Public Engagement Innovations for Horizon 2020

Summary Report of the Activities and Deliverables in WP4

D4.3

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The PE2020 Project

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Project consortium:

UNIVERSITY OF HELSINKI	UH	University of Helsinki, Finland
TARPTAUTINIO VERSLO MOKYKLA IBS	VU IBS	Vilnius University International Business School, Lithuania
LSC	LSC	Laboratorio di Scienze della Cittadinanza, Italy
UNIVERSITY OF LAPLAND LAPIN YLIOPISTO	UL	University of Lapland, Finland

The PE2020 project

PE2020 was conceived with the aim to identify, analyse and refine innovative public engagement (PE) tools and instruments for dynamic governance in the field of Science in Society (SiS). PE2020 analyses the PE tools and instruments through a systemic and contextual perspective, and contributes to the potential and transferability of new governance innovations. PE2020 is allowing to create new knowledge of the status quo and trends in the field of PE in science, refines innovative PE tools and instruments and propose new ones.

The project is doing this by (1) 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 solve the looming problems related to the grand societal challenges of the Horizon 2020. In order to ensure practical relevance, the project is based on an intensive co-operation between researchers and science policy actors. PE2020 is expected to expand 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.

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Introduction

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

Work package (WP) 4 has been precisely devoted to develop such a Toolkit. This document represents the WP4 Summary report, providing a description of the activities carried out as well as of the deliverables produced under this WP.

This document is organised in **four sections**.

- **Section one** describes the **aims** of WP4 and the **activities** carried out for the PE2020 Toolkit design process.
- **Section two** provides a description of the **theoretical approach** developed all along the development of the WP.
- **Section three** dwells upon the **two deliverables** included in the WP, in addition to this one.
- **Section four** summarises some of the main issues emerged from the WP.

Section One

Aims and activities

1. Aims

The main objective pursued through the Public Engagement Innovations for Horizon 2020 (PE2020) project was "to identify, analyse and refine innovative public engagement (PE) tools and instruments for dynamic governance in the field of Science in Society (SiS)".

In this framework, WP4 pursued the key aim of **disseminating to a large audience**, in an as effective and accessible way as possible, **both theoretical and practical information on PE** (on, e.g., what PE is, why it is important, how to promote it, how to evaluate it, how to transfer innovative PE practices, etc.) in order to support the diffusion of public engagement within the European Research Area, to mobilise the interest on PE of the key actors concerned with science and technology and to favour innovation process in this field.

In developing the toolkit, the team largely leveraged upon both the main results emerging from PE2020 and the large amount of knowledge and information generated in these last decades by scientists and practitioners specialised on public engagement and, broadly speaking, on the governance of science.

2. Activities

2.1. Preliminary activities

WP4 was originally planned to be started in month 15 (April 2015) and to be completed in month 34 (November 2016). However, already before the starting date, a set of **preliminary activities** have been carried out:

− 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), conducted between January and December 2014; its preliminary results have been presented at the First PE2020 Steering Committee (Kick-off) Meeting (held in Helsinki on March 5-7, 2014) while the final results have been presented in the framework of the Second PE2020 Steering Committee Meeting (held in Aarhus on January 29-30 2015); a refinement of the analysis has been done in February 2015

− The development of a **detailed work plan** of WP4, conducted between May and July 2014, on the basis of the PE2020 Kick-off Meeting

− An **analysis of the outputs of D1.2, Public Engagement Innovations – Catalogue of PE initiatives**, carried out between January and April 2015, from the perspective of the development of the Toolkit (the final version of D1.2 was delivered on June 2015)

− An on-going **analysis of the results coming from the implementation of six PE pilot initiatives** carried out under WP3 between March 2015 and April 2016.

2.2. Phase 1 – Toolkit designing process (April 2015 – March 2016)

Phase 1 of WP4 was fully devoted to the **design of the Toolkit**. This phase started on April 1 2015 and ended on March 3 2016. It included the following activities:

− Development of the first draft of the Toolkit Design Document (April 1 - July 30, 2015)
− Presentation of the contents of the Toolkit Design Document at the PE2020 Third Steering Committee Meeting, held in Vilnius on November 2 and 3, 2015
− Development of the second draft of the Toolkit Design Document on the basis of the discussion held in Vilnius (January 24, 2016)
− Revision of the second draft by the project coordinator (February 28, 2016);
− Uploading of the Toolkit Design Document as deliverable D4.1 (March 3, 2016).

2.3. Phase 2 – Toolkit development process (February 2015 – July 2016)

In Phase 2, the development process of the Toolkit has been activated and completed, producing a text already prepared for being adapted to a web-based access. The Toolkit is organised in an introduction and four main sections. The drafting process started on February 2 and was completed on June 30 2016. The drafting process involved Luciano d'Andrea and Giovanni Caiati.

All along the drafting process, between April 4 and June 25 2016, a parallel revision process has been conducted internally to LSC, involving Marina Cacace and Federico Luigi Marta.

The contents of the Toolkit were presented to and discussed with the PE2020 Consortium members at the Fourth PE2020 Steering Committee Meeting held in Rome on May 19 and 20 2016.

On July 1 2016, the text of the Toolkit was sent to the PE2020 Project Coordinator for a first revision. The text was sent back to the authors on July 13 and the second version was ready by July 15.

2.4. Phase 3 – Selection process of the web-services provider (June 2016 – September 2016)

Between June 1 and September 15, 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 (May 2016); the drafting of the call for tender (June-July 2016); the launch of the tender (July 14); the gathering of the proposals (August 31); the selection of the provider on the basis of the proposals (September 7); the contact with the selected provider for the establishment of the contract (September 30).

Three organisations presented a proposal in duly time and shape, i.e. Kaskas Media (Helsinki, Finland), Wunderkraut Finland Oy (Helsinki, Finland) and Danish Board of Technology Foundation (Copenhagen, Denmark).

The **Danish Board of Technology Foundation** (DBT) was finally selected.

2.5. Phase 4 – Toolkit revision process (September 2016 – December 2016)

The first version of the Toolkit was made available by DBT on November 1, 2016.

As specified in the Description of Work, WP4 also included a revision of the Toolkit web-site on the part of "a restricted group of potential users". A number of reviewers included between 5 and 10 was therefore considered appropriate by the WP leader, after consultation of the project coordinator.

In order to attain this target, on October 17, 36 researchers from different disciplines and experts in science-in-society have been contacted by email to involve them in the Toolkit revision process. Overall, 15 of them accepted to cooperate and 8 of them provided their comments, i.e.:

− Sveva Avveduto (National Research Council, Rome, Italy)
− Christophe Cassen (Centre International de Recherche sur l'Environnement et le Dévelopment, Paris, France)
− Marilia Cunha (Portuguese Society for Innovation, Porto, Portugal)
− Suzanne de Cheveigné (Centre Norbert Elias, CNRS, Marseille, France)
− Max Gruenig (Ecologic Institute, Berlin, Germany)
− Martin Hynes (European Science Foundation, Strasbourg, France)
− Saara Koikkalainen (University of Lapland, Rovaniemi, Finland)
− Constanze Scherz (Institute for Technology Assessment and Systems Analysis, Karlsruhe Institute of Technology, Karlsruhe, Germany).

All the comments have been given before December 22.

It is also to highlight that the first version of the Toolkit has been also 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 groups of participants.

2.6. Phase 5 – Web-based Toolkit delivery (December 2016 – January 2017)

All the comments sent by reviewers have been processed between December 27 2016 and January 10 2016, leading to the draft of the final version of the web-based Toolkit, which was online starting from January 20 (http://toolkit.pe2020.eu/).

Under WP5 (Dissemination and communication), a specific reinforced dissemination programme has been set up and implemented in order to disseminate information about the delivery of the web-based toolkit.

Section Two

Theoretical Approach

WP4 was based on a theoretical approach which evolved all along the development of PE2020. We can operationally distinguish **four main steps** leading to the final theoretical approach providing the basis to the Toolkit, i.e.:

- Step 1: the project proposal (January 2014)
- Step 2: the analysis of the existing toolkits on PE with science and technology (Second Steering Committee Meeting, Aarhus, January 2015)
- Step 3: the analysis of the PE2020 project results (Third Steering Committee Meeting, Vilnius, November 2015)
- Step 4: the development of the Toolkit (Fourth Steering Committee Meeting, Rome, May 2016).

1. The project proposal

In the project proposal, the Toolkit was mainly viewed as an instrument "to capitalize the knowledge generated through the activities carried out in the previous WPs through the development of a highly usable Toolkit that policy actors can use in the identification and transfer of PE practices".

The overall focus of PE2020 was and remained that of promoting **innovative PE tools and instruments** allowing an overall enhancement of the governance of research institutions.

In order to attain this overall objective, PE2020 project included a set of actions precisely aimed at providing a sound theoretical and empirical basis about innovative PE, i.e.: a general catalogue of advanced PE tools and approaches (WP1); an in-depth analysis of innovative PE initiatives (WP1); a conceptual analysis and refinement of the concepts turning around innovative PE (WP3); the implementation of a set of pilot projects aiming at better understanding the dynamics connected to the application of innovative PE tools (WP3).

In this general context, the Toolkit was therefore conceived as a practical instrument to help research managers, policy makers and individual researchers "to identify, evaluate and successfully transfer innovative PE practices among European countries", leveraging upon the outputs of the previous WPs.

2. Analysis of the existing toolkits on PE with S&T

The theoretical approach was undoubtedly enriched thanks to an extensive analysis carried out between January and December 2014 on the existing toolkits (or other guidance-like documents such as handbooks, resource tools and guidelines) developed in the last years on PE with science and technology.

The aim of this analysis was mainly that of understanding the kind of knowledge on PE disseminated through this kind of practical documents and the view of PE (especially innovative

PE) underlying such documents, in order to better grasp the possible **added value** of the PE2020 Toolkit.

Initially, 30 documents were identified. Of them, a group of 18 documents have been then selected and analysed in details. This group included the texts listed in the following table.

Table 1 – List of the 18 guidance-like documents on PE with science and technology analysed

Toolkit no.	Name of toolkit	Country	Internet address	Source
T1	Toolkit of the National co-ordination centre for PE (online)	UK	http://www.publicengagement.ac.uk/how-we-help	National co-ordinating centre for PE
T2	Guide to planning public engagement (online)	UK	http://www.esrc.ac.uk/funding-and-guidance/impact-toolkit/what-how-and-why/public-engagement/guide/index.aspx	Economic and Social Research Council
T3	Engaging the public with your research (pdf)	UK	http://www.nerc.ac.uk/latest/publications/resources/engaging-the-public/	National Environment Research Council
T4	Science Engagement Toolkit (online)	AU	http://www.science.gov.au/education/Pages/scienceEngagement.aspx	Australian Department of Industry
T5	Urban research URP Toolbox (online)	AU	http://www.planningtoolexchange.org/resource/urban-research-program-toolbox	Griffith University
T6	Sciencewise (online and parts in pdf) + Departmental Dialogue Index Tool	UK	http://www.sciencewise-erc.org.uk/cms/about-dialogue	Sciencewise
T7	Doing Public Dialogue. A support resource for research council staff (pdf)	UK	http://www.involve.org.uk/wp-content/uploads/2012/01/120727-RCUK-Resource-FINAL.pdf	Research Council UK, Involve, CSaP, Sciencewise
T8	OECD Planning guide for public engagement and outreach in nanotechnology (pdf)	UK	http://www.oecd.org/sti/biotech/49961768.pdf	OECD
T9	Public Participation in Scientific Research (pdf)	US	http://informalscience.org/images/research/PublicParticipationinScientificResearch.pdf	CAISE
T10	Citizen Engagement Handbook (pdf)	CAN	http://www.cihr-irsc.gc.ca/e/documents/ce_handbook_e.pdf	Canadian Institute of Health Research
T11	A guide to Good Practice in PE with Physics (pdf)	UK	http://www.iop.org/publications/iop/2011/file_50861.pdf	Institute of Physics
T12	The engaging researcher. Inspiring people to engage with your research (pdf)	UK	http://www.bris.ac.uk/researchstaff/yourcareer/vitae-booklets/engaging-researcher.pdf	Vitae Researcher Development Framework
T13	Dialogue with the public: practical guidelines	UK	http://www.rcuk.ac.uk/RCUK-prod/assets/documents/scisoc/dialogue.pdf	Research Councils UK

Toolkit no.	Name of toolkit	Country	Internet address	Source
T14	Public engagement lens on the Vitae Researcher Development Framework	UK	https://www.vitae.ac.uk/vitae-publications/rdf-related/public-engagement-lens-on-the-vitae-researcher-development-framework-rdf-apr-2013.pdf	Vitae Researcher Development Framework
T15	Dialogue in Public Engagement. Beacons for Public Engagement (pdf)	UK	http://edinburghbeltane.files.wordpress.com/2011/11/dialogue-handbook-final.pdf	Edinburgh Beltane
T16	Public Engagement Training: the Handbook	UK	http://www.bbsrc.ac.uk/web/FILES/Guidelines/pe-training-handbook.pdf	Biotechnology and Biological Sciences Research Council
T17	Participatory Methods Toolkit . A practitioners' manual	BE	http://archive.unu.edu/hq/library/Collection/PDF_files/CRIS/PMT.pdf	King Boudouin Foundation – viWTA
T18	Public Dialogue and Delibera-tion. A communication pers-pective for public engagement practitioners.	UK	http://www.ed.ac.uk/polopoly_fs/1.128804!/fileManager/eResearch_Oliver%20Escobar.pdf	Beacons for public engage-ment, QMU

(The last access to the websites listed in the table has been made on December 20, 2016)

The analysis was focused on the following issues:

- The conceptual models of PE the documents relied upon
- The benefits deriving from PE mentioned in the documents
- The approach proposed for implementing PE
- The involvement levels of participants (i.e., at what stage of the research process or policy programme people may be involved)
- The specific tools considered
- The critical aspects mentioned in the analysed documents.

The results of this analysis were presented at the Second Steering Committee Meeting held in Aarhus in January 2015.

From the theoretical and methodological point of view, **four main issues** can be mentioned here.

- **Event-based approach**. The editors of the analysed documents tend to "imagine" a specific "ideal-typical" application context of PE, i.e., the organisation of a PE event, to be held once in a while or periodically, lasting one day or some weeks as a whole. To a certain extent, editors take for granted that PE materialises through an event or a series of events. These events are totally autonomous, in the sense that they do not affect in any way how the promoting organisation or the target organisations work, take their own decisions or organise themselves.

− **Technical/professional orientation**. The editors largely adopt, so to say, a "technical orientation, providing information and directions on how to organise PE events, mainly using a project management approach. Organising a PE initiative is then presented as a professional activity, mainly related to communication techniques and skills. The political nature of public engagement and its strong connections with the governance of science and innovation or with the research process are overlooked or, in some cases, totally ignored.

− **Detachment from policy challenges facing research institutions**. The editors seem also 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. Connections with policies are sometimes considered, but only in theoretical and abstract terms. This same attitude can be observed (with some exceptions) when national and European policies are concerned. Consequently, in the examined texts, a certain vagueness can be noticed about the specific objectives of a PE-based strategy, i.e., why engaging stakeholders and the public should be necessary or at least useful.

− **Uncritical attitude**. The editors tend to display an uncritical attitude towards PE, i.e., an attitude where little attention is given to critical aspects involved with PE, apart from those of a mere technical/professional nature (e.g., language adopted, ineffective interpersonal behaviours, lack of relevant information for taking a decision, etc.).

This analysis led to some theoretical options for the PE2020 Toolkit, i.e.:

− Considering PE not only in terms of single events but mainly as a **permanent function** to be embedded in research organisations
− Considering PE not an advance form of science communication but as a powerful tool for modifying the **governance of science**
− In this perspective, showing the intimate connection between **PE and policy making**, on the one side, and between **PE and the research process**, on the other side
− Showing the **critical issues** connected with PE, providing a picture of obstacles and barriers to public engagement of social, organisational or political nature (such as active resistances from researchers and leaders, indifference and lack of interest to participate from stakeholders and citizens, poor use of the PE outputs on decisions, lack of institutional support, lack of funds, etc.).

3. The analysis of the PE2020 project results

Another important step in the theoretical approach shaping process was an analysis conducted on the main results emerging from:

− WP1 (D1.1, Inventory of PE mechanisms and initiatives; D1.2, Public Engagement Innovations – Catalogue of PE initiatives)

- WP2 (D2.1, A refined typology of PE tools and instruments; D2.2, A Conceptual Model of Public Engagement in Dynamic and Responsible Governance of Research and Innovation; D2.3., Summary report on conceptual model of PE and factors of participatory performance)
- WP3 (D3.2, Report of the PE pilot cases on societal challenge)

From the analysis of the results from **WP1**, some theoretical points have been considered as relevant for the development of the Toolkit.

- **Role of research institutions**. The analysis primarily showed the need to mainly address the Toolkit to research institutions, which seem to have played a secondary role in promoting PE so far, thus favouring an institutional anchorage of PE.

- **A bottom-up pro-PE movement**. The high number of non-profit organisations as promoters of PE initiatives and the large involvement of voluntary action in PE initiatives recorded in the catalogue of PE initiatives led us to think that a bottom-up movement in Europe is consolidating aimed at favouring the diffusion of PE as a democratic practice within the European science systems. This movement mainly involves NGOs, some research managers and individual researchers, while only marginally involves academic institutions as such.

- **Boundary work**. The results of WP1 showed the importance of highlighting, in the toolkit, how boundary work is ever implicated with PE processes. Without a boundary work, in fact, the high number of stakeholders usually involved in PE may only superficially interact with each other. In fact, PE quite ever requires the creation of a common ground (e.g., shared understanding of the situation, shared objectives, coordination practices, etc.) which can be developed through a partial redefinition of roles, competences and identities which only a boundary work may allow to attain.

- **Societal anchorage**. Finally, the results highlighted the need for promoting a societal anchorage of PE, i.e., promoting PE not only in research institutions but in the society as a whole. Actually, there is not an "enabling environment" for ordinary people to perceive themselves as potential actors in science and technology and then to get involved with them.

The analysis of the results emerging from **WP2** led to two relevant theoretical acquisitions.

- **PE and dynamic governance**. The results from WP2 the intimate connection between PE and all the key elements involved with dynamic governance, i.e., anticipation of changes, reflection of occurring changes, adoption of a transdisciplinary approach and continuity in the dynamic governance actions (through, e.g., institutionalising deliberative democracy-related process and creating enduring professional networks).

- **Features of innovative PE**. Moreover, the results allowed to better identify some significant features of innovative PE, including policy relevance, institutional hybridity, responsiveness to societal challenges, effective methodological solutions and measurable impacts.

Finally, from **WP3**, three main theoretical elements emerged as particularly relevant for the development of the toolkit.

− **Contextualising PE**. The pilot initiatives made clear the necessity to strongly contextualise PE initiatives. There is no PE tool or approach that fits all organisations and aims. In this perspective, contextualising public engagement initiatives from the very beginning is inevitably a step to take in order to avoid or, at least, reduce the risk of wasting time and resources or, worse, activating counterproductive effects. Contextualisation implies a deep preliminary analysis (of, e.g., needs and expectations about PE, available resources and opportunities, existing risks and obstacles, key stakeholders' attitudes and behaviours, or leadership support) leading to a design and implementation process, allowing to effectively identify methods, objectives and key players.

− **Complexity in embedding PE in the organisations**. A second element emerging from the pilots is the complexity of the institutional embedment of PE in research organisations. Public engagement should not be glued on top of existing activities, but it is to be innervated into the practices of research organisations as well as in their culture, languages and ethical standards. Therefore, research organisations must develop their own policies and programmes for making PE a permanent component of their strategies.

− **Participants' motivational grounds and orientations**. Another theoretical aspect concerns participants' motivations and orientations. People's participation in PE initiatives cannot be taken for granted. There should be a supportive environment for public participation (i.e., institutional spaces and practices for promoting what can be referred to as "scientific citizenship"). PE should also be promoted when there are real decision to take or real decision processes to be implemented. Only in this context, participants' motivations and orientations can be takes seriously and not when, for example PE initiatives are organised only for improving the visibility of the promoting organisation or for validating decisions already taken elsewhere.

Many of these issues were discussed in the framework of the Third Steering Committee Meeting held in Vilnius in November 2015, where a first draft of the Toolkit Design Document (D4.1) was also presented and discussed.

4. The development of the toolkit

All these elements, together with a systematic analysis of relevant literature, finally contributed in building up the **theoretical foundation** of the toolkit, which can be summarised in a set of assumptions.

− **Framing PE within the critical state of science as social institution**. From the last decades of XIX century onward, an overall shift is affecting societies which can be operationally termed as the shift from modernity to post-modernity. This process is characterised by many trends, including growth of uncertainty and instability, cultural and social fragmentation,

globalisation and localisation, weakening of social boundaries, and increased weight of cognitive and emotional dynamics. One of them is the crisis of all the "institutions of modernity", including religions, politics, States, trade unions, and economic authorities. Science is one of these institutions. It has lost authority, power and autonomy; it is asked to be more transparent and accountable; in order to function effectively, science is increasingly in need of the support of internal and external stakeholders, users and citizens and to activate large negotiation processes.

− **Reactions to the crisis**. This shift has been depicted in different ways, resorting to concepts like "post-academic science", "mode 2 of scientific production" or "triple helix". All these concepts converge in stressing the need for profound changes in the governance of science, in the relations between science and societal actors as well as in research and innovation practices.

− **The strategic role of PE**. This shift is to be supported, guided and oriented; and PE is precisely one of the most powerful tool for doing it. For PE to play such a role, it is however necessary that:

   • PE is understood, not as a more advanced form of science communication, based on the so-called "deficit model" (which revealed to be ineffective[1]), but as the core of a broader strategy aimed at making science governance more dynamic
   • PE is viewed, not as an event-based activity, but as a process (i.e., a coordinated and continuous stream of actions, communication, negotiations and outputs) and therefore a permanent function within research institutions
   • PE entails a systematic boundary work leading, at least to a certain extent, to a progressive redefinition of the relationships between institutions and, within the institutions, of tasks, roles, forms of cooperation and even power distribution
   • PE is appropriately contextualised at the organisation level and/or at the national level, on the basis of specific diagnosis
   • PE is used only when needed and for coping with real questions concerning the governance of science and/or the research process; using PE in an inappropriate way does not allow to increase neither the quality of the governance nor the level of participation

− **Institutional anchorage of PE**. To allow PE to play this strategic role, its institutional anchorage in research organisation is therefore needed. This may require:

   • at the level of **single organisations**, the activation of structural changes through specific action plans able to allow the organisation, e.g., to devise long term strategies, to establish new organisational units in charge of developing them, to appoint leaders

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[1] See, in this regard: Bucchi, M. (2013), Style in science communication, *Public Understanding of Science*, 22(8); Bauer, Martin W. (2009), The evolution of public understanding of science - discourse and comparative evidence, *Science, technology and society*, 14 (2); Pitrelli, N. (2003), The crisis of the "Public Understanding of Science" in Great Britain, *JCOM*, 2 (1); Bakuva, J. (2014), The Role of Laypeople in the Governance of Science and Technology, *International Journal of Humanities and Social Science*, Vol. 4, No. 5(1); Quaranta, G. (2007), Knowledge, responsibility and culture: food for thought on science communication, *JCOM*, 6 (4).

specifically responsible for connecting PE with the objectives of the organisations or to increase the capacity of the staff to integrate PE programmes and initiatives in their professional life;

- at the level of **research systems**, the activation of PE-oriented policies in science and technology aimed at, e.g., linking together the many PE initiatives ongoing in Europe, creating permanent networks connecting the many organisations involved with PE in science and technology, developing educational curricula and new professions around PE and incorporating new standards based on PE in the procedures of research project selection for funding.

- **Societal anchorage of PE**. It is misleading to think that, once research institutions will be open to public participation this latter will automatically occur. To favour participation in science and innovation, there is the need to make such a participation a current social practice through the development of a "scientific citizenship" (i.e., a set of rights, duties and responsibilities) which could be actually exercised. Measures and policies for promoting scientific citizenship should be therefore developed.

Section Three

Summary of the deliverables produced under WP4

In this section, a summary is provided of the two deliverables produced under WP3, i.e. the Toolkit Design Document (D4.1) and the Toolkit Website (D4.2).

1. The Toolkit Design Document

The Toolkit Design Document (D4.1) includes the design of the Toolkit in all its aspects. The document (made up of 47 pages overall) is organised in four sections.

1.1. Section One – Background

Section one provides the **background** of the PE2020 Toolkit design process.

It summarises:
− in **Chapter One**, the results of the analyses made on a group of existing toolkits on PE in science and technology
− in **Chapter Two**, the results emerging from the Catalogue of PE initiatives carried out under WP1
− in **Chapter Three**, the results of the pilot projects carried out under WP3.

The contents of this section have been already presented above, in the previous section of this Summary Report, under para. 3 ("The analysis of the PE2020 project results").

1.2. Section Two – Analytical framework

Section two of the Toolkit Design Document is devoted to the **analytical framework** of the Toolkit. It includes two chapters, i.e., Chapter Four and Chapter Five.

Chapter Four provides an interpretation of the present state of PE in S&T in Europe. In this chapter, in particular, the following issues are presented and discussed:
− the presence of a bottom-up movement in support of PE
− the increased commitment from EC also in the framework of the Responsible Research and Innovation (RRI) strategy
− the need for a consolidation of PE practices, taking into account, e.g., the lack of standardised or preferential practices, the presence of many obstacles of political and cultural nature or the passive role played by research institutions in sustaining PE
− the present dominant view of PE in research organisations and, sometimes, among PE practitioners and scholars.

Chapter Five discusses the role and strategic set-up of the PE2020 Toolkit on the basis of the background elements presented in Section One and the interpretation of the state of PE in S&T proposed in Chapter Four. The contents of this chapter have been already described above, in the previous section of this Summary Report, under para. 4 ("The development of the toolkit").

1.3. Section Three – Main features of the Toolkit

This section of the Toolkit Design Document is aimed at providing a description of the main features of the PE2020 Toolkit. Four chapters (from Six to Nine) are included in the Section.

Chapter Six is devoted to the identification of the users of the Toolkit. On the basis of the analysis made in the previous chapters, research institutions are identified as the main target of the Toolkit, including top management, key offices (Communication Department, Human Resources Department or University Liaison Office, etc.), department heads and individual researchers. Additional targets are policy makers, experts in public engagement and science communication, science centres, science museums and civil society organisations.

Chapter Seven describes structure and content organisation of the Toolkit. The Toolkit is aimed at providing a set of guidelines on how to develop PE within one's own institution and a set of resources on how to do it in the best way as possible. The toolkit is conceived as organised in an introduction and four sections:

- **Strategic Framework**, providing guidelines and resources for interpreting PE in the current European policy framework
- **Methods and tools**, providing guidelines and resources on PE methods and tools, broadly leveraging on existing toolkits and handbooks
- **Institutional anchorage**, focusing on developing PE as structurally embedded in the governance practices of the institution
- **Societal anchorage**, dealing with PE as an approach for favouring the societal anchorage of PE.

The Chapter also describes the sources on which the Toolkit is based (both internal to the PE2020 project and external to it).

Chapter Eight deals with the style of the toolkit, which is thought in a way allowing different reading levels. The reader may read only the main texts (quick access to the contents), or may access, for each issue, additional contents and resources. Recurrent text patterns (such as "facts and figures", "tips and suggestions", "quotations") are proposed for making the reading easer.

Chapter Nine is devoted to the cooperation with other projects and institutions, the technical requirement of the website and the reviewing process.

1.4. Section Four – The Toolkit development process

The final section is focused on the Toolkit development process. This section includes two chapters.

In **Chapter Ten**, two different timesheets are developed: one concerning the production of the Toolkit and one pertaining to the development of the website from a technical point of view.

Chapter Eleven presents a distribution of tasks among the PE2020 consortium members, taking into consideration the person-months of each member on WP4.

2. The Toolkit Website

The Toolkit Website (D4.2) is the main product of WP4. Overall, the size of the text uploaded on the website is about 700,000 characters (390 pages around). The structure of the website follows that planned in the Toolkit Design Document described above, i.e., an introduction ("The Toolkit") and four sections:

- Section A. Strategic Framework
- Section B. Methods and tools
- Section C. Institutional anchorage
- Section D. Societal anchorage
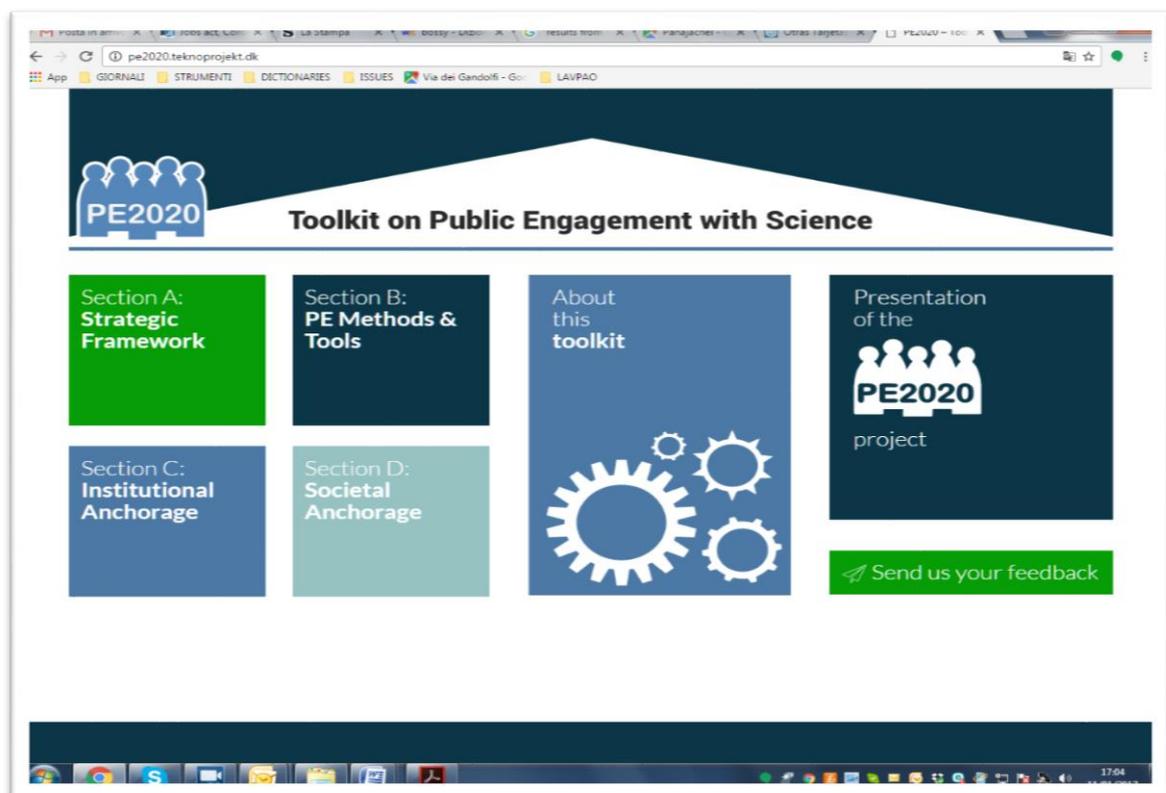
Screenshot of the first version of the Toolkit website

2.1. Introduction – The Toolkit

The introduction is organised in three subsections:
- **Context and aims**. This subsection introduces the issue of PE in the context of the state of science and technology and describes the aims of the Toolkit.
- **The Toolkit and the project**. This subsection presents the PE2020 project and the links between the project results and the Toolkit.
- **Structure and features**. In this subsection, the structure and features of the Toolkit are introduced.

2.2. Section A. Strategic Framework

This section provides guidelines and resources for interpreting PE in the context of the many changes affecting science (which, in turn, are mirroring broader transformations across contemporary societies) and for appropriately placing PE in the current European policy framework. This section includes three subsections.
- **A1. Framing public engagement in a changing context**. This subsection concerns the changes affecting science in the context of the shift from modern to post-modern society.
- **A2. Why public engagement matters**. The focus here is on the importance of PE in creating new bridges between science and society and in dismantling those that are no longer used, adapt or effective.
- **A3. Policy responses**. In this subsection, two key issues are presented: the presence of a pro-PE social movement crossing institutional and national boundaries; the increased commitment of European Union on public engagement in science and innovation.

2.3. 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. This section includes four subsections.
- **B1. Types of public engagement and connections with the organisational processes**. In this subsection, different definitions and types of PE are described and different models connecting PE with the organisational processes are presented.
- **B2. Designing PE initiatives**. This subsection provides suggestions about how to design a PE initiative and how select the appropriate PE tools.
- **B3**. **Implementing PE initiatives**. The focus here is on the critical aspects connected to the implementation of PE initiatives, the skills required to develop PE and the need to ensure a follow up of any PE initiative carried out.
- **B4**. **Monitoring and evaluation**. This subsection deals with the development of an appropriate monitoring and evaluation process all along the implementation of PE initiatives.

2.4. Section C. Institutional Anchorage

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

- **C1. Structurally embedding PE in the organisation**. This subsection explains why PE should become a permanent function of research organisations and how to use the approach of the Action Plan to favour such a process.
- **C2. Activating the process**. This subsection provides suggestions about how to activate an Action Plan, with special reference to three issues: establishing a team; assessing the current procedures, practices and attitudes; designing the Action Plan through participatory approaches.
- **C3**. **Involving leaderships and staff**. In this subsection, the pivotal issue of how involving leaderships and staff in embedding PE in the research organisation is deepened.
- **C4**. **Tools, strategies and sustainability**. This subsection deals with some key components of the process, i.e., identifying the actions to be carried out and the tools to be used, ensuring long-term sustainability to these actions, tailoring the Action Plan on the organisation's need and features, and activating negotiation processes.

2.5. 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 and innovation a current social practice, thus promoting the consolidation of a scientific citizenship. This section includes four subsections.

- **D1. Turning public engagement into a social practice**. This subsection explores the factors hindering the development of PE as a social practice and the link between PE and the building of a scientific citizenship.
- **D2. Communicating science and educating to public engagement**. This subsection deals with the need for enhancing science communication and strengthening training and education in order to favour a societal anchorage of PE.
- **D3**. **Networking and boundary work**. In this subsection, the importance of networking and boundary work is highlighted in order to support an enabling environment for scientific citizenship.
- **D4**. **Promoting the national policies on public engagement**. This subsection deals with the role that universities and research organisations – evidently not alone – may play to promote national policies on public engagement that, in many national contexts, are weak or even nonexistent.

Section Four

Main issues emerged from WP4

WP4 allowed to identify some key issues concerning the development of PE in the current development state of science and technology policies in Europe. Most of them have been already presented in Section Two. However, they deserve to be mentioned in this final section of this document.

- **A gap**. 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.

- **What is at stake.** 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 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.

- **A favourable context**. A third aspect emerging from PE2020 and from WP4 is the existence of a favourable context for bridging this gap and for enhancing the governance of science and the quality of research. Different elements can be mentioned in this regard, such as: the increasing diffusion of PE initiatives in Europe, supported by a largely voluntary pro-PE movement; the increasing knowledge produced by social sciences on PE; the consolidation of a community of practitioners specialised on PE; the existence of a new European strategic framework (the RRI strategy) strongly favouring PE in S&T. We may consider this situation as a "window of opportunities" which however may disappear soon. We could say: if not now, when?

- **A weak practice**. A fourth important aspect which deserves to be coped with is the weakness of PE in its present development stage. PE is still largely based on occasional events, often

of an exploratory nature; it is an optional practice without a clear institutional anchorage; in the great majority of cases, it is not promoted by or targeted to research institutions as such; it meets many obstacles and resistances of different nature (political, cultural, managerial, technical, etc.). Notwithstanding its increased diffusion, therefore, a great effort is needed to consolidate PE, making it a practice or a set or practices ordinarily adopted in making science and in taking decisions concerning science. This aspect may perhaps not in line with the view of PE which is dominant among PE scholars and practitioners. However, it is to admit that the "deliberative turn" in science and innovation has not yet really occurred.

− **Putting research institutions in the forefront**. Another element derived from WP4 (and from the PE2020 project as a whole) is the marginal role of research institutions in promoting PE. As a matter of fact, the main actors presently active are NGOs and civil society organisations, the European Commission (which promoted many PE-centred projects) and many individual researchers. Apart from the specific case of UK research organisations, few European research institutions are structurally committed with PE. Their commitment is prevalently linked to specific event, is not connected to long-term strategic objectives, is not based on reliable internal diagnosis and is, in any case, discontinuous and extremely limited. Researchers are therefore not supported (if not explicitly discouraged) in initiating and developing PE initiatives and their effort is anyhow not professionally recognised. Then, the key question underlying WP4 has been that of how to make research institutions active players in the PE-oriented policies.

− **Understanding institutional change**. A sixth issue can be identified on the basis of the previous one, i.e. the need for research institutions to be more systematically engaged in activating institutional changes connected to PE, i.e., changes which make PE: 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. This does not mean that PE has to be applied ever and under any circumstance. On the contrary, it is to be applied only when necessary. But for understanding when and how PE is necessary, it should become a stable component of the life of research organisations and research systems, which cannot be removed, for example, simply because of a leadership turnover or a reduction of funds.

− **PE and society**. The last issue to be highlighted is the non-linear relation between PE and society. As we already said, the will of people to participate is often taken for granted, as if all the obstacles to participatory processes are placed in research institutions or relevant policy institutions. This is not always true. People 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 create the conditions for people to participate and to contribute in changing the governance and practices of science.