the research in PE2020.

The seven pilot initiatives were co-designed and implemented with our target research projects and programmes by funding agencies. They were carried out with the WP3 guidelines, taking into account contextual requirements, creation of a comparative research perspective, documentation of the pilot initiatives and the experiences for further evaluation purposes.

As a result of the preparatory discussions held with the major science policy actors on the identification of potentially transferrable practices, the pilot initiatives were initiated having taken into account:

- that the international research programmes and prioritisation of research were acknowledged as interesting contexts for pilot initiatives
- that the pilot initiatives should be chosen on the basis of not only their cutting edge PE activity but also their (expected) feasibility in practice
- the limited time devoted to the pilot initiatives and the difficulties in trying to align the schedules of PE2020 project and the partners
- the importance of keeping in mind the limited resources available for the pilot projects.

In the next phase, context tailoring workshops were organised. The intention was to design and implement public engagement tools and instruments in local contexts, to establish guidelines for future context tailoring workshops, and to establish detailed guidelines for pilot initiatives based on the available resources. The purpose of the context tailoring was to consider the factors that precondition successful design and implementation of PE tools and instruments in local contexts.

WP3 identified and started to work with six pilot initiatives related to Societal Challenges. The design of the PE processes to be tested took into account a) contextual requirements, b) creation of a comparative research perspective and c) documentation of the pilot initiative experiences for further evaluation purposes (participant observation, and manager and participant surveying and interviews). Practical scripts were prepared and included in report D3.1 to support of the implementation of the pilot initiatives.

Pilot initiatives were chosen on the basis of their cutting-edge PE activity. New types of institutional collaboration and hybrid activities were considered to be particularly interesting themes.

In Finland, a context tailoring workshop was organised to help in designing and implementing the following pilot initiatives:

- BONUS young scientists' initiative
- Global change living lab
- Societal impacts and stakeholder involvement in research grants
- Societal interaction in the Strategic Research Council

In Italy, context tailoring activities were organised to support the following pilot initiatives:

- Empowering young researchers in PE in energy efficiency (Rome)
- Dialogue Workshop on mobility and transportation (Naples)
- Educating science-society relations and public engagement (Turin)

4.2 Highlighted results

In the analytical process of the pilot initiatives we identified innovative PE methods that had created positive results with regard to the quality of the research projects as well as the actors involved in them. The PE methods used in the pilot initiatives varied from more conventional science communication and focus group discussions to highly collaborative co-creation practices. They were implemented in varying contexts and circumstances, and in different scientific disciplines. However, in all the pilot initiatives, the PE methods that were chosen and applied in the research projects were found to be useful by and for the projects in question.

Interestingly, while evidence of impact could be traced in each of the seven pilot initiatives, it was not always with regard to policy. Rather, in some cases – such as the Living Lab (Finland) – the impact was clearly visible but focused towards the practice and spreading of PE, rather than policy as such. In other words, responsiveness to the interests of collaborative partners should be included in the list of indicators of PE impact. PE actions within projects can have an effect through a method of repeating similar exercises that develop partners' skills in PE while remaining open for actions to be adjusted during the process, if such needs arise from the collaboration itself. Another finding with regard to the process of studying pilot initiatives was the evidence. The pilot initiatives were expected to increase knowledge on new institutional collaboration and hybrid activities as reported in PE deliverables D1.2 and 2.1.

In four of the seven pilot initiatives, collaboration with the PE2020 project was reported to have directly positive effects. These were reported as part of the reflective feedback process that was built into each of the pilot initiatives. The process provided an opportunity for the core staff as well as participants of the workshops, training sessions, funding calls etc. to provide their views and describe the impact that participation in the pilot initiative had on their own work situation, the setting in which they work and the ways in which they address PE after the initiative.

While all these initiatives had a proactive and positive attitude towards public engagement to start off with, there was strong motivation and ability to test PE tools and develop their functions during the process of cooperation and analysis. This openness to applying new working methods was visible in both on-going research programmes (Global Change and BONUS) as well as programmes that were in the final planning or initial application phases (SRC and JPI/MYBL). Such a constructive attitude at the programme level seems to have trickled down to individual research projects. These benefits were seen, above all, in the fact that the pilot initiatives improved the quality, awareness and effectiveness of the activities tested in the pilot initiatives. The feasibility was verified in connection with the BONUS pilot initiative, for example. Regarding the use of ICT technology (including social media platforms), the extended dissemination and opportunities were improved especially for young researchers of the projects.

Overall, a key finding of all the pilot initiatives as well as the study of them in WP3 is the steep learning curve that is strongly present (even though learning as such was not the primary focus of the analysis, as the emphasis was on the feasibility of the PE tools and practices used).

Learning, as a result, corresponds with the variations found in aspects of the impact of PE activities. As regards impact, we found them to vary from those related to policy, to more practice-focused or discussion activating impacts. As for learning, the working methods, timeframes and approaches of PE activities have changed as part of the piloting. This reflects the participants' understanding of the context in which they work and the need to accept that a 'one size fits all' solution is neither available nor desirable. Such reactions are visible in the SRC and JPI/MYBL cases, for example. In the case of the pilot initiatives carried out in Rome and Turin, the learning process was favoured by the interest of the researchers involved, who wanted to have a better understanding of their own professional work and role. In the case of the pilot initiative in Naples, the learning process was activated by the interest of the parties in interacting with each other in a common public space. It is therefore not surprising that the pilot initiatives and WP3 itself have evolved during the process. They have altered plans as a reaction to realisations that the methods or practices initially planned could not produce the results they were after or help to meet the strategic goals they had defined. This type of learning can be seen in the Living Lab and BONUS pilot initiatives.

4.3 Key observations

Some practical lessons have been learnt from the analysis of the pilot initiatives. These lessons are transferrable to other research projects that have public engagement in the overall approach, and where interaction with broader society is built into the working methods of the project. The main lessons can be summarized through the following points that we found to be critical for a successful design of PE pilots:

- identifying a basic cultural platform
- embedding PE initiatives in a broader change perspective
- incorporating the private sector in public engagement
- taking professional and disciplinary resistance seriously
- reducing the use of participants' / partners' time
- the importance of motivation and investing in a positive attitude should never be underestimated.

The pressure to find solutions that match the style and obligations of the new funding programmes has been strong. However, the research consortia that have been successful in the initial phases have demonstrated their ability to develop both their knowledge and skills in public engagement. A major contributing factor that was visible in the pilot initiatives is a process that encourages commitment from researchers and partners alike. In practice, a critical impetus has been created by workshops that were arranged by the research consortia in the early stages of the projects. The workshops enabled the researchers to examine critically who their central partners could be and the type of societal impact that was being strived for with the project.

The project consortia have been able to create a joint commitment to a shared cause. They have allowed space for scientific, practitioner and 'field' expertise to flourish within the project. As such, they have created opportunities for the cross-breeding of ideas and the exchange of different types of knowledge. As a result of the process, the researchers have gained new competencies and found new ways to study major societal challenges.

The organisation of the pilot initiatives was considered to be 'product development', through which on-going PE practices are boosted with the knowledge gained from the research in PE2020. The method of testing in the pilot initiatives followed a dialogue-based approach in which the logic of co-creation was outspokenly present. In addition to producing systematic, comparable knowledge from the seven pilot projects, the efforts in WP3 have also allowed for the development of an understanding of the internal processes and logics which push for change in the working methods of research groups.

Publications:

Please refer to the following documents for more information on the work executed under this work package:

Aarrevaara, d'Andrea, Caiati, G., Dikčius, V., Kaarakainen, M., Koivusilta, M. Mačiukaitė-Žvinienė, S., Matschoss, K., Pieper, R., Pietilä, M., Pulkkinen, K., Rask, M., Tauginienė, L., and Wikström, J. (2016). Report of the PE pilot cases on Societal Challenges Deliverable 3.2. PE2020 deliverable. Available at https://pe2020.eu/wp-content/uploads/2016/09/D3-2_160916_FINAL-09-19-16-17-59.pdf.

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5. Toolkit for the Design of Public Engagement (WP4)

Luciano d'Andrea and Fabio Feudo

5.1. Objectives of Work Package 4

One of the main outputs expected from the PE2020 project was the development of a web-based toolkit that, according to the Description of Work (DoW) project, "helps policy makers to adopt, adjust and implement (...) PE processes for their different needs".

Work package 4 was precisely devoted to develop the Toolkit, on the basis of the overall experience and deliverables produced under the PE2020 project, including the Catalogue of PE initiatives, the six PE pilot initiatives carried out under WP3 and the theoretical work made under WP2 on the conceptual model of PE, the relations between PE and dynamic governance and the notion of innovative PE.

5.2. Main tasks of the work package 4

In order to develop the Toolkit, WP4 included a set of tasks, respectively pertaining to:

- Some preliminary activities necessary to activate the WP
- The design of the Toolkit
- The development of the Toolkit
- The identification and selection of the web-service provider
- The revision of the Toolkit
- The delivery of the Toolkit

Preliminary activities

Some **preliminary activities** have been carried out in order to activate the design and development process of the Toolkit. They included: an analysis of the existing Toolkits (around 30 of them have been selected and 18 have been made the subject of an in-depth analysis) aimed at better understanding the possible added value of the PE2020 Toolkit; the development of a detailed work plan of WP4; an analysis of the outputs of D1.2 "Public Engagement Innovations – Catalogue of PE initiatives", from the perspective of the development of the Toolkit; an on-going analysis of the results coming from the implementation of six PE pilot initiatives carried out under WP3.

Toolkit designing process

This task was aimed at drafting the Design document of the Toolkit (deliverable D4.1), encompassing all the aspects of the Toolkit, such as contents, structure, components and layout. This task included: the development of the first draft of the Toolkit Design Document and its presentation to and discussion with the PE2020 consortium members; the modification of the document and the drafting of a second version of it; its revision by the Project Coordinator.

Toolkit development process

This task allowed to develop a text already prepared for being adapted to a web-based access. The Toolkit was organised in an introduction and four main sections. The contents of the Toolkit were presented to and discussed with the PE2020 Consortium members and then reviewed by the Project Coordinator.

Selection process of the web-services provider

The Project Coordinator, with the support of LSC, carried out the selection process of the web-services provider in charge of turning the text into a web-based toolkit. This process included different operations, i.e.: the identification of potential provider; the drafting of the call for tender; the launch of the tender; the gathering of the proposals; the selection of the provider on the basis of the proposals; the contact with the selected provider for the establishment of the contract.

Toolkit revision process

This task included a revision of the Toolkit web-site on the part of 8 experts coming from different and potential users of the Toolkit. Moreover, the first version of the Toolkit has been presented at the Hands-on session of the PE2020-CASI joint final conference, titled "Public Engagement for Research, Practice and Policy. Exploring Policy Options for Responsible Research, Sustainability and Innovation" held in Brussels on November 16-17 2016. This allowed to get first feedbacks from a group of participants.

Web-based Toolkit delivery

All the comments sent by reviewers have been processed, leading to the draft of the final version of the web-based Toolkit (http://toolkit.pe2020.eu/).

5.3. Main findings

The analysis made under WP4 allowed to identify some trends which revealed to be particularly relevant to the Toolkit development process.

- **A bottom-up movement for PE.** Some elements coming up from the analysis made under PE2020 show the existence of a social and political movement towards the diffusion of PE practices. However, as suggested by the data drawn out of the Catalogue about the target groups and the promoters of PE initiatives, this pro-PE movement only marginally involves academic institutions as such.
- **The EC commitment and the RRI strategy.** There is a favourable policy context for PE, especially related to the EC commitment on this issue, also as funding entity, and to the inclusion of Public Engagement as one of the five keys of the Responsible Research and Innovation (RRI) strategy

launched by EC in the context of Horizon 2020[1]. The development of the RRI strategy is bringing EC to increasingly focus on the involvement of research institutions with PE.

- **The transitional condition of PE as social practice**. A third relevant finding concerns the transitional condition of PE as social practice. On the one side, PE is becoming a consolidated approach for improving science-society relationships, also thanks to the robust pro-PE movement and the favourable policy environment mentioned above. On the other side, many obstacles are hampering the diffusion of PE in the Academia, including cultural obstacles, political obstacles, the lack of an institutional anchorage of PE initiatives in research organisations or the lack of standardised PE practices.
- **The dominant view of PE**. Finally, some findings concern the dominant view of PE in science and technology prevalently shared by the editors of guidance-like publications on PE. Editors tend to see PE as an event, to be held once in a while or periodically, lasting one day or some weeks as a whole; they tend to adopt a technical approach to PE, overlooking or even ignoring its political nature and its links with the governance of science and even with the research process; they seem to be little interested in connecting PE to the key policy challenges that any research institution has to address in a post-academic environment, such as, e.g., competing for funds and scientific recognition, ensuring high-quality standards in teaching and research, attracting new talents, internationalising staff and students, and boosting research-based innovation.

5.4. Aims and structure of the Toolkit

Taking into consideration these findings, the Toolkit was designed as a tool helping research managers and researchers: understand the pivotal role PE may play in improving the governance of science; increasing their capacities in activating PE programmes and strategies; embed PE in research organisations so as to make it a permanent and institutionalised function; play a role in making PE a social practice widely shared by stakeholders, NGOs and the public at large.

The Toolkit includes an introduction and four sections.

Introduction: The Toolkit. This section provides information on the toolkit: institutional background, aims, for whom the toolkit is for, how the toolkit is organised, how to use it.

Section A. Strategic Framework. This section provides guidelines and resources for interpreting PE in the context of the many change processes affecting science (which, in turn, are mirroring broader transformations across contemporary societies) and for appropriately placing PE in the current European policy framework.

Section B. Methods and tools. This section is focused on PE methods and tools. It allows to categorise the many PE approaches and mechanisms, to plan and implement PE initiatives and to recognise recurrent obstacles and resistances. Connections of PE practices with policy cycle and research phases are also explored.

[1] European Commission (2012), *Responsible Research and Innovation. Europe's ability to respond to societal challenges*, European Union, Brussels.

Section C. Institutional anchorage. This section deals with how to permanently embed PE in the current practices of research institutions, by activating, developing and evaluating a PE-oriented action plan involving leadership and staff. Examples of PE strategies, programmes and tools devised by research organisations are given.

Section D. Societal anchorage. This section dwells upon strategies and tools that research institutions may develop in order to contribute in making PE with science a current social practice, thus promoting the consolidation of a scientific citizenship. This implies an increase in the capacity of research institutions to communicate science, educate to PE, implement networking activities and boundary work and support national or local policies on public engagement.

5.5. Key observations

WP4 allowed to make some key observations concerning the development of PE in the current development state of science and technology policies in Europe.

There is undoubtedly a gap between, on the one side, the potential role PE may play for developing the quality and the social robustness of science and innovation, and, on the other side, the present diffusion of PE both in research institutions and in society. The existence of such a gap and the need to bridge it have been placed at the basis of the activities carried out under WP4.

Understanding this gap may help understand what is at stake with PE.

- Science is a social institution linked to modernity; and like any other institution connected with modernity (such as trade unions, political institutions or the State), it is suffering a crisis in its relations with society. This crisis manifests itself in different ways: distrust toward science; loss of authority, unity, autonomy and social status of science; demands for transparency and accountability; lack of interest by citizens with regard to the future of research institutions; lowering social status of researchers. Paradoxically, science is now technically stronger (i.e., it is more capable to influence our lives) and socially weaker than it was in the past. PE may therefore play a pivotal role in strengthening science institutions and creating new bridges between them and societal actors.
- At the same time, this crisis is also a big opportunity for improving the governance of science and the quality of research, providing the institutional and cultural context for developing more advanced forms of coordination between different types of knowledge and more stable synchronisation mechanisms among the many players already involved with the different phases of the research and innovation process (funding, research design, implementation, etc.).

We are therefore in the midst of a transitional process where old solutions are lesser and lesser applicable and new solutions are not fully available yet. In this framework, PE can be also viewed as one of the most powerful tools for effectively managing such a process and for allowing new solutions to grow and consolidate.

As we said above, there is a favourable context for consolidating PE as a key approach for enhancing the governance of science, improving the quality of research and coping with the multiple relations between science and society. However, this implies the activation within research organizations of institutional changes connected to PE, making it: 1) an irreversible practice fully integrated within research institutions

and research systems; 2) able to modify, to some extent, the way in which such institutions and systems work; 3) inclusively involving all the relevant players and stakeholders when it is needed and how it is needed; and 4) fully tailored to the organisation's and national science system's features and demands.

To succeed in that, it is also necessary to understand the non-linear relation between PE and society. The will of people to participate cannot be taken for granted: they may not want to participate, may feel a distrust in science, may believe that participation is not useful or do not believe that their own participation could make the difference in making science or in taking decisions on science. At the same time, other people and many civil society organisations interested in science and innovation do not know how to get involved. Hence the decision to include, in the Toolkit, a section (Section D) fully devoted to how to sustain the consolidation of a "scientific citizenship" by creating the conditions for people to participate and to contribute in changing the governance and practices of science.

Publications:

Please refer to the following documents for more information on the work executed under this work package:

d'Andrea. L. (2016). Toolkit Design Document, D4.1. PE2020 deliverable. Available at https://pe2020.eu/wp-content/uploads/2014/02/D4.1-FINAL.pdf.

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6. Public Engagement for Research, Practice and Policy: Exploring Policy Options for Responsible Research, Sustainability and Innovation (WP5)

Kaisa Matschoss and Mikko Rask

6.1 Objectives of Work Package 5

The objective of the fifth work package of the PE2020 project (WP5) focusing on dissemination and communication was to communicate the results and insights from the PE2020 project to academic and broader communities, and to interact with science policy actors and societal stakeholders involved with research and innovation processes. By engaging in an extensive dialogue and exchange with those actors, the project aimed to contribute to an increased awareness of best PE practices and to the implementation of better societal engagement in Horizon 2020. This chapter of the summary report first describes the tasks of the work package and then presents findings and initial ideas emerging from the police conference that was organised as one of the tasks in the work package.

The work in the work package consisted of tasks that include the preparation and updating of annual dissemination and communication plan, the development of web pages and the implementation of the everyday communication during the project. A part in the annual dissemination plan is a jointly created list of key stakeholders that was utilised in the communication activities of the project from its beginning. The documentation of the contents of the website can be found in Deliverable D5.1 of the PE2020 project. Deliverable D5.2 "Publications" presents the overall dissemination and communication activities of the PE2020 project.

A strong effort in the work package has focused on the organisation of the final policy conference. In parallel with the preparation of the final conference, the work package has prepared this summary report at hand, which is the third deliverable (D5.3) of the work package. Its aim is to provide an overview of the findings and ideas developed in all work packages of the PE2020 project. The next subsections summarize the key results of each of the tasks in the fifth work package and the key findings of the conference.

6.2 PE2020 website

The project has implemented a website that can be found in www.PE2020.eu (Deliverable D5.1). It includes pages describing the project and its tasks (*About* and *Activities*) as well as the consortium members (*Partners*), the *Scientific Advisory Board* and *the Team*. The *Results* page has been updated with new reports, policy briefs and deliverables of the project as soon as they are finalised. The project has also implemented a regularly updating news blog. In addition, there is a page for the *PE2020 Toolkit* and a *Contact* page.

The website has been followed by an international audience of people interested in issues of PE. We used google analytics to make statistics of the visitors of the website. There have been 13181 visitors in the website during the period of February 1st, 2014 (the starting day of the project) and January 24th, 2017 (the date when this report has been finalised). 81% of them have been new visitors, which means that circa one fifth

of the visitors are returning to the site. The project's website has thus circa 2500 more or less regular users. There have been 23171 page views since the beginning of the project. The most frequent visits have taken place after a Future Earth Town Hall meeting was organised in Finland in May 2015, a pilot workshop was organised in Italy in May 2015 Week of Innovative Region in Europe and meeting the President of the Lithuanian Academy of Science in June, 2015, in Lithuania and a project presentation at the Annual Ecsite Conference 2015 "Food for curious minds" in Trento Italy, June 2015. The one single event that attracted most visitors to the website was the policy conference held in Brussels, November 16-17, 2016. During the two conference days there were 134 visitors in the website and during the following week from the 16th 301 visitors. On average, there has been 1.76 pages per session and the average duration of the session has been 1 min 17 seconds. The bounce rate for the website has been 71.24 %.

The geographical scope of the Top-10 visitor countries is presented in figure 5 and in table 3. The use statistics of the website show that the most visitors per country come from the United States (2097), Finland (1689), United Kingdom (905), Italy (793) and Brazil (545). The most visitors subcontinentwise come from Northern Europe, Northern Africa and Western Europe. The amount of new session of each subcontinent shows that the most frequent visitors of the website come from Northern, Eastern and Southern Europe, which reflects the origin of the partner organisations.

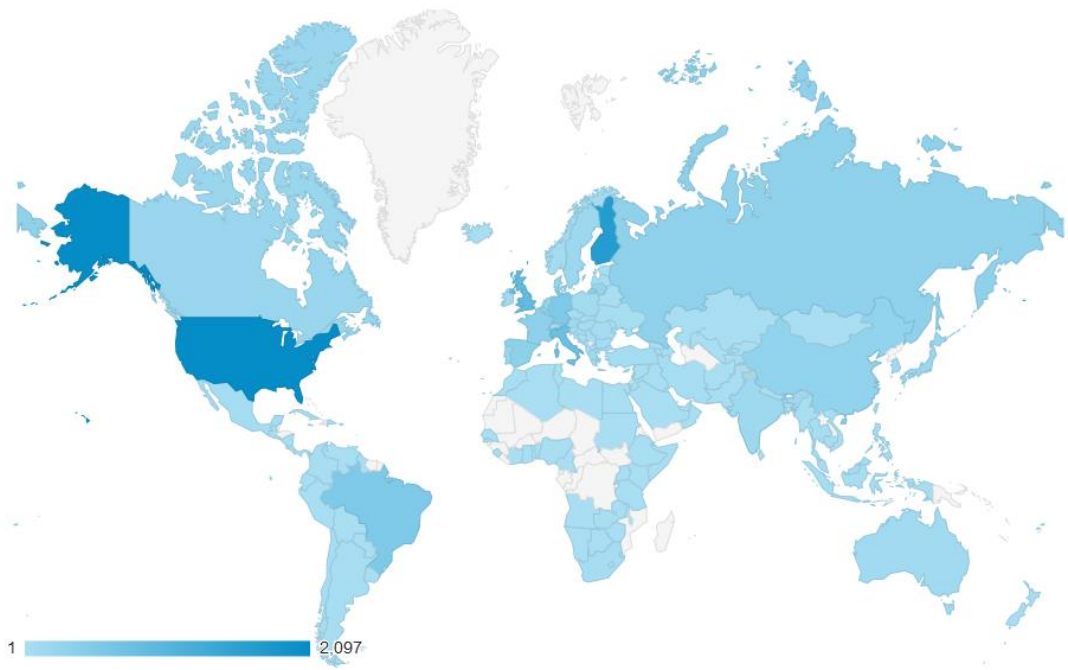

Figure 5 *Geographical dimensions of visitors of the PE2020 website per country*

Table 3 *Visitors of the website divided by subcontinent*

Sub Continent	Sessions	% New Sessions
Northern Europe	3497	60,42 %
Northern America	2301	97,96 %
Western Europe	1738	81,82 %
Southern Europe	1562	77,53 %
(not set)	1066	99,81 %
Eastern Europe	688	54,65 %
Eastern Asia	684	96,20 %
South America	669	97,91 %
Southern Asia	203	97,04 %
Southeast Asia	188	94,15 %
Sum	**13181**	**81,10 %**

6.3 Stakeholder interactions

The focus of the PE2020 project has been on the stakeholder engagement throughout the project. This engagement has taken different forms in different work packages. In WP1, the administrators and managers of innovative PE initiatives have been engaged with the project through the survey and the preceding telephone contact as well as through follow up activities once the catalogue of innovative PE initiatives was published (see Mejlgaard and Ravn, 2015).

In WP3, all pilot initiatives could not have been realised had there not been intense and joint conceptualisation and design process at the beginning, which included several and deep discussions of the purpose of the pilot initiative, the expected target groups of the initiative and the applied PE method of the initiative. Often, the method needed to be context tailored to fit the purpose of the engagement activity. The realisation phase of the pilot initiatives engaged additional stakeholders that were in the focus of the activities. Some of these co-creation activities have resulted in further stakeholder and public engagement activities that continue beyond the scope of the PE2020 project.

6.4 Publications

The yearly updated dissemination plans and the list of key stakeholder organisations can be found in Deliverable D5.2, which presents the overall dissemination activities of the PE2020 project and is called “Publications”. The publications include the deliverables of the project as well as other reports presenting the work executed as well as posters and the PE2020 leaflet. Several dissemination and communication activities have taken place during the project such as multiple conference presentations, social media activity and individual communications with key stakeholders. These are presented in D5.2 in more detail.

The PE2020 project has published three policy briefs during the duration of the project. The policy briefs can be found in the website of the project and in deliverable D5.2 “Publications”. The first policy brief gave the overview of the project and showed the way it was headed. The second policy brief described the main messages from the conceptualisation of a model of public engagement in dynamic and responsible

governance of research and innovation and presented lessons learned from the pilot projects of the PE2020 project. The third policy brief focused on presenting the perspectives from the policy conference emerging from the interaction of different stakeholders, and the PE2020 toolkit that was designed to increase users' understanding of public engagement in general, as well as its method, objectives and impacts.

The PE2020 project has communicated the results to the general public in addition to the website also through news blogs and papers of other organisations and projects such as blog writings in the website of the PE2020's sister project CASI (Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation) 22.01.2015 "Innovative methods for engaging the public" with 66147 views and 11.09.2015 "Public participation in defining research priorities to global problems" with 722 views.

6.5 Policy conference

Aim of the policy conference

The conference "*Public Engagement for Research, Practice and Policy*" was organized to discuss best public engagement and sustainable innovation practices and identify common European priorities on how to stimulate societal engagement for sustainable innovation activities in European regions, scientific institutions, SMEs and other societal actors. The conference was organized in collaboration with the CASI-project (*Public Participation in Developing a **C**ommon Framework for **A**ssessment and Management of **S**ustainable **I**nnovation*, www.casi2020.eu/). It took place in Committee of the Regions in Brussels, in Belgium, November 16th -17th 2016.

Structure of the policy conference

The conference was organized under four thematic blocks:

- *Public Engagement (PE) and sustainable innovation* focused on identifying most innovative practices and tendencies underlying PE activities, and discussing how help addressing societal challenges and develop better sustainability policies.
- *Societal impacts of public engagement* focused on activities that help maximize the impact of PE, and how to design new research programmes and projects in ways that contribute to increased societal relevance of research.
- *Public engagement – the present and the future* anticipated how the field of PE is evolving, including reflections on the best ways to evaluate PE, support it through incentives and ideas of an emerging RRI system that is under construction in ERA countries.
- *Public engagement – towards new research agendas* was oriented at sketching a vision of PE in future European research and innovation activities, including reflections from sister projects and external stakeholders from industry, research, media and regional policy.

The programme of the conference covered 56 number of presentations on issues related to PE and sustainability policy. External stakeholders, commentators and the audience contributed to the discussion on future policy options, priorities and recommendations for European Research Area that were specifically approached in the last round panel of the conference.

Content of discussions

Status of PE activity in the EU. Public engagement involves different types of processes, where there is a distinct role for citizens and stakeholder groups to contribute to research and innovation activities.

Overall, we observed that PE has become an important theme for European research and innovation activity. In many ways, it is the heart and spirit of responsible research and innovation: it opens practices of research and policy to the public and stakeholders; it involves ethical principles that highlight responsibility, gender equality, democracy, as well as effectiveness and efficiency of public decision making; it explores new ways of informing the public about prospects and risks of technoscience, and it mobilises citizens' capacities to address related societal challenges.

By setting public engagement (PE) as a key thematic element of responsible research and innovation (RRI), the European Commission has promoted fundamental changes in the way in which civil society and other stakeholders outside the scientific community influence – and are expected to influence – research activities. Ensuing challenges for the research community need to be carefully reflected.

Where and why PE innovations are needed? Innovative PE can be defined as new participatory tools and methods that have the potential to contribute to a more dynamic and responsible governance of R&I. Better understanding of innovative PE processes contributes to a better capacity to renew R&I governance. Therefore, it remains an important task to both continue inventing, innovating, testing and demonstrating new PE processes, but also to develop evaluation practices that help gain insight and understanding of the successes and costs of such activities.

Where is this field developing? The field of PE is developing 'fast and furiously' through hundreds if not thousands of participatory processes oriented at R&I. Innovative PE processes are mostly initiated by non-profit organisations such as non-government organisations (NGOs), unofficial networks and associations. Development occurs mostly through broad scale institutional collaborations, involving also research institutions, governmental agencies, foundations and think tanks, and to a lesser extent, business companies.

Methodologically there has been a comprehensive turn from one-way communication processes towards multiple-way communications. Innovative PE is largely oriented towards addressing societal challenges. Methods of upstream engagement are being largely developed, especially in anticipatory projects. One of the key findings of this conference was that innovative PE can have, and as we heard from several presentations, has often had truly versatile impacts, not only on R&I but also on the environment, society, politics and individuals.

Another important turn is that attention has shifted from 'one-off' PE events to the links of different PE processes and more traditional governance institutions. While bold institutional hybridity characterizes the actual development of the field, academic researchers of PE are turning their attention on emerging systemic innovations, including the notion of 'deliberative system'.

A striking finding is how strongly the 'fourth sector' is participating in innovative PE activities. The 'fourth sector' is an emerging field composed of actors or groups of actors whose foundational logic is not in the representation of established interests, but rather in the idea of social cooperation through hybrid

networking. Examples of fourth sector actors included hybrid experts, randomly selected participants, 'life world experts' and 'field experts'.

Much positive development has occurred during two latest Science in Society working programmes, and most recently, supported by EU's RRI policies. While new activities are emerging and institutional conditions for research funding and performing organizations are becoming more robust, some new questions emerge. Below is a list of some emerging research questions that deserve further attention by the academic communities in particular, but also by practitioners and policy makers.

6.6 Findings and ideas emerging from the conference

The conference proved that there is indeed demand for policy level reflection of PE, as the conference attracted 208 registered participants from highly different institutional backgrounds. The sessions included lively debates that continued and spread in social media. It was strongly voiced by the participants of the conference that public engagement should become a current practice both in research institution and in society to be effective and that it should even be mandatory.

The key findings of the conference have been published through the following channels:

- a full report of the policy conference (https://pe2020.eu/wp-content/uploads/2014/02/Policy-conference-report_final.pdf)
- a summary of the policy relevant messages condensed in the third policy brief of the PE2020 (https://pe2020.eu/wp-content/uploads/2014/02/Policy-brief-3_FINAL.pdf).

It was the methodology of the PE2020 project to use the policy conference as a tool for elaborating policy recommendations. For this end, a draft conclusion document was first prepared among the research consortium. Feedback about the relevance of the themes was sought from the project officers of the PE2020 as well as the CASI project, with whom the conference was organised. The panels were organised according to the key areas of discussion and the final panels and conclusions were used to elaborate a document that reflected the views that seemed to be converging about some of the most essential and topical themes related to public engagement and its development in the near future. The key findings and policy recommendations are reported in the final section of this report.

Publications:

Please refer to the following documents for more information on the work executed under this work package:

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7. Conclusions and policy recommendations

Mikko Rask and Kaisa Matschoss

The conclusions of this summary report are not based only on the internal reflections of the PE2020 research consortium. Instead, we expanded our reflections through the final policy conference, to include additional voices among the participants of this conference that gathered together around 200 participants representing policy making, research, NGOs, industries and other actors interested in PE. To claim that such a number of perspectives would result in a consensus of the state of the art in the field or a clear priority list of actions would be illusory and we are not even intending to do this. Instead, we build the concluding remarks and policy recommendations of this summary on the key observations that were done during the final policy conference, and read and reflected aloud in the final speech by the coordinator of the PE2020.

The presentations and discussions brought forth the notion of changing research landscape and revealed some worrisome trends, such as the spread of anti-scientific tendencies in national political discourses, cuts in European research budgets, and global socio-environmental challenges. It was recognised that there are increasing interests in reorienting research towards strategic, interdisciplinary applied research, applying extra-academic criteria in research evaluation, and co-designing research processes with citizens and users of knowledge. The discussions led to a conclusion that **in a situation where the research landscape is transforming intensively, the better alternative is still a conscious transition rather than an ungoverned drift**.

There are high institutional stakes in engaging the public in research governance. The EU has a strong commitment to public engagement through its RRI policies. National funding agencies are revising their funding schemes, as for example the Academy of Finland that recently introduced a programme for 'strategic research' to support high quality research contributing to societal challenges. Universities, governmental funding agencies and foundations increasingly support challenge driven research. User driven research and innovation has been a continued trend in the business sector. Internet and social media applications makes it possible for ordinary citizens to adopt roles as 'citizen scientists', hackers and environmental activists. All these trends have contributed to the emergence of the so called fourth sector, i.e. actors and groups of actors whose foundational logic is not in the representation of established interests, but rather in participation to social cooperation processes through 'hybrid networks'. Realising that the fourth sector is becoming more pronounced in the field of R&I, and that it can governed through PE processes, it was concluded **PE in the current situation is no more a matter of whether, but rather, a matter of how new actors and voices can be integrated effectively in research policies**.

In order to facilitate the change of the research and innovation landscape, it is necessary to show different stakeholders the benefits of PE. There is also a need for moving from the focus on individual PE events to broader structural issues, where separate PE processes are better linked and embedded in the established structures of R&I policy. Gender policies and Social Corporate Responsibility (including its ISO standards) can provide positive analogies of the change ahead. Giants' steps to institutional transformation could be taken by changing funding criteria, introducing stronger policies, establishing new institutions and developing capacity supporting PE as part of dynamic and responsible governance of research and innovation.

New models of public engagement are continuously being developed, in particular in the area of public deliberation and two-way communication. **A real challenge for the research community is to find ways to combine high-quality science with PE**. Citizen science and crowdsourcing are two examples where top level research has successfully met with involvement of citizens and civil society actors, additional ideas can be gathered from the research community by requesting them to develop plans for societal interaction, not only dissemination. European research and innovation could also benefit of new, self-sustaining models of PE, based on mutually beneficial collaboration across institutional domains (e.g. research, science communication, policy, innovation activity) and stronger business models underlying PE activities (e.g. PE as new type of innovation platforms). New models can best be introduced through piloting taking place in real contexts and enabling deeper learning.

As the research of PE2020 has suggested, innovative public engagement can effectively contribute to the three guiding principles of the EU's RRI policy: Open Innovation, Open Science, and Open to the World. Recent changes and turbulences in the European policy landscape suggest that public engagement is not only about harmonious co-design of research. It is also about publics and stakeholders challenging research and research institutions. This **calls for the inclusion of fourth O, i.e. Openness to conflicts**, which means better sensitizing to the openings from other institutions.

The Policy conference also gave the opportunity to present the PE2020 Toolkit on public engagement with science and technology, and to get first feedback from the participants. Overall, such an exchange and the conference outputs as a whole confirmed the urgent need for making PE the core of a broader strategy aimed at providing science and innovation with a more robust and reliable societal basis. This entails finding the way for rapidly embedding PE in the relevant current practices of European research institutions activating appropriate institutional change processes through specific action plans and measures. However, it is misleading to think that, once research institutions will be open to public participation, this latter will automatically occur. **To support participation, there is also the need to make public engagement a current social practice, which people are able to understand, support and practically experience**. PE is therefore to be embedded also in society, which is possible only by creating the social and institutional spaces both within and outside research institutions, where the actual exercise of citizenship in science and innovation may become real.

There are many things that could be said about the possibilities, needs and limitations of developing a new culture of PE that enables more dynamic and responsible governance of research and innovation. Based on what we found to be among the most topical actions, we end up this summary report by listing following five policy recommendations that we consider essential in supporting a sustainable development in this field:

- Despite that PE is becoming more and more mainstreamed type of activity, there are still difficulties to understand its role in every day policy making. Therefore, **it is important to frame PE as a new kind of evidence base for policy making**.
- In order to fulfil the gap between high expectations of PE in contributing to RRI and evidence of its limited policy impacts, **better functioning PE practices can best be supported through strong policies, including new funding criteria, evaluation standards and activity targets**.
- Combination of PE with high quality research is still rare. **Citizen science projects and challenge oriented strategic research processes should be further explored**, because these are areas, where potential seems to be very high for developing innovative research practices based on PE.

- There is much theoretical research on PE. What we found is that developing new or transferring existing PE innovations from one context to another is highly context sensitive. For this reason**, developing innovative PE practices should take place through pilots in real-life contexts**. The conference helped identify societal interaction plans as an example of an innovative PE measure that could be piloted at a larger scale e.g. in the forthcoming Framework Programme 9.
- It seems proven that PE, when properly organised, can support socially responsible research. **Institutionalisation of PE could be best supported through structural measures, such as activation of brokerage institutions, competence centres and linking of new PE/ RRI schemes with existing research and funding structures**.

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