The Guidebook
towards Responsible Tech Innovation
using Societal Engagement

SOCKETS

SOCIETAL ENGAGEMENT
WITH KEY ENABLING TECHNOLOGIES

CONTENT

VISION

Imagine a world, where new technologies better serve societal needs…

That is our vision, and this is why we created this guidebook as a source of information for the tech industry on how to engage citizens and society in the process of developing responsible innovative technologies. Why? Because we want to make sure that technology helps people!
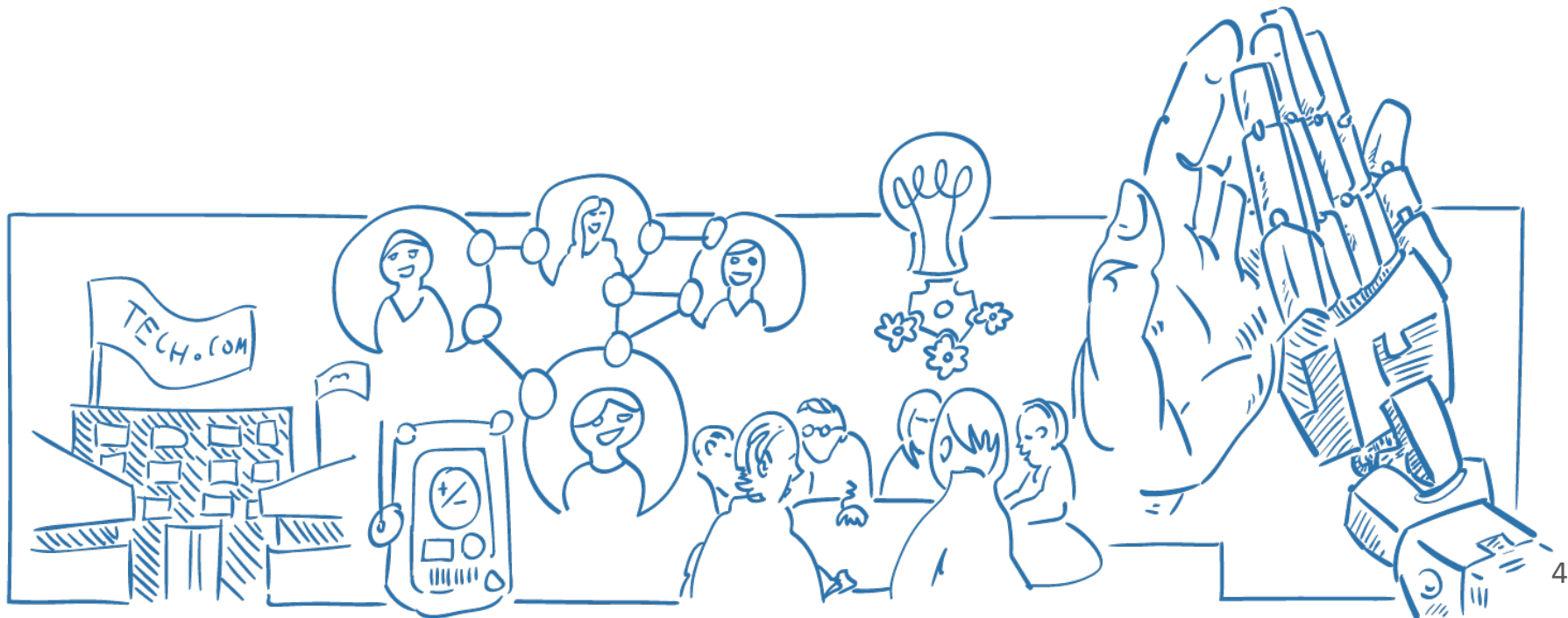
INTRODUCTION

Innovative technologies have a significant impact on society and relations between humans and technology. This guidebook supports the tech industry in engaging citizens and society towards more responsible tech innovation. As an actor in the tech industry, you play a crucial role in deciding how innovative technologies are applied. Such innovations have the potential to solve global problems and respond to societal needs, yet there are also risks, unintended consequences and controversies which affect customer trust. Therefore, the development of new technologies should be aligned with societal values, needs and concerns. **It is therefore crucial that the tech industry engages with citizens to hear their perspective and develops ways to address their concerns.** This guidebook explains how to do this in practice, and why the turn towards responsible innovation is necessary.

Why is this guidebook relevant?

This guidebook can be relevant and interesting for people in the tech industry for the following reasons:

— **Enhancing Reputation and Trust**: By engaging with society and understanding their needs and concerns, tech companies can build trust with their customers and stakeholders. This can enhance the reputation of the company and improve customer loyalty.

— **Creating Social Impact**: Through societal engagement, tech companies can identify social problems and create solutions that can positively impact society. This can help tech professionals to create meaningful and purposeful work, contributing to a greater sense of satisfaction in their careers.

— **Staying Ahead of Regulations**: The tech industry is often subjected to government regulations and policies. By engaging with society, tech companies can stay ahead of these regulations, contributing to a smoother regulatory process and potentially avoiding negative impacts on their business.

— **Creating new Business Opportunities**: Responsible tech innovation can also create new business opportunities, particularly in areas such as sustainability, social impact, and ethical innovation. By engaging with society and addressing societal concerns, tech companies can tap into new markets and create new revenue streams.
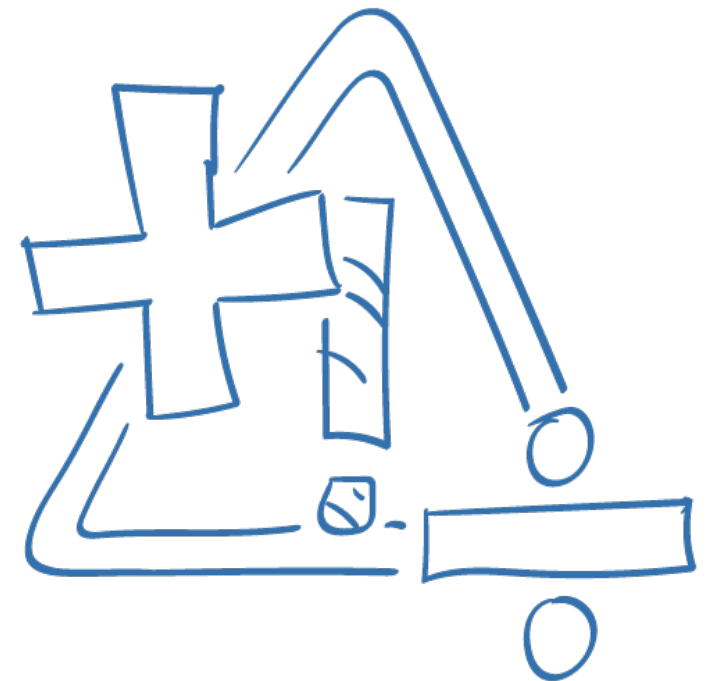
Who is this guidebook for?

This guidebook is primarily intended for **small, medium and large companies** in the innovative tech industry, which have the necessary resources to undertake societal engagement. We also hope to inspire startups and individual entrepreneurs with this guide, but we are aware of the limited resources and therefore the suggestions in this guidebook might need simplifying or adapting. As many recommendations are resource demanding, we expect differences in how companies of different sizes can implement them in practice.

Furthermore, we hope that the wider tech innovation network such as research and tech centres, industrial clusters and tech associations, might benefit from the recommendations in this guidebook. At the end of this guide, we provide an easy way to share the guidebook with your tech network, to let tech actors know that this free resource exists.

How to use this guidebook?

We recommend that you read this guidebook from beginning until end, because it explains a logical **step-by-step process** for implementing societal engagement in your company:

— **WHY** is to gain a deeper understanding of the benefits of working towards responsible tech innovation

— **WHAT** is to understand what societal engagement is about and why it is useful for you

— **HOW** is to help you decide how to organise the facilitation to engage with citizens

— **WHICH** is to explore the appropriate approach and methods to achieve your goal

— **WHO** is to be able to recruit participants with a good strategy

— **WHEN** is to know the timescale for planning the societal engagement

— **WHERE** is to get ideas on how to choose the location and space for the event

Establishing **continuous societal engagement** around tech innovation requires critical reflection on **underlying values and assumptions** within your company. This is why we are offering questions for reflection throughout this guidebook. We also provide activities to consider how the information applies to you and your company, so that at the end it will be easier to define a plan of action as part of the **Implementation**.

After going through this guide, we hope that you will be able to get started with societal engagement and be part of our **Mission** to connect the tech industry with the people for whom technology is developed, so that we can ascertain a higher ethical standard and responsibility within tech innovation.
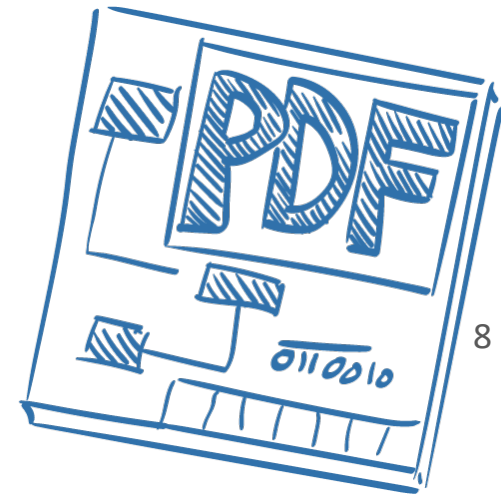
Examples from e-Health, Artificial Intelligence (AI) and circular economy

The examples and insights provided in this guidebook are from societal engagement test cases undertaken by our project partners within the following fields:

— **E-Health applications and wearable electronics** (project partners in Denmark, Bulgaria and Serbia) are fundamental to increasing healthcare quality and will also be a driver for innovation and renewed infrastructures, while an improved healthcare system, tailored to individual needs, will help reduce inequalities in medical assistance.

— The use of **artificial intelligence** in industrial automation systems and the changing nature of work (project partner in Spain) will have a huge impact on industries, but also on type and quality of work, and will require new competences that should be cultivated in all education cycles.

— **Circular economy** (project partners in Italy and Estonia) will be crucial for industrial development, particular in the buildings and constructions sector. Cities will have to rethink urban planning, building design, renovation, and restoration interventions and social housing as well, while industry will have to change business approach and strengthen synergies along all value chains.
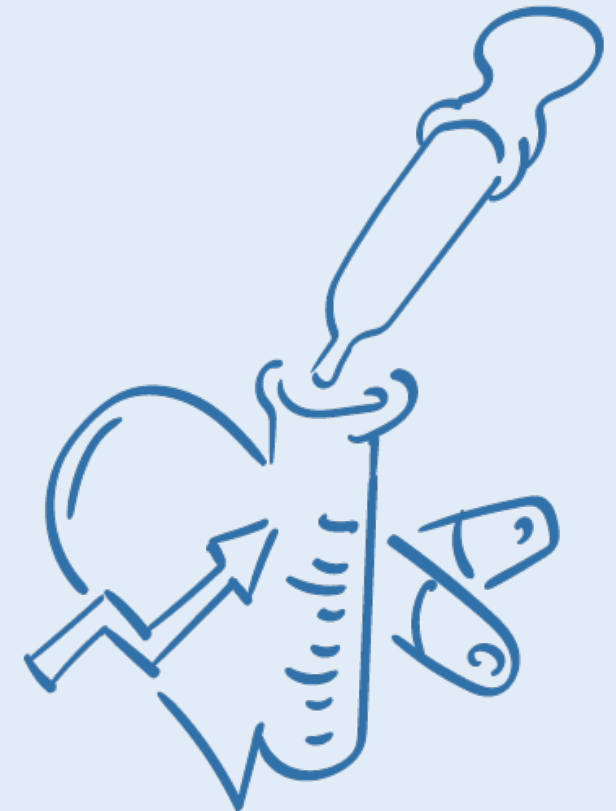
WHY IS RESPONSIBLE INNOVATION BENEFICIAL?

Technological innovation needs to become more responsive to societal challenges and concerns, to stay in line with the increasing demand for **accountability** within tech development through new laws, policies and quality standards. Institutions and organisations working in research and innovation are subject to increasing public and political scrutiny. The European Commission puts a strong emphasis on **Responsible Research and Innovation** (RRI) and **Corporate Social Responsibility** (CSR). This is also starting to incorporate industry and business which will be asked to make efforts to shape their activities and performance in ways that are socially desirable and ethically acceptable.

Our mission

With this guide, our mission is to strengthen the RRI and CSR movement by creating ways for the tech industry and the wider innovation ecosystem to include societal engagement within business processes. Our view is that, with increasing requirements for accountability, companies should have the know-how, methods and tools for the new direction towards fully responsible tech innovation.

Responsible innovation is more than just top-down accountability. It is also about:

— Taking care of your business' **reputation**.

— Responding to a **customer-driven demand** for responsible innovation.

— Boosting **morale** amongst your employees who gain a greater sense of purpose in their work when societal values are considered.

— Building a stronger **network** of partners, stakeholders, clients and customers through societal engagement.

— Increasing your own sense of contributing towards a **better future**.

'**The Guide towards Responsible Tech Innovation using Societal Engagement**' is designed to help you find the best approach to make responsible tech innovation possible: *by engaging citizens*.

Why do we need to consider ethical and societal issues in tech innovation?

Innovative technologies are expected to bring **radical changes in society**, for example in the interactions between people in situations such as:

— at **work** where new technologies change the way we communicate, and transform the nature of work

— in **health care** where technology changes the interaction between patients and doctors

— in public and private **urban space** where new technologies affect the interactions between strangers

— on a global level in how we, as stakeholders, are engaged in **various processes**, thereby potentially transforming **norms, values and habits**

Therefore, we need **participatory processes** to address society's existing values and subsequently build upon these to formulate new ways forward in tech innovation processes, policies and governance. The current approach is to engage citizens indirectly, through political, cultural and academic platforms, but the information does not necessarily reach the tech industry.

Our mission with this guidebook is to forge a more direct link between the tech industry and citizens, so that nothing gets lost in translation. The citizens' perspective can directly feed into your innovation processes, while your company can benefit from the stronger reputation, satisfied clients and customers, more relevant tech development, larger network, and ethical contribution to society.

"The needs of society are determining. Technology must be there to help people. Technological solutions must offer solutions to these needs of society. Unfortunately, sometimes technology is not used for constructive purposes."

Aneta Piperkova, Patient Advocate at the Bulgarian Association for Personalized Medicine

"No one can put themselves in the shoes of patients who can say what they specifically need. This communication is the key to the success of using advanced technologies."

Milica Miloševic, Director of the telemedicine company stetoskop.info

Example of ethical issues from citizens' perspective

In this example, we demonstrate how **engaging citizens in a discussion about ethical issues** surrounding the use and implementation of Artificial Intelligence can provide different insights. Tecnalia, our project partners in Spain, organised a workshop focusing on the socio-ethical issues of implementing AI into manufacturing, especially addressing issues regarding the future of work. The workshop consisted of an expert talk on the subject, a panel discussion, and an exercise where the participants discussed different issues regarding AI in manufacturing. The discussion raised the following points:

— **Gender equality**, for example the absence of women as role models in AI, but also inclusiveness of minorities.

— **STEM education**, in particular engaging girls.

— **Raising awareness** of the implications of AI in education.

— **Protection of data** and how **Privacy** can be assured using AI.

— To promote **critical thinking** about new technologies.

— The importance of **role models** that can bridge industrial needs and the portion of new educational grades.

— **Silo-mentality** between social and natural science.

— **Unemployment** due to the adoption of AI.

— **Mental and physical health issues** that can emerge due to AI in the workplace.

The workshop provided a wealth of perspectives on the concerns about the adaption of AI. This information can be used to understand the non-technical side of implementation of AI in manufacturing.

Photo 1 Societal engagement event by Tecnalia, our project partner in Spain.

Questions to consider

Why would you like to bring in more societal engagement into your company?

In which ways would you like to bring in more societal engagement?

To which extent is there a sense of accountability in your company, and to whom?

How do you think citizens perceive your technology?

What would you like to find out about the perspectives and values of citizens regarding the type of technology being developed by your company?

WHAT IS SOCIETAL ENGAGEMENT?

Societal engagement is about engaging citizens in specially designed activities to better address the challenges society faces today. Societal engagement is a way to keep technological innovation open to continuous **social monitoring** by taking the **priorities, expectations and concerns of citizens** into account. Reliable knowledge is not only created through scientific methods, but is highly dependent on its 'reliability' within a societal context. Therefore, to navigate the complexities between knowledge, decision-making, expertise and action in technology and innovation, it is of importance to consider experiences, attitudes, perceptions and vulnerabilities of citizens, alongside the knowledge required through scientific methods, in order to steer innovation towards desirable and acceptable goals.

With '**citizens and society**' we mean any societal actors affected by technology applications, including:

— Citizens or representatives of citizens (e.g. NGOs, community organisations, local committees, trade unions and consumer organisations).

— People directly impacted by technology (e.g. patients and patient groups for e-Health, workers and trade unions for industrial automation, inhabitants of urban places, social housing associations for constructions) or contextual actors (any type of citizens and civil society organisation).

— People of different age, origin, gender, and hard to reach and underprivileged groups who are often not involved in decision-making processes.

These aspects need to be carefully considered in the choice of people to engage with, depending on the purpose and ambition of the societal engagement activity.

How much should you engage citizens?

The level of engagement can vary from merely informing citizens to involving citizens in **co-creation**. The former is a one-way process and often called pseudo-participation or tokenism, whereas the latter is about working in collaboration or partnership with citizens as stakeholders.

In this guidebook, we recommend you to start somewhere in the middle (depending on your previous experience) by engaging with citizens and taking their insights on board through:

— identifying specific **societal needs** (or constrains and requirements) that the innovation process should address

— asking citizens to provide **suggestions** and envision **new ideas** and **innovation pathways**

— developing shared, common **values** and, if possible, moving towards further engagement and potentially trying co-creation

Societal engagement is a **process**. Its scope and ambition can change in accordance with the needs of the process and the participants, and its objectives need to be selected in advance as this will influence the methods, resources and duration of the process - it is not a one-size-fits-all solution.

We encourage you to engage with a **wider diversity of citizens**, not just end users, in order to hear different perspectives. By widening your engagement, your company can expand the network and market reach and enhance its reputation.

What is societal engagement about?

Societal engagement is about:

— **exploring** with citizens diverse current and future scenarios, highlighting the challenges and opportunities that come with the implementation of innovative technologies

— **reflecting** on your company's ethical and social responsibilities

— **facilitating** 'tangible' discussions on the impact of innovative technologies on the daily lives of citizens

— **creating** a space for active participation and contribution from all actors involved

— **enabling** all stakeholders to learn from each other

— **creating** space for empathy and common ground

— **building** and fostering sustainable relationships

— **focusing** on long-term impact rather than generating short-term impact
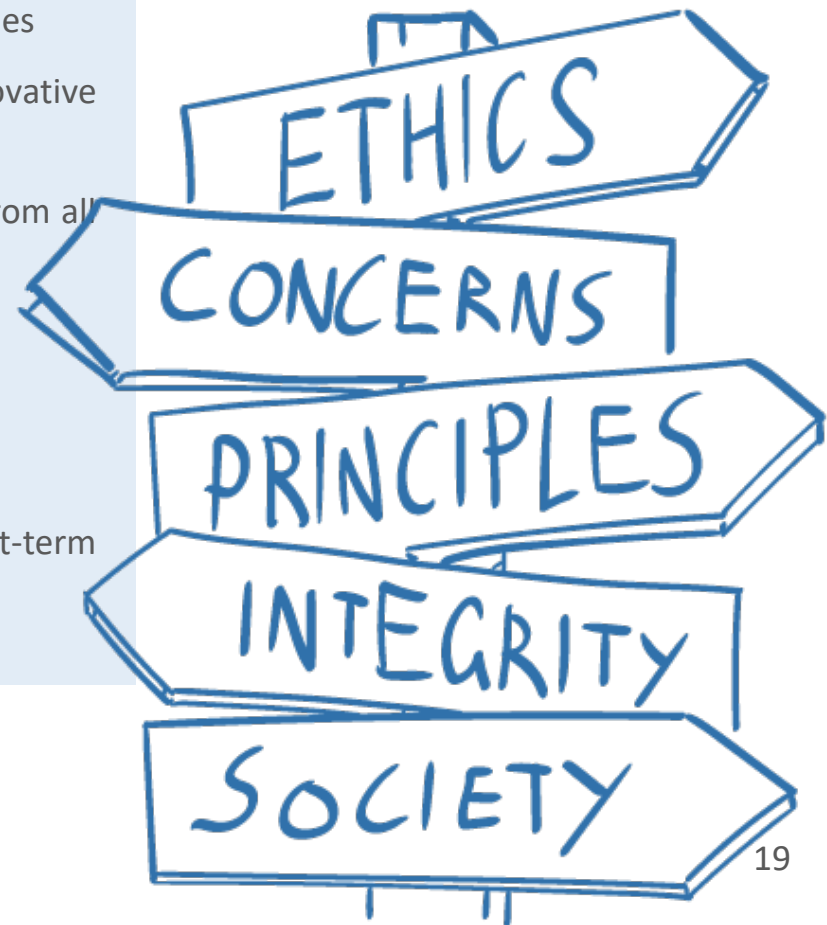
Why does engagement with citizens matter?

Engaging with citizens matters because it provides space for discussing the ethical implications and the impact of innovative technologies on the day-to-day life and the potential future. Societal engagement can also inspire innovation and enhance your company's profile:

— You can profit from identifying **new opportunities** that could **strengthen your technology**.

— You can make sure that your technologies are **relevant to users** because they reflect people's needs and values.

— You ascertain the **societal readiness** of your products (societal readiness is the level of societal adaptation of a technology, a process or a product to be integrated into society).

— You gain new opportunities to establish **long-term visions, strategies, relations, and profits**.

— You **strengthen your market position** by becoming more aware of local and global cultural, political and/or economic developments.

— You **prevent** developing products or technologies that harm users or the environment.

— You might benefit from learning about **new competencies and skills that could enrich your company**.

— You explore opportunities to **expand your network** and its reach, as well as opportunities to **collaborate with relevant stakeholders**.

"I am firmly convinced that it is always the user who can tell the requirements and tell about the needs in which context the products should solve them."

Birgitte Schytte, Municipal Councillor at Lejre Municipality in Denmark

"I think that in this way [having visions from the perspective of society] we can also improve our work, seeing the needs, how AI is perceived and understanding how a person or an expert of a process you may feel a bit threatened using artificial intelligence in their work."

Fernando Boto, Data Scientist at Tecnalia,

How to go about organising societal engagement?

In order to develop a societal engagement plan, three essential aspects have to be addressed:

1. **The company's resources**

   These are the available skills, knowledge, time, space and budget that can be used for organising societal engagement. It also involves an awareness of underlying expectations, interests and potential for learning, as well as understanding values in regards to technological innovation.

2. **The facilitation**

   When engaging with citizens, you need a skilled facilitator to lead the activities. This is someone who knows how to design a participatory process, by choosing the relevant methods and being able to communicate appropriately with the audience.

3. **The approach (methods, activities, tools and materials)**
   Choosing the appropriate methods, with the corresponding activities, tools and materials is crucial in order to get the desired outcomes.

What are the necessary resources for societal engagement?

It is often underestimated which resources are needed for societal engagement, so we offer here an overview of the practical requirements of undertaking and organising a societal engagement process:

— **MOTIVATION:** First of all, there has to be a strong intrinsic and extrinsic motivation to undertake societal engagement. We have addressed some possible motivational factors in the previous section and hope that you can find further reasons when defining your goal why it might be beneficial for you and for society.

— **MINDSET:** Societal engagement requires having the right mindset to want to engage with others and to ask reflective and critical questions about your ambitions. This mindset is about understanding and believing in the purpose of societal engagement.

— **TEAM**: Having the right people in-house with whom you can collaborate on this project makes all the difference.

— **SUPPORT**: It can be helpful to have external support at various stages of the process, for example from public institutions and research centres, but also from government, the legal framework and relevant laws.

— **TIME:** Societal engagement is time intensive as there are several steps that need to be undertaken to make the actual event a success.

— **FACILITATION:** You will need a dedicated person, either in-house or external facilitator, to engage with the citizens in the right way, using appropriate methods.

— **NETWORK:** Having a network, encompassing both partners for collaboration on societal engagement and connections to associations or organisations that work directly with citizens, will help in recruiting participants. You will also benefit from social media channels to reach a wider audience.

— **BUDGET:** A budget might be necessary if you wish to outsource facilitation, rent a space, provide catering, and travel reimbursement and purchase appropriate tools and materials.

— **SPACE:** The location, type of space, and room arrangement are all important to consider when engaging with people.

Questions to consider

To what extent are citizens already being engaged in your company's processes?

What kind of citizens do you involve?

How are these citizens engaged?

What is the purpose of these interactions?

What are the (interpersonal/professional) skills and expertise that your company already has, to facilitate societal engagement?

How do you already deal with the issue of responsibility regarding innovation in your company?

What is your company's motivation and goal in engaging citizens?

Having explained what societal engagement is, and why it is beneficial in general terms, it is now time to start thinking about your company's own interest in engaging with citizens and society. Defining your **motivation** and setting a clear **goal** will help you to make further decisions as to how to organise the whole process. Which of the reasons mentioned above – reputation, employee morale, relevance, new opportunities, network, contribution to positive impact – apply to your company's ambitions? What would you like to get specifically out of discussions with citizens?

It might be useful to start having conversations with your colleagues to find out about the company's **ambitions** and how societal engagement could be a resolution. Setting a clear goal is, in particular, challenging as it requires asking

yourself critical questions about the current approach to tech innovation. To what extent are you in control over the implementation of your technology? Can you predict all the positive and negative consequences of an application? How will you mitigate the negative impact? It is not just about answering such critical questions, but also about formulating new ones to hold up a mirror to your own company's approach. Above all, ask yourself as a company: **which insight can citizens provide me, that we do not have?**
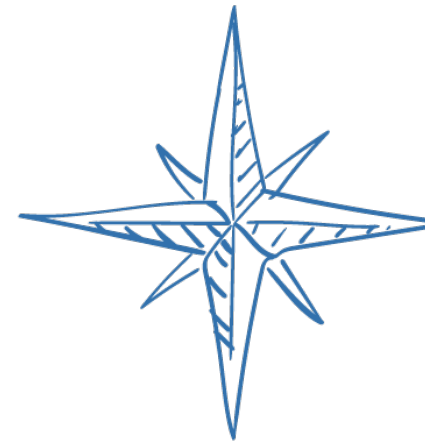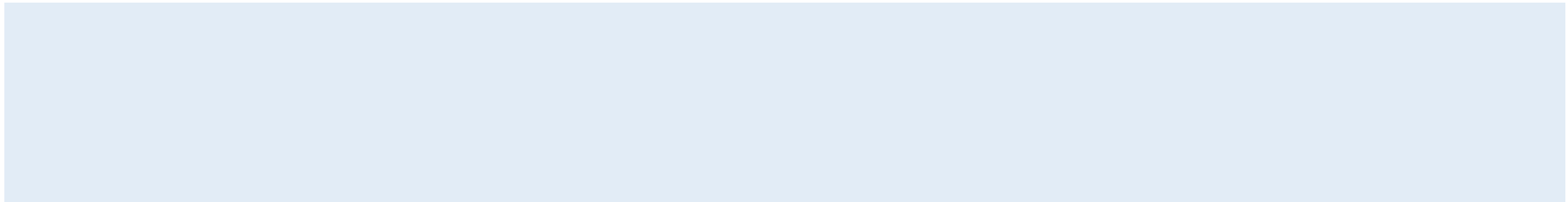
Defining your motivation

Which of the following statements apply to your company's ambition for the future?

☐ We do not have a clear policy yet on Responsible Research and Innovation and would like to invest in this by undertaking societal engagement.

☐ We would like to show our clients/customers that we care about their perspective on technology by inviting citizens for discussions.

☐ We wish to make a positive contribution to the future of innovation by engaging citizens and implementing necessary changes in our tech development.

☐ We want to be sure that our technology does not harm humans, animals and the natural environment and to that goal we want to undertake societal engagement.

☐ We would like to enhance our reputation by connecting more with citizens and demonstrating in practice that we care about their concerns.

☐ It is important for us to boost our employees' morale regarding the ethical stance of our company and having a shared mission.

☐ We are keen on expanding our network of stakeholders and citizens.

☐ Your own company-specific motivation.
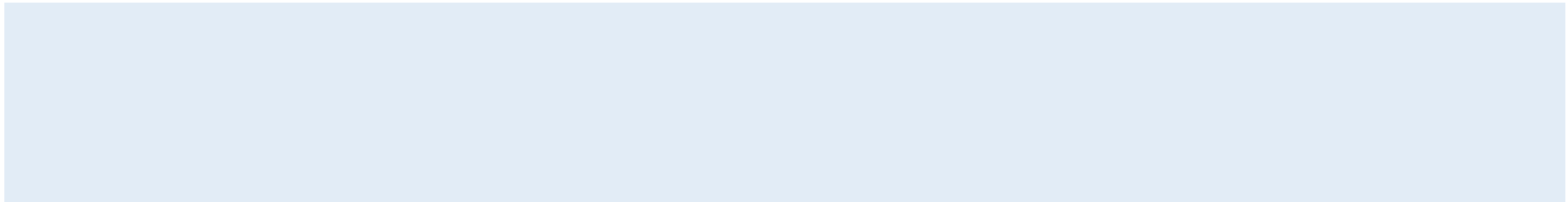
Setting a goal

Arriving at a goal can be done by asking critical question, for example through the following three stages of enquiry:

1. Why are we developing this particular technology? (It might be necessary to continue asking 'why' in an iterative process until your answer arrives at the core of your enterprise.)

2. Are we sure that this is a problem? Are we sure that our technology is the solution?

3. How could citizens help us to make sure that we are doing the right thing?

HOW DO YOU FACILITATE SOCIETAL ENGAGEMENT?

Facilitation of societal engagement activities requires a wide diversity of skills, most importantly the knowledge and ability to establish a climate of **trust, empathy and collaboration**. Facilitation skills combine a set of techniques that need to 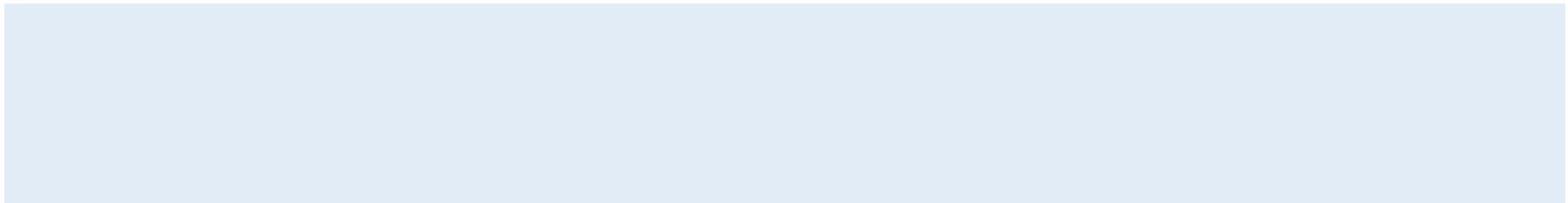be deployed in particular contexts, but it also demands significant experience in facilitating these encounters. This experience is of utmost importance for dealing with a diversity of participants and in situations where things do not go as planned. Facilitation requires both being able to plan to use relevant methods and activities, and to have the flexibility to know when and how to steer unexpected situations into the right direction when new opportunities arise during an activity. Facilitation experience is necessary to successfully realise societal engagement **activities**, and further project management skills are required to undertake the planning and organisation of the overall **event**.

The role of the facilitator

The facilitator has to:

— **design activities** that allow participants to brainstorm about tangible, potential day-to-day scenarios involving innovative technologies in order to stimulate active engagement and brings about new insights. It is not about dissemination of specialised technology to inform participants, because this makes engagement more difficult.

— **ensure that a diverse range of perspectives is heard**, allowing space for all participants to actively engage, and to focus on **nurturing long-term relationships and initiatives**. It is important to remember that facilitators are not completely neutral, and therefore need to be open to reflect on their own assumptions and expectations, and to be challenged by the participants' points of view.

— **ensure not only individual, but also collective learning** in order to challenge underlying conflicts of interests and redirect these towards a common, long-term goal.

There are two options regarding facilitation: **through in-house facilitation** or by **outsourcing facilitation** to professional facilitators. We highly recommend getting professional facilitators on board, if resources are available, because you can be sure of getting clear outcomes. The choice of in-house/outsourced facilitation also depends on the cultural and economic context, as there are large differences between European countries in how people view facilitation. In some countries facilitation is a relatively cheap service and few companies have in-house experience, whereas in other countries there is more of a culture of facilitating events and external services are costly.

Outsourcing Facilitation

If you wish to use the services of a professional facilitator, you can try finding a local expert through a **professional network of facilitators**. For example, the International Association of Facilitators (www.iaf-world.org/site) is a worldwide community of certified facilitators with members all over the world. Other national networks might exist in your country. Different consultancies and companies might also provide facilitation service.

In-house Facilitation

If you wish to undertake **in-house facilitation**, this guidebook provides several easy methods and suggestions for tools and materials. In-house facilitation requires a person with **people skills**, rather than specialised tech expertise. Involving too much technological expertise might prevent participants from being engaged. In order to minimize barriers, it is critical to reflect on ways to design the societal engagement process in such a way that technological knowledge is not a precondition of

participation; thus, helping a wider range of societal actors to be engaged.

It is crucial to check **expectations** with all parties involved in the organising of the societal engagement, for example **defining clear roles and responsibilities**, **the goal and desired outcomes**. The focus on the goal is different than on specific outcomes: on a business level, all involved parties need to be aligned on the overall vision—e.g. why are we doing this in the first place? Setting a clear goal will help your company to work towards a shared vision with citizens, and potentially create a shared mission

Photo 2 Societal engagement event by Tecnalia, our project partner in Spain.

Example of considering societal engagement within your team

When designing and carrying out societal engagement activities, it is important to keep **reflecting on the process**. A good example of this is seen in the project case of our partners in Serbia, led by the Centre for the Promotion of Science (CPN), that focused on the challenges identified around the use of advanced technologies in the healthcare sector, especially on introducing an online medical system in the country. To examine the challenges, they held three workshops with three different objectives. During the process, they asked relevant questions about what they would get out of societal engagement and how to do it. These questions helped in defining a clear goal for societal engagement, to be aware of their available resources and to plan their activities.

Questions which were raised:

— What are the potential **obstacles** in carrying out this activity and how to overcome them?

— Which **stakeholders** could participate in the implementation of the activity and why would it be in their interest?

— In what specific ways, in cooperation with your organisation, would the stakeholders **contribute** to the implementation of this activity?

— List the **resources** within your organisation that would contribute to the implementation of this activity.

— How much **time** do you think it takes to carry out this activity in the planned way, and why?

— What are your **expectations** regarding the results of the implementation of this activity and what would be your next steps?

Throughout, this guidebook raises similar questions for you to consider, but it is always good to check if you can formulate your own further questions that are specifically relevant for your entrepreneurship and context.

Photo 3 Societal engagement event by the Centre for the Promotion of Science CPN, our project partner in Serbia.

Questions to consider

Which (new) skills do you need to facilitate an activity and engage with citizens?

Which additional resources do you need to organise societal engagement activities?

What kind of support do you need from your colleagues?

What expectations do you have about the desired outcomes in doing more societal engagement?

What do these expectations tell you about certain values and assumptions you hold towards technology?

WHICH METHODS CAN BE USED TO ENGAGE CITIZENS?

This section provides insight into the **process of designing the activities** at a societal engagement event, and how to choose a **specific method** that fits the purpose of the event. Social engagement events can be designed in many different ways. The event itself can vary in content, size, duration - it can consist of just 1 key activity that lasts for 2 hours, or it can consist of 5 activities that build upon each other, lasting a whole day. Nevertheless, it should be aligned with the goal of your engagement.
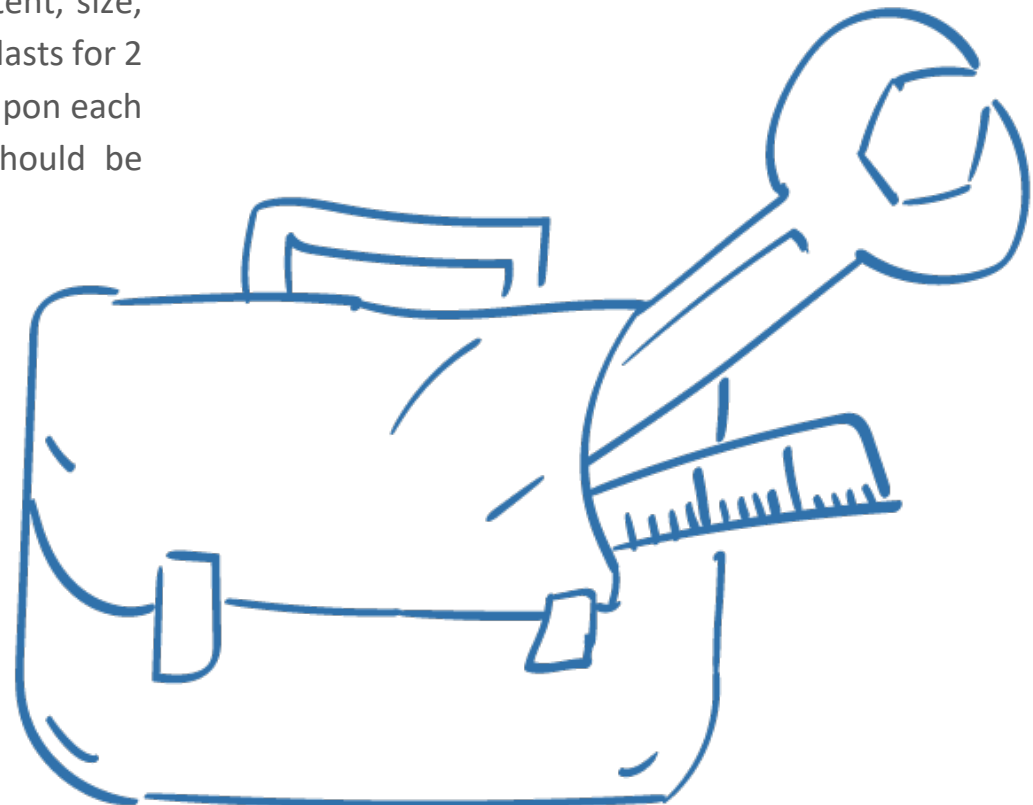
How to choose a method?

The **choice of method** to engage people depends on the goal, the desired outcome(s) and the type of participants, not necessarily on the particular technology or fields of knowledge. Methods are related to different social dynamics and are needed for establishing connection and exploring synergies between people. Methods have to be chosen according to the various stages of the event that build up the process of engagement, for example:

1. Start with a relevant round of **introductions**.

2. Build upon the introductions with an **ice-breaker** for all participants to get to know each other.

3. Present a **trigger** to stimulate thinking, for example a set of questions, short presentation(s), audio-visual material or a vision/story.

4. Offer an activity in smaller groups to share **perspectives**, for example through brainstorming or mind mapping, to exchange ideas, knowledge and personal experiences.

5. Share **insights** in a plenary session to see if there is consensus or where conflicting views can be found, but also to learn from each other.

6. Develop a **vision** how the raised ideas could be implemented in the innovation process.

7. Providing time for **networking** is always a great way to end, as participants might want to get to know each other better and expand their professional network.

We recommend starting with simple methods and not to overburden participants with complex dynamics and exercises. Methods and tools are intrinsically intertwined with facilitation skills and experience, and this should be stressed when implementing methods into the process of societal engagement.
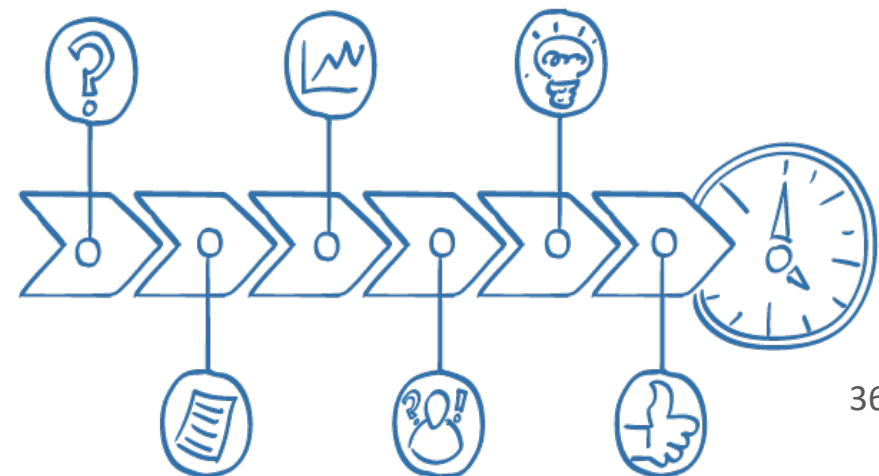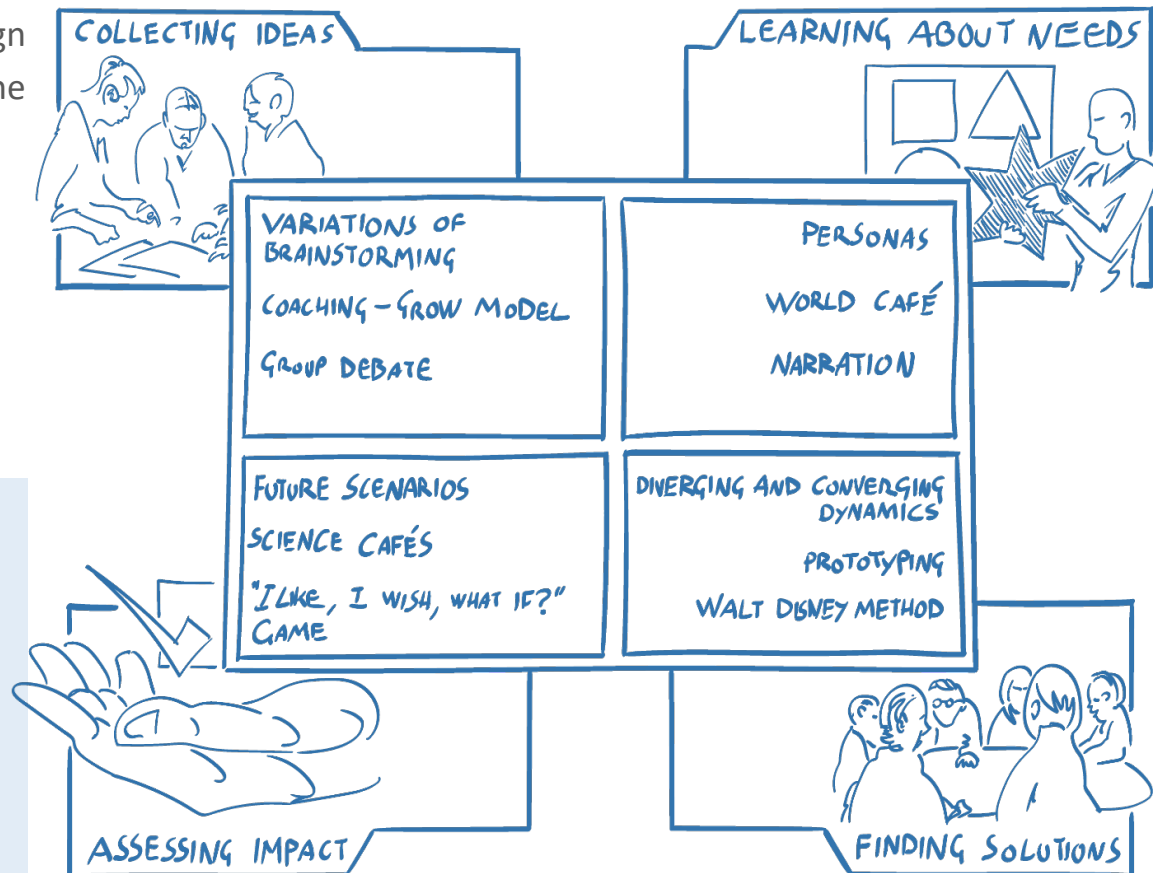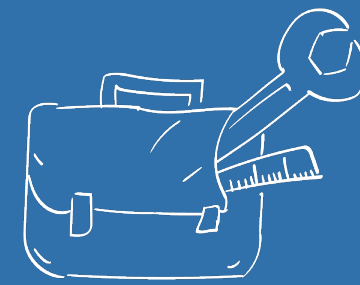
Matching purpose with method

To decide what kind of method to use, it is necessary to be clear about what outcome you want to gain from the activity. We have identified 4 different purposes of engagement, which you can either choose from to design an activity around, or have a series of activities using the following order:

— Collecting **ideas**

— Learning about **needs**

— Finding **solutions**

— Assessing **impact**

There are many online resources with methods for engagement and co-creation. In this guidebook, we have chosen four easy methods, one for each of the outcomes, that you can start with. We provide a short description and a link to further information about this method. We also suggest an approach for the beginning of the event (introductions and an icebreaker) and for the closing of the event (networking).

Each purpose can be matched with specific methods:

COLLECTING IDEAS

LEARNING ABOUT NEEDS

VARIATIONS OF BRAINSTORMING

COACHING — GROW MODEL

GROUP DEBATE

PERSONAS

WORLD CAFÉ

NARRATION

FUTURE SCENARIOS

SCIENCE CAFÉS

"I LIKE, I WISH, WHAT IF?" GAME

DIVERGING AND CONVERGING DYNAMICS

PROTOTYPING

WALT DISNEY METHOD

ASSESSING IMPACT

FINDING SOLUTIONS

Purpose: to find out who is present

Method: Participants' Introductions

Description: At the beginning of an event, it is important to create an inclusive atmosphere by giving all participants the chance to introduce themselves. First, the facilitator and organisers should introduce themselves, before giving the participants the voice. Engaging everyone from the beginning makes people more at ease to speak up in further activities.

Activity: All participants are invited to introduce themselves in 1 minute by answering 3 questions, for example:

1. What is your name?

2. Why are you interested in participating in this event?

3. What is your favourite technology?

It is helpful for participants if the 3 questions are displayed in a visual presentation.
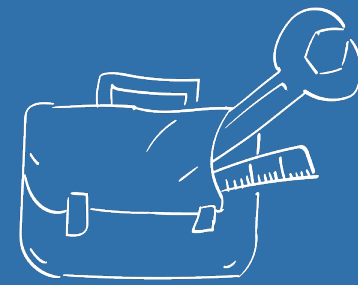
Purpose: to get to know each other
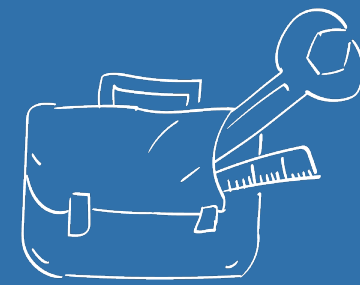
Method: Icebreaker

Description: An icebreaker is a short activity with all participants before the main activities, in order to get to know each other and to create a more informal atmosphere where participants feel comfortable bringing in their ideas and experience.

Activity: There are many types of icebreakers, for example:

— Create a list of yes/no questions in advance, which are related to the goal of the day (including some more humorous questions to relax the atmosphere). Ask the questions out loud and those who answer 'yes' stand up, whereas those who answer 'no' have to sit down. This is a quick way of gauging where people position themselves on the chosen topics.

— Split the participants into two groups. Let the participants find out what each other's similarities are, related to technology, to make the introductions relevant to the theme of the event. After 10 minutes, count how many similarities they have found.

Purpose: collecting ideas

Method: Brainstorming and Mind Mapping

Description: Brainstorming and mind mapping are great methods to capture and organise ideas and knowledge, first by bringing up as many associations as possible and then by visually organising them. It is a great way to find links and connections between ideas, problems, and solutions.

Activity: Clarify from the outset that the goal is to brainstorm on as many ideas as possible, related to the technology that is your company's focus. Participants can start by using post-it notes to write down as many ideas as possible. In the next step, these can be organised on a large sheet of paper. Participants can use markers to create a schematic map of the various relations and interconnections.

More information: The Butterfly Works Toolbox provides practical tools and inspiration to use design thinking and co-creation for social change, among other the Mindmap.
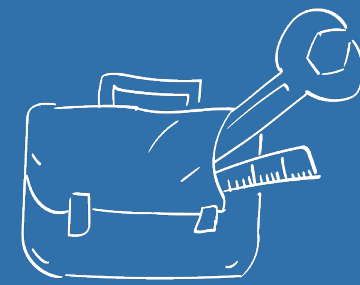
Purpose: learning about needs

Method: World Café

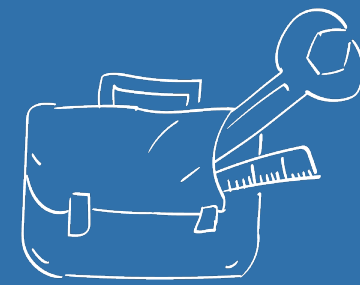**Description:** The World Café method is a simple method to enable meaningful conversations in small groups.

Activity: The facilitator creates an informal, welcoming café-style space, ideally with round tables and 4-6 seats at each table. The instructions are simple: participants are seated in small groups around the tables and enter into 20 minutes conversations guided by a question aligned with the goal of the event. When the time is up, everyone changes table to have a conversation on a new topic. There are three or more rounds of conversations on twenty minute.

Questions are usually set by participants themselves and created before the session begins. The questions should be stimulating, open, energizing and relevant to the theme. You can use the preceding activity, for example the Brainstorming and Mind Mapping method, to find relevant issues and formulate questions that reflect people's concerns. Each group then explores the question through open conversation. A dedicated table host (a facilitator or one of the participants) supports the flow of the conversation and records the conversation on a large sheet of paper, using words and drawings.

More information: The ActionCatalogue website has a large overview of methods to address societal challenges, among others the World Café, to enable researchers, policy-makers and others who want to conduct research driven by involvement and inclusion.

Purpose: finding solutions

Method: the Walt Disney method and the Six Thinking Hats method

Description: Both methods offer a way to facilitate a more diverse discussion about innovative technology, by providing a strategy in which participants have to take on a specific role or perspective in the discussion.

In the Walt Disney method, there are three consecutive roles:

1. Dreamers: The dreamer develops ideas and visions without limitations.

2. Realistics: The realist reflects on the raised ideas and asks questions such as: What needs to be done? What is needed for the implementation? What do we feel about this idea? Which basics are already available? Can the approach be tested?

3. Critics: The critic deals critically but constructively with the results of the realist by asking: What could be improved? What are the opportunities and risks? What was overlooked? How do we think about the proposal?
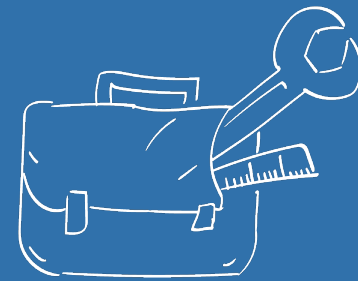
In the Six Thinking Hats method, there are six perspectives:

— The Blue hat: This is the facilitator hat, which is used to manage the discussion.
— The White hat: This is the information hat to explore facts and knowledge.
— The Yellow hat: The positive hat lets the thinker focus on the positive side of the issue.
— The Red hat: The emotions hat is about sharing their feelings about an issue.
— The Black hat: This hat highlights the caution and the risks of the situation.
— The Green hat: This is the creative hat where one can share innovative ideas.

By mentally wearing and switching 'hats' or roles, you can easily focus or redirect thoughts and the conversation.

Activity: This activity can be done in teams, where everyone takes the same role (the Walt Disney method is especially suitable for this) or as a group discussion where each person takes on a different role (as in the Six Thinking Hats). In the Walt Disney method, you start as Dreamers, then turn into Realistics and finish as Critics. With the hats method, it can be done in any order or all simultaneously to start a debate where different perspectives meet. The topic has to be carefully prepared to align with your goal.

More information: The UNaLab co-creation toolkit explains the Walt Disney method in more detail.
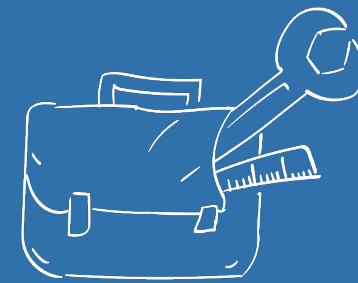
Purpose: assessing impact

Method: 'I Like, I Wish, What If '

Description: This method provides citizens the opportunity to give feedback on your technology or innovation. This is done through three kinds of statements. In "I Like…" statements, the participants are encouraged to give positive feedback on your technology. In "I Wish…" statements, the participants are prompted to share ideas of how the technology can be changed or improved to address their concerns or issues. This is a way to collect negative feedback and constructive criticism. Finally, in "What If..." statements, the participants can bring in suggestions, opening up possibilities for new ideas to be explored in future iterations of the technological innovation.

Activity: This activity starts with a short presentation of your innovative technology. Without going into technical details, the presentation explains the purpose of the technology. Then the participants are invited to explore the three statements step by step, either in writing on cards or through discussion where someone takes notes on a whiteboard or large paper. This activity can be done in small or large groups.

More information: The UNaLab co-creation toolkit offers a wide diversity of methods with practical guidelines, among others the 'I Like, I Wish, What If' method.

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Example of using a method towards clear outcomes

The **method and activities** you choose have to fit your goal, to achieve the outcomes you need from the workshop. A good example is the project case from our Danish partners, at the Danish Technological Institute (DTI). Their goal was to address the societal challenges that the Danish healthcare system will face in the coming decades. To do so, the team approached a group of companies that provide digital solutions to the healthcare industry to observe what kind of challenges are present and how they can use societal engagement to meet these challenges. Three workshops were organised, each raising different kinds of issues depending on the participant group.

Of particular interest is their third workshop with as goal to hear citizens' perceptions about ageing and how eHealth products impact on their daily lives. The workshop engaged elderly citizens and representatives from an eHealth company.

The workshop consisted of the following activities:

— an **icebreaker** for all participants to get to know each other
— a **project presentation**
— a general **discussion** about e-Health
— an activity with a provocative **video** on the subject that stimulated a discussion followed by **questions** to facilitate the discussion
— the company **presented their products** which were subsequently discussed
— an **evaluation** of the event at the end of the workshop

The overall feedback was that the workshop created a good platform for discussing ethical issues regarding ageing and eHealth. Both the citizens and company felt that they got something out of participating in the event, which is the result of a carefully chosen process of engagement using a diversity of methods.

Photo 4 Societal engagement event by the Danish Technological Institute, our project partner in Denmark.

Example of formulating engaging questions to stimulate engagement

Setting relevant questions is a great way to spark people's curiosity and engage them in a debate. Our project partner in Bulgaria, at the Centre for Research and Analysis (CRA), formulated stimulating questions to guidebook the participants. These questions helped the participants to have an in-depth discussion and to reflect upon their own opinions about different e-Health applications. It is important to stress that participants' personal opinions and values are important and that there are no right and wrong answers. The following is a example of questions raised on innovation culture deficit:

Challenge - Innovation culture deficit
— Is there such a deficit in society? How do you judge? Have you read research analyses on this topic?
— In which groups of the health segment is this deficit most pronounced?
— How does this deficit manifest itself?
— Do you have recommendations on how to minimize this deficit?
— Do you think that the debate "against and against covid vaccines" is a deficit of innovation culture?

Noting down the take-away points

We recommend that someone takes the role to note the insights raised by the participants, as these can be used afterwards in the analysis of the event outcomes. This activity resulted in the following statements from participants:

— *"There is a serious deficit of innovation culture at all levels of society as a result of people's psychology, insufficient information and distrust in the system. Bulgarians believe in conspiracy theories: he does not trust the institutions because he has been lied to a lot and is afraid of the new and untested."*
— *"Recommendations to minimize this deficit: training of specialists, more and reliable information and information campaigns. Proper implementation of each new technology, to have testing, patients to evaluate the benefits and advantages."*
— *"The deficit is manifested in inefficient use of innovations, poor organisation. It also exists in hospital units, or at the general practitioners' services."*

WHO TO RECRUIT AS PARTICIPANTS?

Until now, we have been talking about engaging with citizens, but it is not straight forward to recruit random citizens. This is why we make a distinction between 'citizens' and 'societal actors': citizens are individuals that make up the general public and societal actors are individuals who act within a collective towards a societal goal. It is easier to reach and invite societal actors, because they are already organised as a group working towards a goal. Asking random citizens for their time, on the other hand, requires a very strong incentive. It is important to note, however, that societal actors are often members of civil society organisations, which represent their own interest. As a kind of activists for society, societal actors might have a stake in participating and this has to be considered when defining who you want to engage with.

How to define your stakeholders?

Once you have defined a clear goal for engaging citizens, you need to define who your ideal **target group** is. Anyone can be considered a citizen, but what kind of citizens or societal actors would inform your tech development and your company's innovation plan? If, for example, you are working in sustainable housing, you can invite a diverse group of residents from a specific building, but you can also look further into other relevant societal actors whose input could be valuable, such as neighbourhood representatives, municipality stakeholders or activist groups.

Below is a sketch of an **innovation eco-system**, which you can use to **map out** contacts do you already have, that could be used, and which new ones could be made?

the stakeholders who are relevant to your tech innovation. Focus in particular on the societal actors and citizens who are the contextual actors. Which network

INNOVATION ECO-SYSTEM
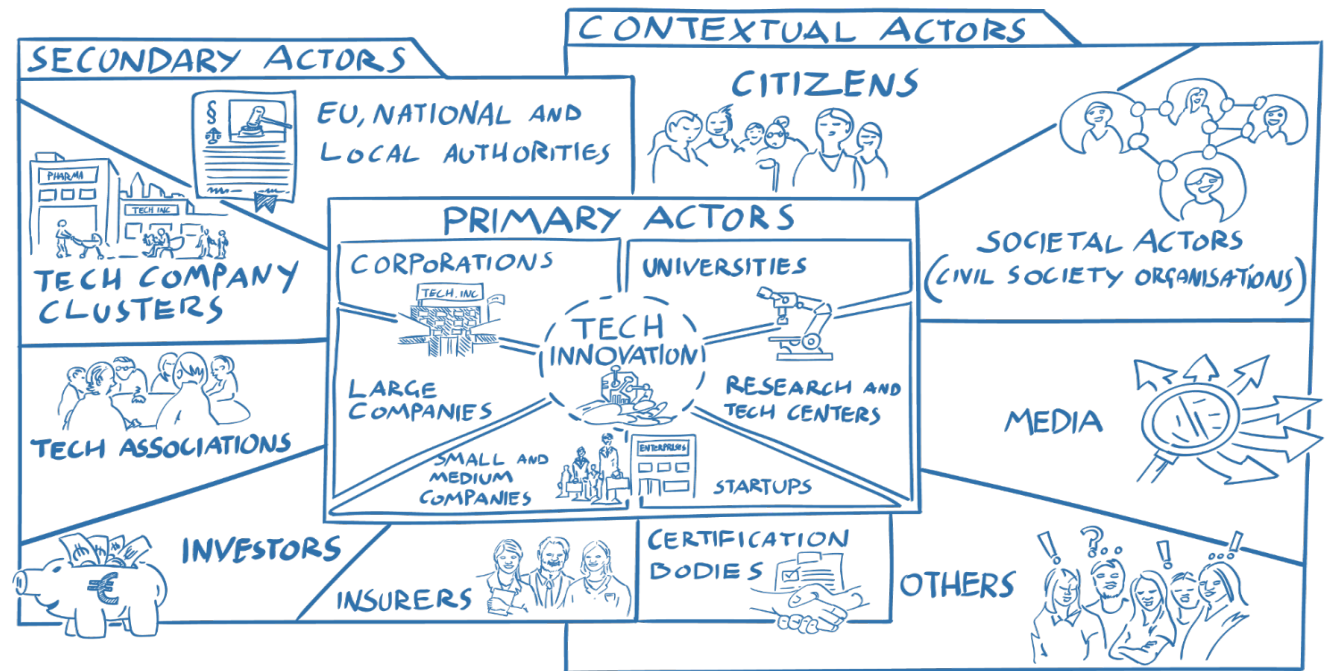
"I think that in order to reach a competitive innovation system all societal actors should be involved, and within those actors there is room for everyone: citizens, industry and all the fields that we can imagine in so that we achieve that competitive innovation system."

Maria Ruiz, Research and Development Coordinator at the Innovation Centre of the Mondragón Corporation (ISEA) in Spain

Practical ways to reach your target group

The next step is to think of practical ways to **reach out** to your target group. Here are our suggestions:

— A **recruitment agency** can be approached to recruit a diverse group of citizens.

— For targeting random citizens, you can use **social media's marketing** features.

— For societal actors, you can directly contact the **organisation or community representatives** to enquire how best to invite people.

— Use your connections through your **network**. Personal invitations to participate in an event often result in a higher number of attendees.

It is important to formulate a **clear message** to prospective participants. Why should they care to participate in your event? How can they benefit from participating, and how will their contribution be used? It is important to

emphasise that no specialized technological knowledge is required – showing up and sharing their own experiences, thoughts and concerns is all that is needed. Ultimately, the point of societal engagement is to improve people's lives by aligning their needs and values to your services/products. Therefore, the message should be that you hope to empower people through their participation.

Further tips to gain more participants

In order to get participants, it is important to:

— Describe the event in a way that **stimulates people's curiosity** and triggers their interest to participate.

— Explain clearly why people should participate and what they can **gain** from it.

— Use **normal language** rather than technical or research jargon.

— Introduce your activity with **stimulating questions** and an active vocabulary.

— Explain which **tangible outcomes** can be expected and, if possible, how they will be acted upon.

— Schedule the event in the **after-hours or weekends** so that it is not during working hours.

"*Collaboration is important, that's what we want to do. We want to create products together with the users. We want to bring in new technology and knowledge sharing.*"

Thomas Pedersen, Founder and CEO of Otiom (a company creating products for people with dementia).

Examples of ways to recruit citizens

One way to reach citizens is to collaborate with **civil society organisations**. A good example of this is the project case from our partners in Italy, AIRI, who planned two workshops for citizens. The workshops were both hosted in collaboration with a housing association that helped recruit participants and provided a space for the workshops, which had a friendly, familiar environment so that citizens felt comfortable. To enable citizens to take part in the discussion, the workshops' duration was 2 hours and was held in the late afternoon at 17:00-19:00. The workshop was well organised and the facilitators gained many insights from the engagement with citizens.

In the project case of our Danish partners, DTI, healthcare professionals were recruited through a diversity of methods:

— direct **phone calls**

— contact with **trade unions**

— through **nursing homes**

— through postings on diverse **social media forums** dedicated to healthcare professionals

This last method was particularly effective, resulting in the enrolment of two healthcare professionals. Citizens were recruited through social media forums, with Facebook advertisements, and directly by contacting the union of Danish patients through phone calls. The recruitment process for the second workshop was long and arduous, but they managed to recruit 27 participants.

Photo 5 Societal engagement event by the Danish Technological Institute, our project partner in Denmark.

Questions to consider

Which groups of citizens would you like to get to know better, and why?

How will you reach out to citizens and/or societal actors?

Who is your target user, and who is not? Would it be relevant to engage with the latter?

Which obstacles will you face in engaging citizens, and how can you overcome them?

What expectations do you have about prospective participants?

Which assumptions do you have about your participants' perspectives and values?

What kind of outcomes do you expect the participants to contribute to?

How many participants do you need for your event, to meet your goal?

From societal engagement to co-creation

It is very challenging to find participants for societal engagement events, but if you manage and the facilitation is done well, it is both a rewarding and enriching process to connect with citizens over important issues in society. This is because the process of collaboration creates trust between people and can create an interest in continuous engagement. If you take the process of societal engagement further, based on trust, empathy and inclusiveness, you can try methods of co-creation where citizens are involved over a longer period of time in defining the trajectory of technological innovation.

Remember to act according to the EU's General Data Protection Regulation (GDPR)

When contacting people and receiving personal data, it is important to have a **GDPR strategy** in place. Consult with your in-house GDPR representative on this process. If there is a registration form, it might be necessary to ask the registrant for permission to collect their data and store it for a limited amount of time.

WHEN SHOULD SOCIETAL ENGAGEMENT TAKE PLACE?

Societal engagement is profitable at any stages in a research and innovation process:

— If done **early in the process**, when potential applications and users are less evident, engaging citizens can inspire innovation by discussing societal needs, brainstorming on technology's potential, considering ethical implications and anticipating negative impacts.

— If done at a **more advanced stage**, closer to commercialisation, engaging citizens can bring forward a more concrete discussion on ethical and societal implications of the product once it will be on the market. The risk is, however, that such discussions focus too much on the user and the product's functionality, rather than working on a pre-emptive stage.

We recommend, therefore, to **bring in societal engagement as early as possible** in the innovation process, when the larger perspective can be discussed and subsequently the appropriate decisions and measures can be taken.

Planning the event

Societal engagement requires a **generous amount of time** to plan and to organise. In particular, the recruitment process can be challenging and time intensive. Participatory processes demand a **high degree of anticipation and flexibility** to react to unexpected issues that can occur at any time. We therefore recommend starting several months in advance and making sure to take time for all the steps outlined in this guidebook. Understanding the rationale and setting clear goals will prove beneficial to a successful outcome from the event itself. It is furthermore crucial to put time aside after the event, to analyse the outcome(s) and implement them within the innovation plan.

The event day and time should consider **your target audience's availability**. If you are inviting citizens, it is best to organise the event in the after-hours or the weekend. If you are targeting societal actors who are actively engaged in an organisation, the event could fall within their standard meeting time, if agreed with the representatives.

Steps before, during and after the event

Preparation before the event:

— Define a clear goal and outcome for your event.
— Decide on your target group, and size, that you need to achieve this goal.
— Do the outreach and recruitment to invite people.
— Decide on the location and book it, prepare the space and arrange catering.
— Based on the goal and (number of) participants, choose the most relevant method.
— Decide on the number of facilitators, depending on the number of participants. It is good to have one facilitator per group of 7 participants.
— Consider having a note-taker and a photographer present at the workshop.
— Prepare a clear introduction for the workshop including personal introduction(s), larger mission, goal of workshop.
— Make the programme for the event, both a detailed one for the organisers and a short one for the participants.
— Always bring the following materials with you: a notepad, paper, pens and markers (enough for all participants), post-its.

Important steps during the event:

— Start every workshop with an icebreaker for the participants to feel at ease.
— Invite discussions through stimulating questions, rather than by educating or informing people.
— Do things actively rather than taking a philosophical approach.
— Clarify how the insights will lead to tangible outcomes.
— At the end of the workshop, summarise or conclude the meeting and tell the participants what the next steps will be.

To do after the event:

— Follow up with the participants with a 'thank you' and further information, and ask for feedback.
— Evaluate the event and analyse the feedback in order to improve future events.
— Analyse the outcomes and decide how to use the outcomes further.

WHERE TO ORGANISE SOCIETAL ENGAGEMENT?

Understanding the context in which societal engagement takes place needs careful consideration, because it can have an impact on the interaction between people. You need to make several decisions in regards to the space, the location and the place, and be aware of the cultural context.

The cultural context

Cultural contexts and particularities can shape social capital, modes of interaction and level of formality, affecting the effectiveness of the chosen method. The cultural context delimits what is possible in a societal engagement process, and it is therefore important to consider this when planning your approach and activities.

A virtual or physical event

Choosing between a virtual or physical space shapes the way that activities are developed and how participation is formatted. Digital platforms such as Zoom or Microsoft Teams allow to involve a larger number of (international) participants, but at the same time these platforms are characterised by their limited interaction possibilities. In addition, events on virtual platforms are usually reduced in time to not cause 'zoom fatigue'.

Choosing the location and place

Choosing a suitable location and place for hosting societal engagement activities is important and can affect the level or participation and the outcome. When choosing a physical location, make sure that it is easily accessible by public transport. In choosing the right place, there are various criteria to consider, which we set out below. Above all, however, it should create an atmosphere of trust, empathy and collaboration which is about finding the right balance between facilitation, approach and spatial conditions.

In this space, there is a machine in the background which might be disturbing for the event. Check if:

— the space is **neutral**, without political or business connotations, so that all participants feel **included and accepted**.
— there is **no background noise** and there is a **good acoustic** for discussions to take place at plenary level, in groups and amongst individuals, without any disturbance.

In this picture, you can see that the space has ample **daylight**. It is good to provide as much daylight as possible to keep participants energised. Furthermore:

— Check if the space has **black-out curtains** if a projector or large screen is required.
— Make sure to provide enough **fresh air** during longer events and to keep the temperature comfortable.

In this space, the round tables make it possible to work well in small groups, but it should be possible to adjust the furniture to the requirements of the chosen facilitation method. Consider the following:

— The room should be able to **accommodate all participants** comfortably.
— The room should allow **modularity** so that tables and chairs can be moved.

In this room, there is limited space to move around the tables, so consider the following:

— The space should allow for group work and plenary sessions, and have **enough room** to stand, walk around and mingle.
— The perfect space provides a sense of **cosiness**, where people feel at ease and can be themselves.

Finally, there should be **WIFI internet** available for everyone, with details provided in advance or at the start of the meeting.
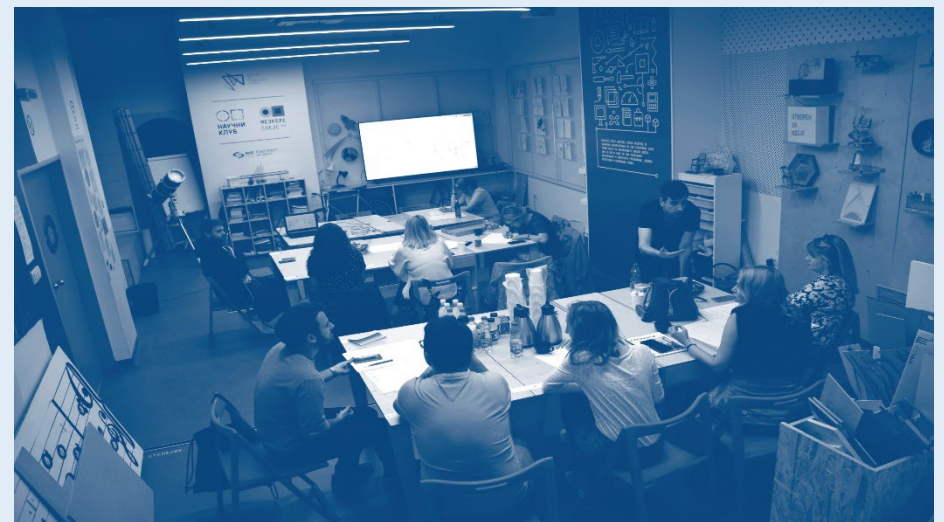
Summary of criteria for choosing a space

- The location is easy to reach by public transport.

- The space is neutral.

- The room has windows for daylight and fresh air.

- It is possible to darken the space.

- There is a projector and large screen available.

- The space is exactly the right size for the number of participants.

- There is a space for breaks and for catering.

- The furniture is modular.

- The space feels cosy and comfortable.

- Internet is available for all, free of charge.

Example of how challenges in recruitment affect decisions about time, space and methods

Our project partner in Estonia, the Science Centre AHHAA, faced a diversity of challenges in the organisation of their stakeholder engagement event. Initially, the first event was designed as a **face-to-face meeting** lasting an entire business day in the Science Centre's office in Tartu. However, the first invitation which was sent out to 28 potential participants generated only three responses, one of which was a refusal. Reminders and phone calls did not revert the situation and AHHAA decided to change the date of the event. However, this strategy did not result in more responses since many of the stakeholders were in the capital of Tallinn, hundreds of kilometres away from Tartu, and found it inconvenient to travel to Tartu for the event. For this reason, the AHHAA team decided to turn it into an **online event**. The duration of the event was reduced to 4 hours to reduce Zoom fatigue.

The agenda initially included both **group activities in breakout rooms** and individual activities. As a result of the low turnout, just 5 participants, the agenda was changed to primarily include **individual activities and joint discussions** rather than breakout rooms. The virtual tools used were both online (such as Zoom Annotations, Mural and Mentimeter apps), as well as offline (such as MS Office tools). It was envisioned that the participants would be skilled computer users and that they would be able to easily understand the different online tools. This assumption was based on two factors:

1. the fact that Estonia is a country with very high digital proficiency levels across all age groups and walks of life,
2. the fact that the COVID-19 pandemic has made people more aware of various online tools and many have mastered new skills in using such tools.

To make sure that everything was technically set up for the event, it was decided to use AHHAA's small conference room which is equipped with a conference microphone, a high-resolution camera and other presentation equipment.

This example shows how unforeseen outcomes from the participant recruitment can affect the decisions that have to be made in regards to the location, space, room, time, method, activities and tools.

Photo 6 Societal engagement event by AHHAA, our project partner in Estonia.

IMPLEMENTATION

The end of this guidebook marks the beginning of your **process of societal engagement**. It is now time to create your **plan of action**, but first we would like you to consider the long-term vision for societal engagement by understanding the role of **evaluation** and **iteration**. A long-term engagement with citizens is not just good for the reputation of your company, demonstrating a commitment to responsible innovation, but it also generates reliability, trust and credibility in society which are the essence of engagement.

If you have not done so already, please answer the 'questions to consider' in this guidebook which will help you to give shape to your approach to engaging citizens. We hope that these will make you feel more confident about engaging people in your innovation processes.

Evaluation

The final step within the process of societal engagement is **evaluation**. This can be used to identify how the topics discussed in the meetings will affect your approach to technological innovation, but also how to **improve** the next societal engagement. Societal engagement is never finished, it is an **iterative process**. You are starting to build your network and citizens will increasingly become interested in participating in future developments.

Iteration

We recommended that you **embed societal engagement practices** within your company's processes. This requires creating organisational processes and structures that are conducive to engagement, for example by ensuring there is sufficient expertise and capacity, as well as available resources.

Questions to consider

In which way can you ensure that the outcomes from the societal engagement that your company undertakes will have an impact on the innovation trajectory?

How can you make sure to adapt the innovation trajectory according to new insights raised by participants?

In which way can you improve current societal engagement practices within your company?

Which part of the process do you find easy? And which part do you find difficult and why?

How do you make sure to challenge your own assumptions and expectations during the process?

In which way will societal engagement have an impact on your company?
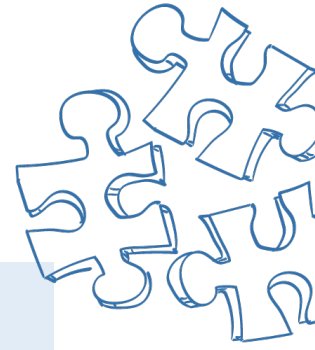
Creating a plan of action

Your **plan of action** will follow from your answers to the key questions from all the sections in this guidebook. We have provided here a template for you to fill out:

1. A short description of my company's work:

2. We are developing innovative technology for _____ because:

3. Our company's mission is:

4. We want to engage with citizens because:

5. The target group is:

6. We will recruit participants by/through:

7. We need to have a group of _____ participants.

8. We have the following resources to undertake societal engagement:

9. We are missing the following resources:
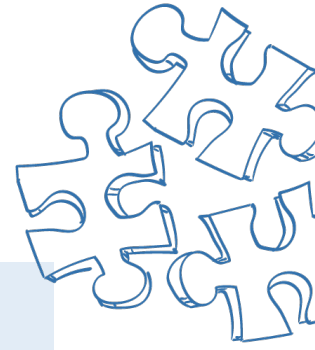
10. We need resources/support from:

11. The facilitation will be done by:

12. We will use the following method(s) to get the desired outcomes:

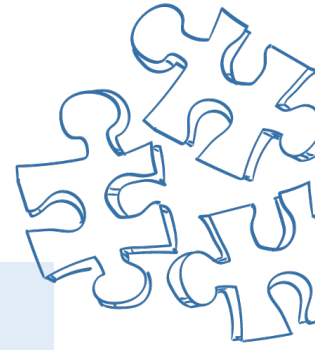13. The event will take place on:

14. The event will last for:

15. The event will be hosted at:

16. We might face the following challenges:

17. We will evaluate the event by/through:

18. We will follow-up by/through:

19. We will use or implement the outcomes to make our tech innovation more responsible by:

20. In order to implement societal engagement into our company's standard practice, we will:

MISSION

With this guidebook, we hope to have **inspired you to undertake societal engagement** as part of your innovation process. The guidebook, and the accompanying free online guide (guide.sockets-cocreation.eu), emerged from an EU-funded project called **SocKETs: Societal Engagement with Key Enabling Technologies**. In this final section, we would like to shed light on this project and the test cases which took place in **living labs in Denmark, Bulgaria, Serbia, Spain, Italy and Estonia**.

The SocKETs project

The SocKETs project (2020-2023) aimed to engage citizens and stakeholders in the innovation processes within the tech industry that uses Key Enabling Technologies (KETs). KETs are technologies such as advanced manufacturing systems, advanced materials, nanotechnologies, biotechnologies, the Internet of Things (IoT), blockchain technology, and artificial intelligence. The societal engagement methods were tested in living labs in six European countries. These labs were active from September 2021 to July 2022 and were employed as vessels for societal engagement experiments. Each lab focused on societal engagement in the development of KETs applications for one of three societal challenges: industrial innovation, circular economy, or e-health. The SocKETs labs engaged case-specific ecosystem stakeholders in co-creating innovation and engagement ideas, based on the idea that it is not only crucial to integrate the perspective of academia, industry and state/government, but also of society. The aim of the labs was to stimulate exploration, experimentation, and co-creation between the invited stakeholders such as researchers, tech experts, businesses, policy makers, procurers, civil servants, educators, doctors, nurses, civil society organisations (CSOs) and citizens. One of the main outcomes of the labs was to develop recommendations for a guide for the tech industry on how to organise societal engagement as part of responsible tech innovation. This guide is thus the synthesis of two and a half years of work and the final product of the SocKETs project.

The Danish Lab

Goal of Societal Engagement: to address the societal challenges that the Danish healthcare system will face in the coming decades.

The Danish Technological Institute (DTI) worked with eHealth and monitoring and diagnosis solutions. E-Health refers to electronic devices monitoring specific physiological/biological parameters, such as ECG, temperature, blood pressure, etc. The fitness and health of citizens can be constantly monitored, reducing doctors' visits. The Danish Lab worked with stakeholders and citizens to understand their interest, needs and wishes on actual and potential applications in the e-health field, with a focus on wearables devices combining printed electronics, internet of things and artificial intelligence solutions. For this purpose, DTI conducted several outreach activities which included webinars, workshops and seminars. These co-creation activities involved a diversity of stakeholders in order to gain a broad range of new insights. The Lab explored issues related to changes in behavior, relationships between people and healthcare providers, health data management (privacy, data breach, misuse), reliability and trust on AI-based diagnosis, impact on the healthcare system (costs, infrastructures), and sustainability aspects of wearable devices.

The Bulgarian Lab

Goal of Societal Engagement: to provoke a shift in the way that the Bulgarian society regards healthcare services and the technologies involved.

The Center for Research and Analysis (CRA) focused on KETs applications in eHealth: disease monitoring, innovative devices and practices, ICT applications and platforms that are user-friendly, non-invasive and can be used in a non-hospital environment. The topic of healthcare is very sensitive in Bulgarian society. The healthcare system in the country has witnessed several unfortunate reforms in the last 20 years, a chronic lack of funds and medical personnel, and a profound lack of trust

from patients. The intention of the discussion on eHealth was to provoke a shift in the way that the Bulgarian society sees healthcare services and technologies, and to engage citizens in dialogue and co-creation activities based on their priorities, expectations and concerns.

The Estonian Lab

Goal of Societal Engagement: to stimulate collaboration in the field of circular economy in Estonia by engaging a diversity of stakeholders in a discussion about key enabling technologies for the circular economy.

The Estonian Lab at the AHHAA Science Centre worked with KETs employed in the circular economy and was set up to promote collaboration between different circular economy stakeholders in Estonia. The lab focused on the country's efforts in moving from a linear economy to a circular economy business model in various fields, including energy production, construction, and packaging.

To reach the goal of promoting collaboration, circular economy stakeholders were invited to different workshops so that they could potentially find common ground. The stakeholders included policy makers, NGOs, companies and citizens.

The Italian Lab

Goal of Societal Engagement: to enable a dialogue with stakeholders to co-create visions, strategies, and applications on the use of advanced technologies to promote circular economy by design, using different approaches in the building and construction sectors, as well as in urban planning and regeneration, in Italy.

The National Museum of Science and Technology 'Leonardo da Vinci' (MUST) together with the Italian Association for Industrial Research (AIRI) created the Italian Lab to experiment with co-creation methods applied in the sustainable building sector. The Italian Lab focused on the technologies enabling the transition of the

building and construction sector and the built environment towards a circular economy. The lab developed a dialogue with stakeholders to co-create visions, strategies and applications on the use of advanced technologies (e.g. advanced materials, manufacturing systems, ICT, IoT, AI, blockchain) to promote circular economy by design approaches in the building and construction sectors as well as in urban planning and regeneration. The main feature of the collaborative process was the involvement of all the actors in the supply chain in co-creation processes and sharing of ideas and needs to develop and apply KETs.

The Serbian Lab

Goal of Societal Engagement: to understand the challenges identified within the ecosystem of advanced technologies in Serbian healthcare.

The goal of the Serbian Lab, led by the Center for the Promotion of Science (CPN), was to improve the public health system through the adoption of KETs in personalised treatment. eHealth is the application of information and communication technologies in the field of health care. Although systematically supported, eHealth in Serbia is still burdened with challenges characteristic of developing areas that depend on the application of new technologies, as well as on the understanding and active participation of decision makers. The lab intended to improve the dialogue between industry, science, and citizens to effectively apply KETs in the eHealth innovation ecosystem. The main goal was to co-create visions, strategies, and applications with all stakeholders focusing on citizens' priorities, expectations and concerns, and strengthening the link between new technologies, societal needs, values, and challenges. The lab examined and tested co-creation tools suitable for a variety of actors from laboratories and innovation networks, industries, professional users to science museums and civil society, relying on concepts of public engagement and approaches based on Responsible Research and Innovation (RRI).

The Spanish Lab

Goal of Societal Engagement: to debate with a plethora of stakeholders and citizens the challenges posed by the adoption of AI into the manufacturing ecosystem of the Basque Country.

The Spanish Lab at Tecnalia was launched to engage stakeholders affected by the adoption of AI into the manufacturing ecosystem. The lab has a significant regional dimension as all the stakeholders involved were from the same region. The objective of the lab was to set up a forum for debate where the challenges posed by the adoption of AI in industry could be addressed by a plethora of stakeholders, including industry representatives and citizens. The lab events discussed aspects related to potential transformation of jobs, of the qualifications or ages necessary to work with technology that amplify the physical or cognitive abilities of people or workers, addressing changes in work regulation, market, relations, and qualifications.