



Source: BMBF

Responsible nanotechnology R&I – Societal engagement practices

Citizens meet experts - BMBF (Germany)

Introduction

NANO2ALL is an initiative funded by the European Union's Horizon 2020 Research and Innovation programme under the Grant Agreement Number 685931. It supports the establishment of Responsible Research and Innovation (RRI) policy and governance on nanotechnologies. NANO2ALL also aims to identify RRI practices, with a focus on societal engagement in nanotechnology research and innovation (R&I) across Europe and beyond, with the purpose to share knowledge, experience and recommendations with other nanotechnology stakeholders and motivate a wider application of such mechanisms in our region.

RRI is an approach that anticipates and assesses potential implications and societal expectations with regard to R&I, with the aim to foster the design of inclusive and sustainable R&I. As a dimension of RRI, societal engagement implies interactions between relevant stakeholders (companies, research organisations, policymakers, civil society organisations (CSOs), consumers, affected citizens and others) in order to align research, development and innovation with the values, expectations and needs of the society. Such interactions can take various shapes, such as brainstorming, scenario workshops, user committees, online forums, dialogues, informal / formal meetings, or other formats.

In the present report we aim to present a societal engagement practice which brings together citizens and experts to discuss Research and Innovation (R&I) in Nanotechnology in Germany. The practice is implemented by the German Ministry of Education and Research (BMBF). The report, first, describes the contribution of BMBF in R&I in Nanotechnology and explains how it fosters RRI. Second, it summarises the main aspects of the societal engagement practice and, third, it concludes with lessons learnt and recommendations for similar endeavours. The report has been developed via desk research and an interview with the facilitator of the societal engagement practice of BMBF.



BMBF: R&I and RRI

BMBF for Research and Innovation (R&I)

BMBF is the central policy-making body of Germany in education and research. It has a strategic role as regards the future of R&I in the country, as it organizes the system of science, and sets the research and innovation agenda. Besides this, it plays the role of funder, providing support to future technologies, including Nanotechnology. In 2017 BMBF invested more than 17 billion Euros in education and research.¹

For BMBF, education, research and innovation are key areas for the future of Germany. Research is seen as salient to tackle global problems such as the question of sustainability and problems of public health, while innovation can promote the competitiveness of the economy. Promising technologies such as Nanotechnology are supported by BMBF to lay the foundations for the transition to the Fourth Industrial Revolution.

In particular and as regards Nanotechnology, in the Nanotechnology Action Plan² the Ministry sets out the strategy for the future of this technology in Germany, the instruments to foster value-added R&D for the development of products made in Germany, and the ways to address the risks of Nanotechnology for the environment and human health.

Responsible Research and Innovation (RRI) at BMBF

Judging from the above-mentioned focus of the Ministry on addressing the risks of Nanotechnology, we conclude that RRI (even when it is not named as such) is particularly pronounced in the R&I philosophy of BMBF. This is demonstrated as well in the following points:

- First, for BMBF innovation encompasses as well social innovation, which involves societal actors as central players in R&I processes.
- Second, the Pact for Research and Innovation³ aims among other things to strengthen the exchanges with businesses and society and to create R&I structures which are equitable and family-friendly.
- Third, in the same Pact, the goal of attracting younger researchers and of promoting female top staff in leadership positions is also centre-piece.
- Last and importantly and as regards a number of technologies, including Nanotechnology, the Ministry organises a number of events called “citizens meet experts”. These events enable societal engagement in Nanotechnology, thus informing thoroughly citizens who can then express their needs, values and concerns regarding Nanotechnology. The rationale for these events is accountability (citizens must be aware why funds are spent in Nanotechnology R&I) and responsiveness of the Ministry towards emerging concerns of the public as expressed in the Media. The contents of this stakeholder engagement practice are presented below.

“Citizens meet experts”: BMBF and societal engagement in Nanotechnology

Societal engagement in the case of the BMBF practice focuses on the topic of safety of Nanotechnology, since this is the one mostly emphasized by the citizens and the Media. Additionally, risks and opportunities arising from Nanotechnology are also discussed, as well as the acceptance of this technology by the public. The purpose

¹ BMBF, *Zukunft? Beste Aussichten! Lebenswertes Land – Mit Bildung und Forschung*, https://www.bmbf.de/pub/Zukunft_Beste_Aussichten.pdf (accessed: June 19, 2018) p.8.

² BMBF, *Nanotechnology Action Plan: An inter-departmental strategy of the Federal Government*, https://www.bmbf.de/pub/Action_Plan_Nanotechnology.pdf (accessed: May 20, 2018).

³ For more details, see: <https://www.bmbf.de/de/pakt-fuer-forschung-und-innovation-546.html> (accessed: June 19, 2018).



is to inform the public about research which tackles safety aspects of Nanotechnology, in order to address the concerns of the citizens and ensure that scientific facts and not Media hype inform the crucial debates about this technology.

In the events, the main part is the interaction of citizens with scientists. Citizens ask questions to the experts to get a better understanding of the topic. The events are open to everyone interested to join and there are no prior requirements for participation. In order to enable a debate of high standards, information materials are distributed to the participants so that they become aware of the basics of Nanotechnology. Additional information is published on the internet and the participants are informed about this in advance.

The societal engagement practice started between 2008 and 2010 and still continues with events taking place twice a year in different regions in Germany in order to cover the country completely. Recently the practice has been altered as Nanotechnology is now being integrated into the broader theme of Materials Science. This is related as well to the fact that the pressure from the Media on Nanotechnology safety has declined.

The sessions have been evaluated as very successful, judging from the number of people who have participated and from the general feedback of the participants. Citizens have been able to ask questions after the end of each event and all questions have been answered. The results from the events have primarily comprised questions and answers on practical matters. However, when the considerations of the public are relevant for the R&I agenda of the Ministry, these are taken into account in future decisions about research funding, particularly in the thematic area of safety. Thus, citizens via their participation in these dialogues have influenced to a certain extent the R&I agenda of Nanotechnology.

Judging from the early start of this societal engagement practice, BMBF is one of the pioneers in the field of societal engagement in Nanotechnology. The same can be said about other Ministries in the Federal Republic of Germany (such as the Ministry of the Environment), which is organising dialogues engaging a number of stakeholders (such as NGOs and other civil society organisations), as well as industrial actors in Germany who have been engaging with stakeholders for a significant period of time. Therefore this aspect of RRI is well-developed in Germany.

Recommendations

For parties who would like to organise similar societal engagement events, we received the following recommendations from the facilitator of the events:

- First, the organisers should make the event open to the public. It should be made clear to the citizens that anyone who wants to join is welcome regardless of their background or prior knowledge.
- Second, to involve as many stakeholders as possible. The events that BMBF organised were targeting citizens and experts. However, it is advised to engage a multitude of stakeholders, such as NGOs and the civil society in general and the industry.
- Third, to communicate in an open manner and based on scientific evidence. A primary goal of the BMBF events were to respond to media headlines which were exaggerating about the issue without providing scientific facts. Future events should be based on science too.
- Fourth, to select scientists who are good communicators and can translate scientific knowledge into everyday language. Not all scientists can do so, but at the same time citizens cannot always read and understand scientific papers. Therefore there is a need to bridge this gap and by selecting the right people to communicate the success of an event is assured.

As regards the need to foster RRI in Nanotechnology, the main aspect raised by the representative of BMBF is to make more use of social media. In this way a much larger number of people can be engaged in interactive activities which increase their knowledge and their capacity to be involved in technological debates.