NanoDiode governance workshop:

Engaging Societal Stakeholders in Nanotechnologies and other Key Enabling Technologies

4 December 2015, 09:00 - 13:00, Covent Garden, Brussels

Workshop report

A NanoDiode governance workshop was held on 4 December 2015 at Covent Garden in Brussels. This half-day workshop brought together European Commission staff (DG RTD), partners of the NanoDiode project[1] and invited experts to discuss opportunities for organising stakeholder engagement as a central element of responsible research and innovation (RRI) in nanotechnologies and other key enabling technologies. It presented the findings from the NanoDiode project and sought to find solutions to practical challenges in engaging citizens and civil society organisations in European research and innovation.

Christos Tokamanis, Head of Unit D.3 Advanced Materials and Nanotechnologies, opened the meeting by stressing the need for a 'third generation' of engagement projects, involving all stakeholders in nanotechnologies to ensure that research and innovation processes are responsible, i.e. safe, ethically sound and targeted towards addressing societal challenges. He noted how the social sciences and humanities (SSH) dimension has been integrated in the NMBP programme (Nanotechnologies, Advanced Materials, Biotechnology, Advanced Manufacturing and Processing) from the outset and called for a continuous platform for societal engagement. As the development of nanotechnologies is in essence a socio-political endeavour, the key point is to enhance collective understanding of their impact by involving all stakeholders in a balanced way.

Introductory presentations: rationale and key findings from NanoDiode

The workshop subsequently introduced the NanoDiode project, the rationale for nanotechnology engagement and key findings from the project. Daan Schuurbiers briefly presented the meeting objectives, placing the question of stakeholder engagement within the broader policy context of innovation governance. He argued that we are at the verge of a new mode of research and innovation: changing societal, technological and environmental factors [2] are challenging the traditional model of research and innovation as a closed, linear trajectory from basic research to applied research to innovation and production. While the old model is increasingly criticised, the new model is just beginning to emerge. The question of stakeholder engagement (in particular civil society) thus falls within a broader area of experimentation into

[1] NanoDiode is a project for outreach and dialogue on nanotechnologies, funded by the European Commission. From July 2013 to June 2016, NanoDiode has organised a range of engagement activities across Europe, involving stakeholders in a dialogue on the funding, performance and outcomes of nanotechnologies research. See: www.nanodiode.eu

[2] A detailed analysis of these factors is beyond the scope of this report, but societal factors include such general trends as the instant availability of information and global connectivity in the Digital Age, mounting public calls for transparency and accountability and the erosion of public trust in research. Technological factors include the shift in research cultures from the ideal of the curiosity-driven, individual, isolated pursuit of knowledge to a highly application-oriented, collective enterprise with a significant annual turnover and the resulting expectations for return on investment in terms of competitiveness. Environmental factors include a growing awareness of the limits to perpetual growth in a world of finite resources, the potential harmful environmental effects of new production processes and the need to focus research and innovation more effectively towards addressing pressing environmental challenges.

opening up the research and innovation system to societal needs and values. The workshop therefore sought to explore opportunities and challenges for organising stakeholder engagement as a means to enhance the responsiveness of research and innovation.

Doreen Fedrigo-Fazio from the European Trade Union Institute subsequently presented the rationale for stakeholder engagement. She argued that taking research and innovation from a closed loop approach to an open, collaborative, iterative process helps advance the EU policy objectives of science with and for society[3] and responsible research and innovation.[4] Stakeholder engagement can help to identify the sweet spots between societal needs and challenges and technological applications, makes complexity more manageable through multidisciplinarity and provides a response to growing societal demands for responsibility.

To be successful however, stakeholder engagement has to connect to the public policy context: if the engagement exercise doesn't affect real-world decisions it may have an adverse effect, eroding rather than building trust among citizens and stakeholders. Criteria for success are therefore to ensure the highest level of participation, build trust between participants (without implying consensus), present the available information in a balanced way (avoiding hype as well as doom and gloom) and design engagement as a central element of research and innovation activities.

Mikko Rissanen from Stuttgart University then presented the findings of various stakeholder engagement activities within the NanoDiode project, specifically the multi-stakeholder dialogues, 3rd generation deliberative processes and user committees organised in Austria, Germany, France, Italy, The Netherlands and Poland. He concluded that these activities created a space for open dialogue at different stages of the research and innovation process. They strengthened the role of stakeholders as political actors by facilitating direct, application-focused contributions and allowing a deeper understanding of public preferences. The engagement activities presented opportunities to adjust the direction of research and innovation in light of societal considerations, with the potential to enhance both the quality of the outcomes and their social acceptability.

These experiments in stakeholder engagement also pointed towards challenges: their voluntary nature made it difficult to directly impact technological and policy decisions. The organisers, as outsiders to the innovation process, did not have a formal mandate to shape innovation trajectories. It also proved difficult to actively involve citizens and stakeholders without a clear reward for them in terms of either financial resources or influence. Hence, the windows of opportunity for productive stakeholder engagement need to be more accurately defined in terms of the mandate (embedding in formal processes), added value for participants, organisational settings and expected impact.

Discussion: finding solutions to challenge areas

Participants discussed challenges to implementing stakeholder engagement in the everyday practice of European research projects and programmes. A central element of these discussions was that the purpose, structure and added value of stakeholder engagement are not immediately obvious to everyone. Responsible Research and Innovation (RRI) and the Social Sciences and

[3] https://ec.europa.eu/research/swafs/index.cfm
[4] https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation

Humanities (SSH) are formally integrated as cross-cutting issues in Horizon 2020,[5] but it is not always clear what exactly this implies for specific programmes and projects.[6] Participants noted that there is no clear structure or systematic approach at the project level that defines, when, where and how stakeholders are to be engaged.

There was considerable discussion on the question when stakeholder engagement is most appropriate and effective. Should it be addressed at the individual project level or perhaps at the level of groups or clusters of projects? The involvement of broader stakeholders may not be required for every single project, and project consortia might bear the unnecessary burden of having to organise engagement processes, possibly facing uncooperative stakeholders without the relevant expertise. These considerations would favour a cluster-level approach, addressing stakeholder engagement in an informal way: projects could be informed and encouraged to engage stakeholders but can decide by themselves how. The risk of this approach is that the majority of research consortia will simply conclude that stakeholder engagement does not apply to their project without giving it any further thought.[7] As one participant remarked, what is important is not that each project ticks the box of stakeholder engagement, but that reflection on the wider impacts becomes part of the research culture. It should become a natural part of research and innovation projects to consider: what are the potential impacts of this project? How will stakeholders be affected? How can they be involved in the decision making process?

The workshop participants suggested a range of policy options to realise this longer term objective: establishing an expert service on societal stakeholder engagement which can help running projects to organise their engagement activities, along the lines of the Exploitation Strategy and Innovation Consultants (ESIC) service within the NMBP programme; offering practical training on societal engagement for project officers, coordinators and European Technology Platforms; raising awareness at the cluster level by organising coordinators' workshops on stakeholder engagement; organising a moderated dialogue with societal stakeholders; including stakeholder engagement in relevant call topic descriptions; building networks of stakeholder engagement experts; and including stakeholder engagement as an explicit topic in performance appraisals.

The business case for stakeholder engagement

As the workshop participants observed, there is no reward for engaging stakeholders in the current system. Without a clear mandate or obvious benefits, it may prove difficult to embed stakeholder engagement in the everyday practice of European research and innovation.

[5] Proposal for a Council Decision establishing the Specific Programme Implementing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020), Annex I, Section 1.2.

[6] The European Commission is monitoring the integration of RRI and SSH in Horizon 2020, see: European Commission (2015). Integration of social sciences and humanities in Horizon 2020: participants, budget and disciplines: http://ec.europa.eu/newsroom/horizon2020/document.cfm?doc_id=11232. See also: Rodriguez, H., E. Fisher & D. Schuurbiers (2013). Integrating science and society in European Framework Programmes: Trends in project-level solicitations. *Research Policy* 42:1126-1137.

[7] This discussion points towards an underlying problem in implementing cultural change. Initiatives to enforce change, for instance by including quantitative indicators of the desired effect as an explicit funding criterion, often have a tangential effect. Without further understanding or appreciation of the motivation to include that criterion, it will be addressed instrumentally, as another box-ticking exercise, introducing another layer of cost without achieving the original objective. This results in a chicken and egg situation: changing the status-quo needs to happen by some form of enforcement because the status quo does not reward 'deviant' behaviour. But enforcement leads to resistance and unwanted behavioural effects, adding another layer of bureaucracy without making a real difference. So enforcement is futile, but without enforcement nothing will happen. This is the 'Catch-22' of promoting institutional change in highly autonomous professional cultures. See also: Schuurbiers, D. (2010). Social Responsibility in Research Practice - Engaging applied scientists with the socio-ethical context of their work. Simon Stevin Series in Ethics of Technology, vol. 6, p. 7.

These observations led to the conclusion that a convincing business case for stakeholder engagement is needed, defining the benefits for different stakeholders by way of compelling examples. These examples should clarify how stakeholder engagement can both enhance the quality and value of research and innovation by strengthening dialogue between different social actors that directly or indirectly influence social acceptability.[8] They should indicate how early involvement of stakeholders can lower the cost of public resistance against technological innovation that can be prevented if societal concerns are taken seriously. The recent history of the national electronic patient dossier in The Netherlands is a case in point: a €300 million investment was lost because a top-down initiative to implement electronic patient dossiers nationwide failed to take legitimate privacy considerations into account.[9] Many more examples are needed to demonstrate the added value of stakeholder engagement.

Another element of the business case is to clearly present when and where stakeholder engagement makes sense, and how it can be organised. The notion of 'stakeholder engagement' is an umbrella term that groups together a wide range of activities on different levels, from formal social dialogues on a European level to ad hoc user committees around single research topics. To make the field more accessible to those with no prior experience, it would be helpful to create concrete, ready-to-use tools that people can work with for each of these types of activity, suggesting where they have been employed, by whom and with what concrete outcomes. Several European projects are currently focusing on societal engagement and responsible research and innovation such as ENGAGE2020, Res-AGorA, SATORI and RRI-TOOLS,[10] but the workshop participants were largely unfamiliar with these projects. This suggests that further efforts are needed to make existing experience more accessible and actionable.

Conclusion: stakeholder engagement as a field of experimentation

The workshop discussions demonstrate the interest, existing efforts and challenges in strengthening stakeholder engagement in research and innovation. On a global level, technological and societal trends are pointing towards a new model for innovation governance that effectively integrates societal considerations in research and innovation. But it is as yet unclear what that means exactly in terms of individual research projects. European projects such as NanoDiode, ENGAGE 2020 and RRI-TOOLS offer new insights into productive stakeholder engagement, but further experimentation will be required. Future efforts need to focus on communication and translation of these insights, explaining which range of tools to use where and when and for what purpose, and clearly explaining the benefits for those who engage in stakeholder engagement.[11] Buy-in from all stakeholders will be essential for the transition towards a research and innovation system where societal considerations become part of the innovation drive rather than a problem to be addressed.

[8] The sustained social dialogue in the construction industry between the European Federation of Building and Woodworkers (EFBWW) and the European Construction Industry Federation (FIEC) is a recent example of successful collaboration between stakeholders: http://www.efbww.org/default.asp?Issue=Social%20Dialogue%20Construction&Language=EN

[9] http://nos.nl/artikel/229269-epd-niet-door-eerste-kamer.html See also: https://www.rijksoverheid.nl/binaries/rijksoverheid/documenten/vergaderstukken/2011/05/02/specificatie-van-de-kosten-van-het-elektronisch-patientendossier-epd-bijlage-1/meva-3061881b.pdf

[10] http://engage2020.eu/; http://res-agora.eu; http://www.rri-tools.eu; http://satoriproject.eu.

[11] This will be the topic of a NanoDiode policy brief to be published in 2016.