



## Our Building Blocks for the Future

In the last months, NANO2ALL organised several dialogues including a European multi-stakeholder dialogue, as well as six national multi-stakeholder dialogues. During these events participants discussed **how societal values, needs and concerns can be better reflected through an increased uptake of societal engagement in R&I in the area of nanomedicine, nanotextiles and nanotechnology applied to brain-computer interface.**

The sessions brought together policy-makers, researchers, industry, interest groups, science journalists and citizen that took part in interactive group work, open discussions and a scenario exploration experience developed and adapted to the area of nanotechnologies by the Vrije Universiteit Amsterdam (VU) and the Joint Research Centre (JRC) of the European Commission (EC). The results of these dialogue events will be taken forward towards decision makers in the area of science and technology to support them in the development of policies that stimulate improved alignment between nanotechnology R&I and societal expectations.

Through this newsletter you will learn more about these events, as well as other NANO2ALL results, such as the Made By Citizens objects page, the Nano2All Roadmap, and the societal engagement practices collection in the area of nanotechnology. We also gathered for you news from other interesting initiatives. We thank you for your interest in NANO2ALL and wish you good reading!

NANO2ALL Team.

NANO2ALL - Nanotechnology Mutual Learning Action Plan for Transparent and Responsible Understanding of Science and Technology aims to create a climate of dialogue and aspires to engage different societal groups (citizens, researchers, technology developers, policy makers, civil society organizations and journalists) in discussing how nanotechnology can result in socially desirable solutions and products through Responsible Research and Innovation (RRI) uptake. It also debates how the involvement of the public and stakeholders can be increased in nanotechnology research and development (R&D), allowing such communities to contribute to shaping the future of these technologies. This 42-month initiative started in October 2015 and has received funding through the Horizon 2020 programme of the European Union.

NANO2ALL is coordinated by Sociedade Portuguesa de Inovação (SPI), and the consortium is composed of 11 other partners: Vilabs (Greece); MALSCH (The Netherlands); APRE (Italy); ECSITE (Belgium); NANO futures (Belgium); EUSJA (France); EMRS (France); VU/VUmc (The Netherlands); UNINOVA (Portugal); SYSTASI (Greece) and JRC (Belgium).

NANO2ALL also integrates science centres that are members of Ecsite (The Bloomfield Science Museum, Jerusalem, TRACES,

More information on NANO2ALL is available at

[www.nano2all.eu](http://www.nano2all.eu)

## National Multi-stakeholder Dialogues

### What were the National Multi-stakeholder Dialogues about?

The NANO2ALL National Multi-stakeholder Dialogues were deliberative events that took place in France, Israel, Italy, Poland, Spain and Sweden between October 2017 and February 2018. They aimed to gather input from various relevant stakeholders and discussed how societal values, needs and concerns can be better reflected through an increased uptake of societal engagement in R&I in the area of nanomedicine, nanotextiles and nanotechnology applied to brain-computer interface. Between 10 to 20 participants attended each dialogue held in local languages to allow greater interaction between participants.



The dialogue consisted of **three main blocks**. The first block aimed to enrich participants' understanding of what societal perspectives could entail in relation to nanotechnology developments. The second block of the dialogue was the Scenario Exploration Game. It is a tool that allows participants to playfully experience and act through alternative futures, by thinking and discussing outside of their usual frame of reference. Finally, in the last block, participants worked in pairs and groups to discuss (inter)actions required to better identify and integrate societal perspectives in nanotechnology research and innovation.

### SOME FINDINGS:

The **need for greater interaction** and closer dialogue between the researchers, industry, policy-makers and citizens was considered essential, **especially at earlier stages in the research and innovation process** - before products and technology applications reach the market - to allow for meaningful consultations and timely changes. However, different dialogues events revealed different views on the scope and level of citizens' involvement in the research and innovation process.



In some countries, participants called for the inclusion of citizens in policy-making processes via **debates and consultations** (e.g. perhaps related to current societal challenges), while in other dialogues, participants did not necessarily recommend placing citizens in direct contact with stakeholders such as researchers and industry, favouring instead the **transmission of societal needs, values and concerns by mediators such as groups of better informed citizens, civil society organisations (CSOs) and policy makers**.

Policy-makers were recognised as having a strong role to play in ensuring that these mediators can operate in the research and innovation system. Other systemic changes included a **multi-stakeholder approach to funding processes and the implementation of research programmes**.

Much was discussed about the need for **deeper knowledge among the general public about nanotechnology**, as a prerequisite to its engagement. Clear and understandable information and critical thinking skills were specifically mentioned across all dialogues. Both short and long-term solutions were proposed, among which the development of a scientific culture and a stronger role and greater responsibility of policy makers and CSOs in providing training and education.

Industry, researchers and policy makers were also urged to show greater openness and willingness to take societal perspectives into account. Various suggestions for actions that could enable this were made, such as the **creation of**

spaces in which they could exchange their goals and work on enhancing mutual understanding. Such spaces could be established at local or regional levels where ties are stronger.

Moreover, it was acknowledged that researchers need time and funds to open up towards society and to feel that activities outside academia (i.e. advice to policy makers, outreach to the public) are considered a valuable addition to their scientific careers. **Interdisciplinary collaborations were seen as a helpful means to connect researchers to other (societal) perspectives.** For this reason, capacity building programmes for researchers to acquire the skills needed to communicate with other disciplines, particular stakeholders such as policy makers, and the general public were a concrete suggestion made by participants.

Some recommendations also touched on changes needed to promote responsible innovation more generally: issues of quality control, transparency and ethics, including the broader societal effects of nanotechnology, were very much on the minds of dialogue participants.

**The report of the National Multi-stakeholder Dialogues can be downloaded by clicking [here](#).**

In addition, you can learn more about the training offered to participants in the [Training Report](#) that presents the materials developed and how these were incorporated in the programmes and as background materials for these dialogues.

## European Multi-stakeholder Dialogue

On April 9<sup>th</sup>, the NANO2ALL “Building Responsiveness” workshop was held at the EC in Brussels. The workshop aimed to find out what would be needed to make the nanotechnology research and innovation ecosystem more responsive to societal perspectives. 29 participants with diverse professional backgrounds attended the workshop, including policy-makers, nanotechnology scientists, intermediaries (e.g. RRI experts, social scientists, a science journalist) and representatives of industry and civil society organizations.



Some of the participants had already participated in earlier national NANO2ALL dialogues (i.e. citizen dialogues or multi-stakeholder dialogues). The workshop consisted of several exercises. The morning exercises were of an exploratory character, focusing on the **concept of responsiveness** and what this concept would look like in different future worlds and different nano-enabled application scenarios.



### SOME FINDINGS:

The involvement of societal actors, including citizens, and interaction between stakeholders were considered important for building responsiveness in nanotechnology R&I. The need for **incentives and platforms for actors to structurally interact** with other stakeholder groups was emphasised, as well as **challenge-led forms of public engagement**, stemming from the experienced problems of citizens. Increased **political debate at European level on research strategy** was also shared as an idea to allow more citizen & CSO influence over R&I in nanotechnology.

Many other questions were also discussed that were considered important for an increased responsiveness, including promoting the **culture of transparency** and further enhancing open access to data on nanomaterials, requiring standardization and harmonization of methodologies and reporting styles. Participants also argued for **honest and timely communication by science and industry** about their work, products and safety related matters, in a language that is understandable to different publics. Related to this, **reinforcing the capacity of science media** was also stressed to be able to provide more communication about nanotechnology.

Participants also suggested the EC to set **an evaluation project on the impact of previous RRI/engagement projects** in the field of nanotechnology. This could enable a learning process and help transfer the major learning lessons to other emerging technological fields.

**The report of the European Multi-stakeholder dialogue can be downloaded by clicking [here](#).**

# Made by Citizens

Based on the objects created by citizens as part of the NANO2ALL citizen dialogues in France, Israel, Italy, Poland, Spain and Sweden in 2017, a new page called "**Made by Citizens**" was launched on the NANO2ALL webpage.

Building future objects allowed citizens to depict their ideas about potential directions that technological advances in a specific nano-application fields might take. Therefore, the created objects did not serve as actual prototypes for future technologies that citizens wished to see realized, but they functioned as a device to explore future technological directions and their desirability, and provided both tangible and verbal leads for reflection on these directions.

Selected nano object made by citizens are presented below:

## **Nanotechnology applied to Brain-Computer Interphases: Emovivencias (Spain)**

This object is a helmet equipped with electrodes for all parts of the brain. It functions as a central and external interface which can be connected by cable to objects such as books, paintings, or museum visits in order to enhance one's experience of those objects, reliving past experiences, experiencing new sensations or boosting one's own sensations for an immersive experience.

Imagine connecting to a scary book and feeling fear or reading a passage about food while tasting the flavours and smelling the food. The object can be more than just entertaining – it can help one learn lessons from the past by reliving those conditions, learn more deeply.



## **Nanomedicine: Nano-medicine that registers pain (Sweden)**

Nano-particles of surround, like shells, the cells and areas that feel pain and deliver medicine. This allows the local, targeted treatment of pain. A display on the skin allows people to obtain detailed information such as the strength of the pain, the number and surface area of cells affected and how much pain medicine is being administered.



## **Nanotextiles: Geoscreen safe&control (Italy)**

This glove made of nano-tech textiles has an accessory that is connected with all the Earth's satellites and receives from them different kind of inputs. By interacting with the glove, the device and the satellites, people can find answers to different questions related to the weather, the tides or the movement of migratory birds. More than this, they can feel, in real time, what is happening in any from any place or point on Earth. In case of disasters, earthquakes, landslides, volcanic eruptions and fires, people in other locations can intervene or issue an alert.



## What comes next?

### **NANO2ALL ROADMAP**

The NANO2ALL team is working on a final roadmap that will provide **evidence-based recommendations to the EC** on steps to be taken to enhance societal engagement and responsiveness in nanotechnology R&I across the value-chain. The roadmap will build on the results of previous NANO2ALL activities and will be published at the beginning of 2019.

### **PRACTICES OF ENGAGING WITH SOCIETAL ACTORS FOR RESPONSIBLE NANOTECHNOLOGY**

The NANO2ALL team is collecting societal engagement practices in nanotechnology R&I under the frame of RRI across Europe and beyond, with the purpose to share knowledge, experience and recommendations with other organisations and individuals involved with nanotechnology and motivate a wider application of such mechanisms in our region. Check out our first reports: Dialogforum Nano of BASF, comprising a series of face-to-face dialogue sessions on nanotechnology, initiated by the chemical

## MEET US AT THE FOLLOWING EVENTS

4-5  
OCTOBER  
2018

B.DEBATE

A joint initiative of Biocat and Obra Social “la Caixa”, B.Debate aims to build a roadmap for practicing Open Science, by gathering national and international experts from different disciplines and exchanging knowledge and good practices among participants. The event will be focused on four main streams of Open Science:

1. Open Access;
2. Research integrity and reproducibility;
3. Research evaluation;
4. Stakeholder engagement.

NANO2ALL will be represented as a speaker by [ICN2](#) in the parallel session 5 focusing on stakeholder engagement.

MORE INFORMATION

30-31  
OCTOBER  
2018

INDTECH 2018

Organised by FFG and The Austrian Federal Ministry of Transport, Innovation and Technology, INDTECH is the EC's most prominent biannual conference on industrial technologies and is expected to gather more than 1,000 key stakeholders from Europe and beyond. NANO2ALL will be represented as a speaker in the panel **Pillar 2 - Innovative industry for citizens, specifically in session 2.4 Skills needs.**

MORE INFORMATION

## News from related initiatives

### SPARKS



[SPARKS Project](#) just published five key policy recommendations with regards to science and society relations particularly on how to engage citizens in research and innovation. This set of recommendations provides suggestions of concrete actions which are based on the Sparks experience, feedback from local partners and citizens who took part in the project's activities. The policy recommendations could be accessed by [clicking here](#).

MORE INFORMATION

### PROSO



The [PROSO project](#) published the [PROSO Support Tool](#) that offers information and inspiration to develop policies and practices that encourage the engagement of citizens and third sector actors in publicly-funded research and in research and innovation policy in the European Union. In that sense it is a support tool for putting RRI into practice.

MORE INFORMATION

## GONANO



[GoNano project](#) has published [five very interesting short videos](#) exploring best practices in co-creation as input to the overall GoNano process design. In the short videos, the people behind five noteworthy initiatives explain what the project was about, what the main results were, and what recommendations may be derived from it for organising co-creation. The video interviews complement a broader survey of best practices by way of a literature survey and in-depth interviews with co-creation practitioners and researchers across Europe.

[MORE INFORMATION](#)

## HEIRRI



[The HEIRRI project](#) (Higher Education Institutions and Responsible Research and Innovation) organised the [second HEIRRI Conference](#) on April 27th 2018 in Vienna. With the theme of “Education towards a responsible society, transforming universities through RRI”. The event was centred in discussing about RRI teaching and learning, as well as presenting the work done during the almost three years of project.

[MORE INFORMATION](#)

## NEWHORIZON



[The NewHoRRizon project](#) published its first [policy brief](#) in May 2018. It aims to offer evidence-based policy recommendations to policy makers, journalists and interested researchers on the state of play of RRI in H2020 and proposing immediate actions to consider for mainstreaming RRI in the next Framework Programme 9, Horizon Europe. The “Excellence in science and innovation for Europe by adopting the concept of Responsible Research and Innovation” (NewHoRRizon) Project is commissioned to promote the acceptance of Responsible Research and Innovation in national and European research & innovation funding and practice. Its objectives are achieved by establishing 19 Social Labs, focusing on each H2020 programme.

[MORE INFORMATION](#)

## SISCODE



A new H2020 project, [Society in Innovation and Science through CODEsign \(SISCODE\)](#) launched in 1st of May 2018. It aims to understand co-creation as a bottom-up and design-driven phenomenon that is flourishing in Europe (in fab labs, living labs, social innovations, smart cities, communities and regions); to analyse favourable conditions that support its effective introduction, scalability and replication; and to use this knowledge to crossfertilise RRI practices and policies. More information on this new project will be available soon.

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