



Public Engagement Innovations for Horizon 2020

Report of the PE pilot cases on Societal Challenges Deliverable 3.2

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The PE2020 project

PE2020 will identify, analyse and refine innovative public engagement (PE) tools and instruments for dynamic governance in the field of Science in Society (SiS). PE2020 will analyse the PE tools and instruments through a systemic and contextual perspective, and contribute to the potential and transferability of new governance innovations. PE2020 will create new knowledge of the status quo and trends in the field of public engagement in science, refine innovative PE tools and instruments and propose new ones.

The project will do 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 within 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 solve the looming problems related to the grand societal challenges of the Horizon 2020. In order to ensure practical relevance, the project will work through intensive co-operation between researchers and science policy actors. PE2020 will expand the capacity of European and national science policy actors to integrate better societal engagement by providing easy access to new PE tools and instruments, to be included in the requirements and implementation of research in Horizon 2020 and beyond.

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1. Introduction

The goals of the PE2020 Public Engagement Innovations for Horizon 2020 project are to identify, analyse and refine innovative public engagement (PE) tools and instruments for dynamic governance in the activities and areas of Science in Society. In this framework, the aims of WP3 are

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

A description of the process of designing and implementing the pilot initiatives (Task by Task) can be found in Annex I.

1.1. Objectives

Work Package three (WP3) had as its specific objective to design and implement six pilot projects on innovative PE processes. Seven projects (or ‘pilot initiatives’) were organised in the context of on-going research programmes in Finland and Italy. PE2020 is being funded through the Seventh Framework programme, and it is developing tools and instruments for better societal engagement in Horizon 2020. The pilot initiatives are collectively linked to the seven ‘Societal Challenges’¹ of the European Commission. To ensure that there is an EU-wide dimension and relevance, three of the pilot initiatives have been conducted in the context of EU joint research programmes, European innovation partnerships or other types of research and innovation activities with a transnational dimension.

More specifically, the objectives of WP3 were

- to test and refine innovative PE tools and processes in research programme contexts,
- to evaluate the feasibility of using such tools in other countries, and
- to gain further understanding of the relevance of contextual factors in designing PE processes.

The seven pilot initiatives¹ have been co-designed and implemented with our target research projects and programmes by funding agencies. Testing and introducing new PE processes need to be adapted to the preconditions of the target programmes. However, it was soon realised that such a transfer process would have been far from straightforward. On-going research projects and programmes had their own priorities, expectations, quality criteria and cultures of operating. All of the selected pilot initiatives were externally funded and as such had to adhere to the quality criteria set by the funding bodies, in addition to scientific or institutional ones. Testing and introducing new PE processes needed to be adapted to the preconditions of the target programmes.

The selection of pilot initiatives is based on the innovativeness criteria as described in the PE2020 report D2.1² (Mačiukaitė-Žvinienė et al. 2014). Innovativeness refers here to the novelty and potential impact with respect to Horizon2020. It was considered important that the pilot initiatives represent different types of cases, with a mix of bottom-up and top-down led ones, as well as cases with up-stream and down-stream dimensions. In the process of case selection it was realised that feasibility plays a crucial role as a criterion. Feasibility refers to the comparability of the PE activities with the needs of on-going research programmes. The criteria are described more carefully in PE2020 report D2.2³ (Rask et al. 2016) in the methodological section.

In this report, the term ‘pilot initiative’ has been used to refer to the actual PE initiatives that were piloted as part of WP3. This helped us separate the initiatives from the research contexts in which the piloting activities took place. In what follows, we present an engagement frame for selecting and categorising the different pilot initiatives. After that, we present the seven pilot initiatives of PE2020. Finally, we compare and analyse the initiatives, and reflect on the findings against the criterion, as well as some unexpected issues about the dynamics of PE processes. The seven pilot initiatives are listed below together with the country where they have been carried out and the partner Programme or entity.

Table 1. The seven pilot initiatives of PE2020, WP3.

Pilot initiative	Country	Hosting programme
1. Promoting science-society dialogue with blogs among early-career researchers on Baltic Sea research	Finland	BONUS Programme
2. Living lab of Global Change	Finland	Future Earth Finland – National Committee for Global Change Research
3. Joint Programming Initiative (JPI) More Years, Better Lives (MYBL)	Finland	More Years, Better Lives Joint Programme Initiative
4. Societal Interaction of Science in Strategic Research Council funded projects	Finland	Academy of Finland
5. Empowering young researchers on PE in energy efficiency	Italy	ENEA Summer School on Energy Efficiency (ESS)
6. Dialogue Workshop on mobility and transportation	Italy	IDIS-Città della Scienza’s “Futuro Remoto” Science Communication Initiative
7. Educating science-society relations and public engagement	Italy	Agorà Scienza’s Scientific Summer School

³ The report is accessible on the PE2020 project website: <https://pe2020.eu/wp-content/uploads/2016/05/Innovative-Public-Engagement-FINAL.pdf>

2. Engagement frame for PE tools in the pilot initiatives

Task 3.1 involved preparatory discussions with relevant science policy actors in Finland and Italy. The purpose of the preparatory discussion was to make ground for the pilot initiatives that were co-designed with the science policy actors that were identified at the first stage of the WP.

The PE2020 Consortium developed an engagement frame for orienting, selecting and classifying the pilot initiatives. The concepts of Responsible Research and Innovation (RRI) and Dynamic Governance oriented the types of activities and outcomes that were expected from the pilot initiatives. These are described more closely in PE2020 Report D2.2. The authors of this report have adopted a 'responsible research' set of practices, and the main aim of this project has been to place societal expectations at the pinnacle. As stated elsewhere, '...RRI implies that societal actors (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society' (See <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation>). Engagement in all respects has involved the full gamut of actors and public engagement tools, and made public engagement part of all the stages of the research cycle.

In this engagement frame, dynamic governance refers to dynamic interactions between scholars, citizens, industry and government. It views governance as an exploratory, inductive approach in setting performance standards for responsible research and innovation (Rask et al. 2016). The critical point is a presence or absence of dynamics, tension of changes and co-operation (Guldbrandsen 2014). Dynamic governance as evaluation criteria for the seven pilot initiatives is based on the concepts of anticipation, reflexivity and transdisciplinarity (Neo and Chen 2007). From this angle, dynamic governance refers to the ability of policy makers to handle issues in a rapidly changing environment requiring continuous adjustment of policies and programmes. Dynamic governance involves active interactions between scholars, citizens, industry and government.

The engagement frame developed by the PE2020 Consortium is described in Table 2. Section 3, which presents all the pilot initiatives, also includes an interpretation of how all the seven pilot initiatives are located in the frame.

The selected pilot initiatives cover a wide spectrum of PE tools, which can be grouped according to two main factors. First, engagement tools can be categorised according to the timing of engagement in relation to the phase of research, development and innovation (RDI) process. Engagement may be 'upstream', 'midstream', or 'downstream'. Second, engagement may be initiated from the bottom-up or from the top-down, placing focus on whether the interaction was initiated by those in decision-making power positions or those representing civil society or the common people. Alternatively, it may be a mix of these and be deliberative, characterised by an evolving dialogue between the actors.

Table 2. Engagement frame of the pilot initiatives in WP3

Initiative angle of engagement (X)	bottom-up	deliberative	top-down
Timing of engagement (Y)			
downstream			Educating science-society relations and PE
midstream	Empowering young scientists working on Baltic Sea research	Societal impacts and stakeholder involvement in research grants Societal Interaction plans in SRC	Empowering young researchers on PE in energy efficiency
upstream	Dialogue on mobility and transportation	Global Change Living lab	

Upstream engagement refers to dialogue and deliberation amongst affected parties about a potentially controversial science, technology and innovation issue at an early stage of the research and development process and in advance of significant applications or social controversy (Rogers-Hayden & Pidgeon 2007, 346; Rask et al. 2012).

Benefits of upstream engagement: the public is engaged in influencing the direction that research and innovation take; upstream engagement may uncover power relations a technology embodies and the balance between corporate and civil society interests and control (Rogers-Hayden & Pidgeon 2007, 357). Differences in opinion are tackled before the actual RDI process; mutual benefits of science-society interaction – scientists learn from the public and the public learn from scientists (Rogers-Hayden & Pidgeon 2007).

Risks of upstream engagement: no one may feel compelled to participate at an early stage (Escobar 2014).

Midstream engagement refers to laboratories and research activities (Delgado et al. 2011) where researchers in tandem with others ‘bring societal considerations to bear on their work’ (Fisher et al. 2006). Midstream engagement may also embrace ‘mixed-stream’ situations (Wynne 2011). Midstream engagement appears in the implementation stage of a large, distributed, and dynamic decision process. In this sense, its techniques are applied to affect the self-governance of R&D processes.

Risks of midstream engagement (Fisher et al. 2006): First, ‘midstream deliberations are not fully constrained by upstream agendas, nor are they limited to a purely instrumental approach to their implementation’ (491). Secondly, ‘midstream activities are considerably constrained by physical limitations, resources, and available expertise, not to mention institutional and organizational pressures and interests’ (491).

Downstream engagement occurs late in the research and development process (Rogers-Hayden & Pidgeon 2007, 346), and focuses on how RDI impacts society. Risks of downstream engagement: public engagement may become tokenistic (public engagement itself has few impacts) (Escobar

2014, Rogers-Hayden & Pidgeon 2007), and polarisation of opinions may occur in controversial issues (Rogers-Hayden & Pidgeon 2007).

Benefits of downstream engagement: may increase the relevance and utilisation of evaluation findings and recommendations, increase the ownership and commitment by stakeholders to the intervention, and reduce risks of project failure (Jackson 1999). The engagement frame in this report aims to select and classify the pilot initiatives and refers to earlier reports of PE2020 and dialogue with FP7-Engage2020 project.

Bottom-up public engagement aims to reach the widest possible diversity of actors to create the space for ethical value-laden issues while bringing inclusiveness, transparency, diversity, and creativity into the research and innovation process. Bottom-up processes are initiated by civil society (civil society organisations (CSO) or non-governmental organisations (NGO)) or unorganised groups of people (citizen engagement). These collaborators or stakeholders cooperate with the researchers from positions that do not hold monetary power over the projects in question. As such, they initiate engagement activities for aims and purposes that focus on the advancement of a particular issue. Alternatively, they engage with researchers due to an interest in the process of knowledge production itself.

Top-down public engagement is usually initiated by the sponsors, such as governmental or regulatory agencies, by professional Science in Society practitioners, or higher education institutions, industry or civil society organisations (Mačiukaitė-Žvinienė et al. 2014, 24). These actors hold monetary, regulatory or other direct type of controlling power over the researchers. Hence, the cooperation is initiated from an unequal power basis, even if the collaborators' interest in collaboration may be broader and based more on the issue than power.

Deliberative public engagement, as understood in this context, includes dialogue between bottom-up and top-down actors, and is therefore to be understood as a mixture of the two previous models.

2.1. Identification of potentially transferable practices

Task 3.2 scanned the most innovative and feasible PE practices from among those identified in WP1. This was done within the contexts of the pilot initiatives. Two of the more relevant and differing PE criteria were selected for further analysis as a result of the process: feasibility and innovativeness.

The concept of transferable practices refers here to a linear understanding of engagement and impact. As reported in pilot initiative reports, public engagement is diverse and based mainly on actors' dialogue. Their motivations and skills for cooperation are at the centre of collaboration. Further, feasibility for societal engagement in the realities of the different research environments were strongly emphasised in the pilot initiatives.

2.2. Design and implementation of the pilot initiatives

The resources of pilot initiatives have been of concern in SAB discussion of PE2020 project. Therefore, it was important to conduct the pilot initiatives in collaboration with research programmes and actors that have their own budgets for doing PE. It is also considered important to frame and understand the nature of pilot initiatives in a way that is both realistic and contributes to the research done in PE2020 and in Horizon2020 planning. There are seven societal challenges in the

Horizon work programme, and we have committed to seven pilot initiatives. The societal challenges in seven pilot initiatives follow a division of work.

Table 3. Societal challenges and division of work between the partners.

Societal challenges for Horizon 2020	UL/UH	LSC
1) Health, demographic change and wellbeing	x	
2) Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy	x	
3) Secure, clean and efficient energy		x
4) Smart, green and integrated transport		x
5) Climate action, environment, resource efficiency and raw materials	x	
6) Europe in a changing world - inclusive, innovative and reflective societies	x	
7) Secure societies - protecting freedom and security of Europe and its citizens		x

Pilot initiatives were chosen on the basis of cutting edge PE activity. New types of institutional collaboration and hybrid activities were considered to be particularly interesting themes, and the pilot initiatives were conducted based on the preparatory discussions held with the major science policy actors. Examples in the Finnish context were the Ministry of Economic Affairs and Employment, and the Prime Minister’s Office, the Academy of Finland and the Research and Innovation Council. Such actors provided access to similar bodies abroad and useful information for pilot design.

The main criteria for choosing the pilot initiatives were based on the feasibility of using public engagement tools and testing them. It was considered important for the chosen practices to be strongly coupled with the feasibility and functioning character of public engagement activities. They build on designing actions that are interactive, motivate all parties concerned and serve their needs without jeopardising the scientific premises of the project. These criteria were based on PE2020 Deliverable 2.2:

- hybrid combinations of participatory tools to enhance discussions between researchers (science) and the public (society),
- methodologically novel dialogue-based engagement, participant empowerment and governance contribution,
- inclusive new ways of representation in terms of selection methods of actors and new combinations of actors,
- potential impact on change, participants’ influence and impact on public debate,
- their bearing on the seven societal challenges identified in Horizon 2020, and
- feasibility regarding effective transfer to other contexts and pilot initiatives tested within limited resources.

An additional criterion for the selection of the practices (and pilot initiatives) was the possibility of gaining comparative insights from examining different country contexts. It was also considered important to frame and understand the nature of the pilot initiatives in a way that is both realistic

and that contributes to the research done in PE2020 and in Horizon2020 planning. It was further deemed important for the project to communicate the plan for organising the pilot initiatives before moving ahead.

From the research point of view, it was remarked that the pilot initiatives should test at least two different types of PE tools. They should represent different public engagement tools such as science communication, civic activism, consultation, deliberation or participatory planning as described in PE2020 report D1.1. Early identification of the test sites was considered important. The initiatives included several small-scale PE methods, which were deemed appropriate in each particular phase (e.g. public voting or prioritisation of research in focus groups) instead of testing only one 'big' pre-selected PE method. In practice, this meant trying to create a PE culture in which the stakeholders could be closely involved in the different phases of the research project and not just present in a one-off event. Further, such practices implied that the research process itself needed to remain open to adjustments, which were initiated outside of the research group itself.

Overall, the organisation of the pilot initiatives was considered to be 'product development', where on-going PE practices are boosted with the knowledge gained from the research in PE2020. The method of testing in the pilot initiatives was seen as a dialogue-based approach where the logic of co-creation could be outspokenly present.

To sum up, the pilot projects were carried out having taken into account:

- the international research programmes and prioritisation of research were acknowledged as interesting context for pilot initiatives
- the pilot initiatives should be chosen on the basis of not only their cutting edge PE activity but also their (expected) feasibility in practice. New types of institutional collaboration and hybrid activities were considered particularly interesting themes
- the limited time devoted for 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.

3. Methods

The pilot initiatives 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. The living lab as a separate initiative of WP3 was tested as a public engagement method, and it refers here to the general philosophy behind the collaborative global change network activities. The living lab was based on the co-creation spaces bringing together researchers, stakeholders and public representatives to co-create new services, products and societal infrastructures in real-life settings. The methods are reported in the seven separate reports of the pilot initiatives.

3.1. Context of the pilot projects

3.1.1. Context-tailoring and piloting of best practice PE processes

In order to adapt the pilot initiatives to the particular local contexts, the PE2020 project included 'context tailoring workshops' among the initial steps of the pilot design. As was described in the project plan, 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.' Contributory and hindering factors were supposed to be identified and discussed by the PE2020 researchers and local STI actors.

The implementation of the pilot initiatives has taken place in two countries with highly different cultures of research and innovation policy and science in society debates: Italy and Finland. While research and innovation have been high on the political agenda in Finland for several decades (until the current recession and government), other political themes have dominated Italian politics. In terms of public engagement, the Nordic approach to policy making has favoured broad stakeholder consultations, whereas direct democracy and national and regional referenda characterise the Italian cultural landscape². Public engagement in both countries is still a new issue and this was very much reflected in the negotiations with those responsible for establishing target programmes.

Considering that the national cultures of policy making and particular research project and programme contexts both have an impact on the design of the pilot initiatives, we decided to adopt a flexible approach to the design of the workshops. Common to both countries, the planning of the workshops preceded a series of informal bilateral negotiations between the PE2020 organisers and the target programmes. The main model of the context tailoring workshop in Finland included a large seminar involving all three pilot initiatives held in Finland plus an international group of experts giving insight and external perspective on the pilot initiatives. In one case, the Italian model relied on a smaller-scale seminar that was organised to scope locally important factors for practical pilot initiative design. In two other cases, context tailoring took place only through bilateral discussions between the project partners and target programmes.

3.1.2. Finland

The one-day event on 9 April 2015 attracted approximately 40 participants from Finland and other countries. The participants were from diverse backgrounds, representing higher education institutions (universities and universities of applied sciences), public research institutes, think tanks,

private companies, ministries, the European Union (EU), research funders, and European research programmes. The event took place at the Aalto University School of Business.

The target of the context tailoring workshop in Helsinki was to create a shared understanding about the foundational organisational, methodological, and infrastructure challenges of public engagement. The workshop focused especially on living labs as a public engagement method as this was a central common interest of PE2020 and The Center for Knowledge and Innovation Research (CKIR) at Aalto University. Experiences and insights were gathered both from the innovation context and from the academically-oriented context to enable the participants to reflect on the opportunities and challenges in creating and maintaining multi-actor, multidisciplinary living labs in different settings. In the workshop, the participants discussed how living labs understood broadly as a research strategy and methodology can help to engage people, cities, regions, public agencies and firms when solving the major societal challenges of our time. The programme and details of the speakers of the workshop can be found as an attachment of this report.

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

- **BONUS young scientists' initiative** – BONUS is the joint Baltic Sea research and development programme for years 2010–2017. It involves European countries from the Baltic Sea region. The initiative is related to the societal challenge on 'food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy'. The Bonus pilot initiative was a scheme for empowering young scientists (doctoral students, postdoctoral researchers) by providing them with skills in the new social media that they can use in communicating their research activities in a recently established, bottom-up structured research website of the BONUS programme. The objectives for the pilot initiative were also to deliberate on the options for using social media as a public engagement tool, and to support the bottom-up initiatives of junior researchers in a traditionally hierarchical academic environment. The objectives of this pilot initiative were threefold:
 - to support junior-level researchers' skills and capabilities to engage with stakeholders and citizens in the different phases of the research and innovation process;
 - to deliberate on the possibilities for using social media as a public engagement tool, and
 - to support the bottom-up initiatives of junior researchers in a traditionally hierarchical academic environment.
- **Global change living lab** – The second pilot initiative aimed to co-design global change research priorities and joint projects in collaboration with researchers, other actors in the public and private sectors, and civil society organisations. Whereas co-design ideas have already been used in the innovation context, opening up the processes at an early stage to a wider audience is innovative in the field of academic research. The context of the initiative is a Finnish Global Change living lab network, which is coordinated by Future Earth Finland – National Committee for Global Change Research. The Finnish national committee collaborates with fellow national committees abroad and their regional clusters. The pilot

initiative is related to the societal challenge on ‘climate action, environment, resource efficiency, and raw materials’. The objectives of this pilot initiative were twofold:

- to deliberate on the options for supporting and strengthening multi- and interdisciplinary, multi-actor research collaboration related to solving societal challenges;
 - to elaborate on the options for how intermediary organisations may strengthen inter- and multidisciplinary and multi-actor collaboration in the co-design of research priorities and support the continuity of living labs.
- **Societal impacts and stakeholder involvement in research grants** – The third pilot initiative aimed to analyse the contents of societal impacts and stakeholder involvement in research grants. Whereas requirements for more societal interaction aspire to balance academic peer review and societal relevance in granting research funding, little is known about the content of such interaction plans in relation to dimensions of public engagement. The context of the initiative is an EU joint programming initiative (JPI) on demographic change: *More Years, Better Lives* (MYBL). Thirteen European countries are providing support for the JPI. The pilot initiative is related to the societal challenge on ‘health, demographic change and wellbeing’ and the challenge on ‘Europe in a changing world - inclusive, innovative and reflective societies’. The first order objective of the pilot initiative was to study whether it is possible to create a process that can produce innovative public engagement objectives into the international research process. Second, the objective was to support and improve the quality and effectiveness of the research. A concrete aim of the pilot initiative is to help the JPI MYBL programming initiative and SOAB to evaluate and assess the societal interaction and public engagement in future applications.
 - The second part was added to this type of pilot initiative during the piloting process. This addition was considered important as it became clear through negotiations with the Academy of Finland that it would be possible to include a new funding instrument, considered novel internationally, in the study. This formed a second and parallel case to the same type of initiative as the JPI/MYBL, and hence forms a separate report. This second part of the pilot initiative was to unravel the meaning and role of **societal interaction in the Strategic Research Council** funded projects under the Academy of Finland. The pilot initiative presents discussion about how the interaction relationship is formed, how the partnerships are served, and how research activities are integrated with societal interaction activities. The aim is to investigate the types of objectives the interaction activities aim to serve, the forms of practices chosen to do this, and to understand how the practices are integrated into the timing patterns of the projects as well as the stakeholders, and finally, to study the kinds of expertise and capacities that are considered necessary for the successful implementation of societal interaction. The goals of the SRC pilot initiative were divided into three parts:
 - To unravel the meaning and role of societal interaction in the SRC-funded projects. Central questions include how the interaction relationship is formed, how the partnerships are served, and how research activities are integrated with societal interaction activities.

- To investigate the types of objectives the interaction activities aim to serve, the forms of practices chosen to do this, and to understand how the practices are integrated into the timing patterns of the projects as well as informing the stakeholders.
- To study the kinds of expertise and capacities that are considered necessary for the successful implementation of societal interaction.

3.1.3. Italy

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

- **Empowering young researchers on PE in energy efficiency (Rome)** – The fourth pilot initiative was developed on the basis of an interaction between Laboratorio di Scienze della Cittadinanza (LSC) and ENEA, the Italian National Agency for New Technologies, Energy and Sustainable Economic Development and was conceived as an itinerary aimed at making PE a strategic element in the training programme of the two-week long ENEA Summer School on Energy Efficiency (ESS) targeted at young professionals and researchers. The pilot initiative included the organisation of an internal workshop involving a group of ENEA project managers aimed at developing a common understanding about the ENEA experience in PE, the production of a handout on PE in the energy sector, the organisation of a four-hour training module devoted to PE in the framework and the presentation of the results of the module in the ESS final plenary session with the participation of a group of private companies working in the energy sector. The rationale of the pilot project was that of supporting the ENEA project managers in capitalising on their experience for identifying the stock of knowledge to transfer to the ESS trainees on PE theory and practice in the energy sector and then actually implementing such a knowledge transfer process through the training module included in the ESS. This pilot initiative was related to the challenge 'Secure, clean and efficient energy'. The pilot project pursued the following objectives:
 - Raising the awareness of the ENEA project managers on their own approach to and practices of public engagement in energy projects;
 - Transferring a stock of theoretical and practical knowledge to the trainees on why and how to use PE mechanisms in designing and implementing energy efficiency programmes;
 - Sensitising the private companies concerned with the ESS about the role of PE in the field of energy efficiency.
- **Dialogue Workshop on mobility and transportation (Naples)** – the fifth pilot initiative was developed with the intention of testing a PE approach in connection to one of the grand societal challenges considered by Horizon 2020, i.e. 'Smart, green and integrated transport'. The rationale of the pilot was that of putting PE at the very centre of the debate on mobility and transportation in a given local context so as to improve the development and management of transportation, with special reference to the involvement of citizens, civil service organisation (CSOs) and stakeholders in orienting research programmes and policy design. The pilot initiative focused on the organisation of an initiative of public dialogue

aimed at discussing the present and potential role of PE and participatory mechanisms in the mobility sector. The objectives of the pilot were:

- To activate a dialogue among them on the use of PE in the above mentioned field, with special reference to the relationships between researchers and research institutions, on the one side, and citizens and CSOs, on the other side;
 - To give an opportunity for the key stakeholders in the field of transportation and mobility in Naples to establish stable contacts and interactions so as to create a permanent cooperation platform;
 - To draw out of the dialogue experience useful information and recommendations on obstacles and development perspectives of PE in the mobility sector in Naples.
- **Educating science-society relations and public engagement (Turin)** – the sixth pilot initiative was organised to test the possibility of using PE mechanisms to raise the awareness of and transferring knowledge to young students on the complex and changing relationships existing between science and society. The opportunity to make such a test was given by the Scientific Summer School (SSA), a week-long informal education initiative targeted at high school students that Agorà Scienza organises each year in Turin with the participation of researchers from different universities. The rationale of the pilot project was that of directly involving the researchers concerned with the SSA in a common reflection on their own experiences in science communication and science engagement and their views of science-society (S&S) relationships. This was in order to hear their suggestions on how to raise the awareness and increase the knowledge of students on science-society relationships and to put such suggestions into practice by adopting PE mechanisms in the framework of the 2015 edition of the SSA. The pilot project pursued the following objectives:
 - To test how to put science-society relations at the centre of training and education initiatives also via PE-based initiatives;
 - To open a space for dialogue for the researchers involved in the SSA on PE and S&S relationships, encouraging exchanges of ideas and good practices;
 - To enable researchers involved in the Summer Science Academy to contribute through suggestions, comments and proposals in the planning of the 2015 edition;
 - to stably insert PE methods and S&S-related issues as key features of the future editions of SSA;
 - to allow the students participating in the SSA to live a direct PE experience.

3.2. Results of the context tailoring workshops

Typical of any participatory activity, the context tailoring workshops resulted in a wide range of outcomes, yet not all of them can be reported here. First, in all cases networking and capacity building were among the main contributions. In Finland, for example, it was a highly empowering process for the stakeholders of the three pilot initiatives to meet each other, share experiences and learn from each other and from an international community of living labs. Some participants had more than 20 years' experience with public and stakeholder engagement activities. Second, new perspectives and insights were gained on the potential and limitations of public engagement

activities, and how they can be implemented in different types of research and innovation contexts. Third, practical tips and advice on how to manage innovative PE processes practically were forthcoming.

Even though the daily networking and capacity building activities are critical for the success of PE activities, it is beyond the scope of this report to explore such activities in depth. Instead, we have focused on the main content of the discussions in the two structurally organised workshops that were implemented as part of three pilot initiatives under study. One was held in Helsinki, Finland and the other in Turin, Italy.

3.3. Conclusions to be drawn from the context-tailoring workshops

The experiences from the PE2020 context tailoring workshops in Finland and Italy can be summarised with the following observations. Public engagement tools are always tested in their own context, and the results are at best undetermined. These workshops did not produce the exact information for guidelines which would enhance the implementation of the ongoing pilot initiatives. Instead, the pilot initiatives were set in relation to each other on the basis of the information received in the context tailoring workshops.

Based on the workshops, some guidelines can be sketched out for future workshops. First, from a knowledge-sharing perspective, it is beneficial to bring together actors from different sectors to discuss and share information on public engagement methodology and its links to the current science policies and the broader context of building civic capabilities for the citizens in western societies. Workshops are also useful for building new networks that can be utilised in planning future public engagement activities.

Second, such workshops with a wide array of participating actors may also be useful in trying to anticipate possible obstacles in designing and implementing public engagement processes. We argue that having wide participation in the design phase of the research and innovation process is important particularly in the area of trying to solve large-scale societal challenges that transcend the boundaries of multiple policy areas. This highlights the need for context tailoring workshops.

Third, based on the findings at the workshop, organising context tailoring workshops may motivate actors at research organisations to become acquainted with the rationales of public engagement and the span of available methods in that field.

In future workshops, when planning pilot initiatives, which are still at an early stage, it might be beneficial to be more oriented to giving feedback on issues at the practical level. There should also be sufficient time for general discussion.

4. Realisation of the pilot projects

Each of the seven pilot initiatives has been analysed by using a systematic analytical framework in separate reports that have been published previously on the PE2020 website. Links to these reports can be found below.

1. Promoting science-society dialogue with blogs among early-career researchers on Baltic Sea research (<https://pe2020.eu/wp-content/uploads/2016/06/Report-Bonus-Pilot-Project-Final2.pdf>)
2. Living lab of Global Change (https://pe2020.eu/wp-content/uploads/2014/02/Pilot-reporting_GC_final.pdf)
3. Joint Programming Initiative (JPI) More Years, Better Lives (MYBL) (https://pe2020.eu/wp-content/uploads/2014/02/JPI_MYBL_160916_final.pdf)
4. Societal Interaction of Science in Strategic Research Council funded projects (https://pe2020.eu/wp-content/uploads/2014/02/Soc-interaction-at-SRC_160916_valmis.pdf)
5. Empowering young researchers on PE in energy efficiency (https://pe2020.eu/wp-content/uploads/2014/02/Report-Rome-Pilot-Project_FINAL.pdf)
6. Dialogue Workshop on mobility and transportation (https://pe2020.eu/wp-content/uploads/2014/02/Report-Naples-Pilot-Project_FINAL.pdf)
7. Educating science-society relations and public engagement (https://pe2020.eu/wp-content/uploads/2014/02/Report-Turin-Pilot-Project_FINAL.pdf)

5. Discussion and Conclusions

In Work Package three the focus was on identifying pilot projects that exhibit new and innovative ways of engaging with their determined publics in an effective manner. The objectives were

- to test and refine innovative PE tools and processes in research programme contexts,
- to evaluate the feasibility of using such tools in other countries, and
- to gain further understanding of the relevance of contextual factors in designing PE processes.

Seven pilot projects were closely studied, in direct collaboration with the central staff of each project. In other words, the intention was to deal with the projects as more than objects of research and to engage in dialogue with the proponents of the projects with the aim of enabling mutual learning as well as development of public engagement activities. This approach enabled a more in-depth, dual working method that 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)*. Some lessons learned can be drawn from the design and implementation process of the pilot projects, which may be useful in connecting innovative public engagement approaches and dynamic governance.

Overall, during the analytical process of the pilot initiatives we have been able to identify innovative PE methods that have 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 vary 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 of the pilot initiatives the PE methods that were chosen and applied in the research projects were found to be useful for the projects in question. In four of the seven pilot initiatives collaboration with the PE2020 project was reported to have directly positive effects. While all of 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 apply new working methods was visible in both on-going research projects (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, for example, the BONUS pilot initiative. Regarding the use of ICT technology (including social media platforms), the extended dissemination and opportunities were improved especially for young researchers of the projects.

The working environment and programme context of the pilot initiatives has played a crucial role in the way in which researchers have reacted to the PE methods. In the contexts of the pilot initiatives, the role and methods of PE have been conceptualized in ways that promote active and continuous involvement with actors outside the scientific community. The programmes have encouraged research projects to enhance public engagement tools by providing a safe platform in which to try new ways of collaborating with external stakeholders.

As a result of a changing environment, which places active involvement with societal stakeholders at the core, the researchers have responded with creativity. The funding programmes have provided the applicants with ground rules but left them much room for creative, out-of-the-box solutions for how to engage in practice publicly. This systemic change has caused confusion among some, while those who received the funding have embraced the new-found freedom to test new methods that go beyond what the funders expected. The space for creative thinking and open testing can be seen as a prerogative for the positive attitude of researchers to prosper and be turned into functioning working methods.

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 first phases have shown the ability to develop both their knowledge and skills in public engagement. A major contributing factor 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 organised 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 what type of societal impact was being strived for with the project. Simultaneously, the workshops have been a channel and tool to engage with stakeholders and partners from the very start of the project. In several cases, initial workshops were held prior to receiving the funding decisions, i.e. before the actual start of the project. Hence, 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 context tailoring work shop formed a particularly part of the WP3 programme, and it was built to identify and justify the methods before testing the PE tools in pilot initiatives. In this case, the Living Lab concept was a reasonable choice, because it formed an interesting design and discussion between the Living Lab and public engagement approaches. The processes of knowledge production have changed. This has caused both concern and excitement in the scientific community as it has been difficult to foresee how the change would affect the scientific process and neutral approach. From the pilot initiatives it is evident that the application of innovative PE methods has in fact not hindered the scientific process. It has become necessary to weigh scientific quality against the openness of science. As such, researchers have been provided with the task of making the scientific process more understandable and arguing for the value of this process in a rapidly changing environment. When these demands have been coupled with a new type of funding instrument as in the pilot initiatives, an improvement in the quality in the process of research projects can be seen. The research groups have developed new working methods and models for public engagement as part of the scientific work. They show an improvement in project leadership and complex knowledge management. The pilot initiatives discussed in this report were all different, and the common feature among them was to produce benefits for different actors. The feasibility criterion was a strength for all of the pilot initiatives.

The organisation of the pilot initiatives was considered to be 'product development', where 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 where the logic of co-creation was

outspokenly present. In addition to producing systematic, comparable knowledge from the seven pilot projects, the WP3 efforts 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. Hence, we have added analysis on the changes that are taking place in the role(s) of knowledge producers as these are reflected in the ways in which questions are formulated in innovative research projects applying public engagement tools. This analysis is further linked to discussions on how such changes affect universities as organisations and main architects of science.

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.

Identifying a basic cultural platform. The success of a PE initiative is pivotally linked to the capacity to integrate the participants' interests, expectations and basic concepts with each other. Doing this successfully is dependent on the research team and partners knowing and acknowledging their own needs as well as those of the cooperating actors. Mutual respect must be balanced with shared interests and a joint commitment to keeping an open dialogue going. Hence, a PE initiative needs to be understood as an interpretive and interactive negotiation, which allows the defining of a common approach about the key meanings of the PE activities. These could include issues such as what public engagement means in general, what the objectives of the specific PE initiative are in the particular case, what results can be reasonably expected and why partners participated in it. This contextualisation should be a requirement for any PE as it serves the purpose of team building that is necessary for the joint efforts to be effective. In the case of the pilot initiatives, such a platform has been developed through preliminary meetings, interviews with key participants/partners, and collection of feedback through open dialogue.

Embedding PE initiatives in a broader change perspective. People and stakeholders do not want to test new approaches, tools and procedures for themselves. They tend to participate when they see that there is something real at stake and that their participation matters, either by having an effect towards positive change or by seeing the results of the PE benefit their own activities. It is therefore necessary to embed PE initiatives in broader processes or programmes targeting even small, but clear and realistic aims of change. This broader perspective and goal should be stated in a way that is easily understood also by non-experts and that motivates them to commit to the joint efforts.

Incorporating the private sector in public engagement. For historical and ideological reasons, the concept of public engagement is primarily used for referring to the participation of the public or civic and policy players in science and technology. Other concepts, such as societal impact or the "third mission" are used for referring to the relationships between business and research or to the professional collaboration of researchers in society. The pilot initiatives indicate that these boundaries are blurred and irrelevant in broader societal contexts and can even be counterproductive. At the same time, local university representatives tended to distinguish artificially between their relations with industry on the one hand, and those with civic organisations and the public at large on the other hand. While the distinctions may be academically interesting, they serve the practical purposes and goals of PE poorly. Instead, the building of PE activities should be focused on building bridges between science-industry, science-public relations, and science-public administration. In institutional terms, for example, this can mean creating a unique space to

manage both or coordinating the training of researchers for PE and facilitation. In substantive terms it can lead to a systematic identification of interaction options and synergies between public engagement and innovation at a local level.

Taking professional and disciplinary resistance seriously. The pilot initiatives highlight the need to take professional and disciplinary resistance seriously. Scientists are often interested in PE but tend to consider it as an optional and marginal aspect of their professional activities (a more advanced form of public communication). It should be taken into account that PE is not a form of academic merit, and thus scientists need to be motivated with other arguments. Two key indications emerge. First, greater effort from research institutions and scientific associations is needed to legitimate public engagement socially and professionally as a modern practice in science and technology. In order to overcome the resistance, it is necessary to understand the reasons for it, and address them respectfully without losing sight of the goals of the PE approach. Secondly, funding bodies should specifically address the linkage of public engagement to societal issues that scientists intend to solve with their research findings.

Reducing the use of participants'/partners' time. The pilot initiatives suggest that the most limited resource for organising PE initiatives is time. This seems to be a purely logistical issue and represents a major cultural barrier to public engagement: scientists, administrators, and many stakeholders have limited time and do not prioritise PE enough to participate. This aspect should be taken into account in order to create a plan that is feasible to implement in practice and with success. In terms of planning, it means taking the necessary time into consideration while scheduling the activities, including preparation, implementation and follow-up. Goal-orientation is of the essence. Methodologically it means using virtual communication such as emails, Skype meetings and shared online platforms as much as possible. However, the need to have personal and face-to-face contact should not be under-estimated as these are crucial for building mutual trust and a shared commitment to the issue. Documentation should be circulated but with consideration for what is necessary and of use to which groups. In other words, even in an open atmosphere, the time-management of professionals means they rarely want to be overloaded with messages and would prefer it if communication was strategic. However, getting first reactions before the organisation of meetings is important so as to make meetings to-the-point and effective. This also shows respect for the limited time of participants/partners as they will be able to prepare properly. As regards logistics, finding easily accessible host venues should be considered with the aim of the event in mind. The organisers should consider what tacit messages they send with the choice of venue, and choose locations that serve the goals of the particular event.

The importance of motivation and investing in a positive attitude should never be underestimated. Motivation should be upheld throughout the process. This means identifying the different stages of the PE and what type of activity is apt for motivating participants to continue. It is crucial to show that the process is moving forward, how the participants' involvement is making a difference and what types of actions are necessary in the next phase. Actions should be planned so that they place value on the process, the substance and the working method in a balanced manner. It has clearly been shown in the pilot initiatives that the importance of having a positive, constructive attitude as well as helping the participants / partners as well as the researchers see their role in the PE process is central to success.

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