



THE REVERSED SCIENCE CAFÉ, BRUSSELS JANUARY 23, 2018

Summary for participants

MARCH 2018

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1. EXECUTIVE SUMMARY

This report summarises the SPARKS Reversed Science Café (RSC) that took place on 23rd January 2018, at De Markten in Brussels.

The RSC was a key engagement event for the project, ensuring that SPARKS outcomes reached a multi-stakeholder audience at European level, but also that these stakeholders were able to have their input from a policy perspective. It was also an important milestone in the life cycle of the project to test one of SPARKS' most innovative and novel formats in a European context with the participation of European policy makers.

The Café took as its theme the notion of the “post-truth” environment as an approach to explore public engagement in RRI. The topic can be seen as a danger or contradiction in terms of public engagement and is therefore particularly challenging and relevant within the scope of SPARKS. Citizens should be engaged in science and scientific questions but what happens if they cannot distinguish truth from fake news and base their decisions on information from science-like, emotion-driven sources? To what extent does that undermine responsibility? How can the public be supported in understanding and distinguishing real science from science-like but fake and emotion-biased propaganda? What is the role of increasingly-popular social media? And how should RRI stakeholders take this into account?

Five key topics were addressed at the workshop using a participatory format:

- public trust in science;
- research-based policymaking;
- digital literacy and critical thinking;
- defining public engagement;
- the role of emotions in research.

Participants then co-created and prioritised a set of recommendations, the highest-voted of which underlined the importance of training for researchers in public engagement and education as a means to equip the public with the tools to engage.

The outcomes of the workshop strongly support SPARKS outcomes in terms of policy recommendations, reinforcing the importance of public engagement.

2. REPORT ON THE REVERSED SCIENCE CAFE

This chapter gives a more detailed description of the organisational steps and the complex processes of the RSC. It was an important event for SPARKS as it fulfilled the interactive criterion that the consortium aimed at, therefore from engagement point of view it is highly interesting. Further it features a genuine SPARKS format, developed and tested within the project.

2.1. OBJECTIVES

The Reversed Science Café “Post-truth vs. Science Engagement” was one of the key events in the final months of the SPARKS project, bringing the project partners together at European level to engage alongside key stakeholders in a topic within RRI that serves to disseminate both a format developed within SPARKS and the key issues around RRI that this project particularly addressed.

The objectives of the Reversed Science Café were:

- To demonstrate and test in a European context a public engagement technique developed within the project
- To bring together a multi-stakeholder group of 30-40 participants at European level to share in the outcomes of SPARKS, including the following stakeholder profiles:
 - Researchers
 - Science engagement professionals
 - Industry
 - Citizens
 - Civil society
 - Policy makers
- To work together with these stakeholders on key questions around RRI values, with particular attention to public engagement in order to provide meaningful input to the SPARKS policy recommendations.

2. 2. EVENT DEVELOPMENT

2.2.1. EVENT FORMAT

The Reversed Science Café format was selected as an interesting format in order to achieve these objectives. It also has the advantage of being one of the original SPARKS engagement formats and therefore demonstrated one of the project outcomes in action.

A Reversed Science Café, as defined in the SPARKS Handbook, is a discussion event focused on various ethical and societal topics related to local examples of research, technologies, innovations. Unlike a regular science café, here the dialogue is initiated by experts posing questions and listening to answers from the audience. Together they work in small groups to formulate their advice on making research and innovation more responsible.

The fact that this format prioritises the voices of participants made it a particularly useful choice to achieve the objectives of the session. Logistically, this format also fit the objectives of the event in that it should normally last three hours and be attended by a minimum of 30 and maximum of 80 people.

More details on the logistics of the event are included in Annex A.

2.2.2. THEME

For science to respond to the needs and challenges of society, citizens must be engaged. The citizen-science dialogue that forms the basis of this engagement in research is under threat from the post-truth phenomenon. We find ourselves in times when objective facts lose influence to emotions and personal beliefs in shaping public opinion. How can we understand the implications of this social/political context; what approaches are needed to tackle this challenge and continue engaging the public?

This theme was summarised in the key overall question: “How to maintain and intensify public engagement in science in times of post-truth and widespread fake news?”

Within this theme, a number of topic areas were identified, in line with SPARKS’ objectives. For each of these topic areas, a key question was defined:

- Topic 1: Public trust in science
 - What kind of direct modes of engagement with the public, other than passing knowledge only through journals and press offices, would help scientists to be more trusted?
- Topic 2: Research-based policymaking
 - How much is research taken into account when political decisions are being made?
- Topic 3: Digital literacy and critical thinking
 - How important are the joint efforts at the educational area (critical thinking) and at the media area (the digital literacy) to combat fake science? Who should be involved and what kind of institutions should feel responsible?
- Topic 4: Defining public engagement
 - What is, for you, public engagement in science and technology?
- Topic 5: Speculative design as a communication tool
 - How to use a speculative design to curate a physical object that will help us deal with fake news?
- Topic 6: The role of emotions in research
 - Climate scientists are generally reluctant to express in public how they feel about their results. Do you think it would be helpful for them to do so?

2.2.3. EXPERTS

Each above mentioned theme was presented by an expert – as the guidelines of this format require. High-level European experts were identified and invited from each field. Gender balance and geographical coverage were also taken into account when making the selection:

2.2.3.1. MARK ALFANO, Associate Professor of Philosophy, TU Delft, NL

Alfano's work in moral psychology encompasses subfields in both philosophy (ethics, epistemology, philosophy of science, philosophy of mind) and social science (social psychology, personality psychology). He is ecumenical about methods, having used modal logic, questionnaires, tests of implicit cognition, incentivizing techniques borrowed from behavioral economics, neuroimaging, textual interpretation (especially of Nietzsche), digital humanities in techniques (text-mining, archive analysis, visualization), and of course good old-fashioned intuition-mongering. He has experience working with R, Tableau, and Ceph.

2.2.3.2. CISSI ASKWALL, Secretary General, Vetenskap & Allmanhet (Public & Science), SE

Askwall has been the Secretary General of Vetenskap & Allmarthet, VA (Public & Science) - a Swedish non-profit association - since 2011. She has a diploma in journalism from the University of Gothenburg and also studied political science, psychology and theology. She worked as a news journalist and producer at Swedish Radio, the national public service broadcaster; and at the national news agency TT. She was the Head of Communications at VA and at the Royal Swedish Academy of Engineering Sciences. Furthermore, she was the Principal Secretary of a governmental investigation into how to digitalise and make Swedish cultural life more accessible, following which she was given responsibility for implementing the proposed web portal. She is a member of several international expert and advisory groups and Vice President of EUSEA, European Science Engagement Association.

2.2.3.3. MICHAL BONI, Member of the European Parliament, PL

An MEP since 2014, Boni is the Vice-Chair of Delegation to the EU-Moldova Parliamentary Association Committee, Member of Committee on Civil Liberties, Justice and Home Affairs, Committee on Constitutional Affairs and Delegation to the Euronest Parliamentary Assembly, Substitute Member to Committee on Industry, Research and Energy and Delegation to the EU-Ukraine Parliamentary Association Committee. He holds a PhD from the University of Warsaw, where he lectured in the Dep. of Polish Culture. Involved in the 'Solidarity' underground movement since 1980 and a member of the national authorities of 'Solidarity' since 1989, he became Chairman of the Mazowsze Region Management Board in 1990. He served as Minister of Labour and Social Policy in 1991 and from 1992 to 93 as Secretary of State in the same ministry. Between 1998 and 2001 he was the Chief Advisor to the Minister of Labour and

Social Policy. From 2008 he served as Minister-Head of Strategic Advisors to the Prime Minister Donald Tusk and from 2011 to 13 as Minister of Administration and Digitisation of Poland. In 2016 Michal Boni was awarded an MEP award in category research.

2.2.3.4. ANTONIO GOMES DA COSTA, Scientific Adviser, Universcience, FR

Antonio Gomes da Costa holds a PhD in Biochemistry and is a former researcher and university teacher. In 2000, he started working full-time in science communication. He held a leadership position at Ciencia Viva, the national agency for science communication and scientific culture in Portugal. At Ecsite, he coordinated the EU project PLACES, supporting 70 institutions in 23 countries to develop science communication policies at local levels. Recently, he worked as consultant in science communication for major science centres and museums throughout Europe, and for organizations in the Middle East. He is currently working in the development of the concept and contents for the future Palais de la decouverte, in Paris, which will be completely renovated by 2024.

2.2.3.5. LEA ILLERA, Artist, AT

SPARKS links Lea Illera to her studies in the field of cyborg anthropology as well as political theory, research in theory of science and communication studies. Lea and Jakob Illera are the founder of the technology driven graphic and product design company INSEQ DESIGN in Vienna, Austria. From the initial development and prototyping in their workshop, these products have come to life and have gained a foothold in the international design scene. Today they are working in different fields with companies like Brevellier Urban and Sachs, Creatacolor, and Jolly; and cooperate with international art and culture institutions such as Vienna Technical University, Thomas Dane Gallery London and Ars Electronics Center, Linz. INSEQ DESIGNS has realized art objects for John Gerrard, Cyril de Comarque and Gebhart Sengmiiller. They are enthusiastic cyclists and parents of three daughters.

2.2.3.6. PROF CHRIS RAPLEY, Professor of Climate Science, UCL, UK

Before going to UCL, Prof Christopher Graham Rapley was the Director of the British Antarctic Survey from 1998 to 2007. He was Director of the London Science Museum from 2007 to 2010. In 2008 he was awarded the Edinburgh Science Medal — "For professional achievements judged to have made a significant contribution to the understanding and well-being of humanity". Until recently, Chris was the Chair of European Space Agency (ESA), Director General's High Level Science Policy Advisory Committee.

2.3. EVENT PROCESS

2.3.1. INTRODUCTION

Maria Zolotonosa, the SPARKS project coordinator, gave the context for the Science Café, presenting the project, the “Beyond The Lab” exhibition and the participatory activities that were developed for it. She highlighted the fact that SPARKS encouraged citizens to go beyond engaging by actually taking part in research. She underlined the fact that this Reversed Science Café showcased one of SPARKS’ original formats but also allowed participants to give their input into the topic. The SPARKS Final Conference was promoted and participants were encouraged to give their input via the feedback form.

She presented the Reversed Science Café format as inspired by the traditional Science Café format, highlighting the fact that the role of expert is given to the participants present. It is a chance to talk, get involved and work with colleagues to find solutions to the issues they raise.

She made it clear that science engagement is the central pillar of the SPARKS project, building a dialogue between citizens and science and she underlined the importance of speaking up about issues of post-truth science engagement, where personal beliefs are prioritised over facts.

2.3.2. KEYNOTE

MEP Boni stated that what we need to realise before our workshop is that we are living in the post-truth era, characterised by populism and illiberal democracy. This has direct impact on our lives, on public opinion. Evidence-based policy is under threat and “fake news” is a symptom of the post-truth reality. It undermines a science-based approach, open science, our understanding of the world and our history. Post-truth societies are closed and polarised, where one part of society stands against the other. Words are weaponised; fake science data and narratives are the instruments of this war.

MEP Boni continued: some years ago, it was clear that the dominant paradigm of development should be a knowledge-based economy. At the current time we can speak of a prejudice-based economy and society. Emotional manipulation is valued over reasonable understanding, and affects public opinion. In the broad sense, there are new restrictions for the model of public engagement in science.

He explored the paradoxes of our current digital age. The digital element creates new opportunities for research and for public engagement – allowing us to process data better, provide greater access to results, strengthen education and open up the possibilities of citizen science. But it also facilitates the dissemination of fake science data and messages, making it harder to correct the message. Disinformation creates misunderstandings, undermining trust. How can fact-checking mechanisms be established online?

His speech raised a number of threats and opportunities for RRI. There have always been different paradigms of knowledge and science models. If they are open for scientific dialogue, they belong to the model of science in which there is a space for conflict, differentiation, but also for conversation, cooperation and healthy competition. What MEP Boni feels important is to ensure and keep this kind of model. It should not only be science based on the Internet community, but also based on the real community of scientists - cooperating with the public and oriented on citizens.

In addition, MEP Boni touched on the need to establish and develop tools to allow people to better respond to the threat of fake science. Media literacy, digital literacy, science literacy, education and critical thinking all have crucial roles to play.

To turn these threats into opportunities, one of the key issues to fight the fake science ecosystem is the problem of the framework we need for this fight. Institutional, legislative, social levels are all necessary. There is the question of the accountability and liability of platforms and digital channels to avoid the fake science ecosystem growing, without using censorship tools. There is also the issue of building stronger open cooperation in the community of the scientists and researchers with broad participation of citizens.

He asked the audience to consider how to establish and develop synergies among all kinds of responsibilities: individuals, as users of scientific results; scientists, open to share the knowledge; public institutions as creators of the network of institutional responsibility for science development; and politicians as leaders in understanding the dangers for democracy of the growth of fake science.

All this expresses the clear objective - to bring back trust as an anchor for research and share responsibility.

2.3.3. TABLE DISCUSSIONS

At each table, the moderator allowed each participant to introduce themselves. The moderator then invited the expert to clarify their question. Next, the expert left the table and the group were encouraged to discuss the question for 20 minutes. Next, the expert rejoined the table and the discussion continued for 15 minutes. Each group then prepared to share outcomes with participants from other groups.

One participant remained at each table together with the moderator and expert. All other participants visited two other tables to hear their outcomes, for 2x10 minutes. After a short 10-minute break, the participants went back to their original tables and reported back.

In the final 25 minutes, each group prepared a set of recommendations for the overall question: “how to maintain and intensify public engagement in science in times of post-truth and widespread fake news?” based on their discussions. Each group moderator re-introduced the expert question and participants prepared recommendations reflecting the discussion outcome. The outcome worked out by other teams may have affected the final recommendations, but not necessarily so. At the end, each group chose the two most important recommendations they wanted to present to others.

2.3.4. PRIORITISATION OF RECOMMENDATIONS

Each group wrote down two chosen recommendations and displayed them on the wall with a moderator standing nearby to explain the recommendations. Then every participant and expert received three sticky dots. Each participant visited all posters to read the recommendations written there, while the group moderators continued to remain near their “home” recommendations. At the end, each participant and expert voted for the recommendations they found the most important/suitable in reference to the main question by placing their stickers next to those recommendations.

Participants then came back to their tables. The result of the voting was presented by Błażej Dawidson who gave some final words before inviting participants for a drinks reception and to continue the conversation informally.

2.4. EVENT OUTCOMES

2.4.1. PUBLIC TRUST IN SCIENCE

Question: What kind of direct modes of engagement with the public, other than passing knowledge only through journals and press offices, would help scientists to be more trusted?

Expert: MARK ALFANO, Associate Professor of Philosophy, TU Delft, NL

Social media was a key topic for discussion within this question, with the group agreeing that more controls are needed in terms of the range of opinions and news people are exposed to. The responsibility of companies such as Facebook, Twitter and Instagram was brought into question, with the group agreeing that pressure on these companies is needed to ensure action is taken.

The importance of RRI was underlined when it comes to scientists being more transparent, co-creating in response to social needs and responding in a non-judgemental way. Co-creation of science is a way to keep citizens engaged and trusting. The group made the point that innovation can not be developed without social acceptance, and that this applies to private research and industry as well as public: both should be inclusive. Incentivisation for researchers was discussed in this context: how can we change the way research is funded, to ensure RRI is built in?

The group discussed how this applied to social sciences where mixed methods of research is preferable. A mix of quantitative and qualitative methods should be used. Human contact is very important so a scientist could be doing research by conducting interviews and at the same time informing people.

The group felt education is important on systemic level: we should be starting from an early age to develop basic skills in critical thinking.

Recommendations:

1. Diversity algorithms: The group recommended an update on the EU's General Data Protection Regulation to ensure that social media users are prompted with diverse viewpoints after engaging with news online.
2. Science engagement duty: The group recommended that regional policymakers should pilot a system where citizens are called up and obliged to participate in science engagement, rather like jury duty. The selected citizens should then engage in research group visits and have their input into the R&I process.

2.4.2. RESEARCH-BASED POLICYMAKING

Question: How much is research taken into account when political decisions are being made?

Expert: CISSI ASKWALL, Secretary General, Vetenskap & Allmanhet (Public & Science), SE

The table started with a contextualization of expert's question by introducing the work of Vetenskap & Allmanhet and the public perception of how much research is taken into account in policy making in Sweden. Taking the cue from the expert, participants shared the context in their own country and organizations. Following the tour de table, the group discussion focused on keywords (issues) that continued coming back. They related to each other and reflected on final recommendations.

The group first discussed some work done by Sense about Science to challenge the misrepresentation of science and evidence in public policymaking. Research needs to be presented in the correct way to reach policy makers. The way the story is told and presented and by whom is crucial. Visualisation can be a tool to be explored and used more recurrently. We need to shift how we communicate science. Humans are triggered by emotions and different languages (like art, movies, etc) are more affected than reports and new items. Messages should be clear and transparent.

Next the group looked at the relationship between researchers, citizens and policy makers. In dealing at EU level with policy makers and public perceptions of zoos and aquaria, EAZA encounters strong challenges in a post-truth context. Even within democratic and inclusive EU legislation system, some opinions are more valued than others. Universities are considered trusted entities and are part of the policymaking process. The group discussed how France has improved and created institutional instruments to improve citizen engagement with science and how to get science to advice policy makers with the involvement of many universities. They highlighted the importance of legitimacy in EU policy making, but pointed out that there are deviations caused by the pressure of public opinion. The Joint Research Centre of the European Commission produced a [Skills Framework for Evidence-Informed Policymaking](#), designed through a collaborative process with many key practitioners involved in the science-policy interface, that details a collective set of skills, spanning research and policy, needed to operate in this spectrum.

Citizens are a crucial component to reach policy makers. Public pressure is an instrument of change. As not all citizens can be citizen scientists, we need to explore sites where this can happen: school, programmes for the elderly. Citizens do not need to be scientists, but they need to understand their impact in society and in policy.

Much of the discussion focused on the role of science centres and museums. In the UK there is high public trust in museums and scientists, in comparison to low public trust in journalists and science journalists. This shows how museums and science centres are trusted sites of information and have demonstrated methods to engage and gain public trust. As such, science centres and museums can also be instruments to reach policy makers. As they are trusted entities, they play a role both with citizens and with policy makers, and can train researchers as well.

As for the role of researchers: they are not currently incentivised and trained to work with science communication. We need structural changes to allow researchers to communicate directly with the public. Programmes can take researchers directly to schools where they can share what they are working on - like they have in museums. There should be more collaborations with science centres and museums for researchers' training in science communication.

The conversation also covered the importance of science literacy and lifelong learning through science centres and museums, online courses and citizen science programmes. Curriculums in school must be equipped to deal with the role of social media, promoting critical thinking and digital literacy. Schools and universities should be more integrated through key programmes.

Recommendations:

1. Training and incentives for researchers to engage with the public.
2. Teach critical thinking and source evaluation in school curriculum, providing emotional incentives for lifelong learning (e.g. via documentaries).

2.4.3. DIGITAL LITERACY AND CRITICAL THINKING

Question: How important are the joint efforts at the educational area (critical thinking) and at the media area (the digital literacy) to combat fake science? Who should be involved and what kind of institutions should feel responsible?

Expert: MICHAL BONI, Member of the European Parliament, PL

The group looked first at the question of responsibility: from an institutional, legislative and social perspective. The social aspect includes the responsibility of individuals but also that of politicians, scientists and public institutions. The group agreed that there should be a shared responsibility among consumers, public institutions, policymakers and politicians. Interactions that break the silos between these stakeholders should be incentivised.

One key focus of the discussion was the process of how “fake news” is created, distributed and received. Fake news serves a purpose: the public should learn to ask themselves who is benefitting from the information that is circulated. If fake news is believed, whose agenda is it advancing? There should be a movement to encourage people to become more politically aware of the strings attached to certain information and the political interests behind many. The group felt that the producers of fake news should be tracked and that more resources should be allocated to do so.

The difficulty with fake news is that receivers of the news also become multipliers thanks to the nature of social media and the way interactions are flagged to other users in the receiver’s network. By voicing their own views, receivers of fake news also potentially become producers. The boundaries between producers, receivers and multipliers are therefore increasingly blurred. The public should be made aware that they are themselves multipliers (and even producers) when they disseminate information on social media. How many check the source or analyse the information before they rapidly “like” or retweet? Media literacy is needed here.

The importance of continuous education goes beyond media literacy – the group touched on the process of “learning how to learn” as well as democratic, social, scientific and political literacy. The notion of individual responsibility should be encouraged within a broader learning ecosystem.

The emphasis is often on the need for citizens to engage more with science, but the group felt strongly that the involvement should work both ways. Researchers need to engage with society, not only listening to citizens’ ideas but respecting them, valuing their opinions, stepping down from their podium as experts to discuss on an equal footing with society.

Recommendations:

1. Increase resources to identify producers of “fake news”.
2. Increase democratic, social, scientific, media and political literacy, for both children and adults, considering a broader ecosystem throughout formal and informal learning.
3. Involve citizens in the scientific process and make research responsive to societal needs.

2.4.4. DEFINING PUBLIC ENGAGEMENT

Question: What is, for you, public engagement in science and technology?

Expert: ANTONIO GOMES DA COSTA, Scientific Adviser, Universcience, FR

The group began by discussing two issues: 1) public understanding of science and the misconceptions around the notion; and 2) what ideal public engagement should look like. People do not necessarily have to understand the scientific background to get engaged in a topic such as vaccination or GMOs, where we see a relatively high level of engagement. They get engaged because the topic is subjectively important for them. Engagement is more than just being told something by an expert – what is often not asked is how citizens want to become engaged in science and what they want to know. Engagement can mean understanding science, participation in science governance or participation in research. In any case, public engagement should mean *active* participation. This is the baseline of the definition.

Science should be considered when taking decisions at all levels: individual or institutional. How can an individual have access to the science in order to make their decision? Politicians often like hiding behind scientific facts and push the responsibility on the researchers saying that the decision is just the consequence of the fact discovered by researchers.

When researchers want to engage with the public, they should listen to the public voice and integrate it into the value chain behind research. It should be participatory and collaborative, and for this a range of tools are available such as art practices to engage the public. Blaming people for their behaviour is not efficient. If people's behaviour is having negative effects on the environment, we should listen to the underlying arguments in order to change them.

Public engagement is not a product, like an interview. It is a process. Therefore making interviews to engage will not work. Mere data display will not create engagement either. Engagement is about real interaction and collaboration between different stakeholders and researchers. All researchers should be able to create these links and perform some kind of engagement - not necessarily the same kind of engagement for each. A cardiologist does not necessarily have to explain how he operates in collaboration with a painter while a space researcher can use art to make the universe more attractive. There are no absolute rules or recipes for public engagement.

Likewise, science should not be treated as an absolute truth and a discipline that give the answers to everything but should be seen as a way to ask questions. Science should become part of our culture and should be accessible to everyone. Science is not the privilege of a certain societal class who can afford scientific studies. The purpose is not that everyone becomes scientist, only that everyone enjoys and understands science (to some extent, mainly the way it is applied).

Recommendations:

1. Understand the public – not regarding them as a single, homogeneous mass but as a diverse set of audiences. “Shut up and listen” – ensuring engagement in research is two-way.
2. Collaboration among professionals, stakeholders, not only displaying data. Go offline, explain the results and make them visible and understandable.

2.4.5. THE ROLE OF EMOTIONS IN RESEARCH

Question: Climate scientists are generally reluctant to express in public how they feel about their results. Do you think it would be helpful for them to do so?

Expert: PROF CHRIS RAPLEY, Professor of Climate Science, UCL, UK

The discussion started by addressing the issue of emotions in climate research. Scientists' emotions are often portrayed as passionate about their research, aiming to convince the public but also making their voice heard in a competitive environment. The counterpoint to this is the portrayal of scientists as desperate about the results of their research and concerned about the future of global climate. The public perception of scientists, and therefore the acceptance of their message, is dependent on the emotions they are seen to manifest. To be taken seriously, scientists should be shown to be neutral, not driven by ego and not attempting to manipulate their audiences.

The group looked at how scientists can adapt their message and communication in order to better connect with audiences. Empathy and storytelling were identified as key factors that can put a message across successfully – the more a scientist is perceived as human, the more successfully they connect with people. This requires universal, non-technical language to communicate research results to the public. The audiences' expectations must be kept in mind – people are often dealing with difficult emotions like doubt, blame and fear in relation to climate change. Scientists must be able to relate to their daily life experiences. This can also benefit researchers and should be seen as an opportunity, a safe space, acting as a kind of coping mechanism for them too.

Key questions for scientists to ask themselves include: what emotions do you want your audience to feel? What should people do with the facts they are given – what sense of direction do we want people to have?

Scientists must acknowledge their audiences' reasons to believe what they believe, to counter their rejection – not taking a superior approach, but showing humility and avoiding their own prejudices.

Education is also necessary to promote interaction between schoolchildren and scientists. A budget must be allocated to connecting science and education, incentivising researchers to engage, with public engagement as a key research deliverable.

Policy making was another key element of the conversation. The group noted that the public trust scientists more than politicians, and that the language of science can play a key role. Museums and researchers working together can contribute to policy-making by providing reliable science that engages the public.

In terms of digital and political literacy, the group felt that silos should be broken down between education, policy-making and research. Lifelong learning can play a role here, ensuring digital literacy and increasing interaction between science and society. Citizens are multipliers and should be regarded as such.

Lastly, the group looked at the notion of trust. Politicians have a key role to play in ensuring citizens trust science. Through social media there is a multiplying effect that can affect trust – responsibility must be taken to manage social media content.

Recommendations:

1. Share collective intelligence and promote training of scientists in communication and psychology of how people make sense of the world.
2. Do not try to change the system as a whole, but cultivate “hotspots” that will grow and spread. Invest in people that will have a multiplying effect, such as teachers and thought leaders.

3. CONCLUSIONS

The Reversed Science Cafe format proved its legacy and acceptance by a varied European audience. Participants enjoyed the discussions and appreciated that their opinion was taken into account.

The recommendations as a whole highlight a number of critical elements to ensuring that engagement in research counters the current “post-truth” environment. The most commonly-mentioned topic across all five discussion tables was the need for the research process to open itself up to multiple stakeholders, integrating societal voices throughout, much along the lines of the RRI model that SPARKS focuses on. The three most-voted recommendations in particular give insight into methods to achieve this:

- A. Training and incentives for researchers to engage with the public.
- B. Teach critical thinking and source evaluation in school curriculum, providing emotional incentives for lifelong learning (e.g. via documentaries).
- C. Do not try to change the system as a whole, but cultivate “hotspots” that will grow and spread. Invest in people that will have a multiplying effect, such as teachers and thought leaders.

Recommendations A and B reflect the priorities of the Engagement and Education pillars of RRI, ensuring a systematic approach, and targeting both the researcher and the citizen side. One focuses on scientists learning how to engage with the public, equipping and incentivising researchers to engage. The other is the counterpoint: ensuring the public is engaged, thinking critically, starting from a young age and continuing into adulthood. Recommendation C suggests an approach to how this can be achieved, identifying good practices and multiplying, scaling them up, which can unlock a greater impact across Europe.

These three most-voted recommendations were largely representative of the discussions of all five tables. The notion of incentives for researchers that we see in recommendation A came up on at least 2 tables, and the importance of skills for researchers on at least 3, emphasising that it is not enough to encourage researchers to engage, but they must be systematically rewarded for opening up their research in order for this more society-oriented approach

to take hold. The concept within Recommendation B, equipping the public with similar skills, was mentioned across all five tables, with several pointing to ways that this could take place within both formal and informal education, such as through science centres and museums as the space where research, policy and the public can come together

Recommendation C gave one approach to the method through which Recommendations A and B could be implemented, but other approaches were mentioned in other discussions: three tables brought up the importance of clear messaging and how that could be put across, including through visualisation, for example in art. Social media was another key channel, singled out at three tables, as an important means of reaching people within the context where fake news is disseminated.

These outcomes of the workshop will be utilised together with other learnings from the project activities in the policy recommendations of the SPARKS project and show multi-stakeholder support for an RRI values through public engagement in science.

ANNEX A: LOGISTICS

A.1. TABLE MODERATORS

This format requires the presence and the facilitation by a moderator for each table. It is important for the format that the role of table moderator is separate from those of the experts and from the role of main moderator of the event. Table moderators were appointed from the SPARKS consortium members. They were briefed about the steps and their tasks prior to the event. Table moderators were: Catherine Franche, Maria Zolotonosa and Suzana Filipecki Martins from Ecsite, Mateusz Pawełczuk from Copernicus Science Centre , Anett Ruszanov from ERRIN and Clémentine Daubeuf of KEA.

A.2. MAIN MODERATOR

Błażej Dawidson of Copernicus Science Centre led the moderation of the event. He introduced the event, supported the table moderators, oversaw the timing and structured the presentation of key outcomes.

A.3. INVITATIONS

A standard invitation template was drawn up and circulated throughout project partner mailing lists. In order to attract citizens as well as professional stakeholders, a Facebook event was created, which attracted over 200 responses. Registration was implemented via the Typeform online tool.

A.4. VENUE

The venue chosen was De Markten, a cultural centre in the St Catherine neighbourhood of Brussels. The choice of venue and its location in particular reflected a deliberate decision not to host the Science Café in a venue typical of Brussels policy events, which tend to be held in the European Quarter in hotels and conference venues. De Markten is known as a Flemish cultural centre that supports arts and culture with a lively café. This lent itself well to the arts angle of the SPARKS project and fulfilled the requirement of a Science Café that needs to be held in an appropriately convivial venue where refreshments are available.

A.5. SETUP

A registration table was set up at the entrance to greet participants, provide them with a badge, a programme for the event and a SPARKS brochure. Participants were invited to choose a table topic and were given a sticker for that table in order for the organisers to keep track of the number of participants per table.

Six tables were set up in the main café area, around a small platform where microphones were set up for speakers. Each table had eight chairs for participants, plus one expert and one moderator per table. The tables were prepared with the red checked tablecloth typical for the Science Café setting. Coffee, soft drinks and cakes were available at the refreshments table, placed to one side of the room.

Since one of the experts, Lea Illera, was ill and unable to attend, only five groups were formed at the event. “Topic 5: Speculative design as a communication tool” was therefore not addressed directly by a designated table, but all participants, experts and moderators were encouraged to bear the question in mind during their discussions, and the role of art and design was brought up in a number of conversations and captured in the outcomes.

A.6. ENTITIES/ORGANISATIONS REPRESENTED AT THE EVENT

- AHTI
- Bayer
- Center for Research and Interdisciplinarity Paris
- Copernicus Science Centre
- Culture Action Europe
- Delft University of Technology
- EAZA
- Ecsite
- ERRIN
- EUFIC
- European Commission
- European Commission - Joint Research Centre
- European Parliament
- European Schoolnet
- FOTRRIS
- Freelance
- KEA
- Royal Belgian Institute of Natural Sciences
- Science Europe
- Science Museum Group, UK
- Self-employed
- Sense about Science
- Stiftung Neanderthal Museum
- Universcience
- University College London
- University of Antwerp
- VA (Public & Science)
- WILA Bonn