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Synthesis Report on citizens' views of engagement in research-related activities

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Abbreviations

CD – Citizen Dialogue

CEB – Citizen Evaluation Board

CPM – Citizen Panel Meeting

PPO – Policy and Practice Options

PROSO – „Promoting Societal Engagement under the Terms of Responsible Research and Innovation“

R&I – Research and Innovation

RRI – Responsible Research and Innovation

SC – Science Café

WP – Work package

1. Introduction

1.1 Background

Public engagement has attracted ever more attention in academic and policy circles. There have been significant efforts to promote it on the European, as well as the national research and innovation landscape. As part of the Responsible Research and Innovation (RRI) paradigm, public engagement has gained new momentum and is hoped to contribute to establishing new standards in research and innovation (R&I), bringing the voices of the wider public into scientific discourses and establishing a partnership between science and society for the benefit of both.

To come up to these expectations, the public engagement community needs to go beyond conventional wisdom and already established practices, it needs to challenge itself and gain better understanding of core questions, such as who the ‘public’ is, what their expectations are, how they see their role in the field of R&I, what motivates them to participate in public engagement initiatives and which the factors that constrain their participation are.

The PROSO project has been a move in this direction. Our main objective has been to promote engagement of third sector organisations (TSOs, “organised” citizens) and lay (“non-organised”) citizens by developing novel policy and practice options, which are based on sound research taking TSO’s and citizens’ views and standpoints into account. We have engaged both TSOs and citizens through complex methodologies (incl. interviews and focus groups) and studied in-depth their perceptions and views on the roles they play in the process of R&I, as well as the factors motivating and hindering their engagement in R&I¹.

To achieve this main objective of the project, PROSO partners in 5 countries (Austria, Bulgaria, Germany, Portugal and the UK) organised a series of meetings (so-called citizen panel meetings or CPMs) where citizens in small groups deliberated on engagement opportunities, as well as on potential approaches to respond to a number of challenges to public engagement.

1.2 About this report

The current report presents the main results of the citizen panel meetings in the 5 countries in the PROSO project (Austria, Bulgaria, Germany, Portugal and the UK). It is based on a thorough review of reports from citizens’ discussions and aims to contribute to the development of the key project output – a Policy and Practice Guide for promoting societal engagement under the terms of RRI. The report is the result of a continuous effort of partners

¹ For more information on the barriers and incentives for engagement of TSOs in the three R&I domains, please see PROSO D3.2 at <http://www.proso-project.eu/publications/>.

in the project, who collaborated intensely in all stages of the process, including the design, preparation, implementation, reporting and reviewing of results.

2. Methodology

The current section briefly describes the methodology used for conducting the empirical work related to citizen engagement in PROSO. This methodology² has been developed by DIALOGIK in collaboration with other PROSO partners to serve for the purposes of the project and achieve PROSO's objectives.

2.1 Major milestones in the research design

The methodology of the citizen panels consists of 3 main stages. These are:

- 1) **1st Citizen Panel Meeting (CPM)** was organised in October/November 2016 in the above mentioned countries. Citizens discussed their views on different formats of public engagement in the fields within the focus of PROSO, namely bio-economy (and in particular synthetic biology), nanotechnology and food and health.
- 2) **A Joint Expert Workshop** was organised in early December 2016 in Sofia, Bulgaria to review the results of the first national citizen panel meetings and start formulating options for fostering public engagement, taking into account citizens' perspectives.
- 3) **2nd Citizen Panel Meeting** was organised in February 2017 in the 5 countries following the Joint Expert Workshop, where citizens discussed several challenges for public engagement and policy and practice options to address these challenges.

Figure 1 A graphic illustration of the major milestones in PROSO's research methodology on citizen engagement.



² More details on the PROSO methodology can be found at: http://www.proso-project.eu/wp-content/uploads/proso_d4.1_methodology_citizen_panels.pdf and http://www.proso-project.eu/wp-content/uploads/wp4_manual_citizen_panels.pdf.

2.2 First citizen panels

The first citizen panel meetings aimed to respond to the following questions:

- What barriers and incentives for participation do citizens' views point at?
- What role do *categories of engagement* (varying by engagement objectives, engagement intensity and link to decision-making) play for citizens' motivations to participate? What role do they play in terms of barriers for participation?

While this was our main research focus, we also designed the methodology so as to look into what role the *subdomains of R&I* (more particularly the perceived life-world relations of these subdomains) and the different *engagement cultures and traditions* play for citizens' motivations and perceived barriers to participate.

In each country around 18 participants were selected according to a set of recruitment criteria (e.g. age, gender, educational level) and took part in the two national-level citizen panel meetings. Citizens in each country were divided into three groups, organised as focus groups. Each group of participants dealt with only one of the three R&I domains in the focus of PROSO, namely synthetic biology, nanotechnology and food and health, throughout the event and discussed all *three* engagement formats (categories) from the perspective of this subdomain.

Each focus groups responded to the same set of questions from the point of view of a different research area. The research areas were presented to the participants via short info-texts describing particular examples of application of the research fields with each of these examples corresponding to a different life-world relation. These were: "Synthetic biology for green energy?" (in the field of bio-economy) with a rather low life-world relation; "Addressing pollution with nanotechnology?" (in the field of nanotechnology) with a rather medium life-world relation; and "New foods to promote better health?" (in the field of food and health) with a rather high life-world relation.

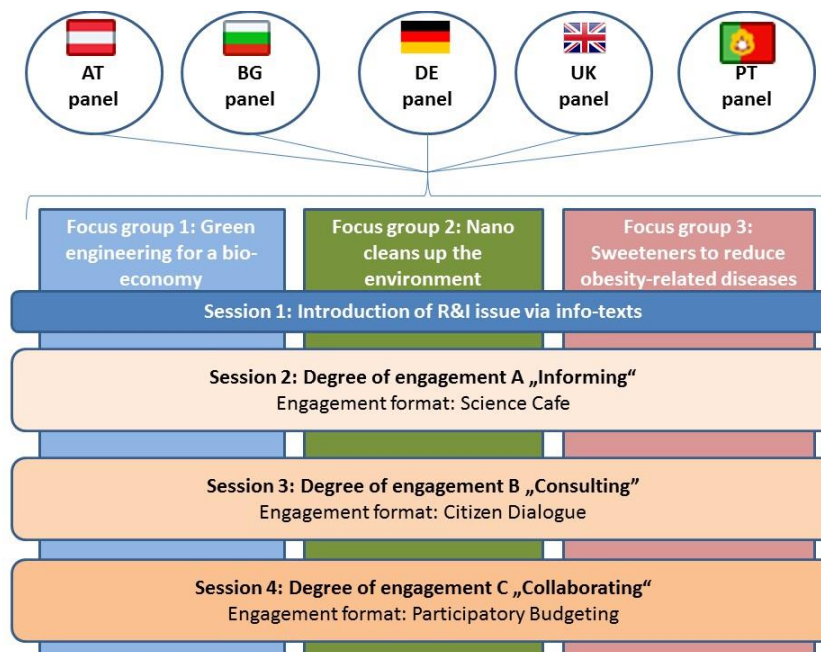
In the focus groups citizens were asked to respond to fictitious invitation letters describing engagement formats corresponding to different categories of engagement varying by the participation objectives, which in our case are *information/awareness-raising, consultation and collaboration*, as well as engagement intensity and link to decision-making. The invitation letters³ introduce and describe the engagement formats of science café (where citizens are informed about a certain research domain and associated issues), citizen dialogue (where citizens are being consulted on a certain research domain and associated issues), and participatory budgeting – citizen evaluation board (where citizens collaborate in decision-making in the R&I process, namely in funding decisions concerning a certain research domain). The "informing" engagement category has been included in our methodology in order to

³ See [Annex II – Invitation letters](#)

juxtapose a format focusing on science communication with formats which actively engage citizens in seeking their feedback and contribution to R&I processes and outcomes.

The engagement formats were selected in order to serve as examples of the three distinct engagement categories. They also presented a number of different tasks, roles and requirements of the citizens, which were also investigated in the course of our research, while not within the primary focus of it. The formats, albeit distinct, had a number of common features (control factors), including: they were all offline (face-to-face), invited forms of engagement and were more a kind of cognitive-communicative types of engagement (vs. emotional-artistic and/or entertaining ones as science theatre, dance, installations or gaming).

Figure 2 A graphic illustration of the first citizen panel methodology



2.3 Expert workshop

As part of the PROSO research methodology an expert workshop was organised in Sofia, Bulgaria, entitled “Policy and Practice Options for Fostering Citizen Engagement in Research and Innovation – Moving towards Responsible Research and Innovation”. The participants at the event included PROSO partners, as well as external experts from different countries and with different backgrounds (incl. members of the academia, policy-makers, and science journalists), which allowed bringing in diverse perspectives to the discussions on citizen participation from these actors’ perspectives. The participants in the PROSO Expert Workshop reflected on the incentives and barriers for public engagement, as identified by citizens themselves at the national panel meetings and proposed approaches to address these with a view of developing a set of policy and practice options (recommendations) for fostering citizen engagement in R&I in the next stages of the methodology.

2.4 Second citizen panels

With the second citizen panel meetings our major objective was to improve our understanding of: i) citizens' views and positions in regard to certain challenges that have been extrapolated from the first citizen panel meetings in relation to engagement of citizens with science; ii) possible policy and practice options (PPOs), which address the particular challenges. These policy and practice options aim to foster public engagement in a way which corresponds to citizens' understanding of their role in the process of R&I and takes into account citizens' views, motivations and concerns in regard to public engagement in research and innovation.

Each partner formulated three challenges most relevant to their national context to work with at the second national level citizen panel meetings. Besides, partners formulated a number of policy and practice options, which were discussed by citizens. These options were inspired by the inputs from the Expert workshop in Sofia, as well as partners' own experience and expertise.

In CPM2, we focused on getting more in-depth understanding of the values, beliefs and concerns of the citizens regarding the different challenges we have identified and the possible solutions of these. The participants discussed the PPOs and the related ethical, practical, financial, political and other considerations that would typically inform any discussion about the possible adoption of these PPOs.

After discussing each challenge, citizens formulated short messages to national and European level policy-makers, scientists, research funders, and/or other stakeholders they considered relevant, which were presented at the PROSO conference with engagement stakeholders in Brussels in June 2017.

2.5 Research limitations and reflections

While the methodology we developed within PROSO to study citizens' motivations and barriers to engage in research and innovation allowed us to successfully conduct our research and respond to our main research question, we encountered a number of limitations, which we acknowledged and endeavoured to promptly address during the course of our work. These include:

- I. In our study we involved around 90 participants from five EU member states, i.e. around 18 participants per country on average. Even though PROSO's resources did not allow greater involvement, this number still provides a good basis to study European citizens' views on engagement in R&I. The country numbers however can provide us with only vague indications of nationally-relevant trends of citizens' perceptions towards engagement and science, rather than with insights on country-specific perceptions and the role of different engagement cultures as a determinant of citizens' motivations and barriers to engage. For this reason, we avoided to give greater focus on the comparison of citizens' views across the different countries.

- II. The citizens who took part in PROSO's events were carefully selected according to a number of recruitment criteria, such as gender, age, educational level, occupation and others. One of the recruitment criteria was that participants were lay persons, not professionally involved with RRI and public engagement, or with any of the domains discussed in the panels, namely food and health, nanotechnology and bio-economy. Thus we ensured that our participants did not have a stake in the issue of engagement, i.e. did not pursue a specific agenda with their participation and only had general knowledge of the discussed research areas. Nonetheless, those who agree to take part in initiatives such as the PROSO panels might still be the ones more inclined to favour public engagement and active citizen participation in science and science governance. To counteract this bias, we provided our participants with a small stipend for their participation, which aimed to provide citizens with additional (or alternative) motivation besides their willingness to take part in such engagement initiative.
- III. Due to limited resources we could only investigate the views of citizens on the different engagement methods using as a proxy to real-life engagement fictitious invitation letters to engagement initiatives. While this cannot reveal genuine reactions of real-life participants in similar engagement formats, we could still elicit a great number of valuable insights regarding citizens' motivation and barriers to get engaged in R&I, which we believe is a major step towards improving our understanding on citizens' views on engagement and a key milestone towards achieving the objectives of the PROSO project.

These limitations have been taken into account when drawing insights in this report. They may serve as an indication on how subsequent efforts in studying the willingness and barriers to public engagement can further improve the robustness of the drawn conclusions.

3. Results from the first PROSO citizen panels

The first citizen panels aimed to respond to the following main research question: *What role do categories of engagement (varying by participation objectives) play for citizens' motivations to participate? What role do they play in terms of barriers for participation?* Besides, the developed methodology allowed us to look into other factors that may play a part in influencing citizens' willingness to take part in engagement initiatives, namely: i) *different subdomains of R&I (and perceived life-world relation of these subdomains)*; and ii) *the engagement culture and traditions in the five PROSO countries*.

Studying the effects of *engagement categories* was within the major focus of the PROSO methodology. The following section presents a summary of the results of the discussions on the different categories of engagement.

As elaborated in the previous section, the PROSO methodology implies that results from the first citizen panels are used in order to identify the main themes and challenges to be addressed by citizens in CPM2. Thus, for the purpose of conciseness and clarity of the report, and since both panels are connected, with dependent contents, instead of providing a conclusion of the main themes addressed at the first citizen panels in PROSO at the end of this chapter, we proceed with presenting the results of the second citizen panels, where we also incorporate major inputs from CPM1.

3.1 How do engagement formats affect citizens' willingness to participate?

While the participating citizens acknowledged the benefits and drawbacks of engagement formats presented to them, the analysis of the overall results from the PROSO panels revealed their preference towards formats with a greater intensity of citizen engagement as well as a genuine citizen aspiration to play a more active role in R&I decision-making processes. This was particularly manifested in group discussions when citizens compared the formats of engagement presented to them and when choosing a preferred engagement format. Despite the lack of consensus over which one of the three distinct formats would be the most or least appealing, the PROSO panel participants in the five participating countries demonstrated an overall preference towards formats that give citizens greater responsibility and role in R&I decision-making processes. At the same time, they recognised the important role of all three engagement formats in strengthening the relationship between science and society in the future.

The tables depicted in Figure 3 present the most and least appealing formats, as identified by the participating citizens. While there was no consensus on which engagement format was the most preferred one by the groups – either across countries, or across research areas - the tables suggest that citizens express preference towards the two active forms of citizen engagement, namely the Citizen Evaluation Board (which was favoured by 7 out of the 15

groups of citizens) and the Citizen Dialogue (which was favoured by 5 groups). Only 3 groups chose the Science Café as the most appealing format.

Looking at the least appealing methods one can see that Science Café was the least preferred format, followed by the Citizen Dialogue, while the Citizen Evaluation Board was not mentioned at all. A number of groups could not identify any format as the most/least appealing one, acknowledging that all three methods could contribute to fostering the science and society connection, and be effective and suitable, depending on the objectives sought.

These results clearly demonstrate that the citizens participating in the PROSO panels were in favour of more citizen engagement in R&I processes, emphasising the need for a greater role of citizens in decision making processes related to R&I. A closer look at the group discussions reveals that according to the participating citizens all three engagement formats can effectively contribute to bringing science and society closer together, yet, they significantly differ in terms of the objectives they can attain. In short, Science Café is considered to be a less formal way to have interesting conversations over difficult issues, to gain new perspectives and to learn about a particular topic. In order to have a longer-term effect on society and to influence policy, however, Citizen Dialogue and Citizen Evaluation Board would be more appropriate.

Figure 3 Most and least appealing engagement formats according to the different small groups in the PROSO citizen panels

Most appealing				Least appealing			
	F&H	Nano	Syn Bio		F&H	Nano	Syn Bio
<i>Austria</i>	SC CEB	none	CD	<i>Austria</i>	CD	none	SC
<i>Bulgaria</i>	CEB	CEB	CD	<i>Bulgaria</i>	none	none	none
<i>Germany</i>	CD	CEB	CD	<i>Germany</i>	SC	SC	SC
<i>Portugal</i>	none	CD	SC CEB	<i>Portugal</i>	none	SC	CD
<i>United Kingdom</i>	SC	CEB	CEB	<i>United Kingdom</i>	CD	SC	SC

The following sub-sections of the report present the results of the group discussions on the engagement formats. The incentives and barriers, as perceived by the citizens, have been summarised and presented in four major categories: actor specific (pertaining to the involved actors) incentives and barriers; procedure specific (pertaining to the specific engagement activity) incentives and barriers; issue specific (pertaining to the specific research or technology in the focus of discussions at the engagement activity) incentives and barriers; and system specific (pertaining to the national contexts) ones. These have been formulated by PROSO partners in the course of the project mainly to serve as a point of reference to better understand and systematise the various factors which could foster or deter public

participation. We have put incentives and barriers together because in the context of the PROSO citizen panels they represent the ‘two sides of the same coin’ and, if considered separately, there would be no additional perspective to the results. Rather, we focus on the factors and themes that citizens brought up in response to our questions.

3.1.1 Informing

This category of engagement has as its major objective to inform and/or educate citizens. The information goes mainly from researchers/policy makers/funding institutions to the citizens (or other relevant stakeholders). There is no specific mechanism to handle the feedback provided by citizens. At the first PROSO citizen panel meetings, citizens discussed an example of Science Café, designed in a format that falls within this category⁴.



The PROSO panel participants considered the Science Café method as appealing mainly because being less formal and more relaxed it would be more acceptable to a wider audience. The Science Café would be a good opportunity for participants to inform themselves. If they are unfamiliar with a topic, the Science Café seems like a good way to get an introduction to the field. This model is also seen as the least demanding and most participant-friendly. It is appropriate for awareness raising and for informing the wider public on a particular topic.

What citizens highlighted as drawbacks of the format is that no change on society is immediately perceivable. There is rarely any opportunity for one's involvement to make a lasting difference in the decision-making process. It is a place to disseminate information, not to shape decisions or policy. It is considered too short for the purpose of a serious involvement of the public in scientific or political processes. Its passive setting does not translate into effective engagement with science. Impact is hard to trace and/or evaluate, since hardly any follow-up procedures are expected to take hold.

⁴ For more information on the presented engagement format, please see the invitation letter in Annex II and the PROSO Manual at http://www.proso-project.eu/wp-content/uploads/wp4_manual_citizen_panels.pdf.

In regard to the benefits of participating in such an engagement activity, there was certain disagreement among the participants. While some emphasised getting information about an issue that is of interest for citizens, discussing matters that are important to people and voicing their own concerns, values and expectations as major advantages of the format, others pointed to the lack of real discussion and two-way communication, as well as lack of any impact of the voiced opinions of the citizens. Some noted that they'd rather prefer their own information sources such as internet, books, and papers.

Many of the participants suggested that researchers would be the greatest beneficiaries of such initiatives as they would get close to community concerns and world-views, and open up their projects to real-life/societal needs. Yet, others speculated that such events were used by researchers to promote their books.

Following are further details on citizens' motivations and perceived barriers to take part in the particular engagement format.

Actor specific incentives and barriers

- *Personal interest:* When asked about their willingness to take part in a Science Café, citizens' motivations mainly revolved around people's general interest in the discussed thematic area and a willingness to learn about new topics or research. The participants saw this engagement format as a good opportunity to pick up on recent developments in scientific/research fields that have a particular social relevance, exchange ideas with others and gain awareness.
- *Timing/venue:* The local venue was strongly appreciated by the participants, as well as the fact that it takes place in the evening (though not everyone – see below).
- *External motivation for citizens:* The fact that the event would be free also appealed to the participants, with particular mention of those who may be interested in such an event but have a tighter budget, such as students. Yet, it was also noted that open for anyone might produce controversial discussions. Furthermore, participants speculated that if free food and drinks were provided, this could be the main motivations for some citizens to attend the event. A number of participants criticised this incentive and feared that this would attract 'the wrong kind of people', i.e. those who only come for the free food and drinks.
- *Skills and capacities of the participants:* Some voiced their concerns that they may feel unprepared or unknowledgeable to participate in a too specific discussion.

*„I will broaden my world view,
will learn more and will get
more educated.”*

Citizen from Bulgaria

Procedure specific incentives and barriers

- *Diversity (balanced representation of actors, perspectives, values):* Participants shared that they would find the event more attractive if it had speakers with opposing viewpoints on the topic – proponent and opponent. To the participants it is very important that the event

grants both (or other) sides of the question. People need to realise that the issue is complex, and that multiple solutions are possible. What is needed, according to the participants, is a diversified panel – including people with diverse backgrounds and knowledge areas.

- *Format (adequacy of the format to achieve objectives):* With a view to the restricted number of participants in traditional engagement events and with regard to the restricted flexibility of face-to-face interaction in traditional events participants were strongly in favour of an increased digitalisation in the field of participation. The participants encouraged science communicators to set up a kind of “Research You Tube” in order to develop a digital infrastructure supporting continuous and much broader public engagement with science.
- *Format (purpose):* Participants uttered concerns about the purpose of the proposed event. The invitation was not clear enough in what the event aims to achieve and what contributions they are expected to make.
- *Interaction (power and hierarchies):* Participants felt the format was more about providing information and that they could not really have an influence on the presenting researchers. For many participants this focus on information was acceptable, others wished for more.
- *Recruitment:* The invitation letter was suitable for specific places such as public library or the university, not to be received under the door together with all the other junk mail.

“The event seems too unidirectional.”
Citizen from Portugal

Issue specific incentives and barriers

- *Relevance and framing:* A reason not to participate was that some participants felt the discussed issue was not that ‘burning’ for them. The topic may sound irrelevant to many. Specificity of domain is important but too specific is not good as it may only engage those with specific interest in that area.
- *Knowledge/framing:* Participants stated that the talks should not be too academic but understandable for lay people. Special mention on why an issue is important for the citizens is needed. Some attendees thought the discussed issue was not appealing to the common citizen. It was an interesting event for the scientist community, but the citizen has to understand the benefits for him/her and the community. Thus, the invitation should also explain the topic in simple terms, and explain how the topic relates to everyday life.

“There have been talks that I just left because they were incomprehensible.”
Citizen from Austria

System and culture specific incentives and barriers

- *Civic/political culture:* Some participants agreed that there is a certain distance between scientists and the wider public, which might be caused by (or which might cause) a

respectful or even slightly fearful attitude of people towards science. A dialogue between scientists and people, who are not involved in research processes, could help to narrow the gap between society and science. The participants complained that neither from the side of politics, nor from the side of science there had been an adequate communication and information process with the wider public and that the level of knowledge which the wider public had about current scientific research did not seem to be important in any kind of way.

3.1.2 Consulting

This category of engagement has as its major objective to facilitate group deliberation and consultation on a certain issue where the outcome of the consultation *may* have an impact on decision-making. Information is exchanged between policy-makers, researchers and citizens. Often there is a link to a current political debate or decision context. In PROSO, citizens discussed an example of Citizen Dialogue⁵.



The Citizen Dialogue is considered preferable to some because of its relatively flexible engagement procedure and the opportunity to co-decide on important issues. It is seen as appealing since many thought it would not be necessary for people to have been previously informed by research, with some in-advance information and guidelines generally sufficing. The participants appreciated that the Citizen Dialogue format allows for a closer proximity and interaction with experts.

The Citizen Dialogue was seen as important for strengthening the civic function of engagement. The opportunity for citizens to voice their opinion about a socially relevant topic, which is talked about in a balanced and interactive way, was noted. The role of Citizen Dialogue for stimulating the “social training” of the citizens, or building a new mind-set that is more trusting in engagement activities was also mentioned. Separately, events like this might help to eliminate certain fears amongst citizens which exist in technology-related topics

⁵ For more information on the presented engagement format, please see the invitation letter in Annex II and the PROSO Manual at http://www.proso-project.eu/wp-content/uploads/wp4_manual_citizen_panels.pdf.

specially. Minimising this fear is a process which was considered to be very relevant in order to enable proper engagement of citizens in science.

At the same time, the method was seen as time-consuming, with outcomes unlikely to influence scientists or politicians. A common concern was that citizens will have too little knowledge about the discussed topic, so that their opinions will not be valuable and most of them will not be able to give sensible advice to the scientists. Furthermore, the small number of participants was seen as inadequate to enable any impact on research and policy-making processes.

The potential benefits of implementing such kind of engagement initiatives were seen in terms of informing policy-makers about the opinions of the citizens and thus provoking them to adjust their decisions accordingly, as well as providing researchers with an additional perspective which could lend credibility to, and even enrich, their work and 'take them out of their bubble'.

Still in one of the panels participants claimed that neither scientists, nor politicians, nor citizens could benefit from this engagement. First, the participants' opinion would not be useful as they have too little knowledge about these specific topics. They will be influenced by the scientists' opinions, so that the participants will not share their own views with the scientists in the end. Second, the participants considered this engagement useless, as the perceived influence of the opinion of 20 citizens would not change the scientists' or politicians' attitude towards a topic. Third, participants do not consider citizen dialogues helpful to effectively influence research in the particular area of food and health as most research is sponsored by industry.

Following are further details on citizens' motivations and perceived barriers to take part in the particular engagement format.

Actor specific incentives and barriers

- *Personal interest:* Opportunity to learn about new research in a more interactive fashion was one of the main incentives of participants to take part in this engagement activity.
- *Skills and capabilities of the participants:* Again there was a concern that the topic may be too technical for the general audience. Some participants would refuse to go to such an event as they had too little knowledge about the discussed topic. It was claimed that citizens' advices would be useless for experts as lay people did not know anything about the addressed topic.
- *External motivation for citizens:* To some participants it was very important that there is some kind of monetary compensation (e.g. expense allowance). To others, however, clearly stating and highlighting the amount of monetary compensation would feel as an

"Why should I take part in the discussion if I have no knowledge? My opinion is of no use in this case."

Citizen from Austria

insult and would discourage them from participating. A number of participants expressed a concern that ‘professional participants’ might emerge if the monetary compensation for taking part in engagement activities is substantial. Thus, they proposed that expenses, such as travel and food, would need to be met but not more than that.

- *Trust in the organisers:* The participants stated that the organiser is important to guarantee credibility and objectivity. The participants would see academic and policy institutions as credible, but would not trust a corporate-organised event. Furthermore participants wished that the invitation letter contained the names of the experts that will be present at the citizen dialogue. This would give them the possibility to inform themselves in advance and also to more reliably ascertain the credibility of the event.

Procedure specific incentives and barriers

- *Format (purpose):* Participants felt the purpose of this event is clear – they got an idea why the event is held and how they could contribute.
- *Engagement process/format:* Participants generally liked the format of the citizen dialogue. The duration of the event was seen as adequate. An opportunity is there to ask questions, meet experts/professionals, and learn about different perspectives in a more informal setting. The engagement process is interactive, and the topic is laid out in a well-structured way. Especially the opportunity to express personal opinion about a subject in a less formal setting is highly valued (without obligation to the general opinion). By not placing on the citizen the pressure to make decisions that affect other people (research or production), in this model, the citizen can be more at ease.

“We should have definitely more citizen engagement”.
Citizen from Germany
- *Outcome:* Some participants expressed their view that the Citizen Dialogue would be an opportunity for them to have their opinion heard and actually impact policy, making it more transparent.
- *Outcome (use of engagement results):* An important motivation to participate would also be the condition of reaching a conclusion/consensus in the end. The debating format of the event is appealing to participants but an opportunity for further maximising impact is seen in advancing conclusions made at the event (e.g. potential decisions/conclusions to be taken up and heeded by politicians).

“A direct contact to scientists is good because no one knows how the scientists think (about their work). It is also important that the results are communicated to policymakers to influence their decisions. I also think that it is crucial that people know what happens with the results.”
Citizen from Austria

- *Outcome (use of engagement results):* Others, however, expressed a concern about the efficacy of such events. They suggested that there should be a consideration of discussions in policy, that is, some reassurances/follow-up (binding) procedures would be needed.
- *Format (adequacy):* Some participants claimed that the opinion of a group of 20 citizens would not be taken seriously and would not influence further developments in this area, which could be a significant barrier to participation.

"I would go, but there is no guarantee that the politicians would heed any of it"

Citizen from Portugal

"You know that you have shared your input with the people who can actually change things"

Citizen from the UK

Issue specific incentives and barriers

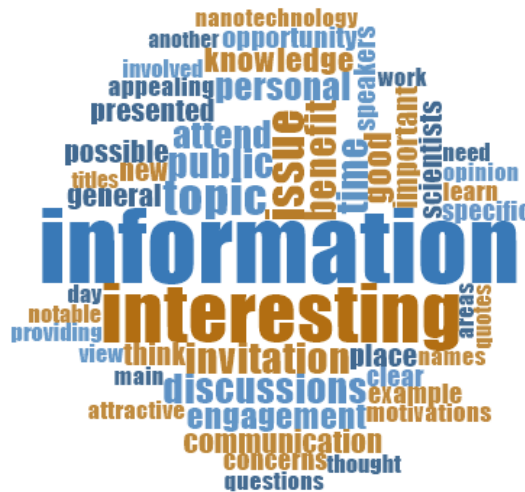
- *Framing/Relevance:* The topic of the event was an important factor to determine participation. The invitation did not help participants to feel that the topic was directly relevant to their lives. It needed to be framed in terms of words people are aware of - something connected to people's real life.
- *Framing/Perception of engagement among citizens:* According to some participants, technology matters and risks are the domain of experts exclusively. These participants trusted scientists and the regulators (government) to have appropriate procedures in place to monitor the development of technology. According to them there was no need for citizens' panels, as citizens have little to contribute.

System and culture specific incentives and barriers

- *Political culture:* There were doubts among the participants that this kind of events serve as an 'alibi' to policy makers. One could feel a certain resignation among some participants due to the fact that they feel unnoticed and not taken seriously by the government. Policy makers are, according to them, disconnected from public engagement activities. They perceive the communication between scientists, citizens and politicians as rather weak.
- *Civic culture:* Participants in the UK noted that the concept 'citizen' in the title of the engagement format 'Citizen Dialogue' evokes associations of inferred and not necessarily negotiated responsibilities. Instead they recommended using "individuals" or "public".

3.1.3 Collaborating

This engagement category has as its main objective to assign citizens a clear role in the process of decision-making on R&I, while not necessarily giving them a decision-making power. Citizens in PROSO discussed a variant of Participatory Budgeting – Citizen Evaluation Panel⁶.



The Citizen Evaluation Board (CEB) is viewed by the PROSO panellists as the preferred model if the intention is to enact change in science and society. However, it requires more preparation and it is more demanding. It is seen as a worthwhile method for engaging members of the public in research and gaining a well-rounded understanding about a particular topic. Just like the Citizen Dialogue method, it is seen as a valuable option which benefits from participatory perspectives and a process of effectively co-deciding on relevant issues. The civic benefits of this engagement approach are seen as particularly important, given that it grants citizens the opportunity to influence the decision-making process more directly (e.g. by distributing tax money). The CEB is widely seen to provide the wider public with greater responsibility, allowing people to voice their opinions in a meaningful/tangible way. In the opinion of participants, such activities present a very good opportunity to change something and to exert an influence on a political level. The method is long-term and offers a way to engage with society in a sustained (profound) fashion over a period of 2 years. There is a clear use of impact, with outcomes clearly defined and easily traceable.

The CEB is according to the participants the most beneficial engagement approach for decision-makers. This would be a direct channel to (partially) inform policy, and to distribute responsibility. From the perspective of citizens, the Board provides people with the opportunity to shape priorities in decision-making. It is a multi-directional model, where everybody collaborates to build relevant and socially robust policy. It is thus worthwhile for

⁶ For more information on the presented engagement format, please see the invitation letter in Annex II and the PROSO Manual at http://www.proso-project.eu/wp-content/uploads/wp4_manual_citizen_panels.pdf.

the funding bodies, the government, and the research community alike to understand what values the public holds and assist them in taking knowledge-based decisions.

Yet, some participants criticised the narrow framing of the evaluation event, suggesting strongly that the Board should refer to wider research areas instead of single research projects. Unclear evaluation of outcomes was another major topic of discussion among participants, who saw the opportunity for marketing imperatives taking over substantive ideas, and citizens not able to effectively contribute to 'responsible' R&I by judging research proposals in an entirely objective way. It is also difficult to commit people over such a long period of time. In such an event, reaching a consensus and a collective opinion of the board members would be most important, while acknowledging that some may withdraw early in the process. It deems a big responsibility and requires knowledge of the field discussed in order to enable sensible result.

Following are further details on citizens' motivations and perceived barriers to take part in the particular engagement format.

Actor specific incentives and barriers

- *Personal interest:* The proposed topic of discussion was also highlighted as a major factor that affects citizens' willingness to participate. According to some participants one could be inspired to participate only if one felt drawn to/or interested in the proposed topic(s) of discussion; they did not seem to think people would participate otherwise.
- *Responsibility:* A number of participants felt that the evaluation board involved "too much responsibility". They did not want to take responsibility for decisions that either approve of research that might have negative consequences or reject research that could be an important scientific or societal advancement (i.e. contributing to false negatives or false positives).
- *Skills and capabilities:* Participants strongly questioned whether they themselves and the randomly selected participants of the board would be knowledgeable enough to take part in the decision-making. Some participants felt that they themselves were not competent enough and also demanded that the selection criteria to recruit the participants should not only include their socio-demographic features but also their knowledge of the issue. Other participants thought that previous knowledge is less important, comparing the board to a citizen jury. Some suggested that citizens should primarily discuss ethical questions rather than factual questions.
- *Trust:* The credibility of the sponsor/organiser was again highlighted as determining citizens' decisions to participate.
- *External motivation:* Offering a stipend to the participants increases their motivation to partake in the engagement activity.

Procedure specific incentives and barriers

- *Format*: The structure of this format enables a learning process among all participants that might positively affect the quality of the results.
- *Format (mandate and purpose)*: Participants pointed out that this engagement activity is particularly well-structured and clear as to what is the role and mandate of the citizens participating in it.
- *Outcome*: Participants liked about the CEB that it gives responsibilities to participants and offers an opportunity to inform decisions, seeming to have an impact. The idea of being a part of a Board makes participants feel valued and important. The duration and the nature of the engagement indicates that their input will be taken into account in decision making processes, therefore of value and worthwhile.

"I like it when I can have a say, when I can influence decisions, when I can take responsibility."

Citizen from Austria
- *Interaction and accountability*: The two-way interaction and feedback between researchers and citizens was pointed out as a major strength of this format and an incentive to take part in it. Participants liked that the evaluation board offers the opportunity to give feedback to the researchers rather than giving only a strict 'yes' or 'no'. On the other hand, participants themselves will be informed about the outcome of the event and whether and how their results were taken into account.

"For me, that's not engagement. There have to be more people involved."

Citizen from Germany
- *Diversity*: Some participants emphasised that the event is potentially problematic because of the low representativeness of the selected citizens – they questioned whether a small group of individuals should have a say over the direction of research because of the limited number and expertise of the participants. This creates a potential for skewed results. Participants emphasised that not all the people are sensitive to participate in such events, such as underprivileged people, which would end up in skewing results in favour of more affluent citizens. Therefore, recruiting people with diverse backgrounds (also including local and regional perspectives) is important to reach a more balanced consensus.
- *Format (adequacy)*: The engagement design was also considered problematic by some. They emphasised that the public could be a victim to marketing strategies so that some research would be evaluated highly simply because of the presenter being more successful at communicating the ideas, not because of the scientific merit itself. Since there is a long way to go from basic research to technical applications citizen would not be able to effectively contribute to "responsible" innovation by judging research proposals. Many agreed that public engagement regarding basic research was useless, as it was often unclear, what the aim and the final results of the research was. Furthermore, it is nearly

"A deadly boring presentation could save the world."

Citizen from Austria

impossible for citizens to evaluate research projects and to decide which of them should be financially supported, because these projects often go into too much detail and are too complex for non-experts. Furthermore, non-experts giving opinions about research could favour applied/practical research, instead of more substantive ideas.

Issue specific incentives and barriers

- *Framing:* Participants recognised that the thematic focus is a potential challenge and suggested an evaluation board with a broader view and decision power on research, in which the specific research could be one research option. This would give participants a better opportunity to influence the direction and focus of research.

System and culture specific incentives and barriers

- *Science education:* In a few countries citizens shared that they feel there is a certain distance between scientists and the wider public, which might be caused by (or which might cause) a respectful or even slightly fearful attitude of people towards science. The participants complained that scientists do not care about an adequate communication and information process between science and the wider public and that the level of knowledge which the wider public had about current scientific research did not seem to be important in any way.

3.2 How do research areas affect citizens' willingness to participate?

Besides studying the role the different engagement categories play in citizens' willingness to participate, we in PROSO also looked into how different subdomains of R&I (and in particular the perceived life-world relations⁷ of these subdomains) affect citizens' motivations and barriers to participate.

A number of questions (namely "How knowledgeable do you consider yourself in this particular area of research?", "How relevant do you think this issue is to your everyday life as of nowadays? What about the future?" and "How important do you think this issue is for society as a whole? Why?") were posed to the participants aiming to elicit their perception and challenge our assumptions on the life-world relation of these topics, as defined by the PROSO team. Our intention was to study how the life-world relation affects citizens' perceived motivations and barriers for participation, in case our assumptions were confirmed by the citizen discussions.

The results we obtained are not straightforward. While all groups of participants discussing Food and Health demonstrated that they find the field and the provided example as highly relevant to their lives and their societies as well, the discussions in the groups working with Synthetic Biology and Nanotechnologies were rather ambiguous. Many of the participants

⁷ You can see how we define life-world relation in [Annex I – Definitions](#).

admitted to have no - or rather limited - knowledge on these two topics. While they have heard of them, some struggled to mention any fields where these have been applied and found the topics to be, in their words, rather abstract. When discussing the concrete examples we provided, however, and their relevance to society and to the everyday life of people, many participants could relate to these topics to some extent and identified them as relevant – not necessarily to their personal lives, but to society, and not necessarily now, but in the future.

These findings do not support a statement that among the two areas – Nanotechnology and Synthetic Biology – one has a stronger life-world relation than the other. Thus, we are not able to draw any affirmative conclusions in regard to how the life-world relation of a topic affects citizens' willingness to participate based on the results we have.

A number of interesting issues were raised by the participants when discussing the relevance of the research areas for their personal lives, as well as for society, which include:

- ❖ In most of the cases citizens' comments regarding the relevance of scientific issues in general and the research areas discussed in PROSO in particular referred to the ability of scientists to present the respective topics in an understandable way and demonstrate the relevance of the issue to citizens' lives, rather than the innate relevance of the topics themselves. According to the expressed citizens' sentiments, all discussed topics were (or would be) relevant for citizens' lives now (or in the future), yet, citizens often could not recognise this because of the way these topics are presented to them by scientists.
- ❖ There is a need for complementary approaches to solving environmental problems, including changes in the regulatory framework and consumers' behaviour. Participants underlined that technological advances should not be the sole response to fixing global challenges and that profound economic, societal and political reforms are needed in this respect;
- ❖ In addition, many urged for a cautionary approach in technological development and careful assessment of the risks (incl. unknown and uncontrolled ones) associated with the new technologies, while considering that many of the effects on society (e.g. on human health and the environment) will only be visible in the longer run.
- ❖ Scepticism and mistrust were also manifested among participants towards the motivation of scientists behind certain new technological developments. Participants referred to the increased role of economic interests in science to the detriment of societal interests and addressing real societal needs. Furthermore, some uttered some distrust towards information provided to the general public in regard to new scientific developments (in the particular case - in regard to nanotechnologies).
- ❖ A perceived distance between science and society was also mentioned as a factor that can provoke mistrust towards new scientific developments. The need to better explain new technologies in a language that is accessible to the public was highlighted as critical for promoting more positive attitude towards scientific advances.

- ❖ Indirect references to citizen engagement were made already in this first group session during the citizen panels. In the discussion of the topic of synthetic biology, one of the groups raised the issue of ethics of research (and in particular on the question of how far humans should interfere in nature and what kind or level of ‘artificiality’ is acceptable) and suggested that citizens should be involved in discussions in this regard. Also the relevance of scientific developments to addressing societal challenges was mentioned as critical for determining which scientific areas should be promoted and which should be ‘cut off’.

3.3 How do engagement cultures affect citizens’ willingness to participate?

Different countries seem to have their individual cultures, traditions and institutions of engagement. These cultures manifest in different ranges of experience with citizen engagement in R&I. This has been demonstrated in the MASIS report⁸, which looks into activities and policies related to aspects of science in society across 38 European countries. According to its results, the PROSO countries differ in various aspects related to engagement cultures, such as the use of scientific advice and evidence as a basis for policy responses, the degree to which science communication is within the radar of societal discourse on science and innovation, opportunities for “upstream” vs. “downstream” engagement.

The report also studies the degree of formalised and *actual* public involvement in priority-setting and assessment in the field of R&I. It lists developing civil societies, non-inclusiveness of the political culture and the absence of apt institutions as some of the barriers for establishing a “more democratic and inclusive governance of science and technology”. While no sufficient data has been gathered to study all PROSO countries in terms of “Public involvement in science and technology decision making” (p. 40), the MASIS report demonstrates significant difference between the cases of Bulgaria and Austria. In both countries it has been reported that there is a lack of specific formalised procedures for public engagement in R&I decision making. In Austria, however, engagement practices for involving citizens are reportedly already well established. In contrast, engagement traditions in Bulgaria are rather missing and practice sporadic.

Taking this as an initial standpoint in the development of our methodology, we in PROSO tried to identify trends as to the significance of engagement culture for citizens’ motivations to take part in different engagement activities. The empirical results from the PROSO panels, however, proved to be insufficiently telling about the role engagement culture plays in defining the motivation of citizens to take part in engagement formats. The results do not reveal any distinct trends in the willingness of citizens to participate or the preferred engagement category (as seen in Fig. 3), except for differences in the understanding of certain culturally-defined concepts, such as the concept of “citizenship” (See page 19). Rather than

⁸ Mejlgaard, N.; Bloch, C.; Degn, L.; Ravn, T.; Nielsen, M. (2012) Monitoring Policy and Research Activities on Science in Society in Europe (MASIS) – Final Synthesis Report, European Commission DG Research and Innovation.

interpreting this as evidence for the lack of influence of engagement culture on citizens' willingness to engage, we would recommend further research to be conducted in this respect on the basis of larger country data sets. For more details, please see [Section 2.4 "Research limitations and reflections"](#).

4. Results from the second PROSO citizen panels

The second citizen panel meetings of PROSO investigated more in-depth citizens' views, values, beliefs and concerns in regard to a number of challenges that have been extrapolated from the first citizen panel meetings in relation to engagement of citizens with science. In addition, citizens also discussed possible policy and practice options (PPOs) which address the particular challenges. They also had the chance to propose new ways to address the identified issues.

The challenges discussed in each panel were formulated by national PROSO partners so that they are relevant to their national contexts. Each partner presented to the participants three relevant challenges and the associated PPOs. The following section outlines the main results of this process. It elaborates on the main challenges addressed by partners in CPM2 and incorporates relevant inputs from CPM1. It also serves as a conclusion of the main themes identified at CPM1, as CPM2 was conducted in order to further investigate these themes, as well as relevant options for addressing the identified challenges.

4.1 Citizens see the small number of participants in engagement events as insufficient to ensure diversity of perspectives and achieve impact.

4.1.1 Challenge description

The small number of participants involved in the formats was raised as an issue in a number of citizen panels and thus, was selected by project partners as a major issue to address in the discussions at the second national citizen panel meetings.

According to the participants at the PROSO panels the limited number of participants at engagement events implied that:

i) There might be important perspectives missing in the debate (such as disadvantaged groups, local perspectives, etc.), due to the small scale of the engagement event and possibly the mode of recruitment, which creates a strong potential for skewed results. Thus, panellists urged for greater representativity in terms of variety of perspectives present at the engagement formats, including, where relevant, local, regional and European perspectives, but also those of underprivileged individuals. Representativity is thus seen as a guarantee for the inclusiveness of the engagement formats and the validity of the produced results.

ii) Results might not be considered valid due to the lack of representativeness, thus, the impact of the engagement initiative would be rather limited. In the panels, citizens often expressed doubt that a format with a small number of participants (twenty in the particular case) can have any impact on R&I processes and outcomes, which for many is the major incentive to participate. Citizens tend to believe that policy makers will take into account citizens' views only in case a significant (and statistically representative) number of citizens are involved in the process. Lobbying groups, political interest and expert opinions are believed to be more

influential in this respect. To counteract these influences, citizens highlight the importance of the magnitude of citizen involvement.

These perceptions may make citizens refrain from participating so as to avoid taking responsibility over results which are produced without all relevant perspectives taken into account. Furthermore, citizens may lose trust in the adequacy of engagement initiatives to bring citizens' values, knowledge and experience to the forth in R&I outcomes and governance.

Reaching out to more and more diverse actors, however, raises a number of challenges, which include: i) often citizens do not feel confident taking part in discussions related to research and innovation as they fear they lack knowledge or deliberative skills to participate (this might be especially the case for minorities, non-employed, less educated or other marginalised groups); ii) due to a lack of sufficient resources (e.g. to pay monetary compensation to the participants) engagement practitioners invite those who are "easy to reach" and willing to engage, which can silence the voices of the underprivileged individuals and skew the results to the benefit of the more affluent ones.

4.1.2 Identified policy and practice options

a) Introduce policy incentives for employers to facilitate engagement in R&I.

Incentivising employers to support public engagement was one of the options, recommended by citizens in a few of the participating countries. These incentives include, among others, changes in the labour regulations that allow citizens to take a number of days off work to participate in engagement activities. Institutionalising engagement in this way could contribute to addressing the challenge with attracting a greater number of participants, but would also "validate" citizens' knowledge and strengthen citizens' confidence to take part in engagement activities. A common consensus emerged that such "citizen jury" model needs to be voluntary and should not oblige citizens to take part in engagement if they are not interested to do so. This, according to PROSO participants, would be obstructive rather than constructive for good quality citizen engagement.

Citizens also suggested the initiation of awareness raising campaigns aiming to make employers understand the benefits for their employees from taking part in engagement initiatives (e.g. improved deliberative skills, other soft skills). EU-level intervention is also encouraged by for example integrating engagement in the Lifelong Learning concept.

b) Encourage the development of engagement *competence and support units* within universities and other research institutions.

Citizens proposed the establishment of centres that could provide support to researchers in terms of, among others, logistics and methodological design. These centres could assist researchers in e.g. setting engagement objectives, recruitment of participants, translating scientific content into a language which is understandable for citizens. They could be

established within universities, but also there could be national-level and EU-level contact points/support centres, which provide similar services.

c) Integrate *online and offline* engagement methods to capitalize on synergies thereof.

In regard to online engagement, digitalisation of public participation was highlighted as an opportunity to include more voices into the particular consultations, as well as to reach to more people and thus build awareness on research topics and public engagement, whilst using less resources. This recommendation was made while recognising the importance of face-to-face meetings for more in-depth deliberations and communication.

Integrating online and offline engagement methods is seen as particularly effective to overcome their associated limitations. Participants suggested that practitioners can use online engagement for information provision, preparatory work and trend-capturing of citizens' views and perceptions, after which these views can be discussed in more detail in face-to-face meetings. Online platforms are seen as especially relevant to raise awareness about scientific issues among the general public. To that end, citizens' suggestions included, among others, the broadcast of live streams on the web (through platforms such as google hangout, Facebook or LinkedIn), chat discussions and development of YouTube channels.

Citizens in one of the panels also encouraged more funding for scientific research on the effectiveness of online and offline participation. To reach to more people and incentivise them to participate online, it was also recommended that organisers work jointly with trusted institutions, such as ministries and other public institutions.

d) Broaden the outreach of initiatives to include citizens from different socioeconomic backgrounds and geographic locations.

To increase the diversity of the perspectives represented in the engagement activities, many urged for broader geographic spread of the engagement initiatives and including people from regional and local communities. Supporting Europe-wide activities was also deemed important especially when it comes to new technologies the effects of which are often spreading across borders.

The inclusion of citizens from different socioeconomic backgrounds was equally stressed in a number of countries. The provision of financial compensation was deemed a relevant measure in this respect, as well as compensation for travel, food, accommodation (if needed) and care facilities for children. While it was speculated that some participants might only be attracted by the financial benefit, it was generally agreed that participants should at minimum be compensated the costs associated to their participation.

4.2 Citizens do not see the relevance of scientific issues to their own lives.

4.2.1 Challenge description

The relevance of scientific issues in general, and the research areas presented to them in the frame of the PROSO panels in particular, were discussed by citizens at both CPM1 and CPM2. As noted in [Section 3.2](#), however, most comments essentially referred to the ability of scientists to communicate the relevance of the scientific issue to the public and to make it seem intriguing. It can be inferred that the perception of “relevance” of a particular topic among citizens does not depend on the choice of topic as much as on the capacity and willingness of scientists to present the topic in an intriguing and an understandable way.

Another issue which was raised in this regard was the **lack of public debate and media attention** to science in general and especially scientific areas and technologies in their early stages of development. Citizens often felt uninformed and uncertain to take part in thematic discussions focusing on such ‘unpopular’ topics. It is also worth mentioning that while no media attention to a certain field can deter citizens from taking part in engagement activities on a certain topic, some citizens’ comments suggest that too much of it could have the same effect (e.g. in the case of food and health, according to some panellists).

4.2.2 Identified policy and practice options

a) Improve science education and promote early engagement (i.e. implementing engagement initiatives in schools) were commonly discussed by citizens as important policy objectives which can promote citizens’ inquisitiveness and interest in science.

b) Require that research projects designate a minimum percentage of the budget for research activities to be spent for dissemination of results to lay citizens.

The lack of interest among scientists to communicate their results to the public was seen as a major obstacle for bridging the distance between science and society. Thus, citizens suggested that funding agencies should incentivise researchers to seek contact with the public by including a specific requirement in calls for proposals stipulating that researchers spend a certain percentage (e.g. 10%) of projects’ budget for dissemination activities targeting the general audience (e.g. in mass media, social media, etc.)

c) Improve training of researchers on science communication and engagement.

Including science communication and engagement as a course in master’s and PhD curricula, providing tailor-made trainings of researchers on the benefits of participatory research and on how to communicate with and engage lay citizens is expected to contribute to achieving more effective communication between science and society. Furthermore, citizens urged for creating stimuli for academic institutions to reward scientists for engaging the public.

d) Use media channels to promote engagement and the results of engagement in R&I.

Involving media (mass media, online media) in the pursuit of promoting citizens' interest in science has been strongly recommended by citizens. Media coverage of science in general and of engagement in R&I in particular would be critical to promote citizens' interest. Online media was seen as especially relevant when targeting the younger audience. Citizens also stressed that media should be encouraged to cover scientific discoveries, youth activities and other topics which foster scientific curiosity and civic engagement in general. Government intervention was required, however, in order to deal with the lack of media interest in covering these issues. It was also highlighted that *how* media covers science is as important as *whether* it does.

e) Employ effective and fitting communication techniques and channels when engaging the wider public.

Both in CPM1 and CPM2 discussions citizens listed a number of approaches aiming to build awareness on and raise interest in the discussed research areas and in science in general. These included: i) story telling – vivid description of scientific issues using story telling were highly recommended by citizens in several of the panels. These stories could be invented or inspired by real-life stories and illustrate e.g. the effects of a particular technology on human health. Including some kind of entertaining elements (e.g. theatre) was also encouraged by participants, as well as employing the services of “communication facilitators” (e.g. radio hosts) with skills to translate complex issues into lay citizen language.

4.3 Citizens fear that they lack knowledge to participate in engagement activities on R&I topics.

4.3.1 Challenge description

One of the factors which stimulates citizens' willingness to partake in an engagement activity according to our results is citizens' perception that they will be given the opportunity to share their opinions with decision-makers and that these opinions will be heard. When it comes to R&I and technological development, however, citizens often feel that they lack the necessary cognitive skills or thematic knowledge to take part in the particular format. They further inferred that the participation of ill-informed or unknowledgeable citizens would lead to poor quality of the results achieved and decisions made. This concern was shared by numerous citizens across countries and research areas at the first PROSO citizen panel meetings. According to others, however, citizens should not be previously informed about the topic in order to provide “ethical or societally-based concerns more easily, and be less influenced by formal sources”⁹.

When comparing the three engagement categories, unsurprisingly, the more responsibilities participants were assigned in the frame of a certain engagement format, the more hesitant

⁹ PROSO Deliverable 4.2 (2017) “National Reports from Citizen Panels”

they felt regarding their skills and capabilities (both in terms of deliberative skills to participate in discussions, but even more so in terms of specific thematic knowledge they assume is required to participate in these formats).

Although formats which involve more active engagement (such as CEB) are assumed to entail more complex skills and knowledge by the citizens, when participants are allowed sufficient time to learn about the new topics, they become more interested and willing to participate and gain knowledge in the particular research area.

Providing information materials and sessions prior and during engagement formats is essential. Citizens, however, fear that they might be intentionally ‘manipulated’ or unintentionally influenced by experts in order to take a particular stand on the issue. Furthermore, many shared that they would feel intimidated to participate in joint discussions with experts. The clarity and accessibility of the provided information was once again highlighted by citizens, which is critical for addressing the respective challenge.

4.3.2 Identified policy and practice options

a) Include engagement in school curricula.

Early education has been within the focus of citizens’ discussions in all participating countries. According to citizens pulling together a relevant curriculum should be a joint task of experts and members of the public. Topics about engagement in general and engagement in STI in particular could be included in classes on science, citizenship or other similar disciplines. This measure could promote citizens’ awareness, interest and willingness to be engaged in scientific debates from an early age and increase their confidence that they can be valuable partners in science and scientific governance. Furthermore, supporting initiatives engaging children and youngsters which promote civic engagement skills and improve awareness about the relevance of science in everyday life is another option relevant to addressing the particular challenge.

b) Support longer-term projects which integrate both educational *and* engagement elements into their methodologies.

While PROSO results confirm the importance of continuous, accessible, and attractive information and education opportunities to citizens on scientific topics, a top-down, one-way information flow can discourage citizens from taking part in engagement activities. Citizens are more inclined to participate and educate themselves if they are given a more active role in the R&I processes (e.g. consultation of policies, participation in research programme design, etc.) Thus, integrating methodologies which both educate the public and engage them in a two-way communication are those which have the greatest potential to create the most meaningful citizen contribution to R&I.

Providing participants with accessible information regarding the respective research at the beginning of engagement formats can give them more confidence to take part in engagement initiatives despite their perceived lack of knowledge. This was mentioned by many as a measure that would to some extent alleviate their concern about not being sufficiently familiar with the topic. Yet, others were concerned that the provided information could be intentionally or unintentionally “manipulated” by presenting experts, which would direct citizens’ opinions towards the positions expressed by experts. As a response to this, participants recommended that practitioners facilitate and promote self-learning via giving citizens access to different data sources for the duration of their participation in an engagement activity (e.g. providing them with hints about online sources where they can find relevant information on the subject and ensuring free access to libraries and museums for the duration of the engagement activity).

c) Choose engagement methodologies which do not require specific scientific knowledge.

Despite the perception that participation in engagement formats sometimes requires higher cognitive abilities and even subject-matter knowledge, citizens in the PROSO panels clearly expressed their willingness to have a say on decisions regarding research. The framing of the issue is of particular importance. To illustrate this, when discussing the engagement formats presented to them within the PROSO citizen panels and more particularly the CEB, citizens suggested that they should rather deliberate on basic issues about the direction of research than on concrete projects or detailed questions which might require more expert knowledge.

4.4 Citizens do not trust that engagement results will have impact on R&I decision-making processes.

4.4.1 Challenge description

The perceived engagement formats’ potential for achieving an impact on R&I processes, policies and outcomes plays a critical role in shaping citizens’ views on engagement. While internal incentives, such as being able to learn something new and develop new skills, was considered a sufficient motivation for some, a great number of citizens see the potential impact their inputs would have as a major reason to put efforts into taking part in engagement events.

The lack of linkage of engagement activities to R&I decision-making processes and practitioners’ incapacity to demonstrate substantial impacts resulting from engagement greatly discourages citizens from taking part in such initiatives. How engagement results will be used and whether and how they will contribute to decision-making processes are considerations which strongly affect citizens’ willingness to take part in engagement. Citizens also demand that they are provided feedback on what was achieved after the end of the engagement event and why the results they produced have not been used, if so.

Other challenges in this regard include:

- i) The impact of engagement initiatives on policy outcomes and research activities is hard to trace and can usually be demonstrated only in the long run. Engagement practitioners and organisers often lack resources and incentives to invest in monitoring and assessing the impact of engagement formats after the completion of the particular initiative;
- ii) Many share that they distrust engagement initiatives as they might only serve as an “alibi” to policy makers to pursue decisions which have already been taken. According to them policy decision-makers assign greater value to lobbying groups, political interests and expert opinions than to citizens’ contributions.
- iii) Greater impact of the engagement initiatives is associated with greater responsibility required by the participating citizens. In cases when the number of participants is considered too small, citizens shun from “decid[ing] on behalf of the whole country”¹⁰. Furthermore, citizens are not willing to take responsibility for outcomes they believe they do not have capacity to decide upon. This was mentioned especially in regard to the Citizen Evaluation Board where participants were asked to take part in deciding which research projects should be funded.

4.4.2 Identified policy and practice options

a) Support long-term engagement projects and require investing time and resources for monitoring and assessing the project impacts.

Monitoring and evaluation of project impacts after the closure of the particular engagement project rarely takes place due to a number of reasons. Impact mostly occurs in the medium and long run and organisations rarely can allocate resources (human and financial) for evaluating the achieved impact after the implementation of the engagement activity and analysing the results. The lack of commonly accepted and valid indicators for measuring the impact aggravates this issue further. Providing and allocating financial and human resources for this endeavour within the project’s lifetime is crucial for demonstrating the value of engagement to all stakeholders involved.

b) Increase transparency in terms of use of results of the engagement processes.

Transparency is a key in the process of addressing the identified challenge. Throughout the discussions at CPM1 and CPM2, citizens demanded that they are continuously informed (also beyond the end of the initiative) about the achieved impact, as well as why their inputs have not been taken into account, if so. This feedback, according to citizens, should be a formal part of the engagement process. Obliging users of engagement results (including policy-makers) to report on whether and how they have used these results was a measure which was strongly

¹⁰ PROSO Deliverable 4.2 (2017) “National Reports from Citizen Panels”

supported by citizens at the PROSO panels. In addition, agreeing a priori on decision-making procedures and rules of engagement and clarifying that not all perspectives can be taken into account would minimise unrealistic expectations on behalf of citizens. To be effective, this requires also that citizens trust the organiser of the engagement initiative.

Media reporting of engagement formats has also been discussed as a measure that could incentivise users of the engagement results (politicians and scientists) to consider them as they will have to publicly deal with these results.

c) Improve transparency towards the commissioners of engagement activities/users of engagement results.

Proper communication is critical also in terms of establishing trust between practitioners/researchers and the policy-makers commissioning the engagement/using the results of engagement. Results should be presented in a form and language, which are intelligible for those who have commissioned the engagement. In order to allow them to assess the credibility of the results provided, practitioners and researchers should duly report the limitations of their research and of the engagement process.

d) Document and disseminate successful practices.

It is important to put efforts into documenting engagement practices (with lessons learnt from both success and failure stories). Publishing case studies which demonstrate the potential of public engagement and are written in a language understandable for citizens will help motivate them to take part in engagement initiatives and understand the value of public engagement.

5. Key insights from the PROSO citizen panels

The PROSO project and its research design addressed core questions with the ambition to improve our understanding on what motivates and what hinders public engagement from the perspective of those whom we are trying to engage – the wider public. This, we believe, is necessary to successfully tackle the challenges of engagement nowadays. Besides gathering citizens' views on engagement opportunities, we also involved citizens in discussing and co-creating measures to address engagement challenges in an effort to improve our capacity to confront these challenges in a way which corresponds to citizens' perceptions and aspirations.

Below we highlight the key insights we gained from the PROSO citizen panels, to be used in improving the overall understanding of engagement opportunities as part of a more transparent and responsible research and innovation process.

- ❖ Citizens are willing to take part in R&I decision-making and express preference towards forms of public participation which assign a greater role to citizens in the R&I processes. While science communication efforts are appreciated as a learning experience and acknowledged as essential for strengthening the relationship between science and society, many citizens demand they have a say in R&I outcomes and governance.
- ❖ Initiatives that focus on top-down, one-way information flow, can be detrimental to citizens' motivations to take part in engagement initiatives. In the age of online search engines and plentiful ways to get distracted on and offline, citizens are more inclined to take part in initiatives which they see as meaningful and of societal benefit. Thus, integrating methodologies, which both educate the public and engage them in a two-way communication, are those which have the greatest potential to strengthen the science and society relationship.
- ❖ Citizens often express concerns that they may not be sufficiently knowledgeable to take part in engagement initiatives. While discussing ethical issues and defining societally-based concerns regarding new technologies is an option which might require less familiarity with the particular research topic, the majority are still in favour of more active involvement in R&I decision-making processes. At the same time, they acknowledge the importance of being well informed if they are to take part in decision-making. Addressing this dilemma is to a large extent a matter of the design of engagement formats and of scientists' communication skills and ability to excite and inspire citizens about scientific topics and explain these in layman's terms.
- ❖ There is a level of distrust citizens express towards experts. To deal with it, it is important to promote self-learning among the participants, to establish partnerships with trusted institutions, ensure transparent communication and establish continuous procedures for feedback.
- ❖ Diversity and inclusiveness of engagement initiatives are seen as paramount for the validity of engagement results and achieving impact. Citizens urge for sound representation of different groups of society and may refrain from participating if this expectation is not met.

- ❖ Some degree of digitalisation of public engagement is strongly supported by citizens to overcome the lack of magnitude of participation and inclusiveness of engagement processes. Recognising the importance of face-to-face communication and deliberations, citizens recommend using online platforms for the purposes of capturing trends in public opinions and for raising awareness among larger audiences.
- ❖ While internal incentives, such as being able to learn something new and develop new skills, could be a sufficient motivation for some, a great number of citizens see the potential impact their inputs might have as a major reason to put efforts into participating in engagement events.
- ❖ The lack of linkage of engagement activities to R&I decision-making processes and practitioners' incapacity to demonstrate substantial impacts resulting from engagement may discourage citizens from taking part in such initiatives.
- ❖ Citizens tend to mistrust that R&I policy decision-making processes reflect societal will and interests, assuming that engagement initiatives would rather serve as an “alibi” to policy makers to pursue decisions which have already been made anyway.
- ❖ Managing citizens' expectations and being transparent in communicating with them throughout the process of engagement, as well as ensuring continuous feedback on the use of engagement results, can alleviate citizens' concerns about being part of a hidden agenda. They further demanded that feedback on the use of results be a formal part of the engagement process.
- ❖ The role of media is critical not only in raising awareness about scientific developments and promoting informed scientific debates, but also in increasing pressure on policy-makers to publicly deal with results of engagement initiatives.

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Annex I - Definitions

Citizen	A citizen is any lay person, who is not professionally involved with RRI, with public engagement, or with any of the domains discussed in the panels, namely food and health, nanotechnology and bio-economy, and who does not have any special vested interests.
Invited/uninvited participation	Depending on who is the actor who initiates the public engagement opportunity, we differentiate between invited and uninvited participation. In the case of uninvited engagement, initiatives are organised by citizens mobilising themselves independently of formal decision-making institutions. In the case of invited engagement, the members of the public are invited to participate by a decision-making institution in an either structured and managed group dialogue or an open and unstructured dialogue (Source: Chilvers, J.,2010).
Life-world relation	The closeness to daily life, the intuitive meaningfulness and potential for sense making of R&I issues (Source: Habermas 1981, See D4.1 „Methodology Citizen Panels“, p. 9).
Info-text	Info-text are short texts introducing the three issues of R&I the engagement opportunities are related to. They describe real world research activities in the tone and style of a museum display. They aim at providing citizens with a dense and precise characterisation of the issue, and a language that is easy to understand and the tone lively and accessible.
Policy options	Policy options are actions (laws, regulations) or strategies, which can be implemented by the government to achieve certain goals and address a particular issue. The actors that can be involved in the development and implementation of policy options are: the government itself (national, local), EU policy-makers, the legislature, the public administration, interest groups, CSOs, media, the public.
Practice options	Practice options are actions and strategies which can be implemented by those who actively engage the public in R&I (scientists, practitioners from research institutes, CSOs, public bodies), etc.

Annex II - Invitation Letters

Year of Science 2016: Latest research for curious citizens

The **Science Café Association of Guildford** cordially invites you to a

Science Café

“Synthetic biology for green energy?”

Have you ever wondered what science has recently been doing about the challenge of sustainable energy production? From [wind parks to fuels, from sugar to hydrogen power](#) – there are many options to tackle [the energy problem](#). During the science café, you will have the opportunity to learn and discuss about one new, but contested research field – Synthetic Biology.

Meet [biologist](#) Jill Green (South Downs University) and [philosopher](#) Benjamin Miller (Watts University) in a relaxed and informal atmosphere to find out more about their work. Jill Green will talk about her research [on genetically altering algae for fuel production and the fascination and challenges that modifying organisms holds for her](#). While ‘synthetic biology’ [fascinates scientists, its real-life consequences are not yet clear](#). Thus, Benjamin Miller will address the [ethical and societal aspects](#) that should be taken into account when introducing this upcoming technology.

After their talks, you will have the opportunity to discuss your questions and comments with both speakers and the audience.

The event will be facilitated by Sebastian Potter (Watts Campus Radio).

Where: Town Hall Café, Guildford Town Centre.

When: Tuesday 19:00-20:30

Admission free (40 places available).

Please register via info@sciencecafe-watts.ac.uk

We hope to see you there for a fun and interesting evening!

Your views matter: Where should research and innovation head from now?

Dear _____,

We are writing to invite you to participate in our

Citizen Dialogue

“New foods to promote better health?”

Have you ever wondered what science recently has been doing about the challenge of **widespread illnesses** like **diabetes II** and **heart disease** that are linked to our diets, which are high in calories and sugar? The **development of new foods with potential health benefits** is a research field aiming to find solutions to this challenge. **New foods and drinks**, for instance, contain **sweeteners**, which have **no or very few calories**. These have the potential to contribute to **healthier diets** and to the **reduction of diet related diseases**. At the same time, **the development and widespread use of these new foods** is contested as they could create other problems.

Why should you participate? To ensure that research on **“diet related illnesses”** takes a course acceptable by citizens, we are interested in **your perspective** on this research field and invite you to the citizen dialogue event. While the aim of **fighting against diet related illnesses** is widely accepted, we want to know about your views, concerns, and aspirations towards the **development and use of new foods with potential health benefits**. In the citizen dialogue you and other citizens will discuss whether and how research on **new foods to promote better health** should be pursued and fostered. The citizen dialogue will be conducted by the **Institute of Technology and Society**, and has been commissioned by the **Ministry of Research**.

What does participation involve? You will meet during one day with up to **20 other citizens** and selected researchers for a discussion. Before the event, we will send you an information brochure about current research on the **development of new foods with potential health benefits**.

During the citizen dialogue:

1. Researchers will describe the current state of scientific and technological developments in this research area, and give insights into the **social and public health** perspective related to **new foods to promote better health**.
2. With other citizens in small groups of 6-7 people, you will discuss your views, concerns, expectations, and hopes for this research area. Researchers will be there to answer any issue-related questions. However, focus will not lie on technical knowledge and understanding, but on your personal opinion on the issue.
3. Each group will present their results to the other groups, and discuss them together with the researchers. Everyone will work together to formulate a joint statement about whether and how **new foods with potential health benefits** should play a role in answering the question **diet related illnesses**.

What happens with the results? We will provide the results of the citizen dialogue to the Ministry of Research. Your views will provide the Ministry with valuable information whether and how ‘synthetic biology’ may be an appropriate option to answer to the challenge of green energy production.

When: Saturday, 09:00-17:00h

Where: Conference Centre, Guildford Town Centre

If you are interested to participate, please contact us at info@citizendialogue.org. We will contact you by phone to ask you a set of questions to confirm whether you are able to participate.

Participants will be paid a stipend in thanks for their contribution to the citizen dialogue.

We look forward to seeing you there!

Sincerely,

Institute for Technology and Society

What research deserves funding?

Dear _____,

Have a say in our

Citizen Evaluation Board

“Nanotechnology to clean up the environment?”

Have you ever wondered what science recently has been doing about the challenge of sustainable energy production? The National Research Foundation (NRF) has recently launched a new research programme “Nanotechnology to clean up the environment”. Over the next two years the programme will evaluate and fund research projects that explore new ways of addressing pollutions by the means of nanotechnology.

Nanotechnology is a new research field that holds the promise to address environmental problems such as global pollution. For instance, using nanoparticles in cement allows pollutants produced by fossil fuels to be broken down. This new technology may have the potential to reduce pollution significantly. At the same time it is contested, because it could create other problems for people and nature.

Why should you participate? We are interested in your perspective on this new research field and invite you to participate in the NRF’s newly established Citizen Evaluation Board (CEB). With the CEB the NRF aims to include the opinions and needs of citizens in its funding decisions. Research on important societal challenges such as pollution should no longer be conducted separate from society, but instead enter the dialogue with citizens early on. The CEB will ensure that research projects are not only assessed by their scientific excellence but also by their alignment with societal needs, values and concerns. As part of the CEB you will reflect about the necessity and purposes of nanotechnology in the context of addressing global pollution. More concretely, you will discuss research proposals and respective potentials, risks and concerns as well as alternatives.

What does participating involve? For the next two years, together with 20 other citizens, you will become a member of the Citizen Evaluation Board (CEB) of the National Research Foundation. The Citizen Evaluation Board has the task to provide the NRF with recommendations regarding the societal relevance and concerns of research to be funded by the NRF. This means:

1. In the beginning you will participate in a half-day introduction to the aims and objectives of the Citizen Evaluation Board. You will be introduced to research in the area of nanotechnology to address environmental problems such as global pollution within the NRF. We will also explain the roles and responsibilities of the CEB in detail.
2. Over the next two years, the CEB will meet twice per year, each time over one weekend. During these two days, you will work with fellow citizens to develop recommendations on the distribution of research funds in the research area of new approaches to addressing global pollution, especially nanotechnology. These weekend meetings will include the following activities:

- On Saturday, researchers will present their new projects through research proposals. You will also have time to read more about their projects and ask questions.
- On Sunday, you will be asked to think about the research proposals and whether they should receive funding. You will rank them on factors that include societal need, public benefit, improving quality of life etc. Finally, you will discuss your evaluation together with the other citizens. Within the Citizen Evaluation Board, you will make joint recommendations to the National Research Foundation about which research proposals deserve funding. You will also suggest which aspects of their work researchers should address because of societal needs and concerns.

What is a research proposal?

Researchers often have to apply for money to do their research. To do this, they write down their research ideas and how they want to carry them out through a research project. These texts are called proposals. These proposals are evaluated by funding organisations like the National Research Foundation whose job is to distribute government money to researchers.

What happens with the recommendations? The National Research Foundation will include the recommendations of the Citizen Evaluation Board as important information in their final assessment process. Your perspectives will complement the assessment of the research proposals by other researchers (a process called 'peer review'). The NRF will then publicly justify its funding decisions not only in terms of scientific excellence, but also in terms of societal relevance.

When: Meeting every 6 months in the period 2017 and 2018, four meetings in total:

- First meeting in 2017: Information meeting on a Friday (1/2-day meeting); Saturday (whole day) and Sunday (1/2-day meeting).
- Meetings two, three and four: one meeting in 2017, two meetings in 2018: Saturday (whole day) and Sunday (1/2-day meeting)

Where: National Research Foundation, London

If you are interested to participate, please contact us at info@nrf-citizenboard.org. The CEB aims to bring together a diverse group of citizens. As such, we will contact you by phone to ask you a set of questions and to confirm, whether you are able to participate.

We would be pleased to answer any initial questions you might have by email. Further information on the citizen panel and on the NRF is available on www.nrf-citizenboard.org.

Participants will receive a stipend for their contribution to the CEB. In addition, we also cover travel and hotel costs.

We hope to see you at the information meeting, and to welcome you as a member of our Citizen Evaluation Board!

Sincerely,

National Research Foundation