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Method and manuals for the pilot studies

TOWARDS A GONANO CO-CREATION APPROACH

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CONTENT

1. Introduction: Developing a methodology for co-creation

Together as a society, we face an array of problems associated with increasing populations, rising energy costs, dwindling natural resources, pollution and climate change. If we wish to continue our present way of living, we must find alternative, more sustainable energy sources that have a lower impact on the environment; better ways of producing enough food, while avoiding pollution from food production (e.g. pesticides) and food packaging (e.g. plastics); reduce food waste and alleviate deep inequalities in access to good nutritional food and clean water. We also need to reinvent our healthcare systems to better cope with the increase in the number of people living with chronic diseases and the associated pressures from rising costs of medicines and treatments.

Nanotechnology could be central to solving many of the challenges we face; however, the challenges we face are complex. They include changing practices for business, research, policy and society; and recognising inequalities in representations of gender, culture and values. Policies and research programs for Responsible Research and Innovation (RRI) are an attempt to develop a new way of doing R&I collaboratively across sectors and areas of expertise with societal sustainability, desirability and acceptability in mind. The need to work inclusively and collaboratively is increasingly recognised by research, industry and business. In a recent conference paper, the High-Level Strategy Group on Industrial Technologies proposed a mission-oriented strategic approach to research and innovation with inclusion and participation of many actors, including publics, as a key criterion (EC, 2015).

The present report sets out the co-creation methodology for the GoNano (Governing Nanotechnologies through societal engagement) project. The methodology builds on previous experiences working with (public) engagement and multiple stakeholders in EU and national projects for developing innovation processes that are responsive to societal needs and concerns (Shelley-Egan et al. 2018). Cultures, values and ways of communicating differ across Europe[1]. GoNano has therefore also sought to take into account gender, and differences in culture and communication in the design of its methodology (Moore et al. 2018). The methodology combines a series of face to face workshops with an online meeting space (EngageSuite). First suggestions for manuals and templates for the face-to-face meetings are provided for the co-creation pilot partners to develop their part of the online meeting space (see annex).

The GoNano project runs three pilot studies to demonstrate the potential of its approach to co-creation: One on the future of nanotechnology and health in the Netherlands; one on the future of nanotechnology and energy in Spain; and one on the future of nanotechnology and food in the Czech Republic.

The aim of the methodology development is to design a process of co-creation through which citizens and professional stakeholders are facilitated to become responsive to each other's needs and concerns. It also aims to support mutual learning and increased understanding among the groups themselves as well as between them – neither citizens nor stakeholders are homogenous groups. The methodology thus aims to demonstrate a working concept for research and innovation processes that take societal needs into account at an early stage, while also contributing to learning and increasing trust and understanding between co-creation partners.

[1]The scope of the present project is limited to the European Union.

The present report is the outcome of a methodology development process from December 2017 to July 2018. In the following we: present the shared understanding of co-creation of the GoNano project (chapter 2), gives a detailed overview of the GoNano methodology (chapter 3), and finally, chapter 4, provides an overview of all inputs, collected data and the results of each step of the methodology for the GoNano pilot studies. Manuals are provided in Annex A and Annex B.

2. Co-Creation in the Context of Responsible Research and Innovation

Co-creation is a widely used, but loosely defined term that has been applied in different contexts. While originally stemming from an innovation and business context, the use of the term seems to have diversified.

One early understanding of the term dates back to von Hippel (1987), who defined co-creation as participation (in product development) of end-users (Voorberg et al., 2015). More recent authors, such as Prahalad and Ramaswamy (2004), for example, stick to this business-oriented definition of the term, defining co-creation as "the joint creation of value by the company and the customer; allowing the customer to co-construct the service experience to suit their context" (Prahalad and Ramaswamy, 2004, p. 8).In accordance with this, businesses such as FRONTEER (a creative strategy firm based in Amsterdam) define "co-creation as the practice of collaborative product or service development: developers and stakeholders working *together."*[2]

However, moving away from classical business contexts towards the context of sustainable innovation, co-creation is seen as "well-established in i.e. design, management, and education, with pioneering work in the co-production of public services" (Gudowsky and Sotoudeh, 2017, 3). With regard to the public sector, Voorberg et al. (2015), in their review of academic literature, see co-creation (and co-production[3]) in the context of social innovation. Social innovation here refers to a "creation of long-lasting outcomes that aim to address societal needs by fundamentally changing the relationships, positions and rules between the involved stakeholders, through an open process of participation, exchange and collaboration with relevant stakeholders, including end-users, thereby crossing organizational boundaries and jurisdictions." (Voorberg et al., 2015, 1334). They highlight the active involvement of certain actor groups that are distinctive for co-creation; thus they define co-creation as "active involvement of end-users in various stages of the production process" (Voorberg et al., 2015, 1335).

The GoNano definition of co-creation:

Co-creation activities enable productive collaborations between researchers and societal stakeholders over longer timeframes, focusing on specific nanotechnology research lines, leading to tangible outcomes such as a new research avenue, proposal, product or prototype.

[2] http://fronteer.amsterdam/#about_us [30-07-2018]

[3] They state that within their corpus of literature, there is only very seldom concise differentiation between these two terms.

Co-creation can thus be understood as "a collaborative development of new value (concepts, solutions, products and services) together with various stakeholders (such as organized customers, industry, research, civil society organisations and policymakers). Co-creation is a form of collaborative innovation: ideas are shared and improved together."

In the GoNano project the outcome of the co-creation process takes the form of nine concrete product suggestions for future nanotechnology applications in the areas of health, energy and food (three for each). The methodology for the co-creation process builds on the framework of Responsible Research and Innovation (RRI)[4] and the Mutual Learning and Mobilisation (MML) scheme that are taken into the co-creation methodology by, having a (see also Shelley-Egan et al. 2018):

Co-creation process that:

- Aims to include a diverse group of actors from research, industry and policy to civil society organisations and citizens,
- Is adapted to take into account gender, cultural values and differences in communication traditions – and asks participants to reflect on these conditions for development of future nanotechnology R&I,
- Is open and transparent, and where participants can continuously follow the steps of the co-creation process as well as see how their input is used in the co-creation process
- Is interactive both in its methods but also in the tools it utilises for participants and the project to stay connected in an ongoing dialogue.

Co-creation outcomes where:

- The nine product suggestions are: judged as acceptable, sustainable, socially desirable by the participants in the co-creation process; aligned to societal values; solutions to societal challenges in nanotechnology research and innovation for Food, Health or Energy,
- Participants who are mutually responsive to each other, and who feel empowered to contribute to the future development frameworks of governing R&I processes that build on the GoNano approach.

[4] To read more on the framework of Responsible Research and Innovation, see e.g.:
Stilgoe, J., Owen, R., & Macnaghten, P. (2013). Developing a framework for responsible innovation. Research Policy. doi:10.1016/j.respol.2013.05.008;
Owen, R., Bessant, J., & Heintz, M. (2013). Responsible Innovation: Managing the Responsible Emergence of Science and Innovation in Society. Wiley;
Von Schomberg, Rene (2011) 'Prospects for Technology Assessment in a framework of responsible research and innovation' in: Technikfolgen abschätzen lehren: Bildungspotenziale transdisziplinärer Methode, P.39-61, Wiesbaden: Springer VS;
EU Commission, 2017 "Responsible Research and Innovation" [Online]
https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation, accessed January 10, 2017

Since co-creation as a concept aims at integrating future consumer interests in concrete product development, the GoNano co-creation methodology will align that ambition with requirement for process coming from the RRI and mutual learning and mobilisation framework. Overall outcomes will be developed in an iterative process with four main steps: first, citizen workshops to understand citizen's needs, concerns and desires; second, workshops with professional stakeholders to develop research lines and first suggestions for adapted product designs and recommendations for their practical development – these three steps make up for the "product case"; third, an online consultation to validate and gain further input on the product designs; and finally, workshops with professional stakeholders to finalise the product designs. The co-creation methodology is illustrated in Figure 1.

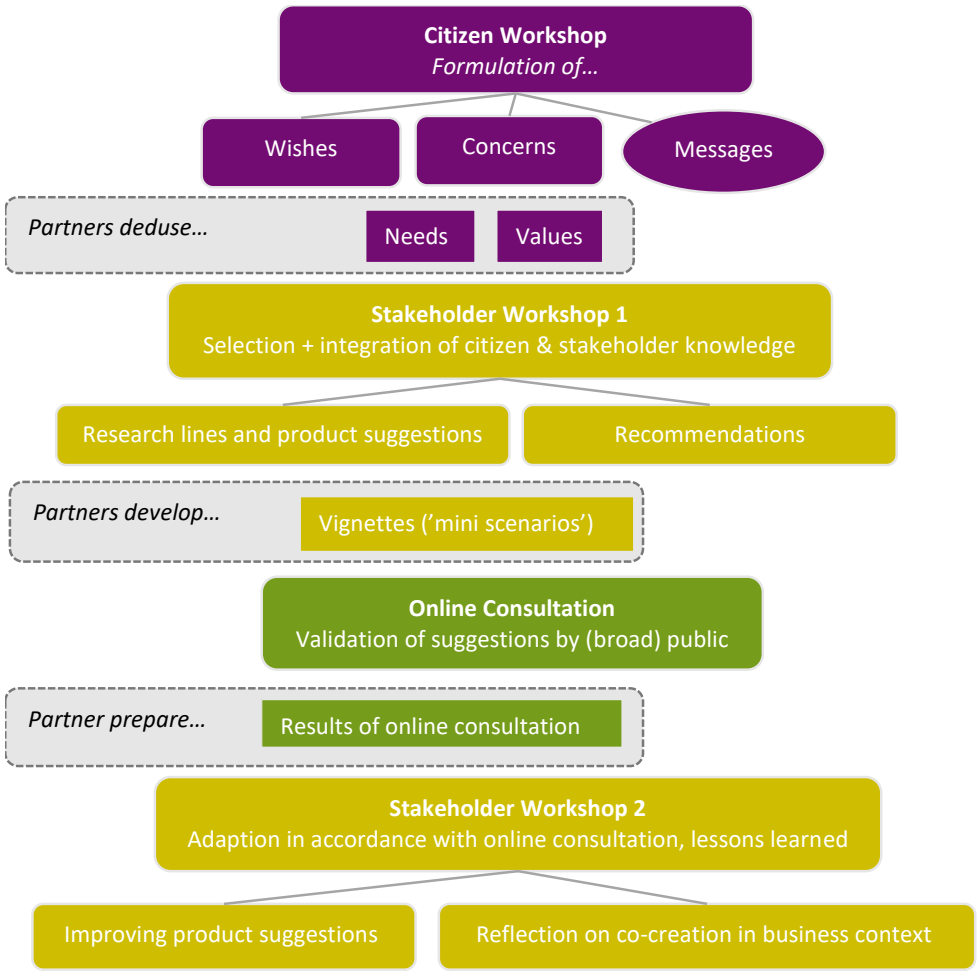


Figure 1 Overview of the GoNano co-creation process and outcomes

The GoNano pilot partners have the responsibility of translating between different groups of expertise, and for making sure that outputs are carried along from one step in the process to the next. The participants in the co-creation process will be asked to evaluate and reflect on their experiences and learning, both during the co-creation process itself, and once the process is finished.

This (serial) co-operation and the interaction of citizens and stakeholders – mediated by translation of content by the partners between the respective steps – allows for productive collaborations

between researchers and societal stakeholders over longer timeframes, focusing on specific nanotechnology research lines, and leading to tangible outcomes such as new research lines, proposals, product suggestions or prototypes.

However, this setting ensures that different kinds of knowledge (of citizens/affected publics/ experts) can be easily exchanged within and between different actor groups without creating dominance of one group (experts/stakeholders) over the others (unaffected/affected public). In order to ensure relevance to stakeholders and to ensure co-creative aspects in the process from the beginning, the information material will contain real-life examples and scenarios of current nanotechnology research that citizens can build upon in the workshop. This means to provide co-creatively generated information on promising potential aspects to be realized by industry & businesses, and hence align industrial development with citizens' needs and values with regard to technology applications. Therefore, the business cases will be based on the major outcomes of the pilot studies and will integrate principles of RRI with an attractive perspective for industry.

2.1. WHAT ARE THE OBJECTIVES OF CO-CREATION?

In their literature review, Voorberg et al. (2015) see the added value of co-creation *for the private sector* as twofold: First, as corporations are challenged to produce goods more efficiently, end-users are defined as possible co-producers taking over specific activities. Second, end-users may become co-creators because their experiences with products or services can be of added value for a company, thus being a source of product and service innovation to help firms to achieve a competitive advantage (Voorberg et al., 2015, 1334). Thus, participants take on an important role in the innovation process of product creation and production "*over the past decade or so an enormous amount of knowledge has become accessible, changing traditional business processes and the way companies innovate. Also, educated consumers want more involvement with the products they buy. [...] Many co-creation initiatives have been launched to deal with this changing world and some have been successful for some time, but for most companies, co-creation is pretty new.*" [5] Thus, co-creation is seen as a new approach of considering a sort of knowledge that allows for a more flexible reaction to challenges of companies in order to support company and process innovation.

Voorberg et al. (2015) see the role of co-creation with regard to public services in a similar way: Co-creation here is an approach for developing and redesigning public services in order to assure their adequacy. With regard to multi-actor collaborations engaged in visioneering for STI governance and the deriving process of knowledge production, Gudowsky and Sotoudeh (2017) refer to the added value of producing a "shared repertoire socially robust knowledge" via co-creation, providing a way of "complementing expert knowledge to inform socially robust decision making in S&T" (Gudowsky and Sotoudeh, 2017, 3). They point out that the knowledge creation benefits from the "interplay between creating coherence, perturbation, and irritation through interacting with the 'other' […] as it leads to the creation of not only novel but also viable conceptual structures" (Peschl et al., cited by Gudowsky and Sotoudeh, 2017, 3).

While co-creation is a concept increasingly applied in a variety of fields, overall objectives of using co-creation have to be defined clearly, as they may vary considerably between contexts.

[5] Fronteer.amsterdam

Objectives of GoNano co-creation

The GoNano methodology of co-creation is a facilitated continues process aimed at aligning R&I processes with societal needs and value as well. Through that process lay participants will learn about nanotechnology, and the professional stakeholders learn about societal needs and values in order to allow for enhancing their responsiveness to them. The objective of co-creation is thus both the process and its outcome (see also Gudowsky et al. 2012).

2.2. WHO IS INVOLVED?

With regard to *actors* involved, mentioned participant groups vary between sectors. Business concepts such as van Hippel (1987) and Prahalad & Ramaswamy (2004) broadly define participants involved as *end-users* or *customers and companies*, focusing on roles of traditional product development processes.

The GoNano Consortium has identified four roles in this context that can be assigned to participants depending on the tasks they need to accomplish alongside the production process. These roles are "*(a)* ***deciders*** *(people who are involved in making high-level decisions such as authorizing expenditure and setting high-level strategy), (b)* ***planners*** *(people who have responsibility for how projects are to be approached, from specifying what activities are to be undertaken to setting and managing timelines), (c)* ***makers*** *(people actively involved in creating something during the project, whether implicitly or explicitly, from those directly involved in undertaking research to those putting together front and back ends of systems), and (d)* ***users*** *(people who will ultimately use the products and services)".*

Who is involved in the co-creation process?

GoNano will predominantly draw this last conception of co-creation since the overall aim of GoNano is to include general *societal* concerns and wishes in innovation processes. Thus, in order to provide for a balanced process with regard to perspectives as required by RRI, inviting a broad variety of stakeholders to contribute is crucial. However, regarding the conception of integrating different knowledges of non-organized actors (e.g. citizens), GoNano will take into account both perspectives of unaffected publics (lay people) assuming that their perspectives will bring in more generally applicable and broader ideas, as well as publics affected by the innovations under discussion (e.g. patients and their relatives when it comes to targeted cures for specific illnesses). In order to avoid the formation of hegemony with regard to expert knowledge, citizens will have their "own space" to deliberate and be creative (based on expert-based information material), while stakeholders start with active co-creation on taking citizens' ideas further.

With regard to public services, Voorberg et al. (2015) broadly refer to "*involvement of end-users*". However, as they point out, in the context of the public sector, a shift from classical end-users of consumer products to citizens (as end-users of the public sector) takes place.For citizens, they identify three different roles in the co-creation processes depending on the tasks assigned to them. Among these, *co-design* (involvement regarding content and process of service delivery) and *initiation* of *processes* are understood as co-creation in a narrow sense while *co-implementation*

(implementing activities in favour of citizens that in the past have been carried out by government) is considered as *co-production*.

However, the European Commission under H2020 understands co-creation as contribution to knowledge for innovation. As Gudowsky and Sotoudeh (2016) point out, H2020 co-creation includes *citizens, users, academia, social partners, public authorities, businesses, creative sectors, and social entrepreneurs* (Gudowsky and Sotoudeh, 2017, 3). Thus, it comprises an even broader variety of possible participants.

2.3. WHAT ARE THE OUTCOMES OF CO-CREATION?

The GoNano co-creation process aims to demonstrate how innovators and societal actors can work together to develop research lines and product suggestions that are responsive to citizens' needs and values. Co-creation as understood in business terms aims as "co-creating new products and innovative solutions" (frontier.amsterdam). Transferring the concept of co-creation to new and broader contexts (e.g. research & development), Voorberg et al. (2015) point out that citizens can also be understood as partners to develop and re-design public services. However, as they point out, co-creation here is often considered a means to an end. In the context of public services co-creation is thus usually applied to increase effectiveness. The GoNano co-creation methodology elicits and combines different types of knowledge such as cognitive (e.g. expert knowledges), experiential (e.g. practical experiences), and value-based knowledge (e.g. considerations of citizens, as what is desirable or not) brought to the table by different actor groups (Gudowsky and Sotoudeh, 2017, 3).

One outcome of the GoNano co-creation process is the development of concreate product suggestions for the application areas Health, Energy and Food. The process exceeds classical business contexts by operating in a pluralistic environment regarding actors and requirements. The methodology bridges between methods (co-creation, participatory approaches) aims (aligning R&I with societal values and needs, developing research lines, product ideas) and practices from different spheres (RRI, Mutual learning, PE, business context). While co-creation in the public sector was described as a means in itself, this understanding does not seem suitable for GoNano. In GoNano the process, as well as the outcomes are targets of the co-creation methodology.

GoNano investigates implements and evaluates co-creation processes on *"nano product development"* in different areas of application. Thus, a clear understanding of "product development" helped designing the methodology process. This is crucial with regard to the question of the openness of the process in general, i.e. which parameters of discussion ("are no-nano options a suitable outcome for the project?") should frame the process. In relation to this question, the understanding and degree of concretisation of the GoNano 'prototype' (as outlined in the GoNano co-creation illustration, Fig.2) needs to be further explored. In this context, the EC's technology readiness levels (TRLs) of the Horizon2020 Work Programme[6] may be helpful (Annex G of the Work

[6] http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016-2017/annexes/h2020-wp1617-annex-ga_en.pdf (01/18/2018).

Programme 2016/17); here, GoNano 'prototypes' will most likely be of TRL 2/3 (TRL 2 – technology concept formulated; TRL 3 – experimental proof of concept) thus offering points of contact to R&D[7].

Overall, the GoNano co-creation methodology should showcase an engagement process that ensures that outcomes of innovation processes are aligned with societal needs, while the process of getting there should itself have the effect of making the participating actors responsive to each other, learn from each other and thus increase understanding among groups –hopefully leading to more responsible innovation processes and outcomes that are acceptable, desirable and sustainable[8], rather than setting an exclusive focus on concrete products and outcomes. With regard to this, GoNano will focus on recommendations regarding research lines, together with ideas and suggestions of products/services to be developed by research lines that take societal concerns, values, priorities, etc. into account.

The citizen and stakeholder workshops provide a space for citizens to voice needs, values and concern, and to provide creative input to the design of nanotechnology in Health, Energy and Food. Concerns or desired developments might not only relate to the final product, but also to the path taken to achieve that final product (i.e. the way the research is conducted). To ensure alignment with the research and innovation priories and experiences and needs of the professional stakeholders, the first step of the methodology (the citizen workshop) introduces the outcome of an analysis of needs, concerns and challenges as experienced by the stakeholders (see Pimponi et al., 2018). The analysis is transformed into a short and easily readable information material, informing on nanotechnology research and innovation, and illustrating questions, and societal challenges.

One expected outcome of the methodology is the early and continuous engagement of all stakeholders essential for sustainable, desirable and acceptable innovation in nanotechnologies, where R&I is aligned to the values, needs and expectations of society. The methodology must therefore support engagement on nanotechnology concepts and applications that can still be adapted and changed based on input from the co-creation process. It must also support and encourage the participants to continue their involvement with the co-creation process beyond participation in the individual steps of the methodology.

[7]Technology readiness levels (TRL): Where a topic description refers to a TRL, the following definitions apply, unless otherwise specified: TRL 1 – basic principles observed; TRL 2 – technology concept formulated; TRL 3 – experimental proof of concept; TRL 4 – technology validated in lab; TRL 5 – technology validated in relevant environment; TRL 6 – technology demonstrated in (industrially)relevant environment; TRL 7 – system prototype demonstration in operational environment; TRL 8 – system complete and qualified; TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space).

[8] In a first instance societal acceptability, desirability and sustainability is judged by the participants of the co-creation process.

Outcomes of co-creation in GoNano:

- Demonstration of a state of the art early and continuous engagement process with citizens and private professional stakeholders (research, industry, interest and consumer representatives) that take into account gender and differences in culture and communication traditions across the EU
- Co-creation of concrete nanotechnology product suggestions aligned to public values, needs and expectations, and understood by the participants of the co-creation process as sustainable, desirable and acceptable
- Increased understanding on the side of societal actors of the possible contribution from nanotechnologies in the realisation of solutions to societal challenges in Health, Food and Energy application areas
- Increased understanding on the side of industry and researchers of the societal context in which their innovation outcomes will have to be functional.
- Building of a community of citizens, consumer and interest organisations, researchers, engineers, and policy-makers working as change agents for the development of RRI conditions in nanotechnology R&I
- Taken together the co-creation process will form the basis for developing the business case on the value of co-creation and broad inclusion of stakeholders for alignment with societal values as a valuable business case for their portfolios

The pilot studies are the unit within which co-creation takes place. As shown in Figure 1 (see introduction to chapter 2), they consist of a) citizen workshop, b) two stakeholder workshops and c) an online consultation.

Each of these formats will contribute to the co-creation process by providing specific outcomes. The citizen workshop will feed into the process a) a list of wishes and concerns (e.g. “I would like nanotechnology to help me with my allergies” or “I am afraid that discharge of nanomaterials into the environment will finally have adverse health effects in food”), a clear message to an actor group (e.g. “We want politicians to make sure that adequate regulations are in place.”), and a list of needs & values (which will be distilled by partners out of the material).

All these outcomes will be processed and serve as “guiding principles” (context-related wishes and concerns) or as “stimulation for development” (concrete product ideas formulated as a wish) for the stakeholders’ work. Since it is unlikely for “lay people” to be knowledgeable with regard to the current status of nanotechnology research, stakeholders will relate citizens’ input (messages/wishes and concerns) to existing R&D activities. Citizens’ input will help them to develop concrete research lines (or design suggestions) and recommendations regarding their implementation (boundary conditions).

Research lines here means that the proposal of the stakeholders will be application related, however, most likely not restricted to one concrete product. Rather, it will provide a direction of possible development for a group of future products (e.g. targeted medicine) and the product suggestions will follow. Recommendations take into account the context conditions that need to be considered when implementing such research lines. Thus, this broadens the view beyond a strict product/application based focus and allows for even more embedded discussions of nanotechnology applications. Research lines and respective recommendations together make up a product case within the pilot studies.

3. THE GONANO CO-CREATION METHODOLOGY

The methodology is based on prior experiences with public engagement, stakeholder engagement and co-creation carried out within the scope of EU research projects and national initiatives (see Shelley-Egan et al., 2018)[9]. In the following we outline lessons with regard to: the methodology for engaging lay publics as well as stakeholders in co-creation processes; creating a co-creation process attractive for professional stakeholders; the role of gender, culture and values for developing co-creative methodologies.

3.1. LESSONS LEARNED AND HOW THEY ARE ADDRESSED METHODOLOGICALLY

Table 1: Lessons learned from public engagement project, how they are addressed by the GoNano co-creation methodology

Lessons from prior engagement activities:	Addressed in the GoNano methodology by:
• specify concrete objectives it is aiming for and measure its impact with regard to these objectives	• involve citizens to realise RRI • transport complex topic nano into broad public • provide a "best practice case" for industry actors to take as a blueprint • provide for space for reflection regarding the process with stakeholders as well as ensure impact by implementing evaluation mechanisms tailored to the specific objectives of the process
• offer evaluation not only on risk assessment or public perception of nanotechnologies, but on how processes of co-creation could increase trust in science, and changes in the institutional culture of science and policy, thus avoid being used as an 'institutional alibi'	• will allow for learning regarding how to best ensure public trust in science by offering and easily applicable and adaptable process in order to offer an easy start for changing institutional culture with regard to RRI
• discuss nanotechnology on the basis of concrete applications and products to open up the dialogue and debate	• discuss nanotechnology in an easily accessible, yet balanced and open way • application scenario related discussion, balanced invitation policy, facilitation with regard to bringing out different perspectives
• include a diverse group of stakeholders, next to the usual 'public	• ensure a balanced process by aiming at integrating stakeholder as well as public as

[9] Their conclusions build on a review of more than 20 EU projects and national initiatives, among them PROSO, NERRI, SYNENERGENE,NANO-BIORAISE, CIVISTI, ENGAGE 2020, FOTRRIS, NANOROADMAP, NANODIODE, Human Brain Project, DEEPEN, CIMULACT, Genetics Clinic of the Future, Nano2All, CALIBRATE, COMPASS, PACITA, SATORI, NanoNext NL Risk Analysis and Technology Assessment (RATA) programme, NUCLEUS, NANNOPLAT, NANOCAP. Additionally, within this review activity, interviews regarding societal engagement were carried out. These interviews addressed the following projects: EDF-DuPont collaboration, BASF Creator Space, CarbonKiller, NanoTalk, NanoDialog, COMPASS,Making Sense EU, Vision Lines 20, PERARES, Science2Society, NanOpinion.

suspects', including private companies, CSOs, and a variety of potential consumers, as well as include a broad range of the general public (be as inclusive as possible)	broadly as possible while taking into account questions of diversity regarding gender and cultural background
• seek continuous engagement with the public rather than engaging them in a one-off event	• provide a process that offers multiple opportunities to engage for all actor groups (2 citizen consultations: face-to-face and online; two stakeholder workshops)
• use creative approaches to open up different dimensions in the debate which may lead to new perspectives	• invite citizens to deliberate on inspiring questions, formulating messages to adressees out there in the R&I field and illustrating them creatively. Drawings, sculptures, 3D modelling are offered to support that process. • offer stakeholders the opportunity to illustrate their ideas creatively by elaborating their research line proposals with exemplary „mini scenarios" rooted in everyday life and illustrate these with sketches, drawings, sculptural use of plasticine and 3D modelling.
• tailor information to specific needs and contexts of the citizens	• pay attention to easily accessible yet balanced information material for participants
• pay attention on how to construct the public in the respective pilot study areas	• invite both unaffected as well as affected publics in order to engage with the nano development process • aim at keeping the citizen workshop as open as possible as it was stated in numerous studies that to ensure citizens' active participation, they need to feel that they have the skills and power to engage (e.g. Davies, 2013; Selin et al., 2017). • offer spaces where citizens and stakeholders work on their ideas predominantly serially; however, the citizens who work with the stakeholders are one bridging element which ensures, that the results of the citizens work are not just thrown over the fence but properly explained and then taken into consideration by stakeholders to find a constructive way of integrating different kinds of knowledge • ensure a high diversity of citizens and stakeholders realized via recruitment
• ensure empowerment of participants and constructive debate	• carefully consider the practical setting, the proactive role of participants, and the role of the moderator in order to ensure empowerment of citizens and a constructive debate • aim at integrating different forms of expertise (especially in the stakeholder workshops) in a constructive way without forcing compromise onto stakeholders providing different perspectives

In order to allow for integrating different perspectives on public and societal engagement and co-creation, Pimponi et al. (2018) analysed data from 47 interviews with regard to nanotechnology research in the three areas of food, health and energy. Representatives of R&I networks, public and private research, industry, policy makers, and end-users from several different countries in Europe have been involved. From their data, Pimponi et al. (2018) draw some conclusions that allow refinement of the GoNano methodology for increased alignment with stakeholder perspectives (Table 2).

Table 2: Lessons learned from stakeholder interviews with regard to GoNano Methodology

Lessons for better aligning a GoNano co-creation process with stakeholders' needs	Addressed in the GoNano methodology by:
• select applications carefully: They recommend to select both short, medium and long-term (visionary) areas of application of nanotechnologies.	• done in info material, hence the participants are nudged towards these directions
• allow for a focused debate: Societal impacts of the products/applications/sectors considered in the debate should be evaluated, taking into account that questions and issues of citizens are often not nano-specific. It was pointed out that considering existing norms and regulations as necessary background information (and boundaries) of the debate may be useful. Additionally, fostering the discussion on societal value and impacts on society of innovation, also beyond technical, market and risks (and risk perception) aspects	• Allow for generic output but also nano specific questions • Information material provides basic ideas on existing norms and regulations • Concrete technologies are seen in the light of societal value and innovations assumed impacts on society, also beyond technical, market and risks (and risk perception) aspects
• Select participants carefully: Engaging users and end-users, people interested and concerned with the specific sector, application and product considered should be involved in the co-creation activity. It is important to keep in mind that some stakeholders (including in the public) might have controversial, biased and polarized positions. Here, it is important to carefully understand benefit of all stakeholders, including the public, to participate in the dialogue (motivate people).	• Citizens and stakeholders cover this • Facilitators will carefully handle controversies: there can be opposed opinions and positions and everybody is invited to listen to them and also critically question their own concepts;

Cultural and gender aspects are important with regard to communication differences as different societal concerns about nanotechnology exist in different societal groups (Moore et al. 2018). The literature review addressed how the lay public form opinions, how they are influenced, how they assess risk, and how gender and diversity play out in this area, e.g. how lay citizens prefer communication to take place.

The following aspects were pointed out in particular: First, there seems to be a gender divide in relation to risk perception - interestingly for both lay public and scientists. Second, they find the responsibility for making the issue of nanotechnology properly understood and addressed meaningfully lying with those responsible for science communication in order to ask the public to form opinions. However, here, they still identified a deficit in communication methods,

especially with regard to the gender gap and with regard to public understanding of nanotechnology. In more detail, Table 3 shows the concerns, values and needs at stake in nanotechnology discourse with regard to gender, diversity and culture, as well as suggestions of how to include these issues in the GoNano methodology.

Table 3: Concerns, values and needs with regard to gender, diversity and culture and their implementation in the workshops (column 1-3 from Moore, column 4 complemented)

Concerns	Values	Needs	Integration of issue into GoNano methodology
Risk perception - gender split on issues of trust; risk to health; uncertain nature of nanotechnology	Safety; responsibility (personal and professional); consumer awareness; preserving health; scientific advances. public good; speed of development vs adequate risk assessment	Safe environments; trust in procedure; access to knowledge; access to health care	Offering opportunity to bring in different kinds of competence and experiences; Including underlying values and needs into the design of applications from the beginning (citizen workshops) and evaluating use for design purposes (online consultation)
Male domination of nanotechnology/STEM field	Equality is affected - how Do citizens feel about the underrepresentation of all groups except white males in nanotechnology research? Are they aware/worried about the knock-on effect this has? Can this be explored further in the co-creation process?	Equality; inclusion. Include gender and diversity from beginning of all R&I and co-creation to ensure that needs and concerns of all populations affected by future nanotechnologies are included	Aim at 50:50 quota in citizen workshops; Explicitly invite female experts to the stakeholder workshops; Reflect gender aspects (e.g. risk perception) in questions of both citizen and stakeholder workshops.
Trust	Trustworthy governance in place as a 'guarantee' that values (safety, health, protection of consumer) are safeguarded	Strong governance; suitable and transparent regulation; effective policy making	Offering an easily implementable way of including issues relevant to participants (especially values that are not represented in mainstream business models); Developing/reflecting on ways of how to integrate such processes into business realities;

			Integrating all kinds of feedback and input into the process;
Heuristic/cognitive shortcut	How are these judgements made? What values prompts each citizen? How aware is the citizen of the influence of values? Will this affect co-creation process?	Recognition of values and their importance in the discourse; evaluation of influence on nanotechnology R&I.	Provide pre- and post-measurement of citizens' and stakeholders' perspective on nanotechnology; learning about possible changes of opinions;

As part of the preparation for the methodology development, Moore et al. (2018) showing that organisations have a very important role to play in disseminating information and building trust with the public on topics like nanotechnology. Hence, the authors called for focusing on engaging the public to improve and streamline communication. Especially with regard to culture, gender and communication traditions, they showed that debates on gender, value and culture are not taking place. The lack of such debate provides an opportunity for the GoNano methodology to be innovative in terms of fostering such debate. Table 4 shows how GoNano methodology will consider the findings of Moore et al. (2018).

Table 4: Insights from the literature review with regard to gender, diversity and communication cultures and how they are addressed by the GoNano methodology

Insights from cultural and diversity analysis	Integration of issue into GoNano methodology
• Acknowledge and highlight structural underrepresentation of women in STEM/nanotechnology, and the lack of diversity	• Invitation of same number of female/male participants (stakeholders), explicitly inviting female nano experts to stakeholder dialogues
• Include and incorporate gender and diversity in all aspects of nanotechnology development	• Recruitment and facilitators' awareness • Framing of questions in workshops
• Maintain awareness of how opinions are formed and what influences them.	• Balanced info material and process that focuses on what actually is there: citizens experiences and opinions, stakeholders backgrounds and competences, the capacity to listen to each other, to learn from each other and to find new ways together
• Risk perception, and the divergence of levels/reasons relating to risk, such as gender and diversity, is a crucial point of engagement both with the public and with stakeholders.	• Recruitment strategy and facilitators eye • Invitation policy for stakeholders • May be information material
• Strategize engagement from the outset, deciding on the level of engagement to be achieved and how vibrant the discourse should be, and adapt relevant tools in accordance (e.g. two-way communication, engage scientists in dialogue with public).	• Stakeholders take the citizen's concerns wishes and messages as a starting point. • Target all demographic groups (e.g. gender, diversity, age) and interact "with" them, not "at" them, in engagement methodology development • Recruitment strategy

3.2. REFINING FINDINGS FOR A GONANO CO-CREATION METHODOLOGY

The outline of the overall GoNano methodology is based on experiences of prior projects (see section 3.1). The iterative and common working process of firstly citizens, then stakeholders and citizens, then again citizens via online platform and lastly stakeholder again is inspired by the CIVISTI (CIVISTI.org) method. Here, citizens produce concrete wishes, concerns and messages (as a basis for their visions), which then in GoNano serve stakeholders and experts as a starting point to develop research lines and recommendations, while in the CIVISTI method the citizens take a long-term view into future needs, wishes and concerns and challenges (CIVISTI.org, Sotoudeh et al. 2014). However, in both projects this serves as a starting point for stakeholders and experts to extract research lines and recommendations which in CIVISTI are then handed back to the citizens again. In the GoNano methodology, the second step of citizen evaluation is realised by the online platform and a second round of stakeholder work to finalise the research lines and recommendations and incorporate citizens´ feed-back.

The iterative and continues character of the is also inspired by approaches such as that of CIVISTI and CIMULACT. A challenge in CIVISTI was ensuring that the stakeholders and experts would be able to interpret the citizens wishes properly (Gudowsky et al. 2012). As a consequence, in the following settings where stakeholder worked with content elaborated by citizens (e.g. CIMULACT), citizens were present to make sure that the content was properly understood or citizens were handed the results again to validate them (Sotoudeh et al. 2014).

The design of the citizen workshop is inspired by elements of the PACITA sustainable consumption EWV (Capari and Sotoudeh, 2014). The formulation of messages to policy and decision makers has been successfully applied in the first WWViews on global warming (Rask, Worthington and Lammi, 2012) as well as in selected countries of the PACITA workshop on sustainable consumption (Policy Report EWV on Sustainable Consumption, 2015). There, the major part consisted of voting on questions after deliberating certain topics. However, giving the participants the chance to formulate a concrete message to an addressee they choose (decision makers, researchers, public authority, others) another step is taken to make sure that they have an independent say within the process.

4. METHODS OF THE CO-CREATION METHODOLOGY

4.1. CITIZEN WORKSHOP

The citizens come together to commonly reflect on nanotechnology and to provide their views about how to integrate them into the development of ideas for future applications of nanotechnology that are aligned with citizen's needs and values, as illustrated in Figure 2. The approach builds on participatory integration of citizens to opine on pressing issues (e.g. WWViews, Pacita on sustainable Consumption) and co-creative exercises (e.g. Nano diode).

After a general introduction that clarifies the role of citizens and introduces the whole day, the workshop consists of three repetitive rounds in which citizens discuss a specific technology application setting (based upon scenarios or application examples) which they might already know from the information material. The discussions are free, but the facilitator sees to it, that they are also covering a list of prepared questions. The technology-oriented start provides an opportunity to investigate a stakeholder-coined technology setting and creatively dive into opportunities and concerns about nanotechnologies. Although we might not be able to lead the participants away from their everyday routines and troubles (one might have been too late and hence really stressed in the morning of the event, another one might have had an annoying phone call just before entering the room) as easily as if we started with opening up for the future and lead them away from their everyday-life (as it is the case when visions are prepared), starting with technologies serves to make sure that the citizens have enough time to get familiar with Nano-applications and their implications and that their own thoughts relate to areas of interest of the stakeholders. Numerous experiences of participatory projects and their critical analyses (Rask, Worthington and Lammi, 2012; Gudowsky and Bechtold, 2013; Capari and Sothoudeh, 2014,Sotoudeh et al. 2014, Bechtold, Gudowsky and Capari, 2017, Rask et al. 2018) and reviewing engagement experiences (Shelley-Egan et al. 2018)[10] show that such an approach serves well to provide a deliberative setting for citizens, which allows them to express their own views while also widening their own perspective, listening to each other, learning from each other and digesting the new information received. The initial deliberation part of the citizens was also inspired by focus groups (Krueger and Casey, 2000).

Thereafter the citizens have the opportunity to reflect upon those discussions and take these a step further: in respect to these technology application settings, they should think of wishes and concerns that are important to them. They write down these wishes and concerns and after a plenary presentation the participants vote upon them individually. In doing so, they provide valuable information on how they perceive they acceptability and desirability of nanotechnology applications, for the next step of the co-creation process in the first workshop with the professional stakeholders.

In the next step, citizens are asked to think about what they would like to make of their picture – in other words, what would they like decision-makers and researchers (and maybe other actors) to do. The result of this final round of intensive work will be written messages with a clear addressee. They should explicitly refer to the round of wishes or concerns but these messages can still be diverse in

[10] PACITA sustainable consumption (http://www.pacitaproject.eu/?ai1ec_event=citizen-consultations-on-sustainable-consumption&instance_id=282), WWVIEWS (wwviews.org), CIVISTI (http://www.civisti.org/), ASSET (, ().

their nature: it could be concrete proposals of a next generation of nanotechnology applications or products, a concrete instruction of what the decision makers should take care of, or what the researchers should consider in the future, when they elaborate on these technologies.

This format, which is reminiscent of recommendation writing, is well elaborated and was tested in numerous participatory TA-projects (e.g Rask, Worthington and Lammi, 2012). The messages display the second important outcome for the following stakeholder-workshop. The third pillar of input therefore will be prepared by the project team ex-post as they will look into the concerns and wishes and see what needs, preferences and values are inherent to them.

Thus, the input we gain from the citizen workshops is threefold: a (ranked) list of wishes and concerns directly received from participants; clear ideas around the issue of nanotechnology development addressed to specific actor groups (also from participants) and results from analysis (done by partners) with regard to underlying needs, preferences and values.

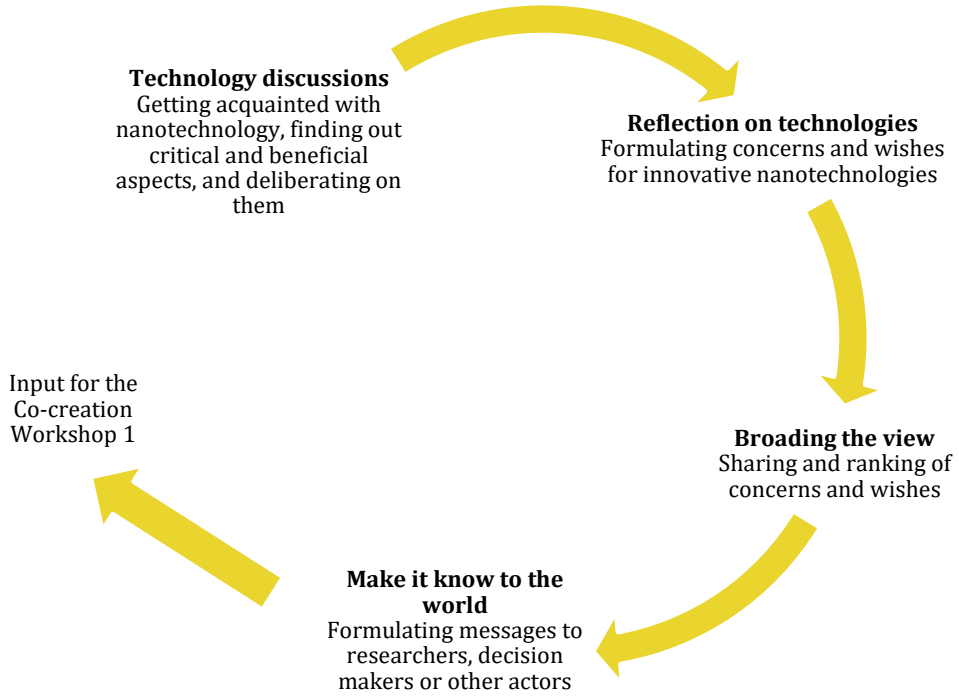


Figure 2: Illustration of different steps of the citizen workshop

4.1.1. THE AGENDA OF THE DAY IN MORE DETAIL

INTRODUCTION: 20 min

Intro and welcome and trust building (in the process)

This part serves to familiarise participants with the event:

- What is the goal of the GoNano project, what is your role, how will the results be used (how can you stay involved)?
- How can you access the results in future (online consultations, rapporteurs for stakeholder workshops)?
- What are the three fields we are carrying out research in? What will you focus on?
- Informed consent, recording of the meetings, anonymizing data
- Get to know people at your table

TECHNOLOGY DISCUSSIONS IN SMALL GROUPS (A): 120 min

Getting acquainted with nanotechnology within the national area (food, health or energy) & finding out critical and beneficial aspects, and deliberating on them

Three technology-focused deliberation rounds of 40 minutes: They are based upon input from the information material (at best: scenarios or technology application examples).

The list of questions is not mandatory: participants don't need to discuss all these questions in depth in each discussion round. Rather, they serve as a kind of guideline for the facilitator to make sure that over the three rounds all aspects are touched upon.

Part 1: Information, stimulation from PPT and facilitator (10 min)

Part 2: Discussion and deliberation on pros and cons and future roles (30 min)

First proposals of questions as trigger:

- What do you think about this example? What are your first thoughts on this?
- What do you like about it? Why?
- What may turn out to be difficult? Why?
- For whom is it relevant or critical (gender, specially affected groups)?

During the process, the facilitator has the role to identify dilemmas, point them out and clarify them as soon as they appear in the discussion.

However, if he/she feels it is right for the group, he/she could also trigger this discussion:

- What kind of dilemmas do you see?
- Are there any trade-offs/ options to weigh?
- What do the dilemmas mean to you?
- Can you think of alternative areas or topics for research?

REFLECTING ON TECHNOLOGIES (B): 60 min (working lunch part)

Breaking it down to the most important aspects in relation to the three discussion rounds

Every table should at least formulate 1 to 2 concerns AND at least 1 to 2 wishes (8-16 wishes altogether) about these technology examples/applications or wishes in terms of a concrete innovative technology in written form. Please use the template provided for this. Please write (a) whole sentences so that the full meaning of your input may be grasped. Each template carries the table number and number of wish and/or concern for identification.

If participants wish, they can also formulate more general concerns and wishes or create their ideal nano product/application (as a wish).

Working lunch: During this session, working lunch will be provided. People are free to wander around and take a break or discuss at the table their take-away messages from part A. The end of this session should be indicated 15 minutes before to make sure that everyone has their templates finalised for the next part.

BROADENING THE VIEW (C): 45 min

What do the others think and how do I think about it?

In this session, the whole group works together. Here, concerns and wishes are presented and shared. Subsequently, people will have the chance to prioritize the most important wishes/concerns for them.

The sharing session can be done using EngageSuite or it can be done the "old-fashioned' way (sheets pinned on a wall and prioritization by voting via points): Participants will share their table's concerns and wishes with everyone at the workshop (not only at their table) since they should be free to choose among the whole variety of input in the next step ("make it known to the world").

So, using EngageSuite, each person will present his/her concerns and wishes to the rest of the group while a facilitator writes them directly into EngageSuite as voting options. The screen is being projected so everyone can see the list. Whenever similar wishes/concerns show, the facilitator asks if this is already covered by the existing voting option or whether the two can be grouped in some way to form one voting option. If this is not possible, the facilitator makes sure the difference between the two options is clear to everyone. The facilitators are well prepared and thoroughly trained for their tasks.

When the list completed, people vote individually at the tables (one computer per table - the table facilitator mentions one voting option at a time, counts the votes and enters the number in EngageSuite).

It needs to be clear, that one person cannot have more than five "votes" altogether. Given the number of possibly formulated options (either 8 or 16, see above), this seems a suitable number to allow for prioritizing – participant's really have to decide which of these options they do value. Having five votes will allow people to weigh their priorities. However, we allow for people to have more than one vote per option, e.g. one person could vote three times for option A and twice for option B but, will then have to skip options C to G as a result.

MAKE IT KNOWN TO THE WORLD (D): 40 min

Who should act in what way?

Each table then considers the whole list of wishes/concerns presented before (their prioritisation based on the voting is not important here). They formulate a concrete message in their own words based on one of the wishes or concerns. The messages can also be cross-cutting concerns and wishes and/or be based upon several wishes. When they choose the wish/concern, they are asked to also consider those not developed by their table so that they engage with opinions of other participants as well (see co-creation aspects below). Participants must indicate to which wish or concern their message relates (number), as well as to whom their message is addressed.

For example, the original concern "I am concerned about environmental safety of nanomaterials from food packaging because it will end up in the ocean like microplastics" could contain one message to decision-makers ("Make sure that waste disposal regulation prevents this.") and one message to researchers ("Work on nanomaterials in food packaging that are biodegradable").

If is enough time left, opportunity should be given for participants that feel like working individually and more creatively (e.g. illustrating their idea of a prototype they have formulated in written form as a wish). Participants will find modelling material and paper at a table where they can help themselves. If participants choose this option, the organisers will ask to shortly describe their object in written form and in the end take pictures of it to make sure it is preserved for further analysis and communication.

PRESENTATION & FAREWELL: 35 min

- Presentation of messages to the group (20 min)
- Feedback and farewell (15 min)

Please make sure that there is a bit of time left for the evaluation procedure.

- After the final farewell:

SELECTED PREPARATION OF CITIZENS

To ensure coherence between the citizens' ideas and to provide a good basis for co-creation, 1 to 2 citizens per stakeholder table (self-selection on a voluntary basis) will participate in the stakeholder workshop. These citizens will be given access to all of the messages and outcomes of the citizen workshop to be able to represent the whole group.

Co-creative aspects:

- *Technology focus of A:*
  - Moving from a deliberation, exchange of views and discussion, to concrete wishes and concerns that are seen as important to all participants around the table.
- *Society focus and RRI aspect of B and D:*
  - Moving from concrete wishes and concerns to a common message per table ("What do we want (not) to happen/How should it (not) be…" to "Who should act...")
  - The free choice of wishes/concerns for the "message to the world" is important to avoid redundancy and encourage creativity
  - To avoid stakeholder/expert dominance in this step, it will solely be citizens deliberating on their understanding of nanotechnology development. However, these discussions will be grounded on expert based information material developed as preparation for the workshop.
- *Technology focus is applied on various levels:*
  - Input: Relating the citizen discussions to a technology focus, inspired by stakeholder input and further developing this into concrete wishes and concerns. Hence, stakeholders/experts ideas serve as input citizens can work with, as a first step of co-creation.
  - Process: the method provides several steps that assure that the individual citizens can express their own opinions, views and experiences but also get acquainted with opinions, views and experiences of other citizens.
  - Process: citizens are encouraged to relate to outputs of other citizens when producing the message to the world.
  - Process: citizens should "safeguard" stakeholder workshops: involving individual citizens in stakeholder workshops to feed into stakeholder discussions and make sure the main points of citizen workshops are taken up in the way they were intended.
  - Output: the ranked list of wishes and concerns and the messages serve to prepare relevant content for the stakeholder-workshop: the messages stand for themselves - they reveal the needs and values expressed by participants and related recommendations for technology development - while the list of wishes and concerns will need clustering before being presented as one starting point to the stakeholders. Input from citizens should therefore inspire anchor points for stakeholder workshops.
  - Continuation: citizens should be encouraged to participate in the online consultation to evaluate outcomes with regard to original ideas in retrospect. They should be encouraged to take part in the debate on Facebook and Twitter where we will post dilemmas and questions for debate, inspired by things that come up during the citizen- and stakeholder workshops.

4.2. STAKEHOLDER WORKSHOP 1

After the three thematic citizen workshops, stakeholder workshops will take place. The citizen workshop will explore citizens' wishes and concerns and their expressed messages to researchers, decision makers and other relevant actors. These explorations will build heavily on information material (developed in task 3.1) grounded in work carried out in WP1 to ensure co-creative aspects in the process from the beginning, thus aiming at ensuring relevance for stakeholders in the next step.

The task for the participants of the stakeholder workshop will be to identify and evaluate how future products can align with the expressed wishes and concerns from the citizen workshop. To ensure the incorporation of the citizens' perspective and to amplify the co-creation aspects of the methodology citizens will be actively involved in the stakeholder workshop.

4.2.1. STAKEHOLDER COMPOSITION

The 30 stakeholders to be invited will cover a diverse spectrum of expertise: researchers, producers (industry), professional users, and civil society organizations (CSOs[11]). The interviews with stakeholders from Task 1.3 will serve as a starting point for recruitment. GoNano will aim for an equal distribution of these actor groups (for example, 7 participants from each group of expertise). The focus will be to have a variety of different perspectives included (e.g. industry perspectives, environmental perspectives, patient-oriented and consumer-oriented perspectives) to allow different types of expertise to be integrated in nanotechnology solutions.

In accordance with the findings from Moore et al. (2018), special attention should be paid to issues of gender (e.g. inviting female professionals and making sure questions in assignment of the workshops addresses aspects of gender and diversity).

Professional context and expertise impact the outcome of the recommendations; thus, the composition of participants of stakeholder workshops needs to take into consideration the scope of the recommendations GoNano would like to develop. However, at this level, the question of openness of the process again comes into play. Inviting professional stakeholders should not remain restricted to actors from business and policy, but should also include potential critics of nanotechnology (products) and offer an opportunity to raise concerns and voice critique (process-related as well as content-related). Such potential criticism needs to be addressed appropriately.

[11] The concept of civil society encompasses a wide range of organisations. In a broad sense, it includes all non-market and non-state organisations and structures in which people organise to pursue shared objectives and ideals. In the development field, there is a tendency to think primarily in terms of non-governmental organisations (NGOs) whose missions are explicitly and uniquely developmental in character. However, civil society also includes farmers' associations, professional associations, community-based organisations, environmental groups, independent research institutes, faith-based organisations, labour unions, and the not-for-profit media, as well as other groups that do not engage in development work. This broad definition is widely accepted in the world of development practitioners.
(https://webgate.ec.europa.eu/fpfis/mwikis/aidco/index.php/Civil_society_organisation [03/08/2018].
As the term comprises a broad spectrum of organizations, GoNano will mainly restrict the organizations included to: professional associations, community-based organisations, environmental groups, faith-based organisations and labour unions.

Co-creation aspects

- *Society focus and RRI aspect:*
    - Start from concrete wishes, concerns and messages from the citizen workshop. It offers a broad basis to formulate research lines and product suggestions, which may (later on) serve as attractive starting points for industries and businesses, and encourage creativity
    - Templates and table facilitators assist with clear formulations of research lines and recommendations: the more sense the final outcomes make for industry – that is, the more tangible and technology related they are - the higher the chance that they might influence the ways of industry or convince industry and business representatives that such an approach is useful.
- *Co-creation is applied on various levels:*
    - Participants chose the ideas, wishes, concerns and messages they think relevant and further elaborate on these together.
    - Process: Participation of citizens.
    - Process: Co-production of research lines by different stakeholders, exchange of their experiences and knowledge, learning effects;
    - Output: from diverse input of the citizens to concrete research line proposals, that seem relevant, promising and feasible in a near future to all stakeholders and participants round *the table*
- *Technology focus of A:*
    - From a deliberation, exchange of views and discussion, to concrete wishes and concerns that are seen as important to all participants around the table.
- *Society focus and RRI aspect of B and D:*
    - From concrete wishes and concerns to a common message per table ... what do we want (not) to happen, how should it (not) be, who should act...
    - The free choice of wishes/concerns for the „message to the world“ is important to avoid redundancy and encourage creativity.
- *Technology focus is applied on various levels:*
    - Input: Relating the citizen discussions to a technology focus, inspired by stakeholder input.
    - Process: steps that assure that the individual citizens can express their own opinions, views and experiences but also get acquainted with opinions, views and experiences of other citizens.
    - Process: citizens should “safeguard” stakeholder workshops.
    - Continuation: citizens should be encouraged to participate in the online consultation to evaluate outcomes with regard to original ideas in retrospect. They should be encouraged to take part in the debate on Facebook and Twitter where we will post dilemmas and questions for debate, inspired by things that come up during the citizen- and stakeholder workshops.

4.2.2. STAKEHOLDER CONTINUITY

It is crucial that the composition of the stakeholder group remains as similar as possible between stakeholder workshop 1 and 2 in order to provide continuity of ideas, encourage uptake of ideas and provide input for developing 'business cases' on concrete design suggestions.

The opportunity to benefit from a process of developing ideas and clear design principles for responsible nanotechnology development will ensure stakeholders' commitment to the process and will help to implement GoNano co-creation ideas in stakeholders' (and industries') daily work.

Perceived benefits of such processes may vary between stakeholder groups. While for industry the main incentive might be learning about new business opportunities and gaining a better 'image', NGOs may value the opportunity to have a say in technology development and make their concerns heard. Citizens may help shape products that deem them useful while bringing their concerns or perceived benefits to a wider discussion, while policy makers might appreciate innovation processes that are less concerned with societal friction offering sustainable long-term options.

In order to provide coherence throughout the whole co-creation process, it is crucial to keep stakeholders engaged. Co-creation thrives with shared ownership, in both results and process. The question of added value for business stakeholders can be addressed on three levels: (a) business value: faster innovation, more resilient and effective innovation; (b) user value: create products/processes which might fit better to users' needs and wants; (c) social value: contributing to sustainable development.

In order to guide stakeholders through a meaningful process, certain requirements need to be fulfilled: (a) stakeholders need to be informed of the overall aim of the process (thus, acknowledging their own role as well as the role of citizens in the overall task of co-creation); (b) it has to be made clear that potential critical viewpoints are welcome to help shape the process in desirable ways (which links to questions of societal desirability and sustainability); (c) the input material (developed in T4.1) needs to be developed by adapting the information material of T3.1, as well as results of analysis of the outcomes of the citizen workshops.

4.2.3. METHOD AND FORMAT OF THE WORKSHOPS

The first stakeholder deliberation as illustrated in Figure 3 will take place in the form of a one-day workshop in the respective country. Ideally, 30 stakeholders will participate. They will work in the setting of three large tables (10 stakeholders and at least 1-2 citizens). The large table will ensure a broad spectrum of stakeholders at each table.

The messages and the ranked list of wishes and concerns of the citizen workshops serve as basis for the stakeholder workshops. Based on this and the expressed needs and values (which will be extracted from the material by TC and pilot partners, see above), the stakeholders will develop recommendations for research lines on application-related levels: professional stakeholders will try to distil concrete research line suggestions and possible products from the citizens' input. Together with the recommendations from citizens, the stakeholders will formulate the product cases. The stakeholder workshop will comprise group work at tables (main part of the workshop) as well as panel sessions for input (on messages and exchange of first ideas of the research lines).

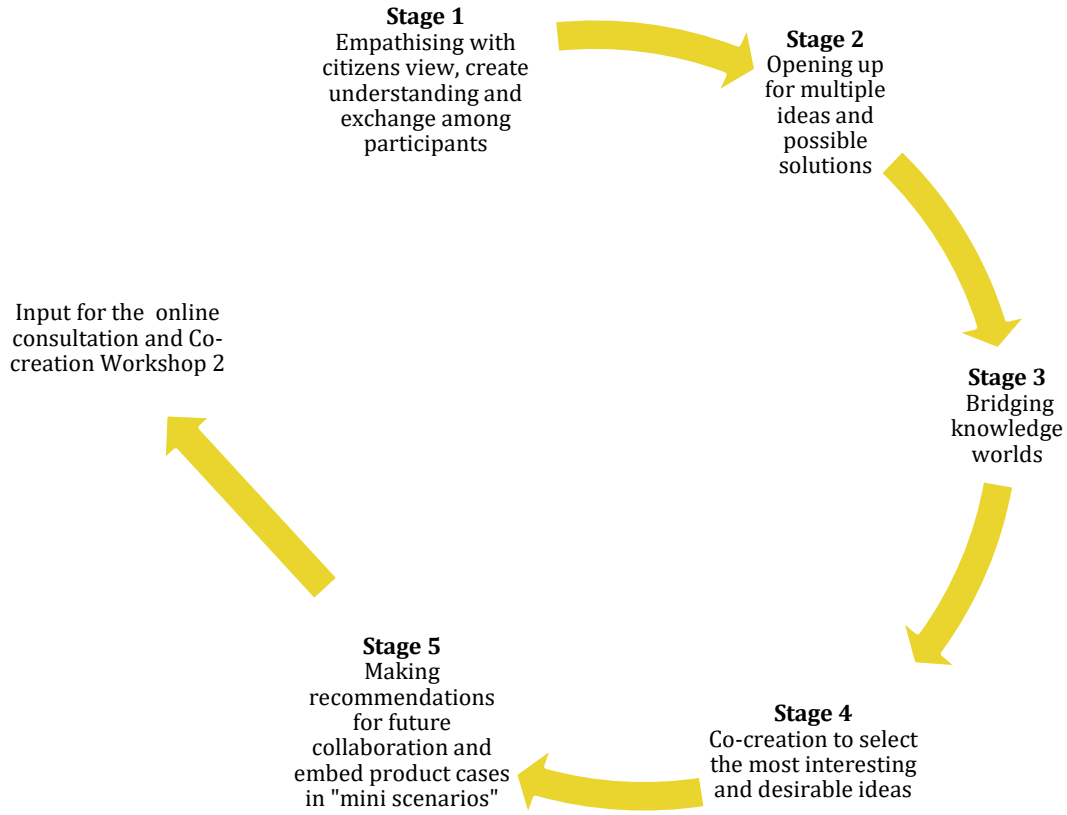


Figure 3: Illustration of different steps of the stakeholder workshops

4.2.4. THE AGENDA OF THE FIRST STAKEHOLDER WORKSHOP IN DETAIL

INTRODUCTION: 30 min

This part serves to familiarise participants with the event:

- What is the goal of the project? What is your role? How will the results be used (how can you stay involved (second stakeholder workshop!)?
- How can you access the results?
- What are the three fields we are carrying out research in? What will you focus on?

STARTING WITH THE CITIZENS VIEW (A): 50 min

Getting acquainted with citizens' perspectives within the national area (food, health or energy) and reflecting on them

This is a group working session. Here, participants will be introduced to the results from the citizen workshops and the different formats and qualities of this input (messages/ranked list of wishes and concerns; deduced needs and values). The former will serve as a starting point and the needs and values as "guiding principles" for developing the research lines.

The subsequent discussion will stimulate reflection and contextualization of citizens' messages. Here, a main task will be to identify research fields that could contribute to citizens' ideas of future nanotechnologies. Deriving from there, the question of implications for the (research) field itself may arise.

It is important to ensure an open discussion on all different aspects of technology development mentioned by the citizens. Also, explicit focus lies on "opening up" the discussion: While later on stakeholders will have the chance to provide their view on the most promising ideas to elaborate on, in this step, it is important to keep the discussion as broad as possible when identifying relevant fields of research.

EXCHANGING STAKEHOLDER PERSPECTIVES (B): 45 min

This session will bring all stakeholders "onto the same page" regarding nano (if necessary) and at the same time will serve as a "reality check" for citizens' ideas

This session starts with an individual brainstorm about the participants' own field of competence, and explores relations with input from the citizen workshop. Next, individual reflections are shared and discussed. The facilitator makes sure that each participant presents very shortly (2min) what she/he found. Those who feel prone to actively contribute to technical discussion from the beginning might in this setting take the chance to roll out more general issues and questions. Subsequently, the group will discuss the state-of-the-art of developments in the nanotechnology area in the respective field.

Since not all stakeholders invited may be equally familiar with nanotechnologies on a daily basis, they will be given the opportunity to ask questions or aspects of interest regularly.

Here, EngageSuite could serve as a tool where participants (who are seated around the tables) could type in questions that are then projected on a screen, visible for everyone. Additionally, there could also be papers given out to serve those who are more comfortable writing and, of course, just raising hands.

CO-CREATION (C): 130 min

Bringing together citizens' views and messages, technology development and framework conditions

Goal of the session is to come up with and elaborate on three research lines (per field) that can be evaluated by the online consultation. This is a group discussion session at the table consisting of two parts: the first part offers opportunities to discuss, select and evaluate promising citizens' ideas, the second one is for integrating values, perspectives and aspects (maybe allow cross-cutting to citizens' messages) from citizens' input and to break this down into technically feasible (future) research lines and suggested products.

- Part I: Selecting most promising citizens' messages/values and concerns for basing the research lines on (40 min)
- Part II: Elaborating further on selected research lines and write up recommendations for mini scenarios/get creative (90 min)

<u>Part I:</u>

Facilitators will guide the discussion, based on questions such as the following (being adapted as GoNano advances):

- Which citizens' ideas appealed to you?

- Based on the input from session B and your professional experience, which of these do you think can be realistically achieved?
- Is there a way forward (for nanotechnology) that everyone around the table can agree to?
- Which conditions have to be fulfilled for this to happen?
- Who is responsible for creating these conditions?

The facilitator will make sure that the focus lies on citizens' input to strengthen research lines and create dual value by both strengthening research lines and addressing societal needs and values. If some things (e.g. aspects of a single message) cannot be taken into account, that is fine, but please make sure to explain why. Facilitators will assist with formulating a headline/title for selected areas.

Part II:

Participants, based on the selected ideas for research lines, will elaborate these research lines (in terms of promising products/applications, necessary conditions). This part is a creative group work per table. The final outcome of this step will be research lines, product or application suggestions (and related "communication objects) or well elaborated "mini scenarios" which provide the basis for the vignettes for the online consultation (next step).

Facilitators are there to oversee the process (and maybe step in if the discussion tends to stagnate), but otherwise won't interfere much.

However, they need to make sure, that (a) every member of the group gets a say; (b) the following aspects are covered when filling in the templates (will be provided):

- What does the research line focus on?

Finally, they write down concrete recommendations of how to implement these research lines in the respective national context. They could stay in the format of recommendations and research lines or this could also be explained in more elaborate "mini scenarios" which will form the basis of the vignettes to be developed for the next step.

- What is needed for this in terms of conditions (e.g. funding)?
- Where are the current drawbacks? What steps (with regard to research) need to be taken beforehand in order to proceed?
- Is there some further development of regulatory framework needed?
- Which aspects need to be addressed in order to implement these research lines?

The aim is to consolidate one research line per table (three per field). However, if controversial opinions and assessments regarding these research lines exist and can't be integrated into the research line proposal in a constructive way, participants are asked to write their objections on an extra sheet. Note takers will collect them and make sure that these objectives are documented in the final notes.

Should the participants want to, they can create "communication objects", by e.g. drawing, using Lego blocks, writing a speech of an (imaginary) director of a future firm that made a commercial product out of the research line reminiscing about the initial research once started). Organisers need to make sure that there will be materials available such as paper, pens, Lego blocks etc.

Working lunch: During this part, working lunch will be provided. People are free to take a break or discuss at the table their take-away messages from part A+B. End of this session should be indicated 15 minutes before to make sure that everyone has finalized the writing process and is ready for the next part.

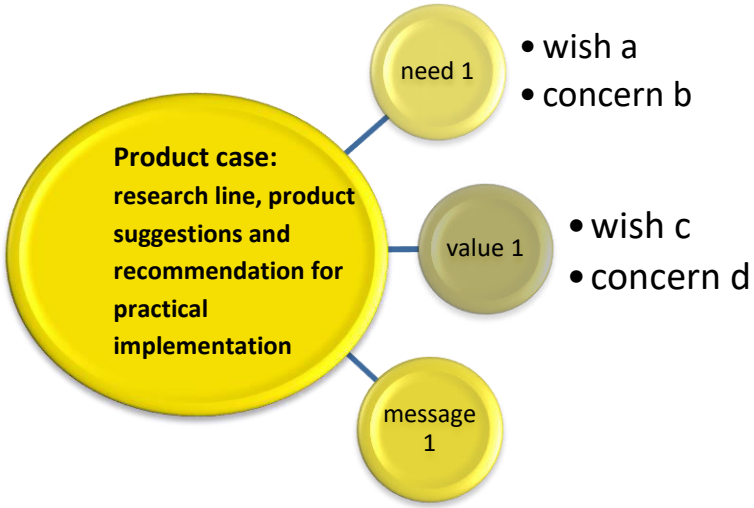
WRAP UP & FAREWELL: 70 min

In order to finalize the process of co-production, each table presents its research line proposal (3 per pilot study) to the plenum.

Each table should present their product cases (this is the research line, product suggestions + respective suggestions for implementation) and "communication objects" (if they have any) and discuss it with the other participants. Note takers will document this process in EngageSuite.

4.2.5. Outcomes of the first round of Stakeholder Workshops

The stakeholder workshop aims to deliberate the input from citizen workshops and convert their messages and inherent values/needs (deduced by GoNano partners) into concrete research lines, product suggestions and recommendations. These suggestions for research lines need to be in accordance with the state-of-the art, in order to build on existing strands of research.



Outcome of stakeholder workshop and input from citizens (size of bubbles does not reflect hierarchies, but rather the process): messages won't be "translated" from the citizen workshops; needs and values are distilled from wishes and concerns (done by partners).

4.3. Online Consultation

The online consultation serves to broadly evaluate the outcome of the two first steps in the co-creation process. The research lines and suggested products formulated by stakeholders will be broken down into concrete examples with regard to the (potential) daily life of citizens in the near future. The online consultation will give all citizens (including those of the workshop) the chance to see how their messages, wishes and concerns were taken up. The overall aim of this step is to ensure a coherent nanotechnology development in three fields that is compatible with public desirability and preferences.

The online consultation via the co-creation platform EngageSuite is the third step of the co-creation process and the second major opportunity for citizens to get (or stay) involved. It will primarily take place in 5 partner countries (CZ, UK, DK, NL, ES) and serves as a tool for consultation surrounding stakeholders' proposals on research lines and applications. Infrastructure for the online consultation will be provided by the online platform.

4.3.1. WHO WILL TAKE PART & RECRUITMENT

The target group of this step is a broad public (with IT literacy), including citizens from the first citizen workshop (coherence of ideas). As the online consultation addresses citizens (lay people), it needs to be accessible to this target group.

The online consultation will be public, and everyone signed up to the project on the co-creation platform will receive invitations to comment. Partners must invite the same citizens from the first citizen workshop to participate in order to provide coherence in the co-creation process. Apart from invitations via the co-creation platform, partners could use different forms of invitation to create attention (Homepages, newsletters, social media, personal contacts etc.). Thus, the citizens participating in the consultation will be randomly sampled among the community of participants of the co-creation platform (snowball system).

Generally, recruitment will be up to the pilot partners. In each country the partners should aim for 100 different reactions to their consultation efforts (in total 500 citizens should be reached).

4.3.2. FORMAT AND METHOD OF THE ONLINE CONSULTATION

In order to avoid lengthy polls, the consultation should **not take longer than 10 minutes** to answer and combine open and closed questions in order to allow for both a quick atmospheric picture as well as provide an opportunity of extensive feedback.

This will be done by **using vignettes** on future applications based on the results of the stakeholder workshops. Vignettes are short stories of concrete personas who have to take decisions in a concrete situation (elaborated "mini scenarios" presenting dilemmas in decision-making, see example below, which is freely invented for illustrative purposes).In order to broaden the approach with regard to GoNano requirements, questions asked about the vignettes should not only offer a yes/no opportunity, but also provide opportunity to give feedback, dismiss the idea, add new aspects, etc. (be as open as possible).

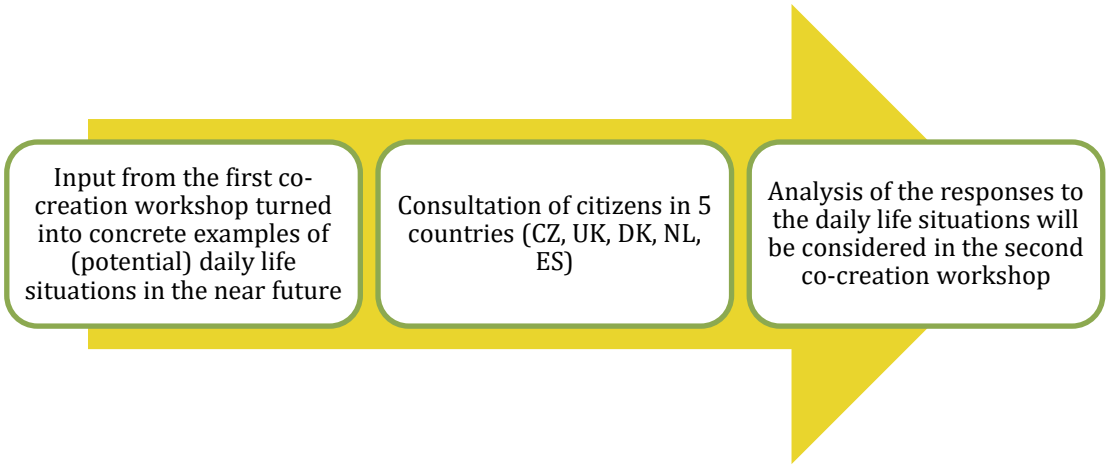


Figure 4: Illustration of the online consultation process

Example for a vignette (imaginary):

Hannah is a mother of two small children. Eating healthy is important for her and her family. She hears of vitamin pills that can be better absorbed by the body since they have a new targeted delivery method within the body. However, she is not sure whether to buy them or not as she is unsure if they might have some side-effects.

Questions (could be):

- Do you think the product is desirable? For you? For others?
- Do you think it should be regulated? How? By who?
- Do you have any additional ideas with regard to this product/ application you would like to have research done on? Could it be done differently?

4.3.3. Outcome of the Online Consultation

The outcome will be an analysis of responses to the vignettes in the different countries, which need to be considered in the second round of stakeholder workshops.

4.4. Stakeholder Workshop 2

The purpose of the second round of stakeholder workshops, which is illustrated in Figure 5, is twofold: stakeholders should a) evaluate and eventually adapt the research lines in accordance with the results of the online consultation (also with regard to potential follow-up activities); and b) evaluate the whole co-creation process with regard to business reality. In other words: do they think outcomes of this and similar processes are usable for concrete development in a commercial context? Moreover, they have the chance to re-evaluate design and innovation strategies for the three fields.

The results of the online consultation will be discussed with stakeholders in order to evaluate their potential to be realized and to provide input for the development of business cases on concrete design suggestions afterwards.

4.4.1. STAKEHOLDER COMPOSITION

It is crucial that the composition of the stakeholder group remains as similar as possible as in the first stakeholder workshop since the second workshop aims at evaluating the design suggestions developed in first stakeholder workshop. Therefore, incentives to participate must be clearly communicated from the beginning in order to keep all groups of stakeholders engaged. If this is not possible, additional recruitment is possible. However, the same considerations regarding the different stakeholder groups (researchers, producers, professional users and civil society organizations in equal shares) and gender balance should be kept in mind.

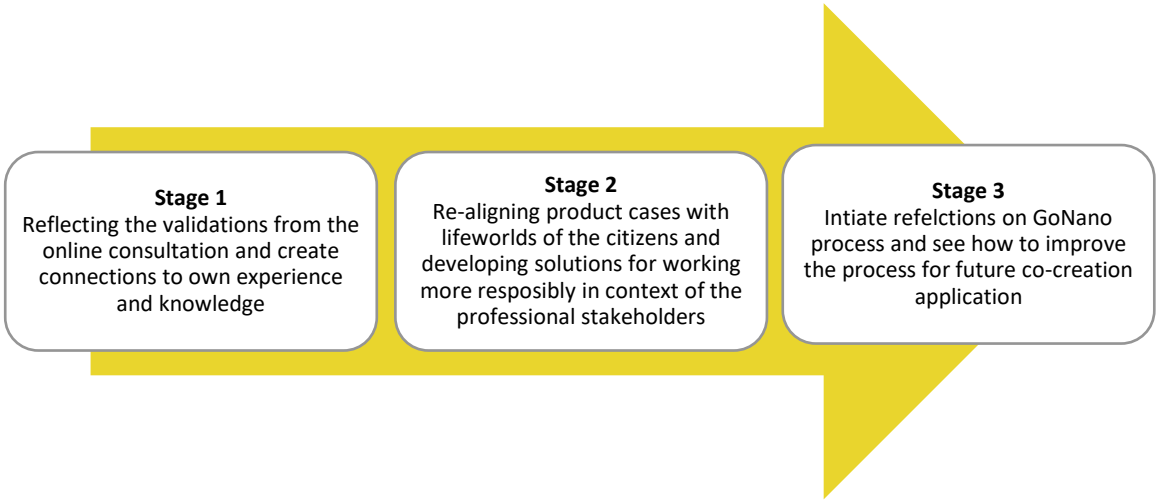


Figure 5: Illustration of the different steps of second stakeholder workshop

4.4.2. THE AGENDA OF THE SECOND STAKEHOLDER WORKSHOP IN DETAIL

INTRODUCTION: 15 min

Intro and welcome. This part serves to familiarise participants with the event:

- Repeating the project's goal
- What is the day's goal & what is your role?
- How will the results be used?

WORKING ON PPRODUCT CASES (A): 100 min

Receiving information on the results of the online consultation; reworking the product cases (research lines, suggested products and respective recommendations from stakeholder workshop 1) in accordance with these results and aiming for achievable recommendations for implementation

This is a mixture of a panel and table working session. Here, participants are introduced to the results from the online consultation and have the chance to shortly react to them and bring in their personal expertise (panel part).

Subsequently, each individual table will be working on one product case in order to adapt it to the online consultation's results (where necessary). They aim for realistically achievable recommendations for implementation. Facilitators will introduce the respective product case and make sure that participants are working on this concrete suggestion. They will do so by writing down

their suggestions and adaptations. It shall be avoided that the participants work on their own product case – this is if they were participating in the previous stakeholder workshop. The step serves to avoid a situation where someone has to defend their ideas to the others.

REFLECTING ON THE CO-CREATION PROCESS (B): 105 min

This session will give space to reflection regarding the overall co-creation process as set up by GoNano. It will further focus on drawing lessons learned from the process.

This session is a table discussion session, consisting of two parts:

- Part I: Reflection: Opportunities/challenges in this GoNano process (30 min)
- Part II: Where do we go from here? (75 min)

In the first part, table facilitators will stimulate reflection by introducing a couple of questions, such as

- What do you think went well in the GoNano co-creation process?
- What do you think did not?
- Where could you express yourself adequately and where was it not possible?
- What was new to you?
- What impressed/disappointed you?
- What did you like especially (or not at all)?

The second part of this session will focus on the questions of "lessons learned" from the GoNano process. Hence, the table facilitator will focus on question, such as

- Do you think co-creation processes like this could contribute to nanotechnology industry/business/research? If yes, how? If not, why?
- Do you think the results of the GoNano co-creation process will affect your future work?
- Will you consider introducing co-creation processes such as this one into your daily work? Why?/Why not? If only to a certain extent: which parts do you think will be most likely to be integrated?

The note taker will document this process using EngageSuite.

WRAP UP & FAREWELL: 45 min

In order to finalize the process of co-production, each table presents their final consideration regarding the GoNano co-creation process to the plenum.

Each table should present their findings and discuss them with the other participants. The note taker will document the process by using EngageSuite.

4.4.3. Outcomes of the second round of Stakeholder Workshops

The overall aim of the co-creation process is to co-create recommendations of nanotechnology research lines and respective product suggestions in the three areas of food, health and energy. Thus, the second workshop will (a) finalize the three research lines by aligning them with the feedback of the online consultation; and (b) provide space for reflection on the whole co-creation process in order to provide input for the development of business cases for co-creation. This means

to provide information about the most promising potential aspects to be realized by industry & businesses. This will feed into the development of the final product of the project, the business cases, which will be prepared in WP5 and incorporate principles of RRI with an attractive industry perspective.

4.5. EVALUATION OF THE INDIVIDUAL STEPS AND OVERALL PROCESS

All events need to be evaluated. The time to fill in questionnaires (or similar) will be integrated in the workshops and pilot partners will calculate time in the agendas *before as well as after* the workshop dedicated to this evaluation.

This final reflection of the whole GoNano process which is foreseen to take place in Stakeholder workshop 2 is not to be mixed with this – here the goal is to identify what was promising and what was not so well designed as to come up with useable input for the development of the GoNano business case.

5. Overview of process: input, outcomes and data gathered of each step

Event	Input	Important steps of method	Outcome	Data gathered
WS 1 – Citizens	Information Material (T3.1) Questions	1. 3 rounds of deliberation, each one similar process a) Scenario is introduced (reminded from information material) b) Discussion on likes, dislikes, future potential, affected groups, and wishes &concerns c) Formulation of wishes and concerns d) Voting regarding prioritising wishes and concerns e) Formulation of messages to concrete addressees (creatively illustrated)	Ranked list of wishes and concerns Messages to concrete addresses	Outcome (messages, list of ranked wishes and concerns illustrations) + e.g. further notes on deliberation (either EngageSuite) or per hand + post-its/notes + results of before/after evaluation of the event (done by UT)
			Deduced values and needs (by partners, see below)	
To do by partners afterwards:Translating the outcomes of the citizen workshops into needs and values (inherent to wishes, concerns and messages from the citizen workshop) is a task for project partners. **Clustering, collecting and presenting input to stakeholders (No change of content, but offering opportunity for stakeholders to choose relevant aspects for their work and therefore for further proceeding in workshop)**				

WS 2 – stakeholders I	Ranked list of wishes and concerns Messages to concrete addressees and illustrations + deduced values and needs + adapted information material (=T4.1)	1. Reflecting and choosing on important questions/aspects with relation to citizen input 2. Reality check: where is research right now? 3. Selection of 3 research lines and suggested products per field (health, food, energy) 4. Discussion on how to implement them and formulating recommendations 5. Formulating illustrated 6. „Mini scenarios“	9 (3 in each field) *feasible and concrete* research lines and product suggestions[12] Illustrated „mini Scenarios“ + recommendations on implementation for research lines and respective products and applications	Outcome + Notes on deliberation with regard to research lines (chances, risks, trade-off, challenges etc.; e.g. done by EngageSuite) + results of before/after evaluation of the event (done by UT Twente)
<u>To do by partners afterwards:</u> preparing 9 research line suggestions for easily accessible online consultation (citizen consultation?) **Suggestions: Short and easily accessible vignettes – addressing people on personal level with fictitious characters in short “mini scenarios” (check with information material)** ***Possibly prepare ranked list of wishes and concerns + deduced values and needs for validation and comment (if decided to do so, see above)**				
Online consultation	9 research line suggestions and recommendations as to their	Online survey for evaluation and comment (suggestion: vignettes regarding research lines (see above + questions).	Priorisation and validation of suggestions of WS 2 + comments and added	Outcome + Quantitative data on research line suggestions

[12]“The aim of this workshop is to come up with concrete ‘responsive’ design suggestions which can be fed back in ongoing research and innovation activities. The workshop is designed so to follow up on the workshops with citizen from task 3.2 to explore and evaluate which and how future products can align with preferences and values voiced in the citizen workshops. The design suggestions will align research and design with societal needs and values: Responsive Designs.” (DoA, stakeholder WS round 1)

	implementation *	Add important aspects which are underrepresented General comments	information	(survey)
<u>To do by partners afterwards</u>: preparing overview on whole co-creation process suitable for stakeholder discussions; develop business cases + results of online consultation as core part of this step				
WS 3 – stakeholders II	Results of online consultation Overview on whole process Product cases as business case outlines	Reactions to co-creation process Adaptation (if necessary) of research lines in accordance with online consultation Discussion of whole process with regard to establishing business cases	General Input in how co-creation process could be integrated in business, which aspects to be considered especially/ potential pitfalls etc. for industry and policy Papers	Notes on Deliberation (e.g. EngageSuite)
<u>To do by partners:</u> Wrap up & collect documentation				

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ANNEX A: MANUAL OF THE CITIZEN WORKSHOPS

MANUAL FOR GONANO DELIBERATION AND ENVISIONING WORKSHOPS & ONLINE CONSULTATION WITH CITIZENS

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CONTENTS

1. INTRODUCTION

This document is the Manual for deliberation and envisioning workshops and online consultation with citizens in the EU GoNano project (Governing Nanotechnologies through societal engagement).

The aim of the Manual is to support the pilot partners[1] in implementation of the citizen workshops and to outline important activities that are recommended before, during and after the citizen workshops and online consultations. The overall co-creation process of GoNano is illustrated in Figure 1[2]. The present manual is a guiding document for the partners preparing the GoNano citizen workshops and online consultation. The partners will need to update and adjust programs and time plans as they move forward in the preparation of the workshop and online activities. The D2.1 and the present manual lays down the design principles for the GoNano co-creation workshops and it contains overall structure for the co-creation meeting, and provides templates for carrying out certain parts of the preparatory work. However, seeing the workshop themselves are still more than 6 months into the future, pilot partners will need to also update an adapt the manual as needed.

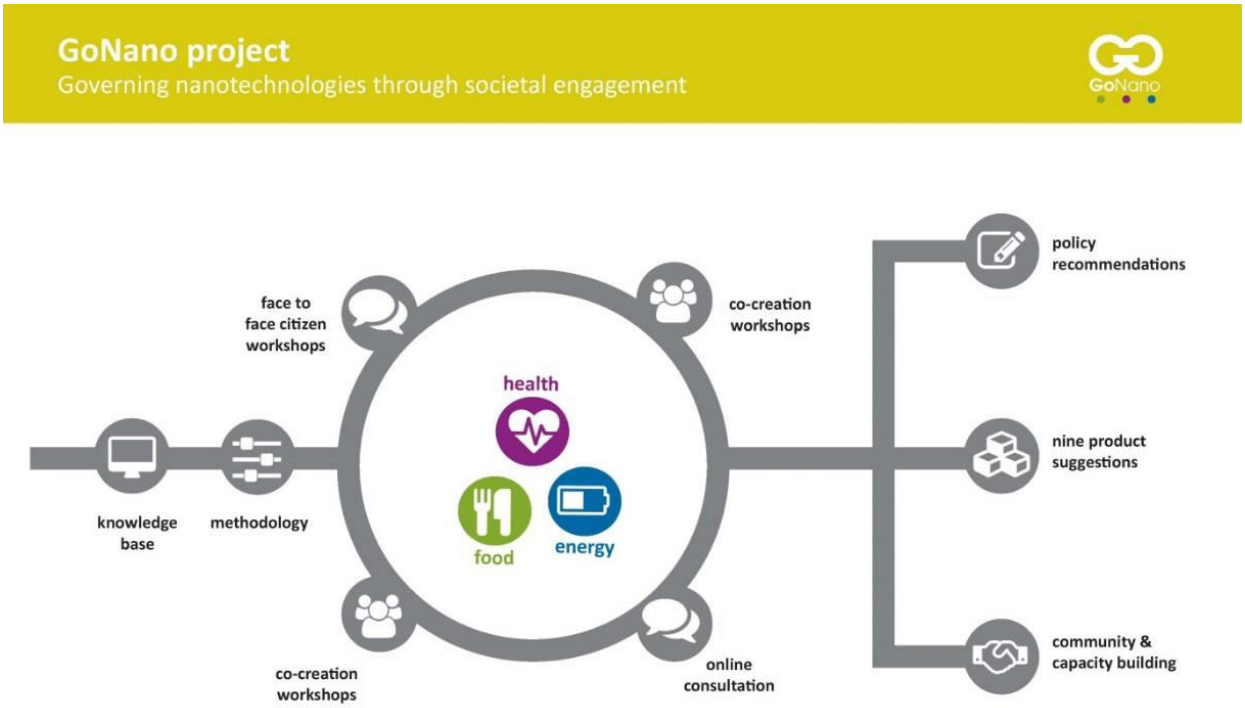

Figure 1 illustrates the overall co-creation process of GoNano, in which the citizen workshops together with an online consultation are part of a continuous co-creation process between citizens and professional stakeholder on nanotechnology applications in food, energy and health

[1] The GoNano pilot partners are: University of Twente (UT), Technology Centre of the Czech Academy of Sciences (TC CAS) and Royal Melbourne Institute of Technology (RMIT). The lead partner on the coordination of citizen workshops and online consultation is Technology Centre of the Czech Academy of Sciences (TC CAS).

[2] The D2.1 and the present manual outline the design principles for the GoNano citizen workshops and online consultation. The deliverable contains the overall structure for the citizen workshop and online consultation, and it provides templates for carrying out certain parts of the preparatory work. Pilot partners might still need to update and adapt the manual as needed.

2. RECRUITMENT FOR THE GONANO CITIZEN WORKSHOPS AND ONLINE CONSULTATIONS

2.1. RECRUITMENT STRATEGY FOR CITIZEN WORKSHOPS

Each pilot partner has developed individual recruitment strategies, through which it aims to recruit a sufficient number of citizens, with respective demographic and socio-economic characteristics ensuring a sufficient diversity of participants at the citizen deliberation and envisioning workshops.

The actual recruitment process should be initiated in a sufficient time before the workshop starts, depending on the selected approach to the recruitment and capabilities of an individual pilot partner. The Technology Centre CAS (TC) will recruit citizens through a specialised agency, RMIT University (RMIT) and University of Twente (UT) will apply a wide range of methods for recruitment (see Table 1).[3]

Table 1 Provides an overview of the recruitment strategies of the GoNano pilot partners

	RMIT	TC	UT
In-house activity	X		X
Recruitment agency		X	
Recruitment method			
Invitation letter/email	X		X
Buying addresses from a market research company			
Telephone recruitment	X		
Face-to-face recruitment	X		X
Snowball-sampling	X		X
Advertising (Posters/flyers/video)	X		X

As long as the criteria described in each recruitment strategy are followed, the selected methods of recruitment can acquire the following features:

2.1.1. INVITATION LETTERS/EMAIL

Next to in-house resources, addresses may be obtained from a national (or regional) central registration office. The office can draw out a large representative set of civil registration numbers and addresses. It is very important to ensure that the addresses are random since this will be key to obtaining a sample as diverse as possible. Furthermore, it is important to pay attention to the fact that only a small part of the invited citizens will actually agree to participate in the end.

Another option is to recruit via social networks (in combination with Advertising below), where on-line enrolment form is provided for a range of potential participants.

[3] The detailed recruitment strategies of the pilot partners are internal GoNano documents. A template for developing a detailed recruitment strategy can be found in Annex 1.

2.1.2. TELEPHONE RECRUITMENT

If it is not possible to obtain a random sample of addresses from the civil registration office, you could also contact citizens by telephone if a national telephone register is available. In order to obtain a good sample you should think carefully about which phone numbers you pick. An efficient solution would be to pick numbers at random – you could, for instance, pick 50 random pages in the phone book and then call 50 random citizens on each page. You should also think through what could. It is noteworthy to point out that this approach is very time-consuming (especially in case of calling random people): do you have enough staff, such as (inexpensive) student helpers, for this exercise?

2.1.3. FACE-TO-FACE RECRUITMENT

If you choose this method you should again think very carefully about how you execute the recruitment process. It is very important that you ensure diversity in your sample. One example can be based on quotas in geographical clusters – i.e. you select different recruitment areas around your country/region – you could for instance pick 5 different geographical regions and within each region you pick e.g. 2 random schools, 2 random hospitals, and 2 random shopping malls. For each setting you aim at getting as many people as possible to sign up for the citizen consultation.

Instead of aiming at maximising the amount of citizens signing up for the consultation you could also aim more specifically for different "types". You could, for instance, create different profiles of whom to invite, placing different "emphasis" on your recruitment criteria. This could be coordinated and calculated in advance so that when you undertake the recruitment in each geographical area you would then know that you are looking for e.g. a male in his 50s with low educational level, an elderly female with mid-educational level and working in the public sector, a female student etc.

Again, in order to obtain the right distribution of citizens (to ensure a variety of citizens) you will need a sufficient number of citizens to sign up for the citizen workshop in order to be able to confirm at least 40 % of citizens. Similarly to the telephone strategy, this recruitment strategy is also very time-consuming: do you have enough staff such as (inexpensive) student helpers for this exercise? If this is not the case it might be more economical to hire a private company to undertake this task.

2.1.4. SNOWBALL SAMPLING

This recruitment procedure could be used in a geographical area where you do not know how to get in touch with target group citizens needed for the citizen consultation. You invite three people and ask each person to make three copies of the invitation letter for them to give to three people they know, who will then do the same (make three copies, etc.). Using this method, the sample group appears to grow like a rolling snowball. The snowball strategy has the disadvantage that citizens might only invite the same kind of people, therefore, you need to stress the importance that your participants should invite citizens with backgrounds/characteristics different to their own.

2.1.5. ADVERTISING

Advertising in different media (newspapers, radio, social media etc.) is another way of recruiting. Citizens would be encouraged to send their applications to the national partner and selection could be made in line with the recruitment criteria. If choosing this recruitment strategy, pay special

attention to the fact that advertising is often expensive but that you can reach different target groups by advertising in different kinds of media and media that covers different groups of the population.

2.2. Recruitment strategy for online consultations

Recruitment strategies for online consultations utilise the same tools as the face-to-face meetings. For the online consultations however, it can be harder to achieve a representative sample of participants. The pilot partners must therefore carefully consider the sample of participants they aim to reach and choose develop their recruitment strategy accordingly.

For recruiting younger participants, social media like Facebook and YouTube are important tools. One strategy is to enlist a number of young ambassadors to help you spread your invitation to their followers[4]. For Facebook pilots should consider using the apps feature for targeted advertising to reach the groups they would like to recruit for the online consultation. Table 2 provides a table for the pilot partners to reflect on the adaption of their recruitment strategies for the online consultation.

Table 2 provides an overview of the options for recruiting participants to the online consultation

	RMIT	TC	UT
In-house activity	X	X	X
Recruitment agency			
Recruitment method			
Facebook			
YouTube			
Website or other Social media			
Invitation letter/email			
Buying addresses from a market research company			
Telephone recruitment			
Face-to-face recruitment			
Snowball-sampling			
Advertising (Posters/flyers/video)			

[4] Young ambassadors could be persons with e.g. a YouTube channel with a high number of followers.

3. DEALING WITH WORKSHOP AND ON-LINE PARTICIPANTS

For the active involvement of participants (citizens), it is vital to maintain their attention to the given topic and gradually prepare them for the deliberative character of the workshop and the activities of the online consultation. As general rules, one should: provide participants with relevant information prior to the workshop, which will make them (i) *oriented* in the given topic, (ii) *safe* in terms of understanding what their task is, and (iii) *respected* in whatever input they will provide.

The communication activities form part of a wider communication and dissemination strategy developed in GoNano (see the D7.1 GoNano communication and branding plan). The present instructions contain advice for communication with participants before the citizen workshops and online consultation and following the events. Next to the direct e-mail/letter/telephone communication, the national mutation of the GoNano webpages can serve as an important communication tool with both citizens as well as stakeholders during the entire GoNano co-creation process.

3.1. COMMUNICATION WITH WORKSHOP PARTICIPANTS

The communication with potential workshop participants can be divided into several phases. The first phase starts with the recruitment process. Several forms of communication are recommended:

- Invitation letter/email with the basic information about the project, co-creation and its phases and the role of citizens in the process, which is to be sent to every potential participating citizen. The letter should be concise and should encourage citizens to take part. If you carry out the recruitment as an in-house activity, you should attach an enrolment form to the invitation letter. A template illustrating how an invitation letter as well as the enrolment form can be formulated is presented in Annex 2.
- Information through a telephone/face-to-face recruitment, following the structure of the invitation letter.
- Information on the EngageSuite platform (see section 5.3) containing the same information as the letter/email.

In the second phase, you will have to divide the recruited participants into the pre-final pool of 55-70 citizens (according to the recruitment strategy criteria) and those who signed up for the citizen workshop but were screened out in the end. To the latter group, we recommend to send a rejection letter explaining why they have not been selected. A template of such a rejection letter is presented in Annex 3. Nevertheless, it is important to assure them that they will still have a chance to participate in the co-creation process during on-line consultation.

In the third phase, the pool of 55-70 citizens (according to the recruitment strategy) selected to participate at the workshop will be divided into the following groups:

- “Core” group of 48 citizens – workshop participants, to which a confirmation letter/email. An example of a confirmation letter is presented in Annex 4. Members of this group will be asked to confirm their attendance.

- "Back-up" group of 7-12 citizens, ready to replace core group citizens, which are not able to attend the workshop, or not showing at the workshop. Members of this group will be noticed about their role by a respective letter/email (Annex 5).

After the composition of 48 core group citizens is consolidated, the citizen participants are provided with the following information:

- Practical Information Package, providing more a specific information about the venue, programme, transport etc. More specifically, the information booklet should include:
    - More detailed information about the project, the co-creation process and its phases
    - Programme for the day (short version)
    - Information on data protection and privacy measures
    - Transport information on how to get back and forth to meeting location
- Information Material on nanotechnology application in the areas of food/health/energy
- Template for informed consent (Annex 6)
- Information about the further process and an estimate for when they can expect to hear about the results of the citizen workshop
- Information about how they can stay involved with the project
- Evaluation survey

It is recommended to upload the Practical Information Package and Information Material prior to the workshop as well as the workshop outputs.

It is important that citizen participants are assured that it is not necessary to know everything about the topic in advance. Nevertheless, they should be encouraged to read the Practical Information Package and Information Material. If experience tells you that citizens cannot or will not read the information in advance, you will have to use other methods to communicate the information on the given topic. You can consider a community briefing in the days prior to the citizen consultation, a webinar or a brief session explaining the main point in the information material on the day of the citizen workshop itself.

In particular, it is important to explain in detail to the workshop participants how to get to the venue of the workshop. Depending on the design of your recruitment strategy and the budget, you may also consider the following:

- Organise transport by bus from central meeting points
- Provide free parking space for private cars
- Refund transport expenses
- Arrange accommodation for those who may need it.

After the workshop, it is important to keep at least partial attention of the participants as to the workshop outputs and consequent phases of co-creation process. We will need their participation

also at the online consultation (ca April/May 2019). This can be achieved by combining the following actions:

- A thank you letter/email with an invitation to follow the project by registering at its webpage
- Announcement of the citizen workshop outputs going online
- Invitation to the online consultation
- Other actions as outlined in the communication and dissemination strategy of each pilot partner (Task 3.2.4), which will be developed in cooperation with WP 7 (template for the communication and dissemination strategy is presented in Annex 7). These actions will include e.g. encouraging citizens to take part in the debate on selected Facebook pages or Twitter accounts where dilemmas and questions for debate will be posted, inspired by things that come up during the citizen- and stakeholder workshops.

3.2. COMMUNICATION WITH ON-LINE PARTICIPANTS

The communication with participants for the online consultation should take place already prior to the citizen workshop, when the entire co-creation process is communicated to the larger pool of workshop participants. After the workshop, the participants for the online consultation should receive the following information:

- More detailed information about the project, the co-creation process and its phases
- Introduction to the results from the first two steps of the GoNano co-creation process (citizen workshop and co-creation stakeholder workshop 1)
- Practical information about how participation through an online portal works
- Information on data protection and privacy measures
- Template for informed consent
- Estimate on the duration of the online consultation
- Information about the further process and an estimate for when they can expect to hear about the results of the online consultation
- Information about how they can stay involved with the project
- Evaluation survey

Additionally, for the online consultations, participants should receive information about:

- Data protection measures of the EngageSuite platform
- Recommendation and advantage of using a pseudonym for their user profile
- Recommendation to frequently change their password for their user profile

To keep the participants involved, you can also consider making a short quiz on main points of the results from the first two steps of the co-creation process.

After the online consultation, it is important to keep the established links with the participants in order to disseminate the outcomes of the co-creation process. It is important to highlight the

development of training materials for how citizens may become involved in research and innovation processes, as well as for providing opportunity to contribute to the GoNano white papers, policy recommendations and industry briefs.

3.3. INCENTIVES FOR PARTICIPATION

Incentives for the citizens to increase their motivation to participate at the citizen workshop are the following:

- Reimbursement of travel costs
- Per Diems (day remuneration)
- Prizes (e.g. a gift certificate)

In some countries it is customary for citizens to be paid a set fee for attending citizen participation activities. If citizens are paid a fee, it is vital that the amount is well balanced to avoid for the money becoming the only motivation for participation. In case you opt for remuneration (per diem or gift certificate), make sure that members of your "back-up group" also have the opportunity to receive a certain percentage of the remuneration paid to the workshop participants, or participate in e.g. a competition for a gift certificate.

It should also be made clear to citizens that they are not paid to have a specific opinion or to answer the questions in a certain way. It is important that no one can claim that the results have been influenced by paying the citizens to participate. You could also consider providing citizens with books or gifts that are of relevance to the issue of the citizen consultation. Citizens should receive the fee or presents only at completion of the workshop, or possibly also online consultation.

3.4. TIME PLAN: FROM CITIZEN WORKSHOPS TO ONLINE CONSULTATION[5]

All the communication and preparatory activities should be carried out in the respective time slots so that successful organization of the citizen workshop and online consultation with the desired number and diversity of participants is ensured. Please make sure that you properly combine the communication activities with citizens with other preparatory activities, such as:

- Preparation of the venue and technical equipment/the EngageSuite participation space
- Training of staff including facilitators/testing the online consultation space well in advance
- Translation of the Information Material, Practical Information Package and other necessary documents

Since all pilot partners organise their citizen workshops at different dates, the following tentative time plan of pre-workshop activities refers to the specific context of the pilot partner TC CAS as being the first one to organise the citizen workshop. The other pilot partners should adjust the time plan to their dates.

[5] For all the time tables, pilot partners should cross check their planning with the time plans for the co-creation workshop.

3.4.1. TIME PLAN FOR THE CITIZEN WORKSHOPS

August 2018					
Date	**Recruitment of citizens**		**Methodology and training**	**Information material**	**Dissemination and communication**
13th			1st suggestion for general EngageSuite manuscript draft ready		Template for dissemination and communication strategy guidelines
16th			Feedback on general EngageSuite manuscript	Information material ready for translation	
23rd			Final general EngageSuite event ready in EngageSuite. Instructions for pilot partners ready		
31st			Manual of Citizens Workshops Part 2: instructions during the Citizen Workshop (final)		
September 2018					
3rd	Start of recruitment				Dissemination and communication strategy guidelines adapted by the pilot partners
10th			First draft of pilot content for EngageSuite		
13th			First pilot versions of EngageSuite events ready for pilot partner review		
17th -19th	**Consortium meeting in Prague** Possible agenda in relation to the citizen workshop: - Training seminar for the local organizers (practical facilitation, EngageSuite management etc.) - Coordination of activities between WP3 and WP4 - Implementation of dissemination and communication strategies (Task 3.2.4)				
28th			EngageSuite events for citizen workshops ready excl. graphical design		
October 2018					
5th	End of recruitment				
	Pre-final pool	Rejected citizens		Practical Information Package ready	Letter of rejection
10th	Core group	Back-up group			Letter of confirmation Letter of conditional confirmation Evaluation survey template
12th				Information material translated	
15th				Information material distributed to partners	Information material and Practical Information Package sent
18th			Graphical design included in EngageSuite events for		Evaluation survey translated and ready for print

		citizen workshops		
19th		Final training of facilitators		
20th	**Citizen workshop**			
23rd				Thank-you letter

3.4.2. TENTATIVE TIME PLAN FOR THE ONLINE CONSULTATION

November 2018				
Date	**Recruitment of citizens**	**Methodology, training, data collection & analysis**	**Information material & results**	**Dissemination and communication**
23th		National data collection		
30th		Translation of results		
December 2018				
21th			Finalising report with results as input for the first co-creation workshop	Contact citizen participants to inform them of the results of the workshop and to inform on future opportunities for participation
January 2019				
		Draft design of EngageSuite for online consultation		
		Webinar to support partners in organising and evaluating stakeholder engagement		Finalise communication and dissemination strategy
		Finalise recruitment strategy for online consultation		
February 2019				
	Start recruitment for online consultation			
March 2019				
		Receiving input from co-creation workshop with stakeholders to next draft of content of the online consultation and EngageSuite scripts		
		Translation of the EngageSuite content		
		Set up EngageSuite for the online consultation		
		Detailed manuscripts for running and supporting the online consultation		
April/May 2019				
Online consultation				
				Communicate the start of the online consultation

End of online consultation				
				Communicate the end of the online consultation
June 2019				
		Collect and analyse results from on online consultation		
			Report on the outcome of the online consultation	Communicate the results of the online consultation
February 2020				
		Evaluation of the whole co-creation process		

3.5. TRANSLATION OF MATERIALS

The pilot partners should translate all material shared with participating citizens into their national languages. The list of materials for translation is provided in sections 3.1. and 3.2. In your translation you do not need to stick to the English version word for word, but the meaning of a sentence and section should not be changed.

4. HUMAN RESOURCES FOR THE CITIZEN WORKSHOP AND ONLINE CONSULTATION

A variety of roles should be filled for the citizen workshop and online consultation. Particularly for the citizen workshop, some staff members have to be able to take care of multiple tasks. In that case, you have to ensure a sufficient flexibility of the staff and compatibility of the performed tasks. Recommended division of roles for the citizen workshop:

- **1 Project manager**. Her/his main responsibility is to make sure that the citizen consultation proceeds according to the method described. She/he should have the overview of all tasks, and make sure that everything is executed as planned. It is very important that the project manager makes sure that all other staff knows what to do. This could be done at a training day where all staff runs through every procedure of the citizen consultation.
- **1 Head facilitator**, who facilitates the citizen workshop. Her/his main responsibility is to make sure that everybody in the room feels welcome and that all citizens understand what to do and do it within the given time-frame. The head facilitator will instruct everyone in the room about what exactly to do every time a new session begins. The head facilitator can be someone from the national partner organisation or a professional facilitator hired to do the job. It could also be the project manager, but this is not recommended, since the project manager needs to have the full overview, which can be difficult if you also have to facilitate.
- **1 Information person**, possibly an expert/researcher who knows the information material by heart“, and can be called, whenever a problem as to content arises.
- **6 Table facilitators**, one at each table. Their main role is to function as a neutral moderator of the deliberations at the table making sure that the participants focus on the assigned discussion theme and that all of them at the table have a say. They should also keep track of time. Citizens should be able to consider them as neutral, and they should therefore not come from e.g. an organisation, which could be accused of being biased. They should definitely not express their possible expertise in nanotechnologies. Training of the table facilitators is necessary before the citizen workshop starts. The basis for the training will be provided by the second part of this Manual (Instructions during the Citizen workshop). Make sure to engage some extras in case of illness, etc. The table facilitators can be employees in the national partner organisations, volunteers from various organisations, or graduate students.
- **6 Note-takers**, who will accompany the table facilitators at the tables. Their main role is to record main points that are discussed. Note-takers will also be responsible for operating Engage Suite by the tables.
- **1 Technician**. This person makes sure that the technical equipment runs perfectly during the entire citizen workshop. The technician must prepare and make sure to test all equipment before the citizen workshop starts. The technician should be familiar with the software and hardware that you choose to use.

- **1 Media assistant**. This person is responsible for undertaking media-related tasks during the citizen workshop. She/he should take pictures and make recordings to visually document the citizen workshop.
- **1 Participants' Assistant**. This person provides basic service to citizens' needs, makes sure that the participants sign the attendance list. The assistant also deals with remuneration issues.
- **Catering staff**, responsible for serving food and drinks according to the workshop agenda. Their role during the workshop is also to clear the tables from food, plates and cutlery during the day.

Recommended division of roles for the online consultation:

- **Facilitator and project manager**, who facilitates the online consultation. Her/his main responsibility is to make sure that the consultation runs as planned, that the rules of good (online) behaviour are followed, and that the targeted number of 100 participants is reached. The head facilitator can be someone from the national partner organisation or project manager, but this is not recommended, since the project manager needs to have the full overview, which can be difficult if you also have to facilitate as well.
- **1 Technician**. This person makes sure that the EngageSuite platform runs as intended during the online consultation, and should be at hand during the whole consultation period to solve any technical issues that might come up during the consultation. The technician must prepare and make sure to test EngageSuite with the pilot partners before the online consultation starts. The technician should be familiar with the software and hardware that you choose to use.
- **1 Media assistant**. This person is responsible for amplifying the dissemination activities of the online consultation as it takes place and to disseminate intermediate result for increased attention, as well as for preparing dissemination of the final result once the consultation is finalised.

5. The Venue for the Citizen Workshops

5.1. Facilities

The venue (the place/room where the citizen workshop is going to take place) should feature:

- Large open space with enough room for facilitators and 48 people seated at tables.
- Six tables each hosting 10 participants (8 citizens, 1 group facilitator and someone recording outputs). Especially round tables allow for more inclusive, relaxed etc. dialogues.
- A stage/space from where the lead facilitator can speak (should be visible to everybody).
- Comfortable chairs. Hard plastic chairs might be painful for some participants after several hours. Remember that some participants might be elderly and some might have physical disabilities. Therefore consider padded chairs, check accessibility, e.g. for wheelchairs.
- Wardrobe facilities.
- A buffet from where the citizens can obtain food and drinks.
- Toilets. The location of the restrooms should be clearly indicated. In addition to lunchtime and other breaks, citizens should be informed that they can leave the table to go to the toilets at any time.
- Outdoor facilities for those wanting to smoke or in need of fresh air.

5.2. Technical Equipment

- One computer for presentations and at least six notebooks for each table and two as back-up plus 6 USB sticks.
- Microphone and loudspeaker system, if required.
- Big screen or monitor visible to all participants.
- Projector (compatible with the computer).
- Good sources of light that can be dimmed during video presentations.
- Video recorder and a camera for documenting the citizen workshop.
- Printer and copying machine.
- Pin boards (total of 6), pins.
- Flipcharts with flip chart paper (total of 6) and markers.

5.3. ENGAGESUITE

EngageSuite is an important online tool, serving as a co-creation platform throughout the entire co-creation process. The set of modules within the EngageSuite (presented in Annex 8) will be used for the following particular procedures, with the possibility for their further adjustment:

- Note-taking and documentation of the table discussions at the citizen workshops
- Prioritizing the most important wishes/concerns of the citizens
- Gathering evaluation and comments during online consultation

6. CATERING FOR CITIZEN WORKSHOPS

Food and beverages are essential to the success of the citizen consultation. The participants should have access to a varied and changing buffet throughout the day, so that they have the necessary energy to discuss and be creative. Some participants may have personal food requirements. There may be people suffering from allergies (lacteous, gluten, etc.), vegetarians, and citizens with religious requirements. In order to meet special needs, citizens are given the opportunity to declare these needs when they send in the application form for attending the citizen consultation. The catering should consist of:

- Breakfast
- Lunch
- Fruits, snacks & sweets, coffee, tea, soft drinks, water available all day
- Take away food when the citizen consultation closes

Dining facilities such as plates, glasses, cutlery, etc. should be in place. Water and glasses should be available at each table. Citizens should be told that they are free to get their food from the buffet and bring it to the table when convenient.

7. DESIGN OF THE CITIZEN WORKSHOPS AND ONLINE CONSULTATION

The GoNano citizen workshop design is set up to following a design-thinking format. The format allows the exploration of alternative ways of thinking and framing the issues under discussion. The aim is to get as many possible ideas and solutions under discussion in the workshops before the participants are asked to make choices for their preferred solutions, qualify and contextualise these.

For GoNano the general design principles of the workshops include (bullet points from Shelley-Egan, Throne-Holst et al. 2018):

- Using design thinking in order to get tangible results
- Developing full transparency about the engagement process
- Offering appropriate facilitation

- Avoiding overly academic debates as important perspectives based on emotion rather than rational reasoning may be overlooked
- Using stories and narratives to offer useful means of communicating with different aspects to different audiences
- Taking the ideal of "mutual learning" into account: the type, form and extent of information given to participants is highly relevant
- Giving sufficient time in order to get to meaningful levels of engagement
- Offering protected space, in which there is room for experimentation
- Being flexibility in the development of the co-creation process and the opportunity to adapt the procedure
- Interviewing following the period of collaboration could serve to document any changes in awareness, reflexivity or practice
- Countering the tendency to pursue meta-debates in the preparation and execution of the events

The online consultation format differs from the citizen consultation, as it does not put as much emphasis on the exploration of alternative ideas and solutions. Rather the online consultation serves to test and evaluate the outcome of the co-creation process thus far, and to provide the opportunity for a broadening the engagement with publics. The overall aim of this step is to ensure a coherent nanotechnology development in three fields with regard to public desirability and preferences.

The online consultation will take place in five partner countries (Czech Republic, Denmark, The Netherlands, Spain, and the U.K.) with the aim of reaching 100 participants in each country.

For the online consultation, the following design principles should be taken into account:

- The consultation should not take longer than 10 minutes to answer and combine open and closed questions in order to allow for both a quick atmospheric picture as well as provide an opportunity of extensive feedback
- Use vignettes to provide participants with an easy-to-understand and quick overview of the suggestions and recommendations from the first stakeholder workshop
- Carefully consider the format of your results and the resulting analysis you will need to undertake, and match the form with your resources and desired outcome
- Have a plan for moderating and supporting the online consultation in progress

Since some of the topics under discussion might be controversial. It helps to establish a common set of basic rules of accepted behaviour, both in the face-to-face workshops as well as in the online consultations: These include encouraging participants to:

- Speak openly and honestly,
- Listen to the other participants,
- Be respectful of the other participants, and do not interrupt each other,

- Keep your statements short and to the point,
- Focus your statements on the topic at hand.

The pilot partners will receive training to inform them on how to facilitate the face-to-face as well as online consultations.

7.1. CITIZEN WORKSHOPS

The aim of the citizen workshops it to have: a (ranked) list of wishes and concerns directly received from participants; clear ideas around the issue of nanotechnology development addressed to specific actor groups (also from participants) and results on the needs, preferences and values underlying the citizen's responses (additional details in the main document). The main results of the citizen workshops is to be summarized in a template (Annex 9).

Table 3 The agenda for the citizen workshop

Timeslot	Task	Aim
20 min	**INTRODUCTION**	
	Intro and welcome and trust building in the process	Clarifying the project's goal, role of the citizens, use of results How can citizens stay involved?
120 min	**TECHNOLOGY DISCUSSIONS**	
3 x 40 min	3 rounds of discussion (each round about one application) à 40 minutes: deliberation on nanotechnology	Getting acquainted with Nanotechnology in the area & finding out critical and beneficial aspects, and deliberating on them
10 min	Part 1: Information, stimulation from PPT and facilitator	Stimulating the discussion
30 min	Part 2: Discussion regarding pros and cons, future role of nanotechnology Questions as trigger: „What do you think about this example?" "What are your first thoughts on this?" „What do you like about it? Why?" „What may turn out to be difficult? Why?" "For whom is it relevant or critically (gender, specially affected groups)" "What kind of dilemmas do you see?" „Are there any trade-offs/ options to weigh?" "What do the dilemmas mean to you?" „Do you think this technology/application should gain importance in future? What might be the consequences of that?" "Can you think of something else (in this	Discussion and deliberation (pros and cons, future role)

	nanofield) that, in your opinion, research should be done on?"	
60 min	**REFLECTING TECHNOLOGIES**	
	Breaking the thematic field down to the most important in relation to the three discussion rounds	Formulation of 1-2 concerns and 1-2 wishes per table about technology application (or broader general concern or concrete ideal nano application as a wish)
45 min	**BROADENING THE VIEW**	
	Concerns and wishes are presented, shared and individually evaluated (using points or votes)	
40 min	**MAKE THE WORLD SEE**	
	Formulate messages to specific actor groups based on a wish or concern Illustrate them creatively	
20 min	**Presentation of messages in plenary**	
15 min	**Feed-back and fare-well**	
Total duration: 320 min (5,3 h)		

7.2. THE ONLINE CONSULTATION

The online consultation serves to evaluate broadly stakeholders' input into the process. Therefore, the research lines as formulated by stakeholders will be broken down into concrete examples with regard to the (potential) daily life of citizens in the near future.

The online consultation will give all citizens (including those of the workshop) the chance to see in what way their messages, wishes and concerns were taken up. The template for setting up the online consultation is presented in Annex 10.

ANNEX 1: TEMPLATE FOR RECRUITMENT

1. Introduction

The main aim of the recruitment strategy is to recruit [insert you desired number] lay citizen so that the desired number of [insert you desired number] lay citizens actually participating at the workshop is ensured. At the same time, the strategy ensures that the selection of participants reflects [insert your criteria] criteria of the pilot country, in this case [Country].

2. Ways of recruiting

Of the two basic options on how to carry out the recruitment available:

- **In-house activity**: an organization can carry out the recruitment by itself, using its own capacities and networks to attract the sufficient number of citizens with the required characteristics.
- **Recruitment agency**: the budget (below) allows to outsource an agency specialized in recruiting various target groups within the society (e.g. public opinion or market research agency).

[insert pilot partner] will follow [insert option and explanation for choice].

The specific methods to recruit citizens are indicated with "X" in the table below.

	RMIT	TC	UT
In-house activity			
Recruitment agency			
Recruitment method			
Facebook			
YouTube			
Website or other Social media			
Invitation letter/email			
Buying addresses from a market research company			
Telephone recruitment			
Face-to-face recruitment			
Snowball-sampling			
Advertising (Posters/flyers/video)			

3. Budget

The budget dedicated to the co-creation process with citizens for each pilot partner is presented in the table below.

Task 3.2	Travel costs	Consumables etc.	Total
TC	€ 3 000	€ 4 500	**€ 7 500**
UT	€ 3 000	€ 4 500	**€ 7 500**
RMIT	€ 3 000	€ 4 500	**€ 7 500**

Possible uses of budget and estimated costs:

Travel costs:

- Reimbursement of travel costs for participants €250 (€5 x 50)

Consumables:

- Recruitment of the citizens, incl. participant´s remuneration (1500€ (30€/p x 50)
- Rental of the workshop venue €0
- Rental of round tables and other equipment €0
- Catering for participants and professional staff 1200€ (20€/p x 60)
- Translation of the materials €0
- Professional printing of materials €200
- Hiring a professional staff, facilitators, 960€ (120€ x 8)

4. General recruitment criteria

[insert explanation for your general recruitment criteria].

Geographical focus of the recruitment	
Whole country	Yes/No
Selected regions (NUTS II/NUTS III)[6]	Yes/No
One selected region (NUTS II/NUTS III)	Yes/No
One selected municipality	Yes/No

Explanation of your choice:

[6] https://en.wikipedia.org/wiki/Nomenclature_of_Territorial_Units_for_Statistics

Gender

	Percentage / absolute numbers				
	In the population[7]	At the citizen workshop			
		Plan		Reality	
		%	Abs.	%	Abs.
Women					
Men					

Explanation of the potential deviation:

4.1. Age

Age groups	Percentage / absolute numbers				
	In the population[7]	At the citizen workshop			
		Plan		Reality	
		%	Abs.	%	Abs.
18-24					
25-34					
35-49					
50-59					
60+					

Explanation of the potential deviation:

4.2. Geographic breakdown (size of residence)

Type of population	Percentage / absolute numbers				
	In the population[8]	At the citizen workshop			
		Plan		Reality	
		%	Abs.	%	Abs.
Population living in cities					

[7] http://www.ine.es/prodyser/espa_cifras/2018/index.html
[8] https://www.fbbva.es/wp-content/uploads/2017/05/dat/cuadernos_FBBVA_51espana_web.pdf

Population living in smaller towns					
Population living in countryside					

Explanation of the potential deviation:

4.3. Educational level

Education	**Percentage / Absolute numbers**				
	In the population[9]	**At the citizen workshop**			
		Plan		**Reality**	
		%	**Abs.**	**%**	**Abs.**
Primary/Lower- secondary					
Upper-secondary					
Tertiary education (incl. PhD)					

Explanation of the potential deviation:

4.4. Economic activity

Economic activity	**Percentage / Absolute numbers**				
	In the population[9]	**At the citizen workshop**			
		Plan		**Reality**	
		%	**Abs.**	**%**	**Abs.**
Employee (public and private sector)					
Employer/self-employed person					
Student					
Retired person/on leave					
Unemployed person					

Explanation of the potential deviation:

4.5. Sector of employment/Profession/interest group

[insert an explanation if you are/are not targeting specific population groups].

4.6. Other considerations

[Insert any other considerations]

[9] http://www.ine.es/prodyser/espa_cifras/2018/index.html

ANNEX 2: INVITATION LETTER

Dear Name

Organization name invites you to participate in a citizen workshop:

date, time

in Barcelona/Twente/Prague (the exact location will be announced later only for the selected citizens)

During October and November 2018, around 150 citizens in Spain, Netherlands and Czech Republic will have chance to contribute to co-creation of nanotechnology products. And you are invited to be one of them.

Together with about 50 other citizens in Spain/Netherlands/Czech Republic, you will meet for one day and discuss your ideas, concerns, needs and suggestions for future nanotechnology products in the area of food/health/energy. The aim is to collect your feedback, with which scientists and stakeholders will consequently work with to develop products reflecting your opinions.

You do not need any special knowledge about nanotechnologies in order to participate. The idea is to bring the views of ordinary citizens to the process of product development. We will prepare you with basic knowledge before the meeting.

Your attendance at the citizen workshop is remunerated by € X, your travel costs will be reimbursed. Please let us know by date, if you would like to participate. On the next page, you will be able to read more about the entire project, the meeting and enrolment procedures.

We hope you would like to participate in our meeting.

Thank you and best regards,

Your name

Organization name

Logo of Horizon 2020 **Logo of your institute**

GoNano

Nanotechnologies – the purposeful engineering of matter on the atomic or molecular scale – have given rise to great expectations in recent years, unlocking new research opportunities in areas as diverse as energy, healthcare, electronics, food, and construction. At the same time, concerns have been raised about possible unintended consequences of the use of nanomaterials. The GoNano project is built on the assumption that nanotechnologies are more likely to gain broad acceptance if they take public values and concerns into account at early stages of innovation. To test this hypothesis, GoNano will organise co-creation processes in different areas of nanotechnology application (Food, Health, and Energy), combining online consultations, face-to-face citizen engagement and stakeholder workshops.

Co-creation process

You are invited to the step 1 of a longer process of the project GoNano. Our aim is to create innovative solutions for food/energy/health – it's you who will work together with experts from research, business, policy and civil society organisations. We call it a process of 'co-creation'. In step 2, experts and a selected group of citizens from step 1 will design first suggestions for new solutions. In step 3, the solutions from step 2 are shared online for you and other citizens to evaluate the usefulness of the solutions from step 2. In step 4, the experts from step 2, will adjust the solutions from step 2 to respond to the feedback they received in step 3. Our co-creation process demonstrates to business and EU policy-makers the possibility and value of many actors collaborating on the design of promising innovations in food/energy/health.

Recruitment and enrolment

In order to do that, we need to recruit a sufficient number of citizens so that they together make a broad and varied cross-section regarding such things as age, gender or education. The enrolment procedure is thus as follows:

- Please let us know your interest in participating at the citizen workshop by filling out the attached enrolment by **date** at **contact detail.**
- If we receive more enrolments than needed, we will make a selection of the interested participants. You will be notified about your participation at the latest by **date.**
- If you are selected and then realize that you will not be able to participate at the citizen workshop, please let us know as soon as possible.

Citizen workshop

The workshop will take place in city on date from time to time. Your attendance at the citizen workshop is remunerated by € X, your travel costs will be reimbursed. Food and drinks will be served during the day. The workshop will be carried out in an interactive form at six tables, each for 8 persons. Each table will be facilitated.

For more information about the project, please visit http://gonano-project.eu/

If you have any questions related to the project and your participation in it, you are welcome to contact XY

Enrolment form

I wish to participate in the Citizen workshop on date in name of the city.

Please fill out the entire form:

Personal Information:

Personal information	
Name	
Address	
E-mail	
Phone	

Please tick the proper box

Gender	
Female	
Male	

Age group	
18-24	
25-34	
35-49	
50-59	
60+	

Region of residence	
…	

Population of the place of residence	
City (above 5 000 inhabitants)	
Town (2 000 – 5 000 inhabitants)	
Village (less than 2 000 inhabitants)	

Education	
Primary only	
Lower- secondary	
Upper-secondary	
Tertiary education (incl. PhD)	

Economic activity	
Employee (public and private sector)	
Employer/self-employed person	
Student	
Retired person/on leave	
Unemployed person	

Special needs concerning food	
Allergies – please specify	
Vegetarian	
Vegan	
Other – please specify	

I hereby declare my consent that personal data collected on this form and during the Citizen workshop may be processed and stored by the your organization for the organization and execution of the research project GoNano. Your organization will not use the data for any other purpose. This consent may be revoked at any time and without giving any reason.

Name of Participant	Signature	Place	Date

ANNEX 3: REJECTION LETTER

Dear Name

GoNano Citizen workshop is already fully booked

We very much thank you for your interest and your application to participate in the Citizen workshop. Unfortunately, we have received more applications than we can accommodate, and we therefore have to disappoint you.

We only have room for 48 citizens at the workshop. Unfortunately, there were many enrolments of people with similar demographic and social characteristics, and we are therefore unfortunately unable to accept your application.

Nevertheless, you are still more than welcome to participate in the co-creation process in the latter phase through on-line survey. If you are interested in taking part or if you have any questions regarding the project, please contact XY + contact details.

Thank you for understanding and best regards,

Your name

Organization name

Logo of Horizon 2020 **Logo of your institute**

ANNEX 4: CONFIRMATION LETTER

Dear Name

We would like to thank you for your interest in the citizen workshop. With this letter, we want to confirm your participation in the workshop, which will take place:

Date, time

name and address of the meeting location

We look forward to seeing you at the Citizen workshop and we hope for an interesting and rewarding day with a good dialogue. Please do not hesitate to contact us if you have any questions. More specific information about the programme, transport possibilities etc. will be provided to you in due time.

Please confirm your attendance at contact details. Conversely, please let us know as soon as possible if you for any reason are prevented from participating in the Citizen workshop.

Thank you and best regards,

Your name

Organization name

Logo of Horizon 2020 **Logo of your institute**

ANNEX 5: LETTER OF CONDITIONAL CONFIRMATION

Dear Name

We would like to thank you for your interest in the Citizen workshop. With this letter, we want to announce that you are – together with another 10 people – placed to the waiting list.

Unfortunately, we have received more applications than we can accommodate and there is room for only 48 participants at the Citizen workshop. If, however, a confirmed participant is not able to attend, we will eventually ask you to replace her/him at the citizen workshop, but no longer than 3 days before the workshop takes place at:

Date, time

name and address of the meeting location

Please do not hesitate to contact us if you have any questions. Also please notify us at contact details if you for any reason are prevented from being ready to substitute participants in the Citizen workshop.

Thank you and best regards,

Your name

Organization name

Logo of Horizon 2020 **Logo of your institute**

ANNEX 6: INFORMED CONSENT

GoNano Informed Consent Form

- WP3 Citizen Workshops –

I, the undersigned, confirm that I have read and understood the information about the project, as provided in the information sheet. I have been given the opportunity to ask questions about the project and my participation. I voluntarily agree to participate in the project. Procedures regarding confidentiality (e.g. use of names, pseudonyms, anonymization of data, etc.) and the expected use of the data for research, publications, sharing and archiving have been clearly explained to me.

I hereby declare my consent that personal data including video and pictures taken during the Citizen workshop may be processed and stored by the consortium of GoNano for the organization and execution of the research project GoNano, especially for communicating the results to a wider public. Pictures/videos may appear on consortium partner websites, video channels and similar media. The GoNano consortium will not use the data for any other purpose. This consent may be revoked at any time and without giving any reason.

Participant:

Name of Participant	Signature	Place	Date
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ANNEX 7: DISSEMINATION STRATEGY TEMPLATE

Each partner is responsible for developing a dissemination strategy for making sure that relevant stakeholders-target groups (see the D7.1 GoNano communication and branding plan) are made aware and also involved of the co-creation process in GoNano project. We would like to ask you to give us a brief overview about your strategy by answering following questions.

Country	Place of workshop

Contact person(s) for the dissemination strategy at your national team

Name	E-mail	Telephone

I. TARGET GROUPS

Which will be the main target groups for the dissemination in your country?

National policy makers (including MPs) (please fill in)

Name	Institution/ policy party	Remarks

Research -universities, research institutions- Nanotech, RRI, Participation, Co-creation field (please fill in)

Name	Profession	Organisation	Remarks

Industry – industry, industry-led research and innovation, technology transfer organisations, industrial associations and other business members (please fill in)

Name	Profession	Company/Organisation	Remarks

R&I networks –innovation networks, ETPs, clusters, research funding organisations (please fill in)

Name	Profession	Company/Organisation	Remarks

Civil society – CSOs, NGOs, consumer organisations (please fill in)

Name	Profession	Organisation	Remarks

Citizen –general public (please fill in)

Name	Profession	Company/Organisation (if applicable)	Remarks

Media (please fill in)

Name of contact	Type of Medium (e.g. news agency, newspaper, magazine, TV, radio, online)	coverage (e.g. national, regional, local)	Remarks

Social Media

Please specify SoMe activities on Twitter, FB, LinkedIn etc.

II. DISSEMINATION APPROACH

How, when and to whom will you disseminate the project before the workshop?	
Why have you chosen this approach?	
How, when and to whom will you disseminate the project/the results after the workshop?	
Why have you chosen this approach?	
What is your strategy for getting media attention**?**	
What are your criteria of success?	

ANNEX 8: MODULES IN ENGAGESUITE

FONDEN TEKNOLOGI RÅDET
DANISH BOARD OF TECHNOLOGY FOUNDATION
CREATING SOCIETY TOGETHER

tekno.dk / @teknodk / Facebook: TeknologiradetDBT / LinkedIn: the Danish Board of Technology

Modules in EngageSuite

CoSurvey

Use it for questionnaires and questions.

All common question types: From-0-X (Rating Scales), One-of-several ("Radio Button"), multiple choice, prioritized order (Ranking), open answer (Open-ended). One answer can open up more questions (Filter).

FONDEN TEKNOLOGI RÅDET
DANISH BOARD OF TECHNOLOGY FOUNDATION
CREATING SOCIETY TOGETHER

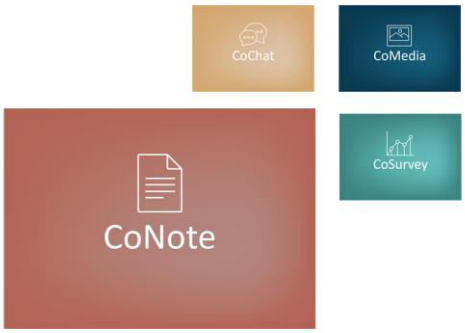
tekno.dk / @teknodk / Facebook: TeknologiradetDBT / LinkedIn: the Danish Board of Technology

Modules in EngageSuite

CoNote

Makes it possible to write in a text field which can be tied to themes, e.g. 3 themes tied to 3 rounds of discussions. Different groups/tables can be set to access different themes.

CoNote is a very useful for blended engagement processes, for participants writing their own minutes or for online ideas and comments.



Modules in EngageSuite

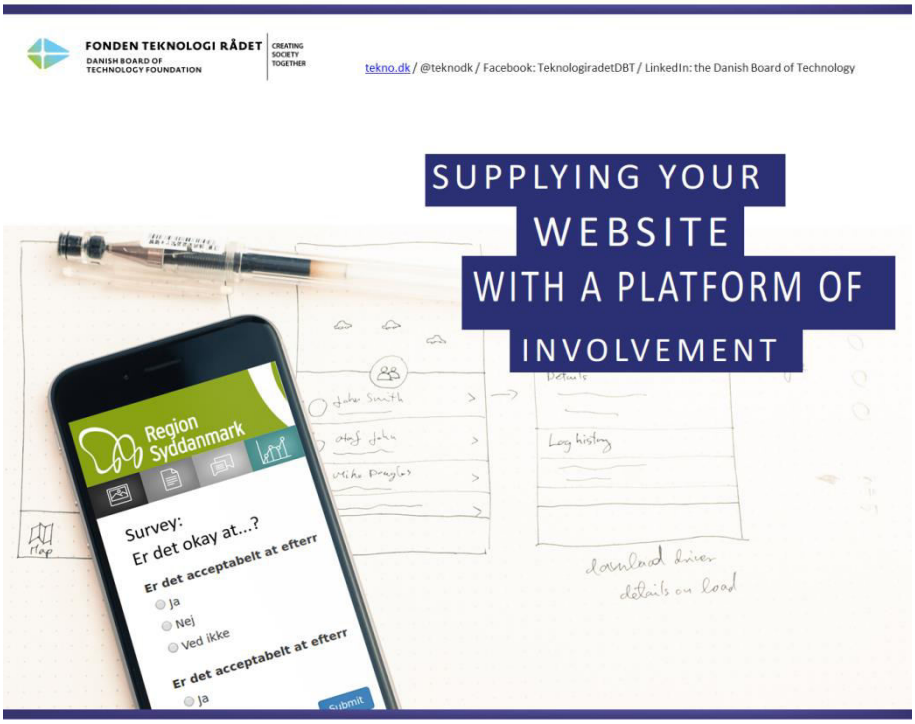
CoMedia

Provides the option of displaying photos, video, sound, texts, graphics or other information. Typically used for introduction videos, teasers, information on themes or instructions.

Modules in EngageSuite

CoChat

Offers all or selected groups the opportunity to chat. In online engagement it is especially well suited for gathering opinion through dialogue on e.g. a video, a problem or the results of a question. Several chats can be set up in connection to different tasks/topics.



ANNEX 9: TEMPLATES FOR CITIZEN WORKSHOPS

Example template for getting at the citizens wishes and concerns:

Table Nr:

Your associations are important.

Please find a speaking title for your concern and write (a) whole sentence(s) so that the others may have the chance to grasp the full meaning.

Which technology example or application do you refer to:

Wish 1

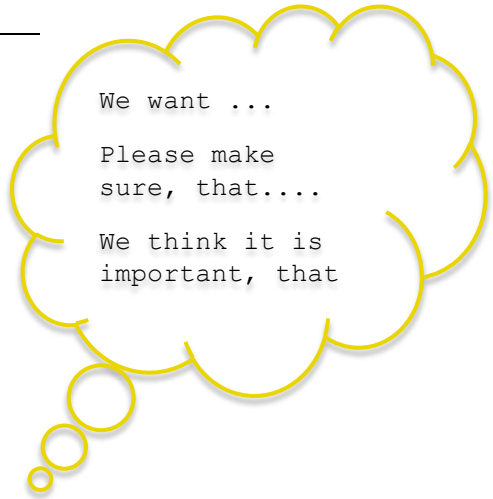
Wish 2

Concern 1

Concern 2

Example template for helping the citizens deveop their targeted messages

Table Nr:



Your message:

Which wish/concern do you refer to?

Table Nr

Nr of concern/wish:

Please find a speaking title for your message and write (a) whole sentence(s) so that the others may have the chance to grasp the full meaning!

Please select the main addressees for your message;

Researchers:

Industry and business actors:

Decision makers:

Others: _____

Would you like to add drawings or 3D-sketches to your idea – feel free to form (plasticine), draw (pens) or build (Lego)?

Example template for helping the citizens deveop their research line suggestion:

Your research line suggestion:

Thinking of the citizens needs, values, concerns and wishes – which are the ones you want to work with, when you develop a research line?

Table Nr._____

Find a nice title for your research line:

What is it about?

Why is this research line important and for whom it is important?

Can you think of concrete product sucggestions? Which products and application contexts can you imagine?

How will the products developed, differ from existing Nano technology applications?

How exactly do thes relate to what citizens have said?

Would you like to add drawings or 3D-sketches to your idea – feel free to form (plasticine), draw (pens) or build (Lego)?

ANNEX 10: ENGAGESUITE TEMPLATE

Template for setting up GoNano EngageSuite:

Pilot partners fill in the below template for the designing of the EngageSuite interfaces they would like for either the citizen workshop, and citizen consultation or the two co-creation workshops.

Page	Function of section	Information on page	Comments/questions to programmer
[What page of the web-module are we on?]	*[What is the function? E.g. voting, sorting, informing, discussion, development of ideas]*	*[What information should be on the page? E.g. text, video, picture]*	*[What needs and wishes from you should the programmer be aware of?]*

ANNEX B: MANUAL OF THE STAKEHOLDER WORKSHOPS

MANUAL FOR GONANO MULTI-STAKEHOLDER CO-CREATION WORKSHOPS

Author(s):

Lise Bitsch (Danish Board of Technology Foundation, DBT)

Ulrike Bechtold (Institute of Technology Assessment of the Austrian Academy of Sciences (ITA-OeAW))

TABLE OF CONTENT

1. INTRODUCTION: THE GONANO STAKEHOLDER WORKSHOPS[1]

This aim of this document is to act as a manual for the two multi-stakeholder co-creation workshops[2] as part of the GoNano project (Governing Nanotechnologies through societal engagement). The stakeholder workshops are part of the GoNano co-creation process (see the main document of which the present report is part for the theoretical background and knowledge base):

The aim of the Manual is to support the pilot partners[3] in implementation of the stakeholder workshops of GoNano which will take place through the fall of 2018 to the spring of 2019. The manual outlines considerations on recruitment, facilitation, practical needs and considerations. The overall co-creation process of is illustrated in Figure 1[4].

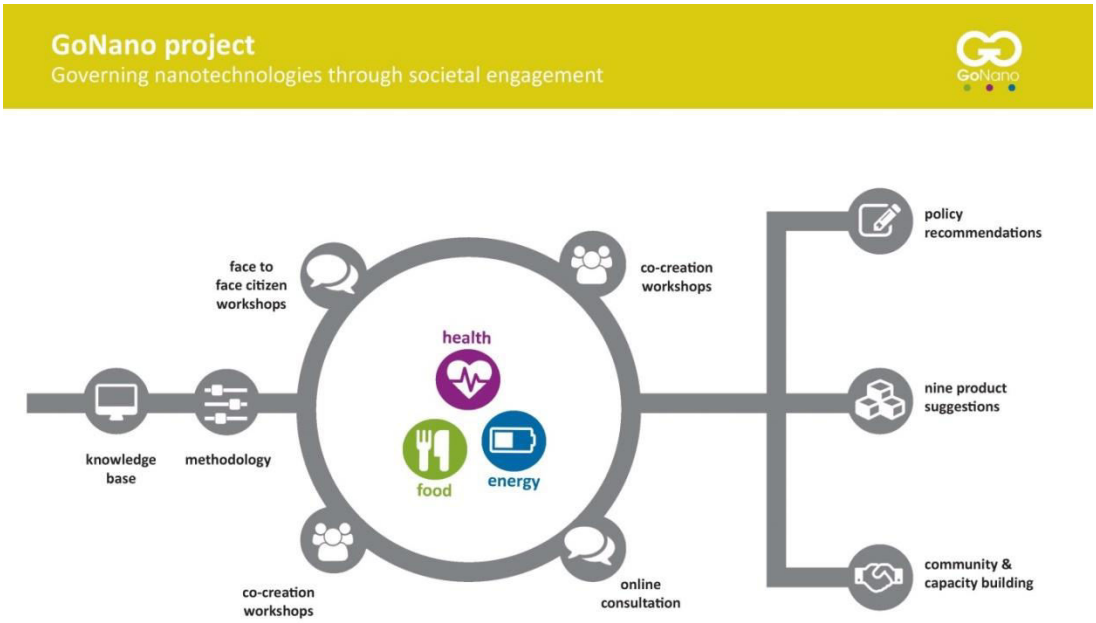


Figure 1 *Illustrates the overall co-creation process of GoNano, in which the multi-stakeholder dialogues are part of a continues co-creation process between citizens and professional stakeholder on nanotechnology applications in food, energy and health.*

[1] The present manual is a guiding document for the partners preparing the GoNano co-creation workshops. The partners will need to update and adjust programs and timeplans as they move forward in the preparation of the workshops.

[2] Please note that in the reaminder of the document the "multi-stakeholder co-creation workshops" are referred to as co-creation workshops.

[3] The GoNano pilot partners are: University of Twente (UT), Technology Centre of the Czech Academy of Sciences (TC CAS) and Royal Melbourne Institute of Technology (RMIT). The lead partner on the coordination of the co-creation workshops is De Proeffabriek (DPF)

[4] The D2.1 and the present manual lays down the design principles for the GoNano co-creation workshops and it contains overall structure for the co-creation meeting, and provides templates for carrying out certain parts of the preparatory work. However, seeing the workshop themselves are still more than 6 months into the future, pilot partners will need to also update an adapt the manual and templates as needed.

2. TARGET GROUP FOR THE CO-CREATION WORKSHOPS

The GoNano co-creation workshops will comprise a diverse group of actors with different areas of expertise, including: researchers, producers (industry), professional users, civil society organizations (CSOs[5]) and lay citizens[6]. In total the aim is to have approximately 30 participants per workshop. The goal is to have as much as possible the same participants in the first and second stakeholder workshop.

Each pilot partner will develop their own recruitment strategies for the stakeholder workshops. The recruitment strategies of the partners will be based on findings on nanotechnology R&I issues for dialogue coming from a study of researchers, business, industry, policy, CSOs and NGOs working in those areas and with a focus on energy, food or health Pimponi et al. (2018), and networks of the GoNano Advisory Board, as well as of the pilot partners themselves. For all three pilot studies the organising partners ***must*** pay particular attention to the inclusion of the European Technology Platforms (ETPs).

The actual recruitment process should be initiated in a sufficient time before the workshop starts(see also section 3.3 for a suggested time plan). Below a summary of the recommendations and findings from Pimponi et al. (2018) for each of the three application areas, food, energy and health:

2.1. NANOTECHNOLOGY AND FUTURE FOOD:

Pilot partner: TC CAS, Czech Republic

The stakeholders interviewed by Pimponi et al. (2018) explicitly mentioned the following stakeholders as relevant for the GoNano co-creation process in the application area of food:

- *EFSA,*
- *DG Sanco and DG Environment of European Commission,*
- *Ministries of industry, trade, agriculture; Research Institute for Food,*
- *Joint research Centre,*
- *University of Chemistry and Technology in Prague,*
- *National Institute of Public Health (Czech Republic),*

[5] The concept of civil society encompasses a wide range of organisations. In a broad sense, it includes all non-market and non-state organisations and structures in which people organise to pursue shared objectives and ideals. In the development field, there is a tendency to think primarily in terms of non-governmental organisations (NGOs) whose missions are explicitly and uniquely developmental in character. However, civil society also includes farmers' associations, professional associations, community-based organisations, environmental groups, independent research institutes, faith-based organisations, labour unions, and the not-for-profit media, as well as other groups that do not engage in development work. This broad definition is widely accepted in the world of development practitioners.
(https://webgate.ec.europa.eu/fpfis/mwikis/aidco/index.php/Civil_society_organisation [03/08/2018].
As the term comprises a broad spectrum of organisations, GoNano will mainly restrict the organisations included to: professional associations, community-based organisations, environmental groups, faith-based organisations and labour unions. Universities and independent research groups will be included as researchers, media will not be a main focus in relation to co-creation.

[6] The citizens are recruited in the first step of the GoNano co-creation process as part of the citizen workshops.

- *Pardam,*
- *Filtrex,*
- *Federation of Food and Drinks Industries of the Czech Republic,*
- *Czech and Slovak Packaging Association,*
- *Society of Czech brewers and malt-houses,*
- *Czech consumer association,*
- *EU consumer organisations such as BEUC, Safe Food Advocacy Europe, Conxpet and Eufic.*

Additionally to the specific suggestions, and numbers of stakeholder groups were suggested. Please see Pimponi et al. (2018: 10-11).

From their interviews Pimponi et al. (2018) found the professional stakeholders divided on the issue of nanotechnology in food. Issues of possible controversy include:

- potential impacts on human health, risks of food packaging materials and possible food,
- contamination by nanoparticles,
- distinction between nanostructures that naturally occur in food and those that are intentionally added or used in food processes for specific purposes,
- current state of European policy and legislation (including issues of definition, methods for risk assessment),
- positive and negative impacts of having in place stringent normative frameworks on food,
- consumers' willingness to accept higher costs for innovations without direct benefits for the consumers, but relevant benefits for the supply chain (e.g. longer food freshness) or the environment or society at large,
- Use of nanotechnologies in organic food.

The pilot partners recruiting for the stakeholder workshops of the GoNano co-creation process must take into account and aim to cover the discussion areas that exist among different professional stakeholders and also cover the breath and diversity of the professional stakeholders.

2.2. Nanotechnology and future Energy

Pilot partner: RMIT Europe, Spain

The stakeholders interviewed by Pimponi et al. (2018) explicitly mentioned the following stakeholders as relevant for the GoNano co-creation process in the application area of energy:

- ETP Photovoltaic,
- Solar Power Europe,
- International Energy Agency (IEA PVPS).

Additionally to the specific suggestions, and numbers of stakeholder groups were suggested. Please see Pimponi et al. (2018: 19).

From their interviews Pimponi et al. (2018) found the professional stakeholders divided on the issue of nanotechnology and energy. Issues of possible controversy include:

- In the transition from fossil fuels to renewable energy large amount of safe storage will be required, determining a complete reconfiguration of generation and distribution and of how electricity is used. In private domestic energy generation, householders will no longer be willing to pay for the grid, but consumers should be aware that yet the grid will be needed as a backup or to power larger public installations,
- Electric charging stations for vehicles will replace petrol stations, and might cause problems both in power and storage,
- Energy market: industries could be prone to sell the energy they will produce in periods they are not working (e.g. weekends),
- Promote open and transparent development of regulations, to ensure predictability of regulatory developments and provide security for investors.

The pilot partners recruiting for the stakeholder workshops of the GoNano co-creation process must take into account and aim to cover the discussion areas that exist among different professional stakeholders and also cover the breath and diversity of the professional stakeholders.

2.3. Nanotechnology and future Health

Pilot partner: UT, The Netherlands

The stakeholders interviewed by Pimponi et al. (2018) explicitly mentioned the following stakeholders as relevant for the GoNano co-creation process in the application area of health:

- Medicine Evaluation Board,
- RIVM,
- Philips.

Additionally to the specific suggestions, and numbers of stakeholder groups were suggested. Please see Pimponi et al. (2018: 15).

From their interviews Pimponi et al. (2018) found the following issues of possible controversy:

- The relationship with healthcare organization/structures and procedures, regulations,
- responsibilities, and cost coverage,
- How to keep up with rapid developments in nanotechnology,
- Ethical concerns related to people life and wellbeing, the way treatment/assistance is provided,
- Ethical concerns deriving from the personalized nature of the treatments and the fact that

- responses can vary from patient to patient; need to provide clear information and make people conscious about these aspects,
- Ethical questions arising from the use of external artificial organs (e.g. pancreas) or cells and tissues,
- Ethical issues related to security and privacy aspects of new technologies, able to provide increasing ability to monitor biological and health parameters (e.g. sensor technologies). Key
- Questions include*: What are the limits on what to measure, what to do with the data and who is the owner of medical data, in particular for severe diseases (e.g. when there is not cure for a patient)? Who holds the data? Will people change their behaviour based on measurements? Will measurements invade people daily life?*
- Negative side effects are generally more accepted for severe disease (e.g. cancer) than for less severe or lifelong diseases (e.g. diabetes). However, safety, side effects, and use by vulnerable groups of population should be further discussed also for the former, such as for cancer,
- Traditional nanomaterials (e.g. titanium and silver) are being developed into the "bio-nano" direction, seeing DNA as a chemical entity and this has to be debated because could encounter strong resistance from society,
- The healthcare systems will be shifted to systems that will be mainly focused on preventing diseases, rather than curing them and self-diagnostics

The pilot partners recruiting for the stakeholder workshops of the GoNano co-creation process must take into account and aim to cover the discussion areas that exist among different professional stakeholders and also cover the breath and diversity of the professional stakeholders.

3. AGENDA AND TIMEPLAN FOR THE CO-CREATION WORKSHOPS

The GoNano co-creation workshops design is set up to following a design thinking format. The format allows the exploration of alternative ways of thinking and framing the issues under discussion. The aim is to get as many possible ideas and solutions under discussion in the workshops before the participant are asked to make choices for their preferred solutions, qualify and contextualise these.

For GoNano the general design principles of the workshops include (bullet points from Shelley-Egan et al. 2018):

- Using design thinking in order to get tangible results,
- Developing full transparency about the engagement process,
- Offering appropriate facilitation,
- Avoiding overly academic debates as important perspectives based on emotion rather than rational reasoning may be overlooked,
- Using stories and narratives to offer useful means of communicating with different aspects to different audiences,

- Taking the ideal of “mutual learning” into account: the type, form and extent of information given to participants is highly relevant,
- Giving sufficient time in order to get to meaningful levels of engagement,
- Offering protected space, in which there is room for experimentation,
- Being flexibility in the development of the co-creation process and the opportunity to adapt the procedure,
- Interviewing following the period of collaboration could serve to document any changes in awareness, reflexivity or practice,
- Countering the tendency to pursue meta-debates in the preparation and execution of the events.

3.1. Co-creation workshop 1

The agenda for the first stakeholder workshop is presented in Table 1Figure 1. In the first co-creation workshop the task of the participants will be to identify and evaluate how future products can align with the expressed wishes and concerns and the inherent preferences and values voiced in the citizen workshops. So, the first stakeholder workshop aims at tangible design suggestions, which can be used in ongoing research and innovation settings inspired and triggered by citizens´ perceptions. The output of the first co-creation workshop takes the form of research line and concrete product suggestions and recommendations for going forward.

Table 1 The agenda for the first co-creation workshop

Time Slot	Task	Aim
30 min	**INTRODUCTION**	
10 min	Introducing GoNano: Setting the scene, introduction, overview day’s agenda	Informing about overall objective
10 min	Introducing citizen workshop and method	Clarifying the standing and role of citizens
10 min	Getting to know people at your table (incl. affiliations & areas of work)	Introduction of participants
50 min	**STARTING WITH CITIZENS’ VIEW**	
20 min	Introducing Information material Presenting the results from citizen workshop: • Introducing the messages and the ranked list of wishes and concerns (incl. clustering) • deduced needs and values inhering to these outcomes	Stage 1: Empathising with citizens view, create understanding and exchange among participants Panel session (or e.g. posters): Inform stakeholders, setting the scene Can be done in different forms, e.g. posters in order to reduce time for presentation

40 min	Starting making the case study by discussion in groups: Reflecting on and contextualising all citizens' messages and input from workshop. • Which fields of research are affected by the messages (could be hidden because messages do not necessarily relate to one specific technological application)? • What are the implications for the respective field?	Stage 2: Opening up for multiple ideas First analytical approach to citizens input yet, ensure opening up (***no "correcting" citizens views yet***) Ensure an open discussion on different aspects of technology development and identify relevant fields of research with regard to citizens messages
45min	**ADD STAKEHOLDERS' COMPETENCE**	
15 min	**Brainstorm (individually) on state-of-the-art**	Stage 3: Bridging knowledge worlds
30 min	**Reality check:** Where is nano research in the field right now? Brief presentation of brainstorm outcome to the others at the table.	Knowledge on state-of-the- art of the fields is exchanged
130	**CO-CREATION**	
30 min	Part 1 (templates are distributed) Aligning expertise and citizen input: Selection of messages, and respective wishes and concerns to be turned into research lines (one per table – 3 in total) Each research line is given a "speaking header/title" – if there are two options they can be developed and in the next step participants decide on which they want to focus (this might also help to avoid redundancies)	Stage 4: Co-creation to select the most interesting and desirable ideas for the participants Sharing ideas and select the most interesting field: identification of promising developments and creatively visualizing of research lines (sketches and illustrations are welcome! Text is mandatory)
10	Head facilitator asks every table to read aloud their "speaking headline/title" for the research	Everyone gets a picture of all potential working topics
30 min	Part 2:	

	Groups remain basically the same – yet, if someone refuses to work with a certain topic or feels in urgent need to work with another table (topic is the one he/she really is interested in) they can do so and change table here (this is an extraordinary **option but should not be the rule)** Working session 1: Decide which to elaborate if there are two options, then dice into the topic: input of the experts at table, discussion and deliberation of the research lines • Where do you see potential/advantages in your field? • How does this relate to the citizens input? Attention: Make sure that in this discussion, there is enough space for people to ask their questions and raise aspects with regard to their field of expertise, if they are not confronted with Nano aspects on a daily basis (e.g. patient organisations) <u>*Working lunch*</u>	People working in the field are asked to bring in their professional input, find a common understanding of the field (if necessary) and promising strands of research Discussions and involvement of everyone at the table
60 min	Work Session 2 (template 2 is distributed): • Elaborating the research lines • Formulating recommendations for concrete implementation in the respective field (stakeholder perspective, including connectivity to industry's/business' reality) • Start working on Mini scenarios – and illustrate them	Writing up research lines and recommendations as a group *and start with mini scenarios*

70 min	**WRAP UP & FARE-WELL**	
60 min (10 min presentation + 10 min feedback per final case study/ research line proposal)	Presenting final **3 research lines** in panel (per table) & discussing results	Stage 5: making agreements on future collaboration Hearing and commenting on what everyone did
10 min	Outlook on next steps, invitation to 2nd Stakeholder workshop	
Total duration 5,4 h (1 day)		

3.2. Co-creation workshop 2

The agenda for the second stakeholder workshop is presented in Table 2. Before the second co-creation workshop, the outcomes of the first co-creation workshop will have been evaluated and qualified in the public online consultation (see Figure 1).The goal of the second round of stakeholder workshops is twofold: stakeholders should a) evaluate and eventually adapt the product suggestions and recommendations ways forward based on the responses from the online consultation (also with regard to potential follow-up activities); and b) evaluate the whole co-creation process with regard to transforming it into a business case.

Table 2 the agenda for the second co-creation workshop

Time slot	Task	Aim
15 min	**INTRODUCTION**	
	Introducing GoNano: Setting the scene, introduction, overview day's agenda	Where are we in the project/ aim of the day
	Getting to know people at your table	
100 min	**WORKING ON CASE STUDIES**	
40 min	Presenting results from online consultation with regard to the 3 pilots (national context)	Stage 1: emphatising with everyday life experiences of citizens, increasing udnerstadning and create connections to own experience and knowledge

		Information
	Short round of reactions on results	Bringing in personal expertise
60 min	Individual tables working at adaptation of case studies aiming for realistically achievable suggestions for implementations	Stage 2: Re-aligning product cases with lifeworlds of the professional stakeholders Re-working case studies
	Writing up the final case studies	Finalising case studies
105 min	**REFLECTING ON THE CO-CREATION PROCESS**	
30 min	Reflection: What were opportunities/challenges in this GoNano process?	Stage 3: developing solutions for working more resposibly in context of the professional stakeholders, and intiate refelction and learning Start of reflection on co-creation process
15 min	Where do we go from here? • How to make sense of co-creation in the context of nanotechnology industry	Group deliberation
60 min	Preparing the business case • How will the results from GoNano affect my future work? • How do I imagine it possible to integrate co-creation processes in my daily work? Does this make sense in my context?	Group deliberation
30 min	**WRAP UP & FAREWELL**	
20 min	Presentation of group discussions& feedback	
10 min	Wrap up, thank you & Outloook	*If possible: take away sandwiches*

3.3. TIME PLAN[7]

Early planning, from 5-6 months before the event to 1 month before the event:

What	When	Details
Develop strategy for recruitment of participants and prioritised list of participants, including strategy for keeping particpants involved between workshops	5 months before	Based on information from Pimponi aet al. 2018, own networks and input from Advisory Board Exchange with TC CAS on the citizen participants
Clarify an develop your budget	5 months before	
Choose a date for the co-creation workshop	5 months before	
Start recruitment	4-5 months before	
Prepare invitation letters	4-5 months before	Update the invitation letter from the manual
Organise venue and catering	2-3 month ahead	
Organise any accomodation, and develop templates and instructions for re-imbursement	2-3 months before	Pay particular attention to the citizen participants who are possibly not used to handing in reimbursement claims (help them remember they need original receipts)
Prepare guidelines for how to reach the venue		
Develop the backgrund materials and information packackage for participants	Start 3-4 months before and end 1 month to 3 weeks before	
Develop the manuscript for EngageSuite	3-4 months before	Check with DBT on the development of the manuscript and what is possible to do in Engagesuite
Develop the evalution form	1-2 months before	Pay attention to aspect of mutual learning in the evaluation forms. Ask partners for feedback
Develop communication and dissemination plans	1-2 month before	Check the GoNano communication and dissemination plan and key messages developed in that pland for various stakeholder groups, and ask for input from the communication team. Check you use the GoNano style

[7] For all the time tables, pilot partners should cross check their planning with the time plans for the citizen workshop and e-consultation.

		and logo correctly
Plan for and recruit the internal staff you need to support the event and confirm them	2 months before	

Intermediate planning from 1 month to 2 weeks before the event:

What	When	Details
Update and prepare the final agenda	3 weeks before	
Develop a detailed manual for the event		The detailed manual contains the planning for the day of the co-creation workshop and includes almost minute to minute instructions on who does what when, the materials needed for the workshop, the person responsible for collecting and bringing them, details on who will welcome the participants, and how they will be guided through the event
Update your budget	1 month before	
Update and prepare templates for the event	3 weeks before	The templates you need for motivating the participants to work together in the workshop that support your co-creation steps, and templates that collect results (pay attention to what you can collect in EngageSuite)
Update and finalise the evaluation forms	1 month before	
Update and prepare templates for EngageSuite	1 month before	
Test EngageSuite	1 month before	
Finalise the background materials and information package for participants	2 month before	
Translate materials	1 month to 3 weeks before	Mandatory for the first co-creation workshop, if citizens take part in the second co-creation workshop it will be necessary there as well
Send program and information package to participants, and templates for re-imbursement together with instruction on	2-3 weeks before	Use as much as possible EngageSuite to prepare the participants for the meeting

how to fill them in and how to get to the venue		

Late stage planning and final preparations from 2 weeks to the event itself:

What	When	Details
Prepare templates for informed consent	1-2 weeks before	
Prepare lists of attendance, signs for the venue	1 week before	
Update venue on numbers and list of participants	1-2 weeks before	
Go through your check list for practical requirements and equipment and check you have everything	1 week - days before	
Invite internal staff to a briefing on the co-creation day and go through the detailed planning of the day together to make sure everyone knows what to do	1 week before	Make sure to answer any questions you're the persons helping you might have
Prepare presentations (PowerPoint slides etc.)	2 weeks before	
Print materials, attendance list, signs for the venue	1 week before	

Following the event:

What	When	Details
Collect results, and write up notes	As soon as possible after the event	
Thank the participants for their time and input, and inform them on the results – inform them on how to follow the process and how they can continue to be engaged	2-3 weeks after the event	Check also with citizen engagement coordinator TC CAS, and communication partners DPF and DBT
Follow up on the strategy of your communication and dissemination plan	Own timeline	Get support from social media partner DBT
Post results to the website	2-3 week after the event	Coordinate with personal outreach
Follow up with participants and enquire to their learning	1-2 months after	
Follow up with participants for contribution to white papers	1-2 months after	
Follow up with participants for	1-2 months after	

contribution to business case		
Follow up with participants for contribution to industry briefs	1-2 months after	
Follow up with participants for contribution to policy round table	1-2 months after	
Follow up with participants for contribution to training materials	1-2 months after	

4. RECRUITMENT AND PRACTICAL CONDITIONS

4.1. FRAMING THE INVITATION TO PARTICIPATE

In the literature review on experiences from previous engagement projects Shelley-Egan et al. 2018 found the following basic considerations GoNano pilot partners have to make before beginning recruitment:

Basic considerations based in experiences from previous engagement projects (Shelley-Egan et al. 2018)	How GoNano pilot partners could take it into account
Technology enactors must see an added value of participation in relation to their own goals and objectives. This requires compelling examples that demonstrate how the research improved or how resistance was overcome. Participation has to align with core business and value of the professional participants	Pilot partners develop outreach strategies tailored to each specific stakeholder group
Positive correlation between seen between the relevance of cooperation for a particular research field and the willingness of R&I actors to engage in collaboration	Pay attention to alignment between themes and problem formulations acting as input to the citizen workshops (step 1 in the GoNano co-creation process), and the research, business, policy, CSO and NGO interests of the professional participants
Find stakeholders interested in collaboration, new challenges	Use networks and knowledge of participants, but be open to try new actors
Emphasise demand side of our activities 'how can we help you'	Collaborate with GoNano communication WP to develop invitation material
Clear and compelling examples of added value in the language of the stakeholders (e.g. business an "RRI pitch")	Present the invitation to participate in the 'language' of the participants
Analyse and define what is at stake and where there is an urgency to engage for each stakeholder group	Draw on the findings of Pimponi et al. (2018)

5. PREPARING AND FACILITATING WORKSHOP PARTICIPANTS

For the active involvement of workshop participants, it is vital to maintain their attention to the given topic and gradually prepare them for the deliberative character of the workshop. This can be carried out by providing them relevant information prior to the workshop, which will make them (i) *oriented* in the given topic, (ii) *safe* in terms of being able to expect what they will go through at the workshop, and (iii) *respected* in whatever input they will provide. Since some of the topics under discussion might be controversial. It helps to establish a common set of basic rules for how the participants will work together during the workshop: These include encouraging participants to:

- Speak openly and honestly,
- Listen to the other participants,
- Be respectful of the other participants, and do not interrupt each other,
- Keep your statements short and to the point,
- Focus your statements on the topic at hand.

The pilot partners will receive training to inform them on how to facilitate collaboration among stakeholder with different professional areas of expertise.

Additionally, professional stakeholders might not be used to working with lay citizens. The pilot partners should prepare the stakeholders by telling them an interest in collaboration with lay citizens is part of the basic condition for their participation in the workshop.

5.1. TRANSLATION OF THE MATERIALS

Since lay citizens take part in the first co-creation workshop all materials must be translated, and care must be taken not to use too complex and technical langage.

5.2. HUMAN RESSOURCES FOR THE CO-CREATION WORKSHOPS

Variety of different staff is needed in order to carry out the workshops. Some of the staff members have to be able to take care of multiple tasks. In that case, you have to ensure a sufficient flexibility of the staff and compatibility of the performed tasks. Below are suggested staff needs:

1 Project manager: Her/his main responsibility is to make sure that the co-creation workshops runs according to the method described. She/he should have the overview of all tasks, and make sure that everything is executed as planned. It is very important that the project manager makes sure that all other staff knows what to do. Alignment of staff and their roles can be an info/training day where all staff runs through every procedure of the co-creation workshops (see late stage planning table in section 3.3)

1 Head facilitator: Her/his main responsibility is to make sure that everybody in the room feels welcome and that all participants understand what to do at all times. The head facilitator will instruct everyone in the room about what exactly to do every time a new session begins. The head facilitator can be someone from the national partner organisation or a professional facilitator hired to do the job. It could also be the project manager, but this is not recommended, since the project manager needs to have the full overview, which can be difficult if you also have to facilitate.

Table facilitators: Their main role is to function as a neutral moderator of the deliberations at the table, make sure the lay citizen participants are heard, that the participants focus on the assigned discussion theme, and keep track of time. Table facilitators should be neutral and should not participate in the discussion at the table, nor should they express an opinion on what is discussed at the table. The table facilitators need to be instructed carefully of their role during a briefing/training day (see late stage planning table in section 3.3). Make sure to engage some extras in case of illness, etc. The table facilitators can be employees in the national partner organisations, volunteers from various organisations, or graduate students.

Note-takers: you may have a note taker at each table, but to save on resources you could also enrol the participants as note takers. Their main role is to record main points that are discussed. Note-takers will also be responsible for operating Engage Suite at the tables.

1 Technician: This person makes sure that the technical equipment runs perfectly during the entire citizen workshop. The technician must prepare and make sure to test all equipment before the citizen consultation starts and preferably one or more days before the citizen workshop starts. The technician should be familiar with the software and hardware that you choose to use.

1 Media assistant: This person is responsible for undertaking media-related tasks during the citizen workshop. She/he should take pictures and make recordings to visually document the citizen workshop.

Catering staff: responsible for serving food and drinks according to the workshop agenda. Their role during the workshop is also to clear the tables from food, plates and cutlery during the day.

5.3. The Venue

The venue for the co-creation workshops should feature:

- Large open space with enough room for facilitators and 48 people seated at tables,
- Tables hosting participants[8]. Aim for round tables as they allow for better conversation among all the participants,
- A stage/space from where the lead facilitator can speak (should be visible to everybody),
- Comfortable chairs. Hard plastic chairs might be painful for some participants after several hours. Remember that some participants might be elderly and some might have physical disabilities. Therefore consider padded chairs, check accessibility, e.g. for wheelchairs,
- Wardrobe facilities,
- A place to get food and drinks.
- Toilets. The location of the restrooms should be clearly indicated. In addition to lunchtime and other breaks, citizens should be informed that they can leave the table to go to the toilets at any time.

[8] Numbers according to your planning and final number of participants. Six to seven participants at each table is the recommended maximum and four the minimum number of participants at the tables.

- Outdoor facilities for those wanting to smoke or in need of fresh air.

5.4. Technical Equipment

Think about what you need from the following list:

- One computer for presentations and at least six notebooks for each table and two as back-up plus 6 USB sticks,
- Microphone and loudspeaker system, if required,
- Big screen or monitor visible to all participants,
- Projector (compatible with the computer),
- Good sources of light that can be dimmed during video presentations,
- Video recorder and a camera for documenting the citizen workshop,
- Printer and copying machine,
- Pin boards and pins,
- Flipcharts with flip chart paper (total of 6) and markers.

5.5. Catering

Food and beverages are important for the well-being and motivation of your participants. The participants should have access to food and drink throughout the day, so that they have the necessary energy to discuss and be creative. Some participants may have personal food requirements. There may be people suffering from allergies (lacteous, gluten, etc.), vegetarians, and citizens with religious requirements. In order to meet special needs, citizens are given the opportunity to declare these needs when they send in the application form for attending the citizen consultation. The catering needs depend on te final program, but could consist of:

- Breakfast
- Lunch
- Fruits, snacks & sweets, coffee, tea, soft drinks, water available all day
- Take away food when the co-creation workshop ends

Dining facilities such as plates, glasses, cutlery, etc. should be in place. Water and glasses should be available at each table. The head facilitator should inform the participants on when the break are planning, and should explain the working lunch concept to the participants.

6. REFERENCES

PIMPONI, D. and A.PORCARI (2018) Stakeholders engagement in nanotechnologies: areas and issues for a dialogue. Summary of interview findings with a focus on the food, healthcare and energy sector. Del. 1.3 of the GoNano Project (H2020, Grant Agreement 768622). Contributing Authors: Mantovani, Elvio; Bauer, Anja; Fuchs, DAaniela; Azoulay, David, Bitsch, Lise; Degnbol, Ditte; Henriksen, Helle; Schuurbiers, Daan; van den Bergh, Hannie; Moore, Vanessa; Throne-Holst, Harald; Shelley-Egan, Clare; Richmond, Craig; Kogon Boaz; Hebáková, Lenka; Valenta, Ondrej; Jansma, Sikke; Dijkstra, Anne

SHELLEY-EGAN, C., THRONE-HOLST, H. and D. SCHUURBIERS (2018) Building on the state-of-the-art: ex-post evaluation on mutual learning. Del. 1.1 of the GoNano Project (H2020, Grant Agreement 768622). Contributing Authors: Jansma, Sikke; Dijkstra, Anne M.; Bitsch, Lise; Henriksen, Helle; Degnbol, Ditte; Brøndum Gad, Elias Mo; Bauer, Anja; Fuchs, Daniela; Hebakova, Lenka; Vancurova, Iva; Valenta, Ondrej; Porcari, Andrea.

ANNEX 1: TEMPLATE INVITATION LETTER

[Insert date and year]

Dear Name

I am writing on behalf of the GoNano project to invite you to a workshop on [insert workshops title]. The workshop takes place [insert date and time], and will feature representatives of [insert the organisation represented/individual names and members of the lay public].

Increasingly [research/business/industry/ETP/policy/civil society organisations/NGO] recognise the need to [collaborate and share experiences for improving R&I processes][9]. Industry leads, like BASF, have also long recognised the potential of engaging with the lay public in understanding needs and concerns and in addressing those in actual research and innovation outcomes[10].

The present workshops aim to address these needs by guiding participants through a process of collectively defining space and ideas for innovating in [pipeline/research designs/policies]. The workshop takes as a starting point suggestions and recommendations from a citizen workshop that took place in [insert info, and link to outcome]. In the workshop we will reflect on those outcomes and work together to connect them with on-going work on nanotechnology [research/business development/policy/advocacy/etc.] and use it to reflect on the challenges we face together.

We offer re-imbursement of costs by € X [transport and accommodation]. Please let us know by [date].

We look forward to your response.

Thank you and best regards,

Your name

Organization name

The GoNano project:

The GoNano project is built on the assumption that nanotechnologies are more likely to gain broad acceptance if they take public values and concerns into account at early stages of innovation. To test this hypothesis, GoNano will organise co-creation processes in different areas of nanotechnology application (Food, Health, and Energy), combining online consultations, face-to-face citizen engagement and stakeholder workshops.

For more information about the project, please visit http://gonano-project.eu/

Logo of Horizon 2020 **Logo of your institute**

[9] Or other reasons from the findings of Pimponi and Porcari et al. 2018, own experince or knowledge from the Advisory Board. Importantly the need and added value of the particular stakeholder group of the invitee must be adressed.

[10] https://www.basf.com/en/company/innovation/our-way-to-innovations/creator-space.html

ANNEX 2: INFORMED CONSENT

GoNano Informed Consent Form

I, the undersigned, confirm that I have read and understood the information about the project, as provided in the information sheet. I have been given the opportunity to ask questions about the project and my participation. I voluntarily agree to participate in the project. Procedures regarding confidentiality (e.g. use of names, pseudonyms, anonymization of data, etc.) and the expected use of the data for research, publications, sharing and archiving have been clearly explained to me.

I hereby declare my consent that personal data including video and pictures taken during the co-creation workshop may be processed and stored by the consortium of GoNano for the organization and execution of the research project GoNano, especially for communicating the results to a wider public. Pictures/videos may appear on consortium partners websites, video channels and similar media. The GoNano consortium will not use the data for any other purpose. This consent may be revoked at any time and without giving any reason.

Participant:

Name of Participant	Signature	Place	Date
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ANNEX 3: TEMPLATES CO-CREATION WORKSHOPS

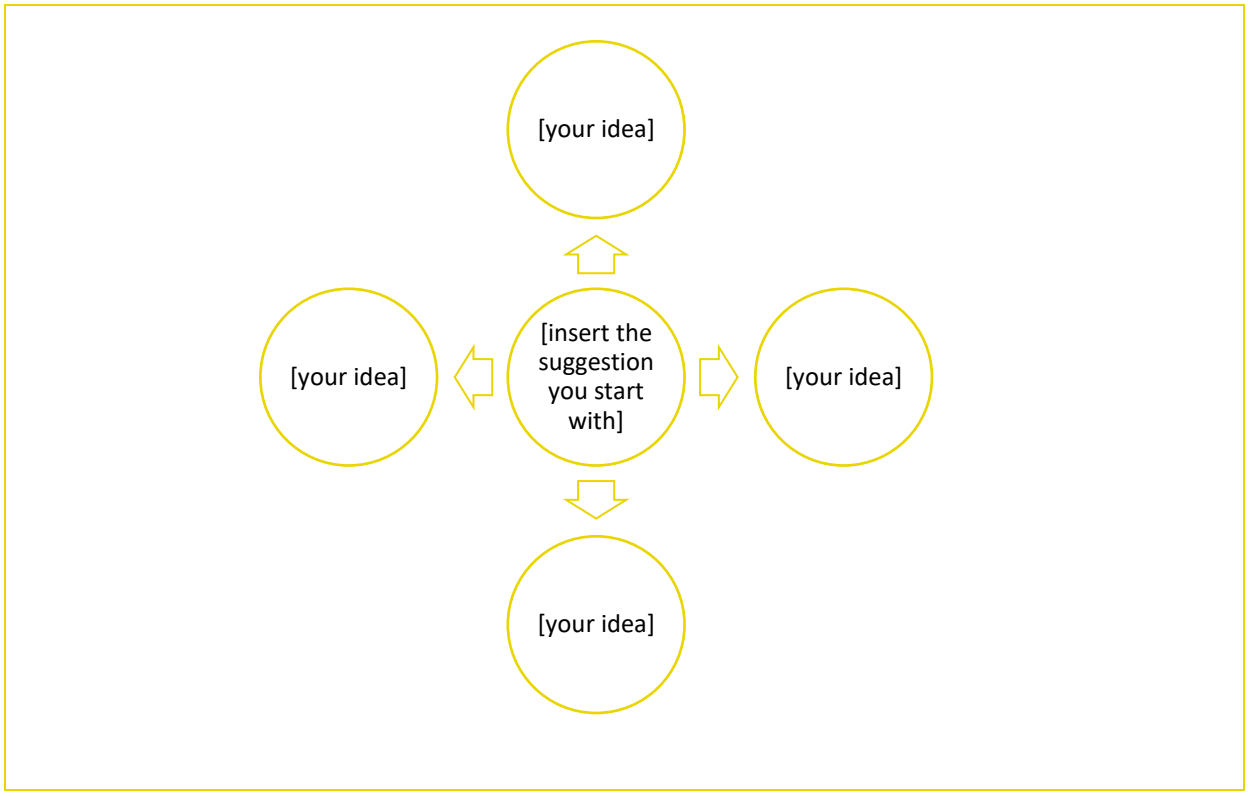
Suggested template for reflecting on input from citizen workshops:

Reaction	Reflection	Towards understadning
Keywords on first reactions	Background for first reation	Questions to further understand input

Suggested templates for opening up for multiple ideas and co-creating research lines/product suggestions:

Step 1 creating ideas:

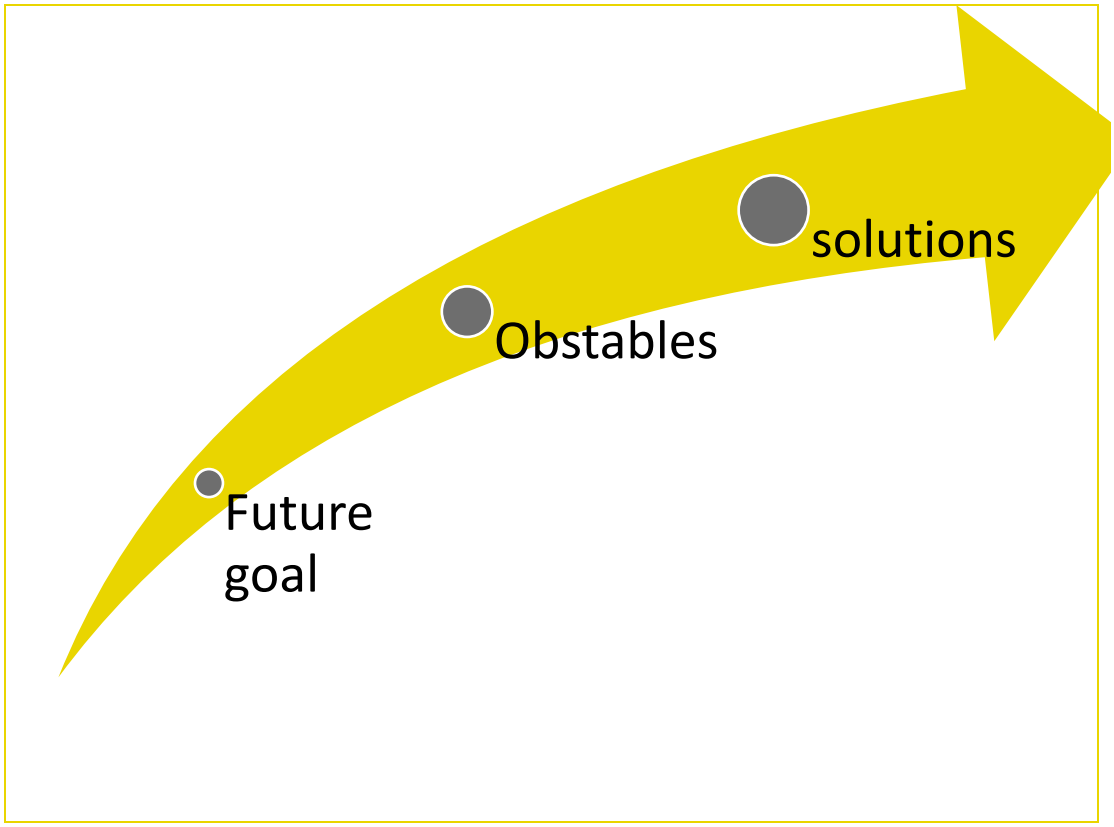
Guide the participants in a brainstorm of ideas. Be careful not to judge or question any ideas in this round. Take a suggestion from the citizen workshop as a starting point:



Step 2: Connecting worlds

Your idea	Relation to the groups background	Adjustments to idea

Step 3: co-creation future research lines/product suggestions:



ANNEX 4: ENGAGESUITE TEMPLATE

Template for setting up GoNano EngageSuite:

Pilot partners fill in the below template for the designing of the EngageSuite interfaces they would like for either the citizen workshop, and citizen consultation or the two co-creation workshops.

Page	Function of section	Information on page	Comments/questions to programmer
[What page of the web-module are we on?]	*[What is the function? E.g. voting, sorting, informing, discussion, development of ideas]*	*[What information should be on the page? E.g. text, video, picture]*	*[What needs and wishes from you should the programmer be aware of?]*

ANNEX 5: INTRODUCTION TO ENGAGESUITE

Modules in EngageSuite

CoSurvey

Use it for questionnaires and questions.

All common question types: From-0-X (Rating Scales), One-of-several ("Radio Button"), multiple choice, prioritized order (Ranking), open answer (Open-ended). One answer can open up more questions (Filter).

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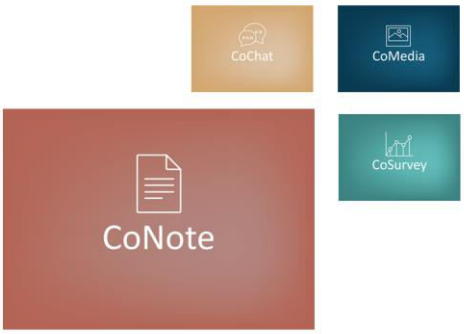
CREATING SOCIETY TOGETHER
tekno.dk / @teknodk / Facebook: TeknologiradetDBT / LinkedIn: the Danish Board of Technology

Modules in EngageSuite



CoNote

Makes it possible to write in a text field which can be tied to themes, e.g. 3 themes tied to 3 rounds of discussions. Different groups/tables can be set to access different themes.

CoNote is a very useful for blended engagement processes, for participants writing their own minutes or for online ideas and comments.

Modules in EngageSuite

CoMedia

Provides the option of displaying photos, video, sound, texts, graphics or other information. Typically used for introduction videos, teasers, information on themes or instructions.

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CREATING SOCIETY TOGETHER
tekno.dk / @teknodk / Facebook: TeknologiradetDBT / LinkedIn: the Danish Board of Technology

Modules in EngageSuite

CoChat

Offers all or selected groups the opportunity to chat. In online engagement it is especially well suited for gathering opinion through dialogue on e.g. a video, a problem or the results of a question. Several chats can be set up in connection to different tasks/topics.

ANNEX 6: DISSEMINATION STRATEGY TEMPLATE

Each partner is responsible for developing a dissemination strategy for making sure that relevant stakeholders-target groups (see the D7.1 GoNano communication and branding plan) are made aware and also involved of the co-creation process in GoNano project. We would like to ask you to give us a brief overview about your strategy by answering following questions.

Country	Place of workshop

Contact person(s) for the dissemination strategy at your national team

Name	E-mail	Telephone

I. TARGET GROUPS

Which will be the main target groups for the dissemination in your country?

National policy makers (including MPs) (please fill in)

Name	Institution/ policy party	Remarks

Research -universities, research institutions- Nanotech, RRI, Participation, Co-creation field (please fill in)

Name	Profession	Organisation	Remarks

Industry – industry, industry-led research and innovation, technology transfer organisations, industrial associations and other business members (please fill in)

Name	Profession	Company/Organisation	Remarks

R&I networks –innovation networks, ETPs, clusters, research funding organisations (please fill in)

Name	Profession	Company/Organisation	Remarks

Civil society – CSOs, NGOs, consumer organisations (please fill in)

Name	Profession	Organisation	Remarks

Citizen –general public (please fill in)

Name	Profession	Company/Organisation (if applicable)	Remarks

Media (please fill in)

Name of contact	Type of Medium (e.g. news agency, newspaper, magazine, TV, radio, online)	coverage (e.g. national, regional, local)	Remarks

Social Media

Please specify SoMe activities on Twitter, FB, LinkedIn etc.

II. DISSEMINATION APPROACH

How, when and to whom will you disseminate the project before the workshop?	
Why have you chosen this approach?	
How, when and to whom will you disseminate the project/the results after the workshop?	
Why have you chosen this approach?	
What is your strategy for getting media attention**?**	
What are your criteria of success?	

ANNEX 7: TEMPLATE FOR EVALUATION

When developing the evaluation forms for the co-creation process consider the following questions:

1. What was your overall impression of the workshop?
2. Was it clear what the aim of the workshop was?
3. Was it clear how you would work together during the workshop to achieve the aim of the workshop?
4. Did the agenda, exercises and purpose fit well with the goal of the workshop?
5. Do you feel you have a better understanding of the wishes and concerns of [professional working with nanotechnology/lay citizens]
6. May we contact you for participation in future events?
7. Would you like to contribute to the GoNano [white papers, industry briefs, business case]
8. Thank you very much for your contribution. We will be in contact to let you know the results of the workshop and the GoNano co-creation process